

I&E Statement No. 1 AMENDED
Witness: Rachel Maurer

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Direct Testimony

of

Rachel Maurer

Bureau of Investigation & Enforcement

Concerning:

Financial Metrics
Revenue Requirement

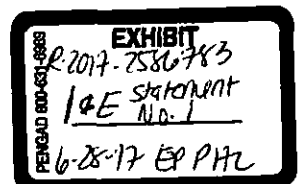


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1 **INTRODUCTION OF WITNESS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Rachel Maurer. My business address is Pennsylvania Public Utility
4 Commission, P.O. Box 3265, Harrisburg, PA 17105-3265.

5
6 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

7 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
8 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
9 Analyst.

10
11 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

12 A. My educational and professional background is set forth in Appendix A, which is
13 attached.

14
15 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

16 A. I&E is responsible for protecting the public interest in proceedings before the
17 Commission. The I&E analysis and testimony in this proceeding is based on its
18 responsibility to represent the public interest. This responsibility refers to
19 balancing the interests of the ratepayers, the regulated utility, and the regulated
20 community as a whole.

1 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

2 A. The purpose of my direct testimony is to address the financial metrics discussed in
3 Philadelphia Gas Works (PGW or Company) Statement No. 2, Direct Testimony
4 of Joseph F. Golden, Jr.; PGW Statement No. 3, Direct Testimony of Daniel J.
5 Hartman; and PGW Statement No. 4, Direct Testimony of Frank C. Graves and to
6 present the overall revenue requirement recommended by I&E.

7
8 **BACKGROUND**

9 **Q. WHAT DOES 52 PA. CODE §69.2701-2703 STATE REGARDING PGW?**

10 A. Commission regulations at 52 Pa. Code §69.2701-2703 contain the ratemaking
11 elements, procedures, and factors that the Commission will consider in
12 determining just and reasonable rates for PGW. It states that the Commission is
13 obligated under law to use the cash flow methodology and that in the
14 determination of a just and reasonable rate level for PGW, the Commission
15 considers, among other factors, projected levels of non-borrowed cash, internal
16 generation of funds for construction, debt to equity ratios, the level of operating
17 and other expenses compared to similarly situated utility enterprises, the level of
18 financial performance needed to maintain or improve PGW's bond rating,
19 management quality, efficiency, and effectiveness, service quality and reliability,
20 and the effect on universal service.

1 **Q. WHAT IS PGW'S CASH FLOW METHOD?**

2 A. The Cash Flow Method is the ratemaking method used by PGW.¹ On
3 December 29, 1972, the Philadelphia City Council enacted an ordinance and
4 approved an agreement between the Philadelphia Facilities Management
5 Corporation (the entity set up to operate PGW) and the City of Philadelphia which
6 determined how PGW's rates would be set and how it would be operated. Section
7 VII of the Ordinance states that rates shall be set in order to provide sufficient
8 revenues for purposes including covering all of the costs and expenses of PGW,
9 making base payments to the City, providing appropriations for debt reduction,
10 and providing reasonable additions to working capital.²

11
12 **SUMMARY OF I&E OVERALL POSITION**

13 **Q. WHAT IS I&E'S TOTAL RECOMMENDED REVENUE REQUIREMENT?**

14 A. I&E's total recommended revenue requirement for PGW is \$664,634,000. This
15 recommended revenue requirement represents an increase of \$33,802,000 to the
16 I&E-adjusted present rate revenues of \$630,832,000. This total recommended
17 allowance incorporates my adjustments to the debt service coverage ratio made in
18 this testimony and those made in the testimonies of I&E witnesses Christopher
19 Keller (I&E Statement No. 2) and Kokou Apetoh (I&E Statement No. 3). A

¹ Other than PGW, utilities under the jurisdiction of the Commission use the rate base/rate of return methodology to set rates.

² Action All. of Senior Citizens of Greater Philadelphia, Inc. v. Philadelphia Gas Comm'n. 45 Pa. Cmwlth. 234, 237, 406 A.2d 1155, 1156 (1979) overruled by Pub. Advocate v. Philadelphia Gas Comm'n. 161 Pa. Cmwlth. 428, 637 A.2d 676 (1994).

1 calculation of the I&E recommended revenue requirement is included in I&E
2 Exhibit No. 1, Schedule 1.

3
4 **FINANCIAL METRICS**

5 **Q. WHAT IS PGW'S PROPOSED YEAR-END CASH BALANCE FOR THE**
6 **FULLY PROJECTED FUTURE TEST YEAR (FPFTY)?**

7 A. For the 2017-2018 FPFTY, PGW has included \$114,557,000.³

8
9 **Q. WHAT IS THE YEAR-END CASH BALANCE UNDER THE I&E**
10 **PROPOSED RATES?**

11 A. For the 2017-2018 FPFTY, the I&E recommendations result in a year-end cash
12 balance of \$107,847,000.⁴

13
14 **Q. BASED ON PGW'S PROPOSAL, WHAT IS THE INTERNAL**
15 **GENERATION OF FUNDS FOR THE FPFTY?**

16 A. Excluding \$30,579,000 of Distribution System Improvement Charge (DSIC)
17 revenue, PGW Statement No. 2, Exhibit JFG-2, page 2, line 27 calculates
18 internally generated funds under the Company's proposed rates to be \$26,431,000.

³ PGW Statement No. 2, Exhibit JFG-2, p. 2.

⁴ I&E Exhibit No. 1, Schedule 1, p. 3.

1 **Q. HAS I&E RECOMMENDED AN ADJUSTMENT TO THE LEVEL OF**
2 **INTERNALLY GENERATED FUNDS FOR THE FPFTY?**

3 A. Yes. Excluding DSIC revenue, I&E has included internally generated funds of
4 \$12,431,000.⁵ As discussed below, I&E's recommendation is due to the fact that
5 it is appropriate for PGW to move from its proposed 50 percent debt and 50
6 percent equity capital structure to a more debt-heavy capital structure.

7
8 **Q. WHAT IS THE FINANCING STRATEGY THE COMPANY HAS CHOSEN**
9 **FOR CAPITAL EXPENDITURES?**

10 A. Mr. Golden states that PGW has chosen a financing strategy of 50 percent debt
11 and 50 percent equity to fund its capital expenditures⁶ which is supported by
12 PGW's actual and estimated sources and uses of cash for capital expenditures set
13 out in its response to filing requirement II.A.5.⁷ Mr. Golden claims that debt
14 service on a bond issuance of \$100 million at a coupon rate of 4 percent would be
15 approximately \$7 million in debt service per year.⁸

16
17 **Q. WHAT CAPITALIZATION RATIO FOR CAPITAL EXPENDITURES**
18 **HAS THE COMMISSION DISCUSSED FOR PGW IN THE PAST?**

19 A. In 2015 the Commission released a Staff Report that conducted an inquiry into the
20 Company's pipeline replacement program, which stated, "As a municipally owned

⁵ I&E Exhibit No. 1, Schedule 1, p. 3.

⁶ PGW Statement No. 2, p. 15.

⁷ PGW Filing, Volume I(Part 2 of 3). Response to II.A.5.

⁸ PGW Statement No. 2, pp. 15-16.

1 utility, it is Staff's opinion that PGW can operate with a long-term debt-to-capital
2 ratio perhaps as high as 70 percent."⁹ The Staff Report discusses PGW's
3 opportunity to issue new debt because PGW's long term debt as a percentage of
4 PGW's total capitalization was projected to fall from 67.6 percent in 2015 to 56.4
5 percent in 2020. In addition, the Staff Report comments that financing capital
6 improvements with debt rather than with cash matches the recovery of the capital
7 expenditures with the useful life of the assets. Matching the life of the asset with
8 the life of the financing method allows the recovery of the cost of the asset to be
9 spread out over the life of the asset and causes all of the ratepayers who benefit
10 from the capital improvement to be responsible for its financing, not just the
11 ratepayers receiving service at the time the asset is purchased.

12
13 **Q. WHAT FINANCING STRATEGY DO YOU RECOMMEND FOR**
14 **CAPITAL EXPENDITURES?**

15 A. I recommend that PGW move towards a more debt-heavy capital structure. I
16 agree with the Staff Report that long-term debt better matches the life of the
17 assets. In addition, debt financing spreads the cost of capital improvements out,
18 causing less of an immediate burden for ratepayers.

⁹ Pennsylvania Public Utility Commission Staff Report: Inquiry into Philadelphia Gas Works' Pipeline Replacement Program, April 21, 2015, p. 6.

1 **Q. WHAT ADJUSTMENTS HAVE YOU MADE TO ACCOUNT FOR AN**
2 **INCREASE IN DEBT FINANCING FOR CAPITAL EXPENDITURES?**

3 A. I have included additional long-term debt of \$75 million, which according to
4 Mr. Golden¹⁰ would equate to additional debt service of \$5.25 million. Assuming
5 net proceeds are about 93 percent of the bond proceeds at par value, a \$75 million
6 debt issuance would result in a \$70 million increase in the capital improvement
7 fund. PGW currently plans to issue debt on July 1, 2017 and will have spent the
8 proceeds of that bond issuance for capital expenditures by fiscal year 2020.¹¹
9 Assuming the additional \$70 million is spent over 5 years, the amount of debt
10 financing will increase by \$14 million per year. If the total amount of capital
11 expenditures remains the same, this increase in debt financing will enable
12 ratepayers to pay \$14 million less per year through internally generated funds, so I
13 have adjusted the debt service coverage ratio to account for the decrease of
14 required income available after debt service.

15
16 **Q. WHAT WILL BE THE CAPITAL STRUCTURE FOR CAPITAL**
17 **IMPROVEMENT EXPENDITURES AS A RESULT OF THESE**
18 **CHANGES?**

¹⁰ PGW Statement No. 2, pp. 15-16.

¹¹ PGW Filing, Volume I(Part 2 of 3). Response to II.A.5 and II.A.6.

A. An increase of \$14 million in debt-funded capital expenditures and a decrease of \$14 million in internally generated funds for capital expenditures will result in the following changes to PGW's proposed capital structure:

	PGW Proposed ¹²	I&E Recommendation
Bond Proceeds	\$52,000	\$66,000
DSIC Surcharge	30,579	30,579
Internally Generated Funds	26,431	12,431
Total Sources	\$109,010	\$109,010
Percent Internally Generated Funds	52.3%	39.5%
Percent Debt Financing	47.7%	60.5%

COMPARISON TO OTHER COMPANIES

Q. WHAT IS PGW'S TESTIMONY REGARDING BENCHMARKING AND THE COMPARISON OF PGW TO OTHER COMPANIES?

A. PGW Statement No. 4, Direct Testimony of Frank C. Graves discusses the financial performance of PGW over the 2011 to 2015 time period and compares the Company to what Mr. Graves considers its peers. Mr. Graves claims, "Benchmarking assesses the significance of trends in performance by comparing metrics from PGW to those of similarly situated peers over time[.]"¹³

Q. WHAT GROUPS OF UTILITY PEERS HAS MR. GRAVES SELECTED?

A. Mr. Graves has selected three groups: Pennsylvania investor owned utilities (PA IOU), non-Pennsylvania investor owned utilities with aging urban infrastructures

¹² PGW Filing, Volume I(Part 2 of 3). Response to II.A.5.

¹³ PGW Statement No. 4, p. 3, lines 20-21.

1 (AU IOU), and a municipal utility group. Mr. Graves selects his peer groups
2 based on climate, company size, customer composition, infrastructure age, system
3 density, regulatory environment, and utility type. Each of his three groups
4 represents some of his criteria but none represent all seven criteria.¹⁴ Mr. Graves
5 states, “None of course are perfectly analogous to PGW, so I will comment on
6 some differences that remain that may affect the comparisons.”¹⁵
7

8 **Q. DO YOU AGREE THAT THE INVESTOR-OWNED UTILITY GROUPS**
9 **MR. GRAVES HAS CHOSEN ARE COMPARABLE TO PGW?**

10 A. No. Neither of Mr. Graves’ investor-owned utility groups is similar to PGW.
11

12 **Q. WHY ARE THE PA IOU GROUP AND THE AU IOU GROUP**
13 **INSUFFICIENTLY SIMILAR TO PGW?**

14 A. Neither the PA IOU group nor the AU IOU group chosen by Mr. Graves contains
15 municipal utilities. Even though there are some similarities in safety concerns,
16 PGW is not only under the jurisdiction of the Commission, but also operates under
17 the Philadelphia Facilities Management Corporation and the Philadelphia Gas
18 Commission. In addition, IOUs have a need to meet industry norms, including
19 capital structure norms, in order to continue to meet investor expectations and
20 continued access to the capital markets. Although, to some extent, PGW still has

¹⁴ PGW Statement No. 4, p. 10.

¹⁵ PGW Statement No. 4, p. 5, lines 1-2.

1 to meet expectations in order to gain access to capital markets, the differences are
2 clearly demonstrated in the capital structures of Mr. Graves' PA IOU and AU IOU
3 groups and PGW. For example, as previously discussed, the Commission has
4 stated that, in its opinion, PGW could handle a capitalization ratio with as high as
5 70 percent debt which far exceeds the PA IOU group average capital structure
6 ranging from 36 percent to 50 percent debt and the AU IOU group average capital
7 structure ranging from 30 percent to 49 percent debt.¹⁶ As discussed by Mr.
8 Graves, municipalities in general carry a higher level of debt than IOUs.¹⁷ The
9 differences between an IOU and a municipality that cause PGW to be able to bear
10 a higher debt burden than the average IOU also causes PGW to be insufficiently
11 similar to an IOU.

