BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

VOLUME II

TESTIMONY AND EXHIBITS

ON BEHALF OF
PHILADELPHIA GAS WORKS

PHILADELPHIA GAS WORKS

R-2023-3037933

FEBRUARY 2023

Philadelphia Gas Works
2023 Base Rate Case

Docket No. R-2023-3037933

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

DENISE ADAMUCCI

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

Philadelphia Gas Works

General Rate Increase Request

TOPICS:

Rate Filing Overview
Need for Rate Relief

February 27, 2023

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND POSITION WITH THE COMPANY.

A. My name is Denise Adamucci and I am the Senior Vice President for Customer & Regulatory Affairs at Philadelphia Gas Works ("PGW" or "Company").

Q. HOW LONG HAVE YOU HELD THIS POSITION?

A. I assumed my present position in January 2023. Prior to this position, I was Vice President of Regulatory Compliance and Customer Programs.

Q. WHAT ARE YOUR JOB RESPONSIBILITIES?

A. In my present position, I am responsible for the direction of all customer affairs and service, and PUC technical and regulatory compliance. This responsibility includes the provision of universal service, including LIURP, and customer related system improvements.

Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.

A. I have been employed with PGW since 2004. I became PGW's Vice President of Regulatory Compliance and Customer Programs in 2012. Prior to that, I worked in PGW's Legal Department as a senior attorney. Before joining PGW, I worked in private practice at Manta and Welge, and then at Klett Rooney Lieber & Schorling (acquired by Buchanan Ingersoll & Rooney).

I received an MA in English Literature from Arizona State University and a JD from Boston University School of Law.

Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THE COMMISSION?

A. Yes, most relevantly, I have provided testimony in PGW's two more recent base rate cases (Docket Nos. R-2017-2586783 and R-2020-3017206).

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

A. I will provide the Commission with an overview of PGW's base rate filing and discuss the objectives that PGW seeks to accomplish in this proceeding. I will also introduce PGW's other witnesses who provide detailed testimony and supporting documentation for revenues, expenses, and rate base items included in the fully projected future test year used in this base rate filing, testimony supporting PGW's cost of service study and revenue allocation as well as PGW's proposed tariff revisions.

II. OVERVIEW OF REASONS FOR RATE FILING

Q. PLEASE DISCUSS THE RATE RELIEF THAT PGW IS REQUESTING.

A. PGW is requesting an increase in its annual base rate operating revenues of $85.8 million, or 10.3% percent on a total revenue basis, with a proposed effective date of April 28, 2023. Consistent with its mandatory budget process, the base rate increase requested in this filing is based on a fully projected future test year starting on September 1, 2023 ("FPFTY").[1]

Q. ON WHAT BASIS IS PGW'S REQUESTED RATE RELIEF TO BE CONSIDERED?

A. PGW is a "City Natural Gas Distribution Operation" as that term is defined in the Public Utility Code.[2] As such, just and reasonable rates for PGW are determined using the Cash Flow Method. PGW has no shareholders and does not pay a dividend or a rate of return to

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[1] The statutory definition of FPFTY, 66 Pa.C.S. § 315(e), would require that the FPFTY commence in November 2023 and continue for 12 months. As in the prior rate proceedings, and simultaneously with the filing of general base case, PGW has filed a Petition requesting that the Commission waive the application of the statutory definition of fully projected future test year ("FPFTY") so as to permit PGW to use a FPFTY beginning earlier than that which is mandated by § 315 on September 1, 2023 in this proceeding (Pursuant to 66 Pa. C.S. § 2212(c), PGW has the authority to request that the Commission suspend or waive this provision of the Public Utility Code).

[2] 66 Pa.C.S. § 102 (definitions).

its owner (PGW does remit a fixed annual payment to the City of Philadelphia). Accordingly, all of the funds it needs to run the Company come from ratepayers or from borrowing (the costs of which then must be paid by ratepayers). Therefore, rather than having its revenue requirement determined on the basis of a fair rate of return on a used and useful rate base, PGW's rates are set by determining the appropriate levels of cash and other financial metrics necessary to enable PGW to pay its bills and maintain access to the capital markets at reasonable rates. The PUC issued a policy statement more fully setting forth these criteria and the financial and other considerations that are to be looked to in setting PGW's base rates at just and reasonable levels.[3]

Q. WHY HAS PGW MADE THIS FILING?

A. PGW's last base rate increase was filed on February 28, 2020, and partially settled later that year. The Commission approved a settlement in which the active parties agreed that PGW could increase its distribution rates in three phases over a 12-month period by $35 million. That increase was needed in order to permit PGW to continue its aggressive capital improvement program, while assuring that its financial metrics were maintained at acceptable levels. Since that time, PGW has maintained its financial health and, in turn, this has given PGW the ability to concentrate on modernizing its distribution system, improving safety, increasing efficiency and enhancing customer service. However, a number of factors, including materially increased expenses and capital expenditures, as well as the need to recognize in rates a new long term debt issuance, have reduced PGW's projected cash and liquidity. As PGW's Chief Financial Officer, Joseph F.

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[3] 52 Pa. Code §§ 69.2702, 2703.

Golden, Jr. explains (PGW St. 2), without a rate increase PGW's financial metrics will fall to unacceptably low levels, threatening its continued financial stability and infrastructure modernization plans.

Q. HOW DID THE COVID-19 PANDEMIC IMPACT PGW?

A. The U.S. COVID-19 related disruptions began just after PGW filed its 2020 rate case and its impacts continued through implementation of the settlement of the case. From a top line perspective, PGW deferred through a three-step phase-in $25 million or 71% of the settled rate increase amount to attempt to assist with pandemic induced hardships customers were facing. Additionally, the Settlement contained additional customer assistance as a targeted COVID-19 relief grant program.

As further discussed by Mr. Golden, PGW responded to the directives of the PUC's Emergency Covid Order, ratified on March 25, 2020, in Docket No. M-2020-3019244 and deferred collection of $32.5 million in a regulatory asset for proscribed COVID-19 related expenses. As a cash flow utility, both the phased in rates and deferred collection directly impacted PGW's budget.

Q. WHAT ARE THE KEY REASONS FOR THE NEED FOR ADDITIONAL REVENUES NOW?

A. Since PGW's last base rate case in 2020, the Company has continued a number of initiatives to modernize its infrastructure, make its system safer and more efficient, and improve customer service. While some of those efforts have been partially financed through surcharges (i.e., the acceleration of PGW's main replacement program) and base rates, a material portion are funded through internally generated funds, or IGF. As explained in more detail by PGW witness, Joseph Golden, Jr. (PGW St. 2), budgeted non-commodity operating expenses and the cost of capital expenditures have gone up

significantly almost across the board. Here are some examples of the increases since FY 2020:

- $59.3 million increase in construction paid for by internally generated funds ("IGF")
- $28.1 million increase in budgeted labor and employee costs, including related payroll and wage increases
- $11.8 million increase in Information Services
- $7.2 million increase in employee health insurance
- $5.5 million increase to Risk Management ($3.3 million insurance and $2.2 million environmental remediation)

Unfortunately, PGW's pro forma projections show that its cash and other financial metrics are simply insufficient to cover these significant increases and obligations. It is critically important that PGW maintains its financial metrics and current financial position so that it can maintain access to and, potentially, improve its borrowing costs for long-term bond transactions and access to credit facilities. PGW's *pro forma* results clearly demonstrate that a rate increase is needed if the Company is going to maintain its financial status and current favorable bond ratings and be able to continue with its significant efforts to improve the safety, efficiency and reliability of its system and continue to work to improve customer service.

III. PGW RATE CASE OBJECTIVES

Q. PLEASE SUMMARIZE PGW'S MAJOR OBJECTIVES IN THIS PROCEEDING.

A. PGW seeks Commission approval to establish rate levels adequate to continue its efforts to modernize its system and to provide safe and adequate service by making its system safer and more efficient and improving customer service. To do this, PGW must be able to have the cash to pay its bills, to provide for other obligations, and to achieve financial metrics that will enable it to maintain its present bond ratings and, if possible, improve its rating. An improved bond rating will reduce borrowing costs which, in turn will reduce

costs that customers will have to bear over the life of PGW's bonds. Approval of PGW's request will demonstrate to the investment community that the Commission continues to support the need for intensified focus on system infrastructure as well as the need for reasonable and predictable cash flow.

Q. DOES PGW HAVE ANY OTHER OBJECTIVES IN THIS PROCEEDING?

A. Yes, the Company is seeking several tariff changes. As described in more detail by PGW witness Florian Teme (PGW St. 6), PGW is proposing: (1) clarification of the payment of interest on Deposits for Temporary Heat, (2) modification of PGW's Air Conditioning Rider to more clearly detail changes in PGW's internal process since the AC Rider was first implemented; and (3) modification to PGW's Gas Supplier and Gas Service Tariffs to clearly permit the interconnection of facilities that would seek to provide renewable natural gas ("RNG") onto PGW's distribution system.

IV. PGW'S COMMITMENT TO SERVING OUR CUSTOMERS

Q. PLEASE SUMMARIZE THE COMPANY'S INITIATIVES AND ACTIVITIES THAT HIGHLIGHT PGW'S COMMITMENT TO SERVING THE COMPANY'S CUSTOMERS.

A. The Company has focused on a number of areas that demonstrate the quality and effectiveness of PGW's current management performance and its management's focus on safe, reliable, and outstanding service.

- PGW proactively proposed and voluntarily lowered energy burdens for Customer Assistance Program ("CAP") customers. PGW proposed to implement new, lower maximum CAP energy burdens based on the Commission's amended CAP Policy Statement as a pilot in its 2017-2022 Universal Service and Energy Conservation Plan ("USECP"). On March 26, 2020, PGW received PUC approval of this pilot in its 2017-2022 plan and implemented these improvements. On January 11,

2023, PGW received final PUC approval, and these levels have been made permanent for its 2023-2027 USECP. The new energy burden levels were lowered from 8% to 4% for those within 0-50% of FPL, 9% to 6% for those within 51-100% of FPL, and 10% to 6% for those within 101-150% of FPL. In fiscal year 2022, the average annual discount for CRP participants was ~$1,084 and the average annual forgiveness for CRP participants was ~$252.

- PGW redesigned its bill, including its large print bill option for customers. PGW surveyed customers on their perceptions of the new bill compared to the previous bill, and ~73% of customers said the new bills are appealing.
- PGW demonstrated its commitment to saving customers money and ensuring efficient energy use by implementing a Low Income Smart Thermostat program ("LIST"). PGW implemented the LIST in its DSM program beginning 2022. This free-to-the-customer program provides and installs ENERGY STAR® certified smart thermostats in the homes of PGW customers who are at or below 150% of the Federal Poverty Level ("FPL"). LIST provides PGW customers with access to an efficiency measure that can be installed in most properties. From September 1, 2021, through August 31, 2022 (FY 2022), 251 smart thermostats were installed for eligible customers with a total programmatic cost of ~$56,000. Installations have picked up in FY 2023. From September 1, 2022, through January 31, 2023, 148 smart thermostats were installed for eligible customers with a total programmatic cost of ~$60,000.
- PGW continued initiatives to improve overall customer satisfaction by utilizing a Customer Advisory Panel. PGW launched its customer advisory panel, PGWorks

For You, in 2019. The panel is comprised of ~1,200 residential customers who complete monthly online surveys. Their feedback is used to inform PGW programs and processes and understand how customers interact with PGW and would like to interact with us. For example: A survey found that ~56% of customers are interested in paying their bill through a mobile app. Accordingly, PGW has decided to offer a mobile app which is in the process of development. The survey also found high satisfaction with the new My Account site available to customers, with 3 in 4 customers finding the new landing page better than the old one.

- PGW sought to efficiently reduce costs by permanently closing PGW's five service centers in the Spring of 2022. PGW estimates that the closings resulted in savings of ~$4,200,000. Please see breakdown below:

Attrition savings	$2,100,000
Service center operating savings	$300,000
Facilities savings	$1,800,000

This decision is complemented by PGW's introduction of alternative and easier customer service offerings to supplant in-person contacts in the lead up to the 2020 rate case and thereafter. A retail cash payment option was added to the existing payment options already available to customers. Customers have the option to make payments using cash without paying a convenience fee at hundreds of retail locations (e.g., CVS, 7-Eleven, Dollar General). This option particularly assists customers who are unbanked, and/or also those who prefer to pay in-person when shopping, or close to their home. In addition to this payment

method, customers continue to have the option to make payments via the phone, web, and third-party providers.

- Customers can enroll for CRP at a Neighborhood Energy Center ("NEC"), through the web, and by mail and fax.
- PGW partnered more closely with NECs to assist customers in their own neighborhoods. Philadelphia's twelve (12)[4] NECs serve as a "one-stop shop," providing a coordinated and comprehensive approach to assistance with energy and related problems for low and moderate income households. At each NEC in Philadelphia, PGW customers can receive help with billing issues or apply for energy assistance. The NECs offer budget counseling, energy counseling, energy conservation education, and grant application assistance for the communities they serve. They are also a means of outreach for PGW assistance programs. In Spring 2022, PGW enhanced its NEC collaboration by creating a dedicated path at each NEC for onsite counselors to contact PGW customer service counselors directly. PGW also conducts onsite and virtual workshops and offers counselor training. Since the NECs are housed in community organizations that serve a broad mission and many needs in their community, PGW uses them often as a resource when making referrals in its CARES program.

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[4] The number of locations can fluctuate from about 12-16 locations every year.

Q. HOW DID PGW ADAPT NEW AND EXISTING PROGRAMS TO THE REALITIES OF THE PANDEMIC TO ENSURE THAT CUSTOMERS WERE PROTECTED?

A. PGW's Home Comfort Program responsibly responded to the COVID-19 pandemic. PGW halted all non-emergency work on March 15, 2020. PGW began a phased approach to reopening safely beginning July 2020, following best practices. PGW established protocols for screening customers, distancing within homes and limiting the number of personnel in home and requiring masks and PPE. PGW developed a process to collect data virtually to limit the amount of time customers would be exposed to contractors in their homes. PGW also waived its requirement for CRP customers to participate in Home Comfort as a condition of receiving their CRP for a large period of time during the pandemic.

PGW and its contractors made up for lost time, spending ~$6,700,000 of its $7,988,818 budget in 2020, managing to spend approximately 85% of the program budget even though the program was shuttered for four months. PGW rolled the unspent 2020 budget into 2021.

Q. PLEASE DISCUSS HOW PGW VOLUNTARILY ASSISTED ITS CUSTOMERS WHEN ADDRESSING AN UNUSUALLY WARM WEATHER SCENARIO THAT IMPACTED CUSTOMERS' WEATHER NORMALIZATION ADJUSTMENT CHARGES.

A. An anomaly occurred with PGW's Weather Normalization Adjustment ("WNA") related to May 2022 weather, which produced unusually large charges to some customers. PGW determined that its customers should not bear these unprecedented and unusually large charges, and therefore, PGW filed a Petition for Emergency Relief ("Emergency Petition") on June 30, 2022: (i) seeking Commission approval to immediately revise its Tariff to reverse and refund the WNA charges that were applied to May 2022 usage

billings; (ii) proposing to allow customers to retain any WNA credits applied to those billings; and (iii) and noting its initiation of an internal investigation into the WNA formula. . By Emergency Order issued on July 1, 2022, the Commission granted the Emergency Petition and directed that PGW file the report of its internal WNA formula investigation by August 15, 2022. Under this Order, PGW voluntarily refunded to customers all WNA charges that were billed for May usage in the amount of approximately $12.6 million. This refund of properly tariffed charges reinforces PGW's value proposition to its customers as a City owned utility.

On August 2, 2022, PGW sought to further extend relief to customers by filing a Petition for Approval of Supplement No. 152 to go into effect on October 1, 2022, which would automatically cap the WNA at 25% ("Cap Petition"), which was opposed by the OCA and other parties. On September 15, 2022, the Commission denied the Cap Petition and did not permit the 25% Cap to go into effect at the outset of the current heating season. Instead, the Commission suspended Supplement No. 152 for investigation and extended the effective date to April 1, 2023. On November 8, 2022, PGW filed a Petition for Leave to Withdraw the Cap Petition ("Withdrawal Petition"), noting that the purpose of the proposal for the 25% Cap to be implemented on October 1, 2022 had been rendered moot. The Withdrawal Petition further indicated that a comprehensive review of the WNA would be more efficiently considered as part of a larger proceeding that examines all aspects of the WNA, such as a base rate case. By Prehearing Order dated February 23, 2023, the Administrative Law Judge denied the Withdrawal Petition and directed that PGW file Direct Testimony in support of the 25% Cap Petition that same day. PGW complied with this directive.

During the pendency of the 25% Cap Petition, including the Withdrawal Petition, and in anticipation of the possibility of filing a base rate case by February 27, 2023, PGW contracted the services of an independent, third party consultant, Atrium Economics, LLC, to review its WNA formula. Due to the need to follow a request for proposal process for this contract and the resulting delays in securing a consultant, this review has not yet been completed. However, PGW expects to file supplemental testimony by April 3, 2023 making recommendations for permanent revisions to PGW's WNA formula that should be implemented in future heating seasons. Importantly, it is critical that any modifications to WNA are made on the basis of the most current data that is available and are considered in the context of the pending proceeding involving the proposed 25% Cap. Simply, it is imperative that the Commission avoid a situation in which it approves a 25% Cap along with other revisions to the WNA that result in inconsistent and costly changes, including those that are confusing to customers. Further, it is noteworthy that any potential recommendations to PGW's WNA are not expected to have any effect on the level of requested rate relief that is approved as part of this base rate case proceeding.

Q. PLEASE DESCRIBE ANY ADDITIONAL SIGNIFICANT PROJECTS THAT ARE EXPECTED TO CONCLUDE IN ADVANCE OF OR CLOSE TO THE RATE EFFECTIVE PERIOD?

A. PGW's new Customer Information System ("CIS") is expected to go live by the end of 2023. The transition to the new CIS will allow PGW to move from its prior system, which is over 20 years old. The CIS will provide PGW with a modernized CIS.

V. IMPACT OF PROPOSED RATE INCREASE ON PGW RATEPAYERS

Q. PLEASE DISCUSS THE IMPACTS OF THE REQUESTED RATE RELIEF.

A. As further discussed in PGW witness Florian Teme's testimony, PGW is requesting an increase in the delivery charge as well as the customer charge for most customer classes. For example, the Company is proposing a residential customer charge (under Rate GS) of $19.50 per month, as compared to the current charge of $14.90 per month to better reflect the direct customer costs per customer as calculated by PGW's cost of service witness, Ms. Constance Heppenstall. Customer charge increases are also discussed in greater detail by PGW witness Teme.

The requested residential customer charge compares to the monthly chargers of other NGDCs as follows:

Residential Customer Charge Comparison		
NGDC	**Customer Charge**	**Notes**
PGW	$19.50 (P)	Current $14.90
Columbia	$16.75	Last Change: R-2012-2321748 (this was a decrease from previous customer charge, but previous charge included a minimum allowance)
National Fuel Gas	$12.00 $18.00 (P)	Last Addressed: R-00061493 (2006) (the 2006 rate case maintained the $12.00 customer charge; records available online prior to this are limited) Rate case pending at R-2022-3035730
PECO (Gas)	$14.25	Last Increase: R-2022-3031113
Peoples Natural Gas Co.	$14.50	Last Increase: R-2018-3006818
Peoples Natural Gas Co. – Peoples Gas Division	$15.75	Last Increase: R-2013-2355886
UGI Utilities (Gas)	$15.00	Last Increase: R-2021-3030218
(P) = Proposed **Sources:** NGDC Tariffs filed with the Commission and made available online by each NGDC; and Pennsylvania Public Utility Commission Rate Comparison Reports, which are available at: http://www.puc.pa.gov/filing_resources/rate_comparison_report.aspx		

The Company is also proposing increases to delivery charges for most customer classes. The increase for each customer class is discussed in greater detail by PGW witness Teme. I would like to highlight certain proposed increases in delivery charges from Table 4 of his testimony:

Delivery Charge			
Rate Class	**Current ($/MCF)**	**% Increase from Current**	**Proposed ($/MCF)***
Residential	7.2955	15%	8.3603
Commercial	5.1908	15%	5.9702
Industrial	5.1668	18%	6.1095
PHA GS	6.5393	18%	7.7175
Municipal	4.7765	29%	6.1729
PHA (Rate 8)	5.4534	12%	6.0985
NGVS	1.2833	30%	1.6645
IT-A	2.7299	33%	3.6178
IT-B	1.3213	33%	1.7510
IT-C	1.031	33%	1.3663
IT-D	0.9148	33%	1.2123
IT-E	0.8858	33%	1.1739
* The proposed delivery charge ($/MCF) does not include the Merchant Function Charge ("MFC") and the Gas Procurement Charge ("GPC")			

In addition, I would note that the average impacts for the increased distribution rates are as follows:

- If PGW's base rate case is approved, the bill for a typical PGW residential heating customer who uses 71 Mcf per year will increase $12.35 per month from $125.38 to $137.73 per month or $148.26 per year from $1,504.55 to $1,652.81 per year or by 9.9%.
- The bill for a typical PGW commercial heating customer who uses 333 Mcf per year will increase $33.47 per month from $472.20 to $505.67 per month or $401.65 per year from $5,666.42 to $6,068.07 per year or by 7.1%.

- The bill for a typical PGW industrial customer who uses 957 Mcf year will increase by $106.23 per month from $1,351.14 to $1,457.37 per month or by $1,274.78 per year from $16,213.65 to $17,488.44 per year or by 7.9%.
- Low income residential customers who are enrolled in CRP are protected from rate increases because their Percentage of Income Payment Plan ("PIPP") caps their bill based on their respective energy burdens (e.g., 4%, 6%, or $25 minimum). For those CRP customers on an average bill, their average bill amount may increase, but they will only pay the lower of the PIPP amount or the average bill amount.

Q. HOW DOES THE PROPOSED RATE INCREASE IMPACT FOR RESIDENTIAL HEATING CUSTOMERS COMPARE TO JUNE 2008 FIGURES?

A. With the proposed rate increase, the typical monthly bill for a residential heating customer will be $137.73 and the annual bill will be $1,652.81. In June 2008, PGW's typical residential heating customer had a monthly bill of $144.76 and an annual bill of $1,737.12. Even with the proposed rate increase, annual bills for a typical residential heating customer will be $84.31 less than 2008 annual bills – a difference of 5.1%.

VI. SUMMARY OF FILING

Q. PLEASE INDICATE WHO THE WITNESSES WILL BE FOR PGW IN THIS PROCEEDING AND THEIR RESPONSIBILITIES FOR THE FILING.

A. PGW's direct testimony is Volume II of the Filing. The witnesses and a summary of their testimony are as follows:

- Mr. Joseph F. Golden, Jr., (PGW Statement No. 2) is PGW's Executive Vice President and Acting Chief Financial Officer. Mr. Golden provides documentation and supporting methodology for the schedules and exhibits that are included in PGW's base rate filing. He describes PGW's financial results for

the FPFTY (comprised of the period from September 1, 2023, through August 31, 2024). He also details and provides supporting justification for PGW's requested annual increase in existing base rate of $85.8 million.

- Mr. James C. Lover (PGW Statement No. 3) is a Managing Director and Partner with PFM Financial Advisors LLC. He is an expert on financial markets and financial instruments. Mr. Lover testifies to the importance of PGW obtaining the rate increase being sought, in order to maintain its bond ratings and access to the municipal capital markets at reasonable pricing, and to ensure there are not unforeseen impacts to PGW's capital structure. Specifically, his testimony focuses on the adverse financial consequences to PGW, which could be considerable and broadly based, if the Company does not receive full approval of its needed and requested rate increase.
- Mr. Harold Walker III (PGW Statement No. 4) is the Manager of Financial Studies at Gannett Fleming Valuation and Rate Consultants, LLC. He is an expert on financial economics and specializes in regulatory and financial economics, especially for gas, electric, water and wastewater utilities. Mr. Walker discusses the results of a comparable utility analysis. His testimony benchmarks the financial performance of PGW over the years 2017-2021 and analyzes both average performance over the time period and also trends over the time period. The benchmarking indicates that there is a continued need to support PGW's financial stability with timely and appropriate rate increases to enable PGW to further strengthen its credit profile.

- Ms. Constance E. Heppenstall (PGW Statement No. 5) is a Senior Project Manager of Rate Studies at Gannett Fleming Valuation and Rate Consultants, LLC. Ms. Heppenstall presents the Company's class cost of service study ("CCOSS"), which is provided in Exhibit CEH-1. The primary purpose of the present CCOSS is to allocate the Company's costs of providing service to each Rate Class. The purpose of her testimony is to describe the principles, methodology, and data used in the present CCOSS. Ms. Heppenstall also shows the monthly fixed customer cost per class.
- Mr. Florian Teme (PGW Statement No. 6) is PGW's Vice President, Marketing and Energy Planning. Mr. Teme explains and provides support for tariff revisions which provide: (1) clarification of the payment of interest on Deposits for Temporary Heat, (2) modification of PGW's Air Conditioning Rider to more clearly detail changes in PGW's internal process since the AC Rider was first implemented; and (3) modification to PGW's Gas Supplier and Gas Service Tariffs to clearly permit the interconnection of facilities that would seek to provide renewable natural gas ("RNG") onto PGW's distribution system. Mr. Teme describes and supports: (1) the process used to develop the sales forecast for the test year; (2) the allocation of the proposed base rate increase by customer class; and (3) the proposed customer charges by class. He also sponsors: (1) Proposed Tariff Supplement No. 159 to PGW Gas Service Tariff No. 2 that sets forth the proposed rate schedule changes as well as certain tariff changes explained by him as well as PGW witness Teme; and (2) Proposed Tariff Supplement No. 105 to PGW Gas Supplier Tariff No. 1.

- Mr. Robert Smith (PGW Statement No. 7) is PGW's Senior Vice President for Operations and Supply Chain. Mr. Smith provides an overview of PGW's efforts to improve safety and reliability.

As noted above, PGW expects to file supplemental testimony by April 3, 2023 making recommendations for permanent revisions to PGW's WNA formula that should be implemented in future heating seasons.

In addition to these statements, PGW is submitting the information and data required by the PUC's filing requirements (Volume I) and the proposed Tariff Supplements (Volume III) which set forth all of the changes and rate increases proposed by PGW as part of this case.

VII. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

I, Denise Adamucci, hereby state that: (1) I am the Senior Vice President for Customer & Regulatory Affairs for Philadelphia Gas Works ("PGW"); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 2/23/23

Denise Adamucci
Senior Vice President for Customer & Regulatory Affairs
Philadelphia Gas Works

Tab 2

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

JOSEPH F. GOLDEN, JR.

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

Philadelphia Gas Works

General Rate Increase Request

TOPICS:

Calculation and Support for
Requested Revenue Requirement
Financial Condition
Presentation of Pro Forma Test Year Data

February 27, 2023

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND POSITION WITH THE COMPANY.

A. My name is Joseph F. Golden, Jr. My position is Executive Vice President and Acting Chief Financial Officer for Philadelphia Gas Works ("PGW" or "Company").

Q. HOW LONG HAVE YOU HELD THIS POSITION?

A. I was appointed Executive Vice President and Acting Chief Financial Officer in March 2012. I started with PGW in August 1986. My prior titles at PGW include Controller, Treasurer, Manager Treasury Department, Senior Staff Accountant, and Staff Accountant. Before starting with PGW, I had prior work experience in public accounting, treasury accounting and cash management, and cost accounting for a manufacturing company.

Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES?

A. In my present position, I am responsible for the treasury, accounting, and budgeting functions.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A. I hold a Bachelor of Science degree in Accounting from Villanova University, a Master of Business Administration degree from Drexel University, and a Juris Doctor degree, *cum laude*, from Temple University School of Law.

Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION ("COMMISSION" OR "PUC")?

A. Yes. I submitted testimony in PGW's last two base rate proceedings (Docket No. R-2017-2586783 and Docket No. R-2020-3017206). I also submitted rebuttal testimony on behalf of PGW in the Petition of Philadelphia Gas Works for Waiver of Provisions of Act

11 to Increase the Distribution System Improvement Charge ("DSIC") Cap and to Permit Levelization of DSIC Charges (Docket No. P-2015-2501500).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to support PGW's claimed $85.833 million base rate increase by providing *pro forma* financial projections demonstrating the need for the requested increase.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. I am sponsoring the following exhibits:

- **Exh. JFG-1:** Exhibit JFG-1 provides schedules showing PGW's Statement of Income, Cash Flow Statement, Debt Service Coverage Statement and Balance Sheet at present rates for the Historical Test Year ("HTY"), FY 2022, the Future Test Year ("FTY"), FY 2023, and the Fully Projected Future Test Year ("FPFTY"), FY 2024 and the period, FY 2025 through FY 2027 ("Forecast Period").
- **Exh. JFG-2:** Exhibit JFG-2 provides schedules showing PGW's Statement of Income, Cash Flow Statement, Debt Service Coverage Statement and Balance Sheet at requested rates for the HTY, FTY and FPFTY and the Forecast Period.
- **Exh. JFG-3:** Exhibit JFG-3 details PGW's regulatory asset associated with incremental bad debt expense due to the impact from the COVID-19 pandemic, an amortized portion of which is being claimed in this rate case.
- **Exh. JFG-4:** Exhibit JFG-4 provides detail on PGW's other expenses incurred in response to the COVID-19 pandemic, an amortized portion of which is being claimed in this rate case.

II. BACKGROUND FOR CONSIDERATION OF RATE REQUEST

(A) Financial Condition

Q. PLEASE PROVIDE THE BACKGROUND OF PGW'S CURRENT FINANCIAL CONDITION.

A. Since PGW's last rate increase award in 2020, the company has managed to weather the additional costs and dislocations resulting from the COVID-19 pandemic, continued to strive to provide the highest quality service to its customers, and has maintained its ambitious Capital Improvement Program, particularly its Cast Iron Main Replacement program. This success is reflected by the fact that PGW's bonds are currently rated "A" (three to four steps over minimum investment grade) by all three rating agencies. The respective bond ratings are: Moody's "A3", S&P Global "A", and Fitch Ratings "A-".

But, in FY 2023 and FY 2024, capital expenditures and operating expenses are projected to increase dramatically. Operating expenses (not including gas costs) are projected to rise by 23% in the FPFTY, compared to FY 2022. And capital expenditures are projected to increase by even more – 37% compared to the Historic Test Year. The drivers of these increases are the same as those affecting the economy in general – dramatically higher prices and wage levels.

(B) Long-Term Debt

Q. PLEASE SUMMARIZE RECENT ACTIVITY REGARDING PGW'S LONG-TERM DEBT ISSUANCES.

A. In October 2020, while PGW's last base rate case filing was still before the Commission, PGW completed the following bond transaction. On October 29, 2020, the City issued Gas Works Revenue Bonds, Sixteenth Series (1998 General Ordinance) in the par amount of $253.9 million. A portion of the proceeds from the sale of the Sixteenth Series Bonds were utilized to refund the Ninth Series Bonds. The Sixteenth Series Bonds

also contained new money debt issued to finance a portion of PGW's ongoing Capital Improvement Program, pay the costs of issuing the bonds, and provide a deposit to the Sinking Fund Reserve. The Sixteenth Series Bonds, with fixed interest rates that range from 4.0% to 5.0%, have maturity dates through 2050. This refunding transaction provided net present value debt service savings of $14.6 million utilizing an arbitrage yield of 2.11%. The savings as a percentage of refunded bonds was 25.61%.

Q. HAS PGW TAKEN STEPS TO REDUCE ITS OVERALL BORROWING COSTS RELATED TO LONG-TERM DEBT?

A. Yes. In addition to the $14.6 million of net present value savings referenced above, there were approximately $800 thousand of net present value savings associated with the defeasance of the 10th series bonds in FY 2022.

Q. WHAT PLANS DOES PGW HAVE TO SELL BONDS IN THE FORESEEABLE FUTURE?

A. PGW anticipates issuing City of Philadelphia Gas Works Revenue Bonds in the par amount of $348.0 million in the FPFTY, which is FY 2024, the 12 months ended August 31, 2024. The exact timing of the issuance would be subject to market conditions. The next bond issuance is projected to be in FY 2027 or FY 2028. The amount of this bond issuance has not yet been determined.

III. PGW'S NEED FOR RATE RELIEF

Q. PLEASE SUMMARIZE THE RATE INCREASE SOUGHT BY PGW IN THIS PROCEEDING.

A. PGW is requesting an increase in its annual base rate operating revenues of $85.833 million, or 10.3% percent on a total revenue basis, with a proposed effective date of April 28, 2023. As noted, PGW's need for a rate increase at this time is driven by projected higher operating expenses, the need to include in rates a new bond issuance and a greater

level of capital expenditures. These additional requirements will result in PGW having an unacceptably low level of cash available to satisfy all cash items and to meet working capital requirements or to provide adequate liquidity to timely pay its bills. Accordingly, PGW requires additional rate relief in order to continue to operate in a financially sound manner. Operating in a financially sound manner will support higher bond ratings which, in turn, allows PGW to issue debt at lower interest rates, benefiting customers.

Q. WHAT ARE SOME OF THE KEY DRIVERS FOR THE REQUESTED INCREASE?

A. As indicated above, budgeted non-commodity operating expenses and the cost of capital expenditures have gone up significantly almost across the board. Here are some examples of the increases since FY 2020:

- $59.3 million increase in Internally Generated Funds ("IGF") (cash-funded capital spending)
- $28.1 million increase in budgeted labor, including related payroll and wage increases
- $11.8 million increase in Information Services
- $7.2 million increase in employee health insurance
- $5.5 million increase to Risk Management ($3.3 million insurance and $2.2 million environmental remediation)

Q. HAS PGW TAKEN STEPS TO CONTROL THE GROWTH OF ITS OPERATING EXPENSES?

A. Yes, PGW continues to take steps to reduce costs.

IV. PRO FORMA FINANCIAL RESULTS

Q. HAVE YOU PREPARED A PRO FORMA TEST YEAR INCOME STATEMENT, CASH FLOW, DEBT SERVICE COVERAGE AND BALANCE SHEET THAT PROJECTS THE COMPANY'S STATUS IN THE CURRENT YEAR AS WELL AS ON A PROJECTED BASIS?

A. Yes.

Q. FIRST, PLEASE EXPLAIN THE TEST YEAR ON WHICH PGW'S CLAIMED REVENUE REQUIREMENT IS BASED.

A. PGW has based its claimed revenue requirement on the fully forecasted 12 months ending August 31, 2024, referred to as the FPFTY. The FTY is FY 2023 and the HTY is FY 2022. Those results are displayed on Exhibit JFG-1. The same financial results, assuming the proposed rate increase, are shown on Exhibit JFG-2. Each page of this exhibit shows data for: (1) the HTY, the 12 months ended August 31, 2022 or FY 2022; (2) the FTY, the 12 months ended August 31, 2023 or FY 2023; and, (3) the FPFTY, the 12 months ended August 31, 2024 or FY 2024. The Exhibit also shows projections for the Forecast Period. Page 1 of Exhibit JFG-1 displays operating revenues, operating expenses and net earnings (Statement of Income); page 2 displays PGW's Cash Flow Statement, page 3 shows Debt Service Coverage; and page 4 shows PGW's Balance Sheet and capitalization ratios.

Q. PLEASE DESCRIBE HOW THE DATA FOR THE HISTORIC TEST YEAR WERE DERIVED.

A. The HTY data is the actual audited results for FY 2022.

Q. PLEASE DESCRIBE HOW THE FUTURE TEST YEAR AND FULLY PROJECTED FUTURE TEST YEAR RESULTS WERE CREATED.

A. The FTY and FPFTY results were derived by starting with PGW's current (FY 2023) Budget ("Budget year"), approved by the Philadelphia Gas Commission ("PGC"). PGW develops its annual Budget in the following manner. With respect to revenues, PGW's Marketing and Gas Planning departments calculated revenues and sales by class for the Budget year, and provided projections for the forecast years.[1] This process is fully

[1] In PGW's last Gas Cost Rate proceeding (R-R-2022-3030686), it committed to indicating where it has included a projection of LNG sales revenues in its pro forma revenue claim. PGW's "Other Operating Revenues" on Exhibit JFG-1, ln. 11 includes LNG revenues of $1.059 million in the FPFTY. That amount is derived from the

described in the testimony of Florian Teme (PGW St. 6). Revenue-related expenses (chiefly natural gas) were then calculated.

Q. PLEASE EXPLAIN HOW BUDGET YEAR EXPENSES ARE DETERMINED.

A. Budget year expenses are determined in the following manner. Each department submitted its view of the expense levels it will experience in the budget year. Where increases or changes affecting particular expense levels were identified, those levels were used to establish the expense for the respective Budget year. Areas that were updated from the prior Budget year included: Internally Generated Funds; budgeted labor (increase in full time equivalents ("FTE")) and wage increases; increases in Risk Management expenses (insurance, appropriation to reserve, environmental remediation); Customer Service expenses (staffing increase for the call center, transition to new billing and customer service system, maintenance of overflow call center); employee health insurance; Security; and Customer Programs.

These results were then used to prepare the four key financial schedules for the FY 2023 Budget: income statement; cash flow statement; debt service coverage; and the balance sheet.

Q. DOES PGW ALSO PREPARE A FORECAST OF FINANCIAL OPERATIONS?

A. Yes. Using the Budget year as the base year, PGW rolls forward its budgeted operating results to create a multi-year forecast, taking account of any known rate or other changes that might affect the results in a particular year. That forecast is also submitted to the PGC for approval.

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current LNG sales contract that PGW has in place. An additional $158,000 is included on ln. 1 (Non-Heating) for estimated LNG trucking sales.

Q. WHAT IS THE REVIEW AND APPROVAL PROCESS ASSOCIATED WITH THIS BUDGET?

A. In addition to an internal review and approval process by the PGW executive team, PGW is required to obtain approval of its annual budget from both the Philadelphia Facilities Management Corporation ("PFMC") (the equivalent of PGW's Board of Directors) and the PGC. PGW's capital budget must be approved by the PFMC, the PGC, and Philadelphia City Council.

Q. HOW DID PGW PREPARE THE FULLY PROJECTED FUTURE TEST YEAR FROM THE APPROVED BUDGET?

A. PGW used the FY 2023 Budget as a starting point. Because that Budget was prepared in late FY 2022, PGW first updated the FY 2024 Forecast to reflect more current information. It then revised the data to account for a major change projected to occur at the end of the FPFTY. Principally, PGW took into consideration the current level of inflation and its impact on forecasting future expenses. For example, historically PGW would assume a 2.5% increase in wages. The FY 2024 Budget reflects a 3.5% increase that was negotiated with the Union. While this is higher than the historical rate it is still less than the general rate of inflation. Also, the general increase projected for other categories of expenses, except where specific studies were available, was 4.63%; this too is higher than the historical 2.5% level utilized pre-pandemic.

In addition, PGW is projecting that, at the end of FY 2024 it will issue additional long-term bonds in the amount of $348.0 million. PGW plans to use commercial paper capital project notes to delay the issuance of a new bond until the last quarter of FY 2024. This is to recognize that long- term bond rates are currently at relatively high levels. The hope is that those rates will mitigate by the end of FY 2024. Nonetheless, to recognize that it presently anticipates that it will have to issue a fairly large bond issuance at the end

of the FPFTY, PGW removed from pro forma results the cost of the Tax Exempt Commercial Paper used to delay the bond issuance and included a full year's debt service in its calculation of pro forma revenue requirement at present rates.

Q. ARE YOU MAKING ANY OTHER RATEMAKING ADJUSTMENTS TO THE APPROVED BUDGET DATA?

A. Yes. As permitted by the Commission,[2] PGW is making a claim for incremental uncollectible expense incurred as a result of responding to the Commission's directives to regarding the COVID-19 pandemic emergency.

Q. PLEASE EXPLAIN.

A. In March 2020, in response to the COVID-19 pandemic, the Commission ordered a moratorium on shutoffs for customers.[3] Subsequently, on May 13, 2020, the Commission issued a Secretarial Letter that authorized public utilities to create a regulatory asset for incremental uncollectible expenses incurred above those embedded in rates since the issuance of the Commission's Emergency Order for possible future recovery in rates. Any utility seeking to create such a regulatory asset was directed to track the extraordinary, nonrecurring incremental COVID-19 related expenses and to maintain detailed accounting records of such expenses. In a recent Order, the Commission indicated that in order to justify recovery, a utility must show that the claimed expenses

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2 "The Commission recognizes that compliance with its Emergency Order may increase uncollectible expenses for utilities. Consequently, the Commission authorizes electric, natural gas, water, wastewater, steam and all rate base/rate of return telecommunications utilities to create a regulatory asset for any incremental uncollectible expenses incurred above those embedded in rates since the issuance of the Emergency Order. In order to be eligible for inclusion in a utility's COVID-19 designated regulatory asset, the utility must maintain detailed records of the incremental extraordinary, nonrecurring expenses incurred as a result of compliance with the Emergency Order, as outlined in Part I of this Secretarial Letter. M-2020-3019775, May 13, 2020 Sec. Letter.

3 *Public Utility Service Termination Moratorium Proclamation of Disaster Emergency - COVID-19*, Docket No. M-2020-3019244 (Emergency Order ratified March 26, 2020).

are: (1) extraordinary and substantial; (2) nonrecurring: (3) incremental; and (4) COVID-19-related consistent with the May 2020 Secretarial Letter.[4]

Q. PLEASE EXPLAIN PGW'S CLAIM AND HOW IT WAS CALCULATED.

A. PGW is claiming two types of deferred COVID-19 related expenses: 1. Incremental uncollectible expenses; and 2. Other incremental, extraordinary COVID-19 related expenses. For incremental uncollectible expense, in FY 2021, PGW established the deferred regulatory asset for outstanding delinquent account balances in anticipation that the Company could recover losses relating to the COVID-19 pandemic. The losses are specifically associated with the Commission moratorium, beginning in March 2020, and ending in March 2021. They occurred as a result of not shutting off gas services to customers who otherwise would be eligible for shutoff. The actual provision for uncollectible accounts in FY 2020 totaled $44.1 million, an increase of $15.2 million, or 53.0%, from FY 2020 base rate year. The actual provision for uncollectible accounts in FY 2021 totaled $44.1 million, an increase of $12.6 million, or 40.0%, from FY 2021 base rate year. The increase in the provision for uncollectible accounts is principally due to the impact from the COVID-19 pandemic. Accordingly, PGW's regulatory asset includes uncollectible expenses totaling $27.8 million, in excess of the amount filed in the last base rate case. The detail of this claim is shown on Exhibit JFG-3.

Q. IS PGW MAKING A CLAIM FOR ANY OTHER COVID-19 RELATED DEFERRED EXPENSES?

A. Yes. PGW incurred approximately $4.1 million of COVID-19 incremental gross operating expenses and received approximately $2.0 million from the Federal Emergency

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[4] *Petition of Pennsylvania-American Water Company for Authorization to Defer, and Record as Regulatory Assets for Future Recovery (et. seq.)*, P-2020-3022426 (Sept. 15, 2021) at 12-13.

Management Agency (FEMA) to offset operating expenses related to the COVID-19 pandemic. Gross operating expenses related to the COVID-19 pandemic mainly consisted of supplies/equipment and professional cleaning services, $1.8 million and $2.2 million, respectively. Total net operating expenses for the period beginning in March 2020 through December 2022 were approximately $2.1 million. This is shown on Exhibit JFG-4.

Q. PLEASE EXPLAIN HOW PGW'S CLAIM MEETS THE COMMISSION'S REQUIREMENTS FOR RATE RECOVERY.

A. Immediately after the Commission issued its Secretarial Letter indicating that it was permissible to defer incremental expenses having to do with increased uncollectibles and other related expenses, PGW began to track and record the deferral. These amounts were sufficiently substantial to make it necessary to request recovery in rates. All of these expenses were unanticipated and thus were not included in PGW's prior rate case claim (which was settled). Therefore, I believe that they satisfy the Commission's standard for recovery.

Q. HOW HAS THIS CLAIM BEEN REFLECTED IN PGW'S REVENUE REQUIREMENT?

A. PGW is proposing a three-year recovery period for these expenses. PGW generally is projecting a three-year period between base rate cases; therefore, this amortization period is reasonable.

V. CALCULATION OF REVENUE REQUIREMENT

(A) Cash Flow Ratemaking

Q. PLEASE EXPLAIN THE BASIS ON WHICH PGW HAS CALCULATED ITS REVENUE REQUIREMENT FOR THE FPFTY.

A. As noted, PGW is not regulated on the basis of a fair rate of return on a used and useful rate base as are investor-owned utilities; instead, the Company's revenue requirement is established on the basis of the "Cash Flow Method." While I am informed that the use of the Cash Flow Method is mandated by the Gas Choice Act,[5] the Commission has explained how it intended to implement that standard for PGW. In its 2010 Policy Statement, the Commission described the requirements of the Cash Flow Method as follows:

> (b) The Commission is obligated under law to use the cash flow methodology to determine PGW's just and reasonable rates. Included in that requirement is the subsidiary obligation to provide revenue allowances from rates adequate to cover its reasonable and prudent operating expenses, depreciation allowances and debt service, as well as sufficient margins to meet bond coverage requirements and other internally generated funds over and above its bond coverage requirements, as the Commission deems appropriate and in the public interest for purposes such as capital improvements, retirement of debt and working capital.[6]

The Commission also stated that, in determining just and reasonable rate levels for PGW it would consider, among other relevant items, the following financial factors:

- PGW's test year-end and (as a check) projected future levels of non-borrowed year-end cash.
- Available short-term borrowing capacity and internal generation of funds to

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5 66 Pa.C.S. § 2212(e); 52 Pa. Code § 69.2702(b) ("The Commission is obligated under law to use the cash flow methodology to determine PGW's just and reasonable rates.").

6 52 Pa. Code § 69.2702.

fund construction.

- Debt to equity ratios and financial performance of similarly situated utility enterprises.

- Level of financial performance needed to maintain or improve PGW's bond rating thereby permitting PGW to access the capital markets at the lowest reasonable costs to customers over time.[7]

Q. PLEASE EXPLAIN HOW PGW HAS APPLIED THIS GUIDANCE IN DETERMINING ITS REVENUE REQUIREMENT.

A. As a "cash flow" regulated company, PGW's operations are entirely funded from rates, either indirectly as a result of short-term or long-term borrowing (which then must be paid back from rates charged to ratepayers) or directly through charges to customers. Accordingly, PGW's most important financial metrics are:

1) bond debt service coverage ratios;

2) end of year days cash on hand and liquidity balance;

3) debt to equity capitalization ratio; and

4) bond rating agency requirements to maintain bond rating.

Accordingly, I have calculated PGW's pro forma results at present rates for the FPFTY as well as the Forecast Period in each of these categories. Those results are displayed on Exhibit JFG-1. I explain how those financial metrics are inadequate in light of PGW's cash obligations and rating agency requirements and how, if realized, they would threaten the maintenance of PGW's current bond rating. I then calculate PGW's projected results including the requested rate increase (Exhibit JFG-2) and explain how those results are necessary to maintain PGW's financial viability and to maintain or improve its current bond rating.

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7 52 Pa. Code § 69.2703.

(B) Financial Results at Present Rates

Debt Service Coverage

Q. WHY IS IT IMPORTANT TO MAINTAIN OR IMPROVE DEBT SERVICE COVERAGE?

A. The fundamental ratemaking philosophy for most financially stable municipal utilities is to provide safe and reliable service at rates that recover all current costs, plus a margin in excess of current costs. This margin, also referred to as debt service coverage, is a municipal utility's only real alternative to issuing debt to fund capital program costs. Coverage above debt service requirements also provides funds for cash obligations that are not shown in the debt service coverage calculations and provides assurance to investors that the utility will be able to make timely debt service payments. The recent rating agency reports have emphasized the need for PGW to improve its debt service coverage.

Accordingly, PGW must maintain debt service coverage levels that are sufficient to: 1) allow it to bill rates that result in the minimum debt service coverage required by PGW's Bond Ordinances (1.5x); and 2) produce sufficient additional revenues to pay for cash items that are not included in the debt service coverage calculation but for which PGW is committed or required to pay. Examples of these committed payments are the City Fee, pension fund contributions not on the income statement, DSIC costs, and the Other Post-Employment Benefits ("OPEB") surcharge. In addition, PGW must fund the portion of its capital improvements funded by internally generated funds by this excess over debt service. PGW must also have funds on hand to support the need for working capital throughout the fiscal year. Finally, it is crucially important that PGW's realized debt service coverage ratio provide a cushion to cover unforeseen emergencies. In

addition, maintaining or improving debt service coverage is critically necessary to keep PGW's bond rating which, in turn, is crucial to it continuing to have access to the capital markets on acceptable terms.

Q. PLEASE DEMONSTRATE HOW PGW'S MINIMUM REQUIRED DEBT SERVICE COVERAGE RATIO IS INSUFFICIENT TO PROVIDE THE LEVEL OF CASH NEEDED TO MEET ALL OF PGW'S CASH OBLIGATIONS.

A. Under the Bond Ordinance, PGW has a mandatory debt service coverage ratio of 1.5x the debt service, which is calculated by subtracting operating expenses from total funds available to calculate total funds available to cover debt service. The cash generated by this ratio (funds available to cover debt service) is used to pay other expenses that do not appear on the Statement of Income are excluded from the calculation by the Bond Ordinance or because they are not in base rates. These payments include the $18.0 million City Payment, the internally generated funds needed for PGW to continue to meet its IGF goals and working capital, i.e., a cushion over and above these items to account for lags in receipt of cash compared to billings.

This is shown on the following table:

Table 1

Item	Cash Requirement Not included in Debt Service Calculation ("000")	Cash Available over Debt Service FPFTY – Present Rates ("000")
City Payment	$18,000	
OPEB	$18,500	
Pension	$3,455	
Retiree Benefits	$37,435	
IGF funded CapX	$53,207	
PHMSA Grant Cast Iron Main Replacement	$10,752	
GASB 87/96 Principal Payments	$1,968	
DSIC	$41,000	
Working Capital	$15,442	
Sub-Totals	**$199,759**	**$116,040[8]**
TOTAL ADDITIONAL CASH NEEDED	**$83,720[9]**	

In other words, PGW needs to experience a debt service coverage ratio of at least 2.73 in the FPFTY in order to be able to have sufficient cash to cover all these items that are not included in the debt service coverage calculation, but which are very real cash expenditures, nonetheless.

[8] JFG-1, pg. 3, "Net Available after 1998 Debt Service ($126,873) less amortized Covid-19 expense (which is not included on JFG-1).

[9] The requested rate increase is greater to account for the portion that is uncollectible ($3,433 million), offset by additional $1,320 million additional Late Payment Charges.

Q. WOULD THE RATING AGENCIES VIEW A DEBT SERVICE COVERAGE LEVEL AT OR JUST ABOVE 1.5X AS CAUSE FOR A DOWNGRADE?

A. In my opinion, yes, most definitely. And, without rate relief, PGW would experience debt service coverage at these unacceptably low levels. While the FPFTY debt service coverage on an "Ordinance" basis is 2.10x, Ordinance coverage drops to 1.77x in FY 2025 and 1.74x in 2027.

HTY 2022	FTY 2023 Forecast	FPFTY 2024	2025 Forecast	2026 Forecast	2027 Forecast
3.04x	2.23x	2.10x	1.77x	1.86x	1.74x

Again, coverages below 1.5x constitutes a default on PGW's bonds. However, the rating agencies calculate PGW coverage differently than in the Bond Ordinance, accurately treating the $18.0 million City Payment as a fixed obligation. When the Company's debt service coverage is calculated to include the $18.0 million as a fixed obligation, PGW's debt service coverage falls to 1.94x in the FPFTY and drops close to default level – 1.59x by FY 2027:

HTY 2022	FTY 2023	FPFTY 2024	FY 2025 Forecast	FY 2026 Forecast	FY 2027 Forecast
2.86x	2.07x	1.94x	1.63x	1.71x	1.59x

Moreover, and as Mr. Lover explains, PGW's debt service coverage needs to be consistent with similarly rated entities in order to maintain PGW's current favorable bond rating.[10]

[10] *See* PGW St. 4 at 9, 14-15.

Non-Borrowed Year-End Cash

Q. AT PRESENT RATES, WHAT LEVELS OF YEAR END CASH IS PGW PROJECTING IT WILL EXPERIENCE IN THE FPFTY?

A. At present rates, and for the FPFTY (FY 2024), PGW is projecting that it will end the year with just $30.78 million in cash. That level of cash in the FPFTY (FY 2024) equates to just 16.9 days of cash on hand[11] — with the cash balances and days of cash being negative starting FY 2025 and continuing to be negative throughout the Forecast Period.

As more fully explained by Mr. Lover, the bond rating agencies that closely follow PGW's financial performance have indicated that a cash balance of between 90 and 150 days of cash on hand is necessary for PGW to maintain its existing bond rating and not be downgraded.[12] Therefore, a cash balance of only 17 days would not only be extremely concerning to the rating agencies, it would also pose real challenges to the Company's ability to meet all of its obligations when they came due.

It is important to understand that the measurement of days cash on hand is being presented as of the end of the FPFTY (i.e., August 31, 2024), PGW's fiscal year-end. PGW's cash balance changes throughout the fiscal year and is at a low point in the middle of the fiscal year. Maintaining a days' cash on hand balance of 90 to 150 days on August 31st will be followed by a lower balance in the middle of PGW's fiscal year. Thus, the FPFTY's balance of just 17 days cash on hand at fiscal year-end would result in a "low point" cash balance in November of $14.4 million (7.9 days of cash). This inadequate cash balance would leave little or no ability to respond to contingencies such as lower than *pro forma* sales, lower collection rates on billed sales, increases in working

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[11] Days of cash on hand calculation: Total Operating Expenses, less non-cash items, depreciation and amortized pensions, divided by 365, divided into cash balance.

[12] PGW St. 4 at 17.

capital, or other unanticipated expenditures. PGW's year-end days of cash at present rates are as follows:

HTY 2022	FTY 2023	FPFTY 2024	FY 2025 Forecast	FY 2026 Forecast	FY 2027 Forecast
79.0 days	61.2 days	16.9 days	(47.8 days)	(92 days)	(128.6 days)

As can be seen, relative to bond rating agency demands that a utility with PGW's credit rating should have at least 90-150 days of cash on hand, PGW's actual and projected experience is dramatically below comparable entities.

Debt To Equity Ratio; Short-Term Borrowing Capacity

Q. AT PRESENT RATES, WHAT IS PGW'S PROJECTED DEBT TO EQUITY RATIO FOR THE FULLY PROJECTED FUTURE TEST YEAR?

A. At present rates, PGW's debt to equity capitalization ratio in the FPFTY (FY 2024) is approximately 63%. That percentage is below the level in the HTY (FY 2022), 64.11%. The Forecast Period shows reductions in this ratio into the mid-fifties. In the past, PGW has had a goal of reducing its debt-to-equity level to under 60% of total capitalization. These ratios are substantially affected by two factors. First, changes in municipal accounting rules have resulted in an increase in total capitalization. Second, PGW's policy of attempting to balance its capital structure by funding approximately 50% of its annual capital spending from internally generated funds has reduced its percentage of debt relative to that total capitalization. While the second factor is a sign of financial health, the first factor creates an artificial decrease in PGW's debt to total capitalization ratios. While the ratio has improved for PGW thanks to the Commission's support of the

50% / 50% policy as well as reasonable and appropriate rate relief, it remains higher than PGW's peers, as Mr. Walker explains in his testimony.[13]

Q. WHY HAS PGW CHOSEN A FINANCING STRATEGY FOR CAPITAL SPENDING COMPRISED OF 50 PERCENT OF FUNDS FROM IGF AND 50 PERCENT OF FUNDS FROM DEBT?

A. PGW has chosen this financing strategy in order to spread out some payments over time rather than have the ratepayers finance all capital improvements on a "pay as you go" basis. This financing strategy allows PGW to use long-term debt, its tax-exempt commercial paper program, and IGF to finance the improvements to its infrastructure to reduce PGW's reliance on long term debt while, at the same time, avoiding unreasonably burdening current customers with the full cost of current capital improvements.

Q. IF PGW WERE FORCED TO UTILIZE DEBT FINANCING RATHER THAN IGF FOR THE NEXT FOUR YEARS WHAT WOULD THE IMPACT BE ON PROJECTED DEBT SERVICE AND THE DEBT SERVICE COVERAGE RATIO REQUIREMENT?

A. PGW would experience a decrease in its debt service coverage ratio for an incremental increase in its debt service with an overall increase in cost to customers. Debt service on a bond issuance of $100.0 million at a composite rate of approximately 4.0% would be approximately $7.0 million per year. The bond covenant that mandates a 1.5x debt service coverage would require additional revenues of $10.5 million per year to take account of this requirement. After several bond issuances the debt service coverage requirement would exceed a "pay as you go" financing strategy. This significant savings to ratepayers over time by the use of internally generated funds is also why PGW does not finance its construction program using entirely long-term bonds. In addition, any increase in the level of debt PGW is already projecting will drive its debt to total

[13] PGW St. 4.

capitalization ratio to unacceptable levels. I would note that, as Mr. Walter points out, PGW's excessive leverage was pointed out as a risk factor by the bond rating agencies[14] and PGW's average debt to capitalization ratio continues to be unfavorable relative to average of the peer group he examined.[15]

Q. HOW DOES PGW CURRENTLY USE ITS COMMERCIAL PAPER?

A. Currently, PGW utilizes its commercial paper for "bridge" capital financing. This strategy allows PGW to delay the issuance of long-term debt, thus putting off the associated costs, and also so that it can issue bonds at the optimal time relative to the long-term bond market. Such optimal market timing can also reduce the costs of long-term borrowing. In the FPFTY, PGW plans to use commercial paper capital project notes to delay the issuance of a new bond until the last quarter of FY 2024. This is to recognize that long-term bond rates at are relatively high levels currently. The hope is that those rates will mitigate by the end of FY 2024.

Bond Ratings

Q. WHY IS IT IMPORTANT FOR PGW TO MAINTAIN ITS CURRENT BOND RATINGS?

A. Credit ratings are important because PGW, like most utilities, is required to make significant capital infrastructure improvements each year for new and replacement assets. As explained by Mr. Lover, credit ratings are a critical component in determining the cost of debt as the ratings signal PGW's ability and willingness to meet financial obligations

14 PGW St. 4 at 22-24.
15 PGW St. 4 at 31.

in full and on time.[16] A downgrade of the credit ratings for PGW's bonds would result in an increase in PGW's borrowing costs and necessitate higher rate increases over time.[17]

Q. IS IT YOUR OPINION THAT IF PGW WERE TO EXPERIENCE THE FINANCIAL RESULTS, AT PRESENT RATES, PROJECTED FOR THE FY 2024 FPFTY IT WOULD THREATEN PGW'S PRESENT BOND RATING?

A. I believe that a bond downgrade would certainly be a concern. The bond rating agencies have made clear that they expect PGW to perform at levels consistent with other companies that are similarly rated. PGW's financial results at present rates, as projected for the FPFTY, FY 2024, do not meet that standard to ensure that its financial plan would maintain or improve its bond ratings.

(C) Rate Increase Request

Q. WHAT ARE YOUR CONCLUSIONS BASED ON THE FINANCIAL RESULTS AT PRESENT RATES FOR THE FPFTY AND THE FORECAST PERIOD?

A. As demonstrated, it is crucially important that PGW obtain rate relief to maintain these financial indicators at adequate levels, as well as to have sufficient cash in order to prudently operate the Company. A failure to improve these results with additional revenues would almost certainly result in a bond rating downgrade, which would raise the costs of borrowing and limit PGW's access to capital markets.

Q. WHAT LEVEL OF RATE RELIEF DOES PGW REQUIRE TO MAINTAIN ITS FINANCIAL INDICATORS AT THE APPROPRIATE LEVELS AND HAVE SUFFICIENT CASH TO PRUDENTLY OPERATE THE COMPANY?

A. PGW has determined that an increase of $85.833 million would provide sufficient additional revenues to enable it to adequately fund its operating expenses and capital improvement budget, fund all cash requirements and provide sufficient working capital.

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16 *See* PGW St. 4 at 11-12.
17 *See* PGW St. 4 at 22-26.

This would, in turn, produce financial metrics at adequate levels and help to ensure that PGW maintains its existing bond rating.