12
13 **Q. DO YOU AGREE WITH MR. GRAVES' USE OF A MUNICIPAL UTILITY**
14 **GROUP?**

15 A. Yes, but only because PGW's situation as a large, municipal gas distribution
16 system, which is regulated by the Commission, is so unique that no better
17 comparison exists. PGW's position as both the largest municipally-owned gas
18 distribution utility in the nation¹⁸ and a municipally-owned utility that has its rates
19 regulated by the Commission are factors that combined, make it difficult to find a
20 group of similar utilities. Below I have used Moody's Investor Service rating

¹⁶ PGW Statement No. 4, p. 32.

¹⁷ PGW Statement No. 4, p. 32.

¹⁸ PGW Statement No. 2, Exhibit JFG-3, August 8, 2016 Fitch Rating.

1 methodology for U.S. municipal utility revenue debt to evaluate both PGW's
2 current position and I&E's proposed rates. The utilities covered by Moody's
3 methodology and the entities included in Mr. Graves' municipal group both
4 include utilities that provide service other than natural gas distribution and operate
5 under varying regulatory structures. However, PGW's situation is unique to the
6 extent that I am unaware of a group of companies more comparable than other
7 municipal utilities.

8
9 **Q. HOW DOES PGW'S RATING COMPARE TO OTHER MUNICIPAL**
10 **UTILITIES?**

11 A. Mr. Graves concludes that PGW's rating falls at the low end when compared to its
12 peers.¹⁹ Although many of the individual financial metrics that I have evaluated
13 and discussed below place PGW into a higher rating than what it currently
14 receives, PGW's current Moody's rating of Baa1 places the Company at the low
15 end of Moody's municipal utility rating distribution.²⁰

16
17 **RATING AGENCIES**

18 **Q. HOW DO THE RATING AGENCIES EVALUATE THE CREDIT**
19 **QUALITY OF MUNICIPAL REVENUE BONDS?**

¹⁹ PGW Statement No. 4, p. 28, lines 25-28.

²⁰ I&E Exhibit No. 1, Schedule 2, p. 4.

1 A. Moody's has published rating methodology for U.S. municipal utility revenue debt
2 that states, "[t]he primary factors that drive our credit analysis for these types of
3 utilities are the size and health of the system and its service area, the financial
4 strength of its operations, the legal provisions governing its management, and the
5 strength of its rate management and regulatory compliance."²¹ S&P has published
6 rating criteria for U.S. public finance, government operated, electric and gas
7 utilities. The criteria state that S&P ratings "embody the interplay between eight
8 variables: management, operations, competitive position, markets, regulation,
9 service area economy, finances and legal provisions."²² Fitch, in its rating criteria
10 for revenue-supported obligations and entities in the public finance sector states
11 that their criteria are "organized into four broad categories of analytical focus:
12 governance and management; operational profile; debt profile and financial
13 profile."²³
14

15 **Q. WHAT ARE THE RATINGS FOR PGW'S BONDS?**

16 A. Moody's has rated the outstanding 1998 Ordinance bonds Baa1. S&P Global has
17 assigned a rating of A, and Fitch has assigned a rating of BBB+ to the revenue
18 bonds issued under the 1998 General Ordinance. The rating agencies cite, among
19 others, the following credit strengths: an effective and supportive relationship
20 between PGW and the Commission, low natural gas costs, strong debt service

²¹ I&E Exhibit No. 1, Schedule 2, p. 1.

²² *Criteria | Governments | U.S. Public Finance: Electric and Gas Utility Ratings*. Standard & Poor's Ratings Services, 2014.

²³ *Public Finance: Revenue-Supported Rating Criteria*. Fitch Ratings, 2014.

1 coverage, and recent financial improvement. S&P states, “Although these
2 projections assume PAPUC approval of PGW’s expected \$40 million base-rate
3 increase request for fiscal 2018, we believe coverage levels will continue to
4 support the higher rating even if the utility does not receive full approval of its
5 request.”²⁴ The rating agencies state the following as credit challenges: weak
6 service area demographics, above average retail rates, and high system leverage.²⁵
7

8 **Q. WHAT FINANCIAL METRICS DO THE RATING AGENCIES**
9 **CONSIDER?**

10 A. Although all three ratings agencies (Moody’s, S&P, and Fitch) review many of the
11 same categories of information, I was only able to find expectations for each rating
12 category included in Moody’s methodology.²⁶ For the FPFTY, I calculated six of
13 Moody’s rating factors, which makes up approximately 70% of Moody’s critical
14 factors for analysis.²⁷
15

16 **Q. HOW WOULD PGW BE RATED FOR EACH FACTOR UNDER**
17 **PRESENT RATES?**

18 A. For present rates during the FPFTY, of the six factors, all were above PGW’s Baa
19 rating. According to Moody’s criteria, PGW’s system size and ratio of debt to
20 operating revenues fall within the Aaa rating. PGW’s asset condition falls within

²⁴ PGW Statement No. 2, Exhibit JFG-3, S&P Credit Profile, August 20, 2016, pp. 4-5.

²⁵ PGW Statement No. 2, Exhibit JFG-3.

²⁶ I&E Exhibit No. 1, Schedule 2.

²⁷ I&E Exhibit No. 1, Schedule 3.

1 the Aa category, and service area wealth, days cash on hand, and the annual debt
2 service coverage fall within the A rating category.²⁸

3
4 **Q. HOW WOULD PGW BE RATED FOR EACH FACTOR UNDER I&E'S**
5 **PROPOSED RATES?**

6 A. Under I&E's proposed rates all six factors were above PGW's Baa rating and
7 remain in the A to Aaa categories.²⁹ Commission regulations at 52 Pa. Code
8 §69.2703(a)(5) state that the Commission should consider the level of financial
9 performance needed to maintain or improve PGW's bond rating and according to
10 Moody's criteria, I&E's proposed rates would meet or improve PGW's bond
11 rating for all factors evaluated.

12
13 **Q. WHAT IS PGW'S TESTIMONY REGARDING DAYS OF CASH ON**
14 **HAND?**

15 A. Mr. Golden states that PGW projects to have about 36 days of cash on hand in the
16 FPFTY, and states that in Exhibit JFG-3, the bond rating agencies indicate that a
17 days of cash on hand balance of 70 to 90 days is adequate to maintain its existing
18 bond rating.³⁰ Mr. Hartman claims that PGW had cash on hand equating to 54
19 days in fiscal year 2012 and 77 days in fiscal year 2016. In addition, he claims

²⁸ I&E Exhibit No. 1, Schedule 3.

²⁹ I&E Exhibit No. 1, Schedule 3.

³⁰ PGW Statement No. 2, p. 12.

1 that the rating agency median for A to AAA rating municipal utilities is 150 days
2 of cash on hand.³¹
3

4 **Q. DO YOU AGREE WITH PGW'S CASH ON HAND ASSESSMENT?**

5 A. No. The Moody's Credit Opinion of August 8, 2016 included in PGW Exhibit
6 JFG-3 does not recommend days of cash on hand of 70-90 days but rather
7 estimates that PGW will likely remain in that range. Moody's states that the
8 "forecast for days liquidity on hand will likely remain in the 110-150 days range
9 with direct cash liquidity remaining in the 70 to 90 days range, depending on the
10 amount of excess cash flow or commercial paper used to fund capital
11 investments."³² The August 10, 2016 S&P Credit Profile included in PGW
12 Exhibit JFG-3 references PGW's "good liquidity" as a credit strength and
13 measures PGW's \$114 million in unrestricted cash as an "adequate" 76 days of
14 operating expenses.
15

16 **Q. WHAT ARE THE RANGES OF DAYS OF CASH ON HAND DESCRIBED**
17 **BY MOODY'S IN ITS RATING METHODOLOGY?**

³¹ PGW Statement No. 3, p. 8.

³² PGW Statement No. 2, Exhibit JFG-3.

1 A. Moody's weights the day's cash on hand factor as 15% of its methodology and for
2 each rating category sets the following range:

Aaa Greater than 250 days

Aa Greater than or equal to 150 days but less than 250 days.

A Greater than or equal to 35 days but less than 150 days.

Baa Greater than or equal to 15 days but less than 35 days.³³

3
4 **Q. WHAT IS PGW'S DAYS OF CASH ON HAND AT PRESENT RATES,**
5 **PGW'S PROPOSED RATES, AND I&E'S PROPOSED RATES?**

6 A. PGW's present rates result in approximately 36 days of cash on hand for the
7 FPFTY. PGW's proposed rates would result in approximately 86 days of cash on
8 hand³⁴ while I&E's proposed rates would result in approximately 82 days of cash
9 on hand.³⁵ Therefore, despite the fact that PGW is currently rated Baa, its days of
10 cash on hand under present rates and both PGW and I&E's proposed rates falls
11 within the A rating category.

12
13 **DEBT SERVICE COVERAGE RATIO**

14 **Q. WHAT IS THE COMPANY'S CLAIMED DEBT SERVICE COVERAGE**
15 **RATIO?**

³³ I&E Exhibit No. 1, Schedule 2, p. 12.

³⁴ PGW Statement No. 2, Exhibit JFG-2: Days cash on hand measured using the same calculation as is indicated in PGW Statement No. 2, p. 12, footnote 8: Total Operating Expenses, less non-cash items, depreciation, and amortized pensions, divided by 365 days, and then dividend into cash balance.

³⁵ I&E Exhibit No. 1, Schedule 1, p.1.

1 A. Mr. Golden claims that PGW needs coverage at 2.0x and above in order to meet
2 its obligations throughout the year including the city payment, pensions, other
3 post-employment benefits (OPEBs), capital funding from internally generated
4 funds, and additional funds for working capital.³⁶ PGW's proposed rates produce
5 a debt service coverage ratio of 2.16x before the \$18 million city payment and
6 1.99x or \$220 million for the FPFTY.³⁷ PGW states that its proposed debt service
7 coverage ratio would cover \$18 million for the payment to the city, \$18.5 million
8 in OPEBs, and \$33 million of cash for capital improvements through the
9 distribution system improvement charge.³⁸

10
11 **Q. DO YOU AGREE WITH PGW'S CLAIMED DEBT SERVICE COVERAGE**
12 **RATIO?**

13 A. No. PGW has set its net income available for debt service so as to be sufficient to
14 cover its city payment, OPEBs, capital funding from internally generated funds,
15 additional funds for working capital, and pensions. As explained by I&E witness
16 Christopher Keller in I&E Statement No. 2, the \$3 million pension adjustment
17 should not be included in PGW's net income available for debt service. In
18 addition, as previously discussed, I recommend an increase in debt financing and
19 therefore have included a decrease in internally generated funds in net income
20 after debt service.

³⁶ PGW Statement No. 2, p. 13, lines 14-18.

³⁷ PGW Statement No. 2, Exhibit JFG-2.

³⁸ PGW Statement No. 3, p 7.

1 **Q. WHAT IS YOUR RECOMMENDATION FOR PGW'S DEBT SERVICE**
2 **COVERAGE RATIO?**

3 A. I recommend a debt service coverage ratio of 1.82x before the \$18 million city
4 payment or 1.65x after the payment.³⁹

6 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

7 A. PGW's bond covenant requires a debt service coverage ratio of 1.5x. I&E's
8 recommended coverage ratio of 1.82x exceeds what is required by PGW's bond
9 covenant and equates to a net income available for debt service of \$194,501,000,
10 which provides coverage for the following:

Debt Service	\$106,970,000
City Payment	\$18,000,000
OPEBs	\$18,500,000
Retiree Health Care	\$5,000,000
Internally Generated Funds	\$12,431,000
DSIC	\$30,579,000
Working Capital	\$3,021,000

11
12 PGW's \$18 million city payment and its need to fund OPEBs, capital
13 improvements, and working capital are all obligations that are not recovered as
14 operating and maintenance expenses but are required in order for PGW to serve its
15 customers. If the debt service coverage ratio were to be set at 1, PGW would
16 recover funds sufficient to cover its operating expenses and debt service
17 requirements but would not enable PGW to recover funds for expenses it is

³⁹ I&E Exhibit No. 1, Schedule 1, pp. 1 and 4.

1 obligated to meet. A debt service coverage ratio of 1.82x provides the coverage
2 required to fund both operating expenses and PGW's other obligations.

3

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes.

RACHEL A. MAURER
PROFESSIONAL EXPERIENCE AND EDUCATION

EMPLOYMENT:

Fixed Utility Financial Analyst 2011 – Present	PA Public Utility Commission Bureau of Investigation & Enforcement
Tax Technician 2008 – 2011	PA Department of Labor and Industry Unemployment Compensation Tax Services

EDUCATION/CERTIFICATION:

Lebanon Valley College, B.S. Accounting – 2007

Society of Utility and Regulatory and Financial Analysts
Certified Rate of Return Analyst (CRRRA) – May 2015

Advanced Regulatory Studies Program
Michigan State University – 2013

National Association of Regulatory Utility Commissioners Utility Rate School Michigan
State University – 2012

TESTIMONY SUBMITTED:

Docket No. R-2016-2580030 – UGI Penn Natural Gas, Inc.
Docket No. R-2016-2554150 – City of Dubois – Bureau of Water
Docket No. A-2016-2546450 – PECO Energy Company
Docket No. R-2016-2529660 – Columbia Gas of PA
Docket No. R-2016-2537349 – Metropolitan Edison Company
Docket No. R-2016-2537352 – Pennsylvania Electric Company
Docket No. R-2016-2537355 – Pennsylvania Power Company
Docket No. R-2016-2537359 – West Penn Power Company
Docket No. P-2015-2501500 – Philadelphia Gas Works
Docket No. R-2015-2518438 – UGI Utilities, Inc. - Gas Division
Docket No. R-2015-2468056 – Columbia Gas of PA
Docket No. R-2015-2462723 – United Water Pennsylvania Inc.
Docket No. P-2014-2459362 – Philadelphia Gas Works
Docket No. R-2014-2428745 – Metropolitan Edison Company
Docket No. R-2014-2428744 – Pennsylvania Power Company
Docket No. R-2014-2428743 – Pennsylvania Electric Company
Docket No. R-2014-2428742 – West Penn Power Company
Docket No. R-2014-2438304 – Borough of Hanover – Hanover Municipal Water Works

RACHEL A. MAURER
PROFESSIONAL EXPERIENCE AND EDUCATION

TESTIMONY SUBMITTED (CONTINUED):

Docket No. R-2014-2406274 – Columbia Gas of PA
Docket No. R-2014-2370455 – Penn Estates Utilities, Inc.
Docket No. R-2013-2390244 – City of Bethlehem
Docket No. R-2013-2360798 – Columbia Water Company
Docket No. R-2013-2355886 – Peoples TWP
Docket No. R-2013-2351073 – Columbia Gas of PA 1307(f)
Docket No. R-2013-2341534 – National Fuel Gas Distribution Corp. 1307(f)
Docket No. R-2012-2336379 – York Water Company
Docket No. R-2012-2321748 – Columbia Gas of PA

I&E Exhibit No. 1 **AMENDED**
Witness: Rachel Maurer

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Exhibit to Accompany

the

Direct Testimony

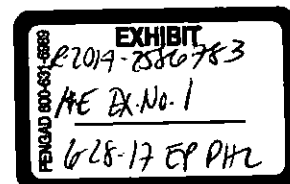
of

Rachel Maurer

Bureau of Investigation & Enforcement

Concerning:

**Financial Metrics
Revenue Requirement**



Philadelphia Gas Works R-2017-2586783
I&E Overall Position
(dollars in thousands)

I&E Exhibit No. 1
Schedule I
Page 1 of 6

	I&E				
	Proforma Present Rates	Adjustments	Present Rates	Allowances	Proposed
Funds Provided					
Operating Revenue	\$ 627,013	\$ 1,192	\$ 628,205	\$ 33,802	\$ 662,007
Other Income	1,707		1,707		1,707
AFUDC	920		920		920
Total Funds Provided	629,640	1,192	630,832	33,802	664,634
Funds Applied					
Operating Expenses	554,527	(7,684)	546,843	1,505	548,348
Less: Non-Cash Expenses	78,214		78,214		78,214
Total Funds Applied	476,313	(7,684)	468,629	1,505	470,134
Income Available for Debt Service	<u>\$ 153,327</u>	<u>\$ 8,876</u>	<u>\$ 162,203</u>	<u>\$ 32,297</u>	<u>\$ 194,501</u>
1998 Ordinance Debt Service	\$ 101,720	\$ 5,250	\$ 106,970		\$ 106,970
Debt Service Coverage	1.51		1.52		1.82
Payment to City	\$ 18,000		\$ 18,000		\$ 18,000
Debt Service Coverage After Payment	1.33		1.35		1.65
Days Cash on Hand	35.9		57.8		82.2
Uncollectibles	4.453%				

*Stated bad debt expense rate is 4% (PGW St 2, page 20).

Philadelphia Gas Works R-2017-2586783

Income Statement
(in thousands)

	FTY 2016-17	FPFTY 2017-18	I&E Adjustments	I&E Present Rates	I&E Allowances	I&E Proposed Rates
Total Operating Revenues	\$ 625,116	\$ 627,013	\$ 1,192	\$ 628,205	\$ 33,802	\$ 662,007
OPERATING EXPENSES						
Natural Gas	176,731	184,960		184,960		184,960
Other Raw Material	10	10		10		10
Sub-Total Fuel	176,741	184,970	-	184,970		184,970
CONTRIBUTION MARGINS	448,375	442,043	1,192	443,235		477,037
Sub-Total Other Operating & Maintenance	337,805	322,377	(7,684)	314,693	1,505	316,198
Depreciation	48,842	50,596		50,596		50,596
Cost of Removal	4,100	4,100		4,100		4,100
To Clearing Accounts	(6,771)	(7,516)		(7,516)		(7,516)
Net Depreciation	46,171	47,180	-	47,180		47,180
Sub-Total Other Operating Expenses	383,976	369,557	(7,684)	361,873	-	363,378
TOTAL OPERATING EXPENSES	560,717	554,527	(7,684)	546,843	1,505	548,348
OPERATING INCOME	64,399	72,486	8,876	81,362		113,659
Interest Gain / (Loss) and Other Income	2,898	3,031	-	3,031		3,031
INCOME BEFORE INTEREST	67,297	75,517	8,876	84,393		116,690
INTEREST						
Long-Term Debt	44,834	49,160	-	49,160		49,160
Other	(4,059)	(6,893)	-	(6,893)		(6,893)
AFUDC	(1,136)	(920)	-	(920)		(920)
Loss From Extinguishment of Debt	6,081	5,666	-	5,666		5,666
Total Interest	45,720	47,013	-	47,013		47,013
NET INCOME	21,577	28,504	8,876	37,380		69,677
City Payment	18,000	18,000		18,000		18,000
NET EARNINGS	\$ 3,577	\$ 10,504	\$ 8,876	\$ 19,380		\$ 51,677

*Financial statements are a modified version of PGW Exhibit JFG-1, original electronic copy provided as a response to I&E-RE-1D.

Philadelphia Gas Works R-2017-2586783
Cash Flow Statement
(in thousands)

	FTY 2016-17	FPFTY 2017-18	I&E Adjustments	I&E Present Rates	I&E Allowances	I&E Proposed Rates
SOURCES						
Net Income	\$ 21,577	\$ 28,504	\$ 8,876	\$ 37,380		\$ 69,677
Depreciation & Amortization	45,049	47,000	-	47,000		47,000
Earnings on Restricted Funds Withdrawal/(No Withdrawal)	(1,663)	(1,324)	-	(1,324)		(1,324)
Elimination of Accrued Interest on Refunded Debt		-	-	-		-
Equity Bond / Debt Reduction		-	-	-		-
Proceeds from Bond Refunding to Pay Cost of Issuance	2,700	-	5,000	5,000		5,000
Increased/(Decreased) Other Assets/Liabilities	29,078	(5,274)	-	(5,274)		(5,274)
Available From Operations	96,741	68,906	13,876	82,782		115,079
Drawdown of Bond Proceeds	65,000	52,000	14,000	66,000		66,000
Grant Income	-	-	-	-		-
Lease Funds Debt Service	-	-	-	-		-
Capitalized Interest	-	-	-	-		-
Release of Restricted Fund Asset	-	-	-	-		-
Release of Bond Proceeds to Pay Temporary Financing	71,000	-	-	-		-
Temporary Financing	-	-	-	-		-
TOTAL SOURCES	\$ 232,741	\$ 120,906	\$ 27,876	\$ 148,782		\$ 181,079
USES						
Net Construction Expenditures	132,632	109,010	-	109,010		109,010
Funded Debt Reduction:	-	-	-	-		-
Revenue Bonds	34,790	51,834	-	51,834		51,834
Revenue Bond Subordinate Debt	-	-	-	-		-
Capital Lease	-	-	-	-		-
Equity Bond Contribution/ Debt Reduction	-	-	-	-		-
Temporary Financing Repayment	71,000	-	-	-		-
Distribution of Earnings	18,000	18,000	-	18,000		18,000
Additions To (Reductions of)						
Non-Cash Working Capital	(37,738)	188	-	188		188
Cash Needs	218,684	179,032	-	179,032		179,032
Cash Surplus (Shortfall)	14,057	(58,126)	27,876	(30,250)		2,047
TOTAL USES	\$ 232,741	\$ 120,906	\$ 27,876	\$ 148,782		\$ 181,079
Cash - Beginning of Period	91,743	105,800		105,800		105,800
Cash - Surplus (Shortfall)	14,057	(58,126)		(30,250)		2,047
ENDING CASH	\$ 105,800	\$ 47,674		\$ 75,550		\$ 107,847
Outstanding Commercial Paper	-	-	-	-		-
Outstanding Commercial Paper - Capital	-	-	-	-		-
DSIC Revenue	32,541	30,579	-	30,579		30,579
Internally Generated Funds	35,091	26,431	(14,000)	12,431		12,431
TOTAL IGF + Incremental DSIC Revenue	67,632	57,010	(14,000)	43,010		43,010

*Financial statements are a modified version of PGW Exhibit JFG-1, original electronic copy provided as a response to I&E-RE-1D.

Philadelphia Gas Works R-2017-2586783
Debt Service Coverage
(in thousands)

I&E Exhibit No. 1
Schedule 1
Page 4 of 6

	FTY	FPFTY	I&E	I&E	I&E
	2016-17	2017-18	Adjustments	Present Rates	Proposed Rates
FUNDS PROVIDED					
Total Operating Revenues	\$ 625,116	\$ 627,013	\$ 1,192	\$ 628,205	\$ 662,007
Other Income Incr. / (Decr.) Restricted Funds	1,235	1,707	-	1,707	1,707
City Grant	-	-	-	-	-
AFUDC (Interest)	1,136	920	-	920	920
TOTAL FUNDS PROVIDED	627,487	629,640	1,192	630,832	664,634
FUNDS APPLIED					
Fuel Costs	176,741	184,970	-	184,970	184,970
Other Operating Costs	383,976	369,557	(7,684)	361,873	363,378
Total Operating Expenses	560,717	554,527	(7,684)	546,843	548,348
Less: Non-Cash Expenses	92,630	78,214	-	78,214	78,214
TOTAL FUNDS APPLIED	468,087	476,313	(7,684)	468,629	470,134
Funds Available to Cover Debt Service	159,400	153,327	8,876	162,203	194,501
1975 Ordinance Bonds Debt Service	-	-	-	-	-
Debt Service Coverage 1975 Bonds	-	-	-	-	-
Net Available after Prior Debt Service	159,400	153,327	8,876	162,203	194,501
Equipment Leasing Debt Service	-	-	-	-	-
Net Available after Prior Capital Leases	159,400	153,327	8,876	162,203	194,501
1998 Ordinance Bonds Debt Service	66,868	101,720	5,250	106,970	106,970
1999 Ordinance Subordinate Bonds Debt Service - (TXCP)	-	-	-	-	-
Total 1998 Ordinance Debt Service	\$ 66,868	\$ 101,720	5,250	\$ 106,970	\$ 106,970
Debt Service Coverage 1998 Bonds	2.38	1.51		1.52	1.82
Net Available after 1998 Debt Service	\$ 92,532	\$ 51,607	\$ 3,626	\$ 55,233	\$ 87,531
1998 Ordinance Subordinate Bond Debt Service	-	-	-	-	-
Debt Service Coverage Subordinate Bonds	-	-	-	-	-
Aggregate Debt Service	\$ 66,868	\$ 101,720	5,250	\$ 106,970	\$ 106,970
Debt Service Coverage (Combined liens)	2.38	1.51		1.52	1.82
	\$ 18,000	\$ 18,000	-	\$ 18,000	\$ 18,000
Debt Service Coverage (Combined liens with \$18.0 City Fee)	2.11	1.33		1.35	1.65

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Philadelphia Gas Works R-2017-2586783
Non-Cash Expenses
(in thousands)