Q. HAVE YOU CALCULATED PGW'S FINANCIAL RESULTS IN THE FPFTY AS WELL AS IN THE FORECAST PERIOD IF ITS PROPOSED $85.833 MILLION RATE INCREASE IS GRANTED?

A. Yes, those results are shown on Exhibit JFG-2. At $85.833 million, consisting of a $75.0 million annual permanent rate increase and the amortization of COVID-19 related deferred costs of $10.8 million annually for three years, the rate relief is adequate.

Q. HOW WOULD THE RATE INCREASE AFFECT PGW'S FINANCIAL PERFORMANCE DURING THE FORECAST PERIOD?

A. At proposed rates, PGW's financial indicators would improve to acceptable levels. Its debt service in the FPFTY would increase to 2.73, although it falls off to 2.35 by FY 2027. Its days of cash increase to 61.9 days in the FPFTY, but similarly diminishing to 49.2 days by FY 2027. It's debt to total capitalization ratio would be maintained at reasonable levels.

Q. PLEASE PROVIDE YOUR OVERALL CONCLUSIONS CONCERNING THE NEED FOR AND REASONABLENESS OF PGW'S $85.833 MILLION RATE INCREASE REQUEST.

A. It is crucially important that PGW obtain the requested rate relief in order to maintain these financial indicators, as well as to provide sufficient cash to prudently operate the Company. A failure to achieve these results with additional revenues would almost certainly result in a bond rating downgrade, which would raise the costs of borrowing and limit PGW's access to capital markets.

VI. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

Exhibit JFG-1

PHILADELPHIA GAS WORKS
STATEMENT OF INCOME
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	OPERATING REVENUES							
1.	Non-Heating	$ 32,064	$ 34,618	$ 31,493	$ 30,103	$ 29,412	$ 28,963	1.
2.	Gas Transport Service	69,065	76,080	75,685	77,263	78,571	79,519	2.
3.	Heating	663,298	782,404	727,583	702,099	695,889	693,410	3.
4.	Revenue Enhancement / Cost Reduction - FY2024	-	-	-	-	-	-	4.
5.	Revenue Enhancement / Cost Reduction - FY2028	-	-	-	-	-	-	5.
6.	Weather Normalization Adjustment	23,160	2,044	-	-	-	-	6.
7.	Appropriation for Uncollectible Reserve	(25,287)	(36,037)	(33,485)	(32,453)	(32,240)	(32,160)	7.
8.	Unbilled Adjustment	3,329	(3,186)	(763)	(262)	(88)	(13)	8.
9.	Total Gas Revenues	765,629	855,923	800,513	776,750	771,544	769,719	9.
10.	Appliance Repair & Other Revenues	6,656	6,641	7,807	7,886	7,966	8,047	10.
11.	Other Operating Revenues	33,152	25,031	24,050	23,654	23,573	23,542	11.
12.	Total Other Operating Revenues	39,808	31,672	31,857	31,540	31,539	31,589	12.
13.	**Total Operating Revenues**	805,437	887,595	832,370	808,290	803,083	801,308	13.
	OPERATING EXPENSES							
14.	Natural Gas	272,438	381,757	323,502	298,595	290,358	288,719	14.
15.	Other Raw Material	30	31	31	23	23	23	15.
16.	Sub-Total Fuel	272,468	381,788	323,533	298,618	290,381	288,742	16.
17.	**CONTRIBUTION MARGINS**	**532,969**	**505,807**	**508,837**	**509,672**	**512,702**	**512,566**	17.
18.	Gas Processing	24,085	22,976	23,890	24,726	25,592	26,487	18.
19.	Field Operations	80,640	93,719	98,811	102,269	105,849	109,554	19.
20.	Collection	4,256	4,670	5,087	5,265	5,449	5,640	20.
21.	Customer Service	13,996	18,075	21,278	22,023	22,794	23,591	21.
22.	Account Management	8,981	9,711	10,515	10,883	11,264	11,658	22.
23.	Marketing	4,433	4,238	4,657	4,820	4,989	5,163	23.
24.	Administrative & General	73,596	92,370	102,881	106,482	110,209	114,066	24.
25.	Health Insurance	23,064	25,740	27,715	29,775	31,915	34,134	25.
26.	Pendemic Expenses	-	-	-	-	-	-	26.
27.	Capitalized Fringe Benefits	(11,668)	(11,746)	(10,717)	(10,622)	(11,457)	(11,799)	27.
28.	Capitalized Administrative Charges	(20,011)	(21,294)	(31,571)	(31,478)	(33,013)	(32,445)	28.
29.	Pensions	20,675	42,833	44,759	33,082	53,754	27,855	29.
30.	Taxes	8,984	9,747	10,434	10,689	11,088	11,501	30.
31.	Other Post Employment Benefits	(1,242)	(13,699)	(10,095)	1,588	3,601	7,763	31.
32.	Retirement Payout / Labor Savings	-	1,251	296	127	(1,791)	(1,853)	32.
33.	Sub-Total Other Operating & Maintenance	229,789	278,591	297,940	309,629	340,242	331,316	33.
34.	Depreciation	64,961	64,747	65,412	67,840	70,544	73,537	34.
35.	Cost of Removal	5,358	9,479	6,729	5,879	5,879	5,879	35.
36.	Net Depreciation	70,319	74,226	72,141	73,719	76,423	79,416	36.
37.	**Sub-Total Other Operating Expenses**	300,108	352,817	370,081	383,349	416,665	410,732	37.
38.	**TOTAL OPERATING EXPENSES**	572,576	734,605	693,614	681,967	707,046	699,474	38.
39.	OPERATING INCOME	232,861	152,991	138,756	126,324	96,037	101,834	39.
40.	**Interest Gain / (Loss) and Other Income**	(1,523)	6,147	7,211	7,461	7,185	6,943	40.
41.	INCOME BEFORE INTEREST	231,338	159,138	145,967	133,785	103,222	108,777	41.
42.	**INTEREST**							42.
43.	Long-Term Debt	47,044	50,635	62,738	59,476	56,586	53,593	43.
44.	Other	(11,859)	(5,242)	(1,776)	(1,213)	(3,758)	(3,314)	44.
45.	Loss From Extinguishment of Debt	4,166	3,615	3,348	2,972	2,624	2,264	45.
46.	**Total Interest**	39,351	49,008	64,310	61,235	55,452	52,543	46.
	NON-OPERATING REVENUE							
47.	Federal Grant Revenue (PHMSA)	-	-	10,752	17,876	22,863	25,000	47.
48.	**NET INCOME**	**191,987**	**110,130**	**92,409**	**90,426**	**70,633**	**81,234**	48.
49.	City Payment	18,000	18,000	18,000	18,000	18,000	18,000	49.
50.	**NET EARNINGS**	$ 173,987	$ 92,130	$ 74,409	$ 72,426	$ 52,633	$ 63,234	50.

PHILADELPHIA GAS WORKS
CASH FLOW STATEMENT
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	SOURCES							
1.	Net Income	$ 191,987	$ 110,130	$ 92,409	$ 90,426	$ 70,633	$ 81,234	1.
2.	Depreciation & Amortization	57,764	62,032	62,947	65,530	68,319	71,395	2.
3.	Earnings on Restricted Funds Withdrawal/(No Withdrawal)	(616)	(3,290)	(4,334)	(4,565)	(4,269)	(4,008)	3.
	Elimination of Accrued Interest on Refunded Debt	-	-	-	-	-	-	.
4.	Federal Infrastructure Grant	-	-	-	-	-	-	4.
5.	Proceeds from Bond Refunding to Pay Cost of Issuance	-	-	3,480	-	-	-	5.
6.	Increased/(Decreased) Other Assets/Liabilities	(56,648)	(30,824)	(45,717)	(61,731)	(21,526)	(7,532)	6.
7.	Available From Operations	192,487	138,047	108,785	89,660	113,157	141,089	7.
8.	Drawdown of Bond Proceeds	72,000	113,000	102,000	77,506	70,592	75,076	8.
9.	Release of Restricted Fund Asset	-	-	-	-	-	-	9.
10.	Release of Bond Proceeds to Pay Temporary Financing	-	-	-	-	-	-	10.
11.	Temporary Financing	-	-	-	-	-	-	11.
12.	TOTAL SOURCES	264,487	251,047	210,785	167,166	183,749	216,165	12.
	USES							
13.	Net Construction Expenditures	$151,129	$170,490	$206,959	$190,888	$184,047	$191,758	13.
14.	Revenue Bonds	$54,030	61,610	60,795	67,849	63,694	66,352	14.
15.	Temporary Financing Repayment	-	-	-	-	-	-	15.
16.	GASB 87 Lease Principal Payments	-	19,000	1,968	3,894	3,922	3,974	16.
17.	Changes in City Equity	-	-	-	-	-	-	17.
18.	Distribution of Earnings	$18,000	18,000	18,000	18,000	18,000	18,000	18.
19.	Non-Cash Working Capital	84,107	(18,769)	8,615	2,463	(838)	(87)	19.
20.	Cash Needs	$307,266	250,331	296,337	283,094	268,825	279,997	20.
21.	Cash Surplus (Shortfall)	($42,779)	716	(85,552)	(115,928)	(85,076)	(63,832)	21.
22.	TOTAL USES	$264,487	251,047	210,785	167,166	183,749	216,165	22.
23.	Cash - Beginning of Period	$158,390	$115,612	116,328	30,775	(85,152)	(170,228)	23.
24.	Cash - Surplus (Shortfall)	($42,779)	716	(85,552)	(115,928)	(85,076)	(63,832)	24.
25.	**ENDING CASH**	**$115,612**	**$ 116,328**	**$ 30,775**	**$ (85,152)**	**$ (170,228)**	**$ (234,060)**	25.
26.	**Outstanding Commercial Paper**	-	-	-	-	-	-	26.
27.	**Outstanding Commercial Paper - Capital**	-	-	-	-	-	-	27.
28.	**DSIC Spending**	36,813	39,000	41,000	41,000	41,000	41,000	28.
29.	**Internally Generated Funds**	42,316	18,490	63,959	72,382	72,455	75,682	29.
30.	**TOTAL IGF + Incremental DSIC Spending**	79,129	57,490	104,959	113,382	113,455	116,682	30.

PHILADELPHIA GAS WORKS
DEBT SERVICE COVERAGE
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	FUNDS PROVIDED							
1.	Total Gas Revenues	$ 765,629	$ 855,923	$ 800,513	$ 776,750	$ 771,544	$ 769,719	1.
2.	Other Operating Revenues	39,808	31,672	31,857	31,540	31,539	31,589	2.
3.	Total Operating Revenues	805,437	887,595	832,370	808,290	803,083	801,308	3.
4.	Other Income Incr. / (Decr.) Restricted Funds	(2,139)	2,857	2,877	2,896	2,916	2,935	4.
5.	Non Operating Revenue	-	-	10,752	17,876	22,863	25,000	5.
6.	AFUDC (Interest)	-	-	-	-	-	-	6.
7.	TOTAL FUNDS PROVIDED	803,298	890,452	845,999	829,062	828,862	829,243	7.
	FUNDS APPLIED							
8.	Fuel Costs	272,468	381,788	323,533	298,618	290,381	288,742	8.
9.	Other Operating Costs	300,108	352,817	370,081	383,349	416,665	410,732	9.
10.	Total Operating Expenses	572,576	734,605	693,614	681,967	707,046	699,474	10.
11.	Less: Non-Cash Expenses	68,773	89,822	89,718	79,675	103,109	80,261	11.
12.	TOTAL FUNDS APPLIED	503,803	644,782	603,896	602,291	603,937	619,212	12.
13.	Funds Available to Cover Debt Service	299,495	245,669	242,103	226,771	224,925	210,031	13.
14.	Net Available after Prior Debt Service	299,495	245,669	242,103	226,771	224,925	210,031	14.
15.	Leasing Debt Service	-	-	-	-	-	-	15.
16.	Net Available after Prior Capital Leases	299,495	245,669	242,103	226,771	224,925	210,031	16.
17.	1998 Ordinance Bonds Debt Service	98,430	109,942	115,230	127,877	120,848	120,522	17.
18.	1999 Ordinance Subordinate Bonds Debt Service - (TXCP)	-	-	-	-	-	-	18.
19.	Total 1998 Ordinance Debt Service	98,430	109,942	115,230	127,877	120,848	120,522	19.
20.	**Debt Service Coverage 1998 Bonds**	**3.04**	**2.23**	**2.10**	**1.77**	**1.86**	**1.74**	20.
21.	Net Available after 1998 Debt Service	201,065	135,727	126,873	98,894	104,077	89,509	21.
	1998 Ordinance Subordinate Bond Debt Service	-	-	-	-	-	-	
	Debt Service Coverage Subordinate Bonds	-	-	-	-	-	-	
22.	Aggregate Debt Service	98,430	109,942	115,230	127,877	120,848	120,522	22.
23.	Debt Service Coverage (Combined liens)	3.04	2.23	2.10	1.77	1.86	1.74	23.
24.	Debt Service Coverage (Combined liens with $18.0 City Fee)	**2.86**	**2.07**	**1.94**	**1.63**	**1.71**	**1.59**	24.

PHILADELPHIA GAS WORKS
BALANCE SHEET
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	ASSETS							
1.	Utility Plant Net	1,653,424	1,841,232	1,980,842	2,103,159	2,211,943	2,329,768	1.
2.	Sinking Fund Reserve	106,188	108,873	135,159	138,577	142,082	145,675	2.
3.	Capital Improvement Fund	107,822	238	220,527	144,127	74,259	-	3.
4.	Capital Improvement Fund - Long Term	4,851	-	-	-	-	-	4.
5.	& Health Insurance Escrow	2,678	2,646	2,686	2,727	2,768	2,810	5.
6.	Cash	115,637	116,328	30,775	(85,152)	(170,228)	(234,060)	6.
7.	Accounts Receivable:							7.
8.	Gas	199,442	194,685	190,252	185,476	181,202	176,938	8.
9.	Other	4,424	4,449	4,474	4,974	4,999	5,024	9.
10.	Accrued Gas Revenues	11,321	8,135	7,372	7,110	7,022	7,009	10.
11.	Reserve for Uncollectible	(108,187)	(101,837)	(95,611)	(89,547)	(83,514)	(77,488)	11.
12.	Total Accounts Receivable:	107,000	105,432	106,487	108,013	109,709	111,482	12.
13.	Materials & Supplies	92,867	96,899	92,810	87,476	88,018	88,401	13.
14.	Other Current Assets	4,903	4,906	4,909	4,912	4,915	4,918	14.
15.	Deferred Debits	11,737	5,963	5,453	5,634	5,565	5,490	15.
16.	Unamortized Bond Issuance Expense	725	989	933	879	827	776	16.
17.	Unamortized Loss on Reacquired Debt	23,321	19,706	16,358	13,386	10,762	8,498	17.
18.	Deferred Environmental	28,871	29,235	27,226	24,059	23,196	22,047	18.
19.	Deferred Pension Outflows	68,189	97,108	59,055	31,836	6,396	6,396	19.
20.	Deferred OPEB Outflows	62,576	45,781	36,251	26,722	29,316	29,316	20.
21.	Other Assets	35,321	38,028	38,015	38,471	39,260	37,828	21.
22.	**TOTAL ASSETS**	2,426,109	2,513,365	2,757,487	2,644,827	2,578,787	2,559,344	22.
	EQUITY & LIABILITIES							
23.	City Equity	624,040	716,170	790,579	863,005	915,638	978,912	23.
24.	Revenue Bonds	996,803	935,193	1,222,398	1,154,549	1,090,855	1,024,503	24.
25.	Unamortized Discount	(48)	(44)	(40)	(36)	(32)	(28)	25.
26.	Unamortized Premium	118,135	111,741	105,867	100,527	95,622	91,161	26.
27.	Long Term Debt	1,114,890	1,046,890	1,328,225	1,255,040	1,186,445	1,115,636	27.
28.	Lease Obligations & IS Subscriptions	245	62,471	57,613	53,719	49,797	45,823	28.
29.	Notes Payable	-	-	-	-	-	-	29.
30.	Accounts Payable	96,765	106,321	104,435	97,638	97,201	97,164	30.
31.	Customer Deposits	2,262	2,169	2,081	1,997	1,917	1,841	31.
32.	Other Current Liabilities	2,700	1,004	1,848	1,019	55	1,393	32.
33.	Pension Liability	261,082	259,757	257,698	255,135	252,352	250,152	33.
34.	OPEB Liability	149,231	118,542	84,529	47,532	7,101	-	34.
35.	Deferred Credits	12,035	3,448	1,852	2,129	1,736	1,727	35.
36.	Deferred Pension Inflows	5,937	47,906	25,865	3,816	4,853	4,867	36.
37.	Deferred OPEB Inflows	102,608	56,151	22,616	3,014	-	-	37.
38.	Accrued Interest	7,652	24,549	16,246	16,798	17,366	17,943	38.
39.	Accrued Taxes & Wages	6,735	5,151	5,337	5,637	5,953	6,287	39.
40.	Accrued Distribution to City	3,000	3,000	3,000	3,000	3,000	3,000	40.
41.	Other Liabilities	36,927	59,836	55,562	35,347	35,372	34,596	41.
42.	**TOTAL EQUITY & LIABILITIES**	2,426,109	2,513,365	2,757,487	2,644,827	2,578,787	2,559,344	42.
	CAPITALIZATION							
43.	Total Capitalization	1,738,930	1,763,060	2,118,804	2,118,045	2,102,083	2,094,549	43.
44.	Total Long Term Debt	1,114,890	1,046,890	1,328,225	1,255,040	1,186,445	1,115,636	44.
45.	Debt to Equity Ratio	64.11%	59.38%	62.69%	59.25%	56.44%	53.26%	45.
46.	Capitalization Ratio	1.79	1.46	1.68	1.45	1.30	1.14	46.

Exhibit JFG-2

PHILADELPHIA GAS WORKS
STATEMENT OF INCOME
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	OPERATING REVENUES							
1.	Non-Heating	$ 32,064	$ 34,618	$ 31,493	$ 30,103	$ 29,412	$ 28,963	1.
2.	Gas Transport Service	69,065	76,080	75,685	77,263	78,571	79,519	2.
3.	Heating	663,298	782,404	727,583	702,099	695,889	693,410	3.
4.	Revenue Enhancement / Cost Reduction - FY2024	-	-	85,833	85,832	85,832	75,000	4.
5.	Revenue Enhancement / Cost Reduction - FY2028	-	-					5.
6.	Weather Normalization Adjustment	23,160	2,044	-	-	-	-	6.
7.	Appropriation for Uncollectible Reserve	(25,287)	(36,037)	(36,919)	(35,886)	(35,673)	(35,160)	7.
8.	Unbilled Adjustment	3,329	(3,186)	(763)	(262)	(88)	(13)	8.
9.	Total Gas Revenues	765,629	855,923	882,912	859,149	853,943	841,719	9.
10.	Appliance Repair & Other Revenues	6,656	6,641	7,807	7,886	7,966	8,047	10.
11.	Other Operating Revenues	33,152	25,031	25,370	24,974	24,893	24,695	11.
12.	Total Other Operating Revenues	39,808	31,672	33,177	32,860	32,859	32,742	12.
13.	**Total Operating Revenues**	805,437	887,595	916,089	892,009	886,802	874,461	13.
	OPERATING EXPENSES							
14.	Natural Gas	272,438	381,757	323,502	298,595	290,358	288,719	14.
15.	Other Raw Material	30	31	31	23	23	23	15.
16.	Sub-Total Fuel	272,468	381,788	323,533	298,618	290,381	288,742	16.
17.	**CONTRIBUTION MARGINS**	**532,969**	**505,807**	**592,556**	**593,391**	**596,421**	**585,719**	17.
18.	Gas Processing	24,085	22,976	23,890	24,726	25,592	26,487	18.
19.	Field Operations	80,640	93,719	98,811	102,269	105,849	109,554	19.
20.	Collection	4,256	4,670	5,087	5,265	5,449	5,640	20.
21.	Customer Service	13,996	18,075	21,278	22,023	22,794	23,591	21.
22.	Account Management	8,981	9,711	10,515	10,883	11,264	11,658	22.
23.	Marketing	4,433	4,238	4,657	4,820	4,989	5,163	23.
24.	Administrative & General	73,596	92,370	102,881	106,482	110,209	114,066	24.
25.	Health Insurance	23,064	25,740	27,715	29,775	31,915	34,134	25.
26.	Pendemic Expenses	-	-	10,833	10,832	10,832	-	26.
27.	Capitalized Fringe Benefits	(11,668)	(11,746)	(10,717)	(10,622)	(11,457)	(11,799)	27.
28.	Capitalized Administrative Charges	(20,011)	(21,294)	(31,571)	(31,478)	(33,013)	(32,445)	28.
29.	Pensions	20,675	42,833	44,759	33,082	53,754	27,855	29.
30.	Taxes	8,984	9,747	10,434	10,689	11,088	11,501	30.
31.	Other Post Employment Benefits	(1,242)	(13,699)	(10,095)	1,588	3,601	7,763	31.
32.	Retirement Payout / Labor Savings	-	1,251	296	127	(1,791)	(1,853)	32.
33.	Sub-Total Other Operating & Maintenance	229,789	278,591	308,773	320,461	351,074	331,316	33.
34.	Depreciation	64,961	64,747	65,412	67,840	70,544	73,537	34.
35.	Cost of Removal	5,358	9,479	6,729	5,879	5,879	5,879	35.
36.	Net Depreciation	70,319	74,226	72,141	73,719	76,423	79,416	36.
37.	**Sub-Total Other Operating Expenses**	300,108	352,817	380,914	394,181	427,497	410,732	37.
38.	**TOTAL OPERATING EXPENSES**	572,576	734,605	704,447	692,799	717,878	699,474	38.
39.	OPERATING INCOME	232,861	152,991	211,642	199,211	168,924	174,987	39.
40.	**Interest Gain / (Loss) and Other Income**	(1,523)	6,147	7,211	7,461	7,185	6,943	40.
41.	INCOME BEFORE INTEREST	231,338	159,138	218,853	206,672	176,109	181,930	41.
42.	**INTEREST**							42.
43.	Long-Term Debt	47,044	50,635	62,738	59,476	56,586	53,593	43.
44.	Other	(11,859)	(5,242)	(1,776)	(1,213)	(3,758)	(3,314)	44.
45.	Loss From Extinguishment of Debt	4,166	3,615	3,348	2,972	2,624	2,264	45.
46.	**Total Interest**	39,351	49,008	64,310	61,235	55,452	52,543	46.
	NON-OPERATING REVENUE							
47.	Federal Grant Revenue (PHMSA)	-	-	10,752	17,876	22,863	25,000	47.
48.	**NET INCOME**	**191,987**	**110,130**	**165,295**	**163,313**	**143,520**	**154,387**	48.
49.	City Payment	18,000	18,000	18,000	18,000	18,000	18,000	49.
50.	**NET EARNINGS**	$ 173,987	$ 92,130	$ 147,295	$ 145,313	$ 125,520	$ 136,387	50.

PHILADELPHIA GAS WORKS
CASH FLOW STATEMENT
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-26	FORECAST 2026-26	FORECAST 2026-27	LINE NO.
	SOURCES							
1.	Net Income	$ 191,987	$ 110,130	$ 165,295	$ 163,313	$ 143,520	$ 154,387	1.
2.	Depreciation & Amortization	57,764	62,032	62,947	65,530	68,319	71,395	2.
3.	Earnings on Restricted Funds Withdrawal/(No Withdrawal)	(616)	(3,290)	(4,334)	(4,565)	(4,269)	(4,008)	3.
	Elimination of Accrued Interest on Refunded Debt	-	-	-	-	-	-	
4.	Federal Infrastructure Grant	-	-					4.
5.	Proceeds from Bond Refunding to Pay Cost of Issuance	-	-	3,480		-	-	5.
6.	Increased/(Decreased) Other Assets/Liabilities	(56,648)	(30,824)	(34,850)	(50,864)	(10,763)	(7,532)	6.
7.	Available From Operations	192,487	138,047	192,538	173,414	196,807	214,242	7.
8.	Drawdown of Bond Proceeds	72,000	113,000	102,000	77,506	70,592	75,076	8.
9.	Release of Restricted Fund Asset	-	-	-	-	-	-	9.
10.	Release of Bond Proceeds to Pay Temporary Financing	-	-	-	-	-	-	10.
11.	Temporary Financing	-	-	-	-	-	-	11.
12.	TOTAL SOURCES	264,487	251,047	294,538	250,920	267,399	289,318	12.
	USES							
13.	Net Construction Expenditures	$151,129	$170,490	$206,959	$190,888	$184,047	$191,758	13.
14.	Revenue Bonds	$54,030	61,610	60,795	67,849	63,694	66,352	14.
15.	Temporary Financing Repayment	-	-	-	-	-	-	15.
16.	GASB 87 Lease Principal Payments	-	19,000	1,968	3,894	3,922	3,974	16.
17.	Changes in City Equity	-	-	-	-	-	-	17.
18.	Distribution of Earnings	$18,000	18,000	18,000	18,000	18,000	18,000	18.
19.	Non-Cash Working Capital	84,107	(18,769)	8,720	2,569	(732)	5	19.
20.	Cash Needs	$307,266	250,331	296,442	283,200	268,931	280,089	20.
21.	Cash Surplus (Shortfall)	($42,779)	716	(1,904)	(32,280)	(1,532)	9,229	21.
22.	TOTAL USES	$264,487	251,047	294,538	250,920	267,399	289,318	22.
23.	Cash - Beginning of Period	$158,390	$115,612	116,328	114,423	82,144	80,611	23.
24.	Cash - Surplus (Shortfall)	($42,779)	716	(1,904)	(32,280)	(1,532)	9,229	24.
25.	**ENDING CASH**	**$116,612**	**$ 116,328**	**$ 114,423**	**$ 82,144**	**$ 80,611**	**$ 89,840**	25.
26.	**Outstanding Commercial Paper**	-	-	-	-	-	-	26.
27.	**Outstanding Commercial Paper - Capital**	-	-	-	-	-	-	27.
28.	**DSIC Spending**	36,813	39,000	41,000	41,000	41,000	41,000	28.
29.	**Internally Generated Funds**	42,316	18,490	63,959	72,382	72,455	75,682	29.
30.	**TOTAL IGF + Incremental DSIC Spending**	79,129	57,490	104,959	113,382	113,455	116,682	30.

PHILADELPHIA GAS WORKS
DEBT SERVICE COVERAGE
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	FUNDS PROVIDED							
1.	Total Gas Revenues	$ 765,629	$ 855,923	$ 882,912	$ 859,149	$ 853,943	$ 841,719	1.
2.	Other Operating Revenues	39,808	31,672	33,177	32,860	32,859	32,742	2.
3.	Total Operating Revenues	805,437	887,595	916,089	892,009	886,802	874,461	3.
4.	Other Income Incr. / (Decr.) Restricted Funds	(2,139)	2,857	2,877	2,896	2,916	2,935	4.
5.	Non Operating Revenue			10,752	17,876	22,863	25,000	5.
6.	AFUDC (Interest)	-	-	-	-	-	-	6.
7.	TOTAL FUNDS PROVIDED	803,298	890,452	929,718	912,781	912,581	902,396	7.
	FUNDS APPLIED							
8.	Fuel Costs	272,468	381,788	323,533	298,618	290,381	288,742	8.
9.	Other Operating Costs	300,108	352,817	380,914	394,181	427,497	410,732	9.
10.	Total Operating Expenses	572,576	734,605	704,447	692,799	717,878	699,474	10.
11.	Less: Non-Cash Expenses	68,773	89,822	89,718	79,675	103,109	80,261	11.
12.	TOTAL FUNDS APPLIED	503,803	644,782	614,729	613,123	614,769	619,212	12.
13.	Funds Available to Cover Debt Service	299,495	245,669	314,989	299,658	297,812	283,184	13.
14.	Net Available after Prior Debt Service	299,495	245,669	314,989	299,658	297,812	283,184	14.
15.	Leasing Debt Service	-	-	-	-	-	-	15.
16.	Net Available after Prior Capital Leases	299,495	245,669	314,989	299,658	297,812	283,184	16.
17.	1998 Ordinance Bonds Debt Service	98,430	109,942	115,230	127,877	120,848	120,522	17.
18.	1999 Ordinance Subordinate Bonds Debt Service - (TXCP)	-	-	-	-	-	-	18.
19.	Total 1998 Ordinance Debt Service	98,430	109,942	115,230	127,877	120,848	120,522	19.
20.	**Debt Service Coverage 1998 Bonds**	**3.04**	**2.23**	**2.73**	**2.34**	**2.46**	**2.35**	20.
21.	Net Available after 1998 Debt Service	201,065	135,727	199,759 (0)	171,781	176,964	162,662	21.
	1998 Ordinance Subordinate Bond Debt Service	-	-	-	-	-	-	
	Debt Service Coverage Subordinate Bonds	-	-	-	-	-	-	
22.	Aggregate Debt Service	98,430	109,942	115,230	127,877	120,848	120,522	22.
23.	Debt Service Coverage (Combined liens)	3.04	2.23	2.73	2.34	2.46	2.35	23.
24.	Debt Service Coverage (Combined liens with $18.0 City Fee)	**2.86**	**2.07**	**2.58**	**2.20**	**2.32**	**2.20**	24.

PHILADELPHIA GAS WORKS
BALANCE SHEET
(Dollars in Thousands)

LINE NO.		HTY 2021-22	FTY 2022-23	FPFTY 2023-24	FORECAST 2024-25	FORECAST 2025-26	FORECAST 2026-27	LINE NO.
	ASSETS							
1.	Utility Plant Net	1,653,424	1,841,232	1,980,842	2,103,159	2,211,943	2,329,768	1.
2.	Sinking Fund Reserve	106,188	108,873	135,159	138,577	142,082	145,675	2.
3.	Capital Improvement Fund	107,822	238	220,527	144,127	74,259	-	3.
4.	Capital Improvement Fund - Long Term	4,851	-	-			-	4.
5.	& Health Insurance Escrow	2,678	2,646	2,686	2,727	2,768	2,810	5.
6.	Cash	115,637	116,328	114,423	82,144	80,611	89,840	6.
7.	Accounts Receivable:							7.
8.	Gas	199,442	194,685	189,809	184,591	179,875	175,224	8.
9.	Other	4,424	4,449	4,474	4,974	4,999	5,024	9.
10.	Accrued Gas Revenues	11,321	8,135	7,372	7,110	7,022	7,009	10.
11.	Reserve for Uncollectible	(108,187)	(101,837)	(95,064)	(88,451)	(81,869)	(75,365)	11.
12.	Total Accounts Receivable:	107,000	105,432	106,592	108,224	110,027	111,892	12.
13.	Materials & Supplies	92,867	96,899	92,810	87,476	88,018	88,401	13.
14.	Other Current Assets	4,903	4,906	4,909	4,912	4,915	4,918	14.
15.	Deferred Debits	11,737	5,963	5,453	5,634	5,565	5,490	15.
16.	Unamortized Bond Issuance Expense	725	989	933	879	827	776	16.
17.	Unamortized Loss on Reacquired Debt	23,321	19,706	16,358	13,386	10,762	8,498	17.
18.	Deferred Environmental	28,871	29,235	27,226	24,059	23,196	22,047	18.
19.	Deferred Pension Outflows	68,189	97,108	59,055	31,836	6,396	6,396	19.
20.	Deferred OPEB Outflows	62,576	45,781	36,251	26,722	29,316	29,316	20.
21.	Other Assets	35,321	38,028	27,148	16,737	6,763	5,331	21.
22.	**TOTAL ASSETS**	2,426,109	2,513,365	2,830,373	2,790,600	2,797,447	2,851,157	22.
	EQUITY & LIABILITIES							
23.	City Equity	624,040	716,170	863,465	1,008,778	1,134,298	1,270,725	23.
24.	Revenue Bonds	996,803	935,193	1,222,398	1,154,549	1,090,855	1,024,503	24.
25.	Unamortized Discount	(48)	(44)	(40)	(36)	(32)	(28)	25.
26.	Unamortized Premium	118,135	111,741	105,867	100,527	95,622	91,161	26.
27.	Long Term Debt	1,114,890	1,046,890	1,328,225	1,255,040	1,186,445	1,115,636	27.
28.	Lease Obligations & IS Subscriptions	245	62,471	57,613	53,719	49,797	45,823	28.
29.	Notes Payable	-	-	-	-	-	-	29.
30.	Accounts Payable	96,765	106,321	104,435	97,638	97,201	97,164	30.
31.	Customer Deposits	2,262	2,169	2,081	1,997	1,917	1,841	31.
32.	Other Current Liabilities	2,700	1,004	1,848	1,019	55	1,393	32.
33.	Pension Liability	261,082	259,757	257,698	255,135	252,352	250,152	33.
34.	OPEB Liability	149,231	118,542	84,529	47,532	7,101	-	34.
35.	Deferred Credits	12,035	3,448	1,852	2,129	1,736	1,727	35.
36.	Deferred Pension Inflows	5,937	47,906	25,865	3,816	4,853	4,867	36.
37.	Deferred OPEB Inflows	102,608	56,151	22,616	3,014	-	-	37.
38.	Accrued Interest	7,652	24,549	16,246	16,798	17,366	17,943	38.
39.	Accrued Taxes & Wages	6,735	5,151	5,337	5,637	5,953	6,287	39.
40.	Accrued Distribution to City	3,000	3,000	3,000	3,000	3,000	3,000	40.
41.	Other Liabilities	36,927	59,836	55,562	35,347	35,372	34,596	41.
42.	**TOTAL EQUITY & LIABILITIES**	2,426,109	2,513,365	2,830,373	2,790,600	2,797,447	2,851,157	42.
	CAPITALIZATION							
43.	Total Capitalization	1,738,930	1,763,060	2,191,690	2,263,818	2,320,743	2,386,362	43.
44.	Total Long Term Debt	1,114,890	1,046,890	1,328,225	1,255,040	1,186,445	1,115,636	44.
45.	Debt to Equity Ratio	64.11%	59.38%	60.60%	55.44%	51.12%	46.75%	45.
46.	Capitalization Ratio	1.79	1.46	1.54	1.24	1.05	0.88	46.

Exhibit JFG-3

Regulatory Asset - Uncollectible Expense

	FY 2020	FY 2021
FY Uncollectible Expense	$ 44,088	$ 44,101
Less: Uncollectible Expense in Base Rates	$ (28,824)	$ (31,525)
Regulatory Asset - Uncollectible Expense	$ 15,264	$ 12,576

2017 Rate Case for FY 2020

	Present Rates	Requested Rates
Uncollectible Expense	$ 26,956	$ 30,073
Total Gas Revenues - Gross	$ 605,991	$ 675,991
Uncollectible Expense %	4.45%	4.45%

Total Gas Revenues - Gross - Present Rates	$ 605,991
Rate Increase	$ 42,000
	$ 647,991
Uncollectible Expense %	4.45%
Uncollectible Expense in Base Rates	$ 28,824

2020 Rate Case for FY 2021

	Present Rates	Requested Rates
Total Gas Revenues (Net of uncollectible expense)	$ 636,064	$ 702,914
Uncollectible Expense	$ 29,951	$ 33,101
Total Gas Revenues - Gross	$ 666,015	$ 736,015
Uncollectible Expense	$ 29,951	$ 33,101
Total Gas Revenues - Gross	$ 666,015	$ 736,015
Uncollectible Expense %	4.50%	4.50%

Total Gas Revenues - Gross - Present Rates	$ 666,015
Rate Increase	$ 35,000
	$ 701,015
Uncollectible Expense %	4.50%
Uncollectible Expense in Base Rates	$ 31,525

Exhibit JFG-4

PHILADELPHIA GAS WORKS
EXPENSES RELATED TO THE COVID-19 PANDEMIC
APRIL 1, 2020 THROUGH DECEMBER 31, 2022

	LABOR 101	LABOR 104	MATERIAL 701	MATERIAL 723	SERVICES 1701	BAD DEBT 2101	FEMA RECEIPTS 3540	ALLOCATION JE 3540	TOTAL
Sep-19	-	-	-	-	-	-	-	-	-
Oct-19	-	-	-	-	-	-	-	-	-
Nov-19	-	-	-	-	-	-	-	-	-
Dec-19	-	-	-	-	-	-	-	-	-
Jan-20	-	-	-	-	-	-	-	-	-
Feb-20	-	-	-	-	-	-	-	-	-
Mar-20	-	-	-	-	-	-	-	-	-
Apr-20	28.56	-	71,549.15	26,735.53	-	-	-	-	98,313.24
May-20	454.18	-	18,056.44	352,237.33	39,841.30	-	-	-	410,589.25
Jun-20	500.11	456.96	11,966.35	634,537.14	26,351.40	-	-	-	673,811.96
Jul-20	-	-	61,876.36	2,622.00	489,729.71	-	-	-	554,228.07
Aug-20	-	-	68,214.67	58,673.95	379,271.47	-	(1,956,915.18)	(286,187.43)	(1,736,942.52)
FY 2020 TOTAL	**982.85**	**456.96**	**231,662.97**	**1,074,805.95**	**935,193.88**	-	**(1,956,915.18)**	**(286,187.43)**	-
						-			
Sep-20	-	-	(1,012.05)	(1,535.32)	57,174.43	-	-	-	54,627.06
Oct-20	-	-	21,910.48	264.06	17,131.19	-	-	-	39,305.73
Nov-20	-	-	55,908.80	55,823.04	194,990.65	-	-	(400,655.28)	(93,932.79)
Dec-20	-	-	17,671.23	15,244.24	98,125.69	-	-	(131,041.16)	-
Jan-21	-	-	105,864.59	38,200.52	163,537.17	-	-	(307,602.28)	-
Feb-21	-	-	21,091.35	-	123,070.76	-	-	(144,162.11)	-
Mar-21	-	-	8,795.67	824.02	195,383.58	-	-	(205,003.27)	-
Apr-21	-	-	18,896.97	60.11	85,697.90	-	-	(104,654.98)	-
May-21	-	-	26,417.47	-	64,769.50	-	-	(91,186.97)	-
Jun-21	-	-	17,621.52	-	9,200.00	-	-	(26,821.52)	-
Jul-21	-	-	16,949.35	194.36	143,927.89	-	-	(161,071.60)	-
Aug-21	-	-	39,066.31	29.97	49,770.48	27,840,000.00	-	(27,928,866.76)	-
FY 2021 TOTAL	-	-	**349,181.69**	**109,105.00**	**1,202,779.24**	**27,840,000.00**	-	**(29,501,065.93)**	**(0.00)**
Sep-21	-	-	2,859.07	-	-	-	-	(2,859.00)	0.07
Oct-21	-	-	23,495.07	9.09	4,750.00	-	-	(28,254.16)	-
Nov-21	-	-	15,065.74	495.60	1,900.00	-	-	(17,461.34)	-
Dec-21	-	-	4,378.90	-	20,996.64	-	-	(25,375.61)	(0.07)
Jan-22	-	-	6,305.91	-	9,500.00	-	-	(15,805.91)	-
Feb-22	-	-	3,774.20	-	13,300.00	-	-	(17,074.20)	-
Mar-22	-	-	1,001.90	-	6,650.00	-	-	(7,651.90)	-
Apr-22	-	-	4,383.42	-	-	-	-	(4,383.42)	-
May-22	-	-	3,381.62	-	-	-	-	(3,381.62)	-
Jun-22	-	-	376.37	-	-	-	-	(376.37)	-
Jul-22	-	-	4,298.61	-	-	-	-	(4,298.61)	-
Aug-22	-	-	6,527.47	-	-	-	-	(6,527.47)	-
FY 2022 TOTAL	-	-	**75,848.28**	504.69	57,096.64	-	-	**(133,449.61)**	0.00
Sep-22	-	-	3,261.91	-	-	-	-	(3,261.91)	-
Oct-22	-	-	2,019.76	-	-	-	-	(2,019.76)	-
Nov-22	-	-	1,493.93	-	-	-	-	(1,493.93)	-
Dec-22	-	-	894.41	-	-	-	-	(894.41)	-
Jan-23									
Feb-23									
Mar-23									
Apr-23									
May-23									
Jun-23									
Jul-23									
Aug-23									
FY 2022 TOTAL	-	-	7,670.01	-	-	-		(7,670.01)	-
GRAND TOTAL	982.85	456.96	664,362.95	1,184,415.64	2,195,069.76	27,840,000.00	(1,956,915.18)	(29,928,372.98)	(0.00)

VERIFICATION

I, Joseph F. Golden, Jr., hereby state that: (1) I am the Executive Vice President and Acting Chief Financial Officer for Philadelphia Gas Works ("PGW"); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 2-27-2023

Joseph F. Golden, Jr.
Executive Vice President and Acting Chief Financial Officer
Philadelphia Gas Works

Tab 3

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

JAMES C. LOVER

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

Philadelphia Gas Works

General Rate Increase Request

TOPICS:

Performance In Municipal Capital Markets
Financial Support For Revenue Requirement

February 27, 2023

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. James C. Lover, Managing Director, PFM Financial Advisors LLC, 11635 North Community House Road, Charlotte North Carolina 28227, (704) 319-7922. I am a financial advisor to state and local governments, agencies, and authorities.

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

A. I am employed by PFM Financial Advisors, LLC and work in its municipal advisory practice ("PFM"). I am a Managing Director in our national Public Utilities practice. I am also a shareholder in the firm.

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL QUALIFICATIONS.

A. At PFM, I currently am one of the Managing Directors in PFM's national Public Utilities group, which assists our clients on all aspects of capital markets transactions – debt structuring and management, rating agency and investor communication, and transaction execution. PFM is the nation's largest independent financial advisor to state and local governments and a registered Municipal Advisor with the Securities and Exchange Commission and Municipal Securities Rulemaking Board ("MSRB"). PFM is the leading financial advisor to public utility clients (gas, power, water and sewer) and participates in a greater share of capital markets transactions for public utility clients than any other firm in the municipal capital markets.

I joined PFM in 2010 after retiring from the U.S. Army at the rank of Lieutenant Colonel. The last 10 years of my Army career were focused on economic analysis, financial planning and financial forecasting. This decade was spent primarily in the Pentagon working on budget formulation and financial forecasting for both the Army staff as well as the

Department of Defense Staff. I also had a one-year fellowship on the White House staff as a member of the Office of Management and Budget's National Security division.

As a Managing Director in PFM's national Public Utilities group, I have been involved in over $22 billion of debt transactions, many for the largest gas systems throughout the United States. These include advisory roles to the Northern California Energy Authority, Bonneville Power Administration, Gainesville (FL) Regional Utilities, City Utilities of Springfield (MO), Sacramento Municipal Utility District (CA) and Lansing Board of Water & Light (MI) and many others. Several billion dollars of these financings have been undertaken to finance gas distribution system improvements and natural gas supply. As a municipal advisor, I also have certain professional qualifications through the MSRB – including the Series 50 (Municipal Advisor Representative) and Series 54 (Municipal Advisor Principal).

In addition to my general expertise on public utility capital markets transactions, I have extensive experience working on debt structuring, credit structuring and rating/investor issues for utility systems that have similar characteristics as PGW's system. PFM has particular expertise in providing advisory services for capital markets transactions and routinely works on several billion dollars of municipal utility financings at any point in time that provide direct interface with rating analysts from the three major rating agencies. PFM also has developed an Investor Relations software platform that enables us to interface with large institutional investors active in the municipal bond market, in general and with investors focused on utility credits, specifically.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I have a Bachelor of Science degree from the Georgetown University with a concentration in Finance. I also have a Master's in Business Administration from

Columbia University with a concentration in Economics and Finance. In 2003, I received my Chartered Financial Analyst charter, a three-year certification program with a focus on economics, accounting and capital markets. While in the Army, I was a professor at West Point's Social Sciences Department teaching economics, Accounting and Corporate Finance to the cadets during my 3 year tenor.

Q. HAVE YOU EVER TESTIFIED BEFORE ANY REGULATORY AGENCIES OR LEGAL PROCEEDINGS?

A. Yes, I provided testimony in 2021 to Independence (MO) Power and Light Department and the City of Independence (MO). The City and Utility were being sued by local ratepayers with the primary issue being a complaint about the levels of cash at the utility. The ratepayers felt that the cash levels were excessive and should be rebated back to customers of the utility. After initial testimony was completed, the suit was dismissed before coming to trial.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose my testimony is fourfold: 1) to provide an update on PGW's standing in the municipal capital markets and the critical role of maintaining its financial standing with rating agencies, credit providers and investors; 2) to explain why it is very important that the Pennsylvania Public Utility Commission (the "Commission") grant PGW's requested rate increase in order to maintain PGW's financial metrics, such as debt service coverage and liquidity, at levels necessary to ensure cost effective access to the municipal capital markets; 3) to identify the financial impacts, both positive and negative, if the Commission approves or does not approve a substantial portion of the requested rate amount; and 4) to explain why it is necessary for the Commission to consider and

approve the actions that PGW is undertaking to fund its future capital improvement program and existing debt obligations.

III. PGW'S PERFORMANCE IN MUNICIPAL FINANCIAL MARKETS

Q. PLEASE PROVIDE AN OVERVIEW OF KEY FINANCIAL EVENTS FOR PGW SINCE THE COMMISSION GRANTED PGW RATE RELIEF IN 2020 THROUGH 2023.

A. As a reminder, PGW underwent a significant financial turnaround in the 2008-2016 timeframe, starting in November 2008 when PGW received extraordinary rate relief, which was subsequently made permanent. At the point of the 2008-2009 recession and credit crisis in 2008, PGW's finances were in a disastrous position, with ratings teetering on the brink of "junk" status (below Baa3/BBB-) and PGW's access to capital markets was in question. Fortunately, over the past several years and with the clear backing of the Commission, PGW was able to stave off the potential for an event of default on its debt and the acceleration of certain financial obligations. In the aggregate, these measures have stabilized PGW's finances and afforded PGW the ability to slowly improve the trajectory of its credit ratings, regain its footing in the municipal bond market, both with respect to procuring necessary credit facilities at lower fee levels and to maintaining access in the fixed rate bond market at lower borrowing costs.

These stabilizing actions by the Commission allowed PGW to improve its financial performance and metrics consistent with its "A" rated municipal utility peers. So, this has been a long way to say, the financial footing of PGW is in a much better spot today than a decade ago, and the support of the Commission has been very instrumental to the financial improvement of PGW over this timeframe. Specifically, debt service coverage (combined liens) improved to 3.04x in the Historical Test Year 2022 with coverage then reducing to 2.23x in the Future Test Year 2023.

With PGW's improved financial condition, they have enabled it to accomplish many objectives. Strategically, the utility has weathered the additional costs and disruptions resulting from the COVID-19 pandemic, continued to strive to provide the highest quality service to its customers and has maintained its capital improvement program, particularly its cast iron main replacement program. Some specific achievements are detailed below:

- In October 2020, the City issued Gas Works Revenue Bonds, Sixteenth Series (1998 General Ordinance) in the par amount of $253.9 million. There were two components of this transaction with a portion of the proceeds from the sale of these bonds to refund the Ninth Series Bonds. This refunding component produced $14.6 million in net present value savings (at an arbitrage yield of 2.11%). The Sixteenth Series also had a new money component to fund a portion of PGW's ongoing Capital Improvement Program. Finally, proceeds were also used to pay the cost of issuing the bonds and provide a deposit to the Sinking Fund Reserve.
- Weather in 2020-2022 was warmer than usual, results which negatively impacted volumes sold to customers. In 2022, the weather reflected was ~11% warmer than normal with 2021 being 5.5% warmer than a normal winter. The Weather Normalization Clause (WNA) was in effect from October through May of each Fiscal Year resulting, in the aggregate, $35 million in charges to customers to offset the lower volume of sales.
- Based on business initiatives that pertain to improving collections, PGW was able to secure a higher collection rate from customers. The collection rate exceeded 96% in years 2020-2022.

- PGW was able to maintain its financial flexibility by having all $120 million commercial paper capacity available if needed to address unexpected market conditions or immediate capital needs.
- The FY 2023 budget was approved and continued the implementation of an expedited Cast Iron Main Replacement (CIMR) program.

Q. WHAT WAS THE RESPONSE FROM THE CAPITAL MARKETS, PARTICULARLY BOND INVESTORS AND RATING AGENCIES?

A. The improved strength of PGW's income statement and balance sheet was well received by the major bond rating agencies of Moody's Investor Service (Moody's), Standard & Poor's Ratings Group (S&P) and Fitch Ratings (Fitch). Specifically, Fitch finally upgraded PGW in February of 2022 citing actions PGW had taken to reduce overall leverage and improve financial margins. Fitch's action put their rating of PGW into the same "A" rating category as Moody's and S&P. While Moody's and S&P have not recently upgraded their PGW ratings, recent reports cite PGW's improved financial condition, positive operating environment and, importantly, constructive regulatory regime. Generally, when utilities engage the rating agencies, an affirmation is considered success and, in any given year, there are more downgrades than upgrades across the utility sector. The current ratings of PGW are a long way from a dozen (2010) years ago when PGW had ratings of Baa2/BBB+/BBB for their senior lien rating a few notches from "junk" status (below Baa3 or BBB-). While still at rating levels below most of PGW's municipal utility peers, the improvement of the Company's bond ratings by Fitch as well as the positive commentary in the Moody's and S&P reports reflect both the constructive support of the Commission and management's ability to implement its financial and operational plans.

Without any question, the improved credit ratings and positive commentary in the respective rating reports were predicated on the Commission's careful review of PGW's finances and its appropriate support of PGW rate increases necessary to comply with its legal covenants, enable its prudent approach to capital formation, and to support the credit position of bondholders, thereby lowering the cost of borrowing that is passed on to PGW's customers.

Ratings for municipal utilities – which in turn provide access to the capital markets and determine the cost of those borrowed funds – are heavily weighted on the willingness and ability of the governing or regulatory body to permit the utility to charge rates that cover its costs and maintain its financial stability, particularly since all but a few municipal utilities set their own rates without regulatory oversight from a public utility commission. Thus, in the case of PGW, the application of the municipal utility rating methodology simply shifts this analysis of willingness and ability to raise rates to now include the Commission. The rating agencies repeatedly stated in public reports that the very constructive relationship between PGW and the Commission, and the necessary rate support in the last few years is the most critical factor that has allowed PGW's credit ratings to stabilize and improve to their current levels compared to what was experienced in the 2008-2016 timeframe.

As an example of the capital market's and investor's response to PGW's improved financial condition, we can review the response to the sale of $253 million in Gas Works Revenue Bonds, Sixteenth Series. This transaction was priced in October of 2020, during the height of the COVID-19 pandemic and a busy few weeks in the municipal market that saw approximately $11 billion in weekly municipal issuance. In addition, market

conditions were somewhat weaker than normal given issuers were accelerating transactions into October to avoid the potential market volatility and turmoil expected from the November 2020 elections. Fortunately, investors responded very favorably to the transaction. At the end of the order period, there were over $1.1 billion in orders received for the $253 million offered for sale by PGW representing a 4.3 times oversubscription. The order book was comprised of some of the largest names in bond funds including Nuveen Asset Management, Fidelity Investments, Vanguard, Franklin Fund and Blackrock, to name a few. Given this very strong demand, PGW and the finance team were able to reduce the yields on the bonds being offered to the market which, in turn, reduced the borrowing cost for the new money component of the transaction and increased the debt service savings associated with the refinancing component of the transaction. In the aggregate, PGW was able to issue debt with a final maturity date of 2050 at an all-in true interest cost of 3.16%. Clearly, a strong result for PGW and its ratepayers and a validation of the improved financial strength of the utility.

Additionally, we can examine, over time, the capital markets reactions to PGW's improved financial position. While more art than science, we can look at PGW's prior bond offerings, identify similar maturities with similar characteristics across these transactions and make a comparison on how investors viewed the relative risk of PGW's bonds. Specifically, municipal bond yields are based on a benchmark (for the municipal market this is "AAA MMD" – or municipal market data) plus the unique credit spread of the issuer. One would expect that, as PGW's financial condition improved, the credit spread over the benchmark rate should decline which is what was observed. Given the improved ratings of PGW, the risk premium, or spread to the "AAA" benchmark, declined from 1.48% to

0.60%, a significant reduction that translates directly to reduced debt service for new money needs as well as improved savings for refunding transactions as displayed in the table below:

Series	Sale Date	Ratings			Term	Spread to "AAA" Benchmark
		Moody's	S&P	Fitch		
Gas Works Revenue Refunding Bonds, Tenth Series	Sep-11	Baa2	BBB+	BBB	12 years	148 basis points
Gas Works Revenue Bonds, Fifteenth Series	Aug-17	A3	A	BBB+	12 years	60 basis points
Gas Works Revenue Bonds, Sixteenth Series	Oct-20	A3	A	BBB+	12 years	60 basis points

Q. WHAT HAS HAPPENED IN THE TIME PERIOD OF 2020 TO TODAY RELATING TO PGW'S STATUS IN THE MUNICIPAL CAPITAL MARKETS?

A. As a result of demonstrating an ongoing constructive relationship with the Commission, and the maintenance of improved financial metrics, PGW was upgraded to A3 from Baa1 by Moody's in late calendar year 2017. As was demonstrated in 2017, PGW needed the $42 million in base rates to address rising system operating costs and an increased capital improvement program (CIP) without having its financial metrics deteriorate. The 2017 rate increase was not a windfall that built generous and unnecessary financial margins. Rather, it was an appropriate increase, driven by a need to maintain stable finances, and the Moody's sole upgrade reflected that basic level of enhanced stability, arising from the Commission's constructive relationship with PGW and the allowance of cost recovery. Similarly, in February of 2022, Fitch Ratings upgraded PGW's rating from BBB+ to A- reporting that a significant reason for the upgrade was "a generally supportive regulatory regime (that) has provided the system with sufficient support to maintain a stable financial profile."

Currently, the ratings of PGW stand at A3 from Moody's Investor Services, A from S&P Global and A- from Fitch Ratings, all with "Stable" Outlooks. While these are slightly below peer utilities, given the reception of PGW's offerings in the recent past, one would anticipate the capital markets and investors will support PGW's next transaction at beneficial borrowing levels. Given the fact that all ratings are now in the "A" category, PGW could likely issue its bonds without bond insurance. PGW's 2020 transaction utilized bond insurance as a means to provide investors comfort (and security) in the event of a default on the bonds. Typically, depending on market conditions, "A" rated utilities generally find that bond insurance from the existing monoline bond insurers does not provide an interest cost savings, which would benefit PGW and its ratepayers.

Q. WHAT WOULD RESULT IF THE COMMISSION DID NOT CONTINUE TO EVIDENCE ITS SUPPORT FOR PGW?

A. The Commission's rate support during 2008-2020 has been foundational in improving PGW's financial position. Any wavering of the Commission's support for PGW's necessary rate increases will be met with a decisively negative reaction. Often in the area of municipal utility ratings, the minute that a regulatory body fails to objectively review and support a necessary rate increase, credit ratings and access to capital markets quickly deteriorate. Fitch speaks to its expectations in their February 2022 report when they state, "While rate changes are ultimately approved by the PUC, a generally supportive regulatory regime has provided the system with sufficient support to maintain a stable financial profile." Moody's, in their report from 2020, provides a stronger assessment of the role the Commission plays in the rating process stating, "the A3 rating reflects the historically credit supportive regulatory environment that has increased the asset base, supported an acceleration to its iron main replacement program and reduced borrowing needs as the

approved rates allow for more cash funded capital investments". Moody's continues that downward pressure on the rating would be triggered by "a less credit supportive rate regulatory environment." Municipal credit ratings are often very slow to rise (as evidenced by the very slow uptick in PGW's Fitch rating to "A-" that took over two years to achieve even as PGW was on a positive outlook and occurred almost five years after Moody's upgraded PGW to the "A" category) but can go down precipitously based on financial, operational, environmental and governance events. Generally, the rating agencies need to see a historical record, a persistent positive trend over several years of financial outperformance, before they make a positive rating action. Even then, this positive ratings action could be a change in outlook rather than an upgrade. Thus, it is critical to assure rating agencies and investors of the long-term commitment to cost recovery and stability of PGW's finances, not just sufficiency for any single given year. PFM has observed several instances where rating agencies very quickly, meaning in a matter of days, learned of the disapproval of the proposed rate increase and the utility was summarily placed on "under observation" or "negative watch" in anticipation of a weakened financial condition of that utility.

Bond investors and credit facility providers also react similarly to any failure to support needed rate increases by a governing political or regulatory body. So, while PGW has been able to maintain access to, and improve its borrowing costs for, long-term bond transactions since 2008, as well as maintain access to credit facilities for its variable rate bonds, commercial paper program and lines of credit at steadily improving fee levels, there is certainly no guarantee that the favorable trend will continue. Generally, the credit facilities supporting these variable rate programs have a pricing penalty based on the issuer's ratings.

As ratings deteriorate, the cost of these facilities increases and with PGW's facilities, movement back into the "BBB" category would result in an additional 10 basis points of fees (for the Gas Works Variable Rate Demand Revenue Bonds, Eight Series B). At certain ratings levels, further downgrades could be considered an event of default. The frequency with which PGW must access the bond market and/or renew its credit facilities emphasize the criticality of maintaining investor and credit provider confidence in the rate setting function of the utility.

Q. HOW HAVE THE PRIOR COMMISSION ACTIONS TRANSLATED TO PGW'S FINANCIAL METRICS AND CURRENT FINANCIAL POSITION?

A. As discussed in detail above, PGW's ongoing ability to obtain regulatory approval from the Commission for its requested rate increases creates risk. Failure to get approval of requested cost recovery certainly entails much greater scrutiny from investors and rating agencies given there will be an overall concern that financial margins and liquidity will not be maintained. This is particularly true for PGW, as many of its financial metrics such as days cash on hand, while improving, are already fairly modest compared to peers. Without PGW's ability to secure necessary rate support, this significantly increases the chance of a credit downgrade. In addition, it should be noted that any significant deterioration in the Commission's constructive support of PGW exhibited in the last several years could have the effect of making any future credit rating improvements even more difficult to achieve. While PGW's financial metrics have improved steadily due to commission action and approvals, these metrics remain below many of its peers in the municipal gas utility sector. As shown in the Exhibits of Harold Walker's benchmarking testimony, PGW has less favorable credit than most other "A" rated or higher municipal gas utilities in the country. While PGW's financial metrics have stabilized in the last few years, they are not at levels

that provide substantial cushion and the forecasted budget, even with proposed rate increases, does show a weakening of PGW's financial metrics. Again, in the face of a higher inflationary environment that we are currently observing, a delay in appropriate cost recovery can quickly lead to highly problematic results.

One key metric is the debt service coverage ratio, which is net revenues of PGW divided by debt service, and is a measure of protection that bondholders have to changes in net revenues over the course of the year. PGW's debt service coverage in the last few years has been somewhat varied but consistently above 2.20x. Specifically, the historical debt service coverage rose from 2.20x in 2020 to 2.70x in 2021 and then for this last fiscal year, 2022, moved higher to 3.04x. However, the apparent strength of this credit metric does not reflect PGW's financial commitment to other "debt-like" recurring obligations – so while the debt service coverage may appear robust, the reality is that coverage is more on the "thin" side. Some of the specific debt-like recurring obligations include the transfer of $18 million of net revenue to the City of Philadelphia General Fund, the obligation to fund PGW's OPEB Trust's annual contribution of $18.5 million, payment of pension and retiree benefits of $40.8 million, and resourcing $53 million of cash funded annual capital improvement from the dedicated DSIC. In total, all of the cash requirements not included in the debt service calculation total over $199 million. These obligations, all of which have been approved by the Commission, effectively use much of the current financial margin in the debt service coverage calculation, let alone the minimum 1.50x in the legal covenants that the Commission methodology explicitly allows. PGW's financial forecast now requires at least $83.7 million to maintain the debt coverage levels that exist today at or just above the 2.0x coverage level. Without that rate support from the Commission, PGW's

debt service coverage metric falls rapidly to almost the bare minimum levels of 1.59x debt coverage in the forecast Period FY 2027. This exposes PGW to significant financial difficulties in funding ongoing operations and its capital program, particularly the main replacement program approved by the Commission. If a substantial portion of the amount of the requested levels cannot be obtained, it clearly has negative implications for maintaining the same protections for investors moving forward and allowing PGW's bond rating to stay in the same rating category.