	FTY 2016-17	FPFTY 2017-18	I&E Adjustments	I&E Present Rates	I&E Allowances	I&E Proposed Rates
DETAIL OF NON-CASH EXPENSES						
Depreciation on Historical Cost of Removal	\$ 48,842	\$ 50,596	\$ -	\$ 50,596		\$ 50,596
	4,100	4,100	-	4,100		4,100
	90.02%	88.11%	0.00%	88.11%		88.11%
Depreciation to Cleaning Accounts	(6,771)	(7,516)	-	(7,516)		(7,516)
Depreciation from MOAK Schedule	6,095	6,622	-	6,622		6,622
Depreciation to Capital	(676)	(894)	-	(894)		(894)
Total Depreciation	52,266	53,802	-	53,802		53,802
Gas Commission Expenses	955	965		965		965
City Payments	857	874		874		874
Sale Assessment Expenses	-	-		-		-
Other Post Employment Benefits	-	-		-		-
Pension Amortization of Unfunded Liability - GASB 68	38,552	22,573	-	22,573		22,573
Swap Option / GIC Proceeds	-	-		-		-
Total Non-Cash Expenses	92,630	78,214	-	78,214		78,214
DETAIL OF DEPRECIATION & AMORTIZATION						
Depreciation	48,842	50,596	-	50,596		50,596
Amortization Capital Lease	-	-	-	-		-
Discount, Premium & Issuance Expense	(9,874)	(9,262)	-	(9,262)		(9,262)
Extraordinary Loss	6,081	5,666	-	5,666		5,666
TOTAL	45,049	47,000	-	47,000		47,000
CHANGE OTHER ASSETS & LIABILITIES - SHOWN AS SOURCE OF CASH						
(Increase) Decrease Other Assets	30,429	27,071		27,071		27,071
Increase (Decrease) Other Liabilities	(1,351)	(32,345)		(32,345)		(32,345)
TECA Accretions - Payments	-	-		-		-
TECA Accretions	-	-		-		-
TOTAL	29,078	(5,274)	-	(5,274)		(5,274)
Total Other Assets & Liabilities - Increase / (Decrease)	29,078	(5,274)	0	(5,274)		(5,274)
TRANSFERS FROM INTEREST SCHEDULE						
Long Term Interest Accrued	44,834	49,160		49,160		49,160
Other Interest	(4,059)	(6,893)		(6,893)		(6,893)
Extraordinary Loss	6,081	5,666		5,666		5,666
Senior Revenue Bond Principal Paid	34,790	51,834		51,834		51,834
Total 1975 Revenue Bond Debt Service	-	-		-		-
Total 1998 Revenue Bond Debt Service	66,868	101,720	5,250	106,970		106,970
Revenue Bond Discount	45	50		50		50
Discount & Insurance & Premium	(9,874)	(9,262)		(9,262)		(9,262)
1998 Subordinate Bond Principal	-	-		-		-
1998 Subordinate Bond Total Debt Serv	-	-		-		-
Additional Debt Payment - Principal	-	-		-		-
Defease Debt - Principal	-	-		-		-
New Bond Sale	-	-		-		-
New Bond Premium	-	-		-		-
New Bond Discount	-	-		-		-
TECAS Interest Accruals	-	-		-		-
TECAS Interest Payments	-	-		-		-
Equipment Leasing Principal \$23	-	-		-		-
Equipment Leasing Interest \$20	-	-		-		-
Total \$23M Capital Lease	-	-		-		-
	138,685	192,275	5,250	197,525		197,525
TRANSFERS FROM OTHER INCOME						
Total Other Income	2,898	3,031		3,031		3,031
AFUDC - Interest	(1,136)	(920)		(920)		(920)
Capital Drawdown	65,000	52,000	14,000	66,000		66,000
Capital Spending	132,632	109,010		109,010		109,010
DSIC Spending/Revenue	32,541	30,579		30,579		30,579
OPEB Liability	6,632	31,028		31,028		31,028
Pension - Extra Contribution	2,790	1,971		1,971		1,971
Pension Expenses - GASB 68	35,762	22,573		22,573		22,573
RESTRICTED FUNDS	(1,663)	(1,324)		(1,324)		(1,324)
Non-Cash Working Capital	(37,738)	188		188		188
OTHER DATA						
Commercial Paper Fees	-	-		-		-
Ending Cash Balance	\$ 105,800	\$ 47,674	\$ -	\$ 75,550		\$ 107,847

*Financial statements are a modified version of PGW Exhibit JFG-1, original electronic copy provided as a response to I&E-RE-1D. The Statement of Non-Cash Expenses was not part of Exhibit JFG-1 but was included in the electronic copy of the exhibit.

Philadelphia Gas Works R-2017-2586783

Balance Sheet
(in thousands)

I&E Exhibit No. 1

Schedule 1

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	FTY BUDGET 8/31/17	FPFTY FORECAST 8/31/18	I&E Adjustments	I&E Proposed FPFTY 8/31/18
ASSETS				
Utility Plant Net	\$ 1,368,600	\$ 1,427,014		\$ 1,427,014
Sinking Fund Reserve	105,196	106,253		106,253
Capital Improvement Fund	113,603	61,864	56,000	117,864
Workers' Compensation Fund & Health Insurance Escrow	2,610	2,616		2,616
Cash	105,800	47,674		107,847
Accounts Receivable:				
Gas	136,100	132,838		132,838
Other	1,500	1,525		1,525
Accrued Gas Revenues	5,041	5,356		5,356
Reserve for Uncollectible	(71,890)	(70,389)		(70,389)
Total Accounts Receivable:	70,751	69,330		69,330
Materials & Supplies	47,005	49,220		49,220
Other Current Assets	455	459		459
Deferred Debits	4,782	4,987		4,987
Unamortized Bond Issuance Expense	393	341		341
Unamortized Loss on Reacquired Debt	47,865	42,199		42,199
Deferred Environmental	28,767	28,767		28,767
Deferred Pension Outflows	41,908	13,952		13,952
Other Assets	39,720	40,604		40,604
TOTAL ASSETS	\$ 1,977,455	\$ 1,895,280		\$ 2,011,453
EQUITY & LIABILITIES				
City Equity	30,427	40,931		82,104
Revenue Bonds	1,073,041	1,021,208	75,000	1,096,208
TECA Accretions				
Unamortized Discount	(875)	(825)		(825)
Unamortized Premium	78,667	69,303		69,303
Long Term Debt	1,150,833	1,089,686		1,164,686
Notes Payable	-	-		-
Accounts Payable	56,084	57,221		57,221
Customer Deposits	3,000	2,870		2,870
Other Current Liabilities	4,930	4,932		4,932
Pension Liability	291,253	285,870		285,870
Deferred Credits	2,091	4,497		4,497
Deferred Pension Inflows	-	-		-
Accrued Interest	15,564	14,839		14,839
Accrued Taxes & Wages	5,975	4,100		4,100
Accrued Distribution to City	3,000	3,000		3,000
Other Liabilities	414,298	387,334		387,334
TOTAL EQUITY & LIABILITIES	\$ 1,977,455	\$ 1,895,280		\$ 2,011,453
CAPITALIZATION				
Total Capitalization	1,181,260	1,130,617		1,246,790
Total Long Term Debt	1,150,833	1,089,686		1,164,686
Debt to Total Capital Ratio	97.42%	96.38%		93.41%
Capitalization Ratio	37.82	26.62		14.19
Total Capitalization Excluding Leases	1,181,260	1,130,617		1,246,790
Total Long Term Debt Excluding Leases	1,150,833	1,089,686		1,164,686
Debt to Total Capital Ratio	0.974	0.964		0.934
Plant in Service	2,252,163	2,384,795		2,384,795
Capital - 106&107	132,632	109,010		109,010
Total Plant	2,384,795	2,493,805		2,493,805
Accumulated Depreciation	(1,016,195)	(1,066,791)		(1,066,791)
Net Utility Plant	\$ 1,368,600	\$ 1,427,014		\$ 1,427,014

*Financial statements are a modified version of PGW Exhibit JFG-1. original electronic copy provided as a response to I&E-RE-1D.



RATING METHODOLOGY US Municipal Utility Revenue Debt

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This methodology explains how Moody's evaluates the credit quality of essential service US municipal utility revenue bonds. The approach described in the methodology applies to six basic categories of municipal utilities¹: water distribution, gas distribution, electric distribution, sanitary sewerage, stormwater disposal, and solid waste disposal.

The primary factors that drive our credit analysis for these types of utilities are the size and health of the system and its service area, the financial strength of its operations, the legal provisions governing its management, and the strength of its rate management and regulatory compliance.

We intend for this methodology to help investors, municipalities, utilities, and other interested market participants understand how key quantitative and qualitative risk factors are likely to affect ratings in the municipal utility sector. This document does not offer an exhaustive treatment of all factors that are reflected in our ratings, but should enable the reader to understand the considerations that are usually most important for ratings in this sector.

This methodology updates and replaces two methodologies governing our municipal utility revenue ratings: the Analytical Framework for Water and Sewer System Ratings, August 1999, and US Public Power Electric Utilities, April 2008. While reflecting many of the same core principles that we have used in assigning ratings to this sector for years, this updated methodology introduces a scorecard that quantifies several factors that we previously evaluated in qualitative ways. A modest number of ratings are expected to change as a result of the implementation of this methodology.

The purpose of the scorecard is to provide a reference tool that market participants can use to approximate most credit profiles within the US municipal utility sector. The scorecard provides summarized guidance for the factors that we generally consider most important in assigning ratings to these issuers. However, the scorecard is a summary that does not include every rating consideration. The weights the scorecard shows for each factor represent an approximation of their importance for rating decisions. In addition, the scorecard was built based on historical results, while our ratings are based on forward-looking expectations. As a result, we would not expect the scorecard-indicated rating to match the actual rating in every case.

THIS REPORT WAS REPUBLISHED ON 12/16/2014 REMOVING REFERENCES TO RATINGS THAT HAD BEEN WITHDRAWN.

¹ The methodologies used to assign ratings to municipal utility districts, global regulated water utilities, regulated electric and gas utilities, electric generation and transmission cooperatives, and waste-to-energy projects can be found in the methodology index on moodys.com.

Introduction

This methodology covers debt secured by the revenues generated by US municipal utilities providing monopolistic services essential to public health and functional economies.

The security for a municipal utility revenue bond is typically defined in a bond resolution or a trust indenture, which acts as a contract between the utility and its bondholders. The resolution or indenture most often identifies the bond's security as a lien on the net revenues of the system after the payment of regular operating and maintenance expenses.

The sector is varied and fragmented. US municipal utilities provide many different services whose rates or fees can secure debt. The utilities rated under this methodology mostly fall into one or more of six basic categories:

- 1) **Water utilities** take water from the ground, a river, a lake, or in special cases the ocean, treat it to a potable standard, and distribute it to customers for drinking, cleaning, and commercial, industrial, or agricultural uses. These utilities can be involved in any or all of the functions of water supply: water treatment, long-distance transmission, and retail water distribution. Some water utilities have no treatment capacity and purchase potable water wholesale.
- 2) **Gas utilities** take natural gas from a wholesale² pipeline, odorize it for safety detection, and pressurize it and deliver it to customers through a pipe network for uses such as heating, cooking, or commercial and industrial applications. Some municipal gas systems may encompass their own natural gas supplies.
- 3) **Electric utilities** purchase electricity³ from wholesale suppliers and deliver it to residential, commercial, and industrial customers for a wide range of power uses.
- 4) **Sanitary sewer** utilities collect and treat wastewater, discharging it into a waterway or injecting it underground, and landfilling or incinerating the residual sludge. Some sewer utilities with no treatment capacity gather wastewater and transmit it to another utility that treats it.
- 5) **Stormwater** utilities collect and treat rainwater before discharging it into a body of water such as an ocean or a river. While every city or county addresses stormwater drainage as an integral element of its streets and highways, the stormwater systems that require capital markets financing are typically large in scale and are necessary to avert flooding from heavy seasonal rainfall in hilly areas.
- 6) **Solid waste** utilities collect residential or commercial refuse and dispose of it through landfills, waste-to-energy plants, or other waste-disposal processes. A solid waste system can be complete or collection-only, relying on another municipal or private entity for long-haul removal and disposal through landfill or incineration.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history

² This methodology covers gas distribution utilities. These utilities purchase their supply from providers covered under the Regulated Electric and Gas Utilities methodology, or other providers.

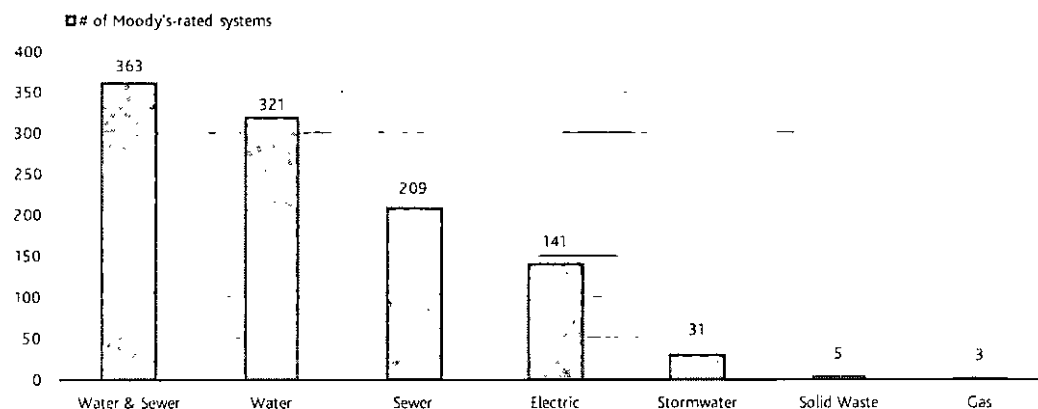
³ Only those municipal electric utilities that generate less than 20% of their own power are covered by this methodology. For more information on how we rate electric generation utilities, see US Public Power Electric Utilities with Generation Ownership Exposure and US Municipal Joint Action Agencies.

Defining the municipal utility universe

This methodology covers essential-service utilities that operate as departments, boards, or independent authorities of US states or local governments. We rate approximately 1,100 utilities in this category (see Exhibit 1). More than 80% of these utilities are water and/or sewer systems. Many of these are distribution or collection systems with no treatment capacity of their own.