A second metric that has generally improved over the last several years is the amount of leverage (total debt) that PGW maintains. PGW has intentionally tried to reduce its total debt in recent years through two primary efforts. The first is the policy goal of using internally generated funds to resource ~50% of the Capital Improvement Plan. Secondly, debt defeasance transactions have opportunistically been used to reduce long-term liabilities by paying down debt. The most recent defeasance in October 2021, provided a reduction in long-term debt of ~$11 million. A key metric used for comparing debt levels is debt to total capitalization. Based on the efforts and decisions of the Commission over the past several years, PGW has seen a steady decline in the debt to capitalization ratio from a level of 95.9% in 2017 to a level of 72.5% in 2021 and strengthening to 64.1% in 2022. However, this is weaker than the established target of a debt to capitalization ratio of 60% for PGW, so some more work to do to attain this target. We do note two items with the debt to capitalization ratio. Foremost, given PGW's plan to borrow ~$348 million in FY 2024, we would expect the debt to capitalization ratio to move higher (weaker), depending on financial performance and margins remaining consistent with previous years, and this weakening can be seen in the FPFTY debt to equity level of 63%. Secondly, even

if attaining a target of 60% debt to capitalization, this target is well above that of PGW's peer utilities from the benchmarking study. Examining the peer data from the benchmarking study, both the municipal and investor owned peers' average debt to capitalization rations are noticeably stronger than PGW's metrics. In fact, there is only one utility, Gainesville Regional Utilities, in the peer list that has a weaker debt to capitalization. In summary, without the support of the Commission and the requested rate relief, we would anticipate the debt to capitalization rate to move much higher through the addition of the additional 2024 debt as well as compressed margins that would reduce the total capitalization of PGW. The rating agencies have all cited the high debt burden as a limiting factor in the ratings, since a high debt burden minimizes the ability to fund necessary programs especially if pay as you go funding (from current operations) is not viable moving forward. In other words, PGW cannot simply keep borrowing an ever increasing amount of dollars if the corresponding rate support is not there.

Assuming PGW receives the requested rate increase, the Company's projections, based on Mr. Golden's testimony, continue to show de-leveraging in the system – particularly with the Commission approved cash funding for the distribution system repair and improvement program – and total debt to capitalization is projected to be lowered to 60.6% by FY 2024. In fact, during past three years, 2020-2022, PGW completed more than $404 million in capital projects. But to the extent that a material portion of PGW's requested rates are not received, it will force substantial additional leverage back on the system, quickly reversing the favorable trend and the flexibility that PGW would have obtained moving forward.

A third financial metric that has shown improvement for PGW, but remains financially susceptible if approved rates do not provide substantial cost recovery, is its liquidity or

days cash on hand. PGW's days cash measured 66 days in 2017. After rate relief approvals by the Commission in 2017 and 2020, the days cash level of PGW now hovers around 79 days (in 2022). If the requested rate increase is not approved, then days cash are expected to fall to 17 days in FY 2024.

To determine a prudent day's cash level for PGW's target, one can look at the ratings criteria as well as the operating environment of PGW. Specifically, the rating agencies, primarily Moody's and S&P, review the days cash calculation and "bin" the result into several categories ranging from "AAA" to "BB". The days cash rating generally is aggregated into the financial profile for PGW which drives the overall rating of the utility. Both of these agencies have an "A" bin ranging from 90-150 days cash, the same as the outcome for PGW's current ratings. Given some of the weaker credit characteristics of PGW, namely weaker economic fundamentals in the customer base, large capital needs and exposure to the commodity markets, it would be prudent to aim toward the higher end of this range – closer to 150 than 90 days.

For a measure of liquidity, as opposed to days cash, certain rating agency metrics calculations could include PGW's authorized commercial paper program or line of credit. In 2017, PGW elected to use a bank line of credit to replace the then existing public market commercial paper program for the same amount of borrowing capacity, $120 million, depending upon the amount occasionally drawn for other capital purposes. Generally, a line of credit or commercial paper program is meant to be a short-term/interim financing vehicle to address timing needs for a capital program or project. Most utilities would use this interim borrowing program to start construction, primarily for long-lead time items and then, based on the project's general schedule, issue long term bonds to fix-out the line

of credit program as well as amortize the debt over the useful life of the assets. In this manner, line of credit is not meant to be a permanent financing vehicle but rather a financial management tool that is applied in a deliberate manner. Additionally, PGW would be concerned that, if there were low levels of cash or a low debt service coverage ratio, the bank supporting the line of credit would likely not fund the short-term loan given the poor financial performance of the utility and the concern that the utility would not be able to pay off the amount borrowed from the bank. Given the ability of the bank to not loan to PGW under the terms of the program, the rating agencies would generally be hesitant to include this source of liquidity in the days cash calculation.

At current cash and liquidity levels, there is very little margin of error in PGW's financing plan. Even while the Commission has approved cost recovery in prior rate cases, such as making the extraordinary rate relief permanent, PGW would exhaust its liquidity very quickly without the rate support requested. Conceptually, the billing cycle for PGW, the amount of time between delivering the product to the customers to sending the invoice to the receipt of cash, can be an extended period. If the product is delivered the first day of the billing cycle, the receipt of cash from the customer could be 2 months hence. Additionally, PGW has Budget Bill plan ("Budget"). The Budget allows customers to even out their payments over the year. The intent of the Budget is to provide cost certainty and monthly affordability to PGW's customers. A consequence of the Budget, however, is that, in the winter months, this payment is generally below the real bill of the customer. This creates a working capital requirement to address this shortfall. It is certainly my view that PGW needs to maintain 90-150 days of direct cash on hand to address the reality of the billing cycle, seasonality, the Budget program let alone to maintain its current bond

rating. Further PGW average days cash, compared to peer municipal gas utilities is significantly below the peer's collective average. PGW should strive to maintain at least 100 days direct cash on hand, apart from any commercial paper capacity, to secure its current "A-level" bond ratings. The 100 days cash on hand metric is a figure below what the rating agencies continue to cite as a desired target (150 days), especially given that any rate case for PGW would almost certainly take several months to approve.

To the extent that PGW does not get the rate recovery that it is seeking currently, it would put high pressure on liquidity to cover shortfalls in operations and the capital improvement program. While PGW could shift to additional debt funding to absorb some of the shortfalls or reprioritize/delay certain capital programs, the immediate impact is on PGW's liquidity position. At its cash position in the pro forma test year, failure to get approved rates will cause PGW to effectively run out of cash, demonstrated by the precipitous drop in available ending cash balance. The ending cash balance drops from $116.3 million in FTY 2022-2023 to $30.8 million in FPFTY 2024. Continuing into the forecast period, PGW continues to bleed cash with an ending cash balance in 2025 that is $85.2 million negative balance. To offset that negative cash flow would require substantial structural changes in PGW's financial and operational plan, which are likely not to be feasible. Given the recent improvement to financial metrics, it is highly likely that any failure of the PUC to provide substantial rate support for needed cost recovery would generate troubling rating commentary and downgrades for PGW. Each of the rating agencies repeatedly cites the factors that would lead to downgrades, and all three of the rating agencies have identified a less supportive rate regulatory environment as the critical factor that could lead to a credit downgrade or change in credit profile. Further, associated with that less supportive rate

regulatory environment are greater leverage, less debt coverage, and reduced liquidity, all of which are expected immediate by-products of a less supportive regulatory environment. It would be hard to imagine that PGW could keep the improvements in its bond ratings to A3/A/A- that it has achieved and would quickly fall back in the "BBB" category (i.e., near junk status) without Commission rate support. In fact, each of the three rating have specifically noted likely downgrades. Moody's most recent credit report from April 2020, clearly states that the factors that could lead to a downgrade are "a less supportive rate regulatory environment, including a denial of the majority of the current pending base rate increase."

IV. FINANCIAL SUPPORT FOR REVENUE REQUIREMENT

Q. WHAT ARE THE POTENTIAL POSITIVE IMPACTS OF PGW'S ABILITY TO GAIN APPROVAL OF ITS FULL REQUESTED RATE INCREASE?

A. The full requested rate increase is needed to ensure sufficient cash for the day to day operational needs of PGW and to fund its ongoing capital improvement program, including the ongoing cast iron main replacement program and other needed infrastructure improvements. As such, the approval of the requested rate increase ensures funding for the safety and reliability of the system. Secondly, the inflationary environment that PGW is currently experiencing has driven up labor costs significantly, to include benefits such as healthcare coverage. Just as inflation is increasing, PGW's employee's expectation of wage increases is also increasing. By funding higher wages, PGW can ensure talented employees remain at the utility, assisting with operating the system in a safe and reliable manner. Additionally, with the proposed rate increase, PGW expects to continue its improvement with the customer service experience with investment in call centers and the

Customer Information System. Finally, portions of the requested rate increase address risk management policies and procedures (security, environmental remediation, and insurance). If the rate increase did unexpectedly generate more net revenue for PGW or if PGW was able to capture greater operating efficiencies moving forward, any additional income would stay within the PGW system and be used for system purposes (because PGW does not have shareholders like an investor owned utility). An unexpected increase in net revenue could also build cash balances, which, in turn, could reduce or delay future rate increase or, potentially, to cash fund additional capital projects, reducing the amount borrowed. Additionally, the continuation of Commission support for PGW's financial performance will also preserve the financial metric improvement sustained over these past few years. If the rating agencies see continued and sustained improvement, this could further improve PGW's bond ratings, and move them solidly into the A2/A level.

Certainly, with recent upgrade from Fitch and consistent ratings from Moody's and S&P, PGW could access the municipal capital markets at lower costs for its financing and credit facility needs. Again, such improvements serve to reduce PGW's financing costs would inure to the full benefit of PGW's ratepayers and its system needs, not to a third party or outside investor, given the closed loop financing structure of PGW.

PGW will also have enhanced opportunities to refinance outstanding debt, both to reduce interest expense and to lower the risk profile of PGW. Stronger credit ratings will enhance the potential opportunity of refinancing the Thirteenth Series Bonds, in the amount of $88 million, for debt service savings when these bonds are callable (2025). Additionally, PGW continues to explore the opportunity to convert the 8th Series BCDE variable rate debt to a fixed rate, and terminating the associated interest rate swaps. The latter transaction may

be achievable, with PGW's improving credit profile and a favorable bond and swap market. It is important to note that PGW continues to lever its stronger financial position for future benefits or risk reduction to its ratepayers, thereby reducing its future base rate increase requests.

Q. WHAT ARE THE CONSEQUENCES OF LIMITING OR REDUCING PGW'S REQUESTED RATE INCREASE?

A. Without the supportive cost recovery that PGW is seeking in this rate case, I reasonably foresee such consequences as rating outlook changes or downgrades of PGW that impose immediate financial costs to PGW in the form of higher borrowing costs, limited opportunities for PGW to refinance its existing debt costs, an increase in reputational risk (and the opportunities lost given the increase in this risk) and the imposition of higher credit facility fees.

The costs of rating downgrades are certain to ripple across all aspects of PGW's operations, but the most certain and immediate costs will be recognized in its planned revenue bond issuance to fund PGW's capital improvement program. PGW has identified a bond transaction of approximately $348 million over the next four years with a planned transaction in FY 2024 - for its capital improvement program. With the expectation that PGW's failure to get positive regulatory rate support now would lead to downgrades across the Board from the low "A" to the "BBB" rating category by all agencies, it is expected that PGW's borrowing costs would rise substantially. The following table effectively shows the impact to the borrowing cost of PGW for its bond transaction with "BBB" category ratings from all agencies, with the assumption that they would average "BBB" for 1998 Bond Ordinance senior lien. This graphic effectively

shows the expected incremental costs based upon both current market and historical credit spreads for all "BBB+" ratings vs the current "A3/A/A-" ratings:

Planned 2024 New Money Transaction, Current rates					
Expected Transaction Date	All in TIC	Par Issued	Total Debt Service	Total Interest	Average Annual Debt Service
1-May-24	4.48%	$ 348.9 million	$ 685.2 million	$ 336.3 million	$ 22.7 million

Planned 2024 New Money Transaction, "BBB" level					
Expected Transaction Date	All in TIC	Par Issued	Total Debt Service	Total Interest	Average Annual Debt Service
1-May-24	4.65%	$ 355.9 million	$ 699.1 million	$ 343.1 million	$ 23.1 million

Impact on New Money with Downgrade				
All in TIC	Par Issued	Total Debt Service	Total Interest	Average Annual Debt service
0.17%	$ 7.0 million	$ 13.9 million	$ 6.8 million	$ .4 million

It should be noted that the charts above do not take into account the foregone debt service savings from potential refinancing transactions that may not be feasible if PGW's credit rating deteriorates. PGW already has some near term refinancing opportunities (as the bonds approach their call dates for tax-exempt refinancing), and such savings would certainly be diminished, if not fully lost due to a decline in credit ratings. PFM reviewed the near term refunding opportunity, the Gas Works Revenue Refunding Bonds, Thirteenth Series. These bonds have a call date of August 15, 2025, when PGW can call approximately $88.6 million of the bonds and, if market conditions are favorable, secure refunding savings. For this analysis, PFM used current benchmark rates the expected credit spread for PGW's financial condition as well as what the impact to this credit spread would be in the event of a downgrade to the "BBB" level. The following table summarizes the analysis:

Current Refunding of the Thirteen Series Bonds (Current Ratings			
Expected Transaction Date	All in TIC	Cashflow Savings	NPV Savings
3-May-25	2.70%	$ 9.5 million	$ 8.5 million

Current Refunding of the Thirteen Series Bonds (BBB Ratings)			
Expected Transaction Date	All in TIC	Cashflow Savings	NPV Savings
3-May-25	2.90%	$ 8.7 million	$ 7.7 million

Impact on Savings with Downgrade		
All in TIC	Cashflow	NPV Savings
0.20%	-$ .8 million	-$ .8 million

PGW has also utilized a number of credit facilities historically, including various letters of credit on its variable rate bonds and its commercial paper program. These include the Series 5A-1, Series 8B, Series 8C, Series 8D, and Series 8E, which currently total $143.7 million outstanding. PGW has reduced the average cost of these facilities substantially over the past two years and has been able to extend these facilities due to supportive rate actions by the Commission. And as noted, PGW is hopeful to reduce exposure to the bank facilities by converting the Series 8B through 8E to fixed rate and eliminating the associated interest rate swaps, but that is predicated upon market conditions. So, at this point, PGW has two different banks procured to secure these letters of credit, with an average annual cost of approximately 0.30% on the total principal outstanding.

PGW also maintains a $120 million bank facility as a revolving Line of Credit (which, as previously stated, replaced the publicly offered Commercial Paper program several years ago) at a slightly higher cost. The bank facility costs associated with the Line of Credit have come down substantially over the past few years, representing both a robust bank market currently, but also the stability of PGW's credit. Based on review of the associated fee letters for these facilities, almost all of these agreements have termination clauses and cost escalation clauses should PGW's ratings fall below certain ratings thresholds.

To the extent that PGW's credit rating is downgraded to the "BBB" level as a result of the inability to get rate approvals, PGW could face a sizeable problem with these facilities. Not only would the cost go up but there is also the possibility that PGW may not be able to extend some or all of these letters of credit. In such a scenario (and noting that the agreements are slightly different), there is the potential for all of the outstanding principal amounts to be accelerated over two to five years in equal semi-annual installments. These

"term out" options would force enormous, accelerated debt costs of up to $50 million annually once the "term out" is requested. This acceleration would fully erode PGW's liquidity position. While other financing options may exist to refinance the bonds, it underscores the importance of maintaining stronger investment grade ratings, and the potential for significant problems should PGW's bond ratings be downgraded only a few notches from their existing levels, and a signal given to the investor and bank community that appropriate rate support no longer is being maintained.

V. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY?

A. While PGW has made substantial financial progress in the last several years with appropriate rate support from the Commission, PGW still has limited financial flexibility and its projected financial results for FY 2024, the fully projected future test year (FPFTY), and the Forecast Period show that PGW requires the requested rate increase in order to maintain its financial metrics at the levels needed to hold on the rating upgrades, improving access and reducing the costs in the capital markets.

The inability of PGW to obtain necessary rate relief and cost recovery in the requested base rate increase for its operating and capital requirements would cause rapid financial damage to PGW and breach the most critical component of municipal utility rating criteria in the current environment – that being the ability and willingness to increase rates when warranted. The likely results of such a down-side scenario with respect to PGW's rate case are substantially greater financing costs due to credit downgrades by the financial community, and the remedy of that is a substantial process that requires sustained, long-term positive performance (a by-product of which is larger and more frequent rate increases). The granting of a substantial portion of the requested amount will send a

positive signal of support to our capital markets and could help to improve PGW's current bond rating outlook, a move that would save customers over time and also be received favorably by the investor community that purchases PGW's debt.

Ultimately, as the last years have clearly demonstrated, it is critical that PGW and the Commission maintain a constructive regulatory process in which appropriate cost recovery approval is maintained. Recent Commission approved rate increases have simply given PGW appropriate backing to operate the system, support necessary and critical capital upgrades to the system, and maintain financial metrics approaching "A" rated municipal pier utilities. That constructive course of action will result in continued improvement in PGW's credit, maintaining a capital structure that produces the lowest debt service cost to PGW, and minimizing future debt service costs to PGW given its credit rating. This, in turn, will mitigate the size and need of future rate requests, support the necessary operation and investment in the system and, therefore, maintaining the fairest and most reasonable rates possible for PGW's customers and ratepayers.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

I, James Christopher Lover, hereby state that: (1) I am employed by PFM Financial Advisors, LLC ("PFM") as Managing Director, Public Utilities Practice; (2) I have been retained by Philadelphia Gas Works ("PGW") and am authorized to present testimony on its behalf; (3) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 23 February 2023

James Christopher Lover
Managing Director, Public Utilities Practice
PFM Financial Advisors, LLC

Tab 4

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

HAROLD WALKER, III

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

Philadelphia Gas Works

General Rate Increase Request

TOPIC:

Benchmarking

February 27, 2023

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APPENDIX A A-1

INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Harold Walker, III. My business address is 1010 Adams Avenue, Audubon, Pennsylvania.

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

A. I am employed by Gannett Fleming Valuation and Rate Consultants, LLC as Manager, Financial Studies.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND EMPLOYMENT EXPERIENCE?

A. My educational background, business experience and qualifications are provided in Appendix A.

SCOPE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to measure the financial performance of Philadelphia Gas Works ("PGW" or "Company") from 2017 through 2021, via benchmarks, and compare those results to peer companies. The period reviewed includes the years since PGW's last rate case to the most recent year for which comparable financial data exists. My testimony is supported by Exhibit HW-1, which is composed of 5 Schedules.

SUMMARY OF RECOMMENDATION

Q. WHAT IS YOUR RECOMMENDATION?

A. My recommendation is based on the results of my benchmark study and my recommendation is that PGW be afforded a timely rate increase to cover its costs and at least maintain its financial stability. The benchmark study shows that PGW's financial

performance generally improved each year since 2017 based on both average performance over the 2017 to 2021 time period, and the trend from 2017 through 2021. I note however that the benchmarking study also shows that PGW lags its peers on some key benchmarks, or metrics, such as days of cash on hand to cover operating expenses ("Days Cash") and debt to total capitalization ("Debt/Capitalization").

The benchmark study also reviews forecasted benchmarking metrics of PGW's financial performance that were estimated reflecting the proposed $85.8 million rate increase. The forecasted benchmark analysis shows that there is a continuing need to support PGW's financial stability with a timely rate increase in this amount to enable PGW to further strengthen its credit profile and to lessen the gap between itself and its peers.

Q. PLEASE EXPLAIN THE PURPOSE OF YOUR BENCHMARKING STUDY.

A. The price of service of PGW's gas rates is regulated by the Pennsylvania Public Utility Commission ("Commission" or "PUC"). The Commission employs the "cash flow" method of determining just and reasonable rates. Under the cash flow method the Commission establishes rates at levels that permit the cash flow regulated utility to have sufficient cash to pay all of its operating expenditures, debt service, and debt service coverage, generate appropriate levels of internally generated funds, and maintain financial metrics that not only satisfy the utility's bond covenants but also are sufficient to maintain or improve the utility's credit rating so that it can access the credit markets at the lowest cost possible. In determining just and reasonable rate levels for PGW under the cash flow method, therefore, the Commission must consider, among other relevant factors: PGW's available short-term borrowing capacity and internal generation of funds to fund construction; the debt to equity ratios and financial performance of similarly situated utility

enterprises; the level of operating and other expenses in comparison to similarly situated utility enterprises; and the level of financial performance needed to maintain or improve PGW's bond rating thereby permitting PGW to access the capital markets at the lowest reasonable costs to customers over time.[1]

The purpose of the financial benchmarking study is to compare PGW's key metrics to other businesses in the same general industry as PGW (i.e., peer groups). Specifically, the benchmarking study measures the financial performance of PGW and comparison companies, or peer company groups, from 2017 through 2021, via benchmarks. My study benchmarks specific information such as fiscal year end cash levels,[2] days of cash, debt to equity ratios, credit ratings, non-gas operating expenses, and other financial performance metrics covering the most recent five-year period. The other financial performance metrics benchmarks include credit rating criteria measures, and various ratios calculated from information contained on PGW's and peer company groups' balance sheets, statements of revenues and expense and changes in net position (e.g., income statements), statement of cash flows, and operating statistics.

Q. PLEASE SUMMARIZE THE INFORMATION CONTAINED IN YOUR BENCHMARK STUDY.

A. The benchmark study is attached as Exhibit HW-1 and is composed of 5 Schedules. The benchmark study includes results for PGW and three peer company groups including: municipally owned utilities; Pennsylvania investor-owned utilities; and investor-owned

[1] Pennsylvania Public Utility Commission, "Application of PGW Cash Flow Ratemaking Method—Final Statement of Policy," 52 Pa. Code § 69.2703, in Docket No. P-2009-2136508.

[2] It should be noted that PGW's fiscal year ends in August when cash needs are at their lowest compared to their needs during the heating season. Accordingly, PGW's August cash balance is rapidly "spent down" during the winter months.

utilities that operate outside of Pennsylvania. The peer company groups include the results of 21 utilities. The benchmark study compares PGW's benchmarked statistics against those of the benchmark utilities. The benchmark study also reviews forecasted benchmarking metrics of PGW's financial performance that were estimated reflecting the proposed rate increase.

I believe that operating and financial benchmarks are useful but also recognize their limitations. When utilizing benchmarks, it must be recognized that no comparison group(s) or individual utility will have the exact operating and financial composition as the company being studied. For example, PGW is not exempt from PUC regulation as most other municipal ("MUNI") gas utilities are. Most MUNI gas utilities' rate requirements are established by the needed funds to run the system. Further, most MUNIs, including PGW, use a Government Accounting Standards Board ("GASB") process of accounting versus Financial Accounting Standards Board ("FASB") method of accounting used by investor-owned utilities ("IOU"). I explain some of the differences between GASB and FASB later in my testimony.

Therefore, an individual company's characteristics and operating requirements should be considered when viewing the results of a benchmark analysis to any peer group company(s). That is, a conclusion regarding any single benchmark data or ratio should only be reached after considering the individual company's characteristics and operating requirements. Moreover, individual benchmark results should also be viewed in the context of the range of the results for a peer group(s), not just an average for a peer group(s).

DESCRIPTION OF THE PHILADELPHIA GAS WORKS

Q. PLEASE GIVE A BRIEF DESCRIPTION OF PGW.

A. PGW is owned by the City of Philadelphia ("City") and is accounted for in the City's audited financial statements as a component unit of the City; however, PGW is legally separate from the City. PGW is the largest municipally-owned gas utility in the nation. The price of service of PGW's rates is regulated by the PUC. PGW sells natural gas within the City, its service territory, and is the exclusive distributor of natural gas within the limits of the City. PGW maintains a distribution system with approximately 3,046 miles of gas mains and approximately 476,600 service lines serving approximately 518,000 customers at year-end 2021. PGW's customer base is largest at the end of the peak heating season and decreases afterwards as customers terminate their service until the next heating season begins.

In addition to an extensive distribution system, PGW operates facilities for the liquefaction, storage, and vaporization of natural gas to supplement gas supply taken directly from interstate pipeline and storage companies chiefly for peak shaving purposes. PGW's service area consists of an urban area of 134 square miles, the limits of the City, located in southeast Pennsylvania along the Delaware River. According to the United States Census Bureau, as of July 1, 2021, Philadelphia had a population of approximately 1,576,251.

THE INDUSTRY

Q. PLEASE GIVE A BRIEF OVERVIEW OF THE INDUSTRY IN WHICH THE COMPANY OPERATES.

A. PGW operates in the natural gas industry in the gas distribution segment. The natural gas industry includes entities involved in the ownership and operation of industry segments consisting of production; gathering and processing; transmission; and distribution. The natural gas distribution industry segment, or local distributing companies ("LDCs"), includes businesses Standard Industrial Classification ("SIC") code of 4923 which are "engaged in both the transmission and distribution of natural gas for sale" and "engaged in the distribution of natural gas for sale" (SIC Code 4924).[3]

Approximately 1,400 LDCs distribute natural gas to end-use customers across the United States through over 1.2 million miles of distribution pipe. Each LDC has a unique combination of scale, load profile, and climatic attributes. IOUs dominate the gas distribution segment industry and MUNIs are also active LDCs. Investor-owned LDCs are subject to price regulation by state public utility commissions while most MUNIs are not. Uniquely, even though PGW is a MUNI, it is price regulated by the PUC. "PGW's state rate regulation constrains its cost recovery framework in comparison to the majority of municipally owned gas utilities in the United States, which benefit from local unregulated rate setting."[4] In setting rates, state public utility commissions balance the

[3] *See* https://siccode.com/sic-code/4923/natural-gas-transmission-distribution, 2/3/23 and https://siccode.com/sic-code/4924/natural-gas-distribution, 2/3/23.

[4] *Moody's Investors Services*, Rating Action, "Moody's assigns A3 to Philadelphia Gas Works' $215 million Gas Work's Revenue Bonds 16th Series A and $53 million Revenue Refunding Bonds 16th Series B; outlook stable," 4/20/20, pg 1.

different interests of consumers, who want low rates, and company investors, who seek adequate returns on their investments.

The "[d]emand for natural gas is driven by energy use, which in turn is influenced by overall economic activity. The profitability of natural gas distributors depends largely on the efficiency of their operations, because prices typically are fixed by public utility commissions (PUCs). Companies that operate multiple distribution networks may enjoy economies of scale in purchasing. Small companies can compete effectively through a strong regional presence. The US industry is highly concentrated: the 50 largest companies account for about 90% of revenue."[5]

INVESTMENT RISK

Q. PLEASE DEFINE THE TERM RISK.

A. Risk is the uncertainty associated with a particular action; the greater the uncertainty of a particular outcome, the greater the risk. Investors who invest in risky assets expose themselves to investment risk particular to that investment. Investment risk is the sum of business risk and financial risk. Business risk is the risk inherent in the operations of a business. Assuming that a business is financed with 100% common equity, business risk includes all operating factors that affect the probability of receiving expected future income such as: sales volatility, management actions, availability of product substitutes, technological obsolescence, regulation, raw materials, labor, size and growth of the market served, diversity of the customer base, economic activity of the area served, and other similar factors.

[5] First Research, Inc., "Natural Gas Distribution & Marketing," https://www.marketresearch.com/First-Research-Inc-v3470/Natural-Gas-Distribution-33010686/, 2/3/2023.

Q. WHAT IS FINANCIAL RISK?

A. Financial risk reflects the way an enterprise is financed. Financial risk arises from the use of fixed cost capital (leverage) such as debt and/or preferred stock, because of the contractual obligations associated with the use of such capital. Because the fixed contractual obligations must be serviced before earnings are available for common stockholders (fund equity), the introduction of leverage increases the potential volatility of the earnings available for common shareholders (fund equity) and therefore increases common shareholder (fund equity) risks.

Although financial risk and business risk are separate and distinct, they are interrelated. In order for a business to maintain a given level of investment risk, business risk and financial risk should complement one another to the extent possible. For example, two firms may have similar investment risks while having different levels of business risk, if the business risk differences are compensated for by using more or less leverage (financial risk) thereby resulting in similar investment risk.

PEER GROUPS

Q. WHAT PROCESS DID YOU FOLLOW IN SELECTING THE PEER GROUP COMPANIES USED IN THE BENCHMARK STUDY?

A. Since no companies are perfectly identical to PGW, I considered the financial and operating statistics of PGW when I selected the companies used for comparison purposes. This process resulted in the selection of 21 "peer" utilities companies which operate in the same basic industry as PGW. The 21 "peer" utilities companies were separated into three peer groups including: municipally owned utilities; Pennsylvania investor-owned utilities; and investor-owned utilities that operate outside of Pennsylvania. It should be noted that

the three peer groups are collectively referred to as the "Peer Groups." Further, the individual companies which comprise the Peer Groups are collectively referred to as "ALLCOS." After selecting the Peer Groups, I considered the investment risk differences between PGW and the Peer Groups when evaluating the benchmark metrics.

Q. WHAT CHARACTERISTICS OF PGW DID YOU CONSIDER IN SELECTING THE PEER GROUP COMPANIES USED IN THE BENCHMARK STUDY?

A. I believe that similar economic, industry and business risks affect PGW as other entities also operating in the natural gas distribution industry segment and accordingly, I attempted to consider only US natural gas LDCs for inclusion in the Peer Groups.[6] Next, I consider system density (customers per mile of main), amount of revenue and volume of throughput (MCF), type of infrastructure (percentage cast iron mains), location of operations, residential volumes as a percentage of total volumes (percentage of residential sendout), and ownership characteristics (IOU or MUNI).[7] Finally, the availability of five-years (2017 to 2021) of financial and operating statistics for the gas operations was required.[8]

Q. HOW DID YOU SELECT THE PEER GROUP COMPANIES USED IN THE BENCHMARK STUDY?

A. I selected the Peer Groups based on PGW's characteristics previously discussed. I believe that similar economic, industry and business risks have affected the Peer Groups as those faced by PGW. However, consideration must be given to the fact that no two companies are exactly alike. Accordingly, the Peer Groups were selected based on subsets of PGW's

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[6] The small number of municipal LDCs resulted in the inclusion of one municipal utility with electric operations.

[7] I relied primarily on information from the American Gas Association ("AGA") found at https://www.aga.org/research-policy/resource-library/annual-report-of-volumes-revenues-and-customers-by-company-2002-2020/ and https://www.aga.org/research-policy/resource-library/distribution-pipe-by-company-data-1990-2020/ for screening.

[8] Based on information available from S&P Capital IQ, PA PUC Annual Reports, Audited Annual Reports obtained from entities' websites, and AGA Statistics.

characteristics. This required a broadening of the range of characteristics to produce Peer Groups large enough to provide meaningful comparisons with PGW. This process resulted in the selection of the Peer Groups that operate in the same basic industry as PGW and share many of PGW's characteristics. The range of metrics (characteristics) used and relaxed to produce the Peer Groups were generally attributable to ownership, regulation (or lack thereof), and location of service.

I selected a group of municipally owned utilities ("MUNI Group") since PGW is a MUNI. The composition of the MUNI Group includes mainly LDCs from across the country. The group's composition reflects the fact that there are only a relatively small number of large MUNI LDCs existing in PGW's general region,[9] coupled with consideration of PGW's other characteristics. Some MUNI LDCs were found to have an abnormally low amount of debt, and/or negative net income, producing unusable metrics for comparison purposes. Additionally, only a limited number of large MUNI LDCs had financial information for just gas operations. As a result, I included two MUNIs with electric operations in the MUNI Group. The names of the entities that comprise the MUNI Group are:

- Citizens Energy Group - Gas Segment
- CPS Energy (Gas & Electric)
- Gainesville Regional Utilities - Gas Utility System
- Greenville - Gas Fund, City of
- Jackson Energy Authority - Gas Fund
- JEA Utilities - Electric Fund
- Knoxville Utilities Board - Gas Division
- Richmond - Gas Fund, City of

[9] See "Top 100 Largest Municipal Gas Systems by Customer / Meter Count" (Updated March 2022), at https://higherlogicdownload.s3.amazonaws.com/APGA/0cd6b615-7a85-438c-83ea-431d7d78a175/UploadedImages/Top100Customers_2022.pdf, 2/3/23.

PGW is the only gas MUNI regulated by the PUC. Since PGW's service is price regulated by the PUC, a group comprised of investor-owned gas utilities operating in Pennsylvania ("IOUPA Group") was selected. In selecting the companies for the IOUPA Group, I considered all 15 natural gas distribution companies with natural gas tariffs listed on the PUC's website and then excluded those utilities that were not comparable due to size and/or lacked five-years of required financial and operating information.[10] The names of the LDCs that comprise the IOUPA Group are:

- Columbia Gas of Pennsylvania, Inc.
- National Fuel Gas Distribution Corp (PA Operation)
- PECO Gas (Exelon Corporation)
- Peoples Natural Gas Company LLC
- UGI Utilities Inc. (Gas)

In forming a third peer group I selected investor-owned LDCs that operate outside of Pennsylvania ("IOU Group"). In selecting the companies for the IOU Group, I considered all IOU natural gas distribution companies having five-years of required financial and operating information, that operate in the North Atlantic region from the District of Columbia to Massachusetts, excluding Pennsylvania, after considering PGW's other characteristics. The names of the LDCs that comprise the IOU Group are:

- Brooklyn Union Gas Co.
- Connecticut Natural Gas Corp.
- Corning Natural Gas Corp.
- New Jersey Natural Gas Co.
- South Jersey Gas Co.
- Southern Connecticut Gas Co.
- Washington Gas Light Co.
- Yankee Gas Services Co.

[10] *See* https://www.puc.pa.gov/filing-resources/tariffs/natural-gas-tariffs/ for natural gas tariffs listed on the PUC's website.

DIFFERENCES BETWEEN MUNICIPAL AND INVESTOR-OWNED UTILITIES

Q. WHAT DIFFERENCES ARE THERE BETWEEN MUNICIPAL AND INVESTOR-OWNED UTILITIES?

A. The main differences between MUNIs and IOUs are financial in nature and involve a combination of accounting, regulation, ownership, and taxation. As explained previously, most MUNIs, including PGW, follow the standards of accounting and financial reporting established by GASB versus the standards established by FASB used by IOUs. Differences in accounting practices exist between GASB and FASB because there are differences in their purpose. That is, the GASB's motivations are to make sure government entities are accountable for the money they receive from the public or taxpayers, while the FASB's focus is to help investors and creditors make decisions.

MUNIs are not typically focused on the return on and the return of their investments in their utility systems as IOUs are since they (MUNIs) deem that they are providing a public service to their taxpayers and are more attentive to having adequate cash flow to service debt and satisfy financial obligations. Further, MUNIs typically expense some expenditures which are capitalized by IOUs and many MUNIs do not typically fully account for the replacement of all capital assets which are all typically capitalized (i.e., construction of capital assets, construction expenditures, etc.) and "booked" at original cost by IOUs. These differences in accounting objectives between GASB and FASB can present a problem when it comes to comparing the financial statements of IOUs with MUNIs, such as PGW and the MUNI Group, and vice versa.

The majority of MUNIs are not price regulated by a utility commission but rather have rates approved locally by an unregulated rate setting board. The determination of

reasonable gas rates for IOUs and PGW is subject to rate regulation. For IOUs, rate regulation serves as a substitute for competition in the marketplace since utility companies are precluded from exercising complete control over the price to be charged to their customers. Under rate regulation, a cost of service formula is used to set the price for service charged to IOUs' customers. The cost of service formula equates the revenue requirement to the sum of annual operating expenses, taxes other than income, depreciation expense, income taxes, and the product of the rate base times a fair rate of return. PGW's ratemaking process is based on a Cash Flow Ratemaking Method, where revenue requirement includes, among other things, having adequate cash flow rather than using a rate base rate of return method used for IOUs.

IOUs pay local, state and federal taxes while MUNIs are exempt from these taxes.[11] Moreover, IOU investors pay income taxes on their dividends and interest payments while MUNI investors are exempt. Since the majority of MUNI bond interest is tax-exempt to the investor, it lowers MUNIs' cost of borrowing vis-à-vis IOUs. As a result, MUNI customers benefit from the tax-exemption of the interest paid to MUNI investors in the form of lower rates for service.

It is the responsibility of price regulated IOUs seeking changes in rates to present sufficient evidence, including a fair rate of return, to their regulators in support of their request. Historically, PGW and other MUNIs' rates have not considered a fair rate of return nor taxes. That is, PGW and other MUNIs' rates would have been higher, and their financial results would have been improved, if they included a provision for a fair rate of return and taxes.

[11] Some entities in the MUNI Group make a "payment in lieu of taxes."

Q. DO PGW AND THE PEER GROUPS HAVE SIMILAR OPERATING RISKS?

A. Yes. From an operations standpoint, PGW and the Peer Groups have similar risks and are indistinguishable. PGW and the Peer Groups are required to meet safety and environmental requirements and are also required to provide safe and reliable services to their customers and comply with utility commission regulations and/or federal and state safety and reliability requirements. Further, MUNIs and IOUs have similar investment risks as is evident by the fact that their bonds are often rated similarly. However, PGW is unique when compared with a traditional MUNI utility because PGW is not able to increase rates for service at the discretion of municipal officials. Rather, PGW's rates fall under the jurisdiction of the PUC. Accordingly, PGW must comply with the same regulatory requirements for increasing rates as IOUs require. PGW experiences attrition and regulatory lag similar to an IOU but lacks the benefits that income taxes provide an IOU, for two reasons. First, deferred income taxes provide IOUs a cash flow advantage that PGW does not enjoy. Second, current income taxes included in IOUs' revenue requirement provide a margin or cushion against an unanticipated drop in sales or increase in operating expenses. PGW and other MUNIs do not have this margin of protection nor the cash flow advantage which IOUs have.

CHARACTERISTICS

Q. HOW DO PGW'S CHARACTERISTICS COMPARE WITH THOSE OF THE PEER GROUPS?

A. Schedule 1 is a three-page schedule that provides a comparison between PGW's and the Peer Groups' characteristics. As discussed previously, the Peer Groups were selected based on subsets of PGW's characteristics. This required a broadening of the range of

metrics or characteristics to produce Peer Groups large enough to provide meaningful comparisons with PGW.

As shown on page 1 of Schedule 1, PGW's system density (customers per mile of main) is considerably greater than the Peer Groups'. Only Brooklyn in the IOU Group has density exceeding PGW's. PGW's density is a function of servicing primarily an urban territory. PGW also has a higher percentage of cast iron mains than the Peer Groups (Schedule 1, page 1), reflecting its older infrastructure. State of operations, utility service provided and ownership are also shown on page 1 of Schedule 1. As shown, PGW's operating revenues are generally similar to the Peer Groups' revenues (Schedule 1, page 1).

From comparing PGW's volume of throughput (MCF) to the Peer Groups' averages it is evident that PGW's throughput (MCF) is about twice that of the MUNI Group, about 40% less than the IOUPA Group, and about 15% less than the IOU Group (Schedule 1, page 2).[12] PGW has about 30% more miles of mains than the MUNI Group, has about 70% less than the IOUPA Group, and about 40% less than the IOU Group (Schedule 1, page 2). PGW's number of customers served is about 80% more than the MUNI Group and about the same as the IOUPA and IOU groups (Schedule 1, page 2). PGW's residential volume as a percentage of total volumes (percentage of residential sendout) is generally more than the Peer Groups' sendout (Schedule 1, page 2). PGW's average residential use (MCF) is more than the MUNI Group's but less than both the IOUPA Group's and the IOU Group's (Schedule 1, page 2).

[12] MUNI Group members CPS Energy and JEA Utilities' electric sales (KWh) were converted to MCF.

Page 3 of Schedule 1 shows the periods (decades) when PGW's and the Peer Groups' mains where installed. As is evident from the information shown, PGW's system of mains is older than the Peer Groups'. The Muni Group has the newest system, followed by the IOUPA and IOU groups. Age of the system is generally an indication of the need for more capital expenditures.

Table 1 summarized the PGW's general characteristics relative to the Peer Groups'.

	PGW's Characteristics Relative To:		
Characteristic	Muni Group	IOUPA Group	IOU Group
Density			Closest
% Cast Iron			Closest
State of Operation		Yes	
Service Provided	Mixed	Yes	Yes
Asset Ownership	Yes		
Operating Revenues	Yes	Yes	Yes
Total Volume	Less	More	Yes
Miles of Main	Yes	More	More
Customers		Closest	Close
% Residential Sendout		Close	Closest
Avg Residential Use (MCF)	Less	More	More
Age of Installation	Newest	New	New

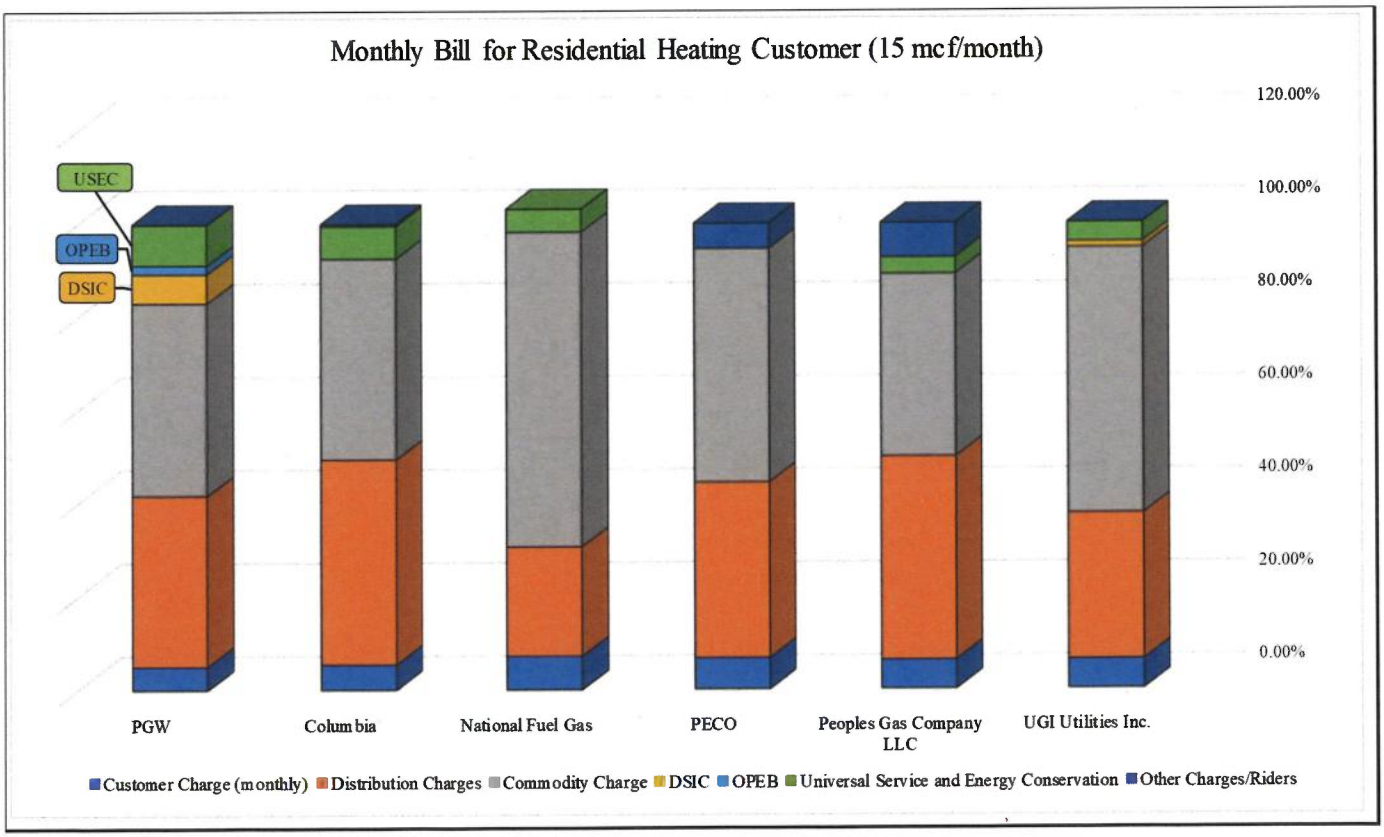
Table 1

Q. WHAT PGW CHARACTERISTICS DIFFERENTIATE IT FROM THE PEER GROUPS?

A. I previously discussed several characteristics that differentiate PGW from the Peer Groups. In addition to those, PGW's structure of rates is quite unique. Figure 1 shows a comparison between PGW's and the IOUPA Group's recent structure, or composite, of residential rates. As shown in Figure 1, PGW's rates have a much larger percentage, at

8.73%, devoted to the rate support of low income customers than the IOUPA Group as measured by the Universal Service and Energy Conservation charge ("USEC"). The IOUPA Group's USEC ranges from a low of 0.00% to a high of 7.00% and averages 3.29%.[13] PGW also has an OPEB component of 1.91% that the IOUPA Group does not. PGW's distribution system improvement charge, or DSIC, rate of 6.23% is also much larger on a percentage basis. The IOUPA Group's DSIC ranges from a low of 0.00% to a high of 1.25% and averages 0.25%. PGW's DSIC also differs from the IOUPA Group's in that it is a cash-basis DSIC, charged on a pay-as-you-go basis.

Figure 1



[13] Figure 1 shows that PECO does not have a USEC charge because their USEC component is embedded in their variable distribution charge.

BOND RATINGS

Q. WHAT IS A BOND RATING AND WHY IS IT IMPORTANT?

A. A bond rating is a credit profile and provides an evaluation of credit risk. A bond rating is usually the most important factor affecting the interest cost on bonds other than the term (life) of the bond issue. The major credit rating services such as S&P Global Ratings ("S&P"), Moody's Investors Service ("Moody's"), and Fitch Ratings Inc. ("Fitch") assess a bond issuer's financial strength[14] using letter grades. These credit rating agencies append modifiers, such as + or - for S&P and Fitch and 1, 2, and 3 for Moody's to each generic rating classification. For example, an "A" credit profile is comprised of three subsets such as A+, A, A- for S&P and Fitch or A1, A2 or A3 for Moody's. The modifier of either "+" or "1" indicates that the obligation ranks in the higher end of its generic rating category; the modifier "2" indicates a mid-range ranking; and the modifier of "-" or "3" indicates a ranking in the lower end of that generic rating category.

S&P, Moody's and Fitch publish financial benchmark criteria necessary to obtain a bond rating for different types of bonds and utilities. As a generalization, the higher the perceived business risk, the more stringent the financial criteria so the sum of the two, business risk and financial criteria, remains the same.

The debt rating process generally provides a good measure of investment risk for all types of investors because the factors considered in the debt rating process are usually relevant factors that other investors (common stock) would consider in assessing the risk of an investment. Credit rating agencies, such as S&P, assess the credit risk of both MUNI revenue bonds and IOU bonds by separating risk into two categories.

[14] Ability to pay principal and interest, in a timely fashion.

For MUNI revenue bonds, the risk of an investment is separated between enterprise and financial risk profiles. The enterprise risk profile includes the operating environment or industry factors, and organization-specific factors such as: economic fundamentals, industry risk, market position, and operational management. The financial profile assesses the financial strength with three factors: coverage metrics, liquidity and reserves, and debt and liabilities.[15]

For IOU bonds, the risk of an investment is separated between fundamental business analysis and financial analysis.[16] The business risk analysis includes assessing: Country risk; industry risk; competitive position; and profitability/peer group comparisons. The financial risk analysis includes assessing: accounting; financial governance and policies/risk tolerance; cash flow adequacy; capital structure/asset protection; and liquidity/short-term factors.

Q. WHAT IS THE BOND RATING OF PGW AND THE PEER GROUPS?

A. Page 1 of Schedule 2 shows the average bond/credit rating for PGW and the Peer Groups. PGW's bond rating is A by S&P, A3 by Moody's, and A- by Fitch. Based on these ratings I calculated PGW's average credit profile to be A-. As shown, I calculated the average credit profile for the MUNI Group's as AA-, the IOUPA Group's as BBB+, and the IOU Group to be A-. The weightings used to calculate the average credit profile are shown on page 2 of Schedule 2.

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[15] *S&P Global Ratings*, Criteria - Governments - U.S. Public Finance: U.S. Municipal Retail Electric and Gas Utilities: Methodology and Assumptions, September 27, 2018.

[16] *S&P Global Ratings,* Corporate Ratings Criteria, General: Criteria Methodology: Business Risk/Financial Risk Matrix Expanded, September 18, 2012, and *S&P Global Ratings*, Criteria Corporates General: Corporate Methodology, July 1, 2019, and *Standard & Poor's*, Criteria - Corporates - Utilities: Key Credit Factors for the Regulated Utilities Industry, November 19, 2013.

The bond/credit ratings (Schedule 2, page 1) show that PGW and the Peer Groups have similar credit but PGW's credit profile is slightly lower than the Peer Groups (i.e., A- versus A). Prospectively, based upon PGW's construction program and OPEB obligations, PGW's credit profile is likely to be strained and may result in a larger difference with the Peer Groups' profile. Without regulatory support, PGW's credit profile will rapidly deteriorate. I will discuss the possibility of PGW's credit profile rapidly deteriorating later in my testimony.

Q. HAS PGW'S BOND RATING IMPROVED AS A RESULT OF THE REVENUE INCREASES GRANTED IN PRIOR RATE CASES?

A. Yes. Helpful regulatory support from PUC-authorized rate increases has enhanced revenues enabling PGW to present an improved credit profile as is evident from their improved bond rating. Table 2 shows PGW's improved bond/credit rating since their last two rate cases to date. As shown in Table 2, PGW's S&P and Moody's bond ratings have generally increased one to two levels during this time period. I believe regulatory support has played a key role in PGW being able to present a better credit profile resulting in improved bond ratings and ultimately lowering costs to customers as a result of having ability to finance at lower interest rates than otherwise would have been the case.

	PGW's Long-Term Debt Ratings				Weightings Assigned to Credit Ratings			
	S&P	Moody's	Fitch	Overall Average Credit	S&P	Moody's	Fitch	Overall Average Weighting
2017 Rate Case	A-	Baa1	BBB+	BBB+	7.0	8.0	8.0	7.7
2020 Rate Case	A	A3	BBB+	A-	6.0	7.0	8.0	7.0
Current Rating (2023)	A	A3	A-	A-	6.0	7.0	7.0	6.7

Table 2

Q. BESIDES THE FACT THAT PGW'S BOND RATING IMPROVED SINCE PRIOR RATE CASES, WHAT OTHER EVIDENCE DO YOU HAVE THAT PROVES PGW'S IMPROVED BOND RATING IS A RESULT OF REGULATORY SUPPORT?

A. S&P, Moody's, and Fitch have cited regulatory support in their recent assessments of PGW credit quality. For example, S&P stated,

> Although PGW is subject to rate regulation and does not benefit from the flexibility we typically associate with municipal utilities that have autonomous rate-setting authority, **recent years' regulatory decisions provided rate relief that supports robust coverage metrics**. Moreover, **the regulator** has authorized the utility's use of several surcharges that **support** capital improvements and postemployment benefits. Also available to the utility are a weather-normalization adjustment that insulates margins from weather variability, and a gas cost rate adjustor that automatically passes on gas costs to ratepayers on a quarterly basis.[17] (Emphasis added.)

Moody's specified,

> The A3 rating reflects the **historically credit supportive regulatory environment** that has increased the utility's asset base, supported an acceleration to its iron main replacement program, and reduced borrowing needs as the approved rates allow for more cash funded capital investments. The rating acknowledges the utility's sound management that has enhanced PGW's operating efficiencies and resulted in recurring cost savings that have led to a more stable and more predictable financial position that is expected to be maintained. The rating remains constrained by PGW's sizeable low income and modestly growing customer base that is pressured during economic downturns, as well as the utility's position as a supplier of last resort, which yields consistently above average retail rates. Moreover, PGW's state rate regulation constrains its cost recovery framework compared to the majority of municipally owned gas utilities in the US, which benefit from local unregulated rate setting. Thus, **the rating heavily factors the constructive relationship PGW has with the Pennsylvania Public Utility Commission (PAPUC)** and the fact that the PAPUC must

[17] *S&P Global Ratings*, Philadelphia; Gas; Joint Criteria, April 24, 2020.

> approve rates sufficient for PGW to satisfy its indenture required 1.5 times debt service coverage ratio (DSCR) rate covenant.[18] (Emphasis added.)

Further, Fitch detailed,

> Rates that are subject to regulatory approval often lead to a lag in potential revenue recovery and limits overall financial flexibility in Fitch's view. Positively, while rate changes are ultimately approved by the **PUC**, a **generally supportive regulatory regime** has provided the system with sufficient **support** to maintain **a stable financial profile.**[19] (Emphasis added.)

Q. WHAT FACTORS HAVE THE MAJOR CREDIT RATING AGENCIES MENTIONED AS BEING POSITIVE CREDIT ATTRIBUTES AND AS BEING NEGATIVE CREDIT CONCERNS?

A. In the aforementioned credit review, S&P referenced the following positives which support PGW's credit ratings:[20]

- The rating reflects our opinion of PGW's strong enterprise risk profile and very strong financial risk profile.
- Extremely strong coverage metrics, as evidenced by very robust coverage of fixed costs (debt service payments after the annual transfer to the city of Philadelphia's general fund).
- Very strong liquidity and reserves, reflecting $124 million in unrestricted cash as of audited fiscal 2019 (measuring a strong 96 days of operating expenses), which management projects will remain near current levels.

S&P also stated the flowing negatives that could prospectively impact PGW's credit rating:[21]

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[18] *Moody's Investors Services*, Rating Action, "Moody's assigns A3 to Philadelphia Gas Works' $215 million Gas Work's Revenue Bonds 16th Series A and $53 million Revenue Refunding Bonds 16th Series B; outlook stable," April 20, 2020.
[19] *Fitch Ratings*, Fitch Upgrades Philadelphia PA's Gas Works Revs to 'A-'; Outlook Stable, February 17, 2022.
[20] *S&P Global Ratings*, April 24, 2020.
[21] Ibid.

- Demographics are weak, but somewhat improved over the past couple of years with median household effective buying income at 77% of the national level (up from 74% in 2017). The utility historically did not shut off service for non-payment. In past years, when natural gas prices were high, PGW experienced low collection rates (in the mid-80% area) and high bad debt expense.

- Highly vulnerable debt and liabilities position, suggested by a very high debt-to-capitalization ratio of 84% as of fiscal 2019, although projected to decline 64% by fiscal 2024, and with a large capital plan of $728 million over the next five years as PGW addresses its main-replacement program.

- Vulnerable market position, due to very high rates versus those of other regional providers and PGW's dependence on the Pennsylvania Public Utility Commission (the "PUC") for approval for base-rate increases, with a mixed history of support for filings, although this has improved recently.

In the former cited credit review, Moody's referenced the following positives which support PGW's credit ratings:[22]

- The A3 rating reflects the historically credit supportive regulatory environment that has increased the utility's asset base, supported an acceleration to its iron main replacement program, and reduced borrowing needs as the approved rates allow for more cash funded capital investments.

- Thus, the rating heavily factors the constructive relationship PGW has with the Pennsylvania Public Utility Commission (PAPUC) and the fact that the PAPUC must approve rates sufficient for PGW to satisfy its indenture required 1.5 times debt service coverage ratio (DSCR) rate covenant.

Moody's identified the following possible negatives that could impact PGW's credit rating:[23]

- The rating remains constrained by PGW's sizeable low income and modestly growing customer base that is pressured during economic downturns, as well as the utility's position as a supplier of last resort, which yields consistently above average retail rates. Moreover, PGW's state rate regulation constrains its cost

[22] *Moody's Investors Service,* April 20, 2020.
[23] Ibid.

recovery framework compared to the majority of municipally owned gas utilities in the US, which benefit from local unregulated rate setting.

- A less credit supportive rate regulatory environment, including a denial of the majority of the current pending base rate increase.
- Increased leverage without sufficient cost recovery.

Fitch referenced the following positives in the previously cited credit review which support PGW's credit ratings:[24]

- Leverage ratio consistently below 6.0x in Fitch's base and stress cases.
- PGW's revenue source characteristics are considered to be strong given a significant portion of the utility's revenues are derived from the provision of monopolistic gas distribution services.
- PGW's historically stable financial profile has improved over the past few years as combination of rate changes and budgetary adjustments that have led to greater revenue recovery and operating income. These positive trends have led to a lower leverage ratio and a strong financial profile assessment.

Fitch acknowledged the following possible negatives that could impact PGW's credit rating:[25]

- Rates that are subject to regulatory approval often lead to a lag in potential revenue recovery and limits overall financial flexibility in Fitch's view.
- An unexpected increase in financial leverage to levels that are sustained above 8.0x in Fitch's base and stress cases.
- An increase in competitive pressures or weakening service area demographics that leads to a weaker assessment for revenue defensibility.

[24] *Fitch Ratings*, February 17, 2022.
[25] Ibid.

Q. ARE THERE OTHER ASPECTS OF PGW'S SERVICE AREA WHICH MAY CAUSE CONCERN TO THE MAJOR CREDIT RATING AGENCIES AND HAVE NEGATIVE CREDIT TRAITS?

A. Yes, the major credit rating agencies evaluate the economy of the area served as part of their credit assessment. In particular, the major credit rating agencies look at median household income ("MHI") and poverty rates of the service area as compared to the nation as a whole. The MHI of PGW's service area is about 76% (2021) of the national average and the poverty rate is about 197% (2021) of the national average according to the American Community Survey (ACS), the Census Bureau. Neither of these demographic statistics is supportive of credit quality and suggests PGW's other attributes must be higher than otherwise to counterbalance the negative demographic statistics.

BENCHMARK METRICS

Q. PLEASE EXPLAIN THE PURPOSE OF THE BENCHMARK METRICS.

A. In determining just and reasonable rate levels for PGW using the cash flow method, the Commission must consider, among other relevant factors: PGW's available short-term borrowing capacity and internal generation of funds to fund construction; the debt to equity ratios and financial performance of similarly situated utility enterprises; the level of operating and other expenses in comparison to similarly situated utility enterprises; and the level of financial performance needed to maintain or improve PGW's bond rating thereby permitting PGW to access the capital markets at the lowest reasonable costs to customers over time.[26]

[26] Pennsylvania Public Utility Commission, "Application of PGW Cash Flow Ratemaking Method—Final Statement of Policy," 52 Pa. Code § 69.2703, in Docket No. P-2009-2136508.

The purpose of the benchmark metrics is to compare PGW's key metrics to the Peer Groups'. The benchmark metrics measure the financial performance of PGW and the Peer Groups from 2017 through 2021.

Q. HOW DID YOU DETERMINE WHICH BENCHMARK METRICS TO MEASURE AND WHY DID YOU SELECT THEM?

A. I selected the benchmark metrics based on the needs of PGW to provide the Commission the measures necessary to satisfy the Commission's requirements in meeting the Commission's "Application of PGW Cash Flow Ratemaking Method—Final Statement of Policy" referenced previously. In addition to providing the specific metrics stated in the Commission's "Application of PGW Cash Flow Ratemaking Method—Final Statement of Policy" I calculated the financial performance metrics used by the major credit rating agencies (S&P, Moody's and Fitch) and referenced in their credit rating criteria measures.

The benchmark metrics I used include metrics used to assess both MUNI and IOU debt. The three most important metrics the major rating agencies use for evaluating MUNI debt include debt to equity ratios, debt service coverage, and Days Cash, and each of these metrics is included in my analysis. As a generalization, the financial performance metrics used by the major credit rating agencies during their credit rating process of MUNI and IOU debt fall into four categories: Leverage & Risk; Liquidity; Solvency; and Efficiency.

In gathering the data required to calculate the benchmark metrics I found some entities lacked certain financial information (gross plant) required for a specific metric. As a result, I expanded the number of benchmark metrics to include similar data (net plant or total capitalization) to provide similar measures while also providing the original

measure. That is, I did not substitute data; rather, I provided complementary metrics in addition to the original metric.

For consistency I used the same "generic" data reported on financial statements for all entities when I calculated the benchmark metrics, thus making the metrics comparable across all entities. As a result, the benchmark metrics I calculated for PGW may differ from benchmark metrics determined by other PGW witnesses who utilized more detailed information.