EXHIBIT 1

Municipal Utility System Overview



Source: Moody's Investors Service

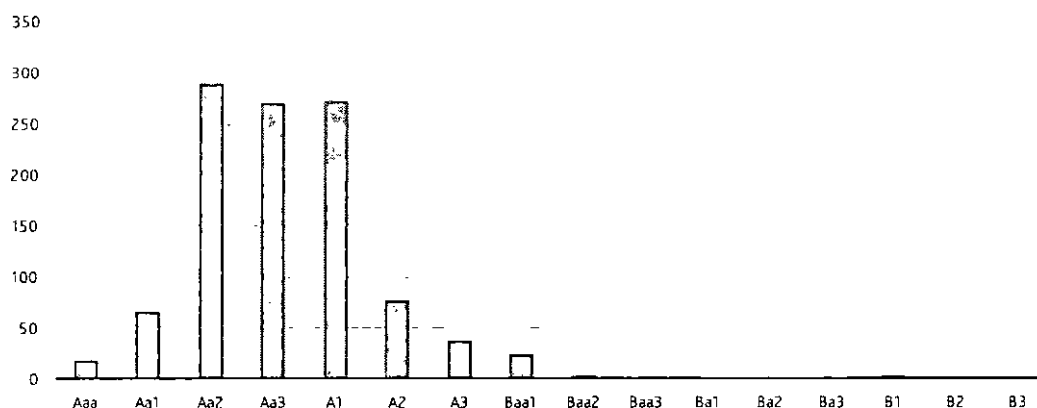
States and subdivisions of states, such as counties and cities, often issue bonds secured by the net revenues generated by a system operated directly under their auspices, such as a city water department. Other times, states or state subdivisions create an independent authority or special purpose district that operates the system and issues the bonds. This distinction is usually unimportant for rating purposes, although in some cases a separate authority has beneficial management expertise.

This methodology focuses on revenue bonds for essential-service functions. Other types of public utilities issue bonds backed by revenues charged for services such as telephone, cable television, or parking. These services are typically competitive and subject to greater elasticity in pricing and utilization. Bonds secured by revenues generated by these services are not rated under this methodology. Also not rated under this methodology are utility revenue bonds whose rating is ultimately based on a General Obligation guaranty. Lastly, the electric utilities covered under this methodology are retail distributors of electricity mostly generated elsewhere. Electric generation utilities, municipal waste-to-energy facilities, and US municipal joint action agencies are rated under separate methodologies.

The credit quality of essential-service utility revenue bonds is generally quite strong. The median rating for this sector is Aa3 (see Exhibit 2), and with very few exceptions these bonds have strong investment grade ratings. More than 85% of essential-service revenue bonds are rated A1 or higher.

EXHIBIT 2

Municipal Utility Rating Distribution



Source: Moody's Investors Service

The generally high ratings of the sector are a testament to numerous fundamental strengths, including:

- 1) The provision of essential services, usually in a government-protected monopoly
- 2) Typically unregulated and independent rate-setting authority
- 3) The ability to discontinue service to delinquent accounts and in many cases to put a lien on the property for nonpayment
- 4) Utility cost burdens that are typically low relative to household income and to tax burdens
- 5) A generally strong federal and state regulatory framework that is designed to keep utilities functioning in order to protect public health and achieve environmental goals
- 6) A "special revenue" designation that may insulate a utility from a parent's bankruptcy

A sparse history of default, bankruptcy, and serious financial distress helps to underpin the high ratings in this sector. Since 1970, only four Moody's-rated essential-service utility systems have defaulted⁴.

EXHIBIT 3

Rated Municipal Utility Defaults Since 1970⁵

Default	Type of System	Year of default	Recovery
Washington Public Power Supply System	Electric Generation	1983	40%
Vanceburg, KY	Electric Generation	1987	100%
Jefferson County, AL	Sewer	2008	54%
Oakdale, CA	Water and sewer	2012	94%

Source: Moody's Investors Service

³ The Harrisburg Authority, PA's Resource Recovery Facility bonds defaulted in 2009. We did not rate these as revenue bonds, but as General Obligation (GO) bonds backed by the City of Harrisburg's GO pledge. Similarly, a City of Menasha, WI default on a steam plant project was rated as a GO credit and not as a municipal utility. Detroit's water and sewer bonds have not defaulted, though as of this writing the city's Chapter 9 bankruptcy exit is still pending.

⁴ As electric generation utilities, the Washington Public Power Supply System and Vanceburg electric revenue bonds would not have been rated under the current methodology.

We see each of these default situations as unusual and idiosyncratic, with limited relevance to the sector as a whole. We expect the very low rate of default in the sector to continue. For more information, see US Municipal Bond Defaults and Recoveries, 1970-2013.

The Relationship Between General Obligation (GO) and Utility Revenue Bond Ratings

A municipality's GO credit quality may directly affect the strength of its associated utility systems. This section outlines the broad principles that apply when assessing the credit linkages between a municipality's GO and utility debt. These broad principles are meant to enhance transparency around our view of the relationship between related ratings and explain why, in most cases, the ratings of GO and associated utility revenue debt are and will remain relatively close.

Municipal utility debt is generally exposed to similar credit strengths and pressures as the GO and can thus expect to experience simultaneous credit improvement or deterioration. Examples of credit linkages between the GO and utility debt include:

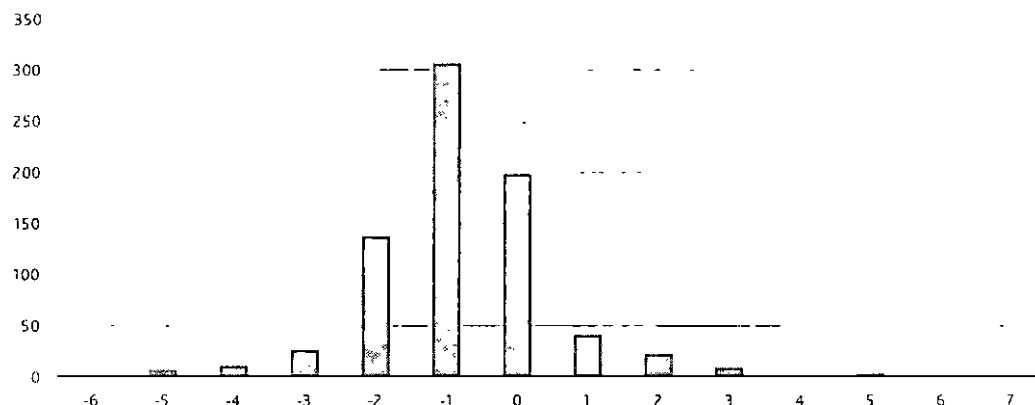
- » **Economy:** Utility systems usually rely on a coterminous or overlapping economic base and service area.
- » **Legal structure:** Utility bond indentures sometimes contain events of default tied to the bankruptcy or insolvency of the general government.
- » **Finances and Debt:** Cash can often flow between the two entities, sometimes with a formal funding mechanism. Debt and other long-term liabilities are often paid by the same group of constituents. GO and utility issuers may also be exposed to the same pension plan.
- » **Management and Governance:** Management of the city and the utility may be the same or have close ties. For instance, city management may appoint the board of the utility or have the power to affect enterprise rates.
- » **Capital Markets:** The GO and the utility issuer may need to access the same capital markets for funding.

Because of these linkages, in most cases, ratings of a municipality's utility debt will be within two notches of its GO rating. Our current rating distribution highlights this relationship, with few utility ratings departing from their respective GO ratings by more than two notches (see Exhibit 4).

EXHIBIT 4

Relationship Between Municipal Utility and General Government GO Ratings

(Negative means utility rating is lower than the GO, positive means it is higher; not all rated utilities are associated with rated general governments)



Source: Moody's Investors Service

There are, however, cases where a utility's credit strength may be sufficiently independent from its associated GO rating to justify a larger notching difference. We expect these cases to be rare, and they would likely include several of the following characteristics:

- » An unusually weak GO rating which is driven by idiosyncratic factors less relevant to the utility's credit strength.
- » A non-coterminous service area, so that utility revenues are derived from a larger and more diversified base.
- » A closed loop flow of funds, wherein the GO issuer is unable to access utility revenues.
- » A strict separation of accounts and assets.
- » The absence of rating triggers tied to the GO credit quality in utility financings.
- » Separation of management and governance.

An example of a utility rated more than two notches above its parent government is the Detroit Water and Sewer Department, which benefits from a much larger and more diverse service area than the city of Detroit, has separate accounts, and has a bond indenture that precludes distributions of excess cash flow to the city's general fund.

Conversely, a utility rating more than two notches below its associated GO generally has one or more of the following characteristics:

- » An unusually weak utility rating which is driven by factors less relevant to the general government's credit strength.
- » A utility service area that is narrower and less diverse than the municipality as a whole.
- » A lack of expectation that the general government would transfer funds to assist a utility experiencing financial distress.
- » A strict separation of accounts and assets.
- » The absence of rating triggers tied to the utility credit quality in GO financings.

» Separation of management and governance.

An example of a utility revenue bond rated more than two notches below the parent's GO is the St. George Electric Enterprise, UT (Baa1 negative). While the City of St. George (Aa3) holds healthy reserves and has demonstrated steady operating performance, the electric distribution system has exhibited an unwillingness to raise electric rates fast enough to keep up with rising power supply costs. The electric system maintains narrow liquidity and has failed to generate enough net revenues to cover debt service in multiple years, justifying a significantly lower revenue rating than the related GO. We did, however, downgrade the city from Aa2 in 2013 partially because of the relationship to the utility funds, illustrating that these relationships are important even in cases when a wider disparity between GO and utility ratings is warranted.

Essential service revenue bonds in bankruptcy

An important property of public utility revenue bonds is that they enjoy a potential moat from a general government's bankruptcy. Under Chapter 9 of the US bankruptcy code, a lien on "special revenue" bonds remains valid and enforceable even if the issuer is granted bankruptcy protection.

The potential survival through bankruptcy of a lien on the net revenues of a utility system is a key strength. When a debtor is granted bankruptcy protection, its unsecured assets are subject to an automatic stay, which freezes outflows unless approved by the bankruptcy judge. An asset secured by a lien that is not subject to the automatic stay enjoys a credit advantage over a related General Obligation credit that is subject to the stay.

Further, a special revenue bond is less susceptible to adjustment in bankruptcy if its lien leads to an interpretation of the bonds as enjoying secured status.

Although the bankruptcy code establishes these strengths of a special revenue bond, Chapter 9 remains largely untested. Case law offers few precedents, and only a handful of examples to support the assertion that a special revenue designation protects revenue bonds in bankruptcy.

The political reality is that utility systems are often major cash-generating assets that other stakeholders frequently would like to bring into bankruptcy negotiations. Moreover, bankruptcy judges in some cases have allowed the cash flows generated by special revenue systems to pay the legal costs of related parents in bankruptcy.

It is premature to conclude that utility revenue bonds are completely insulated from Chapter 9 bankruptcies, and the risks and costs of a general government bankruptcy remain considerable.

For more information, please refer to our Special Comment, Key Credit Considerations for Municipal Governments in Bankruptcy.

The Scorecard

The municipal utility scorecard (see Exhibit 5) is a tool providing a composite score of a utility's credit profile based on the weighted factors we consider most important, universal and measurable, as well as possible notching factors dependent on individual credit strengths and weaknesses. The scorecard is designed to enhance the transparency of our approach by identifying critical factors as a starting point for analysis, along with additional considerations that may affect the final rating assignment.

The scorecard is not a calculator. Its purpose is not to determine the final rating, but rather to provide a standard platform from which to begin viewing and comparing municipal utility credits. It therefore acts as a starting point for a more thorough and detailed analysis.

The scorecard-indicated rating will not match the actual rating in every case, for a number of reasons including the following:

- » Our methodology considers forward-looking expectations that may not be captured in historical data.
- » The scorecard is a summary that does not include every rating consideration.
- » In some circumstances, the importance of one factor may escalate and transcend its prescribed weight in this methodology.

EXHIBIT 5

Municipal Utility Scorecard Factors

Broad Scorecard Factors	Factor Weighting	Scorecard Subfactor	Subfactor Weighting
System Characteristics	30%	Asset Condition (Remaining Useful Life)	10%
		Service Area Wealth (Median Family Income)	12.5%
		System Size (O&M)	7.5%
Financial Strength	40%	Annual Debt Service Coverage	15%
		Days Cash on Hand	15%
		Debt to Operating Revenues	10%
Management	20%	Rate Management	10%
		Regulatory Compliance and Capital Planning	10%
Legal Provisions	10%	Rate Covenant	5%
		Debt Service Reserve Requirement	5%
Total	100%	Total	100%

We intentionally limited our scorecard metrics to major rating drivers that are common to most issuers. Outside of these drivers, we may adjust the grid score for a variety of "below-the-line" adjustments, which are more idiosyncratic factors that are likely not to apply to all issuers, but that can impact credit strength. The scorecard score is the result of the "above-the-line" score based quantitatively on the above-the-line factors, combined with any "below-the-line" notching adjustments. The scorecard score is a guideline for discussion, but does not determine the final rating. The rating is determined by a committee, which considers, but is not bound by, the scorecard score.

Discussion of Key Scorecard Factors

To arrive at a scorecard-indicated rating, we begin by assigning a score for each subfactor. We've chosen measures that act as proxies for a variety of different service area characteristics, financial conditions, and governance behaviors that can otherwise be difficult to measure objectively and consistently. Based on the scores and weights for each subfactor, a preliminary score is produced that translates to a given rating level.

We may then move the score up or down a certain number of rating notches based on additional "below-the-line" factors that we believe impact a particular utility's credit quality in ways not captured by the statistical portion of the scorecard. This is where analytical judgment comes into play. We may also choose to make adjustments to the historical inputs to reflect our forward-looking views of how these statistics may change.

The scorecard score, combined with below-the-line notching, then provides an adjusted score. This adjusted score is not necessarily the final rating. Because some utilities' credit profiles are idiosyncratic, one factor, regardless of its scorecard weight, can overwhelm other factors, and other considerations may prompt us to consider final ratings that differ from the scorecard-indicated rating.

Below, we discuss each factor and subfactor, as well as the below-the-line adjustments and other considerations we analyze within each category of the methodology.

Factor 1: System Characteristics (30%)

EXHIBIT 6

System Characteristics (30%)

		Aaa	Aa	A	Baa	Ba	B and Below
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or sewer / Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median

Why it matters

This factor on the scorecard measures a utility's capacity to fund its operations and capital needs based on the health of its capital assets, the size and diversity of its operations, and the strength and resources of its service base.

The scope of this factor is broad. Each of the subfactors contributes to an analysis of what magnitude of expenditures is necessary to keep the system functioning, and how large, diverse, and flexible are the resources available to meet those expenditures.

Subfactor 1a: Asset condition (10%)

Input: Net fixed assets divided by most recent year's depreciation, expressed in years

The condition of a utility's capital assets determines its ability to comply with environmental regulations and continue delivering adequate service with existing resources.

Depreciation is an accounting concept that acts as a proxy for the rate at which a utility's plant and equipment are aging. Central to our analysis of capital adequacy is an assessment of how utilities "fund depreciation," meaning make capital replacements and repairs to address aging plant and equipment.

The consequences of failing to fund depreciation can be costly. Implicit in this measure is the concept of deferred capital investment. Utilities that delay investing in their systems, replacing aging plant and equipment, and modernizing their facilities often find it more expensive to do so later. Capital investments are ordinarily more expensive when deferred.

Further, systems whose facilities deteriorate often run afoul of environmental regulations. The failure to fund depreciation, which will manifest as a declining useful remaining life, can lead to sewage overflows, inflow and infiltration problems, or non-compliant wastewater discharges, resulting in civil fines, litigation, or regulatory consent decrees. These are usually more expensive than funding depreciation through a prudent multi-year capital plan that replaces assets as they deteriorate or break down.

The inherent differences between types of utilities are manifested in their component parts, which can have very different useful lives. Because a solid waste utility is largely automotive-based, with collection vehicles and earthmoving equipment at the landfill, the useful life of its assets will be well under 20 years, compared to a water utility whose distribution mains and reservoir have useful lives of 40 to 100 years. We generally acknowledge and address these differences below the line.

For utilities whose asset condition ratios are not determinable, such as utilities that utilize cash accounting and do not report net fixed assets or depreciation, we are likely to assess the sufficiency of capital assets based on other available information.

Subfactor 1b: Service area wealth (12.5%)

Input: Median family income of the service area, expressed as a percentage of the US median

Most of the costs of operating a utility and maintaining its capital assets are borne by ratepayers. The income of the residents of the service base conveys the capacity of its ratepayers to bear higher rates to fund operations and capital upgrades. The median family income breakpoints in this scorecard are aligned with the ones in our [US Local Government General Obligation Debt](#) methodology.

Utilities that serve lower-income ratepayers may have more difficulty implementing higher rates, if utility costs consume a considerable share of residents' budgets. The US Environmental Protection Agency (EPA) considers wastewater costs exceeding 2% of median household income to be a heavy burden, for example, a threshold that would be reached more quickly for a utility serving lower-income ratepayers.

We believe MFI is the best proxy for the wealth of a service base, but other indicators such as the poverty rate, unemployment, home foreclosures, per capita income, and median home value supplement our analysis of ratepayer capacity.

Subfactor 1c: System size (7.5%)

Input: Most recent year operations and maintenance expenditures, expressed in dollars

Larger systems tend to be more diverse and enjoy economies of scale. The size of a system implies the flexibility and resilience not only of its operations, but of its service base.

Small systems present a number of risks. They are less likely to have redundancies, which allow a system to shut down some of its operations in an emergency or to make repairs without interrupting service. Small standalone water or sewer systems will typically depend upon a single supply of water or a single sewage treatment plant. They are more likely to be exposed to a concentrated customer base. They are more susceptible to the departure of a single large customer. An unexpected capital need is likely to be more costly relative to its annual budget. The collective engineering and scientific expertise is likely to be less robust than a larger system's.

We use different breakpoints for different types of systems in this subfactor, recognizing that not all types of utilities have the same cost structure. For instance, an electric distribution system is more expensive to run than a stormwater system. A distribution-only water system is likely to have a lower, more predictable cost base, but also depend on an external system for water supply and pay prices largely out of its control.

Utilities that are wholesalers to municipal government customers may exhibit operating stability not captured by size or service area wealth. Many of a utility's risks may be shifted to its municipal customers if their service contracts prevent these customers from switching providers or decreasing payments. If service contracts are so strongly worded and unconditional that municipal customers would have to pay the utility's debt service under any circumstances, then the utility's bonds may effectively represent a claim on the combined credit quality of the municipal governments.

For utilities that are exclusively wholesalers to municipal customers, we assess the customers' ("participants") credit quality, using our methodologies for general obligation bonds, lease revenue bonds, or other appropriate methodology determined by the nature of the participants' pledge to the utility. For bonds secured by a utility's net revenue pledge, we incorporate the strength of the municipal customers' credit quality as an important factor in the utility's revenue base. For utilities whose pledges are essentially a pass-through of the municipal customers' underlying pledges, we may rate their bonds using the Public Sector Pool Financings methodology, recognizing that bondholders enjoy a direct claim on the underlying municipalities' ability and willingness to pay.

Below-the-line adjustments

Additional service area economic strength or diversity: We would use this adjustment, up or down, if the MFI statistic incompletely or inaccurately depicts that capacity of the service base to bear higher rates.

Significant customer concentration: A large exposure to a single user or industry, or a small number of users, poses substantial risks that might not be captured in MFI. We may adjust the scorecard rating down if a large share of a utility's revenues comes from one or a small number of customers, or from a single industry. We would be more likely to use this adjustment for volatile, unpredictable, and mobile industries than for longer-standing, more stable ones. We are less likely to consider a wholesale customer as a factor contributing to concentration, as it is purchasing on behalf of end-users.

Revenue per customer greatly over/under regional average: Revenue per customer conveys additional information about users' capacity for higher rates that might not be captured in MFI. We might adjust the above-the-line rating, up or down, if revenue per customer implies higher or lower ability to increase rates than MFI suggests.

Exposure to weather volatility, extreme conditions or market fluctuations: Large amounts of rain that infiltrate pipes or storms that destroy equipment are examples of credit risks that could result in below-the-line adjustments. Weather can also affect the prices that distribution systems pay third-party providers for electricity or natural gas.

Resource vulnerability: Water, gas, and electric distribution utilities sell a product whose availability can be limited or expensive in some cases. For instance, a water provider in a drought-stricken region may have to purchase expensive third-party water, and see declines in billable flow due to conservation efforts. We may adjust the scorecard rating down if the availability of water, an adequate gas supply, or a dependable source of electricity is vulnerable or in doubt.

Sizeable or insufficient capacity margin: Our useful remaining life calculation is designed to assess the quality of existing capital assets, but it does not measure the adequacy of a system's capacity relative to demand. Areas that are growing need more water, gas, and electricity, and place greater demands on wastewater and trash disposal utilities. Systems that are close to capacity may face greater capital costs to expand in the future, suggesting larger debt burdens and posing additional risks that we may adjust the scorecard downward for. Alternately, systems with ample capacity may be notched up, given the lack of capital spending requirements implied by the excess capacity. Further, excess capacity can sometimes imply a revenue-generating opportunity, since utilities can often sell their product or service to other parties. We are less likely to view excess capacity as a positive if it is caused by a declining user base.

Unusual depreciation practices relative to industry norms: Utilities typically have some flexibility to determine the depreciation schedules of their assets. Utilizing unreasonably long useful lives or employing other practices that distort depreciation schedules would also distort our remaining useful life calculation. We may notch a score down if an unreasonable depreciation schedule is inflating a utility's remaining useful life. Likewise, we may notch a score up if an unusually rapid depreciation schedule understates remaining useful life.

Factor 2: Financial Strength (40%)

EXHIBIT 7

Financial Strength (40%)	Aaa	Aa	A	Baa	Ba	B and Below
Annual Debt Service Coverage (15%)	> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)	> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)	< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x

Why it matters

The financial health of a utility determines its flexibility to respond to contingencies, its resilience against potential short-term shocks, and its cushion against a long-term unfavorable trend.

We measure utilities' financial health by looking at cash and other liquid reserves, the burden that debt places on operations, and the magnitude by which revenues are sufficient to meet expenditures.

Subfactor 2a: Annual debt service coverage (15%)

Input: Most recent year's net revenues divided by most recent year's debt service, expressed as a multiple

Debt service coverage is a core statistic assessing the financial health of a utility revenue system. The magnitude by which net revenues are sufficient to cover debt service shows a utility's margin to tolerate business risks or declines in demand while still assuring repayment of debt. Higher coverage levels indicate greater flexibility to withstand volatile revenues, unexpected outflows, or customer resistance to higher rates.

Utilities usually enter into a rate covenant under which they pledge to achieve a given level of debt service coverage each year. The covenant ensures that the utility utilizes its assets to generate sufficient income to pay bondholders.

The analysis of a utility system's debt service coverage demands ample context. If debt service escalates in future years, then the utility's current net revenues may be sufficient to cover debt service this year, but not in the future. Systems with greater revenue stability can operate comfortably at lower coverage levels. Systems with greater capital needs are likely to incur more debt, which will lead to increased debt service and decreased coverage. The debt service coverage calculation is the basis for a comprehensive analysis of a utility's financial flexibility and trend over the long term.

Rate covenants define a calculation method. These calculation methods vary, for example in the inclusion or exclusion of connection fees. Our coverage calculation will frequently differ from the coverage utilities report for purposes of complying with their rate covenants. Frequently, our analysis will consider several types of coverage, including maximum annual debt service (MADS) coverage, annual debt service coverage, coverage with and without connection fees, and coverage as calculated for the rate covenant. For entry on the scorecard, we include connection fees (when pledged) in revenues, recognizing that these are pledged revenues that are usually generated annually and are an important source of funding for expansion. If connection fees are particularly volatile, or if they represent an inordinate share of revenues, we may adjust below the line.

Subfactor 2b: Days cash on hand (15%)

Input: Unrestricted cash and liquid investments times 365 divided by operating and maintenance expenses, expressed in days

Cash is the paramount resource utilities have to meet expenses, cope with emergencies, and navigate business interruptions. Utilities with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. A large cash balance can also partially compensate for the lack of a debt service reserve fund. A low cash balance indicates poor flexibility to manage contingencies.

We include in this measure any cash or cash-equivalent that is both unrestricted and liquid. The measure does not include cash held in a debt service reserve fund, unspent bond proceeds, or cash that is restricted for capital.

Subfactor 2c: Debt to operating revenues (10%)

Input: Net debt divided by most recent year's operating revenues, expressed as a multiple

A utility's debt profile determines its leverage and fixed costs. Systems that carry a lot of debt have less ability to reduce costs if demand shrinks, and are generally more challenged to achieve higher debt service coverage.

A greater debt burden may also prohibit a utility from funding necessary capital upgrades, if a covenant prevents the issuer from incurring the debt necessary to fund those upgrades.

"Net debt" is a utility's long-term debt subtracted by debt service reserve funds.

Below-the-line adjustments

Debt service coverage (annual or MADS) below key thresholds: A debt service coverage ratio below 1 times is an important threshold, because coverage below 1 times indicates the utility is not fully covering debt service with income generated from operations. If a utility fails to achieve 1 times coverage, we may adjust the score down to reflect the financial imbalance of the utility's operations. Another key threshold that would likely prompt us to adjust the score down is if coverage were to fall below the utility's coverage covenant, even if that covenant is higher than 1 times. Management's willingness and ability to operate the system for bondholders' benefit is a crucial credit consideration, and a breach of covenant calls that willingness and ability into question. A coverage level that impedes the issuance of additional bonds under the utility's additional bonds covenant could also prompt us to adjust the score down, if we think it would prevent the utility from funding necessary capital upgrades.