Q. WHAT BENCHMARK METRICS DID YOU USE IN YOUR ANALYSIS?

A. I used 22 benchmark metrics for comparative purposes. Schedule 3 defines the inputs used in calculating each benchmark metric. As stated, the metrics fall into four categories: Leverage & Risk; Liquidity; Solvency; and Efficiency. Of the 22 benchmark metrics, six metrics provide measures of Leverage & Risk, three metrics appraise Liquidity, five metrics assess Solvency, and eight metrics evaluate Efficiency.[27] The 22 benchmark metrics are shown on pages 1 through 22 of Schedule 4 and are listed in Table 3.

[27] It should be noted that the larger number of metrics devoted to gauging Efficiency, relative to the other three categories, is due to the repetitive nature of some metrics as a result of the lack of required data (gross plant) for some entities and the creation of substitute comparable metrics.

Category	Metric	Schedule 4 Page Number
Leverage & Risk	Debt/Capitalization	1
Leverage & Risk	Operating Margin	2
Leverage & Risk	Debt Service/Cash OpEx	3
Leverage & Risk	Debt/Customer	4
Leverage & Risk	Debt/Revenues	5
Leverage & Risk	Debt/Equity	6
Liquidity	IGF/Revenues	7
Liquidity	FFO/CapEx	8
Liquidity	Days Cash	9
Solvency	FFO/Avg Debt	10
Solvency	FFO Coverage	11
Solvency	EBIT Coverage	12
Solvency	Interest-Only Debt Service Coverage	13
Solvency	Debt Service Coverage (P & I)	14
Efficiency	CapEx/DA	15
Efficiency	Net Plant/Gross Plant	16
Efficiency	CapEx/Net Plant	17
Efficiency	CapEx/Gross Plant	18
Efficiency	CapEx/Capitalization	19
Efficiency	Net Plant/Capitalization	20
Efficiency	Gas Revenue/MCF	21
Efficiency	Non-Commodity Revenue/Revenue	22

Table 3

As is evident by viewing the information shown on Schedule 4, each metric was measured annually over the five-year period (2017-2021), averaged across the five-year period, and then, at the bottom of each page of Schedule 4, PGW's metric was ranked within the range of each Peer Groups' metric for comparison purposes. That is, for comparative ranking purposes, PGW was arrayed within the result of each Peer Group and within all 21 Peer Group entities (ALLCOS). For example, the MUNI Group contains

eight entities but after PGW's results were measured relative to the range of the eight entities, PGW's ranking is shown relative to nine MUNI Group entities since PGW became the ninth entity (i.e., $n + 1$). A similar process was used for all Peer Groups and the ALLCOS.

For descriptive purposes, when describing the results of the rankings relative to the Peer Groups, the term "favorably" (denoted by a "+" on Schedule 4) is used for the lowest two ranks (i.e., a rank of 1 or 2), the term "neutral" (denoted by a "=" on Schedule 4) is used for the more central ranks, and the term "unfavorably" (denoted by a "–" on Schedule 4) is used for the highest two ranks.[28] A similar process was used for ranking the ALLCOS except the lower (favorably) and upper (unfavorably) "tails" were expanded from two ranks to six ranks each because 21 entities were ranked as part of ALLCOS.[29]

The numerical ranking of each metric is relative to the metric being measured and the metric's implication on credit quality. For example, a higher Debt/Capitalization metric is riskier, less favorable and should have a higher numerical rank, while a higher Debt Service Coverage metric is less risky, more favorable and should have a lower numerical rank. This method enabled the least risky, most favorable metric to always be ranked 1 and vice versa. Table 4 illustrates the rankings and the descriptive terms.

[28] Both the MUNI Group and the IOU Group follow this procedure since each group is comprised of eight entities. However, since the IOUPA Group is comprised of five entities, the descriptive ranking terms of "favorably" and "unfavorably" were given only to the highest and lowest rankings.

[29] As stated, PGW's ranking is shown relative to the number of entities in each group plus PGW. This process resulted in the rankings being based on group size plus PGW (i.e., $n + 1$). In the instance that PGW's metric resulted in their ranking being greater than the actual number of entities in each group (unfavorably), or outside the range found for the group, the term "OUT" is shown in the "Interpretation of Rankings" section on Schedule 4. For descriptive purposes, when describing the results of the rankings relative to the Peer Groups, the term "outside" is used in this Report.

Key to Ranking		
Symbol Used on Schedule 4		Term Used in Report
+	⟷	Favorable
=	⟷	Neutral
-	⟷	Unfavorably

Rankings Numbers and Descriptive Term Used in the Report

n =	8	5	8	21
Rank Number of	MUNI Group	IOUPA Group	IOU Group	ALLCOS
1	Favorable	Favorable	Favorable	Favorable
2	Favorable	Neutral	Favorable	Favorable
3	Neutral	Neutral	Neutral	Favorable
4	Neutral	Neutral	Neutral	Favorable
5	Neutral	Unfavorably	Neutral	Favorable
6	Neutral		Neutral	Favorable
7	Unfavorably		Unfavorably	Neutral
8	Unfavorably		Unfavorably	Neutral
9	Outside		Outside	Neutral
10				Neutral
11				Neutral
12				Neutral
13				Neutral
14				Neutral
15				Neutral
16				Unfavorably
17				Unfavorably
18				Unfavorably
19				Unfavorably
20				Unfavorably
21				Unfavorably
22				Outside

Table 4

Q. PLEASE DESCRIBE THE RESULTS OF THE LEVERAGE & RISK BENCHMARK METRICS SHOWN ON SCHEDULE 4.

A. I used six benchmark metrics to assess Leverage & Risk (Schedule 4, pages 1 through 6).

The Debt/Capitalization (page 1) - PGW's metric trended downward (improved) during the entire study period. Debt/Capitalization is the most common measure of leverage. PGW's Debt/Capitalization metric ranged from a low of 73% to a high of 96% from 2017 to 2021, averaged 84% during this period, and was 73% in 2021. The MUNI Group's average metric ranged from a low of 47% to a high of 58% from 2017 to 2021, averaged 52% during this period, and was 47% in 2021. The IOUPA Group's metric was 45% in 2021 and also averaged 45% from 2017 to 2021, while the IOU Group's metric was 44% in 2021 and also averaged 44% from 2017 to 2021.

PGW's metric was positioned unfavorably relative to the five-year average and for 2021 when compared to the Peer Groups. The Debt/Capitalization metric was generally higher for MUNIs compared to IOUs since MUNI utilities regularly debt finance projects while IOUs can finance projects with both debt and equity. This fact commonly results in MUNIs carrying higher levels of debt than IOUs.

Figure 2

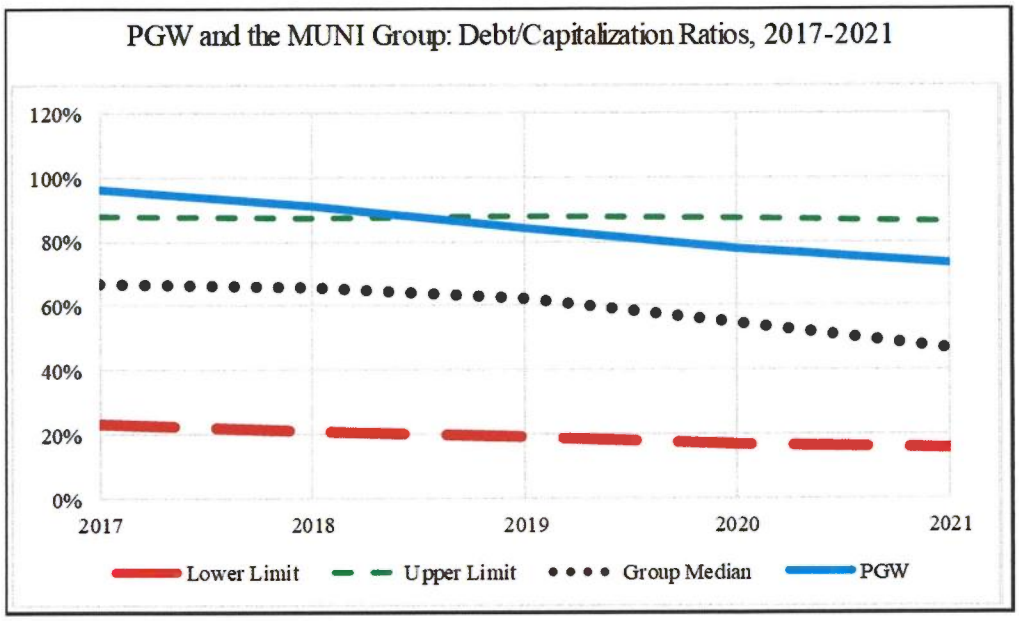

Figure 2 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been within the range of the MUNI Group's metric since 2019 and trended in a similar direction.

The Operating Margin (page 2) - PGW's metric trended upward (improved) during the entire study period. A higher Operating Margin indicates more cash flow produced by revenues and hence, a lower risk profile. On average, PGW's metric was lower than all Peer Groups. PGW's metric was positioned neutral relative to the five-year average and positioned favorably for 2021 when compared to all Peer Groups.

Figure 3

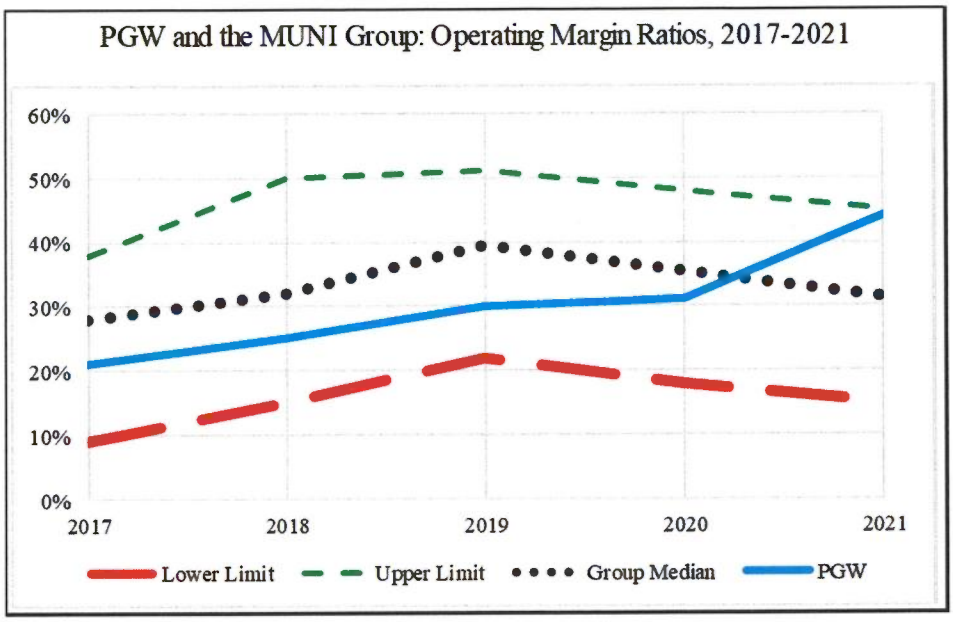

Figure 3 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been within the range of the MUNI Group's metric and has trended in a more favorable direction.

The Debt Service/Cash OpEx (page 3) - PGW's metric trended slightly upwards (negative) over the five-year period while Peer Groups' metric trend was generally flat. PGW's metric has been similar to the MUNI Group's and the IOU Group's but worse than the IOUPA Group's metric.[30] PGW's metric was positioned neutral to the Peer Groups' five-year average and unfavorably for 2021.

[30] Debt repayment was not reported for the IOUPA Group in their annual reports filed with the PUC (source of information).

Figure 4

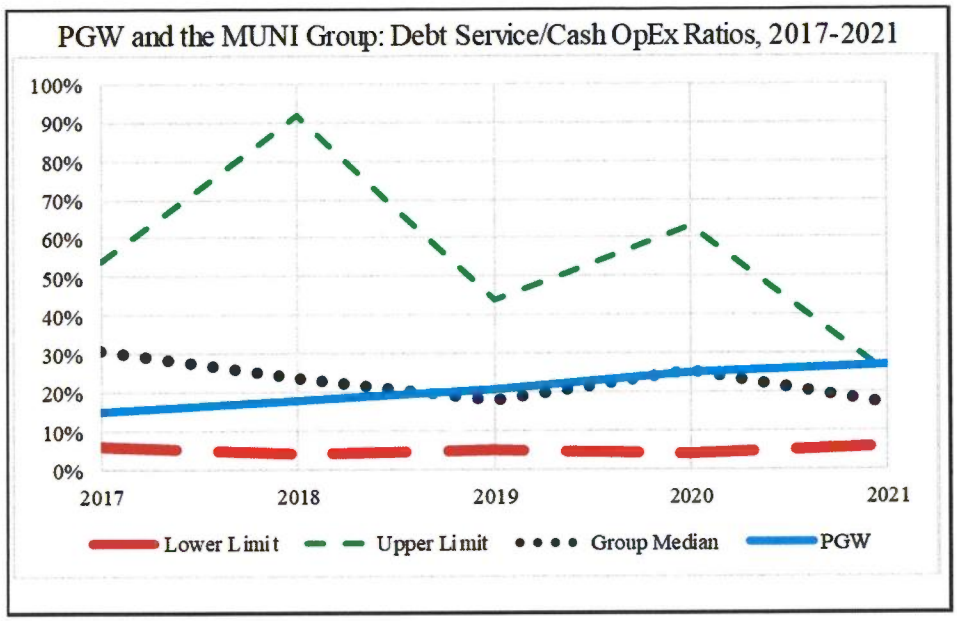

Figure 4 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been within the range of the MUNI Group's metric and has trended in an opposite (negative) direction.

The Debt/Customer (page 4) - PGW's metric trended slightly down over the five-year period as did the Peer Groups' metric. PGW's metric has generally been similar to the MUNI Group's but higher than the IOUPA Group's metric and similar to the IOU Group's metric. PGW's metric was positioned neutral relative to both the five-year average and for 2021 when compared to all Peer Groups.

The Debt/Revenues (page 5) - PGW's metric trended down through 2019 and then trended up to 2021. PGW's metric has generally been similar to the MUNI Group's, higher than the IOUPA Group's metric and similar to the IOU Group's metric.[31] PGW's

[31] The balance sheet for PECO Gas (IOUPA Group) is reported on a consolidated basis while their other financial statements are reported for gas operation only. Therefore, the metrics which include variables from the balance sheet and other financial statements have been excluded.

metric was positioned unfavorably relative to both the five-year average and for 2021 when compared to the Peer Groups.

Figure 5

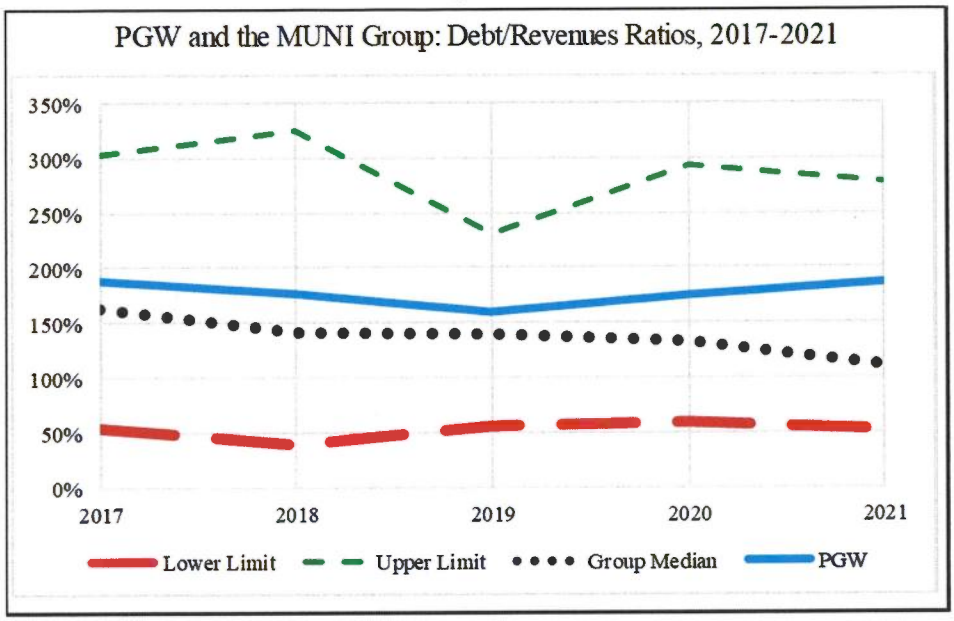

Figure 5 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been within middle to upper range of the MUNI Group's metric and has trended in the opposite (negative) direction since 2019.

The Debt/Equity (page 6) - PGW's metric trended downward (improved) over the five-year period ended 2021. PGW's metric was positioned outside (unfavorably) the Peer Groups' for the five-year average and unfavorably for 2021. The Debt/Equity metric was higher for MUNIs compared to IOUs since MUNI utilities regularly debt finance projects while IOUs can finance projects with both debt and equity. This fact commonly results in MUNIs carrying higher levels of debt than IOUs.

Overall, PGW's Leverage & Risk metrics trended similar to the Peer Groups' metrics and were positioned neutral relative to both the five-year average and for 2021 when compared to all Peer Groups.

Q. PLEASE DESCRIBE THE RESULTS OF THE LIQUIDITY BENCHMARK METRICS SHOWN ON SCHEDULE 4.

A. I used three benchmark metrics to assess Liquidity (Schedule 4, pages 7 through 9).

The IGF/Revenues (page 7) - PGW's metric trended upward (improved) over the five-year period ended 2021. A higher IGF/Revenues indicates more cash flow produced by revenues and hence, a lower risk profile. PGW's metric has been lower than all Peer Groups' metrics. PGW's metric was positioned unfavorably relative to the five-year average and neutral for 2021 relative to the MUNI Group's and IOUPA Group's metric but positioned neutral to the IOU Group's metric.

The FFO/CapEx (page 8) - PGW's metric trended upward (improved) over the five-year period ended 2021. A higher FFO/CapEx indicates more cash flow available to finance construction and hence, a lower risk profile. PGW's metric has been similar to the MUNI Group's but more than the IOUPA Group's metric and IOU Group's metric for the five-years ended 2021. PGW's metric was positioned neutral relative to the five-year average and 2021 relative to the MUNI Group's and positioned favorably to both the IOUPA Group's metric and the IOU Group's metric.

The Days Cash (page 9) - PGW's metric generally trended upwards (improved) over the five-year period. A higher Days Cash indicates more cash available to pay for operating expenses, hence a lower risk profile. PGW's metric has been lower than the

MUNI Group's metric.[32] PGW's Days Cash metric ranged from a low of 66 days to a high of 163 days from 2017 to 2021, averaged 117 days during this period, and was 158 days in 2021. The MUNI Group's Days Cash metric ranged from a low of 200 days to a high of 227 days from 2017 to 2021, averaged 211 days during this period, and was 227 days in 2021. The IOUPA Group's metric was 103 days in 2021 and averaged 70 days from 2017 to 2021, while the IOU Group's metric was 2 days in 2021 and averaged 4 days from 2017 to 2021. The Days Cash metric is not a useful metric to compare MUNIs and IOUs since IOUs usually have much different short-term borrowing arrangements than MUNIs. PGW's metric was positioned outside (unfavorably) for the five-year average and neutral for 2021 relative to the MUNI Group's metric.

Figure 6

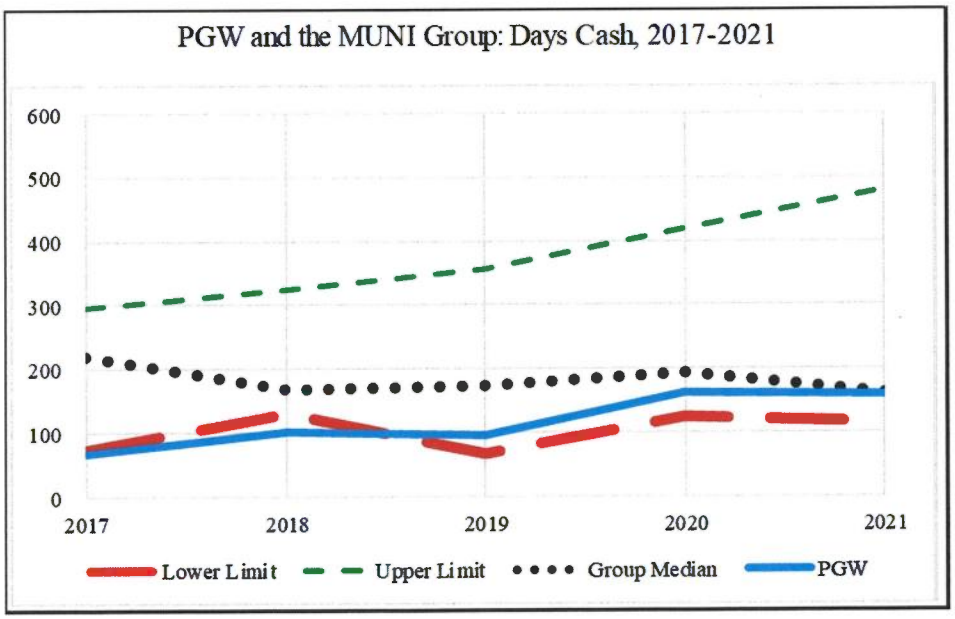

Figure 6 displays a comparison between PGW's metric and the MUNI Group's

[32] As noted previously, PGW's fiscal year ends in August when cash needs are at their lowest compared to their needs during the heating season. Accordingly, PGW's August cash balance is rapidly "spent down" during the winter months.

metric. As shown, PGW's metric has generally been in the lower portion of the range of the MUNI Group's metric and trended in a similar direction.

Overall, PGW's Liquidity metrics trended similar to the Peer Groups' metrics and were positioned unfavorably relative to both the five-year average and for 2021 when compared to all Peer Groups.

Q. PLEASE DESCRIBE THE RESULTS OF THE SOLVENCY BENCHMARK METRICS SHOWN ON SCHEDULE 4.

A. I used five benchmark metrics to assess Solvency (Schedule 4, pages 10 through 14).

The FFO/Avg Debt (page 10) - PGW's metric trended upward (improved) through 2021. A higher FFO/Avg Debt indicates more cash flow available to service debt and hence, a lower risk profile. PGW's metric has been lower than all Peer Groups' metric. PGW's metric was positioned unfavorably relative to the Peer Groups' five-year average but neutral for 2021 relative to the Peer Groups' metric.

Figure 7

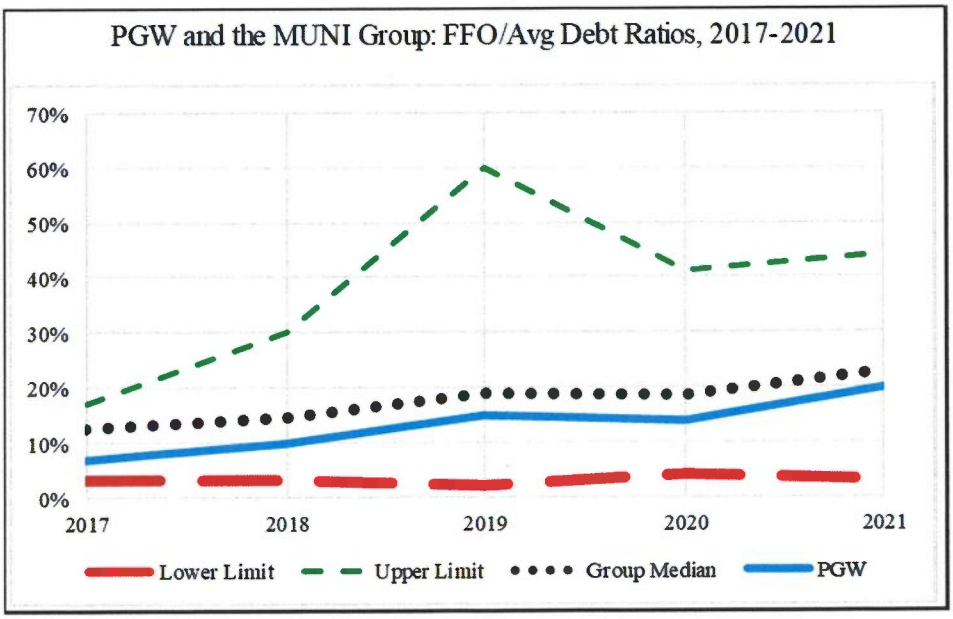

Figure 7 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been within the lower portion of the range of the MUNI Group's metric and trended in a similar direction.

The FFO Coverage (page 11) - PGW's metric trended upward (improved) through 2021. A higher FFO Coverage indicates more cash flow available to pay interest and hence, a lower risk profile. PGW's metric has been lower than all Peer Groups' metric. PGW's metric was positioned unfavorably relative to the Peer Groups' five-year average. For 2021, PGW's metric was positioned neutral relative to all the Peer Groups.

The EBIT Coverage (page 12) - PGW's metric trended upward (improved) through 2021. A higher EBIT Coverage indicates the ability of a company to pay the interest on its outstanding debt with pre-tax dollars and therefore, is a lower risk profile. PGW's metric has been similar to the MUNI Group's metric but lower than the IOUPA and the IOU Group's metric. However, since both the IOUPA Group and the IOU Group pay income taxes, their metrics should be higher than MUNIs. PGW's metric was positioned neutral relative to the MUNI Group's metric for the five-year average and for 2021 and was positioned unfavorably relative to the IOUPA Group's and IOU Group's metric for the five-year average but neutral for 2021.

Figure 8

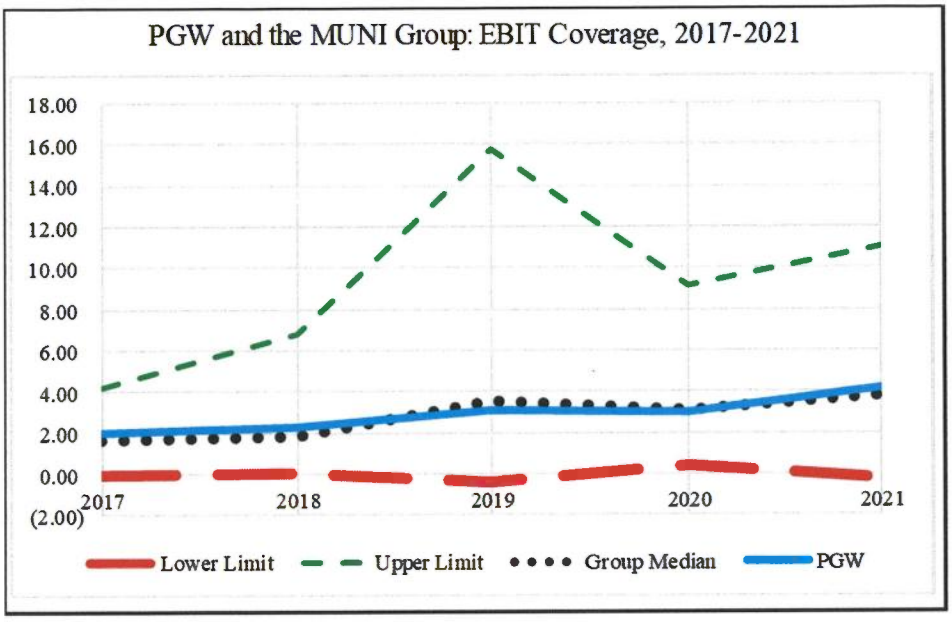

Figure 8 shows a comparison between PGW's metric and the MUNI Group's metric. As revealed, PGW's metric has generally been within the middle portion of the range of the MUNI Group's metric and trended in a similar direction.

The Interest-Only Debt Service Coverage (page 13) - PGW's metric trended upwards (strengthened) over the five-year period. A higher Interest-Only Debt Service Coverage indicates the ability to pay the interest on its outstanding debt and consequently, is a lower risk profile. PGW's metric has been lower than all Peer Groups' metric. PGW's metric was generally positioned unfavorably relative to the Peer Groups' metric for the five-year average and neutral for 2021.

The Debt Service Coverage (P & I) (page 14) - PGW's metric trended upwards (improved) over the five-year period. A higher Debt Service Coverage (P & I) indicates the ability to service or pay the interest and principal on outstanding debt and accordingly, is a lower risk profile. PGW's metric has generally been lower than all Peer Groups'

metric. PGW's Debt Service Coverage (P & I) metric ranged from a low of 1.95-times to a high of 2.86-times from 2017 to 2021, averaged 2.21-times during this period, and was 2.86-times in 2021. The MUNI Group's metric ranged from a low of 1.74-times to a high of 3.68-times from 2017 to 2021, averaged 2.85-times during this period, and was 3.68-times in 2021. The IOU Group's metric was 4.76-times in 2021 and averaged 3.42-times from 2017 to 2021.[33]

PGW's metric was positioned neutral for 2021 relative to the MUNI Group's metric and unfavorably compared with the IOU Group's metric. PGW's metric was positioned unfavorably relative to all Peer Groups for the five-year average but neutral for 2021.

Figure 9

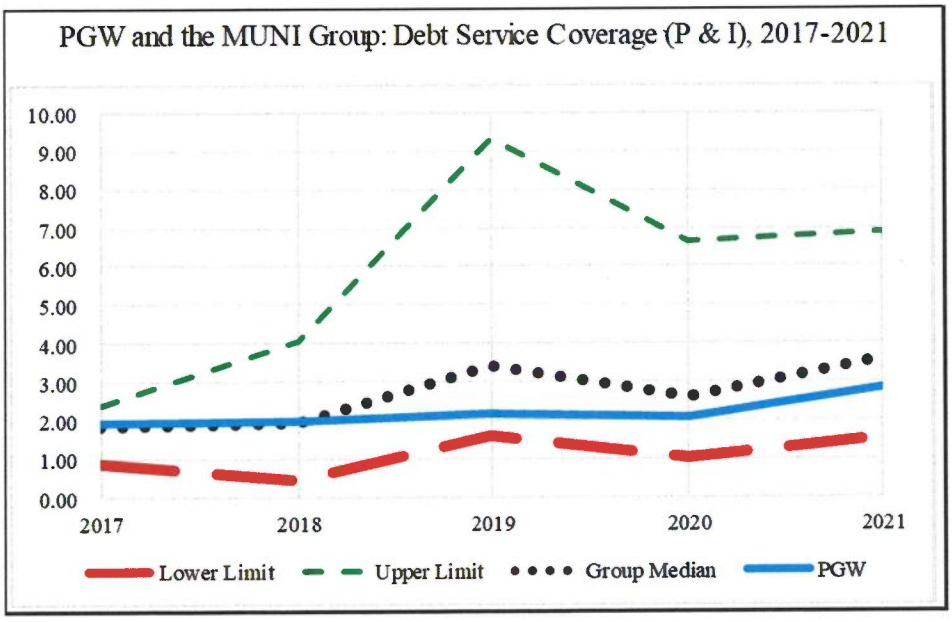

Figure 9 displays a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has improved and trended around the central range of the MUNI Group's metric.

[33] Debt repayment was not reported for the IOUPA Group in their annual reports filed with the PUC (source of information) and therefore, this metric is not shown for the IOUPA Group.

Overall, PGW's Solvency metrics trended upwards, similar to the Peer Groups' metrics trend. PGW's Solvency metrics were generally positioned unfavorably to neutral relative to both the five-year average and for 2021 when compared to all Peer Groups.

Q. WERE THE DEBT SERVICE COVERAGES YOU JUST DISCUSSED CALCULATED CONSISTENT WITH EACH ENTITY'S BOND ORDINANCE?

A. No, each entity's bond ordinance is unique to a particular bond or seniority of bond. The debt service coverage ratios shown on Schedule 4 are generic measures of aggregated debt service coverage. Schedule 5 shows a comparison between the benchmark ratios (Schedule 4) and bond ordinance debt service coverages reported by PGW and the MUNI Group. As shown on Schedule 5, PGW's bond ordinance debt service coverages are about 10% higher than the aggregate debt service coverage shown on Schedule 4.

Q. PLEASE DESCRIBE THE RESULTS OF THE EFFICIENCY BENCHMARK METRICS SHOWN ON SCHEDULE 4.

A. I used eight benchmark metrics to assess Efficiency (Schedule 4, pages 15 through 22).

The CapEx/DA (page 15) - PGW's metric trended down (improved) slightly over the five-year period. A higher CapEx/DA indicates the need for more external financing and consequently, is a higher risk profile. PGW's metric has been higher than the MUNI Group's metric but lower than the IOUPA Group's and IOU Group's metrics. PGW's metric was positioned unfavorably relative to the MUNI Group's for the five-year average and outside (unfavorably) for 2021. PGW's metric was positioned favorably relative to the IOUPA Group's for the five-year average and for 2021 but was positioned neutral relative to the IOU Group's for the five-year average and for 2021.

The Net Plant/Gross Plant (page 16) – PGW's metric's trend was flat across the time period as was the Peer Groups' trend. A higher Net Plant/Gross Plant indicates the age of assets and the need for less capital expenditures and consequently, is a lower risk profile. PGW's metric has been similar to the MUNI Group's metric and lower than the IOUPA Group's and IOU Group's metrics. PGW's metric was positioned neutral relative to the MUNI Group's for the five-year average and favorably for 2021. PGW's metric was generally positioned outside (unfavorably) compared with both the IOUPA Group's and IOU Group's metrics for the five-year average and for 2021.

Figure 10

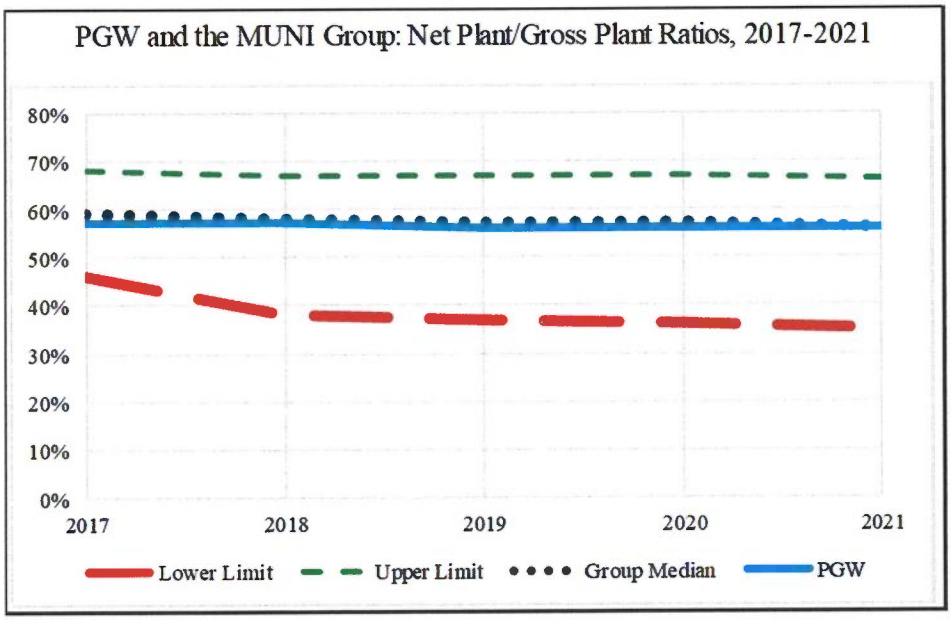

Figure 10 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been in the middle range of the MUNI Group's metric.

The CapEx/Net Plant (page 17) – PGW's metric's trend was flat across the time period. A higher CapEx/Net Plant indicates the reinvestment rate of plant and the possible

need for more external financing; and consequently, is a higher risk profile. PGW's metric has been about the same as the MUNI Group's metric but somewhat lower than the IOUPA Group's and IOU Group's metrics.[34] PGW's metric was positioned neutral relative to the MUNI Group's for the five-year average but unfavorably for 2021. PGW's metric was generally positioned neutral compared with the IOUPA Group's and favorably compared IOU Group's metrics for the five-year average and for 2021.

The CapEx/Gross Plant (page 18) – PGW's metric's trend was flat across the time period as was the Peer Groups' trend. A higher CapEx/Gross Plant indicates the reinvestment rate of plant and the possible need for more external financing; and therefore, is a higher risk profile. PGW's metric has been about the same as the MUNI Group's metric but somewhat lower than the IOUPA Group's and IOU Group's metrics.[35] PGW's metric was positioned neutral relative to the MUNI Group's, and favorably compared with both the IOUPA Group's and the IOU Group's metrics for the five-year average and for 2021.

[34] The balance sheet for PECO Gas (IOUPA Group) is reported on a consolidated basis while their other financial statements are reported for gas operation only. Therefore, the metrics which include variables from the balance sheet and other financial statements have been excluded.

[35] The balance sheet for PECO Gas (IOUPA Group) is reported on a consolidated basis while their other financial statements are reported for gas operation only. Therefore, the metrics which include variables from the balance sheet and other financial statements have been excluded.

Figure 11

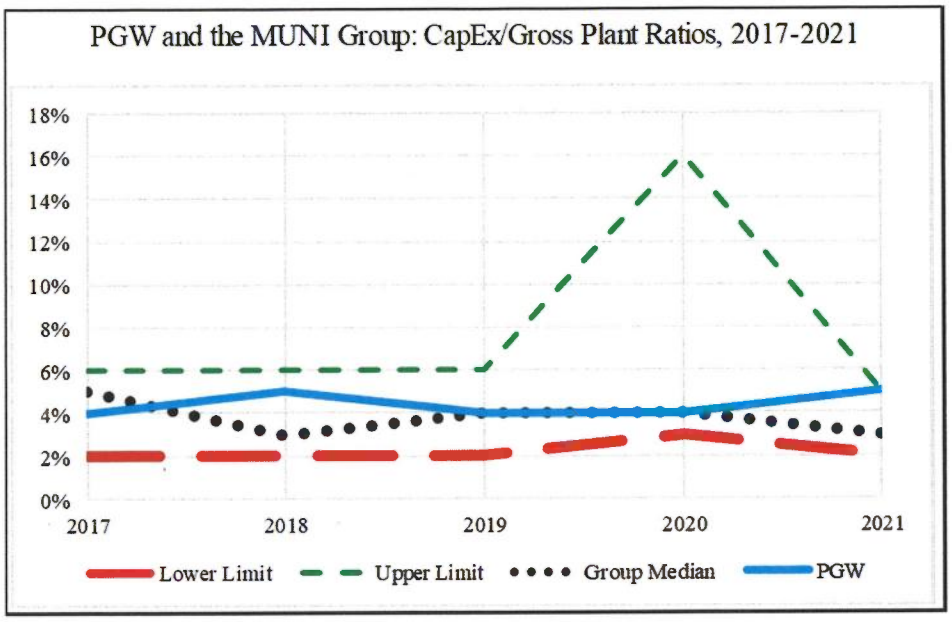

Figure 11 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been in the middle range of the MUNI Group's metric.

The CapEx/Capitalization (page 19) - PGW's metric trended flat across the five-year period. A higher CapEx/Capitalization indicates the turnover rate of investor provided capital and the possible need for more external financing; and accordingly, is a higher risk profile. PGW's metric has been higher than the MUNI Group's metric but lower than both the IOUPA Group's and IOU Group's metrics.[36] PGW's metric was positioned outside (unfavorably) relative to the MUNI Group's, and favorably compared with the IOUPA Group's and neutral relative to the IOU Group's metrics for the five-year average and for 2021.

[36] The balance sheet for PECO Gas (IOUPA Group) is reported on a consolidated basis while their other financial statements are reported for gas operation only. Therefore, the metrics which include variables from the balance sheet and other financial statements have been excluded.

The Net Plant/Capitalization (page 20) - PGW's metric trended down (diminished) over the five-year period. A higher Net Plant/Capitalization indicates the efficiency with which capital is raised and then invested and subsequently, is a lower risk profile. PGW's metric has been higher than the MUNI Group's metric but lower than the IOUPA Group's and the IOU Group's metrics. PGW's metric was positioned favorably relative to the MUNI Group's, unfavorably compared with the IOUPA Group's, and neutral to the IOU Group's metrics for the five-year average and for 2021.

Figure 12

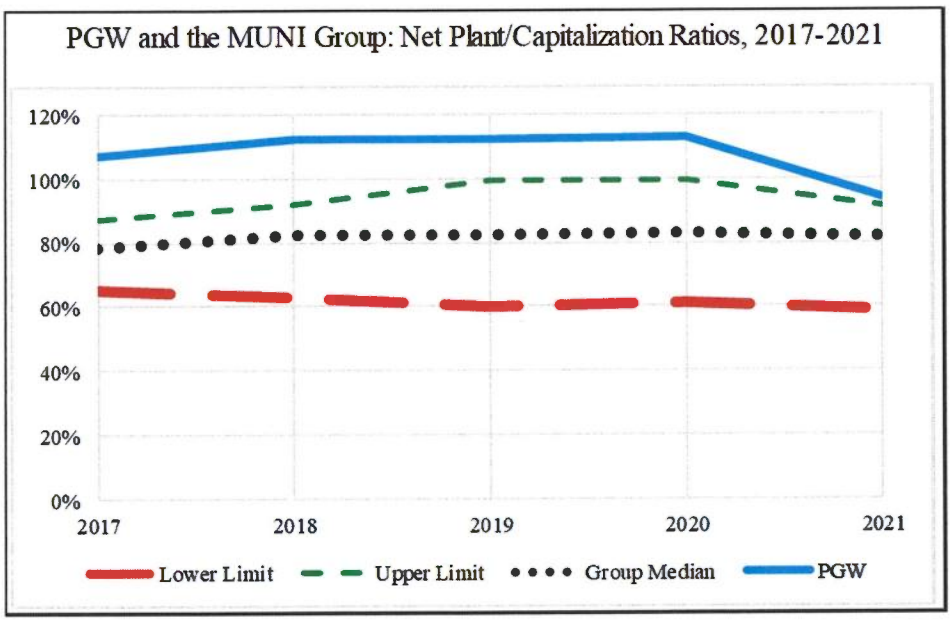

Figure 12 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has been above the range of the MUNI Group's metric for most years.

The Gas Revenue/MCF (page 21) - PGW's metric's trend was generally flat across the time period as was the MUNI Group's trend. A higher Gas Revenue/MCF invites possible load loss; and therefore, is a higher risk profile. However, this metric is impacted

by customer mix (% residential) and the volume (MCF) of transport only customers. PGW's metric has been higher than the Peer Groups' metric. The Peer Groups' lower percentage of residential sendout impacts this metric. PGW's metric was positioned neutral relative to the MUNI Group's metrics, outside (unfavorably) relative to the IOUPA Group's metrics, and neutral compared to the IOU Group's for the five-year average and for 2021.

The Non-Commodity Revenue/Revenue (page 22) – PGW's metric trended upwards (strengthened) over the five-year period. A higher Non-Commodity Revenue/Revenue measures efficiency; and therefore, is a lower risk profile. However, this metric may be impacted by commodity (gas) prices. PGW's metric has been higher than the Peer Groups' metric. PGW's metric was positioned favorably relative to the MUNI Group's metrics, neutral relative to the IOUPA Group's metrics, and favorably compared to the IOU Group's for the five-year average and for 2021.

Figure 13

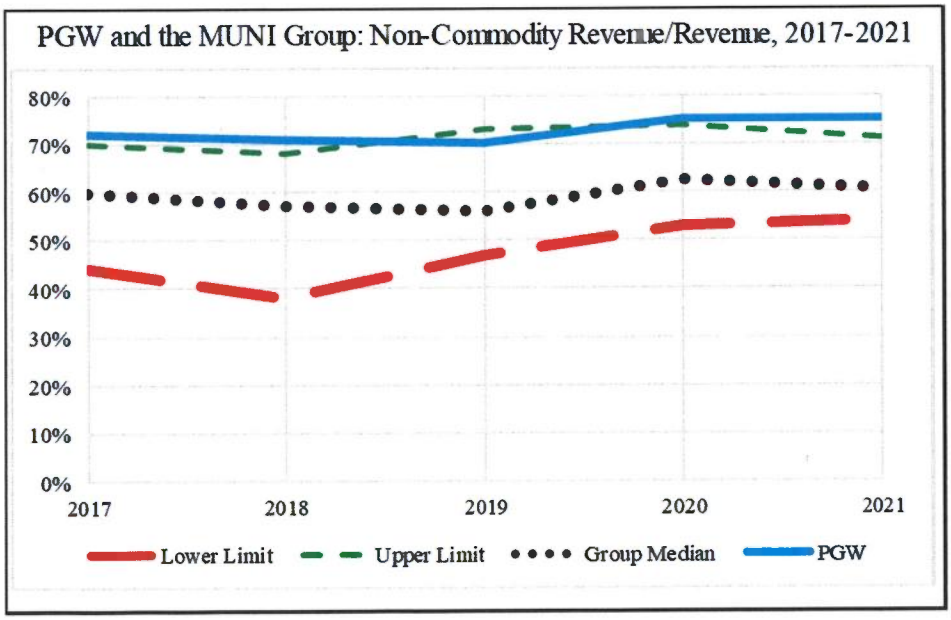

Figure 13 shows a comparison between PGW's metric and the MUNI Group's metric. As shown, PGW's metric has generally been above or in the upper range of the MUNI Group's metric.

Overall, PGW's Efficiency metrics trended in a similar direction as the Peer Groups' metrics. PGW's Efficiency metrics were generally positioned favorably to neutral relative to both the five-year average and for 2021 when compared to all Peer Groups.

Based upon all the benchmark metrics (Schedule 4) reviewed, coupled with my review of PGW's operating requirements, I conclude that PGW's financial and operating results trended mostly in a similar direction as the Peer Groups and were positioned neutral to unfavorably when compared to the Peer Groups' metrics. Given the difference between PGW and the Peer Groups' credit quality (Schedule 2), I believe the benchmark metrics support the need for additional rate support.

RATE SUPPORT IMPACT ON BENCHMARK METRICS

Q. PREVIOUSLY WHEN DISCUSSING CREDIT RATINGS, YOU STATED, "I BELIEVE REGULATORY SUPPORT HAS PLAYED A KEY ROLE IN PGW BEING ABLE TO PRESENT A BETTER CREDIT PROFILE RESULTING IN IMPROVED BOND RATINGS." WHAT IS THE BASIS OF YOUR BELIEF?

A. To begin, I previously discussed Table 2 (see page 20 *et seq.*), which showed that PGW's bond rating improved following each of the last two rate cases. To clarify, the regulatory support provided to PGW in their last two rate cases did not in itself result in bond rating increases. Rather, the regulatory support provided PGW the wherewithal, or the ability to present a better credit profile, which resulted in improved bond ratings.

The major credit rating agencies review a number of metrics as part of their credit assessment. However, there are three key metrics which the major credit rating agencies give strong consideration to: Debt/Capitalization; Days Cash; and Debt Service Coverage (P & I). Each metric measures a unique type of risk: Leverage & Risk (Debt/Capitalization); Liquidity (Days Cash); and Solvency (Debt Service Coverage (P & I)). Table 5 shows these three key metrics for PGW just prior to their last two rate cases and for the current rate case based upon the most recent financial information available when each rate case was filed (i.e. financial information for 2015, 2019 and 2022).[37] Table 5 also shows similar key metrics calculated for the fully projected future test year ("FPFTY") and the last year (2027) of PGW's forecast period; both with and without the requested rate increase granted.[38]

	Historical			Projected			
	Aug-31 2015	Aug-31 2019	Aug-31 2022	FPFTY Aug-31 2024	Aug-31 2027	FPFTY Aug-31 2024	Aug-31 2027
Rate Increase Granted				$0 MM	$0 MM	$85 MM	$85 MM
Debt/Capitalization	79%	84%	64%	64%	54%	62%	48%
Days Cash	74	96	84	18	-138	66	53
Debt Service Coverage (P & I)	1.13	2.15	3.00	1.71	1.51	2.30	2.12

Table 5

When viewing the three key metrics shown in Table 5 it is important to understand the metrics are not isolated metrics, rather they work in tandem with one another so that

[37] All metrics shown in Tables 5 and 6 were calculated using the same methodologies used to calculate similar metrics shown on Schedule 4. Therefore, the metrics use "generic" formulas used for benchmarking that may vary from PGW's covenant calculations and/or Schedules JFG-1 and JFG-2. PGW's covenant calculations require specific information that was not available for all entities used in the benchmarking analysis.

[38] The financial information for the projected periods was taken from PGW's Schedules JFG-1 and JFG-2.

the sum of their implications (risk) must offset one another if investment risk is to remain unchanged. For example, if the risk of Leverage is high, then the risk measured for Liquidity and Solvency must offset Leverage's higher risk in order for the total risk (investment risk) to remain unchanged. It is also important to recall that PGW's three key metrics largely lag the Peer Groups' metrics as was discussed regarding Schedule 4.

Table 5 shows PGW's three key metrics (investment risk) generally improved following their most recent two rate cases, as did their credit rating (Table 2).[39] Table 5 also shows PGW's three key metrics are projected to rapidly deteriorate without rate relief to levels, or risk implications, not unlike 2015 and 2019. Conversely, with PGW's proposed rate increase, shown in the two right hand columns of Table 5, PGW's three key metrics are projected to be healthier and suggest a better risk profile or credit profile. I believe regulatory support has played a key role in PGW being able to present a better credit profile resulting in improved bond ratings and ultimately lowering cost to customers as a result of having ability to finance at lower interest rates than otherwise would have been the case. Table 5 demonstrates the need for continued regulatory support in order for PGW to improve, or at least maintain, their credit profile.

Q. HOW WOULD THE PROPOSED RATE INCREASE IMPACT PGW'S CREDIT PROFILE?

A. Table 6 shows the three key metrics for PGW calculated for the historic test year ("HTY"), future test year ("FTY"), FPFTY, and PGW's forecast period (2024 – 2027). The three key metrics shown in Table 6 were calculated both without and with the requested rate increase granted. As shown in Table 6, PGW's Debt/Capitalization will improve

[39] The lone exception regarding improved metrics was Debt/Capitalization which was impacted by PGW's implementation of GASB 75 (reporting OPEB liabilities for OPEB plans) in 2017.

significantly as a result of the requested rate increase being granted. PGW's Days Cash will maintain closer to the HTY level and Debt Service Coverage (P & I) will maintain closer to the historical periods as a result of the requested rate increase being granted.[40] Table 6 also shows PGW's three key metrics will rapidly weaken without the proposed rate increase to levels which generally preceeded HTY.

Metric	Rate Increase ($MM)	HTY Aug-31 2022	FTY Aug-31 2023	FPFTY Aug-31 2024	Forecast Period Aug-31 2025	Aug-31 2026	Aug-31 2027
Debt/Capitalization	0	64%	61%	64%	60%	57%	54%
	85	64%	61%	62%	56%	52%	48%
Days Cash	0	84	64	18	-51	-99	-138
	85	84	64	66	48	46	53
Debt Service Coverage (P & I)	0	3.00	2.02	1.71	1.57	1.43	1.51
	85	3.00	2.02	2.30	2.14	2.04	2.12

Table 6

Regulatory support plays a key role in PGW being able to present a healthier credit profile, improve bond ratings and ultimately lower the cost to customers as a result of PGW having the ability to finance at lower interest rates than otherwise would have been the case.

[40] All metrics shown in the Tables 5 and 6 were calculated using the same methodologies used to calculate similar metrics shown on Schedule 4. Therefore, the metrics use "generic" formulas used for benchmarking that may vary from PGW's covenant calculations and/or Schedules JFG-1 and JFG-2. PGW's covenant calculations require specific information that was not available for all entities used in the benchmarking analysis.

SUMMARY AND OVERALL RECOMMENDATION

Q. PLEASE SUMMARIZE YOUR ANALYSIS AND RECOMMENDATION.

A. My recommendation is based on the results of my benchmark study and my recommendation is that PGW be afforded a timely rate increase to cover its costs and at least maintain its financial stability. Authorizing the full rate increase requested would send a strong positive signal of support to credit rating agencies, enable PGW to at least maintain their credit profile, minimize borrowing costs and ultimately save customers money in the long run. The benchmark study shows that PGW's financial performance generally improved each year since 2017 based on both average performance over the 2017 to 2021 time period, and also the trend from 2017 through 2021. The benchmarking study also shows that PGW lags its peers on some key benchmarks, or metrics, such as Days Cash and Debt/Capitalization.

The benchmark study also reviewed forecasted benchmarking metrics of PGW's financial performance based on the proposed rate increase. The forecasted benchmark analysis shows that there is a continuing need to support PGW's financial stability with a timely rate increase to enable PGW to further strengthen its credit profile and to lessen the gap between itself and its peers.

Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

APPENDIX A

Professional Qualifications
of
Harold Walker, III
Manager, Financial Studies
Gannett Fleming Valuation and Rate Consultants, LLC.

EDUCATION

Mr. Walker graduated from Pennsylvania State University in 1984 with a Bachelor of Science Degree in Finance. His studies concentrated on securities analysis and portfolio management with an emphasis on economics and quantitative business analysis. He has also completed the regulation and the rate-making process courses presented by the College of Business Administration and Economics Center for Public Utilities at New Mexico State University. Additionally, he has attended programs presented by The Institute of Chartered Financial Analysts (CFA).

Mr. Walker was awarded the professional designation "Certified Rate of Return Analyst" (CRRA) by the Society of Utility and Regulatory Financial Analysts. This designation is based upon education, experience and the successful completion of a comprehensive examination. He is also a member of the Society of Utility and Regulatory Financial Analysts (SURFA) and has attended numerous financial forums sponsored by the Society. The SURFA forums are recognized by the Association for Investment Management and Research (AIMR) and the National Association of State Boards of Accountancy for continuing education credits.

Mr. Walker is also a licensed Municipal Advisor Representative (Series 50) by Municipal Securities Rulemaking Board (MSRB) and Financial Industry Regulatory Authority (FINRA).

BUSINESS EXPERIENCE

Prior to joining Gannett Fleming Valuation and Rate Consultants, LLC., Mr. Walker was employed by AUS Consultants - Utility Services. He held various positions during his eleven years with AUS, concluding his employment there as a Vice President. His duties included providing and supervising financial and economic studies on behalf of investor-owned and municipally owned water, wastewater, electric, natural gas distribution and transmission, oil pipeline and telephone utilities as well as resource recovery companies.

In 1996, Mr. Walker joined Gannett Fleming Valuation and Rate Consultants, LLC. In his capacity as Manager, Financial Studies and for the past twenty years, he has continuously studied rates of return requirements for regulated firms. In this regard, he supervised the preparation of rate of return studies in connection with his testimony and in the past, for other individuals. He also assisted and/or developed dividend policy studies, nuclear prudence studies, calculated fixed charge rates for avoided costs involving cogeneration projects, financial decision studies for capital budgeting purposes and developed financial models for determining future capital requirements and the effect of those requirements on investors and ratepayers, valued utility property and common stock for acquisition and divestiture, and assisted in the private placement of fixed capital securities for public utilities.

Head, Gannett Fleming GASB 34 Task Force responsible for developing Governmental Accounting Standards Board (GASB) 34 services, and educating Gannett Fleming personnel and Gannett Fleming clients on GASB 34 and how it may affect them. The GASB 34 related services include inventory of assets, valuation of assets, salvage estimation, annual depreciation rate determination, estimation of depreciation reserve, asset service life determination, asset condition assessment, condition assessment documentation, maintenance estimate for asset preservation, establishment of condition level index, geographic information system (GIS) and data management services, management discussion and analysis (MD&A) reporting, required supplemental information (RSI) reporting, auditor interface, and GASB 34 compliance review.

In 2004, Mr. Walker was elected to serve on the Board of Directors of SURFA. Previously, he served as an ex-officio directors as an advisor to SURFA's existing President. In 2000, Mr. Walker was elected President of SURFA for the 2001-2002 term. Prior to that, he was elected to serve on the Board of Directors of SURFA during the period 1997-1998 and 1999-2000. Currently, he also serves on the Pennsylvania Municipal Authorities Association, Electric Deregulation Committee.

EXPERT TESTIMONY

Mr. Walker has submitted testimony or been deposed on various topics before regulatory commissions and courts in 26 states including: Arizona, California, Colorado, Connecticut, Delaware, Hawaii, Idaho, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, Nevada, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, and West Virginia. His testimonies covered various subjects including: fair market value, the taking of natural resources, appropriate capital structure and fixed capital cost rates, depreciation, fair rate of return, purchased water adjustments, synchronization of interest charges for income tax purposes, valuation, cash working capital, lead-lag studies, financial analyses of investment alternatives, benchmarking, and fair value. The following tabulation provides a listing of the electric power, natural gas distribution, telephone, wastewater, and water service utility cases in which he has been involved as a witness.