Constrained liquidity position due to oversized transfers: It is common for utilities to transfer cash to their general governments regularly, either to share overhead costs, make payments in lieu of taxes for occupied property, or to help fund shared infrastructure. It is also common for parent governments to tap utilities' cash to fund General Fund operations. We may notch a utility's score down if these types of transfers are large and begin to strain its own liquidity. We are more likely to make this adjustment if the general government is operationally reliant on utility transfers and has the authority to increase them, particularly if the general government is struggling financially. Even if a utility has never transferred cash to its parent, such transfers remain a possibility⁶, one of the reasons for the relationship between a revenue rating and the GO rating of its general government.

Oversized capital needs: A utility with significant capital needs will likely need to incur additional debt not communicated in the existing debt metric. We may adjust the score downward for utilities under regulatory consent decree, or otherwise with great capital needs, that are likely to increase their debt levels.

Oversized adjusted net pension liability relative to debt, or significant actuarial required contribution underpayment: Employees of public utilities are usually members of a municipal pension plan. Most utilities either sponsor their own plan or participate in another entity's plan, and are responsible for funding their share of the plan's pension liabilities. We may adjust the score down if this liability is especially large, or if the utility has underfunded its contributions.

Significant exposure to puttable debt and/or swaps, or other unusual debt structure: The risks of a debt portfolio can be magnified if it is significantly composed of puttable debt. Utilities generally set rates with the intention of covering operating expenses and debt service in the current year. A debt put, accelerated amortization under a term-out, or other unexpected calls on a utility's resources can impose

⁶ Unless the utility's flow of funds is closed-loop. A closed-loop flow of funds is stronger than an open one for this reason.

immediate and substantial, unbudgeted cash outflows and upend that intention. We may notch a score down, potentially by several notches, if the composition of a debt portfolio, or cash-flow demands or unfavorable valuation of a swap, communicates a greater degree of risk than the existing debt metric. The lesson of Jefferson County, Alabama, which defaulted on puttable sewer warrants in 2008 when they were tendered to their liquidity banks, applies here.

Factor 3: Management (20%)

EXHIBIT 8

Management (20%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Management (10%)	Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory compliance and capital planning (10%)	Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning

Why it matters

If the legal provisions establish the minimum level of financial margin at which a utility must be run, the utility's management determines the actual level at which it is run.

Utility management refers to the dynamics of setting rates, planning for capital spending, budgeting for annual expenditures, and complying with environmental regulations. All of these factors interplay with one another to determine the credit strength of a utility system.

The scorecard captures two crucial aspects of management: rate-setting and capital planning. These two aspects encompass most of what is important in running a utility: keeping the system in good working order, and paying for it.

Subfactor 3a: Rate management (10%)

User rates are the primary, and sometimes only, mechanism utilities employ to pay for their operations.

Ideally, rates increase marginally and steadily, rather than choppily. It is common for utilities to split their rates into a "base" charge (flat rate charged to all users) plus a "volumetric" charge (per unit costs based on flow/usage). Utilities funded to a greater extent by the volumetric charge face greater risks, since volume can be economically sensitive or decline because of a shift in consumption patterns.

Management's track record at setting rates appropriately and increasing them when necessary drives this score. We tend to give higher scores to utilities that set rate structures under which increases are automatic, and do not require annual approval for implementation.

Embedded into this factor is the length of time required to implement a rate increase. Many public utilities enjoy the authority to set their own rates, and can enact a rate increase in short order by majority vote of the governing board. Some utilities must give the public a few weeks or months notice before increasing rates, or choose to do so by policy or practice. Some utilities require state approval to increase rates. Utilities that need state approval often have to file a rate case subject to public objection, and in some cases the state takes a long time to approve them or denies the full rate increase.

The longer it takes a utility to implement a rate increase, the less flexibility it has to quickly generate new revenues when faced with cash flow shortfalls.

Subfactor 3b: Regulatory compliance and capital planning (10%)

The public utility sector is heavily regulated. Most public utilities are regulated by federal as well as state agencies.

The EPA enforces the Safe Drinking Water Act for water distribution utilities, the Clean Water Act for sanitary sewer and stormwater utilities, the Resource Conservation and Recovery Act for solid waste disposal systems, and the Clean Air Act for electric utilities. These statutes, and the methods employed to enforce them, are continually evolving, often intensifying over time. Additionally, many states have passed their own environmental regulations and are active enforcers.

This scorecard factor assesses utilities' compliance with relevant regulations and their plans for the capital expenditures required to comply in the future.

In addition to achieving environmental compliance, proper capital planning ensures the continued delivery of the product or service and the ongoing generation of revenues.

During our reviews, we look for indications of potential compliance gaps, such as environmental litigation, a delay in renewing a permit, or a consent decree with a state or federal enforcement body.

Below-the-line adjustments

Unusually strong or weak capital planning: Continued violations of environmental laws and the associated litigation can impose extraordinary costs on utilities. We may notch the score down if these costs threaten to overwhelm a system's resources, in the form of a large consent decree, lawsuit, or other costs. Alternately, we may notch the score up if a utility's capital planning is particularly sophisticated or forward-looking. More sophisticated and forward-looking capital management is more important for systems facing resource vulnerability or extreme weather volatility.

Factor 4: Legal provisions (10%)

Legal Provisions (10%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Covenant (5%)	> 1.30x	$\geq n$ 1.30x > 1.20x	$\geq n$ 1.20x > 1.10x	$\geq n$ 1.10x > 1.00x		$\leq 1.00x$
Debt Service Reserve Requirement (5%)	DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety		

Why it matters

The legal provisions of a public utility revenue bond form the backbone of its security.

When a municipality assigns its General Obligation pledge to a bond, it has promised to do whatever it has to do to cover debt service, in most cases from any revenues or resources at its disposal.

A utility revenue bond enjoys no such open-ended pledge, making the legal edifice of the bond critical to bondholder security. Most commonly, the legal security for municipal utility revenue bonds is a lien on the net revenues of the system. Occasionally, bondholders enjoy a lien on the gross revenues of a system. We ordinarily do not consider a gross revenue pledge as materially stronger than a net revenue pledge, because systems need to pay operating and maintenance costs in order to remain functional.

The linchpin of a bond's legal structure is its covenants: the legal compulsions the municipal utility agrees to when issuing the bonds.

Utilities abide by many different types of covenants. We consider three to be the most important: the rate covenant, the additional bonds test, and the debt service reserve fund. Also crucial in the analysis of a revenue bond's legal structure is whether the flow of funds is open-loop (accessible by another government entity) or closed.

Strong covenants bind the utility to utilize its assets to benefit bondholders by operating with a comfortable financial margin, not taking on too much debt, and maintaining adequate cash available to pay debt service. Weak or nonexistent covenants allow the utility to operate on a thin margin or even at a net loss, incur a lot of leverage, transfer its money to other government entities, or maintain inadequate cash, in ways that are detrimental to bondholders.

Covenants specify the minimum factors management must legally abide by. Utilities frequently exceed the minimum. Many of our ratings represent the expectation of performance at levels that exceed the covenants.

Subfactor 4a: Rate covenant (5%)

Input: Covenant governing net revenues (operating revenues minus operating expenditures net of depreciation) divided by annual debt service, expressed as a multiple

The rate covenant is a legal pledge to set rates such that net revenues will be sufficient to cover debt service at a prescribed level. For example, a covenant may bind a utility to ensure that net revenues

cover debt service by 1.2 times. If net revenues fall short of this covenant in one year, the utility must raise rates to achieve a compliant coverage level the following year.

The rate covenant takes many forms. Some utilities pledge for net revenues to cover current year annual debt service by a given level, others pledge to cover average annual debt service throughout the life of the bonds at that level. A strong coverage requirement would be for net revenues to cover maximum annual debt service (MADS) by a certain level.

Some rate covenant formats are materially weaker than this. Some utilities allow a "rolling" calculation, which includes outstanding cash from prior years' surpluses as part of the resources available to cover debt service. Many rate covenants allow connection fees to be included in available operating revenues.

The above-the-line coverage factor assumes the covenant is an annual debt service coverage calculation. We can adjust for any departures from this format below the line, up or down.

Subfactor 4b: Debt service reserve requirement (5%)*Input: Debt service reserve requirement*

Many issuers agree to hold a specified amount of cash or other resources in a debt service reserve fund (DSRF), which the trustee can tap to pay debt service in the event that net revenues are inadequate. The DSRF covenant ordinarily requires the utility to replenish any draws from the DSRF.

The DSRF protects bondholders by assuring the payment of debt service even if net revenues fall short in one year.

DSRF funds can be funded with cash, or with surety policies from an insurer. We generally consider cash to be superior to a surety, although this is unlikely to materially affect the rating as long as the surety provider is rated investment grade.

One commonly used DSRF requirement is known as the "three-pronged test." Under tax law, the Internal Revenue Service limits the earning of interest on proceeds of a tax-exempt bond unless the invested proceeds comply with the three-pronged test. Under that test, the DSRF must be the lesser of 10% of principal, MADS, or 1.25 times average annual debt service. A DSRF set at the three-pronged test is usually weaker than one funded at MADS.

Recent years have seen a trend of revenue bonds issued without a DSRF. This has resulted in a number of utilities with some bonds secured by a DSRF and other parity bonds secured by the same lien but no DSRF. We have rarely distinguished ratings between these parity bonds. The DSRF is a last-resort security measure, and most utilities comply with their coverage covenants and never have to tap their DSRF. We are most likely to distinguish between DSRF-secured bonds and bonds with no DSRF if the system holds narrow liquidity. A system operating with abundant liquidity can use its operating cash to meet debt service shortfalls, effectively executing a similar function to the DSRF. The combination of narrow liquidity and no DSRF exposes bondholders to greater risks of interrupted debt service payments, and is therefore more likely to be reflected in ratings.

For a utility whose debt is mostly, but not all, secured by a DSRF, we will still enter the DSRF requirement into the scorecard. For a utility whose debt is mostly not secured by a DSRF, we will adjust the DSRF entry downward⁷.

Below-the-line adjustments

Coverage covenant other than annual debt service: Our input for the coverage covenant assumes the coverage refers to net revenue coverage of annual debt service. A "rolling" coverage covenant that includes outstanding cash, or some other modification that weakens the meaning of the covenant, may prompt us to notch the score down. Conversely, a MADS coverage covenant may prompt us to notch the score up.

Structural enhancements/complexities: The scorecard is designed to capture covenants as they are most commonly constituted, but cannot account for the myriad structures and complexities that arise in bond transactions throughout the sector. Enhancements such as a lock-box structure for debt service may lead us to notch the score up. Other shortcomings, such as a weak additional bonds test or the inclusion of cash in a coverage covenant, may lead us to notch the score down. Any characteristic of the legal provisions of a bond transaction may lead us to conclude that the scorecard does not adequately capture its risk profile.

⁷ For example, if 1/3 of a utility's debt is secured by a DSRF funded at MADS and 2/3 is not secured by a DSRF at all, we may enter the DSRF requirement as a Baa.

Moody's Treatment of Different Liens on a US Municipal Utility's Net Revenues

It is common for utilities to issue debt secured by different liens on their net revenues. Senior bonds are secured by a first lien on net revenues, and subordinate bonds or loans secured by a subordinate, or junior, lien. Sometimes, utilities will issue debt secured by a third lien or lower.

Our practice is to evaluate the likelihood of default and the expected recovery in the event of default for each lien independently.

This will most commonly result in a rating distinction of one notch for each lien of subordination. In other words, if a municipal utility's senior lien is rated Aa3, its subordinate lien will most likely be rated A1 and the third lien will most likely be rated A2.

The reason for the typical one-notch-per-lien distinction is that subordinate liens are marginally more likely to default than senior liens, and subordinate liens' expected recovery in the event of default would be lower. Senior liens are typically afforded stronger legal protections under utilities' indentures, senior-lien debt service is usually paid earlier in the flow of funds, and the first lien would likely enjoy a better claim in bankruptcy.

For most investment grade municipal utilities, the probability of default for any lien is small, and so the notching distinction is driven primarily by a greater expected loss severity in the unlikely event of a default. This is comparable to our approach for ratings distinctions for different debt classes of investment grade corporations, where ratings distinctions are driven by differences in expected loss severities. In contrast to corporates, however, there often is not an explicit cross-default of senior municipal debt in the event of a subordinate payment default.

In some instances, we may conclude that an investment grade municipal utility's subordinate lien has a default probability and expected loss severity that is nearly as low or just as low as the senior lien (in which case we may not make a ratings distinction), or a default probability and expected loss severity that is materially higher than the senior lien (in which case we may make a ratings distinction of more than one notch).

Such a conclusion would be based on the municipal utility's management of its system with respect to its liens, and the characteristics of the legal framework governing the liens: rate covenants, additional debt provisions, and cross-default and acceleration provisions in a senior lien's variable rate debt resulting from a default on the subordinate lien, for example. If a utility has only a very small amount of senior lien debt, we may choose not to distinguish between liens.

The distinctions among a municipal utility's liens become more stark when it faces a material likelihood of default or bankruptcy. For these situations, the different characteristics of the liens are likely to drive greater disparities in default probabilities and expected recoveries for disparate liens. Thus, we are more likely to employ ratings distinctions other than one notch for speculative grade municipal utilities' different liens as the Loss Given Default approach drives more of the analysis.