Client	Docket No.
Alpena Power Company	U-10020
Armstrong Telephone Company - Northern Division	92-0884-T-42T
Armstrong Telephone Company - Northern Division	95-0571-T-42T
Artesian Water Company, Inc.	90 10
Artesian Water Company, Inc.	06 158
Aqua Illinois Consolidated Water Divisions and Consolidated Sewer Divisions	11-0436
Aqua Illinois Hawthorn Woods Wastewater Division	07 0620/07 0621/08 0067
Aqua Illinois Hawthorn Woods Water Division	07 0620/07 0621/08 0067
Aqua Illinois Kankakee Water Division	10-0194
Aqua Illinois Kankakee Water Division	14-0419
Aqua Illinois Vermilion Division	07 0620/07 0621/08 0067
Aqua Illinois Willowbrook Wastewater Division	07 0620/07 0621/08 0067
Aqua Illinois Willowbrook Water Division	07 0620/07 0621/08 0067
Aqua Pennsylvania, Inc	A-2022-3034143
Aqua Pennsylvania Wastewater Inc	A-2016-2580061
Aqua Pennsylvania Wastewater Inc	A-2017-2605434
Aqua Pennsylvania Wastewater Inc	A-2018-3001582
Aqua Pennsylvania Wastewater Inc	A-2019-3008491
Aqua Pennsylvania Wastewater Inc	A-2019-3009052
Aqua Pennsylvania Wastewater Inc	A-2019-3015173
Aqua Pennsylvania Wastewater Inc	A-2021-3024267
Aqua Pennsylvania Wastewater Inc	A-2021-3026132
Aqua Pennsylvania Wastewater Inc	A-2021-3027268
Aqua Virginia - Alpha Water Corporation	Pue-2009-00059
Aqua Virginia - Blue Ridge Utility Company, Inc.	Pue-2009-00059
Aqua Virginia - Caroline Utilities, Inc. (Wastewater)	Pue-2009-00059
Aqua Virginia - Caroline Utilities, Inc. (Water)	Pue-2009-00059
Aqua Virginia - Earlysville Forest Water Company	Pue-2009-00059
Aqua Virginia - Heritage Homes of Virginia	Pue-2009-00059
Aqua Virginia - Indian River Water Company	Pue-2009-00059

Aqua Virginia - James River Service Corp.	Pue-2009-00059
Aqua Virginia - Lake Holiday Utilities, Inc. (Wastewater)	Pue-2009-00059
Aqua Virginia - Lake Holiday Utilities, Inc. (Water)	Pue-2009-00059
Aqua Virginia - Lake Monticello Services Co. (Wastewater)	Pue-2009-00059
Aqua Virginia - Lake Monticello Services Co. (Water)	Pue-2009-00059
Aqua Virginia - Lake Shawnee	Pue-2009-00059
Aqua Virginia - Land'or Utility Company (Wastewater)	Pue-2009-00059
Aqua Virginia - Land'or Utility Company (Water)	Pue-2009-00059
Aqua Virginia - Mountainview Water Company, Inc.	Pue-2009-00059
Aqua Virginia - Powhatan Water Works, Inc.	Pue-2009-00059
Aqua Virginia - Rainbow Forest Water Corporation	Pue-2009-00059
Aqua Virginia - Shawnee Land	Pue-2009-00059
Aqua Virginia - Sydnor Water Corporation	Pue-2009-00059
Aqua Virginia - Water Distributors, Inc.	Pue-2009-00059
Atlantic City Sewerage Company	WR21071006
Berkshire Gas Company	18-40
Berkshire Gas Company	22-20
Borough of Hanover	R-2009-2106908
Borough of Hanover	R-2012-2311725
Borough of Hanover	R-2014-242830
Borough of Hanover	R-2021-3026116
Borough of Hanover	P-2021-3026854
Borough of Royersford	A-2020-3019634
Chaparral City Water Company	W 02113a 04 0616
California-American Water Company	CIVCV156413
Connecticut-American Water Company	99-08-32
Connecticut Water Company	06 07 08
Citizens Utilities Company Colorado Gas Division	-
Citizens Utilities Company Vermont Electric Division	5426
Citizens Utilities Home Water Company	R 901664
Citizens Utilities Water Company of Pennsylvania	R 901663
City of Beaver Falls	A-2022-3033138

City of Bethlehem - Bureau of Water	R-00984375
City of Bethlehem - Bureau of Water	R 00072492
City of Bethlehem - Bureau of Water	R-2013-2390244
City of Bethlehem - Bureau of Water	R-2020-3020256
City of Dubois – Bureau of Water	R-2013-2350509
City of Dubois – Bureau of Water	R-2016-2554150
City of Lancaster Sewer Fund	R-00005109
City of Lancaster Sewer Fund	R-00049862
City of Lancaster Sewer Fund	R-2012-2310366
City of Lancaster Sewer Fund	R-2019-3010955
City of Lancaster Sewer Fund	R-2019-3010955
City of Lancaster Water Fund	R-00984567
City of Lancaster Water Fund	R-00016114
City of Lancaster Water Fund	R 00051167
City of Lancaster Water Fund	R-2010-2179103
City of Lancaster Water Fund	R-2014-2418872
City of Lancaster Water Fund	R-2021-3026682
Coastland Corporation	15-cvs-216
Consumers Pennsylvania Water Company Roaring Creek Division	R-00973869
Consumers Pennsylvania Water Company Shenango Valley Division	R-00973972
Country Knolls Water Works, Inc.	90 W 0458
East Resources, Inc. - West Virginia Utility	06 0445 G 42T
Elizabethtown Water Company	WR06030257
Forest Park, Inc.	19-W-0168 & 19-W-0269
Hampton Water Works Company	DW 99-057
Hidden Valley Utility Services, LP	R-2018-3001306
Hidden Valley Utility Services, LP	R-2018-3001307
Illinois American Water Company	16-0093
Illinois American Water Company	22-0210
Indian Rock Water Company	R-911971
Indiana Natural Gas Corporation	38891
Jamaica Water Supply Company	-
Kane Borough Authority	A-2019-3014248
Kentucky American Water Company, Inc.	2007 00134
Middlesex Water Company	WR 89030266J

Millcreek Township Water Authority	55 198 Y 00021 11
Missouri-American Water Company	WR 2000-281
Missouri-American Water Company	SR 2000-282
Mount Holly Water Company	WR06030257
Nevada Power Company d/b/a NV Energy	20-06003
New Jersey American Water Company	WR 89080702J
New Jersey American Water Company	WR 90090950J
New Jersey American Water Company	WR 03070511
New Jersey American Water Company	WR-06030257
New Jersey American Water Company	WR08010020
New Jersey American Water Company	WR10040260
New Jersey American Water Company	WR11070460
New Jersey American Water Company	WR15010035
New Jersey American Water Company	WR17090985
New Jersey American Water Company	WR19121516
New Jersey American Water Company	WR22010019
New Jersey Natural Gas Company	GR19030420
New Jersey Natural Gas Company	GR21030679
Newtown Artesian Water Company	R-911977
Newtown Artesian Water Company	R-00943157
Newtown Artesian Water Company	R-2009-2117550
Newtown Artesian Water Company	R-2011-2230259
Newtown Artesian Water Company	R-2017-2624240
Newtown Artesian Water Company	R-2019-3006904
North Maine Utilities	14-0396
Northern Indiana Fuel & Light Company	38770
Oklahoma Natural Gas Company	PUD-940000477
Palmetto Utilities, Inc.	2020-281-S
Palmetto Wastewater Reclamation, LLC	2018-82-S
Pennichuck Water Works, Inc.	DW 04 048
Pennichuck Water Works, Inc.	DW 06 073
Pennichuck Water Works, Inc.	DW 08 073
Pennsylvania Gas & Water Company (Gas)	R-891261
Pennsylvania Gas & Water Co. (Water)	R 901726
Pennsylvania Gas & Water Co. (Water)	R-911966
Pennsylvania Gas & Water Co. (Water)	R-22404
Pennsylvania Gas & Water Co. (Water)	R-00922482

Pennsylvania Gas & Water Co. (Water)	R-00932667
Philadelphia Gas Works	R-2020-3017206
Public Service Company of North Carolina, Inc.	G-5, Sub 565
Public Service Electric and Gas Company	ER181010029
Public Service Electric and Gas Company	GR18010030
Presque Isle Harbor Water Company	U-9702
Sierra Pacific Power Company d/b/a NV Energy	19-06002
Sierra Pacific Power Company d/b/a NV Energy	22-06014
St. Louis County Water Company	WR-2000-844
Suez Water Delaware, Inc.	19-0615
Suez Water Idaho, Inc.	SUZ-W-20-02
Suez Water New Jersey, Inc.	WR18050593
Suez Water New Jersey, Inc.	WR20110729
Suez Water Owego-Nichols, Inc.	17-W-0528
Suez Water Pennsylvania, Inc.	R-2018-3000834
Suez Water Pennsylvania, Inc.	A-2018-3003519
Suez Water Pennsylvania, Inc.	A-2018-3003517
Suez Water Rhode Island, Inc.	Docket No. 4800
Suez Water Owego-Nichols, Inc.	19-W-0168 & 19-W-0269
Suez Water New York, Inc.	19-W-0168 & 19-W-0269
Suez Westchester, Inc.	19-W-0168 & 19-W-0269
Town of North East Water Fund	9190
Township of Exeter	A-2018-3004933
United Water New Rochelle	W-95-W-1168
United Water Toms River	WR-95050219
Upper Pottsgrove Township	A-2020-3021460
Valley Township (water)	A-2020-3019859
Valley Township (wastewater)	A-2020-3020178
Valley Water Systems, Inc.	06 10 07
Virginia American Water Company	PUR-2018-00175
Virginia American Water Company	PUR-2021-00255
West Virginia-American Water Company	15-0676-W-42T
West Virginia-American Water Company	15-0675-S-42T
Wilmington Suburban Water Corporation	94-149
York Water Company	R-901813
York Water Company	R-922168
York Water Company	R-943053

York Water Company	R-963619
York Water Company	R-994605
York Water Company	R-00016236
Young Brothers, LLC	2019-0117

Exhibit HW-1

Exhibit HW-1

PHILADELPHIA GAS WORKS
PHILADELPHIA, PA

BENCHMARKING

EXHIBIT

TO ACCOMPANY THE

DIRECT TESTIMONY

FEBRUARY 2023

Prepared by:

GANNETT FLEMING

PHILADELPHIA GAS WORKS
COMPARATIVE STATISTICS AND BENCHMARK DATA
FOR THE 2021 FISCAL YEAR

	Customers to Main Miles	% Cast Iron	State of Operation	Service Provided	Asset Ownership	Operating Revenues (Millions $)
Philadelphia Gas Works	170	41%	PA	Natural Gas	Municipal	646.747
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	68	0%	IN	Natural Gas	Municipal	231.509
CPS Energy	62	0%	TX	Gas & Electric	Municipal	2,509.780
Gainesville Regional Utilities	45	0%	FL	Natural Gas	Municipal	25.714
Greenville, City of	33	0%	NC	Natural Gas	Municipal	33.308
Jackson Energy Authority	36	0%	TN	Natural Gas	Municipal	36.143
JEA Utilities	NA	NA	FL	Electric	Municipal	1,308.997
Knoxville Utilities Board	42	0%	TN	Natural Gas	Municipal	115.416
Richmond, City of	62	7%	VA	Natural Gas	Municipal	163.066
MUNI Average	50	1%				552.992
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	57	1%	PA	Natural Gas	Investor	666.569
National Fuel Gas Distribution Corp	44	3%	PA	Natural Gas	Investor	206.185
PECO Gas (Exelon Corporation)	78	7%	PA	Natural Gas	Investor	538.919
Peoples Natural Gas Company LLC	53	1%	PA	Natural Gas	Investor	706.824
UGI Utilities Inc. (Gas)	56	1%	PA	Natural Gas	Investor	1,016.025
IOUPA Average	58	3%				626.904
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	302	27%	NY	Natural Gas	Investor	1,671.159
Connecticut Natural Gas Corp	83	12%	CT	Natural Gas	Investor	419.074
Corning Natural Gas Corp	36	0%	NY	Natural Gas	Investor	35.236
New Jersey Natural Gas Co	76	0%	NJ	Natural Gas	Investor	731.796
South Jersey Gas Co	60	0%	NJ	Natural Gas	Investor	618.426
Southern Connecticut Gas Co	82	23%	CT	Natural Gas	Investor	412.564
Washington Gas Light Co	86	3%	DC, MD, VA	Natural Gas	Investor	1,449.107
Yankee Gas Services Co	71	7%	CT	Natural Gas	Investor	609.247
IOU Average	100	9%				743.326
Range of Results:						
MUNI Group						
High	68	7%	Nation Wide	Gas & Electric	Municipal	2,509.780
Low	33	0%				25.714
IOUPA Group						
High	78	7%	PA	Natural Gas	Investor	1,016.025
Low	44	1%				206.185
IOU Group						
High	302	27%	Northeast	Natural Gas	Investor	1,671.159
Low	36	0%				35.236
ALLCOS						
High	302	27%	Nation Wide	Natural Gas	Investor	2,509.780
Low	33	0%				25.714

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE STATISTICS AND BENCHMARK DATA
FOR THE 2021 FISCAL YEAR

	Total Volume (MCF)	Gas Revenues (Millions $)	Miles of Main	Customers	% Residential Sendout	Avg Residential Use (MCF)
Philadelphia Gas Works	71,026,822	664.105	3,046	518,020	45%	68
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	70,082,918	224.991	4,148	280,477	26%	72
CPS Energy	118,988,705	2,502.565	5,869	1,236,676	38%	41
Gainesville Regional Utilities	16,804,185	79.738	818	36,600	5%	23
Greenville, City of	3,502,625	35.005	743	24,632	26%	42
Jackson Energy Authority	7,783,143	34.829	867	31,085	22%	63
JEA Utilities	41,761,710	1,227.540	NA	494,656	46%	44
Knoxville Utilities Board	12,728,880	127.621	2,542	106,065	41%	54
Richmond, City of	21,869,753	186.874	1,956	121,061	29%	58
MUNI Average	36,690,240	552.395	2,420	291,407	29%	50
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	75,647,923	662.087	7,716	440,590	36%	77
National Fuel Gas Distribution Corp	45,683,777	206.048	4,850	214,039	36%	92
PECO Gas (Exelon Corporation)	86,056,130	528.464	6,968	543,364	38%	78
Peoples Natural Gas Company LLC	129,357,167	761.910	13,054	697,153	36%	83
UGI Utilities Inc. (Gas)	298,910,160	867.640	12,201	682,028	14%	79
IOUPA Average	127,131,031	605.230	8,958	515,435	32%	82
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	187,613,463	1,756.767	4,190	1,265,653	48%	82
Connecticut Natural Gas Corp	36,410,020	389.409	2,215	184,893	46%	99
Corning Natural Gas Corp	5,725,540	16.672	425	15,225	22%	90
New Jersey Natural Gas Co	85,302,967	735.245	7,452	568,738	50%	84
South Jersey Gas Co	52,019,492	552.192	6,830	407,884	46%	65
Southern Connecticut Gas Co	79,799,079	400.104	2,513	206,938	20%	84
Washington Gas Light Co	167,565,203	1,327.725	14,071	1,207,372	41%	70
Yankee Gas Services Co	55,486,155	594.958	3,510	248,841	27%	69
IOU Average	83,740,240	721.634	5,151	513,193	38%	80
Range of Results:						
MUNI Group						
High	118,988,705	2,502.565	5,869	1,236,676	46%	72
Low	3,502,625	34.829	743	24,632	5%	23
IOUPA Group						
High	298,910,160	867.640	13,054	697,153	38%	92
Low	45,683,777	206.048	4,850	214,039	14%	77
IOU Group						
High	187,613,463	1,756.767	14,071	1,265,653	50%	99
Low	5,725,540	16.672	425	15,225	20%	65
ALLCOS						
High	298,910,160	2,502.565	14,071	1,265,653	50%	99
Low	3,502,625	16.672	425	15,225	5%	23

Comment: CPS Energy electric sales (KWh) and JEA Utilities electric sales (megawatt hours) were converted to MCF.

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE STATISTICS AND BENCHMARK DATA
FOR THE 2021 FISCAL YEAR

			Period Mains Where Installed			
	Miles of Main	% Cast Iron	Pre-1940 or Unknown	1940-1969	1970-1999	2000s
Philadelphia Gas Works	3,046	41%	31%	33%	17%	19%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	4,148	0%	0%	28%	48%	24%
CPS Energy	5,869	0%	1%	29%	39%	31%
Gainesville Regional Utilities	818	0%	0%	21%	49%	30%
Greenville, City of	743	0%	0%	2%	61%	37%
Jackson Energy Authority	867	0%	3%	14%	45%	38%
JEA Utilities	NA	NA	NA	NA	NA	NA
Knoxville Utilities Board	2,542	0%	0%	4%	55%	41%
Richmond, City of	1,956	7%	0%	13%	40%	47%
MUNI Average	2,420	1%	1%	16%	48%	35%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	7,716	1%	4%	22%	32%	42%
National Fuel Gas Distribution Corp	4,850	3%	7%	22%	48%	23%
PECO Gas (Exelon Corporation)	6,968	7%	6%	26%	45%	23%
Peoples Natural Gas Company LLC	13,054	1%	6%	27%	37%	30%
UGI Utilities Inc. (Gas)	12,201	1%	6%	20%	42%	32%
IOUPA Average	8,958	3%	6%	23%	41%	30%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	4,190	27%	25%	20%	24%	31%
Connecticut Natural Gas Corp	2,215	12%	12%	25%	34%	29%
Corning Natural Gas Corp	425	0%	1%	29%	25%	45%
New Jersey Natural Gas Co	7,452	0%	0%	22%	42%	36%
South Jersey Gas Co	6,830	0%	1%	10%	34%	55%
Southern Connecticut Gas Co	2,513	23%	22%	21%	32%	25%
Washington Gas Light Co	14,071	3%	3%	26%	42%	29%
Yankee Gas Services Co	3,510	7%	3%	21%	35%	41%
IOU Average	5,151	9%	8%	22%	34%	36%
Range of Results:						
MUNI Group						
High	5,869	7%	3%	29%	61%	47%
Low	743	0%	0%	2%	39%	24%
IOUPA Group						
High	13,054	7%	7%	27%	48%	42%
Low	4,850	1%	4%	20%	32%	23%
IOU Group						
High	14,071	27%	25%	29%	42%	55%
Low	425	0%	0%	10%	24%	25%
ALLCOS						
High	14,071	27%	25%	29%	61%	55%
Low	425	0%	0%	2%	24%	23%

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
CREDIT RATINGS
CURRENT LONG-TERM DEBT RATINGS

	Current Long-Term Debt Ratings				Weightings Assigned to Credit Ratings			
	S&P	Moody's	Fitch	Overall Average Credit	S&P	Moody's	Fitch	Overall Average Weighting
Philadelphia Gas Works	A	A3	A-	A-	6.0	7.0	7.0	6.7
Municipally Owned Natural Gas Utilities								
Citizens Energy Group	AA	Aa3	AA-	AA-	3.0	4.0	4.0	3.7
CPS Energy	AA	Aa2	AA-	AA	3.0	3.0	4.0	3.3
Gainesville Regional Utilities	A	Aa3	A+	A+	6.0	4.0	5.0	5.0
Greenville, City of	AA	Aa1	AA-	AA	3.0	2.0	4.0	3.0
Jackson Energy Authority	AA-	Aa2	N/A	AA-	4.0	3.0	-	3.5
JEA Utilities	A+	A2	AA	A+	5.0	6.0	3.0	4.7
Knoxville Utilities Board	AA	Aa2	N/A	AA	3.0	3.0	-	3.0
Richmond, City of	AA	Aa1	AA	AA	3.0	2.0	3.0	2.7
MUNI Average	AA-	Aa2	AA-	AA-	3.8	3.4	3.8	3.6
PUC Jurisdictional Investor Owned Natural Gas Utilities								
Columbia Gas of Pennsylvania, Inc.	BBB+	Baa2	BBB	BBB	8.0	9.0	9.0	8.7
National Fuel Gas Distribution Corp	BBB-	Baa3	BBB	BBB-	10.0	10.0	9.0	9.7
PECO Gas (Exelon Corporation)	A	Aa3	A+	A+	6.0	4.0	5.0	5.0
Peoples Natural Gas Company LLC	A	Baa2	N/A	BBB+	6.0	9.0	-	7.5
UGI Utilities Inc. (Gas)	BBB+	A3	A-	A-	8.0	7.0	7.0	7.3
IOUPA Average	BBB+	Baa1	BBB+	BBB+	7.6	7.8	7.5	7.6
Non-Jurisdictional Investor Owned Natural Gas Utilities								
Brooklyn Union Gas Co	BBB+	Baa2	BBB	BBB	8.0	9.0	9.0	8.7
Connecticut Natural Gas Corp	A-	A2	A-	A-	7.0	6.0	7.0	6.7
Corning Natural Gas Corp	N/A	N/A	N/A		-	-	-	N/A
New Jersey Natural Gas Co	N/A	A1	A-	A	-	5.0	7.0	6.0
South Jersey Gas Co	BBB	A3	N/A	BBB+	9.0	7.0	-	8.0
Southern Connecticut Gas Co	A	A1	A-	A	6.0	5.0	7.0	6.0
Washington Gas Light Co	A	A3	A-	A-	6.0	7.0	7.0	6.7
Yankee Gas Services Co	A-	A2	N/A	A-	7.0	6.0	-	6.5
IOU Average	A-	A2	A-	A-	7.0	6.3	7.0	6.8
Range of Results:								
MUNI Group								
Lowest Bond Rating	A	A2	A+	A+	6.0	6.0	5.0	5.0
Highest Bond Rating	AA	Aa1	AA	AA	3.0	2.0	3.0	2.7
IOUPA Group								
Lowest Bond Rating	BBB-	Baa3	BBB	BBB-	10.0	10.0	9.0	9.7
Highest Bond Rating	A	Aa3	A+	A+	6.0	4.0	5.0	5.0
IOU Group								
Lowest Bond Rating	BBB	Baa2	BBB	BBB	9.0	9.0	9.0	8.7
Highest Bond Rating	A	A1	A-	A	6.0	5.0	7.0	6.0
ALLCOS								
Lowest Bond Rating	BBB-	Baa3	BBB	BBB-	10.0	10.0	9.0	9.7
Highest Bond Rating	AA	Aa1	AA	AA	3.0	2.0	3.0	2.7

Source of Information: S&P, Moody's and Fitch

PHILADELPHIA GAS WORKS
CREDIT RATINGS
CURRENT LONG-TERM DEBT RATINGS

Weightings Assigned to Credit Ratings			
S&P	Moody's	Fitch	Assigned Weighting
AAA	Aaa	AAA	1
AA+	Aa1	AA+	2
AA	Aa2	AA	3
AA-	Aa3	AA-	4
A+	A1	A+	5
A	A2	A	6
A-	A3	A-	7
BBB+	Baa1	BBB+	8
BBB	Baa2	BBB	9
BBB-	Baa3	BBB-	10
BB+	Ba1	BB+	11
BB	Ba2	BB	12
BB-	Ba3	BB-	13
B+	B1	B+	14
B	B2	B	15
B-	B3	B-	16
CCC+	Caa1	CCC+	17
CCC	Caa2	CCC	18
CCC-	Caa3	CCC-	19
WD	WD	WD	-
N/A	N/A	N/A	-

Source of Information: S&P, Moody's and Fitch

PHILADELPHIA GAS WORKS
DEFINITIONS OF BENCHMARK METRICS

Leverage & Risk

1. Debt/Capitalization - Total debt divided by total capital (sum of total debt and equity capital).

2. Operating Margin - Operating Income divided by operating revenues minus purchased gas/power expense.

3. Debt Service/Cash OpEx - The sum of principal paid on long-term debt plus interest, divided by operating expenses minus depreciation and amortization expenses.

4. Debt/Customer - Total debt divided by total year-end number of gas customers.

5. Debt/Revenues - Total debt divided by operating revenues.

6. Debt/Equity - Total debt divided by fund equity (common equity).

Liquidity

7. IGF/Revenues - Operating revenues plus depreciation and amortization expenses, divided by operating revenues.

8. FFO/CapEx - Net income plus depreciation and amortization expenses, divided by capital expenditures.

9. Days Cash - Cash and cash equivalents divided by [(operating expenses minus depreciation and amortization expenses) divided by 365]

Solvency

10. FFO/Avg Debt - Net income plus depreciation and amortization expenses, divided by average total debt.

11. FFO Coverage – Net income plus depreciation and amortization expenses plus interest, divided by interest.

12. EBIT Coverage – Net income plus interest plus income taxes, divided by interest.

13. Interest-Only Debt Service Coverage - Operating Income plus depreciation and amortization expenses, divided by interest.

14. Debt Service Coverage (P & I) - Operating Income plus depreciation and amortization expenses, divided by the sum of principal paid on long-term debt plus interest.

PHILADELPHIA GAS WORKS
DEFINITIONS OF BENCHMARK METRICS

Efficiency

15. CapEx/DA - Capital expenditures divided by depreciation and amortization expenses.

16. Net Plant/Gross Plant - Net plant divided by gross plant.

17. CapEx/Net Plant - Capital expenditures divided by net plant.

18. CapEx/Gross Plant - Capital expenditures divided by gross plant.

19. CapEx/Capitalization - Capital expenditures divided by total capital (sum of total debt and equity capital).

20. Net Plant/Capitalization - Net plant divided by total capital (sum of total debt and equity capital).

21. Gas Revenue/MCF – Total gas revenues divided by total gas (volumes) throughput.

22. Non-Commodity Revenue/Revenue - Operating revenues minus purchased gas/power expenses, divided by operating revenues.

PHILADELPHIA GAS WORKS
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FOR THE FISCAL YEARS ENDED 2017 - 2021

	Debt/Capitalization					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	96%	91%	84%	78%	73%	84%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	77%	72%	61%	52%	41%	61%
CPS Energy	64%	63%	63%	62%	62%	63%
Gainesville Regional Utilities	88%	87%	88%	87%	86%	87%
Greenville, City of	23%	23%	30%	28%	26%	26%
Jackson Energy Authority	33%	21%	19%	17%	16%	21%
JEA Utilities	71%	68%	63%	58%	53%	63%
Knoxville Utilities Board	36%	35%	34%	31%	28%	33%
Richmond, City of	70%	68%	65%	65%	63%	66%
MUNI Average	58%	55%	53%	50%	47%	52%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	46%	44%	44%	44%	44%	44%
National Fuel Gas Distribution Corp	35%	34%	32%	33%	36%	34%
PECO Gas (Exelon Corporation)	46%	46%	46%	47%	46%	46%
Peoples Natural Gas Company LLC	51%	47%	46%	46%	47%	47%
UGI Utilities Inc. (Gas)	52%	53%	50%	52%	51%	52%
IOUPA Average	46%	45%	44%	44%	45%	45%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	32%	37%	39%	38%	35%	36%
Connecticut Natural Gas Corp	35%	36%	26%	31%	32%	32%
Corning Natural Gas Corp	57%	59%	59%	62%	65%	60%
New Jersey Natural Gas Co	45%	43%	44%	45%	47%	45%
South Jersey Gas Co	49%	50%	51%	46%	44%	48%
Southern Connecticut Gas Co	39%	43%	38%	40%	39%	40%
Washington Gas Light Co	53%	47%	53%	49%	49%	50%
Yankee Gas Services Co	38%	43%	43%	44%	43%	42%
IOU Average	44%	45%	44%	44%	44%	44%
PGW's Ranking Within the:						
MUNI Group (n=8)	9	9	8	8	8	8
IOUPA Group (n=5)	6	6	6	6	6	6
IOU Group (n=8)	9	9	9	9	9	9
ALLCOS (n=21)	22	22	21	21	21	21
Interpretation of Rankings:						
MUNI Group	OUT	OUT	-	-	-	-
IOUPA Group	OUT	OUT	OUT	OUT	OUT	OUT
IOU Group	OUT	OUT	OUT	OUT	OUT	OUT
ALLCOS	OUT	OUT	-	-	-	-

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
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	Operating Margin					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	21%	25%	30%	31%	44%	30%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	35%	39%	44%	48%	43%	42%
CPS Energy	30%	32%	35%	34%	28%	32%
Gainesville Regional Utilities	21%	17%	51%	40%	35%	33%
Greenville, City of	9%	15%	24%	18%	26%	18%
Jackson Energy Authority	26%	32%	45%	27%	27%	31%
JEA Utilities	38%	32%	34%	37%	36%	35%
Knoxville Utilities Board	37%	50%	45%	44%	45%	44%
Richmond, City of	16%	23%	22%	20%	15%	19%
MUNI Average	27%	30%	38%	34%	32%	32%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	34%	40%	38%	36%	38%	37%
National Fuel Gas Distribution Corp	48%	30%	18%	21%	32%	30%
PECO Gas (Exelon Corporation)	38%	42%	42%	35%	35%	38%
Peoples Natural Gas Company LLC	35%	28%	33%	31%	31%	32%
UGI Utilities Inc. (Gas)	47%	40%	42%	40%	43%	42%
IOUPA Average	40%	36%	35%	33%	36%	36%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	16%	18%	22%	24%	22%	20%
Connecticut Natural Gas Corp	17%	19%	23%	21%	21%	20%
Corning Natural Gas Corp	68%	71%	75%	73%	57%	69%
New Jersey Natural Gas Co	36%	26%	30%	39%	32%	33%
South Jersey Gas Co	NA	NA	NA	NA	NA	NA
Southern Connecticut Gas Co	25%	29%	28%	25%	28%	27%
Washington Gas Light Co	67%	16%	55%	59%	60%	51%
Yankee Gas Services Co	17%	18%	17%	20%	20%	18%
IOU Average	35%	28%	36%	37%	34%	34%
PGW's Ranking Within the:						
MUNI Group (n=8)	6	6	7	6	2	7
IOUPA Group (n=5)	6	6	5	4	1	5
IOU Group (n=8)	5	4	3	4	3	4
ALLCOS (n=21)	15	14	13	12	4	14
Interpretation of Rankings:						
MUNI Group	=	=	-	=	+	-
IOUPA Group	OUT	OUT	-	=	+	-
IOU Group	=	=	=	=	=	=
ALLCOS	=	=	=	=	+	=

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	Debt Service/Cash OpEx					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	15%	18%	21%	25%	27%	21%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	54%	21%	15%	63%	14%	33%
CPS Energy	26%	25%	44%	54%	25%	35%
Gainesville Regional Utilities	32%	28%	29%	33%	25%	29%
Greenville, City of	6%	4%	5%	4%	6%	5%
Jackson Energy Authority	20%	92%	6%	6%	6%	26%
JEA Utilities	31%	32%	30%	31%	20%	29%
Knoxville Utilities Board	31%	14%	16%	20%	15%	19%
Richmond, City of	34%	22%	20%	20%	19%	23%
MUNI Average	29%	30%	21%	29%	16%	25%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	9%	10%	11%	13%	12%	11%
National Fuel Gas Distribution Corp	7%	5%	4%	4%	5%	5%
PECO Gas (Exelon Corporation)	40%	36%	35%	47%	49%	41%
Peoples Natural Gas Company LLC	7%	8%	9%	9%	8%	8%
UGI Utilities Inc. (Gas)	6%	6%	8%	9%	8%	7%
IOUPA Average	14%	13%	13%	16%	16%	15%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	75%	21%	6%	10%	9%	24%
Connecticut Natural Gas Corp	9%	3%	3%	3%	3%	4%
Corning Natural Gas Corp	34%	164%	24%	32%	33%	57%
New Jersey Natural Gas Co	15%	28%	25%	9%	9%	17%
South Jersey Gas Co	74%	76%	15%	139%	21%	65%
Southern Connecticut Gas Co	6%	22%	5%	6%	13%	10%
Washington Gas Light Co	11%	5%	11%	8%	6%	8%
Yankee Gas Services Co	33%	32%	18%	19%	6%	22%
IOU Average	32%	44%	13%	28%	13%	26%
PGW's Ranking Within the:						
MUNI Group (n=8)	2	3	6	5	9	3
IOUPA Group (n=5)	5	5	5	5	5	5
IOU Group (n=8)	4	3	7	7	8	5
ALLCOS (n=21)	9	9	16	15	20	11
Interpretation of Rankings:						
MUNI Group	+	=	=	=	OUT	=
IOUPA Group	-	-	-	-	-	-
IOU Group	=	=	-	-	-	=
ALLCOS	=	=	-	=	-	=

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PHILADELPHIA GAS WORKS
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	Debt/Customer					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	$2,381	$2,253	$2,129	$1,992	$2,330	$2,217
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	$1,091	$979	$728	$652	$581	$806
CPS Energy	$5,185	$5,210	$5,100	$4,922	$4,920	$5,067
Gainesville Regional Utilities	$1,848	$1,887	$1,964	$1,922	$1,943	$1,913
Greenville, City of	$665	$618	$883	$849	$799	$763
Jackson Energy Authority	$1,387	$709	$673	$639	$600	$802
JEA Utilities	$6,006	$5,211	$4,620	$4,047	$3,562	$4,689
Knoxville Utilities Board	$1,108	$1,152	$1,154	$1,056	$956	$1,085
Richmond, City of	$2,986	$2,688	$2,528	$2,523	$2,362	$2,617
MUNI Average	$2,535	$2,307	$2,206	$2,076	$1,965	$2,218
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	$1,467	$1,629	$1,799	$2,043	$2,350	$1,858
National Fuel Gas Distribution Corp	$592	$592	$559	$615	$749	$621
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	$1,373	$1,369	$1,434	$1,361	$1,585	$1,424
UGI Utilities Inc. (Gas)	$1,011	$1,930	$1,891	$2,055	$2,262	$1,830
IOUPA Average	$1,111	$1,380	$1,421	$1,519	$1,737	$1,433
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	$1,271	$1,626	$2,082	$2,087	$2,082	$1,830
Connecticut Natural Gas Corp	$1,123	$1,225	$876	$1,030	$1,069	$1,065
Corning Natural Gas Corp	$2,941	$3,136	$3,261	$3,968	$4,294	$3,520
New Jersey Natural Gas Co	$1,356	$1,408	$1,665	$1,937	$2,184	$1,710
South Jersey Gas Co	$2,295	$2,585	$2,887	$2,780	$2,819	$2,673
Southern Connecticut Gas Co	$1,334	$1,558	$1,412	$1,531	$1,493	$1,466
Washington Gas Light Co	$1,122	$1,103	$1,506	$1,490	$1,598	$1,364
Yankee Gas Services Co	$2,254	$2,736	$2,997	$3,355	$3,580	$2,984
IOU Average	$1,712	$1,922	$2,086	$2,272	$2,390	$2,076
PGW's Ranking Within the:						
MUNI Group (n=8)	6	6	6	6	6	6
IOUPA Group (n=5)	5	5	5	3	4	5
IOU Group (n=8)	8	6	6	5	6	6
ALLCOS (n=21)	17	15	15	12	14	15
Interpretation of Rankings:						
MUNI Group	=	=	=	=	=	=
IOUPA Group	-	-	-	=	=	-
IOU Group	-	=	=	=	=	=
ALLCOS	-	=	=	=	=	=

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	Debt/Revenues					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	188%	176%	159%	175%	187%	177%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	126%	103%	78%	82%	70%	92%
CPS Energy	239%	230%	220%	231%	242%	232%
Gainesville Regional Utilities	303%	325%	231%	292%	277%	286%
Greenville, City of	55%	40%	59%	65%	59%	56%
Jackson Energy Authority	134%	57%	56%	59%	52%	72%
JEA Utilities	193%	178%	169%	158%	135%	167%
Knoxville Utilities Board	122%	103%	110%	108%	88%	106%
Richmond, City of	243%	202%	187%	200%	175%	201%
MUNI Average	177%	155%	139%	149%	137%	151%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	111%	120%	130%	161%	155%	135%
National Fuel Gas Distribution Corp	62%	59%	58%	70%	78%	65%
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	136%	134%	137%	147%	156%	142%
UGI Utilities Inc. (Gas)	129%	126%	130%	153%	152%	138%
IOUPA Average	110%	110%	114%	133%	135%	120%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	112%	126%	142%	154%	158%	138%
Connecticut Natural Gas Corp	55%	57%	39%	51%	47%	50%
Corning Natural Gas Corp	145%	137%	137%	179%	186%	157%
New Jersey Natural Gas Co	104%	105%	129%	148%	170%	131%
South Jersey Gas Co	169%	183%	200%	195%	186%	187%
Southern Connecticut Gas Co	72%	79%	72%	88%	75%	77%
Washington Gas Light Co	112%	104%	135%	145%	133%	126%
Yankee Gas Services Co	103%	123%	130%	151%	146%	131%
IOU Average	109%	114%	123%	139%	138%	125%
PGW's Ranking Within the:						
MUNI Group (n=8)	5	5	5	6	7	6
IOUPA Group (n=5)	5	5	5	5	5	5
IOU Group (n=8)	9	8	8	7	9	8
ALLCOS (n=21)	17	16	16	16	19	17
Interpretation of Rankings:						
MUNI Group	=	=	=	=	-	=
IOUPA Group	-	-	-	-	-	-
IOU Group	OUT	-	-	-	OUT	-
ALLCOS	-	-	-	-	-	-

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
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	Debt/Equity					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	24.16	10.21	5.23	3.47	2.68	9.15
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	3.37	2.58	1.59	1.10	0.70	1.87
CPS Energy	1.74	1.72	1.72	1.60	1.62	1.68
Gainesville Regional Utilities	7.37	6.60	7.55	6.57	6.09	6.84
Greenville, City of	0.30	0.31	0.42	0.39	0.36	0.36
Jackson Energy Authority	0.49	0.26	0.23	0.21	0.19	0.28
JEA Utilities	2.46	2.09	1.72	1.36	1.11	1.75
Knoxville Utilities Board	0.56	0.54	0.51	0.44	0.38	0.49
Richmond, City of	2.30	2.08	1.86	1.83	1.72	1.96
MUNI Average	2.32	2.02	1.95	1.69	1.52	1.90
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	0.85	0.80	0.80	0.80	0.78	0.81
National Fuel Gas Distribution Corp	0.55	0.53	0.47	0.50	0.57	0.52
PECO Gas (Exelon Corporation)	0.87	0.86	0.86	0.87	0.86	0.86
Peoples Natural Gas Company LLC	1.03	0.90	0.87	0.85	0.87	0.90
UGI Utilities Inc. (Gas)	1.10	1.11	1.01	1.07	1.06	1.07
IOUPA Average	0.88	0.84	0.80	0.82	0.83	0.83
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	0.47	0.59	0.64	0.62	0.54	0.57
Connecticut Natural Gas Corp	0.55	0.57	0.35	0.44	0.46	0.47
Corning Natural Gas Corp	1.34	1.43	1.42	1.61	1.84	1.53
New Jersey Natural Gas Co	0.81	0.76	0.78	0.83	0.88	0.81
South Jersey Gas Co	0.95	0.99	1.04	0.86	0.78	0.92
Southern Connecticut Gas Co	0.63	0.74	0.62	0.68	0.65	0.66
Washington Gas Light Co	1.12	0.90	1.14	0.96	0.95	1.01
Yankee Gas Services Co	0.60	0.75	0.75	0.79	0.74	0.73
IOU Average	0.81	0.84	0.84	0.85	0.86	0.84
PGW's Ranking Within the:						
MUNI Group (n=8)	9	9	8	8	8	9
IOUPA Group (n=5)	6	6	6	6	6	6
IOU Group (n=8)	9	9	9	9	9	9
ALLCOS (n=21)	22	22	21	21	21	22
Interpretation of Rankings:						
MUNI Group	OUT	OUT	-	-	-	OUT
IOUPA Group	OUT	OUT	OUT	OUT	OUT	OUT
IOU Group	OUT	OUT	OUT	OUT	OUT	OUT
ALLCOS	OUT	OUT	-	-	-	OUT

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	IGF/Revenues					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	32%	38%	44%	46%	58%	44%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	53%	56%	57%	61%	56%	57%
CPS Energy	55%	56%	58%	56%	53%	56%
Gainesville Regional Utilities	51%	50%	70%	65%	61%	59%
Greenville, City of	26%	31%	38%	32%	41%	34%
Jackson Energy Authority	49%	55%	67%	49%	48%	54%
JEA Utilities	65%	57%	59%	60%	62%	61%
Knoxville Utilities Board	62%	72%	67%	66%	70%	67%
Richmond, City of	44%	47%	47%	45%	41%	45%
MUNI Average	51%	53%	58%	54%	54%	54%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	49%	55%	54%	55%	57%	54%
National Fuel Gas Distribution Corp	57%	40%	28%	31%	43%	40%
PECO Gas (Exelon Corporation)	56%	60%	61%	56%	56%	58%
Peoples Natural Gas Company LLC	48%	42%	47%	47%	45%	46%
UGI Utilities Inc. (Gas)	62%	56%	59%	59%	62%	60%
IOUPA Average	54%	51%	50%	50%	53%	51%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	27%	27%	31%	33%	33%	30%
Connecticut Natural Gas Corp	35%	37%	42%	40%	41%	39%
Corning Natural Gas Corp	100%	100%	100%	100%	100%	100%
New Jersey Natural Gas Co	47%	40%	45%	55%	49%	47%
South Jersey Gas Co	NA	NA	NA	NA	NA	NA
Southern Connecticut Gas Co	38%	43%	45%	44%	44%	43%
Washington Gas Light Co	100%	100%	100%	100%	100%	100%
Yankee Gas Services Co	24%	25%	24%	28%	29%	26%
IOU Average	53%	53%	55%	57%	57%	55%
PGW's Ranking Within the:						
MUNI Group (n=8)	8	8	8	7	4	8
IOUPA Group (n=5)	6	6	5	5	2	5
IOU Group (n=8)	6	5	5	4	3	4
ALLCOS (n=21)	18	17	16	14	7	15
Interpretation of Rankings:						
MUNI Group	-	-	-	-	=	-
IOUPA Group	OUT	OUT	-	-	=	-
IOU Group	=	=	=	=	=	=
ALLCOS	-	-	-	=	=	=

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	FFO/CapEx					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	86%	97%	142%	146%	156%	125%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	177%	229%	202%	203%	206%	203%
CPS Energy	25%	33%	17%	37%	24%	27%
Gainesville Regional Utilities	64%	130%	55%	143%	197%	118%
Greenville, City of	54%	115%	139%	29%	118%	91%
Jackson Energy Authority	136%	271%	377%	147%	285%	243%
JEA Utilities	307%	167%	123%	176%	238%	202%
Knoxville Utilities Board	86%	128%	102%	94%	130%	108%
Richmond, City of	65%	129%	135%	107%	97%	107%
MUNI Average	114%	150%	144%	117%	162%	137%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	51%	59%	61%	53%	62%	57%
National Fuel Gas Distribution Corp	157%	158%	130%	137%	154%	147%
PECO Gas (Exelon Corporation)	39%	46%	47%	40%	36%	42%
Peoples Natural Gas Company LLC	72%	69%	76%	85%	77%	76%
UGI Utilities Inc. (Gas)	52%	66%	61%	63%	68%	62%
IOUPA Average	74%	80%	75%	76%	79%	77%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	37%	22%	30%	33%	34%	31%
Connecticut Natural Gas Corp	69%	70%	134%	133%	115%	104%
Corning Natural Gas Corp	66%	58%	85%	67%	44%	64%
New Jersey Natural Gas Co	95%	66%	45%	69%	50%	65%
South Jersey Gas Co	51%	59%	60%	67%	83%	64%
Southern Connecticut Gas Co	98%	65%	83%	76%	82%	81%
Washington Gas Light Co	65%	28%	56%	71%	64%	57%
Yankee Gas Services Co	52%	60%	45%	54%	61%	54%
IOU Average	67%	54%	67%	71%	67%	65%
PGW's Ranking Within the:						
MUNI Group (n=8)	4	8	3	4	5	4
IOUPA Group (n=5)	2	2	1	1	1	2
IOU Group (n=8)	3	1	1	1	1	1
ALLCOS (n=21)	7	9	3	4	5	5
Interpretation of Rankings:						
MUNI Group	=	-	=	=	=	=
IOUPA Group	=	=	+	+	+	=
IOU Group	=	+	+	+	+	+
ALLCOS	=	=	+	+	+	+

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PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
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	Days Cash					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	66	101	96	163	158	117
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	221	155	67	125	180	150
CPS Energy	295	299	328	281	371	315
Gainesville Regional Utilities	216	325	213	225	146	225
Greenville, City of	271	178	183	244	274	230
Jackson Energy Authority	289	288	357	419	480	367
JEA Utilities	165	144	157	162	126	151
Knoxville Utilities Board	79	158	165	139	123	133
Richmond, City of	72	129	130	151	115	119
MUNI Average	201	210	200	218	227	211
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	3	4	2	2	1	2
National Fuel Gas Distribution Corp	183	235	234	306	408	273
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	1	2	2	1	1	1
UGI Utilities Inc. (Gas)	2	11	2	2	0	3
IOUPA Average	47	63	60	78	103	70
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	2	2	2	2	3	2
Connecticut Natural Gas Corp	1	1	1	1	0	1
Corning Natural Gas Corp	7	3	4	7	4	5
New Jersey Natural Gas Co	0	0	1	85	3	18
South Jersey Gas Co	2	2	3	2	4	3
Southern Connecticut Gas Co	1	3	0	4	1	2
Washington Gas Light Co	0	0	6	0	0	1
Yankee Gas Services Co	8	2	3	0	2	3
IOU Average	3	2	3	13	2	4
PGW's Ranking Within the:						
MUNI Group (n=8)	9	9	8	5	5	9
IOUPA Group (n=5)	2	2	2	2	2	2
IOU Group (n=8)	1	1	1	1	1	1
ALLCOS (n=21)	10	10	9	6	6	10
Interpretation of Rankings:						
MUNI Group	OUT	OUT	-	=	=	OUT
IOUPA Group	=	=	=	=	=	=
IOU Group	+	+	+	+	+	+
ALLCOS	=	=	=	+	+	=

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
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	FFO/Avg Debt					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	7%	10%	15%	14%	20%	13%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	13%	22%	27%	35%	38%	27%
CPS Energy	3%	3%	2%	4%	3%	3%
Gainesville Regional Utilities	5%	4%	5%	9%	7%	6%
Greenville, City of	12%	17%	27%	19%	26%	20%
Jackson Energy Authority	17%	30%	60%	41%	44%	38%
JEA Utilities	14%	12%	14%	18%	20%	16%
Knoxville Utilities Board	16%	27%	24%	25%	31%	25%
Richmond, City of	6%	10%	10%	9%	8%	9%
MUNI Average	11%	16%	21%	20%	22%	18%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	20%	25%	23%	20%	21%	22%
National Fuel Gas Distribution Corp	27%	29%	34%	29%	35%	31%
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	15%	17%	18%	21%	23%	19%
UGI Utilities Inc. (Gas)	18%	22%	18%	17%	18%	19%
IOUPA Average	20%	23%	23%	22%	24%	23%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	11%	8%	9%	10%	8%	9%
Connecticut Natural Gas Corp	24%	26%	36%	41%	41%	34%
Corning Natural Gas Corp	10%	10%	12%	11%	8%	10%
New Jersey Natural Gas Co	19%	18%	16%	20%	16%	18%
South Jersey Gas Co	14%	15%	14%	16%	18%	15%
Southern Connecticut Gas Co	20%	20%	23%	23%	24%	22%
Washington Gas Light Co	20%	8%	16%	16%	16%	15%
Yankee Gas Services Co	14%	16%	14%	15%	15%	15%
IOU Average	17%	15%	18%	19%	18%	17%
PGW's Ranking Within the:						
MUNI Group (n=8)	6	6	5	6	5	6
IOUPA Group (n=5)	5	5	5	5	4	5
IOU Group (n=8)	9	6	5	7	3	7
ALLCOS (n=21)	18	15	13	16	10	16
Interpretation of Rankings:						
MUNI Group	=	=	=	=	=	=
IOUPA Group	-	-	-	-	=	-
IOU Group	OUT	=	=	-	=	-
ALLCOS	-	=	=	-	=	-

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	FFO Coverage					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	3.23	3.45	4.56	4.49	5.61	4.27
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	3.92	6.01	6.99	8.68	12.80	7.68
CPS Energy	1.76	1.81	1.42	2.04	1.66	1.74
Gainesville Regional Utilities	2.22	1.99	2.07	2.95	2.58	2.36
Greenville, City of	5.71	6.03	8.73	6.77	8.51	7.15
Jackson Energy Authority	5.57	3.45	20.38	13.78	14.78	11.59
JEA Utilities	4.34	3.81	3.89	5.16	5.87	4.61
Knoxville Utilities Board	5.31	7.93	7.30	7.87	9.58	7.60
Richmond, City of	3.01	3.78	3.88	3.61	3.29	3.51
MUNI Average	3.98	4.35	6.83	6.36	7.38	5.78
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	4.76	5.67	5.32	4.93	5.30	5.20
National Fuel Gas Distribution Corp	5.25	5.83	7.40	6.65	8.76	6.78
PECO Gas (Exelon Corporation)	1.50	1.70	1.74	1.56	1.55	1.61
Peoples Natural Gas Company LLC	5.21	5.04	5.00	6.58	7.78	5.92
UGI Utilities Inc. (Gas)	6.67	5.59	5.39	5.28	6.00	5.79
IOUPA Average	4.68	4.77	4.97	5.00	5.88	5.06
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	3.82	3.54	3.22	3.14	2.87	3.32
Connecticut Natural Gas Corp	7.91	7.44	8.30	8.58	9.03	8.25
Corning Natural Gas Corp	3.24	3.12	3.42	3.27	2.42	3.09
New Jersey Natural Gas Co	6.28	6.43	6.21	7.41	6.15	6.50
South Jersey Gas Co	5.81	5.73	5.24	5.59	5.95	5.66
Southern Connecticut Gas Co	4.97	4.59	5.48	5.32	5.49	5.17
Washington Gas Light Co	6.00	2.85	4.87	5.24	5.63	4.92
Yankee Gas Services Co	3.93	4.85	4.96	5.90	6.07	5.14
IOU Average	5.25	4.82	5.21	5.56	5.45	5.26
PGW's Ranking Within the:						
MUNI Group (n=8)	6	6	5	6	6	6
IOUPA Group (n=5)	5	5	5	5	4	5
IOU Group (n=8)	9	7	7	7	6	7
ALLCOS (n=21)	18	16	15	16	14	16
Interpretation of Rankings:						
MUNI Group	=	=	=	=	=	=
IOUPA Group	-	-	-	-	=	-
IOU Group	OUT	-	-	-	=	-
ALLCOS	-	-	=	-	=	-

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
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	EBIT Coverage					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	2.01	2.28	3.08	3.02	4.19	2.92
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	2.66	4.78	6.11	7.65	11.02	6.44
CPS Energy	(0.04)	0.06	(0.36)	0.41	(0.20)	(0.03)
Gainesville Regional Utilities	0.73	0.51	0.73	1.63	1.22	0.96
Greenville, City of	(0.03)	1.68	5.01	3.38	4.63	2.93
Jackson Energy Authority	3.85	2.68	15.78	9.15	9.93	8.28
JEA Utilities	2.29	1.81	2.01	2.86	3.01	2.40
Knoxville Utilities Board	4.24	6.77	6.19	6.60	7.63	6.29
Richmond, City of	0.97	1.89	1.91	1.40	1.06	1.45
MUNI Average	1.83	2.52	4.67	4.14	4.79	3.59
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	4.23	4.52	4.18	3.59	4.06	4.12
National Fuel Gas Distribution Corp	4.73	4.91	6.40	5.30	7.35	5.74
PECO Gas (Exelon Corporation)	1.02	1.21	1.24	0.98	0.98	1.09
Peoples Natural Gas Company LLC	4.96	3.97	3.89	4.22	4.77	4.36
UGI Utilities Inc. (Gas)	6.80	4.81	4.48	4.23	4.93	5.05
IOUPA Average	4.35	3.88	4.04	3.66	4.42	4.07
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	2.94	2.12	2.56	2.56	2.04	2.44
Connecticut Natural Gas Corp	4.08	3.76	5.07	5.14	5.20	4.65
Corning Natural Gas Corp	2.48	2.79	2.91	2.62	1.58	2.48
New Jersey Natural Gas Co	6.05	4.25	4.35	5.97	4.47	5.02
South Jersey Gas Co	5.50	4.62	4.32	4.68	4.95	4.81
Southern Connecticut Gas Co	3.24	3.40	3.64	3.37	3.96	3.52
Washington Gas Light Co	5.05	0.10	2.90	3.52	3.94	3.10
Yankee Gas Services Co	3.34	3.95	3.84	4.74	4.94	4.16
IOU Average	4.09	3.12	3.70	4.08	3.89	3.77
PGW's Ranking Within the:						
MUNI Group (n=8)	5	4	5	5	5	5
IOUPA Group (n=5)	5	5	5	5	4	5
IOU Group (n=8)	9	7	6	7	5	7
ALLCOS (n=21)	17	14	14	15	12	15
Interpretation of Rankings:						
MUNI Group	=	=	=	=	=	=
IOUPA Group	-	-	-	-	=	-
IOU Group	OUT	-	=	-	=	-
ALLCOS	-	=	=	=	=	=

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PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
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	Interest-Only Debt Service Coverage					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	3.68	3.60	4.57	4.60	5.80	4.45
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	5.60	6.75	7.87	9.92	14.60	8.95
CPS Energy	4.02	4.15	4.47	4.09	4.02	4.15
Gainesville Regional Utilities	2.53	2.22	5.06	3.48	3.22	3.30
Greenville, City of	8.62	8.52	10.28	7.74	10.44	9.12
Jackson Energy Authority	5.69	2.84	20.82	15.13	16.59	12.21
JEA Utilities	4.92	4.46	4.40	5.93	6.78	5.30
Knoxville Utilities Board	7.06	9.51	8.72	9.41	11.58	9.26
Richmond, City of	3.18	3.67	3.77	3.92	3.58	3.62
MUNI Average	5.20	5.27	8.17	7.45	8.85	6.99
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	5.89	6.19	6.01	5.45	5.95	5.90
National Fuel Gas Distribution Corp	10.56	8.03	6.44	7.36	9.78	8.43
PECO Gas (Exelon Corporation)	1.32	1.48	1.50	1.21	1.16	1.33
Peoples Natural Gas Company LLC	7.51	5.38	5.77	6.70	6.88	6.45
UGI Utilities Inc. (Gas)	8.24	6.41	6.19	6.10	6.89	6.77
IOUPA Average	6.70	5.50	5.18	5.36	6.13	5.78
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	4.05	5.03	3.83	3.36	3.40	3.93
Connecticut Natural Gas Corp	9.51	8.67	9.93	9.72	9.76	9.52
Corning Natural Gas Corp	3.53	3.89	4.28	3.84	2.24	3.56
New Jersey Natural Gas Co	7.79	6.26	6.48	7.91	6.29	6.95
South Jersey Gas Co	7.24	6.37	5.90	6.21	6.65	6.47
Southern Connecticut Gas Co	5.47	5.68	6.41	6.13	6.19	5.98
Washington Gas Light Co	7.62	2.73	5.10	5.41	5.59	5.29
Yankee Gas Services Co	4.71	5.41	5.48	6.65	6.97	5.84
IOU Average	6.24	5.51	5.93	6.15	5.89	5.94
PGW's Ranking Within the:						
MUNI Group (n=8)	7	7	6	6	6	6
IOUPA Group (n=5)	5	5	5	5	5	5
IOU Group (n=8)	8	8	7	7	6	7
ALLCOS (n=21)	18	18	16	16	15	16
Interpretation of Rankings:						
MUNI Group	-	-	=	=	=	=
IOUPA Group	-	-	-	-	-	-
IOU Group	-	-	-	-	=	-
ALLCOS	-	-	-	-	=	-

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
FOR THE FISCAL YEARS ENDED 2017 - 2021

	Debt Service Coverage (P & I)					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	1.95	2.00	2.15	2.08	2.86	2.21
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	0.87	2.15	3.21	1.03	3.89	2.23
CPS Energy	2.40	2.52	1.58	1.28	2.38	2.03
Gainesville Regional Utilities	1.60	1.57	3.64	2.83	2.59	2.45
Greenville, City of	2.26	3.17	4.50	4.93	4.73	3.92
Jackson Energy Authority	2.10	0.45	9.31	6.63	6.87	5.07
JEA Utilities	2.20	1.69	2.01	2.33	3.28	2.30
Knoxville Utilities Board	1.56	4.06	3.63	3.10	4.17	3.30
Richmond, City of	0.90	1.67	1.75	1.77	1.53	1.52
MUNI Average	1.74	2.16	3.70	2.99	3.68	2.85
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	NA	NA	NA	NA	NA	NA
National Fuel Gas Distribution Corp	NA	NA	NA	NA	NA	NA
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	NA	NA	NA	NA	NA	NA
UGI Utilities Inc. (Gas)	NA	NA	NA	NA	NA	NA
IOUPA Average	NA	NA	NA	NA	NA	NA
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	0.28	0.97	3.83	3.36	3.40	2.37
Connecticut Natural Gas Corp	2.46	8.67	9.93	9.72	9.76	8.11
Corning Natural Gas Corp	0.85	0.20	1.64	1.38	0.86	0.99
New Jersey Natural Gas Co	2.75	0.98	1.25	5.81	5.10	3.18
South Jersey Gas Co	0.79	0.72	3.87	0.53	4.00	1.98
Southern Connecticut Gas Co	4.61	1.36	6.05	5.79	2.46	4.05
Washington Gas Light Co	4.51	2.73	2.83	4.97	5.55	4.12
Yankee Gas Services Co	0.95	1.05	1.81	2.09	6.97	2.57
IOU Average	2.15	2.09	3.90	4.21	4.76	3.42
PGW's Ranking Within the:						
MUNI Group (n=8)	5	5	6	6	6	7
IOUPA Group (n=5)	NA	NA	NA	NA	NA	NA
IOU Group (n=8)	5	3	6	7	7	7
ALLCOS (n=21)	9	7	11	12	12	13
Interpretation of Rankings:						
MUNI Group	=	=	=	=	=	-
IOUPA Group	NA	NA	NA	NA	NA	NA
IOU Group	=	=	=	-	-	-
ALLCOS	=	=	=	-	=	-

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

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	CapEx/DA					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	212%	217%	170%	162%	208%	194%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	88%	111%	166%	179%	169%	143%
CPS Energy	170%	140%	138%	171%	149%	154%
Gainesville Regional Utilities	127%	52%	146%	104%	59%	98%
Greenville, City of	153%	100%	149%	585%	164%	230%
Jackson Energy Authority	127%	77%	74%	127%	67%	94%
JEA Utilities	53%	84%	125%	103%	72%	87%
Knoxville Utilities Board	175%	188%	216%	238%	163%	196%
Richmond, City of	151%	114%	108%	110%	106%	118%
MUNI Average	131%	108%	140%	202%	119%	140%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	418%	460%	388%	393%	366%	405%
National Fuel Gas Distribution Corp	154%	160%	222%	174%	204%	183%
PECO Gas (Exelon Corporation)	310%	351%	345%	314%	354%	335%
Peoples Natural Gas Company LLC	298%	324%	311%	293%	415%	328%
UGI Utilities Inc. (Gas)	541%	392%	413%	345%	343%	407%
IOUPA Average	344%	337%	336%	304%	336%	332%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	486%	710%	676%	675%	484%	606%
Connecticut Natural Gas Corp	211%	218%	120%	123%	149%	164%
Corning Natural Gas Corp	301%	330%	265%	331%	329%	311%
New Jersey Natural Gas Co	292%	389%	526%	403%	470%	416%
South Jersey Gas Co	462%	405%	391%	379%	310%	389%
Southern Connecticut Gas Co	212%	294%	217%	216%	243%	236%
Washington Gas Light Co	312%	291%	304%	268%	319%	299%
Yankee Gas Services Co	403%	418%	545%	482%	417%	453%
IOU Average	335%	382%	381%	360%	340%	359%
PGW's Ranking Within the:						
MUNI Group (n=8)	9	9	8	5	9	7
IOUPA Group (n=5)	2	2	1	1	2	2
IOU Group (n=8)	2	1	2	2	2	2
ALLCOS (n=21)	11	10	9	6	11	9
Interpretation of Rankings:						
MUNI Group	OUT	OUT	-	=	OUT	-
IOUPA Group	=	=	+	+	=	=
IOU Group	+	+	+	+	+	+
ALLCOS	=	=	=	+	=	=

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	Net Plant/Gross Plant					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	57%	57%	56%	56%	56%	56%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	NA	NA	NA	NA	NA	NA
CPS Energy	56%	55%	55%	54%	54%	55%
Gainesville Regional Utilities	50%	48%	46%	44%	43%	46%
Greenville, City of	59%	58%	57%	57%	56%	57%
Jackson Energy Authority	63%	62%	59%	57%	56%	59%
JEA Utilities	46%	38%	37%	36%	35%	38%
Knoxville Utilities Board	68%	67%	67%	67%	66%	67%
Richmond, City of	62%	61%	60%	58%	56%	59%
MUNI Average	58%	56%	54%	53%	52%	55%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	81%	82%	83%	83%	83%	82%
National Fuel Gas Distribution Corp	64%	64%	64%	64%	64%	64%
PECO Gas (Exelon Corporation)	72%	71%	71%	73%	74%	72%
Peoples Natural Gas Company LLC	69%	70%	70%	69%	70%	70%
UGI Utilities Inc. (Gas)	71%	73%	73%	73%	74%	73%
IOUPA Average	71%	72%	72%	72%	73%	72%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	78%	80%	82%	83%	83%	81%
Connecticut Natural Gas Corp	69%	69%	68%	68%	68%	68%
Corning Natural Gas Corp	77%	76%	76%	78%	77%	77%
New Jersey Natural Gas Co	79%	79%	80%	81%	82%	80%
South Jersey Gas Co	81%	82%	82%	82%	82%	82%
Southern Connecticut Gas Co	75%	74%	74%	73%	73%	74%
Washington Gas Light Co	73%	73%	74%	74%	74%	74%
Yankee Gas Services Co	77%	78%	79%	80%	81%	79%
IOU Average	76%	76%	77%	77%	78%	77%
PGW's Ranking Within the:						
MUNI Group (n=8)	5	5	5	5	2	5
IOUPA Group (n=5)	6	6	6	6	6	6
IOU Group (n=8)	9	9	9	9	9	9
ALLCOS (n=21)	18	18	18	18	15	18
Interpretation of Rankings:						
MUNI Group	=	=	=	=	+	=
IOUPA Group	OUT	OUT	OUT	OUT	OUT	OUT
IOU Group	OUT	OUT	OUT	OUT	OUT	OUT
ALLCOS	-	-	-	-	=	-

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	CapEx/Net Plant					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	8%	9%	8%	7%	9%	8%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	8%	9%	10%	10%	9%	9%
CPS Energy	9%	7%	8%	8%	8%	8%
Gainesville Regional Utilities	11%	4%	13%	9%	5%	8%
Greenville, City of	8%	5%	8%	28%	9%	12%
Jackson Energy Authority	6%	4%	4%	6%	3%	5%
JEA Utilities	4%	7%	10%	8%	6%	7%
Knoxville Utilities Board	8%	9%	10%	10%	8%	9%
Richmond, City of	8%	6%	6%	6%	6%	6%
MUNI Average	8%	6%	9%	11%	7%	8%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	13%	14%	12%	12%	11%	12%
National Fuel Gas Distribution Corp	6%	6%	8%	6%	7%	7%
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	10%	11%	10%	11%	12%	11%
UGI Utilities Inc. (Gas)	16%	11%	12%	11%	11%	12%
IOUPA Average	11%	11%	11%	10%	10%	11%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	12%	14%	13%	13%	10%	12%
Connecticut Natural Gas Corp	11%	11%	7%	7%	9%	9%
Corning Natural Gas Corp	8%	9%	7%	8%	9%	8%
New Jersey Natural Gas Co	8%	10%	13%	11%	13%	11%
South Jersey Gas Co	12%	10%	10%	10%	8%	10%
Southern Connecticut Gas Co	8%	11%	10%	10%	10%	10%
Washington Gas Light Co	10%	10%	10%	8%	9%	9%
Yankee Gas Services Co	10%	10%	12%	11%	10%	11%
IOU Average	10%	11%	10%	10%	10%	10%
PGW's Ranking Within the:						
MUNI Group (n=8)	3	7	3	3	7	5
IOUPA Group (n=5)	2	2	1	2	2	2
IOU Group (n=8)	1	1	3	1	2	1
ALLCOS (n=21)	4	8	5	4	9	6
Interpretation of Rankings:						
MUNI Group	=	-	=	=	-	=
IOUPA Group	=	=	+	=	=	=
IOU Group	+	+	=	+	+	+
ALLCOS	+	=	+	+	=	+

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
FOR THE FISCAL YEARS ENDED 2017 - 2021

	CapEx/Gross Plant					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	4%	5%	4%	4%	5%	4%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	NA	NA	NA	NA	NA	NA
CPS Energy	5%	4%	4%	5%	4%	4%
Gainesville Regional Utilities	6%	2%	6%	4%	2%	4%
Greenville, City of	5%	3%	4%	16%	5%	7%
Jackson Energy Authority	4%	2%	2%	4%	2%	3%
JEA Utilities	2%	3%	4%	3%	2%	3%
Knoxville Utilities Board	5%	6%	6%	7%	5%	6%
Richmond, City of	5%	4%	3%	3%	3%	4%
MUNI Average	5%	3%	4%	6%	3%	4%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	10%	11%	10%	10%	9%	10%
National Fuel Gas Distribution Corp	4%	4%	5%	4%	5%	4%
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	7%	7%	7%	7%	9%	7%
UGI Utilities Inc. (Gas)	11%	8%	9%	8%	8%	9%
IOUPA Average	8%	8%	8%	7%	8%	8%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	9%	11%	11%	11%	8%	10%
Connecticut Natural Gas Corp	7%	8%	5%	5%	6%	6%
Corning Natural Gas Corp	6%	7%	5%	6%	7%	6%
New Jersey Natural Gas Co	6%	8%	11%	9%	11%	9%
South Jersey Gas Co	9%	8%	8%	8%	7%	8%
Southern Connecticut Gas Co	6%	8%	7%	7%	7%	7%
Washington Gas Light Co	8%	7%	7%	6%	7%	7%
Yankee Gas Services Co	8%	8%	10%	9%	8%	9%
IOU Average	7%	8%	8%	8%	8%	8%
PGW's Ranking Within the:						
MUNI Group (n=8)	2	7	3	3	6	6
IOUPA Group (n=5)	1	2	1	1	1	1
IOU Group (n=8)	1	1	1	1	1	1
ALLCOS (n=21)	2	8	3	3	6	6
Interpretation of Rankings:						
MUNI Group	+	-	=	=	=	=
IOUPA Group	+	=	+	+	+	+
IOU Group	+	+	+	+	+	+
ALLCOS	+	=	+	+	+	+

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
FOR THE FISCAL YEARS ENDED 2017 - 2021

	CapEx/Capitalization					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	8%	10%	9%	8%	9%	9%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	6%	7%	10%	10%	8%	8%
CPS Energy	8%	6%	6%	7%	7%	7%
Gainesville Regional Utilities	7%	3%	8%	6%	3%	5%
Greenville, City of	5%	3%	5%	19%	6%	8%
Jackson Energy Authority	4%	3%	3%	5%	3%	4%
JEA Utilities	3%	5%	7%	6%	5%	5%
Knoxville Utilities Board	7%	7%	8%	9%	7%	8%
Richmond, City of	7%	5%	5%	5%	5%	5%
MUNI Average	6%	5%	7%	8%	6%	6%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	18%	18%	16%	15%	14%	16%
National Fuel Gas Distribution Corp	6%	6%	9%	7%	8%	7%
PECO Gas (Exelon Corporation)	NA	NA	NA	NA	NA	NA
Peoples Natural Gas Company LLC	10%	11%	11%	12%	13%	11%
UGI Utilities Inc. (Gas)	18%	13%	15%	13%	13%	14%
IOUPA Average	13%	12%	13%	12%	12%	12%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	9%	12%	10%	12%	9%	10%
Connecticut Natural Gas Corp	13%	13%	8%	9%	11%	11%
Corning Natural Gas Corp	9%	10%	8%	9%	11%	9%
New Jersey Natural Gas Co	9%	12%	14%	12%	14%	12%
South Jersey Gas Co	14%	12%	12%	11%	9%	12%
Southern Connecticut Gas Co	8%	12%	11%	12%	11%	11%
Washington Gas Light Co	16%	14%	13%	11%	12%	13%
Yankee Gas Services Co	10%	10%	13%	11%	10%	11%
IOU Average	11%	12%	11%	11%	11%	11%
PGW's Ranking Within the:						
MUNI Group (n=8)	8	9	8	6	9	9
IOUPA Group (n=5)	2	2	1	2	2	2
IOU Group (n=8)	1	1	3	1	1	1
ALLCOS (n=21)	9	10	10	7	10	10
Interpretation of Rankings:						
MUNI Group	-	OUT	-	=	OUT	OUT
IOUPA Group	=	=	+	=	=	=
IOU Group	+	+	=	+	+	+
ALLCOS	=	=	=	=	=	=

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
FOR THE FISCAL YEARS ENDED 2017 - 2021

	Net Plant/Capitalization					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	107%	112%	112%	113%	94%	108%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	75%	82%	99%	99%	91%	89%
CPS Energy	87%	86%	85%	88%	88%	87%
Gainesville Regional Utilities	66%	63%	60%	61%	59%	62%
Greenville, City of	65%	71%	64%	68%	69%	67%
Jackson Energy Authority	75%	92%	82%	80%	78%	81%
JEA Utilities	82%	74%	77%	79%	78%	78%
Knoxville Utilities Board	87%	83%	83%	86%	86%	85%
Richmond, City of	86%	88%	90%	89%	91%	89%
MUNI Average	78%	80%	80%	81%	80%	80%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	136%	129%	131%	126%	120%	128%
National Fuel Gas Distribution Corp	107%	107%	109%	108%	100%	106%
PECO Gas (Exelon Corporation)	134%	121%	119%	120%	117%	122%
Peoples Natural Gas Company LLC	105%	108%	109%	110%	105%	107%
UGI Utilities Inc. (Gas)	113%	117%	123%	123%	120%	119%
IOUPA Average	119%	116%	118%	117%	112%	117%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	80%	84%	78%	87%	87%	83%
Connecticut Natural Gas Corp	115%	117%	120%	123%	126%	120%
Corning Natural Gas Corp	108%	110%	110%	116%	116%	112%
New Jersey Natural Gas Co	115%	115%	108%	107%	108%	111%
South Jersey Gas Co	120%	119%	117%	115%	112%	117%
Southern Connecticut Gas Co	104%	106%	111%	112%	118%	110%
Washington Gas Light Co	158%	150%	132%	130%	128%	140%
Yankee Gas Services Co	104%	104%	103%	103%	99%	103%
IOU Average	113%	113%	110%	112%	112%	112%
PGW's Ranking Within the:						
MUNI Group (n=8)	1	1	1	1	1	1
IOUPA Group (n=5)	4	4	4	4	6	4
IOU Group (n=8)	6	5	4	5	8	7
ALLCOS (n=21)	9	8	7	8	13	10
Interpretation of Rankings:						
MUNI Group	+	+	+	+	+	+
IOUPA Group	=	=	=	=	OUT	=
IOU Group	=	=	=	=	-	-
ALLCOS	=	=	=	=	=	=

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
FOR THE FISCAL YEARS ENDED 2017 - 2021

	Gas Revenue/MCF					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	$9.10	$8.93	$9.08	$9.01	$9.35	$9.09
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	$4.20	$3.94	$3.92	$3.32	$3.21	$3.72
CPS Energy	NA	NA	NA	NA	NA	NA
Gainesville Regional Utilities	$3.91	$4.10	$3.86	$3.10	$4.75	$3.94
Greenville, City of	$9.65	$10.56	$9.93	$9.55	$9.99	$9.94
Jackson Energy Authority	$4.68	$4.76	$4.52	$4.08	$4.47	$4.50
JEA Utilities	NA	NA	NA	NA	NA	NA
Knoxville Utilities Board	$8.95	$9.08	$9.00	$8.89	$10.03	$9.19
Richmond, City of	$8.34	$9.70	$9.10	$7.52	$8.54	$8.64
MUNI Average	$6.62	$7.02	$6.72	$6.08	$6.83	$6.66
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	$7.05	$7.08	$7.55	$7.64	$8.75	$7.61
National Fuel Gas Distribution Corp	$4.47	$4.46	$4.24	$4.33	$4.51	$4.40
PECO Gas (Exelon Corporation)	$5.72	$6.13	$6.73	$6.21	$6.14	$6.19
Peoples Natural Gas Company LLC	$5.49	$5.56	$5.54	$5.38	$5.89	$5.57
UGI Utilities Inc. (Gas)	$3.11	$3.33	$2.65	$2.66	$2.90	$2.93
IOUPA Average	$5.17	$5.31	$5.34	$5.24	$5.64	$5.34
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	$8.09	$8.39	$9.06	$9.12	$9.36	$8.80
Connecticut Natural Gas Corp	$9.16	$9.40	$9.89	$9.52	$10.70	$9.73
Corning Natural Gas Corp	$3.50	$2.73	$2.96	$3.19	$2.91	$3.06
New Jersey Natural Gas Co	$5.66	$6.29	$6.34	$7.98	$8.62	$6.98
South Jersey Gas Co	$7.82	$9.07	$9.33	$9.81	$10.62	$9.33
Southern Connecticut Gas Co	$4.78	$4.28	$4.10	$5.68	$5.01	$4.77
Washington Gas Light Co	$6.87	$6.41	$7.40	$6.93	$7.92	$7.11
Yankee Gas Services Co	$8.97	$8.85	$9.47	$9.56	$10.72	$9.51
IOU Average	$6.86	$6.93	$7.32	$7.72	$8.23	$7.41
PGW's Ranking Within the:						
MUNI Group (n=8)	6	4	5	6	5	5
IOUPA Group (n=5)	6	6	6	6	6	6
IOU Group (n=8)	8	7	6	5	5	6
ALLCOS (n=21)	18	15	15	15	14	15
Interpretation of Rankings:						
MUNI Group	=	=	=	=	=	=
IOUPA Group	OUT	OUT	OUT	OUT	OUT	OUT
IOU Group	-	-	=	=	=	=
ALLCOS	-	=	=	=	=	=

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARATIVE BENCHMARK DATA AND RATIOS
FOR THE FISCAL YEARS ENDED 2017 - 2021

	Non-Commodity Revenue/Revenue					
	2017	2018	2019	2020	2021	Average
Philadelphia Gas Works	72%	71%	70%	75%	75%	73%
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	61%	57%	57%	65%	63%	61%
CPS Energy	70%	68%	70%	73%	71%	70%
Gainesville Regional Utilities	67%	62%	73%	74%	64%	68%
Greenville, City of	44%	38%	47%	53%	54%	47%
Jackson Energy Authority	59%	54%	55%	60%	58%	57%
JEA Utilities	62%	61%	64%	70%	64%	64%
Knoxville Utilities Board	52%	51%	54%	58%	55%	54%
Richmond, City of	54%	57%	55%	59%	54%	56%
MUNI Average	59%	56%	59%	64%	60%	60%
PUC Jurisdictional Investor Owned Natural Gas Utilities						
Columbia Gas of Pennsylvania, Inc.	70%	68%	72%	76%	73%	72%
National Fuel Gas Distribution Corp	73%	71%	72%	80%	73%	74%
PECO Gas (Exelon Corporation)	62%	58%	57%	64%	65%	61%
Peoples Natural Gas Company LLC	75%	69%	73%	81%	76%	75%
UGI Utilities Inc. (Gas)	54%	52%	56%	58%	57%	55%
IOUPA Average	67%	64%	66%	72%	69%	67%
Non-Jurisdictional Investor Owned Natural Gas Utilities						
Brooklyn Union Gas Co	66%	63%	62%	73%	73%	67%
Connecticut Natural Gas Corp	52%	52%	55%	61%	56%	55%
Corning Natural Gas Corp	22%	24%	28%	30%	22%	25%
New Jersey Natural Gas Co	61%	54%	53%	61%	64%	59%
South Jersey Gas Co	37%	35%	37%	42%	45%	39%
Southern Connecticut Gas Co	54%	53%	55%	62%	56%	56%
Washington Gas Light Co	34%	13%	24%	29%	25%	25%
Yankee Gas Services Co	NA	NA	NA	NA	NA	NA
IOU Average	47%	42%	45%	51%	49%	47%
PGW's Ranking Within the:						
MUNI Group (n=8)	1	1	2	1	1	1
IOUPA Group (n=5)	3	1	4	4	2	3
IOU Group (n=8)	1	1	1	1	1	1
ALLCOS (n=21)	3	1	5	4	2	3
Interpretation of Rankings:						
MUNI Group	+	+	+	+	+	+
IOUPA Group	=	+	=	=	=	=
IOU Group	+	+	+	+	+	+
ALLCOS	+	+	+	+	+	+

Source of Information: S&P Capital IQ, PUC Annual Reports, Audited Annual Reports, and AGA Statistics

PHILADELPHIA GAS WORKS
COMPARISONS BETWEEN
BENCHMARK RATIOS AND BOND ORDINANCE DEBT SERVICE COVERAGES
FOR THE FISCAL YEARS ENDED 2017 - 2021

	2017	2018	2019	2020	2021	Average
Benchmark Ratios Debt Service Coverage (P & I) (1)						
Philadelphia Gas Works	1.95	2.00	2.15	2.08	2.86	2.21
Municipally Owned Natural Gas Utilities						
Citizens Energy Group	0.87	2.15	3.21	1.03	3.89	2.23
CPS Energy	2.40	2.52	1.58	1.28	2.38	2.03
Gainesville Regional Utilities	1.60	1.57	3.64	2.83	2.59	2.45
Greenville, City of	2.26	3.17	4.50	4.93	4.73	3.92
Jackson Energy Authority	2.10	0.45	9.31	6.63	6.87	5.07
JEA Utilities	2.20	1.69	2.01	2.33	3.28	2.30
Knoxville Utilities Board	1.56	4.06	3.63	3.10	4.17	3.30
Richmond, City of	0.90	1.67	1.75	1.77	1.53	1.52
MUNI Average	1.74	2.16	3.70	2.99	3.68	2.85
Bond Ordinance Debt Service Coverage (P & I)						
Philadelphia Gas Works						
Debt Service Coverage Senior 1998 Ordinance Bonds	2.71	2.35	2.33	2.20	2.70	2.46
Debt Service Coverage (Combined liens with $18.0M City Fee)	2.44	2.15	2.15	2.01	2.51	2.25
Municipally Owned Natural Gas Utilities						
Citizens Energy Group (Gas Fund)	1.96	2.81	2.87	3.05	3.29	2.80
CPS Energy						
Senior Lien (with BABS)	3.46	3.84	4.62	4.95	2.92	3.96
Senior and Junior Lien (with BABS)	2.58	2.65	2.94	2.97	2.45	2.72
Gainsville (Gas Fund)	1.98	2.06	4.16	3.20	2.65	2.81
Greenville, City of (2)	3.18	3.31	3.10	3.75	3.29	3.33
Jackson Energy Authority	3.24	4.62	8.90	6.52	6.53	5.96
JEA Utilities						
Senior	7.53	6.55	6.51	10.68	11.80	8.61
Senior and Subordinate	2.53	2.30	2.81	4.79	5.17	3.52
Knoxville Utilities Board	3.00	4.10	3.68	3.61	4.02	3.68
Richmond, City of (3)	2.02	1.82	2.01	2.11	1.57	1.91
MUNI Average	3.15	3.41	4.16	4.56	4.37	3.93

Notes: (1) From Schedule 4 page 14.
(2) Reported for combined electric, water, sewer and gas funds.
(3) Reported for combined gas, water and wastewater operations.

VERIFICATION

I, Harold Walker, III, hereby state that: (1) I am employed by Gannett Fleming Valuation and Rate Consultants, LLC as Manager, Financial Studies; (2) I have been retained by Philadelphia Gas Works ("PGW") and am authorized to present testimony on its behalf; (3) the facts set forth in my testimony are true and correct to the best of my knowledge, information and belief; and (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

2/22/23
Dated

Harold Walker, III
Manager, Financial Studies
Gannett Fleming Valuation and Rate Consultants, LLC

Tab 5

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

CONSTANCE E. HEPPENSTALL

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

TOPIC:

Cost of Service

February 27, 2023

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I. INTRODUCTION 1
II. PURPOSE OF TESTIMONY 2
III. CONCLUSION 8

TABLE OF EXHIBITS

CEH-1	Cost of Service Study

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME FOR THE RECORD.

A Constance E. Heppenstall.

Q. BY WHOM ARE YOU EMPLOYED?

A. I am employed by Gannett Fleming Valuation and Rate Consultants, LLC.

Q. PLEASE DESCRIBE YOUR POSITION WITH GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC AND BRIEFLY STATE YOUR GENERAL DUTIES AND RESPONSIBILITIES.

A. My title is Senior Project Manager, Rate Studies. My duties and responsibilities include the preparation of accounting and financial data for revenue requirement and cash working capital claims, the allocation of cost of service to customer classifications, and the design of customer rates in support of public utility rate filings.

Q. HAVE YOU PRESENTED TESTIMONY IN RATE PROCEEDINGS BEFORE A REGULATORY AGENCY?

A. Yes. I have testified before the Pennsylvania Public Utility Commission, the Arizona Corporation Commission, the Kentucky Public Service Commission, the Virginia State Corporate Commission, the Missouri Public Service Commission, the Hawaii Public Service Commission, the West Virginia Public Service Commission, the Indiana Utility Regulatory Commission, the California Public Utilities Commission, the New Jersey Board of Public Utilities, the Nevada Public Utilities Commission and the Public Utilities Commission of Ohio. A list of cases in which I have testified is attached to my testimony as Appendix A.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have a Bachelor of Arts Degree in Economics from the University of Virginia, Charlottesville, Virginia and a Master of Science in Industrial Administration from Carnegie-Mellon University's Tepper School of Business, Pittsburgh, Pennsylvania.

Q. WOULD YOU PLEASE DESCRIBE YOUR PROFESSIONAL AFFILIATIONS?

A. I am a member of the American Water Works Association, the Pennsylvania Municipal Authorities Association, and the National Association of Water Companies.

Q. BRIEFLY DESCRIBE YOUR WORK EXPERIENCE.

A. I joined the Valuation and Rates Division of Gannett Fleming (formerly Gannett Fleming, Inc.) in August 2006, as a Rate Analyst. Prior to my employment at Gannett Fleming, I was a Vice President of PriMuni, LLP where I developed financial analyses to test proprietary software in order to ensure its pricing accuracy in accordance with securities industry's conventions. From 1987 to 2001, I was employed by Commonwealth Securities and Investments, Inc. as a public finance professional where I created and implemented financial models for public finance clients in order to create debt structures to meet clients' needs. From 1986 to 1987, I was a public finance associate with Mellon Capital Markets.

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. The purpose of my testimony is to present and explain PGW's cost of service allocation study, sometimes called class cost of service study. Exhibit CEH-1 sets forth the cost of service and the revenues under present and proposed rates for the Company's operations. In addition, the exhibit shows on Schedule H, the calculation of the Merchant Function Charge, and on Schedule I, the calculation of the Gas Procurement Charge.

Q. WAS EXHIBIT CEH-1 PREPARED BY YOU OR UNDER YOUR DIRECTION AND SUPERVISION?

A. Yes, it was.

Q. WHAT IS THE PURPOSE OF A COST OF SERVICE ALLOCATION STUDY?

A. The purpose of the study is to allocate PGW's full revenue requirement or total cost of service to the various customer classes. The study allocates costs to the Residential, Commercial, Industrial, Municipal, Philadelphia Housing Authority General Service ("PHA-GS"), PHA-Rate 8, Developmental Natural Gas Vehicle Service ("NGVS"), the Interruptible (IT) classes and Grays Ferry. Customers under contract or non-tariff rates are excluded from the allocation of costs as this is a base rate proceeding. The revenues from the contract customers are included as a source of revenue to reduce the overall cost of service to be allocated to the other classes.

Q. WHAT METHOD OF ALLOCATION WAS USED IN THE STUDY?

A. The study uses the Average and Extra Demand Method (or Average/Excess) as that term is defined in the text "Gas Rate Fundamentals", published by the American Gas Association's Rate Committee.

Q. PLEASE DESCRIBE EXHIBIT CEH-1.

A. Philadelphia Gas Works, Exhibit CEH-1, Cost of Service Allocation Study as of August 31, 2024 (Exhibit CEH-1) is a cost of service allocation that supports PGW's revenue distribution under proposed rates in this proceeding. The results of the study are set forth in Schedule A. The results are based on the projected costs for the fully projected future test year ending August 31, 2024, as provided by PGW. The exhibit includes a description of the methods of allocation, the actual allocation of the cost of service and the measure of value, including the factors used for the allocation to PGW's customer classes.

Q. YOU ALSO SUPPLIED IN YOUR EXHIBIT AN ADDITIONAL SCHEDULE NAMED SCHEDULE A-1. PLEASE DESCRIBE.

A. Schedule A-1 is provided for comparison purposes. Unlike Schedule A that compares the results of the cost of service study with revenues under proposed rates, Schedule A-1 shows the effect on the individual class increases if revenues were brought to each class's full cost of service. For example, the Interruptible class would require an increase of over 160% to bring revenues equal to the cost of service. Applying the concept of gradualism, PGW opted not to move all classes fully to their cost of service.

Q. PLEASE OUTLINE IN DETAIL YOUR COST ALLOCATION PROCEDURES.

A. The allocation of costs to cost functions and customer classifications is presented in Schedule E of Exhibit CEH-1. Since this is a base rate proceeding, we have excluded gas costs from the cost of service in Schedule E to develop costs by function and classification only for the costs related to the delivery of gas.

In Schedule E, the items of cost including operation and maintenance expenses, depreciation expense, interest expense, City payment and net income (labeled in Column 1) are presented in Column 3. These costs are allocated to the functions and customer

classifications as follows: Residential, Commercial, Industrial, Municipal, PHA-GS, PHA-Rate 8, NGVS, Interruptible and Grays Ferry classes.

Column 2 shows the allocation factor used for each item of cost. The description of the factors used is presented in Schedule F of Exhibit CEH-1.

Q. PLEASE EXPLAIN THE ALLOCATION OF COST ITEMS IN EXHIBIT CEH-1.

A. We allocated each cost based on individual factors, both on a volumetric basis and customer cost basis. For example, production expenses are allocated volumetrically to classes using Factor 1 which is based on the average day demand for firm sales, excluding transportation sales. Storage expenses are incurred to provide gas service during peak times. As a result, these costs are allocated volumetrically on Factor 2A, the peak extra capacity by class, excluding the Interruptible and Grays Ferry classes.

Distribution costs are allocated based on the type of cost. Costs related to meters are allocated to customer costs using Factor 4, which is based on the historic cost of meters by class. Costs related to services are allocated to customer costs based on Factor 6, which is also based on the historic cost of services by class. Costs related to distribution load dispatching, M&R Station, mains, measuring station expenses (except industrial measuring station expenses which were directly assigned to the industrial class) are allocated volumetrically based on Factor 3, which is the average and excess capacity for each classification. The weighting of the factors was based on precedence of 50% allocated on average daily usage and 50% allocated to excess above average daily usage. See Factor 2 for the calculation of the load factor. The Interruptible customer class average and excess usage is included in the calculation as these customers have only been interrupted once (in

2004) in almost 20 years and cannot be truly considered as interruptible for cost allocation purposes.

Customer Accounting Expenses and Customer Service and Information Expenses, other than Uncollectible Accounts, are allocated to customer costs based on Factor 7, number of customers by class. Uncollectible Account costs are split between those recovered through the Merchant Function Charge (MFC), those related to CRP Forgiveness and those collected through the customer charge. The costs recovered through the MFC are calculated in Schedule H and are directly assigned. The costs related to CRP Forgiveness are recovered through a volumetric surcharge, so the costs are allocated based on Factor 1A, or Pro Forma Average Daily Firm Sales. The costs recovered through the customer charge are allocated to customer costs based on Factor 14 which uses a three-year average of uncollectibles to develop the factors.

Administrative and General Expenses, which are not labor related or related to LIURP costs, are allocated on a composite Factor 10. Factor 10 is based on the allocation of all other operation and maintenance expenses other than Administrative and General Expenses. Labor related costs such as Injuries and Damages, Employee Pension and Benefits and OPEB Funding are allocated on Factor 11, which is a composite allocation of labor expense. The calculation is shown in Schedule F, Factor 11 and the pages following. LIURP costs are recovered through a volumetric surcharge, so the costs are allocated based on Factor 1A, or Pro Forma Average Daily Firm Sales.

Depreciation Expense is allocated based on the specific cost, similar to the allocation of operation and maintenance expense. For example, depreciation expense

related to Production Plant is allocated on Factor 1. Expense related to Storage Plant is allocated on Factor 2A, etc.

Interest and Other Expense, City Payment and Net Income, as these are all capital related, are allocated based on Factor 12, which is a composite factor based on the allocation of Utility Plant in Service Net of Accumulated Depreciation and Cash Working Capital. Cash Working Capital for the exhibit was calculated based on the rule of thumb method of 1/8 of Operation and Maintenance Expense.

Q. WHAT ARE THE RESULTS OF THE COST OF SERVICE ALLOCATION STUDY?

A. The results of cost of service study as calculated on Schedule E are summarized in Schedule D. The total cost of service by classification in Schedule D is brought forward to Schedule A, columns 2 and 3. These results are then compared to the pro forma revenues under present rates (columns 3 and 5) and proposed rates (columns 6 and 7). The proposed increases in revenue under proposed rates and the percent increase are shown in columns 8 and 9 of Schedule A. Please refer to the direct testimony of Florian Teme (PGW St. No. 6) for a description of the proposed rate design and revenue distribution.

Q. PLEASE EXPLAIN SCHEDULE B AND C OF EXHIBIT CEH-1.

A. Schedule B shows the rate of return by customer class under present rates and Schedule C shows the rate of return by customer class under proposed rates. These schedules show that PGW is moving toward unity in its proposed rate design.

Q. PLEASE DESCRIBE YOUR ANALYSIS OF CUSTOMER COSTS.

A. Schedule G shows the calculation of customer costs by customer class, showing both the results of a fully allocated customer cost of service and a direct customer cost analysis. The costs in Schedule G are developed from the allocation to customer costs in Schedule E.

Q. PLEASE DESCRIBE THE CALCULATION OF THE MERCHANT FUNCTION CHARGE (MFC) ON SCHEDULE H.

A. The MFC is applied to the firm sales service customer and is designed to recover the uncollectible expenses related to gas purchases. In Schedule H, the uncollectible expense (in 1000 dollars) is allocated by class based on a three-year average of collectible expense shown in the calculation of Factor 14. These amounts are then prorated by the amount of GCR revenue to total revenue by class shown on Line 4. The proration of Uncollectible expense is shown on Line 6 and converted to dollars on line 7. Line 9 develops the MCF by dividing the result on Line 7 by the Annual Firm Volume Sales in MCF in line 8.

Q. PLEASE DESCRIBE THE CALCULATION OF THE GAS PROCUREMENT CHARGE IN SCHEDULE I.

A. The Gas Procurement Charge (GPC) is calculated by adding the cost of natural gas supply service including acquisition, management and benefits to the cost of cash working capital related to storage of gas for a total of $3,254,827. This total is divided by annual firm sales service volumes of 41,231,182 for a calculated charge of $0.0789 per MCF.

III. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

Appendix A

CONSTANCE E. HEPPENSTALL – LIST OF CASES TESTIFIED

	Year	Jurisdiction	Docket No.	Client/Utility	Subject
1.	2010	AZ CC	W-01303A-09-0343 and SW-01303A-09-0343	Arizona American Water Company	Rate Consolidation
2.	2010	PA PUC	R-2010-2179103	City of Lancaster – Bureau of Water	Revenue Requirements
3.	2012	PA PUC	R-2012-2311725	Hanover Borough	Cost of Service/Revenue Requirements
4.	2012	PA PUC	R-2012-2310366	City of Lancaster – Sewer Fund	Revenue Requirements
5.	2013	PA PUC	R-2013-2350509	City of DuBois – Bureau of Water	Revenue Requirements
6.	2013	PA PUC	R-2013-2390244	City of Bethlehem – Bureau of Water	Revenue Requirements
7.	2014	PA PUC	R-2014-2418872	City of Lancaster – Bureau of Water	Revenue Requirements
8.	2014	PA PUC	R-2014-2428304	Hanover Borough	Revenue/Rev. Reqmts
9.	2015	KY PSC	Case No.2015-000143	Northern Kentucky Water District	Cost of Service
10.	2016	PA PUC	R-2016-2554150	City of DuBois – Bureau of Water	Cost of Service/Revenue Requirements
11.	2016	AZ CC	WS-01303A-16-0145	EPCOR Water Arizona, Inc.	Cost of Service/Rate Design
12.	2017	MO PSC	WR-2017-0285	Missouri-American Water Company	Cost of Service/Rate Design
13.	2017	MO PSC	SR-2017-0286	Missouri-American Water Company	Cost of Service/Rate Design
14.	2017	VA SCC	PUR-2017-00082	Aqua Virginia, Inc	Cost of Service
15.	2017	AZ CC	WS-01303A-17-0257	EPCOR Water Arizona, Inc	Cost of Service/Rate Design
16.	2017	HI PUC	2017-0446	Hana Water Systems, LLC – North	Cost of Service/Rate Design
17.	2017	HI PUC	2017-0447	Hana Water Systems, LLC – South	Cost of Service/Rate Design
18.	2018	PA PUC	2018-200208	SUEZ Water Pennsylvania	Revenue Requirements
19.	2018	KY PSC	2018-00208	Water Service Corp of KY	Cost of Service/Rate Design
20.	2018	WV PSC	18-0573-W-42t	West Virginia American Water Co.	Cost of Service
21.	2018	IN IRC	50208	Indiana American Water Company	Cost of Service/Demand Study
22.	2018	KY PSC	2018-00291	Northern Kentucky Water District	Cost of Service/Rate Design
23.	2018	KY PSC	2018-0358	Kentucky American Water	Cost of Service/Rate Design
24.	2019	PA PUC	R-2019-3006904	Newtown Artesian Water Co.	Revenue Reqmts./Rate Design
25.	2019	PA PUC	R-2019-3010955	City of Lancaster – Sewer Fund	Rev. Reqmts./Cost of Service/Rat
26.	2020	PA PUC	R-2020-3017206	Philadelphia Gas Works	Cost of Service
27.	2020	PA PUC	R-2020-3019369	Pennsylvania American Water Co.	Cost of Service/Rate Design
28.	2020	PA PUC	R-2020-3019371	Pennsylvania American Water Co.	Cost of Service/Rate Design
29.	2020	PA PUC	R-2020-3020256	City of Bethlehem	Rev. Reqmts./Cost of Service/Rat
30.	2020	CA PUC	A2101003	San Jose Water Company	Rate Design
31.	2020	VA SCC	PUR-2020-00106	Aqua Virginia, Inc.	Cost of Service
32.	2021	PUCO	21-0595-WW-AIR	Aqua Ohio, Inc	Cost of Service
33.	2021	PUCO	21-0596-ST-AIR	Aqua Ohio, Inc	Cost of Service
34.	2021	PA PUC	R-2021-3026116	Hanover Borough	Cost of Service
35.	2021	NJ BPU	WR21071007	Atlantic City Sewerage Co.	Rev. Reqmts./Cost of Service/Rat
36.	2021	PA PUC	R-2021-3027385	Aqua Pennsylvania	Cost of Service/Rate Design
37.	2021	PA PUC	R-2021-3027386	Aqua Pennsylvania	Cost of Service/Rate Design
38.	2021	PA PUC	R-2021-3026682	City of Lancaster – Bureau of Water	Cost of Service/Rate Design
39.	2021	NV PUC	21-12025	Great Basin Water Company	Cost of Service/Rate Design
40.	2022	PA PUC	R-2021-3030218	UGI Utilities, Inc. – Gas Division	Cost of Service
41.	2022	PA PUC	R-2022-3031704	Borough of Ambler	Rev. Req./Rate Design
42.	2022	PA PUC	R-2022-30316732	Pennsylvania American Water	Cost of Service
43.	2022	PA PUC	R-2022-3031340	York Water Company	Cost of Service/Rate Design
44.	2022	PA PUC	R-2022-3032806	York Water Company	Cost of Service/Rate Design
45.	2022	KY PSC	2022-00161	Northern Kentucky Water District	Cost of Service/Rate Design
46.	2022	PUCO	22-1094-WW-AIR	Aqua Ohio Inc.	Cost of Service
47.	2022	PUCO	22-1096-ST-AIR	Aqua Ohio Inc.	Cost of Service

Exhibit CEH-1

Philadelphia Gas Works Exhibit CEH-1
Witness: C.E. Heppenstall

PHILADELPHIA GAS WORKS

COST OF SERVICE ALLOCATION STUDY

AS OF AUGUST 31, 2024

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
Valley Forge, Pennsylvania

GANNETT FLEMING

Gannett Fleming
Valuation and Rate Consultants, LLC

Corporate Headquarters
207 Senate Avenue
Camp Hill, PA 17011
P 717.763.7211 | **F** 717.763.8150

gannettfleming.com

February 22, 2023

Philadelphia Gas Works
800 W. Montgomery Avenue
Philadelphia, PA 19122

Attention: Craig Berry, Esquire
Senior Attorney

Ladies and Gentlemen:

Pursuant to your request, we have prepared a cost of service allocation study based on pro forma revenue requirements for the twelve months ended August 31, 2024 for Philadelphia Gas Works.

The attached report presents the results of the study, as well as supporting schedules which set forth the detailed allocation calculations. Schedule A, on page 5, presents a comparison of the cost of service by service classification with the revenues produced by each classification under present and proposed rates.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

CONSTANCE E. HEPPENSTALL
Senior Project Manager

CEH:mle

073353.000

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PART I. INTRODUCTION

PHILADELPHIA GAS WORKS

COST OF SERVICE ALLOCATION STUDY
AS OF AUGUST 31, 2024

PART I. INTRODUCTION

PLAN OF REPORT

The report sets forth the results of the cost of service allocation study prepared for Philadelphia Gas Works, based on the twelve months ended August 31, 2024 (FPFTY). Part I, Introduction, includes statements with respect to the basis of the study, the procedures employed, and a summary of the results of the study. Part II, Cost of Service by Service Classification, presents the detailed schedules of the allocation of costs to service classifications, the bases for the allocations, and the development of certain customer and demand costs.

BASIS OF THE STUDY

The purpose of the study was to allocate costs of Philadelphia Gas Works to the several customer classifications based on considerations of quantity of gas consumed; sales and transportation; demand characteristics; and costs associated with metering, billing, and accounting. The allocation study was based on recognized procedures for allocating costs to customer classifications in proportion to each classification's use of the facilities, commodity, and services which entail the total cost of providing gas service.

ALLOCATION PROCEDURES

The allocation study was based on the Average and Extra Demand Method for allocating costs to service classifications. The method is identified as the "Average and

Excess Demand Method" in "Gas Rate Fundamentals," (published in 1987 by the American Gas Association's Rate Committee) in which it is described. The three basic categories of cost responsibility are commodity, capacity, and customer costs. In the Average and Extra Demand Method, the capacity costs are allocated to service classifications on a combined basis of average use and use above average at peak demands. The following presents a brief discussion of costs and the manner in which they were allocated.

Commodity Costs are the costs that tend to vary with the quantity of gas used. Commodity costs in this study include production plant expenses and associated costs. Commodity costs were allocated to service classifications on the basis of average daily sales volumes.

Capacity Costs are costs associated with meeting the peak demands of the system. Capacity costs attributable to sales and transportation service include Distribution expenses and capital costs not associated with the customer costs category. The capacity costs were allocated to service classifications on a combined basis of average use and extra demand (demand in excess of average use). For presentation purposes, the commodity and capacity costs are combined into the volumetric function for each classification.

Customer Costs are costs associated with serving customers regardless of their usage or demand characteristics. Customer costs include the expenses and capital costs related to meters, regulators, and services and expenses related to meter reading and billing. The customer costs were allocated to service classifications on the bases of the number of meters, services and customers.

The allocation of costs to service classifications and the bases for the allocations are presented in Part II, Cost of Service by Service Classification.

RESULTS OF STUDY

The data summarized in Schedule A, "Comparison of Cost of Service with Revenues Under Present and Proposed Rates by Service Classification for the Twelve Months Ended August 31, 2024," constitute the principal results of the allocation study. Schedules B through F in Part II of the report present the details of the allocation of costs of service, including the return based on the allocated measure of value, by service classification as well as the bases for the allocation factors. Schedule G presents the development of customer costs per bill by service classification. Schedule H presents the calculation of the Merchant Function charge. Schedule I presents the calculation of the Gas Procurement charge.

PHILADELPHIA GAS WORKS

COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT AND PROPOSED RATES
BY SERVICE CLASSIFICATION FOR THE TWELVE MONTHS ENDED AUGUST 31, 2024
WITHOUT GAS COSTS

Service Classification	Pro Forma Cost of Service (in 000's)		Pro Forma Margin Revenues, Under Present Rates		Pro Forma Margin Revenues, Under Proposed Rates		Revenue Increase	
	Amount	Percent	Amount (in 000's)	Percent	Amount (in 000's)	Percent	Amount	Percent Increase
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Residential	$ 395,025	74.70%	$ 351,526	79.66%	$ 419,616	79.60%	$ 68,090	19.37%
Commercial	72,527	13.72%	61,799	14.00%	72,656	13.78%	10,857	17.57%
Industrial	5,606	1.06%	4,920	1.11%	5,880	1.12%	960	19.52%
Municipal	6,771	1.28%	4,873	1.10%	6,299	1.20%	1,427	29.28%
PHA - GS	1,998	0.38%	1,648	0.37%	2,006	0.38%	358	21.70%
PHA - Rate 8	2,984	0.56%	2,614	0.59%	2,992	0.57%	377	14.44%
NGVS	56	0.01%	27	0.01%	35	0.01%	8	29.77%
Interruptible	33,590	6.35%	12,773	2.89%	16,516	3.13%	3,743	29.30%
Grays Ferry/Veolia	10,237	1.94%	1,129	0.26%	1,129	0.21%	-	0.00%
Total	$ 528,794	100.00%	$ 441,310	100.00%	$ 527,130	100.00%	$ 85,820	19.45%
NGS/LNG and Contract Re	686		686		686		-	
Surcharges	79,027		79,027		79,027		-	
Other Operating Revenues	(4,205)		(2,391)		(4,205)		(1,814)	
Total Other Revenues	75,508		77,322		75,508		(1,814)	
Total	$ 604,302		$ 518,631		$ 602,638		$ 84,006	16.2%

PART II. COST OF SERVICE

BY SERVICE CLASSIFICATION

PHILADELPHIA GAS WORKS

COMPARISON OF COST OF SERVICE WITH REVENUES UNDER PRESENT RATES AND PARITY REVENUE
BY SERVICE CLASSIFICATION FOR THE TWELVE MONTHS ENDED AUGUST 31, 2024
WITHOUT GAS COSTS

Service Classification	Pro Forma Cost of Service (in 000's)		Pro Forma Margin Revenues,				Revenue Increase	
			Under Present Rates		Under Parity			
	Amount	Percent	Amount (in 000's)	Percent	Amount (in 000's)	Percent	Amount	Percent Increase
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Residential	$ 395,025	74.70%	$ 351,526	79.66%	$ 395,012	74.70%	$ 43,486	12.4%
Commercial	72,527	13.72%	61,799	14.00%	72,527	13.72%	10,727	17.4%
Industrial	5,606	1.06%	4,920	1.11%	5,606	1.06%	686	14.0%
Municipal	6,771	1.28%	4,873	1.10%	6,780	1.28%	1,907	39.1%
PHA - GS	1,998	0.38%	1,648	0.37%	2,002	0.38%	354	21.5%
PHA - Rate 8	2,984	0.56%	2,614	0.59%	2,984	0.56%	370	14.1%
NGVS	56	0.01%	27	0.01%	56	0.01%	28	104.7%
Interruptible	33,590	6.35%	12,773	2.89%	33,590	6.35%	20,817	163.0%
Grays Ferry/Veolia	10,237	1.94%	1,129	0.26%	10,237	1.94%	9,108	806.7%
Total	$ 528,794	100.0%	$ 441,310	100.0%	$ 528,794	100.0%	$ 87,484	19.8%
NGS/LNG and Contract Re	686		686		686		-	
Surcharges	79,027		79,027		79,027		-	
Other Operating Revenues	(4,205)		(2,391)		(4,205)		(1,814)	
Total Other Revenues	75,508		77,322		75,508		(1,814)	
Total	$ 604,302		$ 518,631		$ 604,302		$ 85,670	16.5%

PHILADELPHIA GAS WORKS

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PRESENT RATES

Item	Total	Residential	Commercial	Industrial	Municipal	PHA - GS	PHA -Rate 8	NGVS	Interruptible	Grays Ferry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Revenues From Tariff Sales and Transportation	$ 441,209	$ 351,526	$ 61,799	$ 4,920	$ 4,873	$ 1,648	$ 2,514	$ 27	$ 12,773	$ 1,129
2. Other Revenues	77,226	54,419	18,260	1,442	1,851	382	816	25	12	17
3. Total Operating Revenues	518,435	405,945	80,060	6,362	6,724	2,030	3,330	52	12,785	1,146
4. Less: Operating Expenses and City Contribution	381,864	284,935	58,880	4,605	5,580	1,490	2,452	53	17,435	6,435
5. Income Before Interest and Surplus	136,571	121,010	21,180	1,758	1,145	540	878	(0)	(4,650)	(5,289)
6. Less: Interest	64,310	46,449	9,464	734	917	268	407	9	4,905	1,158
7. Current Revenue Over/Under Requirements	72,261	74,561	11,716	1,024	228	272	471	(9)	(9,555)	(6,447)
8. Original Cost Measure of Value (Factor 15.)	1,763,900	1,274,001	259,586	20,131	25,140	7,360	11,163	234	134,525	31,761
9. Rate of Return before Interest and Surplus, Percent	7.74%	9.50%	8.16%	8.73%	4.55%	7.34%	7.86%	-0.07%	-3.46%	-16.65%
10. Relative Rate of Return	1.00	1.23	1.05	1.13	0.59	0.95	1.02	-0.01	-0.45	-2.15

PHILADELPHIA GAS WORKS

DEVELOPMENT OF RATE OF RETURN BY SERVICE CLASSIFICATION
UNDER PROPOSED RATES

Item	Total	Residential	Commercial	Industrial	Municipal	PHA - GS	PHA -Rate 8	NGVS	Interruptible	Grays Ferr
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Revenues From Tariff Sales and Transportation	528,116	$ 419,616	$ 72,656	$ 5,880	$ 6,299	$ 2,992	$ 2,992	$ 35	$ 16,516	$ 1,129
2. Other Revenues	75,508	52,904	18,084	1,432	1,841	380	812	25	12	17
3. Total Operating Revenues	603,623	472,520	90,740	7,312	8,140	3,372	3,804	60	16,528	1,146
4. Less: Operating Expenses and City Contribution	392,697	295,095	59,470	4,623	5,596	1,496	2,457	53	17,464	6,444
5. Income Before Interest and Surplus	210,926	177,425	31,270	2,689	2,545	1,877	1,347	8	(935)	(5,298)
6. Less: Interest	64,310	46,449	9,464	734	917	268	407	9	4,905	1,158
7. Current Revenue Over/Under Requirements	146,616	130,976	21,806	1,955	1,628	1,609	940	(1)	(5,840)	(6,456)
8. Original Cost Measure of Value (Factor 15.)	1,763,900	1,274,001	259,586	20,131	25,140	7,360	11,163	234	134,525	31,761
9. Rate of Return before Interest and Surplus, Percent	11.96%	13.93%	12.05%	13.36%	10.12%	25.50%	12.06%	3.30%	-0.70%	-16.68%
10. Relative Rate of Return	1.00	1.16	1.01	1.12	0.85	2.13	1.01	0.28	-0.06	-1.39

PHILADELPHIA GAS WORKS
SUMMARY COST OF SERVICE BY SERVICE CLASSIFICATION

Cost Function	Cost of Service (Schedule E)	Residential	Commercial	Industrial	Muncipal	PHA- GS	PHA - Rate 8	NGVS	Interruptible	Grays Ferry
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Volumetric Costs										
Residential	$ 187,626	$ 187,626								
Commercial	44,702		44,702							
Industrial	3,812			3,812						
Municipal	4,703				4,703					
PHA GS	866					866				
PHA R8	2,154						2,154			
NGVS	35							35		
Interruptible	33,342								33,342	
Gray Ferry/Veolia	-									10,237
Total Volumetric Cost	277,240	187,626	44,702	3,812	4,703	866	2,154	35	33,342	10,237
Customer Costs										
Residential	207,399	207,399								
Commercial	27,825		$ 27,825							
Industrial	1,795			$ 1,795						
Municipal	2,068				$ 2,068					
PHA GS	1,132					$ 1,132				
PHA R8							$ 831			
NGVS	20							$ 20		
Interruptible	248								$ 248	$ -
GTS/IT	-									
Total Customer Costs	240,486	207,399	27,825	1,795	2,068	1,132	831	20	248	-
Total Excluding Gas Cos	$ 517,727	$ 395,025	$ 72,527	$ 5,606	$ 6,771	$ 1,998	$ 2,984	$ 56	$ 33,590	$ 10,237

PHILADELPHIA GAS WORKS

COST OF SERVICE AS OF AUGUST 31, 2024, AT PROPOSED REVENUE LEVEL ALLOCATED TO
CUSTOMER CLASS SERVICE CLASSIFICATIONS

Account		Factor Ref.	Cost of Service in '000's	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - RS	NGVS	Interruptible	Grays Ferry	Res	Com	Ind	Muni	PHA - GS	PHA - RS	NGVS	Interruptible
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
OPERATION AND MAINTENANCE EXPENSES																				
PRODUCTION EXPENSES																				
	Manufactured Gas Production Expenses																			
701	Operation Labor and Expenses	1	319	251	52	3	7	1	3	0	-	0	-	-	-	-	-	-	-	-
703	Misc. Steam Expenses	1	397	313	65	4	9	2	4	0	-	1	-	-	-	-	-	-	-	-
706	Maintenance of Structures	1	6	5	1	0	0	0	0	0	-	0	-	-	-	-	-	-	-	-
707	Maintenance of Boiler Plant Equipment	1	276	217	45	3	6	1	3	0	-	0	-	-	-	-	-	-	-	-
712	Other Power Expenses	1	842	663	138	9	19	3	9	0	-	1	-	-	-	-	-	-	-	-
734	Duplicate Charges - Credit	1	(596)	(470)	(98)	(6)	(13)	(2)	(6)	(0)	-	(1)	-	-	-	-	-	-	-	-
735	Misc. Production Expenses	1	1,633	1,286	267	17	36	7	17	0	-	2	-	-	-	-	-	-	-	-
740	Maintenance Supervision and Engineering	1	467	368	76	5	10	2	5	0	-	1	-	-	-	-	-	-	-	-
741	Maintenance of Structures	1	149	117	24	2	3	1	2	0	-	0	-	-	-	-	-	-	-	-
742	Maintenance of Production Equipment	1	533	420	87	6	12	2	5	0	-	1	-	-	-	-	-	-	-	-
	Total - Manu. Gas Production Expenses		4,026	3,172	659	43	89	16	41	0	-	5	-	-	-	-	-	-	-	-
	Other Gas Supply Expenses																			
807	Purchased Gas Expense	1	11,746	9,253	1,923	126	261	48	119	1	-	15	-	-	-	-	-	-	-	-
812	Gas Used for Operations	1	43	34	7	0	1	0	0	0	-	0	-	-	-	-	-	-	-	-
813	Other Gas Supply Expenses	1	3,129	2,465	512	34	70	13	32	0	-	4	-	-	-	-	-	-	-	-
	Total Other Gas Supply Expenses		14,918	11,752	2,443	160	332	61	151	1	-	19	-	-	-	-	-	-	-	-
	Total Natural Gas Production Expenses		**18,944**	**14,924**	**3,102**	**203**	**421**	**77**	**192**	**1**	**-**	**24**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
OTHER STORAGE EXPENSE																				
840	Operating Supervision and Engineering	2A	1,327	1,020	241	22	27	5	12	0	-	-	-	-	-	-	-	-	-	-
841	Operation Labor and Expenses	2A	3,985	3,062	724	66	80	15	37	0	-	-	-	-	-	-	-	-	-	-
842	Rents	2A	333	256	61	6	7	1	3	0	-	-	-	-	-	-	-	-	-	-
843	Maintenance	2A	8,412	6,463	1,528	140	170	32	78	0	-	-	-	-	-	-	-	-	-	-
850	Operating Supervision and Engineering	2A	1,272	977	231	21	26	5	12	0	-	-	-	-	-	-	-	-	-	-
	Total Natural Gas Storage Expense		**15,329**	**11,777**	**2,785**	**255**	**309**	**59**	**143**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

PHILADELPHIA GAS WORKS

COST OF SERVICE AS OF AUGUST 31, 2024, AT PROPOSED REVENUE LEVEL ALLOCATED TO CUSTOMER CLASS SERVICE CLASSIFICATIONS

Account		Factor Ref.	Cost of Service In '000's	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - R8	NGVS	Interruptible	Grays Ferry	Res	Com	Ind	Muni	PHA - GS	PHA - R8	NGVS	Interruptible
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
DISTRIBUTION EXPENSES																				
870	Supervision And Engineering	8	2,757	864	227	20	23	4	11	0	187	58	967	324	27	28	6	9	0	1
871	Distribution Load Dispatching	3A	2,159	1,274	333	29	34	6	16	0	270	197	-	-	-	-	-	-	-	-
874	Mains And Services Expenses																			
	Mains	3	3,287	2,057	541	47	55	10	25	1	448	103	-	-	-	-	-	-	-	-
	Services	6	3,287	-	-	-	-	-	-	-	-	-	3,056	179	5	10	23	6	0	7
875	M & R Station Expenses -General	3A	2,280	1,345	351	31	36	7	17	0	285	208	-	-	-	-	-	-	-	-
876	M & R Station Expenses - Industrial	5	152	-	-	-	-	-	-	-	-	-	-	-	152	-	-	-	-	-
877	M & R Station Expenses - City Gate Station	3A	751	443	116	10	12	2	5	0	94	69	-	-	-	-	-	-	-	-
878	Meter and House Regulator Expenses	4	18,880	-	-	-	-	-	-	-	-	-	12,158	5,650	331	503	74	159	6	-
879	Customer Installations Expenses	4	10,926	-	-	-	-	-	-	-	-	-	7,036	3,270	192	291	43	92	3	-
880	Other Expenses	8	16,489	5,167	1,357	118	138	25	64	1	1,119	348	5,785	1,940	161	169	36	55	2	3
881	Rents	8	10	3	1	0	0	0	0	0	1	0	4	1	0	0	0	0	0	0
885	Maintenance Super. And Engineering	8	380	119	31	3	3	1	1	0	26	8	133	45	4	4	1	1	0	0
887	Maint. Of Mains	3	30,061	18,817	4,947	429	504	93	232	5	4,096	938	-	-	-	-	-	-	-	-
889	Maint. Of Measuring Station Expenses - General	3A	1,279	755	197	17	20	4	9	0	160	117	-	-	-	-	-	-	-	-
890	Maint. Of Measuring Station Expenses - Industrial	5	93	-	-	-	-	-	-	-	-	-	-	-	93	-	-	-	-	-
891	Maint. Of Measuring Station Expenses - City Gate	3A	618	365	95	8	10	2	4	0	77	56	-	-	-	-	-	-	-	-
892	Maint. Of Services	6	2,487	-	-	-	-	-	-	-	-	-	2,313	135	4	8	17	4	0	5
893	Maint. Of Meters and House Regulators	7	3,703	-	-	-	-	-	-	-	-	-	3,491	176	4	6	15	7	0	3
	Total Distribution Expenses		**99,598**	**31,210**	**8,195**	**712**	**836**	**154**	**384**	**8**	**6,762**	**2,102**	**34,943**	**11,720**	**973**	**1,019**	**215**	**334**	**12**	**19**
CUSTOMER ACCOUNTING EXPENSES																				
	Operation																			
901	Supervision	7	2,839	-	-	-	-	-	-	-	-	-	2,676	135	3	5	12	6	0	2
902	Meter Reading Expenses	7	868	-	-	-	-	-	-	-	-	-	818	41	1	1	4	2	0	1
903	Customer Records & Coll Expenses	7	37,465	-	-	-	-	-	-	-	-	-	35,317	1,785	41	62	155	75	0	28
	Total Customer Accounting Expenses		**41,172**	-	-	-	-	-	-	-	-	-	**38,812**	**1,962**	**45**	**69**	**171**	**82**	**0**	**31**
CUSTOMER SERVICE AND INFORMATION EXPENSES																				
	Operation																			
908	Customer Assistance Expenses	7	6,334	-	-	-	-	-	-	-	-	-	5,971	302	7	11	26	13	0	5
	Total Customer Service & Info Expenses		**6,334**	-	-	-	-	-	-	-	-	-	**5,971**	**302**	**7**	**11**	**26**	**13**	**0**	**5**

PHILADELPHIA GAS WORKS

COST OF SERVICE AS OF AUGUST 31, 2024, AT PROPOSED REVENUE LEVEL ALLOCATED TO
CUSTOMER CLASS SERVICE CLASSIFICATIONS

	Account	Factor Ref.	Cost of Service in '000's	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - RS	NGVS	Interruptible	Grays Ferry	Res	Com	Ind	Muni	PHA - GS	PHA - RS	NGVS	Interruptible
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	ADMINISTRATIVE AND GENERAL EXPENSES																			
920	Administrative & General Salaries	10	24,028	7,672	1,866	155	208	38	95	1	896	282	10,562	1,853	136	145	54	57	2	7
921	Office Supplies and Expenses	10	19,700	6,290	1,529	127	170	31	78	1	734	231	8,659	1,519	111	119	45	47	1	6
921	Customer Programs - ELIRP,Senior Discounts, CRP	1A	23,451	15,891	4,708	386	437	76	199	9	-	1,744	-	-	-	-	-	-	-	-
922	Administrative Expenses Transferred-Credit - Benefits	11	(10,717)	(5,218)	(1,380)	(118)	(140)	(26)	(64)	(1)	(884)	(294)	(2,290)	(248)	(15)	(17)	(11)	(8)	-	(2)
922	Administrative Expenses Transferred-Credit	10	(31,571)	(10,080)	(2,451)	(204)	(273)	(50)	(125)	(2)	(1,177)	(370)	(13,877)	(2,434)	(178)	(191)	(72)	(75)	(2)	(10)
923	Outside Services Employed - Other	10	3,979	1,270	309	26	34	6	16	0	148	47	1,749	307	22	24	9	9	0	1
925	Injuries and Damages	11	11,132	5,420	1,434	122	146	27	67	1	918	305	2,379	258	16	17	11	9	-	2
926	Employee Pensions and Benefits	11	74,022	36,042	9,533	814	970	177	445	9	6,106	2,031	15,818	1,714	104	115	75	57	-	11
999	OPEB Funding	11	(10,095)	(4,915)	(1,300)	(111)	(132)	(24)	(61)	(1)	(833)	(277)	(2,157)	(234)	(14)	(16)	(10)	(8)	-	(1)
924	Property Insurance	10	2,072	662	161	13	18	3	8	0	77	24	911	160	12	13	5	5	0	1
928	Regulatory Commission Expense	10	4,397	1,404	341	28	38	7	17	0	164	52	1,933	339	25	27	10	10	0	1
929	Duplicate Charges	10	(1,596)	(510)	(124)	(10)	(14)	(3)	(6)	(0)	(59)	(19)	(702)	(123)	(9)	(10)	(4)	(4)	(0)	(0)
930	General Advertising Expenses	10	9,073	2,897	704	59	78	14	36	1	338	106	3,988	700	51	55	21	21	1	3
	Taxes Other Than Income	11	10,434	5,080	1,344	115	137	25	63	1	861	286	2,230	242	15	16	11	8	-	2
	Total Administrative & General Expenses		128,309	61,905	16,674	1,402	1,677	303	769	20	7,290	4,148	29,202	4,051	275	298	144	129	2	20
	Total Operation and Maintenance Expenses		**309,686**	**119,816**	**30,756**	**2,572**	**3,243**	**593**	**1,488**	**30**	**14,052**	**6,275**	**108,927**	**18,035**	**1,301**	**1,396**	**555**	**558**	**14**	**76**
	DEPRECIATION AND AMORTIZATION EXPENSE																			
	PRODUCTION PLANT																			
305	Structures and Improvements	1	371	293	61	4	8	2	4	0	-	0	-	-	-	-	-	-	-	-
306	Boiler Plant Equipment	1	20	16	3	0	0	0	0	0	-	0	-	-	-	-	-	-	-	-
307	Other Power Equipment	1	141	111	23	2	3	1	1	0	-	0	-	-	-	-	-	-	-	-
311	LPG Equipment	1	29	23	5	0	1	0	0	0	-	0	-	-	-	-	-	-	-	-
312	Oil Gas Equipment	1	3	2	0	0	0	0	0	0	-	0	-	-	-	-	-	-	-	-
319	Gas Mixing Equipment	1	0	0	0	0	0	0	0	0	-	0	-	-	-	-	-	-	-	-
320	Other Equipment	1	551	434	90	6	12	2	6	0	-	1	-	-	-	-	-	-	-	-
	STORAGE PLANT																			
361	Structures and Improvements	2A	313	240	57	5	6	1	3	0	-	-	-	-	-	-	-	-	-	-
362	Gas Holders	2A	14	11	3	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
363	Purification Equipment	2A	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
364	Liquefaction Equipment	2A	823	632	150	14	17	3	8	0	-	-	-	-	-	-	-	-	-	-
365	Vaporizing Equipment	2A	300	230	54	5	6	1	3	0	-	-	-	-	-	-	-	-	-	-
366	Compressor Equipment	2A	251	193	46	4	5	1	2	0	-	-	-	-	-	-	-	-	-	-
367	Measuring and Regulating Equipment	2A	85	65	15	1	2	0	1	0	-	-	-	-	-	-	-	-	-	-
368	Other Equipment	2A	1,000	768	182	17	20	4	9	0	-	-	-	-	-	-	-	-	-	-
	DISTRIBUTION PLANT																			
375	Structures And Improvements	9	17	7	2	0	0	0	0	0	2	0	5	1	0	0	0	0	0	0
376	Mains	3	18,867	11,810	3,105	270	317	58	145	3	2,570	589	-	-	-	-	-	-	-	-
377	Compression Station Equipment	3A	1	1	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-
378	Measuring & Regulating Equipment - General	3A	350	207	54	5	6	1	3	0	44	32	-	-	-	-	-	-	-	-
380	Services	6	19,688	-	-	-	-	-	-	-	-	-	18,309	1,069	30	63	138	35	0	43
381	Meters	4	2,526	-	-	-	-	-	-	-	-	-	1,627	756	44	67	10	21	1	-
382	Meter Installations	4	2,697	-	-	-	-	-	-	-	-	-	1,737	807	47	72	11	23	1	-
383	House Regulators	6	50	-	-	-	-	-	-	-	-	-	46	3	0	0	0	0	0	0
384	House Regulator Installations	4	49	-	-	-	-	-	-	-	-	-	31	15	1	1	0	0	0	-
385	Industrial Measuring & Regulating Equipment	5	13	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-
387	Other Equipment	9	153	61	16	1	2	0	1	0	13	3	47	6	0	0	0	0	0	0

PHILADELPHIA GAS WORKS

COST OF SERVICE AS OF AUGUST 31, 2024, AT PROPOSED REVENUE LEVEL ALLOCATED TO CUSTOMER CLASS SERVICE CLASSIFICATIONS

	Account	Factor Ref.	Cost of Service In '000's	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - R8	NGVS	Interruptible	Grays Ferry	Res	Com	Ind	Muni	PHA - GS	PHA - R8	NGVS	Interruptible
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
GENERAL PLANT																				
390	Structures And Improvements	10	2,140	683	166	14	18	3	8	0	80	25	941	165	12	13	5	5	0	1
391	Office Furniture And Equipment	10	4,707	1,503	365	30	41	8	19	0	175	55	2,069	363	27	28	11	11	0	1
392	Transportation Equipment	10	4,900	1,565	380	32	42	8	19	0	183	57	2,154	378	28	30	11	12	0	1
393	Stores Equipment	10	13	4	1	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0
394	Tools, Shop And Garage Equipment	10	637	204	49	4	6	1	3	0	24	7	280	49	4	4	1	2	0	0
396	Power Operated Equipment	10	67	21	5	0	1	0	0	0	3	1	30	5	0	0	0	0	0	0
397	Communication Equipment	10	517	165	40	3	4	1	2	0	19	6	227	40	3	3	1	1	0	0
398	Miscellaneous Equipment	10	859	274	67	6	7	1	3	0	32	10	378	66	5	5	2	2	0	0
g	Lease - GASB 87	10	2,836	905	220	18	24	5	11	0	106	33	1,247	219	16	17	6	7	0	1
g	Software Subscriptions - GASB 96	10	423	135	33	3	4	1	2	0	16	5	186	33	2	3	1	1	0	0
	Total Depreciation & Amortization Expense		**65,412**	**20,565**	**5,193**	**445**	**553**	**102**	**254**	**4**	**3,267**	**826**	**29,320**	**3,975**	**232**	**307**	**198**	**120**	**3**	**49**
10,833	**Cost of Removal**	**12**	**6,729**	**2,778**	**714**	**61**	**75**	**14**	**34**	**1**	**510**	**121**	**2,082**	**277**	**15**	**21**	**14**	**8**	**0**	**4**
	Regulatory Asset - Pandemic Bad Debt	**14**	**10,077**	-	-	-	-	-	-	-	-	-	**9,587**	**473**	**9**	**6**	**3**	-	-	-
	Regulatory Asset - Pandemic	**10**	**756**	**241**	**59**	**5**	**7**	**1**	**3**	**0**	**28**	**9**	**332**	**58**	**4**	**5**	**2**	**2**	**0**	**0**
	Total Operating Expenses		**392,660**	**143,400**	**36,722**	**3,083**	**3,677**	**710**	**1,779**	**36**	**17,855**	**7,231**	**150,248**	**22,818**	**1,562**	**1,735**	**772**	**688**	**17**	**128**
	Interest Gain/Loss and Other Income	**12**	**(7,211)**	**(2,977)**	**(765)**	**(66)**	**(80)**	**(15)**	**(37)**	**(1)**	**(546)**	**(130)**	**(2,232)**	**(296)**	**(16)**	**(23)**	**(15)**	**(9)**	**(0)**	**(4)**
INTEREST AND OTHER EXPENSE																				
	Interest on Long Term Debt	12	62,738	25,898	6,654	573	695	128	319	6	4,751	1,130	19,416	2,579	143	199	134	78	2	34
	Other	12	(1,776)	(733)	(188)	(16)	(20)	(4)	(9)	(0)	(134)	(32)	(550)	(73)	(4)	(6)	(4)	(2)	(0)	(1)
	Loss From Extinguishment of Debt	12	3,348	1,382	355	31	37	7	17	0	254	60	1,036	138	8	11	7	4	0	2
	Total Interest and Other Expense		**64,310**	**26,547**	**6,820**	**588**	**712**	**131**	**327**	**6**	**4,870**	**1,158**	**19,902**	**2,644**	**146**	**204**	**137**	**80**	**2**	**35**
FEDERAL GRANT REVENUE		**3A**	**(10,752)**	**(6,345)**	**(1,657)**	**(144)**	**(170)**	**(31)**	**(78)**	**(2)**	**(1,343)**	**(982)**	-	-	-	-	-	-	-	-
CITY PAYMENT		**12**	**18,000**	**7,430**	**1,909**	**164**	**199**	**37**	**92**	**2**	**1,363**	**324**	**5,571**	**740**	**41**	**57**	**38**	**22**	**1**	**10**
NET INCOME		**12**	**147,295**	**60,902**	**15,621**	**1,346**	**1,632**	**300**	**750**	**15**	**11,154**	**2,652**	**45,584**	**6,055**	**335**	**468**	**314**	**182**	**5**	**79**
TOTAL COST OF SERVICE			**604,302**	**228,857**	**58,650**	**4,971**	**6,171**	**1,132**	**2,833**	**56**	**33,354**	**10,254**	**219,073**	**31,961**	**2,087**	**2,441**	**1,246**	**963**	**24**	**248**
Less: Other Revenues																				
	Uncollectible Accounts - MFC	DA	(13,699)	(12,967)	(719)	(12)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Uncollectible Accounts - Other	14	(23,220)	-	-	-	-	-	-	-	-	-	(22,091)	(1,090)	(21)	(12)	(7)	-	-	-
	Appliance Repair and Other Revenues	4	7,807	-	-	-	-	-	-	-	-	-	5,027	2,336	137	208	31	66	2	-
	Other Revenues - LNG Sales	2A	1,059	814	192	18	21	4	10	0	-	-	-	-	-	-	-	-	-	-
	Other Revenues - Cap Release	1	10,124	7,976	1,658	108	225	41	103	0	-	13	-	-	-	-	-	-	-	-
	Other Revenues - Finance Charges	14	14,187	-	-	-	-	-	-	-	-	-	13,497	666	13	7	4	-	-	-
	CRP Forgiveness	1B	12,870	9,422	2,792	229	259	45	118	5	-	-	-	-	-	-	-	-	-	-
	Senior Discount	1B	1,705	1,248	370	30	34	6	16	1	-	-	-	-	-	-	-	-	-	-
	DSIC Surcharge at 7.50%	13A	38,783	15,837	4,059	344	427	78	196	4	-	-	15,160	2,212	143	169	86	67	2	-
	OPEB Surcharge	1B	16,792	12,293	3,642	298	336	59	154	7	-	-	-	-	-	-	-	-	-	-
	ELIRP	1B	7,989	5,848	1,733	142	161	28	73	3	-	-	-	-	-	-	-	-	-	-
	Efficiency Cost Recovery ECR	DA	887	675	200			3	8											
	Unbilled Adjustment	13	(463)	(175)	(45)	(4)	(5)	(1)	(2)	(0)	(26)	(8)	(168)	(24)	(2)	(2)	(1)	(1)	(0)	(0)
	NGS/LNG and Contract Revenues	13	686	260	67	6	7	1	3	0	38	12	249	36	2	3	1	1	0	0
	Subtotal		75,508	41,230	13,948	1,159	1,468	266	679	21	12	17	11,674	4,136	273	373	115	133	4	0
TOTAL COST OF SERVICE RELATED TO TARIFF SALES AND TRANSPORTATION			**$ 528,794**	**187,628**	**44,702**	**3,812**	**4,703**	**866**	**2,154**	**35**	**33,342**	**10,237**	**207,399**	**27,825**	**1,795**	**2,068**	**1,132**	**831**	**20**	**248**

PHILADELPHIA GAS WORKS

COST OF SERVICE AS OF AUGUST 31, 2024, AT PROPOSED REVENUE LEVEL ALLOCATED TO CUSTOMER CLASS SERVICE CLASSIFICATIONS

Account		Factor Ref.	Cost of Service In '000's	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - RS	NGVS	Interruptible	Grays Ferry	Res	Com	Ind	Muni	PHA - GS	PHA - RS	NGVS	Interruptible
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
RATE BASE																				
PRODUCTION PLANT																				
304	Land and Land Rights	1	1,453	1,145	238	16	32	6	15	0	-	2	-	-	-	-	-	-	-	-
305	Structures and Improvements	1	6,833	5,383	1,119	73	152	28	69	0	-	9	-	-	-	-	-	-	-	-
306	Boiler Plant Equipment	1	478	376	78	5	11	2	5	0	-	1	-	-	-	-	-	-	-	-
307	Other Power Equipment	1	5,962	4,697	976	64	133	24	61	0	-	8	-	-	-	-	-	-	-	-
311	LPG Equipment	1	522	411	85	6	12	2	5	0	-	1	-	-	-	-	-	-	-	-
312	Oil Gas Equipment	1	69	55	11	1	2	0	1	0	-	0	-	-	-	-	-	-	-	-
319	Gas Mixing Equipment	1	0	0	0	0	0	0	0	0	-	0	-	-	-	-	-	-	-	-
320	Other Equipment	1	17,761	13,991	2,908	190	395	72	180	1	-	23	-	-	-	-	-	-	-	-
	Total Production Plant		33,078	26,058	5,416	354	735	134	336	1	-	43	-	-	-	-	-	-	-	-
STORAGE AND PROCESSING PLANT																				
360	Land and Land Rights	2A	328	252	60	5	7	1	3	0	-	-	-	-	-	-	-	-	-	-
361	Structures and Improvements	2A	9,620	7,391	1,748	160	194	37	90	0	-	-	-	-	-	-	-	-	-	-
362	Gas Holders	2A	488	375	89	8	10	2	5	0	-	-	-	-	-	-	-	-	-	-
363	Purification Equipment	2A	1	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
364	Liquefaction Equipment	2A	6,928	5,323	1,259	115	140	27	65	0	-	-	-	-	-	-	-	-	-	-
365	Vaporizing Equipment	2A	4,248	3,264	772	71	86	16	40	0	-	-	-	-	-	-	-	-	-	-
366	Compressor Equipment	2A	5,481	4,211	996	91	111	21	51	0	-	-	-	-	-	-	-	-	-	-
367	Measuring and Regulating Equipment	2A	1,227	943	223	20	25	5	11	0	-	-	-	-	-	-	-	-	-	-
368	Other Equipment	2A	40,863	31,395	7,424	681	824	157	381	1	-	-	-	-	-	-	-	-	-	-
	Total Storage and Processing Plant		69,182	53,152	12,569	1,152	1,395	266	645	2	-	-	-	-	-	-	-	-	-	-
DISTRIBUTION PLANT																				
374	Land and Land Rights	9	101	41	11	1	1	0	1	0	9	2	31	4	0	0	0	0	0	0
375	Structures And Improvements	9	(2)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
376	Mains	3	908,970	568,993	149,573	12,987	15,249	2,798	7,006	159	123,839	28,365	-	-	-	-	-	-	-	-
377	Compression Station Equipment	3A	12	7	2	0	0	0	0	0	1	1	-	-	-	-	-	-	-	-
378	Measuring & Regulating Equipment - General	3A	5,834	3,443	899	78	92	17	42	1	729	533	-	-	-	-	-	-	-	-
380	Services	6	396,938	-	-	-	-	-	-	-	-	-	369,144	21,562	603	1,263	2,780	705	8	872
381	Meters	4	53,974	-	-	-	-	-	-	-	-	-	34,757	16,152	947	1,437	211	453	17	-
382	Meter Installations	4	54,567	-	-	-	-	-	-	-	-	-	35,138	16,329	958	1,453	213	458	17	-
383	House Regulators	6	1,484	-	-	-	-	-	-	-	-	-	1,380	81	2	5	10	3	0	3
384	House Regulator Installations	6	694	-	-	-	-	-	-	-	-	-	645	38	1	2	5	1	0	2
385	Industrial Measuring & Regulating Equipment	5	156	-	-	-	-	-	-	-	-	-	-	-	156	-	-	-	-	-
387	Other Equipment	9	1,789	720	188	16	19	4	9	0	157	36	555	68	3	5	4	2	0	1
	Total Distribution Plant		1,424,516	573,202	150,674	13,083	15,362	2,819	7,058	160	124,735	28,938	441,650	54,234	2,671	4,165	3,224	1,623	41	878

PHILADELPHIA GAS WORKS

COST OF SERVICE AS OF AUGUST 31, 2024, AT PROPOSED REVENUE LEVEL ALLOCATED TO CUSTOMER CLASS SERVICE CLASSIFICATIONS

Account		Factor Ref.	Cost of Service In '000's	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - RS	NGVS	Interruptible	Grays Ferry	Res	Com	Ind	Muni	PHA - GS	PHA - RS	NGVS	Interruptible
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
GENERAL PLANT																				
389	Land and Land Rights	10	3,713	1,185	288	24	32	6	15	0	138	44	1,632	286	21	22	8	9	0	1
390	Structures And Improvements	10	62,742	20,033	4,871	405	542	100	249	3	2,339	736	27,579	4,837	355	380	142	148	4	19
391	Office Furniture And Equipment	10	69,992	22,347	5,434	452	604	112	278	4	2,609	821	30,765	5,396	396	424	159	165	5	21
392	Transportation Equipment	10	26,393	8,427	2,049	170	228	42	105	1	984	309	11,601	2,035	149	160	60	62	2	8
393	Stores Equipment	10	47	15	4	0	0	0	0	0	2	1	21	4	0	0	0	0	0	0
394	Tools, Shop And Garage Equipment	10	9,985	3,188	775	64	86	16	40	1	372	117	4,389	770	56	60	23	24	1	3
396	Power Operated Equipment	10	86	28	7	1	1	0	0	0	3	1	38	7	0	1	0	0	0	0
397	Communication Equipment	10	446	143	35	3	4	1	2	0	17	5	196	34	3	3	1	1	0	0
398	Miscellaneous Equipment	10	25,008	7,985	1,942	161	216	40	99	1	932	293	10,993	1,928	141	151	57	59	2	8
	Total General Plant		198,413	63,350	15,405	1,280	1,714	317	787	11	7,397	2,327	87,213	15,298	1,122	1,201	450	469	13	61
	Total Plant		1,725,190	715,762	184,064	15,869	19,206	3,536	8,826	175	132,132	31,307	528,864	69,532	3,793	5,366	3,674	2,092	54	939
OTHER RATE BASE ELEMENTS																				
	Cash Working Capital	10	38,711	12,360	3,006	250	334	62	154	2	1,443	454	17,016	2,985	219	234	88	91	3	12
	Total Other Rate Base Elements		38,711	12,360	3,006	250	334	62	154	2	1,443	454	17,016	2,985	219	234	88	91	3	12
	Total Measure of Value		$ 1,763,900	728,122	187,089	16,119	19,540	3,598	8,979	177	133,575	31,761	545,879	72,516	4,012	5,600	3,762	2,183	57	951

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 1, 1A AND 1B. ALLOCATION OF COSTS WHICH VARY DIRECTLY WITH SALE OF GAS

Factors are based on the pro forma average daily sales volumes for each service classification.

Service Classification	Pro Forma Average Daily PGC Volumes (Mcf)	Allocation Factor 1	Pro Forma Average Daily Firm Sales (Mcf)	Allocation Factor 1A	Pro Forma Average Daily Firm Sales For Surcharges (Mcf)	Allocation Factor 1B
(1)	(2)	(3)	(4)	(5)	(4)	(5)
Volumetric Costs						
Residential	89,006	0.78778	95,409	0.67764	95,409	0.73208
Commercial	18,499	0.16373	28,268	0.20077	28,268	0.21690
Industrial	1,210	0.01071	2,316	0.01645	2,316	0.01777
Municipal	2,511	0.02222	2,623	0.01863	2,623	0.02013
PHA GS	459	0.00406	459	0.00326	459	0.00352
PHA R8	1,147	0.01015	1,196	0.00850	1,196	0.00918
NGVS	5	0.00004	55	0.00039	55	0.00042
Interruptible	-	-		-		-
Grays Ferry/Veolia	146	0.00129	10,471	0.07437	-	-
Total	112,983	1.00000	140,797	1.00000	130,326	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 2 AND 2A. CALCULATION OF MAXIMUM DAY EXTRA DEMAND FACTORS.

Factors are based on the maximum day extra demand throughput for each classification.

Service Classification	Pro Forma Average Daily Throughput Volumes (Mcf)	Peak Day Capacity (Mcf)	Extra Capacity (Mcf)	Allocation Factor 2	Allocation Factor 2A*
(1)	(2)	(3)	(4)=(3)-(2)	(5)	(6)
Volumetric Costs					
Residential	95,409	429,513	334,104	0.69938	0.76829
Commercial	28,268	107,276	79,008	0.16539	0.18168
Industrial	2,316	9,559	7,243	0.01516	0.01666
Municipal	2,623	11,394	8,771	0.01836	0.02017
PHA GS	459	2,131	1,673	0.00350	0.00385
PHA R8	1,196	5,251	4,054	0.00849	0.00932
NGVS	55	70	15	0.00003	0.00003
Interruptible	31,867	73,869	42,002	0.08792	
Grays Ferry/Veolia	10,471	11,316	845	0.00177	
Total	172,664	650,379	477,716	1.00000	1.00000

* Factor 2A excludes Interruptible volumes.

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTORS 2B. CALCULATION OF MAXIMUM DAY EXTRA DEMAND FACTORS.

Factors are based on the maximum day extra demand throughput for each classification.

Service Classification	Pro Forma Average Daily Throughput Volumes (Mcf)	Peak Day Capacity (Mcf)	Extra Capacity (Mcf)	Allocation Factor 2B
(1)	(2)	(3)	(4)=(3)-(2)	(5)
Volumetric Costs				
Residential	95,409	429,513	334,104	0.69308
Commercial	28,268	107,276	79,008	0.16390
Industrial	2,316	9,559	7,243	0.01502
Municipal	2,623	11,394	8,771	0.01820
PHA GS	459	2,131	1,673	0.00347
PHA R8	1,196	5,251	4,054	0.00841
NGVS	55	70	15	0.00003
Interruptible	31,867	73,869	42,002	0.08713
Grays Ferry/Veolia	33,663	38,850	5,187	0.01076
Total	195,856	677,913	482,058	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 3. ALLOCATION OF COSTS ASSOCIATED WITH DISTRIBUTION

Factors are based on the weighting of the factors derived from average daily throughput volumes volumes and from maximum day extra capacity demand for each service classification, as follows:

	Average Daily Throughput			Maximum Day Extra Demand		
Service Classification	MCF/Day	Allocation Factor	Weighted Factor*	Allocation Factor 2	Weighted Factor*	Allocation Factor 3
(1)	(2)	(3)	(4)=(3)x 0.50000	(5)	(6)=(5)x 0.50000	(7)=(4)+(6)
Volumetric Costs						
Residential	95,409	0.55257	0.27629	0.69938	0.34969	0.62598
Commercial	28,268	0.16372	0.08186	0.16539	0.08269	0.16455
Industrial	2,316	0.01341	0.00671	0.01516	0.00758	0.01429
Municipal	2,623	0.01519	0.00760	0.01836	0.00918	0.01678
PHA GS	459	0.00266	0.00133	0.00350	0.00175	0.00308
PHA R8	1,196	0.00693	0.00346	0.00849	0.00424	0.00771
NGVS	55	0.00032	0.00016	0.00003	0.00002	0.00018
Interruptible	31,867	0.18456	0.09228	0.08792	0.04396	0.13624
Grays Ferry	10,471	0.06064	0.03032	0.00177	0.00088	0.03121
Total	172,664	1.00000	0.50000	1.00000	0.50000	1.00000

* The weighting of the factors is based on the percentage of average daily throughput.

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 3A. ALLOCATION OF COSTS ASSOCIATED WITH DISTRIBUTION, OTHER THAN MAINS

Factors are based on the weighting of the factors derived from average daily throughput volumes volumes and from maximum day extra capacity demand for each service classification, as follows:

	Average Daily Throughput			Maximum Day Extra Demand		
Service Classification	MCF/Day	Allocation Factor	Weighted Factor*	Allocation Factor 2B	Weighted Factor*	Allocation Factor 3A
(1)	(2)	(3)	(4)=(3)x 0.50000	(5)	(6)=(5)x 0.50000	(7)=(4)+(6)
Volumetric Costs						
Residential	95,409	0.48714	0.24357	0.69308	0.34654	0.59011
Commercial	28,268	0.14433	0.07217	0.16390	0.08195	0.15411
Industrial	2,316	0.01183	0.00591	0.01502	0.00751	0.01342
Municipal	2,623	0.01339	0.00670	0.01820	0.00910	0.01579
PHA GS	459	0.00234	0.00117	0.00347	0.00173	0.00291
PHA R8	1,196	0.00611	0.00305	0.00841	0.00421	0.00726
NGVS	55	0.00028	0.00014	0.00003	0.00002	0.00016
Interruptible	31,867	0.16271	0.08135	0.08713	0.04357	0.12492
Grays Ferry	33,663	0.17188	0.08594	0.01076	0.00538	0.09132
Total	195,856	1.00000	0.50000	1.00000	0.50000	1.00000

* The weighting of the factors is based on the percentage of average daily throughput.

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 4. ALLOCATION OF COSTS ASSOCIATED WITH METERS AND ACCOUNTS 381

Factors are based on the cost of meters by class included in Accounts 381 Meters and M&R Equipment.

Service Classification (1)	Original Cost of Meters (2)	Allocation Factor (3)
Customer Costs		
Residential	$ 33,991,918	0.64395
Commercial	15,796,766	0.29926
Industrial	926,622	0.01755
Municipal	1,405,252	0.02662
PHA - GS	206,290	0.00391
PHA - Rate 8	443,266	0.00840
NGVS	16,329	0.00031
Interruptible	-	-
Total	$ 52,786,442	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 5. ALLOCATION OF COSTS ASSOCIATED WITH INDUSTRIAL MEASURING AND REGULATING EQUIPMENT.

Directly assigned to the Industrial Class

Service Classification	Allocation Factor
(1)	(1)
Volumetric	
Industrial	1.0000

FACTOR 6. ALLOCATION OF COSTS ASSOCIATED WITH SERVICES AND HOUSE REGULATORS.

Factors are based on the cost of services by class included in Account 380, Service Lines.

Service Classification	Original Cost of Service Lines	Allocation Factor
(1)	(2)	(3)
Customer Costs		
Residential	$ 622,311,038	0.92998
Commercial	36,349,977	0.05432
Industrial	1,016,179	0.00152
Municipal	2,128,931	0.00318
PHA - GS	4,687,344	0.00700
PHA - Rate 8	1,189,237	0.00178
NGVS	13,013	0.00002
Interruptible	1,470,369	0.00220
Total	$ 669,166,088	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 7. ALLOCATION OF COSTS ASSOCIATED WITH CUSTOMER ACCOUNTING AND METER READING.

Factors are based on the number of customers for each classification, as follows.

Service Classification (1)	Number of Customers (2)	Allocation Factor 7 (3)
Customer Costs		
Residential	488,206	0.94267
Commercial	24,679	0.04765
Industrial	572	0.00110
Municipal	863	0.00167
PHA - GS	2,145	0.00414
PHA - Rate 8	1,035	0.00200
NGVS	3	0.00001
Interruptible	393	0.00076
Total	517,896	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 8. ALLOCATION OF DISTRIBUTION OPERATION OTHER EXPENSES AND RENT.

Factors are based on distribution operation expenses other than those being allocated.

Service Classification	Operation Expenses	Allocation Factor
(1)	(2)	(3)
Volumetric Costs		
Residential	$ 25,057	0.31336
Commercial	6,580	0.08228
Industrial	572	0.00715
Municipal	671	0.00840
PHA GS	123	0.00154
PHA R8	308	0.00386
NGVS	7	0.00009
Interruptible	5,429	0.06789
Grays Ferry/Veolia	1,688	0.02111
Customer Costs		
Residential	28,054	0.35084
Commercial	9,410	0.11768
Industrial	781	0.00977
Municipal	818	0.01023
PHA GS	172	0.00215
PHA R8	268	0.00335
NGVS	9	0.00012
Interruptible	15	0.00019
Total	$ 79,962	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 9. ALLOCATION OF DISTRIBUTION ASSETS

Factors are based on distribution assets other than those being allocated.

Service Classification	Rate Base Costs	Allocation Factor
(1)	(2)	(3)
Volumetric Costs		
Residential	$ 572,442	0.40238
Commercial	150,474	0.10577
Industrial	13,065	0.00918
Municipal	15,341	0.01078
PHA GS	2,815	0.00198
PHA R8	7,048	0.00495
NGVS	160	0.00011
Interruptible	124,570	0.08756
Grays Ferry/Veolia	28,899	0.02031
Customer Costs		
Residential	441,065	0.31004
Commercial	54,162	0.03807
Industrial	2,668	0.00188
Municipal	4,159	0.00292
PHA GS	3,220	0.00226
PHA R8	1,621	0.00114
NGVS	41	0.00003
Interruptible	877	0.00062
Total	$ 1,422,628	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 10. ALLOCATION OF ADMINISTRATIVE AND GENERAL EXPENSES.

Factors are based on the allocation of operation and maintenance expenses.

Service Classification (1)	Operation & Maintenance Expenses (2)	Allocation Factor (3)
Volumetric Costs		
Residential	$ 57,911	0.31928
Commercial	14,082	0.07764
Industrial	1,170	0.00645
Municipal	1,566	0.00864
PHA GS	289	0.00160
PHA R8	719	0.00397
NGVS	10	0.00006
Interruptible	6,762	0.03728
Grays Ferry/Veolia	2,127	0.01173
Customer Costs		
Residential	79,725	0.43956
Commercial	13,984	0.07710
Industrial	1,025	0.00565
Municipal	1,098	0.00605
PHA GS	411	0.00227
PHA R8	429	0.00236
NGVS	12	0.00007
Interruptible	55	0.00031
Total	$ 181,377	1.0000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 11. ALLOCATION OF LABOR RELATED TAXES AND BENEFITS.

Factors are based on the allocation of total operation and maintenance direct labor expense to service classifications as shown on the following page.

Service Classification (1)	Total Labor Expense (2)	Allocation Factor (3)
Volumetric Costs		
Residential	$ 76,065	0.48691
Commercial	20,119	0.12879
Industrial	1,717	0.01099
Municipal	2,048	0.01311
PHA GS	374	0.00239
PHA R8	940	0.00602
NGVS	20	0.00013
Interruptible	12,887	0.08249
Grays Ferry/Veolia	4,286	0.02744
Customer Costs		
Residential	33,383	0.21369
Commercial	3,617	0.02315
Industrial	220	0.00141
Municipal	243	0.00156
PHA GS	158	0.00101
PHA R8	121	0.00077
NGVS	-	-
Interruptible	23	0.00015
Total	$ 156,221	1.00000

PHILADELPHIA GAS WORKS

FACTOR 11 - ALLOCATION OF LABOR COSTS TO
CUSTOMER CLASS SERVICE CLASSIFICATIONS

	Account	Factor Ref.	Labor Costs	Volumetric Costs									Customer Costs							
				Residential	Commercial	Industrial	Municipal	PHA GS	PHA - R8	NGVS	Interruptible	Grays Ferry/Viola	Res	Com	Ind	Muni	PHA - GS	PHA - Rate 8	NGVS	Interruptible
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
OPERATION AND MAINTENANCE EXPENSES																				
	TOTAL PAYROLL - 2022																			
02	President & CEO	10	$ 107	$ 34	$ 8	$ 1	$ 1	$ -	$ -	$ -	$ 4	$ 1	$ 47	$ 8	$ 1	$ 1	$ -	$ -	$ -	$ -
03	Corporate Communications	10	1,657	529	129	11	14	3	7	-	62	19	728	128	9	10	4	4	-	1
04	Officers Salaries	10	4,521	1,443	351	29	39	7	18	-	169	53	1,987	349	26	27	10	11	-	1
05	Legal	10	1,599	511	124	10	14	3	6	-	60	19	703	123	9	10	4	4	-	-
07	Commercial Resource Center	7	1,192	-	-	-	-	-	-	-	-	-	1,124	57	1	2	5	2	-	1
09	Gas Control & Acquisition	1A	2,900	1,965	582	48	54	9	25	1	-	216	-	-	-	-	-	-	-	-
10	VP Reg. Compliance & Customer Programs	10	4,477	1,429	348	29	39	7	18	-	167	52	1,968	345	25	27	10	11	-	1
11	Human Resources	10	1,193	381	93	8	10	2	5	-	44	14	524	92	7	7	3	3	-	-
13	Chief Operating Officer	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Security	10	206	66	16	1	2	-	1	-	8	2	91	16	1	1	-	-	-	-
15	VP Regulatory & Legislative Affairs	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	VP Supply Chain	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	VP Budget & Strategic Development	10	758	242	59	5	7	1	3	-	28	9	333	58	4	5	2	2	-	-
20	Gas Planning & Rates	10	842	269	65	5	7	1	3	-	31	10	370	65	5	5	2	2	-	-
21	Customer Review	7	959	-	-	-	-	-	-	-	-	-	904	46	1	2	4	2	-	1
22	By-Pass Bonuses	10	32	10	2	-	-	-	-	-	1	-	14	2	-	-	-	-	-	-
30	Engineering Services	3	1,140	714	188	16	19	4	9	-	155	36	-	-	-	-	-	-	-	-
31	Chemical Services	1	651	513	107	7	14	3	7	-	-	1	-	-	-	-	-	-	-	-
38	VP Technical Compliance	10	530	169	41	3	5	1	2	-	20	6	233	41	3	3	1	1	-	-
39	SVP HRD, Labor, & Corp Comm	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	Chief Financial Officer	10	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	Risk Management	10	973	311	76	6	8	2	4	-	36	11	428	75	6	6	2	2	-	-
43	Account Management	7	2,628	-	-	-	-	-	-	-	-	-	2,477	125	3	4	11	5	-	2
44	Customer Service	7	10,716	-	-	-	-	-	-	-	-	-	10,102	511	12	18	44	21	-	8
45	Accounting & Reporting	10	1,770	565	137	11	15	3	7	-	66	21	778	136	10	11	4	4	-	1
46	Treasury	10	1,098	351	85	7	9	2	4	-	41	13	483	85	6	7	2	3	-	-
47	Information Services	10	6,159	1,966	478	40	53	10	24	-	230	72	2,707	475	35	37	14	15	-	2
49	Collections	7	2,630	-	-	-	-	-	-	-	-	-	2,479	125	3	4	11	5	-	2
50	Field Services	3	30,202	18,906	4,970	432	507	93	233	5	4,115	942	-	-	-	-	-	-	-	-
52	Distribution	3	43,316	27,115	7,128	619	727	133	334	8	5,901	1,352	-	-	-	-	-	-	-	-
53	Gas Processing	1A	13,550	9,182	2,720	223	252	44	115	5	-	1,008	-	-	-	-	-	-	-	-
54	Internal Auditing	10	101	32	8	1	1	-	-	-	4	1	44	8	1	1	-	-	-	-
56	SVP Operations & Supply Chain	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	SVP Gas Management	3	559	350	92	8	9	2	4	-	76	17	-	-	-	-	-	-	-	-

PHILADELPHIA GAS WORKS

FACTOR 11 - ALLOCATION OF LABOR COSTS TO
CUSTOMER CLASS SERVICE CLASSIFICATIONS

	Account	Factor Ref.	Labor Costs	Volumetric Costs									Customer Costs							
	(1)	(2)	(3)	Residential (4)	Commercial (5)	Industrial (6)	Municipal (7)	PHA GS (8)	PHA - R8 (9)	NGVS (10)	Interruptible (11)	Grays Ferry/Viola (12)	Res (13)	Com (14)	Ind (15)	Muni (16)	PHA - GS (17)	PHA - Rate 8 (18)	NGVS (19)	Interruptible (20)
58	VP Marketing	10	73	23	6	-	1	-	-	-	3	1	32	6	-	-	-	-	-	-
59	Organizational Development	10	1,315	420	102	8	11	2	5	-	49	15	578	101	7	8	3	3	-	-
60	Marketing	10	2,969	948	231	19	26	5	12	-	111	35	1,305	229	17	18	7	7	-	1
63	Data & Analytics	10	1,033																	
64	CIS	10	963																	
65	Labor Relations	10	240	77	19	2	2	-	1	-	9	3	106	19	1	1	1	1	-	-
67	Corporate Planning	10	900	287	70	6	8	1	4	-	34	11	397	69	5	5	2	2	-	-
68	Customer Programs	7	893	-	-	-	-	-	-	-	-	-	842	43	1	1	4	2	-	1
71	Supply Chain	3	6,809	4,262	1,120	97	114	21	52	1	928	212	-	-	-	-	-	-	-	-
72	Facilities Management	3	2,143	1,341	353	31	36	7	17	-	292	67	-	-	-	-	-	-	-	-
73	Fleet Operations	10	3,638	1,162	282	23	31	6	14	-	136	43	1,599	280	21	22	8	9	-	1
77	Resource Management and Technology	3	784	492	129	11	13	2	6	-	107	24	-	-	-	-	-	-	-	-
TOTAL LABOR RELATED COST FOR ALLOCATION			$ 158,226	$ 76,065	$ 20,119	$ 1,717	$ 2,048	$ 374	$ 940	$ 20	$ 12,887	$ 4,266	$ 33,383	$ 3,617	$ 220	$ 243	$ 158	$ 121	$ -	$ 23

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 12. ALLOCATION OF SURPLUS AND INTEREST EXPENSE.

Factors are based on the result of allocating the original cost measure of value, as presented on the following pages.

Service Classification	Original Cost Less Depreciation	Allocation Factor
(1)	(2)	(3)
Volumetric Costs		
Residential	$ 728,122	0.41279
Commercial	187,069	0.10605
Industrial	16,119	0.00914
Municipal	19,540	0.01108
PHA GS	3,598	0.00204
PHA R8	8,979	0.00509
NGVS	177	0.00010
Interruptible	133,575	0.07573
Grays Ferry	31,761	0.01801
Customer Costs		
Residential	545,879	0.30947
Commercial	72,516	0.04111
Industrial	4,012	0.00227
Municipal	5,600	0.00317
PHA GS	3,762	0.00213
PHA R8	2,183	0.00124
NGVS	57	0.00003
Interruptible	951	0.00054
Total	$ 1,763,900	1.00000

FACTOR 13. ALLOCATION OF REGULATORY COMMISSION EXPENSES, ASSESSMENTS AND OTHER REVENUES.

Factors are based on the allocated cost of service excluding those items being allocated.

Service Classification	Total Cost of Service	Allocation Factor
(1)	(2)	(3)
Volumetric Costs		
Residential	$ 228,857	0.37871
Commercial	58,650	0.09705
Industrial	4,971	0.00823
Municipal	6,171	0.01021
PHA GS	1,132	0.00187
PHA R8	2,833	0.00469
NGVS	56	0.00009
Interruptible	33,354	0.05519
Grays Ferry	10,254	0.01697
Customer Costs		
Residential	219,073	0.36252
Commercial	31,961	0.05289
Industrial	2,067	0.00342
Municipal	2,441	0.00404
PHA GS	1,246	0.00206
PHA R8	963	0.00159
NGVS	24	0.00004
Interruptible	248	0.00041
Total	$ 604,302	1.00000

PHILADELPHIA GAS WORKS

FACTORS FOR ALLOCATING COST OF SERVICE TO SERVICE CLASSIFICATIONS

FACTOR 13A. ALLOCATION OF OPEB SURCHARGE

Factors are based on the allocated cost of service excluding those items being allocated, excluding IT and Grays Ferry cost of service,

Service Classification	Total Cost of Service	Allocation Factor
(1)	(2)	(3)
Volumetric Costs		
Residential	$ 228,857	0.40835
Commercial	58,650	0.10465
Industrial	4,971	0.00887
Municipal	6,171	0.01101
PHA GS	1,132	0.00202
PHA R8	2,833	0.00506
NGVS	56	0.00010
Interruptible	-	-
Grays Ferry	-	-
Customer Costs		
Residential	219,073	0.39089
Commercial	31,961	0.05703
Industrial	2,067	0.00369
Municipal	2,441	0.00435
PHA GS	1,246	0.00222
PHA R8	963	0.00172
NGVS	24	0.00004
Interruptible	-	-
Total	$ 560,446	1.00000

FACTOR 14. ALLOCATION OF UNCOLLECTIBLES NOT RECOVERED FROM MFC

Factors are based on 3-year average of uncollectibles.

Service Classification	3-Year Average Uncollectibles	Allocation Factor
(1)	(2)	(3)
Customer Costs		
Residential	$ 24,714,302	0.95136
Commercial	1,219,711	0.04695
Industrial	23,660	0.00091
Municipal	12,938	0.00050
PHA GS	7,311	0.00028
PHA R8	-	-
Total	25,977,922	1.00000

PHILADELPHIA GAS WORKS

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

	Cost of Service	Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - R8	NGVS	Interruptible
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fully Allocated Customer Costs									
Customer Costs (in 1,000's)	258,024	$ 219,073	$ 31,961	$ 2,067	$ 2,441	$ 1,246	$ 963	$ 24	$ 248
Number of Customers	517,896	488,206	24,679	572	863	2,145	1,035	3	393
Customer Cost per bill		**$ 37.39**	**$ 107.92**	**$ 301.37**	**$ 235.68**	**$ 48.42**	**$ 77.54**	**$ 680.54**	**$ 52.57**
Direct Customer Costs (in 1000's)									
O & M Expenses:									
874 Mains And Services Expenses									
Mains									
Services	3,287	3,056	179	5	10	23	6	0	7
876 M & R Station Expenses - Industrial	152			152					
878 Meter and House Regulator Expenses	18,880	12,158	5,650	331	503	74	159	6	-
879 Customer Installations Expenses	10,926	7,036	3,270	192	291	43	92	3	-
892 Maintenance of Services	2,487	2,313	135	4	8	17	4	0	5
893 Maintenance of Meters & House Regulators	3,703	3,491	176	4	6	15	7	0	3
901 Supervision	2,839	2,676	135	3	5	12	6	0	2
902 Meter Reading Expenses	868	818	41	1	1	4	2	0	1
903 Customer Records & Coll Expenses	37,465	35,317	1,785	41	62	155	75	0	28
904 Uncollectible Accounts	23,220	22,091	1,090	21	12	7	-	-	-
908 Customer Assistance Expenses	6,334	5,971	302	7	11	26	13	0	5
Subtotal O & M Expenses	110,161	94,927	12,764	762	909	376	363	10	52

PHILADELPHIA GAS WORKS

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

		Cost of Service (1)	Residential (2)	Commercial (3)	Industrial (4)	Municipal (5)	PHA - GS (6)	PHA - R8 (7)	NGVS (8)	Interruptible (9)
Depreciation Expense										
380	Services	19,688	18,309	1,069	30	63	138	35	0	43
381	Meters	2,526	1,627	756	44	67	10	21	1	-
382	Meter Installations	2,697	1,737	807	47	72	11	23	1	-
383	House Regulators	50	46	3	0	0	0	0	0	0
384	House Regulator Installations	49	31	15	1	1	0	0	0	-
385	Industrial M & R Equipment	13	-	-	13	-	-	-	-	-
390	Structures and Improvements	-								
391	Office Furniture And Equipment	-								
Subtotal Depreciation		25,022	29,320	3,975	232	307	198	120	3	49
Rate Base										
380	Services	396,938	369,144	21,562	603	1,263	2,780	705	8	872
381	Meters	53,974	34,757	16,152	947	1,437	211	453	17	-
382	Meter Installations	54,567	35,138	16,329	958	1,453	213	458	17	-
383	House Regulators	1,484	1,380	81	2	5	10	3	0	3
384	House Regulator Installations	694	645	38	1	2	5	1	0	2
385	Industrial M & R Equipment	156	-	-	156	-	-	-	-	-
390	Structures And Improvements	33,465 *	27,579	4,837	355	380	142	148	4	19
391	Office Furniture and Equipment	37,331 *	30,765	5,396	396	424	159	165	5	21
Subtotal Rate Base		578,609	499,409	64,396	3,418	4,963	3,521	1,934	50	917
Surplus and Interest @ 12.0%		69,412	59,911	7,725	410	595	422	232	6	110
Total Direct Customer Costs		$ 213,777	$ 184,158	$ 24,464	$ 1,404	$ 1,811	$ 996	$ 715	$ 19	$ 210
Number of Customers		517,896	488,206	24,679	572	863	2,145	1,035	3	393
Direct Costs per bill			**$ 31.43**	**$ 82.61**	**$ 204.64**	**$ 174.90**	**$ 38.69**	**$ 57.56**	**$ 521.63**	**$ 44.59**

* Customer cost portion of account.

PHILADELPHIA GAS WORKS

CALCULATION OF MERCHANT FUNCTION CHARGE

Line No.		Residential	Commercial	Industrial	Municipal	PHA - GS	PHA - Rate 8	NGVS	Interruptible	Total
(1)	Non-Gas Revenue - Proposed Rates	$ 419,616	$ 72,656	$ 5,880	$ 6,299	$ 2,006	$ 2,992	$ 35	$ 16,516	$ 526,001
(2)	GCR Revenue	245,607	51,471	3,343	6,924	1,264	3,165	14	-	311,787
(3)	Total Revenue - Lines (1)+(2)	$ 665,223	$ 124,127	$ 9,223	$ 13,224	$ 3,270	$ 6,156	$ 49	$ 16,516	$ 837,788
(4)	Percent of GCR to Total Revenue - Lines (2)/(3)	36.92%	41.47%	36.24%						
(5)	Uncollectible Account 904 (000's)	35,123	1,733	34	18	10	-	-	-	36,919
(6)	Uncollectible Account 904 to GCR (000's) - Line (4) X (5)	12,967	719	12						
(7)	Uncollectible Share of Revenue, % - Line (6)/(2)	5.28%	1.40%	0.36%						
(8)	Uncollectible Account 904 to GCR - Line (6) X 1000	12,967,480	718,847	12,186						
(9)	Annual Firm Sales Service Volumes	32,487,015	6,752,009	441,628						
(10)	Merchant Function Charge per MCF - Line (8)/(9)	0.3992	0.1065	0.0276						

PHILADELPHIA GAS WORKS

CALCULATION OF GAS PROCUREMENT CHARGE

Natural Gas Supply Service, Acquisition and Management and Benefits	$ 536,259
Storage Gas Working Capital Plus Cash Working Capital - Cost	2,718,568
Total GPC Costs	$ 3,254,827
Annual Firm Sales Service Volumes - MCF	41,231,182
Gas Procurement Charge	0.0789

VERIFICATION

I, Constance E. Heppenstall, hereby state that: (1) I am employed by Gannett Fleming Valuation and Rate Consultants, LLC as Senior Project Manager, Rate Studies; (2) I have been retained by Philadelphia Gas Works ("PGW") and am authorized to present testimony on its behalf; (3) the facts set forth in my testimony are true and correct to the best of my knowledge, information and belief; and (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

2/27/2023
Dated

Constance E. Heppenstall
Senior Project Manager, Rate Studies
Gannett Fleming Valuation and Rate Consultants, LLC

Tab 6

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

FLORIAN TEME

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

Philadelphia Gas Works

General Rate Increase Request

TOPICS:

Test Year Sales and Revenues
Revenue Allocation
Proposed Tariff Revisions
Study of Rate FTS

February 27, 2023

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VI. CONCLUSION 16

TABLE OF EXHIBITS

FT-1	Proposed Supplement No. 159 to PGW Gas Service Tariff – Pa P.U.C. No. 2 (Clean and Redlined Versions) & Current Gas Service Tariff
FT-2	Proposed Supplement No. 105 to PGW Gas Supplier Tariff – Pa P.U.C. No. 1 (Clean and Redlined Versions) & Current Supplier Tariff
FT-3	PGW's Evaluation of Potential Firm Transportation Service Rate

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND POSITION WITH THE COMPANY.

A. My name is Florian Teme. My position is Vice President, Marketing, Sales and Energy Planning.

Q. HOW LONG HAVE YOU HELD THIS POSITION?

A. I assumed my present position in December 2020. Prior to this position, I was Vice President, Marketing and Sales.

Q. WHAT ARE YOUR JOB RESPONSIBILITIES?

A. In my present position, I am responsible for the direction of the marketing sales efforts and new business development, while continuing to strengthen business relations and increase customer service initiatives. I am also responsible for Energy Planning which includes calculation of rates, quarterly and 1307(f) filings among others.

Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.

A. I have been employed with PGW since August 2003. I became PGW's Vice President, Marketing and Sales in September 2016. Prior to that, I had various positions with PGW: Director, Marketing and Sales (April 2013 – September 2016), Manager, Residential and Commercial Sales, Marketing (March 2012 – April 2013); Manager, Controls and Analytics, Supply Chain (January 2010 – March 2012); Project Manager, Information Services (January 2007 – January 2010); Supply Analyst, Gas Planning (April 2005 – January 2007); and Technical Project Administrator, Marketing (August 2003 – March 2005).

I received my Bachelor of Business Administration (Management Information Systems) from Temple University – Fox School of Business and Management in 2003

and my Master of Business Administration (Business Intelligence, Six Sigma) from Saint Joseph's University - Erivan K. Haub School of Business in 2011.

Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THE COMMISSION?

A. Yes, I have provided testimony in PGW's two most recent base rate cases (Docket Nos. R-2017-2586783 and R-2020-3017206) and in several recent PGW Gas Cost Rate proceedings (Docket Nos. R-2019-3007636, R-2021-3023970 and R-2022-3030686).

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

A. The purpose of my testimony is to describe and support:

(1) the process used to develop the sales forecast for the test year;

(2) an analysis of the Heating Degree Days ("HDD") used to calculate pro forma sales for the Fully Projected Future Test Year ("FPFTY"); and

(3) the allocation of the proposed base rate increase by customer class.

My testimony will also explain and provide support for the Company's proposed: (1) clarification of the payment of interest on Deposits for Temporary Heat pursuant to PGW's Gas Service Tariff; and (2) modification of PGW's Gas Service Tariff related to PGW's Air Conditioning Rider to more clearly detail changes in PGW's internal process since the Rider was first implemented. In addition, I am proposing modification of PGW's Service and Supplier Tariffs to clearly permit and facilitate the interconnection of facilities that would seek to provide renewable natural gas onto PGW's distribution system. Finally, my testimony addresses PGW's Evaluation of a Potential Firm Transportation Service Rate.

II. SALES FORECAST PROCEDURES

Q. WHAT PROCEDURES DID PGW EMPLOY WHEN FORECASTING SALES FOR THE TEST YEAR?

A. PGW's total system-wide demand is a function of the projected gas demand per customer and the anticipated number of customers in each class. In determining customer demand, PGW projects customer usage, giving consideration to significant gains or losses in numerous homogeneous rate groups for the period being projected. PGW's Gas Planning & Rates Department estimates for each customer class the level of demand related to experienced temperatures and the level of demand that is not affected by changes in temperature. Within each class the most recent summer and winter usage patterns are established from historical records. Summer data provides each class of customer's non-temperature sensitive load requirements (baseload) which can be expressed in terms of thousands of cubic feet (Mcf) per day, per customer. Similarly, winter data, after removal of the daily baseload level, determines the temperature sensitive load requirements for each class of customer.

This temperature sensitive usage primarily reflects space heating, but also includes such other temperature sensitive usage as water heating attributable to colder water inlet temperatures due to colder ground temperatures and similar process variations, as well as supplementary heating. This overall heating requirement can be expressed in terms of the cubic feet of gas utilized per degree of temperature change on a per customer basis for each separate customer classification. In addition, consideration is given to the variation of customer utilization patterns for space heating over the year, recognizing the transitional fall start-up of heaters, the deep winter period needs and the tapering off and shutdown which occurs in the late spring. These usage patterns, taken in

conjunction with anticipated customer counts and average temperature and "normal" degree day levels, form the basis of determining customer class and total system demands.

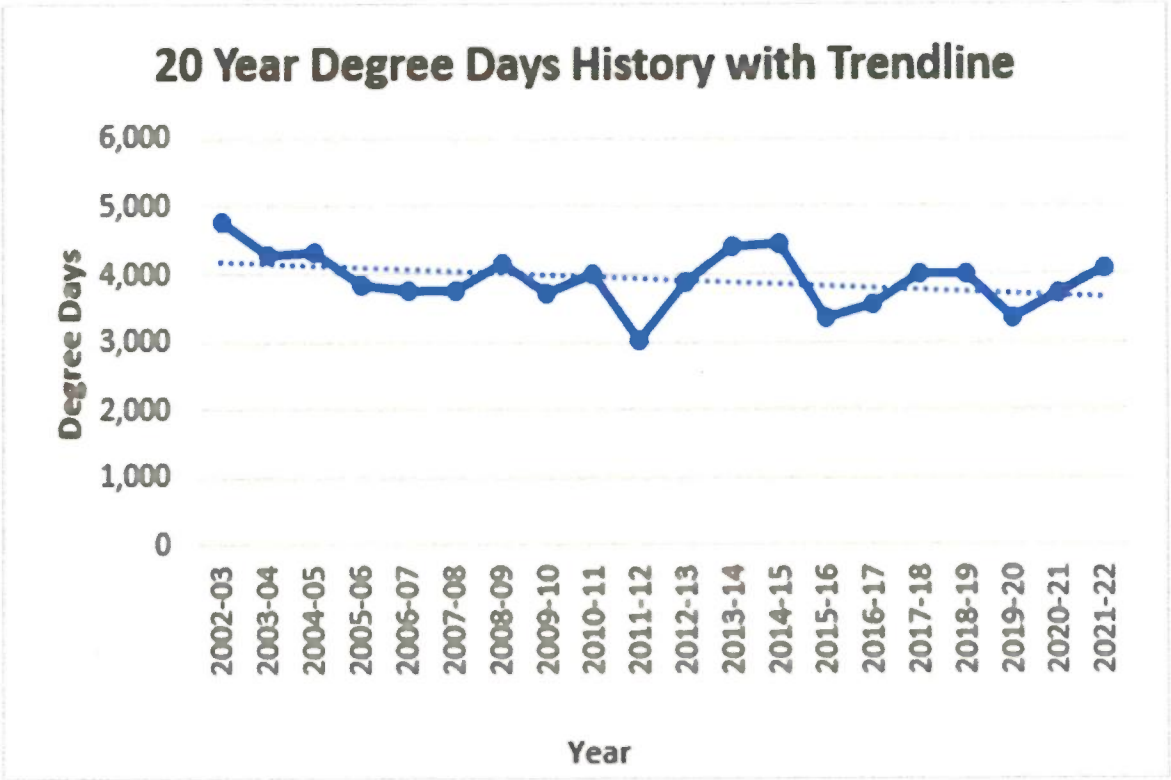
Q. WHAT IS A DEGREE DAY?

A. The term "degree days" quantifies the daily average degrees of temperature below a base level of 65 degrees Fahrenheit and is used as a tool to measure heating or cooling requirements. For example, on a day experiencing an average temperature of 40 degrees Fahrenheit, there would be 25 heating degree days.

Q. PLEASE EXPLAIN THE USE OF "NORMAL" TEMPERATURES.

A. Due to the inconsistencies of weather and weather forecasting techniques, and because test year data are required to reflect "normal" conditions, no attempt is made to predict the specific daily temperatures of the projection period. Instead, PGW has developed a normal monthly temperature pattern by analyzing statistical records of actual temperature patterns over a 20-year period ending in FY 2022. This pattern reflects 3,923 degree-days. See Table 1 below.

Table 1



Q. WHY HAS PGW USED A 20-YEAR AVERAGE TO DETERMINE NORMAL WEATHER FOR ITS SERVICE TERRITORY?

A. The Settlement of PGW's 2017 base rate proceeding at Docket No. R-2017-2586783 required PGW to utilize the 20-year average of degree days experienced in its service territory as "normal" weather. PGW has utilized a 20-year average of degree days as shown in Table 1.

The 20-year average likely overstates PGW's future experienced annual degree days and PGW will be considering whether to modify this average in future cases. But, for now, PGW has continued to use a 20-year average.

Q. HOW IS THE 20-YEAR AVERAGE LEVEL OF DEGREE DAYS USED IN THE SALES FORECAST?

A. The annual 3,923 degree-days (which compose the PGW normal monthly temperature patterns) form the basis of the calculation of the temperature sensitive component of

demand for the Fully Projected Future Test Year. Table 1 documents Philadelphia's 20-year degree day history at PGW's Richmond Plant ending in FY 2022. The application of the above-described baseload and space heating factors and customer counts, when applied to a calendar-based daily temperature pattern, produces a daily total of customer requirements identified as sendout.

Q. HOW WILL THIS DETERMINATION OF NORMAL WEATHER AFFECT PGW'S EXISTING "WEATHER NORMALIZATION ADJUSTMENT CLAUSE"?

A. The Weather Normalization Adjustment ("WNA") clause, found in PGW's Gas Service Tariff, Pages 149-150, is based on a normal weather determination, currently a twenty year average, using the degree day data provided by the National Weather Service and measured at the Philadelphia International Airport.

III. ALLOCATION OF PROPOSED RATE INCREASE BY CUSTOMER CLASS

Q. WHAT ARE THE GOALS OF THE COMPANY'S PROPOSED REVENUE ALLOCATION AND RATE DESIGN?

A. The Company's goals in its proposed revenue allocation and rate design are:

- To implement an increase in each class's customer charge (with the exception of IT) to the extent that the results of the Class Cost of Service Study ("CCOSS") justifies such an increase, that sets the customer charge at a level that covers a greater portion of the fixed customer costs associated with providing service to each class of customer;
- To allocate the remainder of the increase to each class in a way that moves the various rate classes closer to their full cost of service while avoiding applying an unreasonably large portion of the increases to any one of the customer classes; and
- To appropriately recognize the principles of gradualism to restrain increases for some classes verses their cost of service.

Q. DESCRIBE THE DATA SUPPLIED BY GANNETT FLEMING THAT ASSISTED PGW IN DETERMINING HOW TO IMPLEMENT THESE GOALS.

A. With respect to customer charges, Ms. Heppenstall of Gannett Fleming provided a Class Cost of Service Study ("CCOSS") that details the Company's proposals in Exhibit CEH-1. That study provided "customer cost" results that determined the actual fixed customer cost per customer by class. These results show the level of monthly customer charge that would be required if the Company were to recover 100% of its fixed customer related costs in a monthly customer charge. Secondly, Ms. Heppenstall's CCOSS provided the revenues relative to cost of service for each rate class under existing rates.

Q. WHAT ARE PGW'S PROPOSED CUSTOMER CHARGES?

A. The proposed customer charges are shown below. For each customer class, PGW attempted to move the charge closer to the full cost of service. See Table 2 below.

Table 2

Customer Charge					
Customer Group*	**Current Charge (Per Meter)**	**% Increase (Calculated)**	**Proposed Charge (As Filed)**	**Direct Customer Costs Per Bill (Cost of Service Study)**	**Proposed Charge as % of Customer-Related Costs**
Rate GS – Residential	$14.90	31%	$19.50	$37.39	52%
Rate GS - Commercial Customers	$25.35	34%	$34.00	$107.92	32%
Rate GS:- Industrial Customers	$75.90	32%	$100.00	$301.36	33%
Rate GS – Public Housing Authority Customers	$14.90	31%	$19.50	$48.42	40%
Rate MS	$25.35	34%	$34.00	$235.68	14%
PHA(Rate 8)	$25.35	34%	$34.00	$77.54	44%
NGVS	$35.00	33%	$46.50	$680.53	7%

Q. DOES INCREASING THE CUSTOMER CHARGE IN THE MANNER PROPOSED PROVIDE ANY BENEFITS?

A. Yes. Charging rates that better reflect the customer-related costs for each customer more properly aligns rates with costs and provides more revenue stability. Currently, PGW is still recovering a majority of its fixed customer costs in its variable delivery charges. This makes the recovery of these costs contingent upon achieving PGW's projected normal sales volumes. Since these costs, by definition, do not vary by volume, cost

recovery in this way is inefficient and distorts the price signals to customers. Greater revenue stability will also improve PGW's cash flow, something that is viewed favorably by rating agencies allowing PGW to borrow at lower costs and more favorable terms ultimately benefiting all customers.

Q. HOW IS PGW PROPOSING TO ALLOCATE THE OVERALL RATE INCREASE TO EACH CUSTOMER CLASS?

A. Based on the guidance provided by Ms. Heppenstall, PGW allocated the increase as set forth in the proposed tariff and Table 3 below.

Table 3

Allocation Of Proposed Rate Increase		
Rate Class	**Proposed Increase ($)**	**Share of Proposed Increase (%)**
Residential	68,100,344	79.0%
Commercial	10,856,455	13.0%
Industrial	960,302	1.1%
PHA GS	326,211	0.4%
Municipal	1,426,694	2.0%
PHA (Rate 8)	399,472	0.5%
NGVS	7,950	0.0%
IT (Consolidated)	3,742,948	4.0%
TOTAL	**$85,820,376**	**100%**

The delivery rates and percentage increases for each class are provided in Table 4 as follows:

Table 4

Delivery Charge			
Rate Class	Current ($/MCF)	% Increase from Current	Proposed ($/MCF)*
Residential	7.2955	15%	8.3603
Commercial	5.1908	15%	5.9702
Industrial	5.1668	18%	6.1095
PHA GS	6.5393	18%	7.7175
Municipal	4.7765	29%	6.1729
PHA (Rate 8)	5.4534	12%	6.0985
NGVS	1.2833	30%	1.6645
IT-A	2.7299	33%	3.6178
IT-B	1.3213	33%	1.7510
IT-C	1.031	33%	1.3663
IT-D	0.9148	33%	1.2123
IT-E	0.8858	33%	1.1739
* The proposed delivery charge ($/MCF) does not include the Merchant Function Charge ("MFC") and the Gas Procurement Charge ("GPC")			

I believe that these allocations of the proposed rate increase are a reasonable application of the rate allocation guidelines I articulated above.

Q. IS PGW INVOLVED IN ANY OTHER OUTSTANDING MATTERS THAT WOULD IMPACT THE ALLOCATION OF PROPOSED RATES?

A. Yes. The 1996 Contract for gas service through which Grays Ferry Cogeneration Partnership ("GFCP") and Vicinity Energy Philadelphia, Inc. ("VEPI") (collectively "Vicinity") took service under PGW's Gas Transportation Service – Rate GTS – Firm, expired on January 1, 2023. Vicinity filed a Formal Complaint Docket No. (C-2021-3029259) against PGW on October 22, 2021, alleging PGW's request that Vicinity transition to cost based rates constituted unjust and unreasonable service.

Q. WHAT IS THE CURRENT PROCEDURAL POSTURE OF THAT PROCEEDING?

A. The proceeding, based on a procedural schedule Vicinity agreed to, included multiple rounds of testimony by Vicinity, PGW, OCA, and OSBA, a full evidentiary hearing on August 9, 2022, and concluded with briefs and the close of the record on October 4, 2022. The ALJ issued an initial decision on December 27, 2022. Vicinity filed exceptions on January 17, 2023, and PGW filed reply exceptions on January 27, 2023. The parties are currently awaiting an order from the Commission.

Q. GIVEN THAT THE CONTRACT THAT ALLOWED VICINITY TO USE RATE GTS-F ENDED ON JANUARY 1, 2023, WHAT STEPS DID PGW TAKE TO ADDRESS THIS OCCURRENCE?

A. On November 1, 2022, PGW filed Supplement No. 156 to amend Rate GTS Firm to allow PGW to continue to serve Vicinity under existing rates until the earlier of the Commission issuing a decision in Docket No. C-2021-3029259 or April 30, 2023. The Supplement also makes "all rates and charges incurred after January 1, 2023 … subject to being rebilled as directed by the Pennsylvania Public Utility Commission so as to effectuate the final decision in Docket No. C-2021-3029259 on January 1, 2023."

Q. HOW DOES THIS PROCEEDING IMPACT THE ALLOCATION OF PROPOSED RATES?

A. As filed and detailed above, PGW has included only Vicinity's Historic Test Year revenues as part of the rate case. PGW has been litigating for Vicinity to pay just and reasonable rates in an effort to hold down the rate increases faced by PGW's firm residential and commercial customers. However, the ultimate impact of these efforts remains unknown. Once the Commission issues a final ruling in Docket No. C-2021-3029259, PGW will supplement the proposed rates to account for the Commission's determination.

IV. PROPOSED TARIFF REVISIONS

Q. WHAT REVISIONS TO PGW'S GAS SERVICE TARIFF ARE BEING PROPOSED IN THIS CASE?

A. A complete list of tariff modifications can be found in the List of Changes Made by this Tariff Supplement section in Proposed Tariff Supplement No. 159 to PGW Gas Service Tariff – Pa P.U.C. No. 2 provided in Exhibit FT-1. The proposed effective date of the tariff changes is April 28, 2023. The proposed rate schedule changes are discussed above.

Apart from the proposed rate schedule changes, PGW is proposing: (1) language be added to Section 5.7 of PGW's Gas Service Tariff, page 32, to clarify PGW's current practice with respect to interest on deposits for temporary heat, and (2) modification of PGW's Gas Service Tariff related to PGW's Air Conditioning Rider to more clearly detail changes in PGW's internal process since the AC Rider was first implemented on September 1, 2003 as discussed below.

Q. EXPLAIN THE JUSTIFICATION FOR MODIFYING SECTION 5.7 OF PGW'S CURRENT GAS SERVICE TARIFF?

A. A modification is necessary because Section 5.7 is silent when it comes to deposits for temporary heat. PGW's tariff contains explicit language concerning interest on residential customer deposits.

Q. WHAT IS YOUR RECOMMENDATION?

A. I propose adding language to make clear that PGW will accrue interest on customer deposits made in conjunction with receiving temporary heating service. This reflects PGW's current practice.

Q. PLEASE EXPLAIN WHY YOU ARE PROPOSING CHANGES TO THE AC RIDER IN PGW'S CURRENT GAS SERVICE TARIFF.

A. The current language detailing how the AC Rider is calculated does not fully reflect PGW's current internal processes. The AC Rider is still in its original form from 2003. The tariff refers to rate schedules and terms that have been replaced by the Company as PGW's internal processes have evolved since 2003.

Q. WHAT IS YOUR RECOMMENDATION?

A. I recommend updating the language of the AC Rider to replace references to outdated rate schedules and terms with their current equivalents. This will result in the proposed AC Rider more accurately reflecting PGW's current internal processes.

Q. IS THIS PROPOSAL REASONABLE AND IN THE PUBLIC INTEREST?

A. Yes. PGW's AC Rider should reflect the current operations of the Rider clearly to customers enrolled in the Rider.

Q. WHAT REVISIONS TO PGW'S SUPPLIER TARIFF ARE BEING PROPOSED IN THIS CASE?

A. A complete list of tariff modifications can be found in the List of Changes Made by this Tariff Supplement section in Proposed Tariff Supplement No. 105 to PGW Gas Supplier Tariff – Pa P.U.C. No. 1 provided in Exhibit FT-2. The proposed effective date of the tariff changes is April 28, 2023. I am proposing modifications to PGW's Gas Supplier Tariff to clearly permit and facilitate the interconnection of facilities that would seek to provide renewable natural gas ("RNG") directly onto PGW's distribution system.

Q. DO YOU HAVE ANY CONCERNS WITH HOW PGW'S CURRENT GAS SERVICE TARIFF AND SUPPLIER TARIFF COULD ACCOMMODATE A

REQUEST BY AN RNG PRODUCER TO DIRECTLY INTERCONNECT INTO PGW'S DISTRIBUTION SYSTEM?

A. Yes. If a RNG producer were to formally approach PGW to seek a direct connection to PGW's distribution system, the Company's Gas Service and Gas Supplier Tariff's language could limit PGW's ability to accommodate the RNG producer's request.

Q. WHAT IS YOUR RECOMMENDATION?

A. I recommend several changes to PGW's Supplier Tariff and Service Tariff to ensure that the language is flexible enough to allow PGW to accommodate new business opportunities involving RNG while maintaining gas quality on the Company's distribution system. First, I propose adding a new part, 2.2, to Section 2. AVAILABILITY of PGW's Supplier Tariff. This new part 2.2 makes clear that for Suppliers delivering gas directly onto PGW's distribution system: (1) they are covered by the Supplier Tariff, (2) they will need to enter into an Interconnection Agreement with PGW, and (3) they will need to enter into a Pooling Agreement with PGW. Second, I propose revisions to PGW's Supplier Tariff, part 4.2, Section 4, SUPPLIER QUALIFICATION, to make clear that directly connected suppliers must meet credit standards and operational delivery standards as established by PGW. Third, I propose revisions to part 7.4, of Section 7, SUPPLIER OBLIGATIONS, to make clear that a directly connected supplier must be certified as satisfying firm delivery standards as determined by PGW. Additionally, I propose a number of other language changes to facilitate connection to PGW's distribution system and to detail when an obligation only applies to an interstate pipeline supplier or if a provision can be addressed as part of an interconnection agreement entered into by a directly connected supplier.

In regard to PGW's Service Tariff, I propose updating the definition of "NATURAL GAS (GAS)" used in the tariff to explicitly include "renewable natural gas". This update is in line with the other similarly situated products listed such as liquified propane and naphtha. Additionally, I propose updating part 9.1 TYPE OF SERVICE, of Section 9. CONDITIONS OF SERVICE, POINTS OF DELIVERY, AND APPLICATION OF RATES to reflect the Company's option to substitute among compatible types of natural gas.

Q. ARE THESE CHANGES REASONABLE AND IN THE PUBLIC INTEREST?

A. Yes. PGW as a natural gas utility should be able to accommodate the distribution needs of natural gas customers and producers, including RNG producers, within its service territory. From a marketing perspective this language will enable the Company to engage with any potential RNG producer in an upfront and clear manner.

V. FIRM TRANSPORTATION SERVICE EVALUATION PURSUANT TO 2020 RATE CASE SETTLEMENT

Q. IN THE 2020 BASE RATE CASE SETTLEMENT, PGW MADE A COMMITMENT TO EVALUATE A FIRM TRANSPORTATION SERVICE, HAS PGW COMPLETED THIS EVALUATION?

A. Yes. PGW has completed its Evaluation of a Potential Firm Transportation Service Rate. A copy of PGW's evaluation is provided in Exhibit FT-3.

Q. WHAT WERE THE RESULTS OF PGW'S EVALUATION OF A FIRM TRANSPORTATION SERVICE?

A. After an evaluation of a potential firm transportation service rate, PGW has decided not to propose a new firm transportation service rate as part of PGW's current base rate filing.

VI. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

Exhibit FT-1

(See Volume III)

Exhibit FT-2

(See Volume III)

Exhibit FT-3

Philadelphia Gas Works
Evaluation of Potential Firm Transportation Service Rate

I. Introduction

Philadelphia Gas Works ("PGW" or "Company") has decided not to convert existing IT service to a firm service or to propose an additional firm transportation service rate ("Rate FTS" or "FTS") as part of PGW's base rate filing in 2023. PGW will continue to evaluate a transition to converting existing IT customers to firm transportation service for potential introduction in a future base rate case.

II. Background

Transportation Service by PGW

An eligible commercial or industrial customer who is connected to PGW's distribution system can purchase natural gas (from sources other than PGW) and have that gas shipped via large interstate (and to a lesser extent intrastate) transmission pipelines[1] until it enters PGW's distribution system at a gate station. The gate stations are entry points where natural gas is regulated and depressurized before being pumped into the PGW's distribution system. PGW's system then provides transportation service to deliver (the customer-purchased) gas to the customer via PGW's predominately low-pressure distribution system.

There are two options for transportation service under PGW's Tariff: firm transportation service under rate schedule General Service[2] ("Rate GS") or interruptible transportation service under rate schedule Interruptible Transportation[3] ("Rate IT" or "IT").

As part of its 2003 restructuring plan,[4] transportation services under Rate General Transportation Service-Firm[5] ("GTS-F" or "GTS-Firm") and Rate General Transportation Service-Interruptible[6] ("GTS-I") were closed.[7] No customers have received service under Rate GTS-I since May 2017. As of December 31, 2022, there were two customers, Vicinity Energy Philadelphia Inc.

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1 PGW's system is directly connected to two interstate natural gas pipelines that deliver natural gas to PGW's service territory through nine gate stations: Enbridge's Texas Eastern Transmission ("TETCO") pipeline and Williams' Transco Gas Pipeline ("Transco"). These interstate pipelines transport gas subject to the jurisdiction of the Federal Energy Regulatory Commission ("FERC").

2 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 83–85.

3 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 111–17.

4 M-00021612, Restructuring Order entered March 31, 2003.

5 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 118 to 123 ("Rate GTS-Firm").

6 PGW Gas Service Tariff at Original Pages 124 to 129 ("Rate GTS-Interruptible").

7 PGW Gas Service Tariff at Original Page 118 (Rate GTS-Firm "is only available to those customers who utilized this service on or before September 1, 2003 pursuant to a currently valid agreement with the Company."); PGW Gas Service Tariff at Original Page 124. (Rate GTS-Interruptible "is only available to those customers who utilized this service on or before September 1, 2003 pursuant to a currently valid agreement with the Company.").

("VEPI") and Grays Ferry Cogeneration Project ("GFCP")[8] receiving service under Rate GTS-Firm. Service under Rate GTS-Firm has been temporarily extended, but will expire on or before April 30, 2023, or when the PUC makes a decision on the current complaint case involving VEPI and GFCP.[9]

Transportation Service Under Rate GS

Rate GS is available for firm transportation service. Firm service anticipates no planned Interruptions (but may be subject to curtailment[10]). Rate GS requires a service agreement.[11]

With firm transportation service, PGW is obligated to deliver gas to the customer – even if there is a failure of the customer's supply sources or by third parties and gas is not received at PGW's gate station for that customer. The commodity price for gas in that scenario is the applicable Gas Cost Rate ("GCR") under Rate GS. Customers receiving service under Rate GS-T also are subject to nomination and balancing requirements pursuant to PGW's Choice Supplier Tariff.[12]

Under Rate GS, the monthly bill for transportation service consists of the sum of the monthly Customer Charge and the Distribution Charge.[13] The Customer Charge is $25.35 per month for Commercial Customers and $75.90 per month for Industrial Customers.[14] The current Distribution Charge is $0.51908 per Ccf for Commercial Customers and $0.51668 per Ccf for Industrial Customers.[15]

Rate GS is subject to the following surcharges: Universal Service and Energy Conservation Surcharge ("USEC"); Efficiency Cost Recovery Surcharge ("ECR"); Other Post Employment Benefit Surcharge ("OPEB"); and the Distribution System Improvement Charge ("DSIC").

Riders and other provisions potentially applicable to transportation service under Rate GS include: the Exit Fee provision;[16] the Revenue Reconciliation Adjustment[17] ("RRA"); and the Weather Normalization Adjustment[18] ("WNA").

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8 VEPI and GFCP (jointly referred to as "GFCP/VEPI" or "Vicinity") filed a Formal Complaint against PGW at Docket C-2021-3029259 ("Complaint Proceeding") seeking, *inter alia*, to establish rates for service to be provided on and after January 1, 2023.

9 PGW filed Supplement No. 156 which would grant tariff authority for PGW to continue to provide service to GFCP/VEPI under current rates, terms and conditions until the end of winter season (April 30, 2023), or until a Final Order is entered by the Commission in the Complaint Proceeding. *See* R-2022-3036472, C-2022-3036774 and C-2022-3036783. By Order dated December 27, 2022, the Commission temporarily approved Supplement No. 156, and required that said tariff be scheduled for hearing before ALJ Guhl on an expedited basis. *Id.* Specifically, Supplement No. 156 was permitted to go into effect as filed and remain in effect until April 23, 2023, or until a Final Order is entered by the Commission in the Complaint Proceeding, subject to refund, as appropriate.

10 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 38-40 (Rule 6).

11 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 85.

12 PGW Gas Supplier Tariff – Pa. P.U.C. No. 1.

13 Industrial Customer, Rate Class IT-E: PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 115.

14 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 83 (effective December 1, 2022).

15 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 83 (effective December 1, 2022).

16 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 77.

17 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 70.

18 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 149-150.

There are 3365 non-residential customers receiving transportation service under Rate GS, as of FY 2022.

The total volume of transportation service under Rate GS for these non-residential customers was 4,227,450 Bcf in FY 2022.

Transportation Service Under Rate IT

Rate IT is available for interruptible transportation service to those who can manage their businesses without the use of gas during periods of curtailment or interruption.[19] Interruptible service is subject to interruption at PGW's option under the terms of the tariff. IT customers are required, "in the sole judgment of the Company, [to] manage its business without the use of Gas during periods of curtailment or interruption."[20]

PGW does not normally sell gas to customers using Rate IT.[21] Under Rate IT, the customer is expected to manage its arrangements for daily deliveries of gas so that they are approximately equal to its combined daily gas usage with volumes retained for unaccounted-for gas adjustment.[22] Natural gas suppliers to Rate IT customers are subject to separate and distinct nomination and balancing requirements.

Under Rate IT, the monthly bill for transportation service consists of the sum of the monthly Customer Charge and the Distribution Charge.[23] The Customer Charge ranges, depending on annual volumes, between $152.16 per month for Level IT-A customers to $426.06 per month for Level IT-E customers. The Distribution Charge ranges, depending on annual volumes, between $0.8550 per DTH delivered for Level IT-E customers to $2.6350 per DTH delivered for Level IT-A customers.[24]

Rate IT is not subject to surcharges or riders,[25] other than daily balancing service ("Rate DB").[26] Service under Rate IT is also subject to Rate DB regarding the daily deliveries of gas to PGW.

There are 393 customers (12.1 million Dth) receiving transportation service under Rate IT, as of FY 2022. These customers, broken out into Rate IT sub-classes are as follows:

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19 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 111, 117.

20 *Id.*

21 Rate IT can be supplemented by Standby Service to assure sufficient firmness. PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 117.

22 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 116 (Delivery Quantities).

23 Industrial Customer, Rate Class IT-E: PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 115.

24 Industrial Customer, Rate Class IT-E: PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 115.

25 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 117.

26 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 101-109. Rate DB may be subject to Operational Flow Orders ("OFO") which can reduce or eliminate normal daily balancing tolerances into PGW's system for the duration of the OFO(s).

Rate class: Annual volumes (Dth) – not less than:

IT-A: 2,500 - 97
IT-B: 5,000 - 87
IT-C: 10,000 - 114
IT-D: 25,000 - 71
IT-E: 80,000 - 24

The annual total volume of non-residential customers receiving transportation service under Rate GS is approximately 4.2 Bcf.

The number of GS-T customers whose volumes would permit them to take service under Rate IT, broken out into Rate IT sub-classes, is as follows:

IT-A equivalent from GS-TT – 663
IT-B equivalent from GS-TT – 138
IT-C equivalent from GS-TT – 37
IT-D equivalent from GS-TT – 7
IT-E equivalent from GS-TT – 1

Settlement of the 2020 Base Rate Proceeding

The Partial Settlement ("Settlement") in PGW's 2020 base rate proceeding (R-2020-3017206[27]) contains the following paragraphs:[28]

Evaluation of Potential Firm Transportation Service Rate

25. In PGW's next base rate case filing, PGW will submit an evaluation as to whether it will propose a firm transportation service rate [("FTS")]. If PGW's evaluation determines that Rate FTS is an appropriate service, PGW will submit a FTS proposal with its next base rate filing.

26. The evaluation shall include but not be limited to an evaluation of the following:

a. PGW shall assess the current interruptibility and alternative fuel requirements in the Rate IT tariff language and determine the potential value of interruptible transportation service;

b. Whether rate IT should be phased out;

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27 https://www.puc.pa.gov/docket/R-2020-3017206.

28 R-2020- 3017206, *et al.*, Joint Petition for Partial Settlement at ¶ 25-27. https://www.puc.pa.gov/pcdocs/1674964.pdf. (footnote added)

c. If the Company is proposing Rate FTS, whether Rate FTS should include an option for negotiated flex rates for current IT customers;

d. If the Company is proposing Rate FTS, whether Rate FTS should, subject to rate gradualism, be subject to the USEC, ECR, OPEB and DSIC tariff charges;

e. If the Company is proposing Rate FTS, PGW shall conduct an evaluation of the classification and allocation of distribution mains to determine how mains costs should be reasonably allocated to all customer classes.

27. The parties[29] retain all rights to challenge, refute, or propose modifications to any or all issues related to PGW's proposal for firm transportation service and/or the results of PGW's above evaluations.

III. Discussion

The general need for an optional Rate FTS is not clear. Firm transportation service is (and has been) available from PGW under Rate GS. The limited use of firm transportation service under Rate GS does not – at this time in PGW's opinion – justify a new and separate rate classification for firm transportation service, such as Rate FTS. Converting existing Rate IT to a Firm rate would raise several difficult issues in the process of merging existing Rate IT customers to existing Rate FT.

A. PGW shall assess the current interruptibility and alternative fuel requirements in the Rate IT tariff language and determine the potential value of interruptible transportation service.

1. PGW's assessment of interruptibility

Generally speaking, PGW may need to reduce load to maintain system integrity or address an emergency situation. Unplanned interruptions could be triggered by problems in the gas supply to the city gate. Unplanned interruptions could also be triggered due to distribution system reasons. Such occurrences have happened in emergency situations, in which customer service was curtailed or interrupted to accommodate the capacity limitations resulting from the need to perform emergency repairs.

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29 The active parties in the 2020 base rate proceeding were PGW, the Bureau of Investigation and Enforcement, ("BIE" or "I&E"), the Office of Consumer Advocate ("OCA"), Office of Small Business Advocate ("OSBA"), the Philadelphia Industrial and Commercial Gas Users Group ("PICGUG"), (collectively, the "Joint Petitioners"). Tenant Union Representative Network and Action Alliance of Senior Citizens of Greater Philadelphia ("TURN, et al.") and The Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE-PA") did not oppose the Settlement. Direct Energy Services, Inc. took no position on the Settlement. OSBA did not endorse the Revenue Requirement of the Settlement but did not oppose it. The Environmental Stakeholders opposed the Settlement. No citizen formal complaints were filed opposing the proposed rate increase.

However, PGW has not had an unplanned interruption of any Rate IT customer since 2004 and is not projecting or anticipating any interruptions in the future. The quality of their service is, therefore, virtually firm. Transportation service under Rate IT remains, however, subject to reduction or elimination by interruptions, curtailments or OFOs. So, the potential disruption of their ability to use natural gas is a possible fact of life for all IT customers.

In addition, PGW notes that the risk of unplanned interruptions can be lessened by purchasing Standby Service[30] or by switching to firm transportation service under Rate GS.

2. PGW's assessment of alternative fuel requirements

In PGW's view, service that is firm by virtue of a utility's tariff and contractual provisions associated therewith is more valuable to the customer and therefore more expensive than interruptible service. For this reason, firm service rate schedules are higher than interruptible service and they are subject to PGW's surcharges because of the additional assets and supply agreements needed to assure service continuity, as well as the enhanced value of firm service to the customer. Customers who elect interruptible service accept the potential (even though remote) of reduced reliability of service in exchange for lower rates.

Customers on Rate IT are only eligible for that classification if they have dual-fuel capability or are willing to accept interruption of gas service. PGW's Tariff provides:[31]

> In order to qualify for interruptible daily Transportation Service under this Rate Schedule, a Customer must: (1) have installed and operable alternate fuel equipment, including appropriate fuel storage capacity, capable of displacing the daily quantity of Gas subject to curtailment or interruption; or (2) or in the alternative demonstrate to the Company's sole satisfaction the ability to manage its business without the use of Gas during periods of curtailment or interruption.

Approximately 12 of those customers fall into the second category of demonstrating to PGW's satisfaction that they would be able to manage their business during periods of curtailment or interruption. The remaining 400+ Rate IT customers should have – and, in fact, are required to have – installed and operable alternate fuel equipment, including appropriate fuel storage capacity, and thereby be fully capable of leaving PGW's system.

The above-quoted alternative fuel requirement helps to insure that IT interruptible customers may be interrupted and indeed cease taking gas service. Rate IT customers are unique in that they are not dependent upon natural gas as their sole energy source. They explicitly and voluntarily agree that the Company can interrupt their gas service. The failure of interruptible customers to cease taking gas service could put significant strain on the distribution system and endanger the provision of an essential service to firm customers. The alternative fuel requirement is designed to ensure that businesses can actually turn to an alternate form of fuel, like heating

30 *See* footnote 19.

31 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 112.

oil, if they need to stay running at full capacity during times when PGW requests decreased gas usage (by way of interruption, curtailment or OFO).

The costs that IT customers incur for alternate fuel equipment and appropriate fuel storage capacity are at the option of the IT customer. It is the customers' choice to both install and maintain an alternative fuel source and take service under Rate IT. Customers under Rate IT would typically have the option of taking firm transportation service under Rate GS. So, as a practical matter, customers taking service under Rate IT have concluded that the value of the interruptible service is worth the price in comparison with competing fuels.

The fact that Rate IT customers have invested in alternative fuel systems means that they have the ability to leave PGW's system on short notice and could do so if the price of alternative fuels would be lower than PGW's rates. If the economics worked in favor of alternative fuels, Rate IT customers would have little incentive to stay on PGW's system (since they have the capability to leave).

In addition, PGW notes that higher prices for common alternative fuels causes a problem for PGW with respect to Rate IT because they provide a significant incentive for customers to avoid taking firm transportation service from PGW. In other words, PGW's interruptible transportation service is competing against PGW's firm transportation service.

3. PGW's assessment of the value of interruptible transportation service

For purposes of this evaluation, PGW is defining the phrase "value of service" as the price that the market will bear for interruptible transportation service.

It is difficult to place a single "value" on interruptible transportation service, since customers have different energy needs and are using alternate fuel equipment of their own choosing. Broadly speaking, given the historically low occurrence of interruptions under Rate IT, the base rate cost of transportation service under Rate GS and Rate IT are actually comparable, due to system design and operation. So, PGW has viewed (as discussed below) the equivalent firm transportation rate as the upper value of interruptible service and the cost of service as the lower value of interruptible service.

In 2017, PGW proposed the use of "value-based" pricing for Rate IT customers.[32] That proposal was withdrawn as part of the Settlement of PGW's 2017 base rate proceeding[33] without prejudice as to any position that may be advanced in future proceedings.

PGW's 2017 proposal would have established a value-based price range for the distribution charge classes under Rate IT. One end of the range was to have been the actual cost of service as determined in a rate case that allocates reasonable share of the distribution system to interruptible customers. The other bound of the range was to have been the equivalent firm transportation rate (since the customer would typically have the option of taking firm service). That range would have been either above or below the customer's cost to use alternative fuel. That way, if the negotiated price was below the cost to use alternative fuel, the customer could elect to receive natural gas; or, if the negotiated price was above the relative cost of the alternative fuel, the

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32 R- 2017-2586783.

33 R- 2017-2586783, Joint Petition for Partial Settlement at ¶ 22, 25. https://www.puc.pa.gov/pcdocs/1529631.pdf.

customer could elect to use their alternative fuel source. In either situation, PGW would have had the incentive to negotiate a rate that took into consideration the customer's alternative fuel cost and induced them to continue to use natural gas, rather than their available alternative fuel. PGW's proposal was met with a total lack of interest, and it was eventually withdrawn.

B. Whether Rate IT should be phased out.

For several reasons, PGW is not proposing to phase out Rate IT as part of PGW's base rate filing in 2023.

Phasing-out interruptible transportation service in favor of firm transportation service would have limited effect on base rate costs, over time, because, under PGW's cost of service analysis, IT customers are already allocated an appropriate share of distribution system costs, in recognition of the fact that IT service is effectively firm (although additional costs might need to be added if their service was officially "firm").[34] PGW is not proposing in this case to move IT customers to cost parity but to do so over time. However, a formal conversion could increase hasten that transition.

Formally characterizing IT customers as firm would increase the design day demand on PGW's gas distribution system. PGW models project customer gas requirements for a design (coldest) hour, design day and design winter. These gas requirements form the basis for capacity commitments for pipeline supply, storage, and transportation contracting. Under this model, PGW includes all firm sales and transportation load. The model does not include interruptible sales and transportation load. In 2022, PGW's design day requirements were approximately 698,400 Mcf. PGW has a maximum daily firm capacity of 134,822 Dth on the TETCO pipeline and a maximum daily firm capacity of 165,212 Dth on the Transco pipeline. That combined total of daily capacity of (upstream) pipeline capacity is less than PGW's design day requirement so PGW relies on off-site storage assets and stored liquefied natural gas (LNG) to meet its design day demands. This means that eliminating interruptible transportation service would add strain to PGW's off-site storage and LNG assets. PGW would need to evaluate its current asset portfolio to handle the additional customers on the design day and its portfolio might need to be increased. This, in turn, would increase gas costs, recovered through PGW's GCR.

Phasing-out interruptible transportation service would require PGW's transportation customers to transport their gas to PGW in a different manner. Customers who need interruptible service from PGW obtain interruptible transportation service from an (upstream) interstate pipeline. Customers who need firm transportation service from PGW must also obtain firm transportation service from an (upstream) interstate pipeline that is transporting gas to a PGW-designated city gate. The capacity of the (upstream) interstate pipelines to handle firm transmission capacity to PGW's city gates is unclear and has not been investigated by PGW. Currently, PGW is required to release its upstream pipeline entitlements to the firm transportation suppliers. It is not clear how capacity for converted IT customers would be handled. If PGW were required to assign capacity to these new FT (previously IT) customers it would dramatically change PGW's portfolio and costs. Also, PGW has not investigated the upstream capacity price difference to

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34 See, R-2023-3037933, PGW St. 5 (Heppenstall).

the customers, if the customers were required to switch from upstream interruptible service to firm service.

PGW has not had significant interest from existing IT customers in firm transportation service under Rate GS and is unsure of customer desire for firm transportation service under the proposed Rate IT. PGW is also unsure of the level of customer desire for the elimination of Rate IT over time. Elimination of Rate IT means that either existing IT customers will be transitioned to GS-T rates or that existing GS-T customers who are otherwise volume eligible would be eligible to receive service under what are now the rates for Rate IT. PGW anticipates that IT customers will not support the phasing out of Rate IT if it means moving them to Rate GS-T levels (plus surcharges). That anticipation is based, in part, on the prior lack of support for a voluntary option based on Rate IT, as discussed above. The lack of interest and opposition appeared to be based on the fact that Rate LT was going to be offered at rates higher than existing IT rates. Given that there was no support for creating an option to Rate IT, PGW does not anticipate existing IT customer support for the elimination of Rate IT.

It is also unclear how phasing out Rate IT and transitioning IT customers to Rate GS-T (with a corresponding increase in rates/application of surcharges) would affect PGW and its customers. The energy markets in Philadelphia are highly competitive. Energy resources competition exists among the three utilities serving Philadelphia: PGW, PECO Energy Company ("PECO"), and Vicinity Energy Philadelphia Inc. ("VEPI"), and has been ongoing for years. Other energy sources which are not jurisdictional to the Commission, such as fuel oil, solar, propane and geothermal also actively compete for these same customers. In other words, end use customers in Philadelphia have many energy options at their choice at prices and terms acceptable to them. Given the competitive energy market, it is difficult to predict how many existing Rate IT customers would remain gas customers (under different schedule(s)) if Rate IT is eliminated.

On the other hand, if Rate IT were converted to Firm service at existing IT rates it would mean that existing GS-T customers would be eligible for that rate. PGW has approximately 846 current Rate GS-T customers that would be eligible for Rate IT on a volume of service basis. PGW believes that existing Rate GS-T customers are not able to qualify for Rate IT because they do not have the ability to install alternate fuel capability or to otherwise eliminate their gas demand when required to do so (or do not want to risk interruption, however remote the likelihood). If Rate IT were converted to firm there would no longer be a justification for requiring that the customer be interruptible. The result would appear to be that these existing GS-T customers that qualify from a volume standpoint would have to be served at the much lower existing IT rates (when also considering surcharges). Importantly, the average IT rate is about one-fifth of the average GS-T rate. That lost margin or contribution to surcharges would have to be made up by remaining customers, chiefly residential and small commercial GS customers.

Finally, a formal conversion would require a reconciliation of disparate balancing and other rules for IT verses GS-T customers. Currently, there are separate rules for balancing and gas delivery for Rate IT customers and Rate GS-T customers. Balancing and capacity assignment rules for Rate GS-T are set out in PGW's Supplier Tariff, Section 10. Balancing rules for Rate IT are found in PGW's General Tariff, Pages 101-110. Any revision to Rate IT to make it firm will require a reconciliation of these two different balancing regimes.

C. If the Company is proposing Rate FTS, whether Rate FTS should include an option for negotiated flex rates for current IT customers.

PGW is not proposing Rate FTS as part of PGW's base rate filing in 2023.

No decision was made by PGW regarding whether a Rate FTS should include an option for negotiated flex rates. Generally speaking, in situations using Rule 2.3[35] of PGW's Tariff, PGW may negotiate rates – if there would be an economic advantage to PGW and its customers for doing so.[36] Both PGW's Rate GS and Rate IT require service agreements, which could be modified under Rule 2.3. In fact, Rate IT notes that:[37]

> The distribution charge may be the product of a negotiated rate and may include long-term contracts of up to five years as mutually agreed to by the Company and the Customer. This negotiated rate may be higher than, but not lower than, the distribution charges set forth above and may include additional minimum take requirements.

PGW notes that, in 2007, the Commission directed PGW to move IT rates from the Company's individually negotiated, alternative fuel-based margin rates to cost-based rates. [38] In 2017, as noted, PGW proposed the use value-based pricing for all Rate IT customers.[39] The value-based pricing, as proposed, would have been a negotiated rate based on both the customer's share of system costs and the value of service that the customer is receiving from the interruptible service. That proposal was withdrawn due to lack of interest. It was agreed, however, that the above-quoted provision regarding negotiated rates could be added to Rate IT.[40]

D. If the Company is proposing Rate FTS, whether Rate FTS should, subject to rate gradualism, be subject to the USEC, ECR, OPEB and DSIC tariff charges.

PGW is not proposing Rate FTS as part of PGW's base rate filing in 2023.

No decision was made by PGW regarding whether, if Rate FTS were to be implemented, the rate should be subject to surcharges (in the same manner as Rate GS-T). However, generally speaking, all of PGW's firm transportation customers are charged the existing tariffed surcharges[41] in recognition of the fact that the surcharges, in one way or another, reflect costs

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35 Rule 2.3 provides that: "Contracts stipulating the negotiated non-scheduled rates and/or terms of Gas Service may also be entered into between the Company and Customer when the Company, in its sole discretion, deems such offerings to be economically advantageous to the Company." PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 18 (Rule 2.3).

36 *Id.*

37 PGW Gas Service Tariff – Pa. P.U.C. No. 2 at 115.

38 R-00061931, *et al.*

39 R- 2017-2586783.

40 R- 2017-2586783, Joint Petition for Partial Settlement at ¶ 25. https://www.puc.pa.gov/pcdocs/1529631.pdf.

41 Prior to becoming subject to the Commission's jurisdiction, PGW allocated its universal service costs to all firm sales service rate classes. M-00021612, Restructuring Order entered March 31, 2003 at 64 and *Customer Assistance Programs: Funding Levels and Cost Recovery Mechanisms Final Investigatory Order*, M-00051923, Ordered entered December 18, 2006 at 31.

and programs necessary to maintaining the gas distribution system. Customers receiving interruptible service are not surcharged. In PGW's view, not applying the various surcharges to rate IT is a recognition that those customers have made an investment in installing and maintaining alternative fuel capacity as well as the fact that, even though remote, they continue to be subject to possibility of interruption. The application of surcharges means that the disparity between existing rates for Rate IT and Rate GS-T are even greater than the differences in the customer and distribution charges and must be considered in any discussion.

E. If the Company is proposing Rate FTS, PGW shall conduct an evaluation of the classification and allocation of distribution mains to determine how mains costs should be reasonably allocated to all customer classes.

PGW did not conduct an evaluation of the classification and allocation of distribution mains to determine how mains costs should be reasonably allocated to all customer classes to reflect the creation of Rate FTS, since PGW is not proposing Rate FTS as part of PGW's base rate filing in 2023.

IV. Conclusion

PGW decided not to propose a FTS as part of PGW's base rate filing in 2023.

VERIFICATION

I, Florian Teme, hereby state that: (1) I am the Vice President, Marketing, Sales and Energy Planning for Philadelphia Gas Works ("PGW"); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 2/23/2023

Florian Teme

Florian Teme
Vice President, Marketing, Sales and
Energy Planning
Philadelphia Gas Works

Tab 7

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

ROBERT K. SMITH

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. R-2023-3037933

Philadelphia Gas Works

General Rate Increase Request

TOPICS:

Efforts to Improve Safety, Reliability of PGW Infrastructure

February 27, 2023

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND POSITION WITH THE COMPANY.

A. My name is Robert K. Smith. My position is Senior Vice President, Operations & Supply Chain for Philadelphia Gas Works ("PGW" or "Company").

Q. HOW LONG HAVE YOU HELD THIS POSITION?

A. Since January 1, 2023.

Q. WHAT ARE YOUR JOB RESPONSIBILITIES?

A. I am responsible for the Distribution, Field Service, Resource Management, Supply Chain and Fleet Departments.

Q. PRIOR TO JANUARY 1, 2023, WERE YOU EMPLOYED WITH PGW? IF SO, IN WHAT CAPACITY?

A. Yes, I was Vice President of Operations & Resource Management from December 2020 through December 2022. Prior to that I was Director of Employee Relations, Development, and Support Services for Field Operations and Supply Chain from May of 2013 through December of 2020. I held the position of Manager of Labor and Administration, Field Services Department from March of 2011 through May of 2013. Prior to March of 2011, I held various union covered field positions in the Field Services Department.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science degree in Business Administration from Pierce College in 2018. Also, I received a Master of Business Administration from Gwynedd Mercy University in 2021.

Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION ("COMMISSION" OR "PUC")?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony will describe the numerous efforts that PGW has undertaken during the last several years to improve the safety and reliability of the PGW gas distribution system.

II. EFFORTS TO IMPROVE SAFETY AND RELIABILITY OF PGW'S INFRASTRUCTURE

Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF PGW'S GAS DISTRIBUTION SYSTEM.

A. PGW's gas distribution system serves approximately 518,000 customers in Southeastern Pennsylvania in the County and City of Philadelphia, using approximately 3,046 miles of natural gas mains ("Mains") and some 476,600 service lines ("Services").[1] At the end of calendar year 2021, PGW's mains were comprised of approximately 41% cast iron, 40% plastic and protected coated steel, and 19% unprotected coated steel and ductile iron. The Company's Services are made up of 82% plastic and protected coated steel, 14% bare steel and 4% unprotected coated steel.

Q. WHAT IS PGW'S CURRENT PROJECTED TIME FRAME FOR REPLACING ITS CAST IRON MAIN INVENTORY?

A. PGW is projecting that it will replace all cast iron main inventory in 37.8 years based on the assumption that base rates will increase 5% every five years (starting in 2029) along with associated increases in the Distribution System Improvement Charge (DSIC) recovery/spending. This assumption does not include the proposed $85.8 million rate increase.

[1] PGW owns and operates all of the service lines from the mains to the inlet side of the meters. There are no customer-owned service lines in the PGW service territory.

Q. WILL THE PROJECTED TIME FRAME CHANGE WITH $85.8 MILLION IN RATE RELIEF?

A. Yes. When the proposed $85.8 million in rate relief is factored into the above assumptions, the associated increases in DSIC recovery/spending levels will result in the replacement of all cast iron main inventory in 33.1 years. This reduces the overall replacement time frame by 12.4%. This is because the $85.8 million increase would correspondingly increase PGW's distribution revenues and, in turn, the amount that PGW would recover through the DSIC at its 7.5% cap. The proposed $85.8 million rate increase would correspondingly increase the total annual DSIC expenditures by approximately $6.435 million / year. PGW is committed to expending 100% of DSIC revenues on cast iron main replacement.

Q. PLEASE DESCRIBE THE EFFORTS PGW HAS MADE IN RECENT YEARS AND SINCE ITS LAST RATE INCREASE IN 2020 TO MODERNIZE ITS NATURAL GAS DISTRIBUTION SYSTEM.

A. PGW has continued to make tremendous strides in reducing the amount of cast iron main in its system and replacing it with modern materials, such as cathodically protected, coated steel and plastic. In the past ten (10) fiscal years, PGW has successfully removed 309.71 miles of this "at-risk" pipe from inventory. The following graphic shows this.

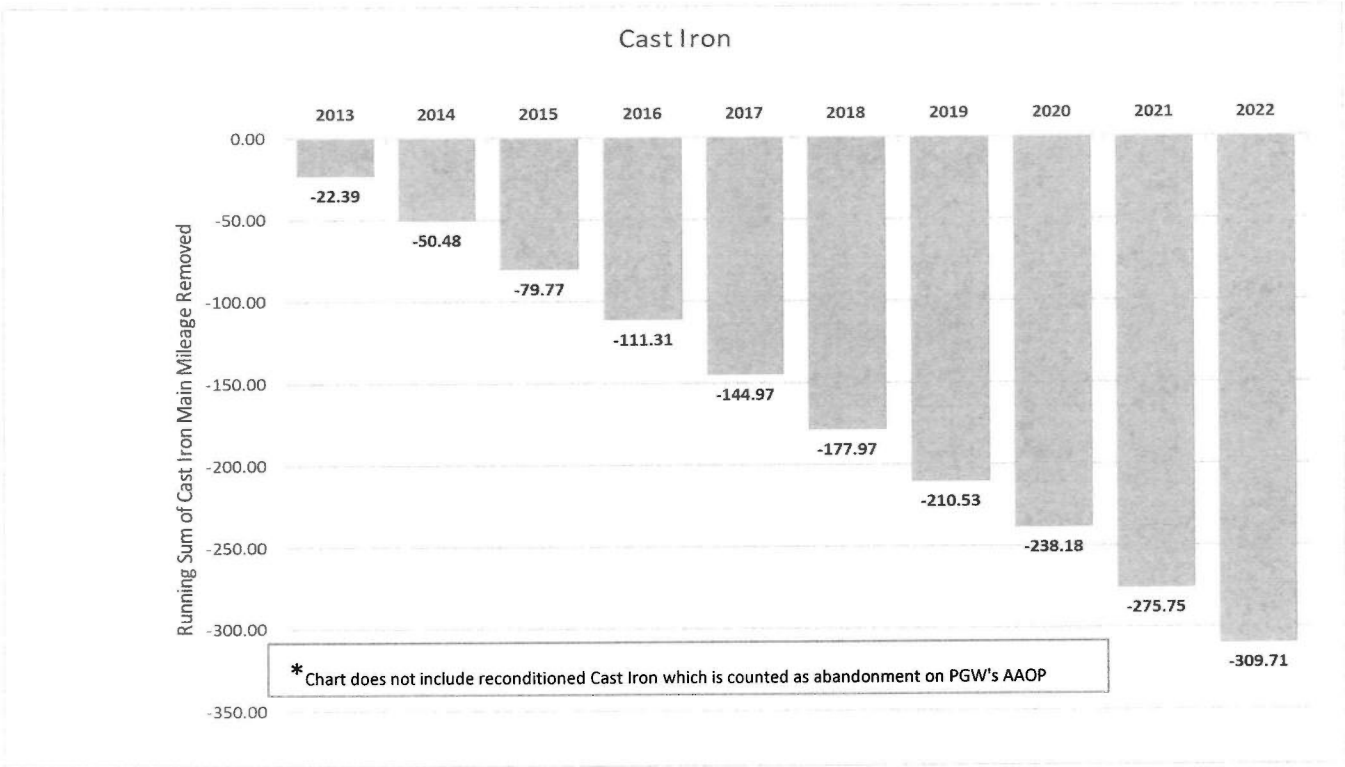

Figure 1 – Cumulative Cast Iron Main Removed from Inventory Fiscal Years 2013 – 2022

The installation of modern materials and subsequent elimination of "at-risk" pipe has been financed with PGW's base rates and the Distribution System Improvement Charge ("DSIC") mechanism, currently set at 7.5% of non-fuel (distribution) revenue. This funding combination has allowed PGW to successfully complete its first Long Term Infrastructure Improvement Plan ("LTIIP") in FY 2017, removing approximately 3% more cast iron main than planned. PGW's second LTIIP, ending with FY 2022, also had strong results. While PGW's replacements were impacted during FY 2020 as a direct result of the COVID-19 Pandemic, PGW made up the FY 2020 shortfall in FY 2021 and exceeded its second LTIIP replacement goals from FY 2018 - 2022, replacing 164.7 miles, or 4% more cast iron main replaced than planned.

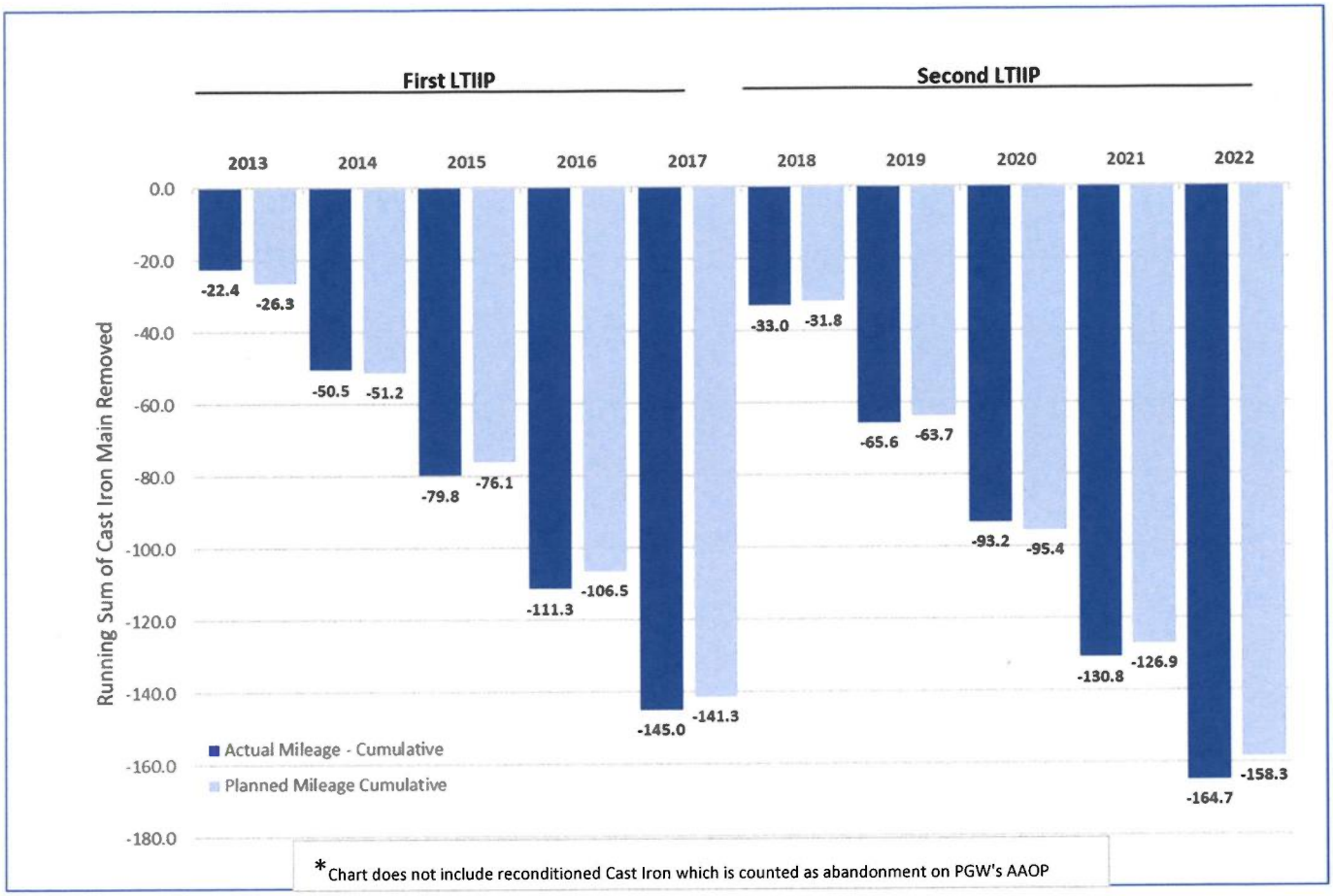

Figure 2 – LTIIP Cast Iron Main Removal Cumulative Results Fiscal Years 2013 - 2022

Q. PLEASE DESCRIBE PGW'S PROPOSED FUTURE EFFORTS TO MODERNIZE ITS NATURAL GAS DISTRIBUTION SYSTEM.

A. In PGW's third LTIIP, which covers FY 2023 - 2027, PGW will eliminate approximately 65 miles of cast iron main over the life of the program, which will be done concurrently with PGW's baseline main replacement program which removes 18 miles of cast iron main per year and is funded by current base rates. These combined efforts are currently projected to remove approximately 155 miles of cast iron main from PGW's service territory from FY 2023 - 2027.

Q. IS THERE ANY EVIDENCE THAT THE ACCELERATED PIPELINE REPLACEMENT PROGRAM HAS IMPROVED SAFETY?

A. Yes, PGW continues to make significant strides towards reducing the number of hazardous leaks encountered on the distribution system. The graph below depicts hazardous leaks repaired on distribution mains from FY 2014 through FY 2022, showing a downward trend.

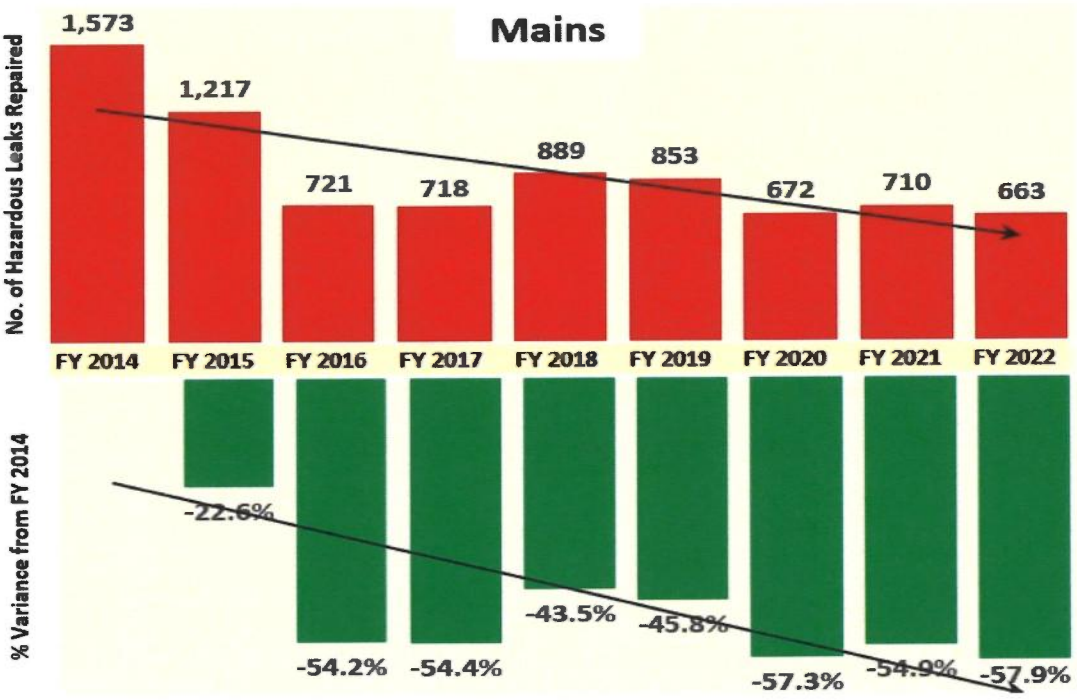

Figure 3 – Hazardous Leaks Repaired on Mains Fiscal Years 2014 – 2022

This continued downward trend is attributed to the prioritized main selection and the accelerated pace of PGW's main replacement program, and recent warmer than average winter seasons.

PGW has also made substantial gains in the reduction of hazardous leaks repaired on Services. The number of hazardous leaks on Services has continually declined since FY 2014 by greater than 55%.

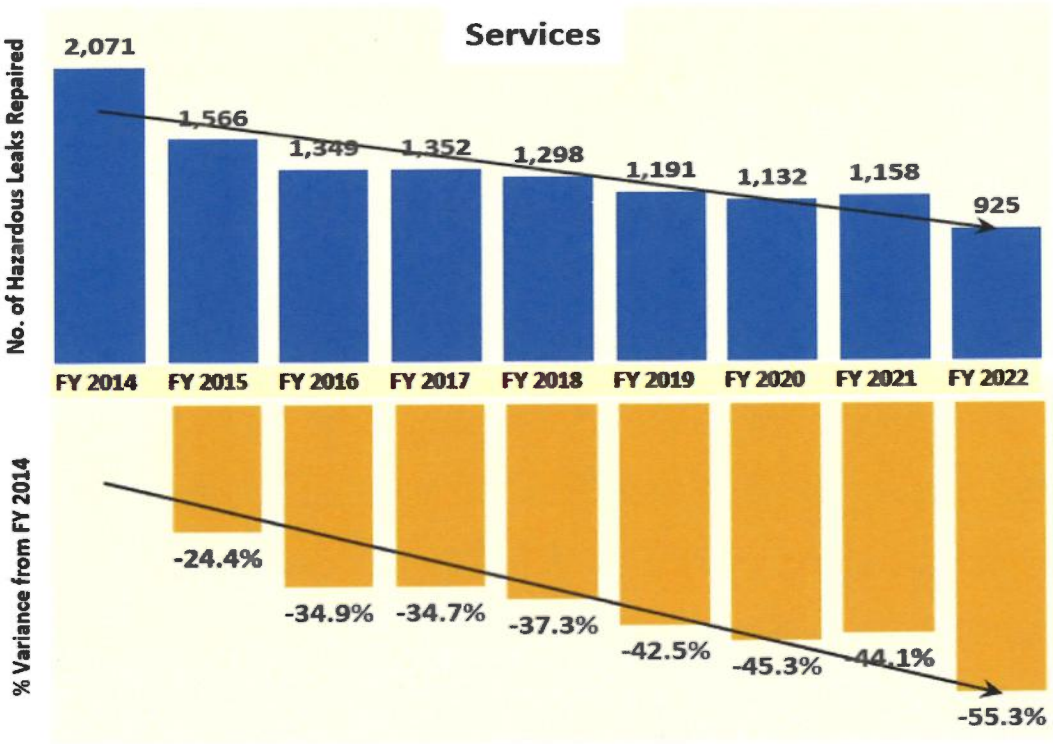

Figure 4 – Hazardous Leaks Repaired on Services Fiscal Years 2014 - 2022

It is PGW's practice to replace all bare steel Services encountered on main replacement projects regardless of condition. This proactive replacement of aging steel Services has aided PGW in continuously reducing the number of hazardous leaks caused by corrosion on service lines.

Q. WHAT STEPS HAS PGW TAKEN TO ENHANCE ITS EFFORTS TO DETECT AND APPROPRIATELY RESPOND TO NATURAL GAS LEAKS ON ITS SYSTEM?

A. PGW continues to make substantial strides in reducing its open leak backlog. PGW has an aggressive leak recheck procedure to ensure that lower grade leaks are monitored appropriately and are safe. This requires site visits on prescribed timelines to monitor gas reading levels and migration patterns. Over the past few fiscal years, PGW has made a concerted effort to repair these open leaks as shown in the graphic below.

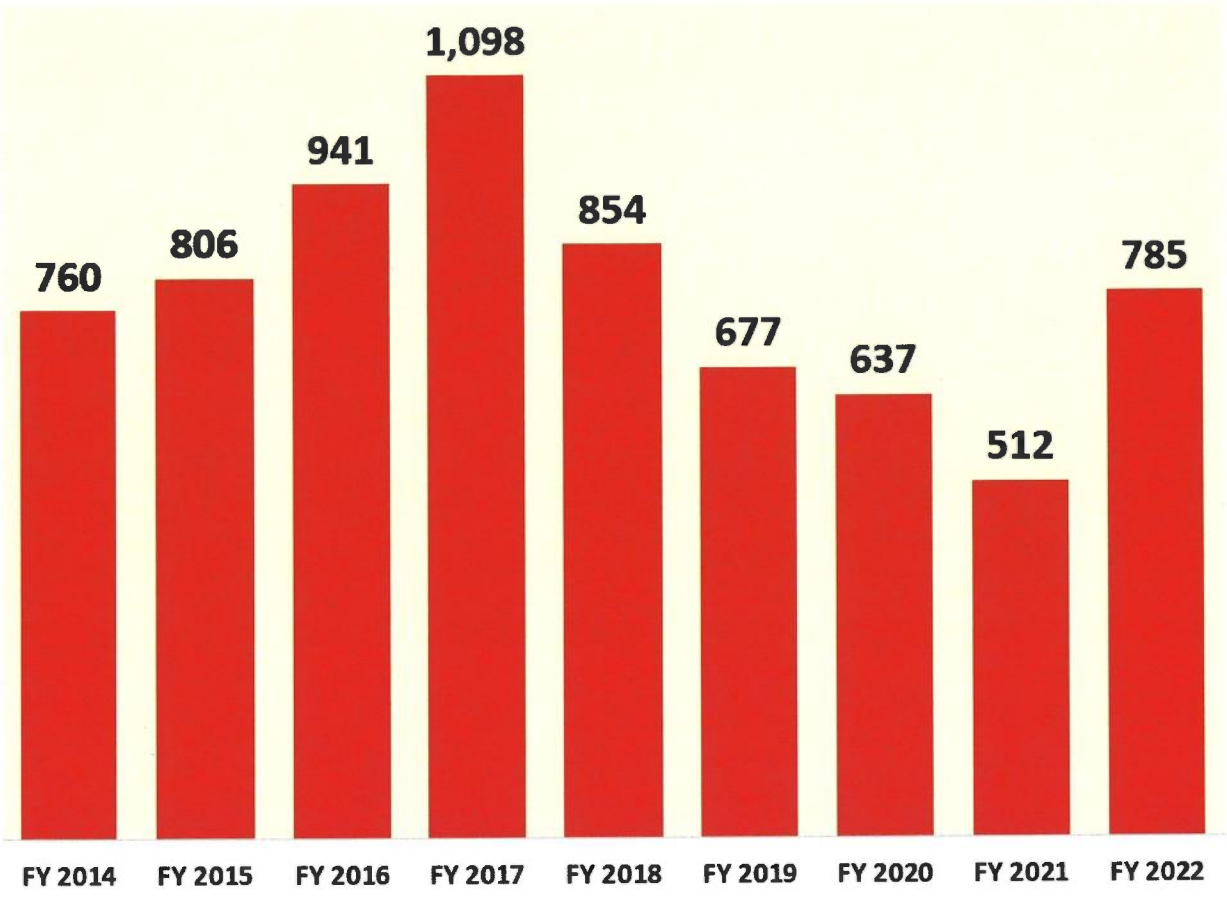

Figure 5 – Open Leaks repaired Fiscal Years 2014 – 2022

Because of this focused effort to repair these leaks that are typically monitored, the total backlog of open leaks has been reduced by approximately 47% since the start of FY 2014 until the end of FY 2022 (2,940 down to 1,555). This eliminates the need to perform site visits to monitor gas levels thus ensuring the safety of our customers and the public and reducing the cost of the recheck program.

Q. IN THE 2020 BASE RATE CASE SETTLEMENT, PGW MADE THREE PIPELINE SAFETY RELATED COMMITMENTS CAN YOU ADDRESS THOSE COMMITMENTS?

A. Yes. The first Settlement commitment[2] was that "PGW will remain focused on cast iron main replacement and present a shortened timeframe for cast iron main replacement in its next LTIIP filing."

Q. WHAT IS THE STATUS OF THE FIRST COMMITMENT?

A. PGW has fulfilled this commitment with its third LTIIP which was approved by the Commission on August 25, 2022.[3] PGW's third LTIIP presented a shortened timeframe for cast iron main replacement than PGW's second LTIIP, reducing the time to retire all cast iron mains in PGW's system from an estimated 45 years[4] to an estimated 40 years.[5]

Q. PGW MADE A SECOND COMMITMENT[6] IN THE SETTLEMENT TO "FOCUS THE CAST IRON MAIN REPLACEMENT BASED ON RISK AND CATEGORIZE RISKY ASSETS, PARTICULARLY CAST IRON ASSETS, IN [PGW'S] DISTRIBUTION INTEGRITY MANAGEMENT PLAN (DIMP). THE DIMP MUST BREAK DOWN THE CAST IRON ASSETS INTO SMALLER ASSET GROUP CATEGORIES THAT ALLOW PGW TO MEASURE THE EFFECTIVENESS OF THE REPLACEMENT PLAN." PLEASE DISCUSS THE STATUS OF MEETING THIS COMMITMENT.

A. PGW has fulfilled this commitment. At the recommendation of both PGW's DIMP subject matter experts and the PUC, the cast iron asset group categories in PGW's DIMP risk model were further broken down from two size groups (10" and smaller cast iron and 12" and larger cast iron) to three size groups (6" and smaller cast iron, 8-10" cast iron,

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2 *See PAPUC v. PGW*, Docket No. R-2020-3017206, August 26, 2020 Joint Petition for Settlement at ¶ 43 (approved by Opinion and Order entered November 19, 2020)

3 *See, Petition of Philadelphia Gas Works for Approval of its Third Long-Term Infrastructure Improvement Plan*, Docket No. P-2022-3032303, Opinion and Order (Order entered August 25, 2022).

4 *See*, PGW's Second Long Term Infrastructure Improvement Plan, Docket No. P-2017-2602315 at 6.

5 *See*, PGW's Third Long Term Infrastructure Improvement Plan, Docket No. P-2022-3032303 at 6.

6 *See PAPUC v. PGW*, Docket No. R-2020-3017206, August 26, 2020 Joint Petition for Settlement at ¶ 44 (approved by Opinion and Order entered November 19, 2020)

and 12" and larger cast iron). The decision to break the 10" and smaller cast iron category into two separate categories produced valuable insight into PGW's main assets. In the calendar 2020 risk model update which is performed in calendar year 2021, the 6" and smaller cast iron category became the 2nd ranked risk in the risk model while the 8–10" cast iron category moved to the 21st ranked risk in the model. This additional level of granularity will allow PGW to make more informed decisions about risk mitigation activities including main to target for replacement moving forward.

Q. PGW'S FINAL PIPELINE SAFETY RELATED COMMITMENT[7] WAS TO "REVIEW ITS MOST RECENT ANNUAL ASSET OPTIMIZATION PLAN WITH THE COMMISSION'S PIPELINE SAFETY DIVISION IN ORDER TO DISCUSS FURTHER COST REDUCTION EFFORTS." PLEASE DISCUSS WHETHER PGW FULFILLED THIS COMMITMENT.

A. Yes, PGW fulfilled this commitment. By letter dated January 11, 2021 sent via USPS and email, PGW reached out to the Commission's Pipeline Safety Division welcoming review of PGW's Annual Asset Optimization Plan and requested further discussions with staff on how PGW might further reduce costs under the plan. PGW continues to prioritize the efficient replacement of its aging cast iron infrastructure and in 2022 PGW's third Long-Term Infrastructure Improvement Plan was applied for and approved by the Commission. PGW's third LTIIP began on September 1, 2022 and ends August 31, 2027.

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7 *See PAPUC v. PGW*, Docket No. R-2020-3017206, August 26, 2020 Joint Petition for Settlement at ¶ 45 (approved by Opinion and Order entered November 19, 2020)

III. PHMSA PIPELINE REPLACEMENT GRANT APPLICATION

Q. PLEASE DESCRIBE ANY FEDERAL GRANTS RELATED TO ACCELERATING THE REPLACEMENT OF AGING NATURAL GAS MAINS?

A. As part of the Infrastructure Investment and Jobs Act, the Pipeline and Hazardous Materials Safety Administration (PHMSA) created the Natural Gas Distribution Infrastructure Safety and Modernization Grant Program. This grant is available to municipally or community owned utilities to repair, rehabilitate, or replace natural gas distribution pipelines. The grant program will span over five years, and each entity may receive up to $125 million over the entire 5-year period.

Q. HAS PGW APPLIED TO THE PHMSA GRANT PROGRAM AND IF SO WHAT IS THE STATUS OF PGW'S APPLICATION?

A. Yes, on July 22, 2022 PGW submitted an application for $45 million, the maximum amount allowed in the 2022 grant year. At this time, it is PGW's understanding that PHMSA is still vetting the applications received.

Q. WHAT WOULD BE THE RATE IMPACT OF PGW RECEIVING THIS GRANT FOR PIPELINE REPLACEMENT?

A. There is no rate impact from PGW potentially receiving this PHMSA grant. The grant is intended to fund incremental projects above a utility's base line level. So, PGW's customers would receive the benefit of the grant through a shortened pipeline replacement timeframe due to the infusion of additional funds. Any grants PGW receives under the program will be applied to the replacement of small diameter cast iron mains, PGW's prioritized asset in its DIMP.

IV. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

I, Robert K. Smith, hereby state that: (1) I am the Senior Vice President, Operations & Supply Chain for Philadelphia Gas Works ("PGW"); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 2/23/2023

Robert K. Smith

Robert K. Smith
Senior Vice President, Operations & Supply Chain
Philadelphia Gas Works