In nearly all instances, the ratings on the different liens of the same utility will remain closely related. The reason for this is that municipal utilities are actively managed enterprises that continually need to generate net revenues sufficient not only to cover debt service but to fund capital needs. Even if senior lien coverage is strong, a utility that is unable to pay its junior lien debt service is not generating excess funds for capital investment and does not have capacity for capital borrowing. Thus, while subordinate liens face greater default probability and higher loss expectations based on their first-loss positions, an increased likelihood of default on a subordinate lien implies an increased likelihood of insolvency for the utility as a whole.

For this reason, we enter the debt-oriented inputs into the scorecard on a consolidated basis. For the debt to revenues factor, we enter total debt (senior and junior). For the debt service coverage factor, we enter total debt service coverage. It's the municipal utility's ability to cover all of its debt service with net revenues that determines its viability as a going concern. Even for a senior lien with a large coverage factor by net revenues, a narrow coverage of all debt service implies pressure to maintain healthy operations and generate funds sufficient for capital reinvestment.

Appendix A: Municipal Utility Revenue Bond Scorecard

EXHIBIT 10

		Aaa	Aa	A	Baa	Ba	B and Below
Numerical score		0.5 to 1.5	1.5 to 2.5	2.5 to 3.5	3.5 to 4.5	4.5 to 5.5	5.5 to 6.5
System Characteristics (30%)							
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median
System Size (7.5%)	Water and/or Sewer/ Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Financial Strength (40%)							
Annual Debt Service Coverage (15%)		> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)		> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)		< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x
Management (20%)							
Rate Management (10%)		Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital Planning (10%)		Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted, Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning
Legal Provisions (10%)							
Rate Covenant (5%)		> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x	≤ 1.00x ⁸	
Debt Service Reserve Requirement (5%)		DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety ⁹		

⁸ Scores as a Ba.⁹ Scores as a Baa.

Adjustments/Notching Factors**Factor 1: System Characteristics**

Additional service area economic strength or diversity

Significant customer concentration

Revenue-per-Customer greatly over/under regional average

Exposure to weather volatility or extreme conditions

Resource vulnerability (1/3 or greater)

Sizable or insufficient capacity margin

Weak depreciation/reinvestment practices relative to industry norms

Other analyst adjustment to System Characteristics (Specify)

Factor 2: Financial Strength

Debt Service Coverage (Annual or MADS) below key thresholds: Additional Bonds Test and 1.00x coverage

Constrained liquidity position due to oversized transfers

Oversized capital needs

Oversized ANPL relative to debt or significant ARC under-payment

Significant exposure to puttable debt and/or swaps or other unusual debt structure

Other analyst adjustment to Financial Strength factor (Specify)

Factor 3: Legal Provisions

Structural Enhancements/Complexities

Other analyst adjustment to Legal Provisions factor (Specify)

Factor 4: Management

Unusually strong or weak operational or capital planning

Other analyst adjustment to Management factor (Specify)

Other

Credit Event/Trend not yet reflected in existing data set

Indicated Rating	Overall Weighted Score
Aaa	0.5 to 1.5
Aa1	1.5 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.5
A1	2.5 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.5
Baa1	3.5 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.5
Ba1	4.5 to 4.83
Ba2	4.83 to 5.17
Ba3	5.17 to 5.5
B1	5.5 to 5.83
B2	5.83 to 6.17
B3	6.17 to 6.5

Outlier Discussion

Out of approximately 1,080 municipal utilities rated under this methodology, there are eight significant outliers (defined as two broad rating categories, or six notches) when comparing the grid-indicated rating to the actual rating. Of these, seven are rated two broad categories higher than the grid-indicated rating and one is rated two broad categories lower. Most of these ratings have been placed under review at this time.

We expect outliers on single subfactors in our grid to appear frequently, as the grid is meant to capture a large and fragmented universe with many sectors and issuers with idiosyncratic properties. For most subfactors, we would not expect a single outlier score to play an outsize role in determining the rating. For certain subfactors (e.g., debt service coverage, cash on hand, and debt to revenues), single-factor outliers may represent significant credit pressure that could play a substantial role in determining the final rating. Indeed, 49 ratings have been placed under review at this time due to outlier scores on one or more of these factors.

The following are some comments on the frequency and effect of outliers in our subfactor scores:

Asset condition ratio

Approximately 2% of our rated municipal utilities score as outliers on this subfactor, with the majority of those scoring significantly lower than their actual rating. One factor that may skew this score is the use of disparate depreciation schedules, a practice we will address below the line. We would not expect single-factor outliers for this subfactor by itself to significantly drive ratings.

Size

Approximately 28% of our rated municipal utilities score as outliers on this subfactor, with nearly all of those scoring significantly lower than their actual rating. Although many utilities score as outliers on this subfactor, the subfactor scores lead to a generally close fit for grid-indicated ratings overall. We would not expect single-factor outliers for this subfactor by itself to significantly drive ratings.

Median family income

Approximately 2% of our rated municipal utilities score as outliers on this subfactor, with the majority of those scoring significantly lower than their actual rating. We would not expect single-factor outliers for this subfactor by itself to significantly drive ratings.

Coverage

Approximately 7% of our rated municipal utilities score as outliers on this subfactor, with the majority of those scoring significantly lower than their actual rating. This is one subfactor that we would expect to significantly drive ratings for single-factor outliers, to the downside. Consistently narrow debt service coverage represents a credit pressure that is unlikely to be fully offset by other positive factors.

Cash on hand

Approximately 5% of our rated municipal utilities score as outliers on this subfactor, with those roughly split between positive and negative outliers. This is another subfactor that we would expect to significantly drive ratings for single-factor outliers, to the downside. A narrow cash position represents credit pressure that may not be fully offset by other positive factors.

Debt to operating revenues

Approximately 6% of our rated municipal utilities score as outliers on this subfactor, with those roughly split between positive and negative outliers. This is the third subfactor that we would expect to significantly drive ratings for single-factor outliers, to the downside. An inordinately heavy debt burden may represent credit pressure that may not be fully offset by other positive factors.

Rate covenant

Approximately 7% of our rated municipal utilities score as outliers on this subfactor. Nearly all of these are utilities with either sum sufficient rate covenants or without rate covenants requiring sum sufficient coverage. In some cases, such as utilities with sum sufficient coverage covenants or weaker, this factor may significantly drive ratings.

Debt service reserve requirement

Approximately 9% of our rated municipal utilities score as outliers on this subfactor. Most of these are utilities without a debt service reserve requirement, or with a debt service reserve fund funded by a speculative grade surety. We would not expect single-factor outliers for this subfactor by itself to significantly drive ratings.

» contacts continued from page 1

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I&E Exhibit No. 1

Schedule 2

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Moody's
INVESTORS SERVICE

Philadelphia Gas Works R-2017-2586783

Moody's Investors Service Financial Metrics

Factor	Present Rates	Source	I&E Proposed	Source	Moody's Explanation (I&E Exhibit 1, Schedule 2)
Asset Condition	28.2	JFG-1	28.2	I&E Exhibit 1, Schedule 1	Net fixed assets divided by most recent year's depreciation, expressed in years.
Service Area Wealth (2015 data)	73.9%	U.S. Census Bureau	73.9%	U.S. Census Bureau	Median family income of the service area, expressed as a percentage of the US Median.
System Size (Gas or Electric)	\$322M	JFG-1	\$316M	I&E Exhibit 1, Schedule 1	Most recent year operations and maintenance expenditures, expressed in dollars.
Annual Debt Service Coverage	1.33	JFG-1	1.65	I&E Exhibit 1, Schedule 1	Most recent year's net revenues divided by most recent year's debt service, expressed as a multiple.
Days Cash on Hand	36.0	JFG-1	82.2	I&E Exhibit 1, Schedule 1	Unrestricted cash and liquid investments times 365 dividend by operating and maintenance expenses, expressed in days.
Debt to Operating Revenues	1.7	JFG-1	1.7	I&E Exhibit 1, Schedule 1	Net debt divided by most recent year's operating revenues, expressed as a multiple.

Philadelphia Gas Works R-2017-2586783
Moody's Investors Service Financial Metrics

PGW Present Rates

Factor	Factor Weight	Aaa	Aa	A	Baa	PGW
Asset Condition	10%	>75 years	75 years \geq n > 25	25 years \geq n > 9 years	12 years \geq n > 9	28
Service Area Wealth (2015 data)	12.50%	>150% of US me	150% \geq US median > 90%	75% \geq US median > 50%	75% \geq US median > 50%	74%
System Size (Gas or Electric)	7.50%	O&M > \$100M	100\$M \geq O&M > 50\$M	\$50M \geq O&M > \$20M	\$20M \geq O&M > \$8M	\$322M
Annual Debt Service Coverage	15%	> 2.00x	2.00x \geq n > 1.70x	1.7x \geq n > 1.25x	1.25x \geq n > 1.00x	1.33
Days Cash on Hand	15%	>250 Days	250 Days \geq n > 150 Days	150 Days \geq n > 35 Days	35 Days \geq n > 15 Days	36
Debt to Operating Revenues	10%	<2.00x	2.00x < n \leq 4.00x	4.00x < n \leq 7.00x	7.00x < n \leq 8.00x	1.74
	70%					

I&E Proposed Rates

Factor	Factor Weight	Aaa	Aa	A	Baa	PGW
Asset Condition	10%	>75 years	75 years \geq n > 25	25 years \geq n > 9 years	12 years \geq n > 9	28
Service Area Wealth (2015 data)	12.50%	>150% of US me	150% \geq US median > 90%	75% \geq US median > 50%	75% \geq US median > 50%	74%
System Size (Gas or Electric)	7.50%	O&M > \$100M	100\$M \geq O&M > 50\$M	\$50M \geq O&M > \$20M	\$20M \geq O&M > \$8M	\$316M
Annual Debt Service Coverage	15%	> 2.00x	2.00x \geq n > 1.70x	1.7x \geq n > 1.25x	1.25x \geq n > 1.00x	1.65
Days Cash on Hand	15%	>250 Days	250 Days \geq n > 150 Days	150 Days \geq n > 35 Days	35 Days \geq n > 15 Days	82
Debt to Operating Revenues	10%	<2.00x	2.00x < n \leq 4.00x	4.00x < n \leq 7.00x	7.00x < n \leq 8.00x	1.66

I&E Statement No. 1-R
Witness: Rachel Maurer

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Rebuttal Testimony

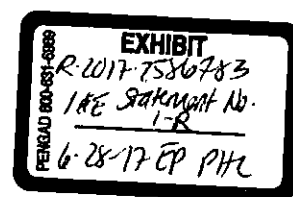
of

Rachel Maurer

Bureau of Investigation & Enforcement

Concerning:

CRP Home Comfort
Purchase of Receivables Program



1 **INTRODUCTION OF WITNESS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Rachel Maurer. My business address is Pennsylvania Public Utility
4 Commission, P.O. Box 3265, Harrisburg, PA 17105-3265.

5

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

7 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
8 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
9 Analyst.

10

11 **Q. ARE YOU THE SAME RACHEL MAURER THAT SUBMITTED DIRECT**
12 **TESTIMONY IN I&E STATEMENT NO. 1 AND I&E EXHIBIT NO. 1?**

13 A. Yes.

14

15 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

16 A. The purpose of my rebuttal testimony is to address the recommended budget
17 change for Philadelphia Gas Works' (PGW or Company) Low Income Usage
18 Reduction Program (LIURP) proposed in the Pennsylvania Office of Consumer
19 Advocate (OCA) Statement No. 4, Direct Testimony of Roger D. Colton. In
20 addition, I will address statements made by the Retail Energy Supply Association
21 (RESA) witness Anthony Cusati, III regarding the Purchase of Receivables (POR)
22 discount charged to suppliers.

1 **LIURP**

2 **Q. WHAT IS LIURP?**

3 A. LIURP, or as it is named by PGW, CRP Home Comfort, is a state-wide program,
4 *mandated by the PUC that is in place to assist low-income residential customers in*
5 usage reduction through energy conservation measures. The program is targeted
6 towards customers with income at or below 150% of the poverty level.¹

7

8 **Q. WHAT HAS THE COMPANY PROPOSED IN ITS FILING REGARDING**
9 **THE LIURP BUDGET?**

10 A. The Company has made no proposals regarding the LIURP budget.

11

12 **Q. WHAT IS MR. COLTON'S TESTIMONY REGARDING THE LIURP**
13 **BUDGET?**

14 A. Mr. Colton proposes a percentage increase to the LIURP budget that matches the
15 percentage bill increase to the residential class at median usage. Mr. Colton states
16 that an increase in a customer's bill will correspondingly increase the benefit of
17 LIURP services to a customer. Mr. Colton claims that this increases the number
18 of homes for which "some" measures are justified which will slow down the rate
19 at which PGW will accomplish serving all houses needing LIURP services.²

¹ 20% of the LIURP budget is permitted to be spent on those customers with incomes between 150% and 200% of the federal poverty level.

² OCA Statement No. 4, pp. 70-71.

1 **Q. DO YOU AGREE WITH MR. COLTON'S RECOMMENDATION?**

2 A. No. It is inappropriate to set the LIURP budget in the instant base rate case.

3

4 **Q. HOW IS PGW'S LIURP BUDGET SET?**

5 A. A LIURP budget is set based on the needs present within a company's service
6 territory. A needs assessment is considered during the triennial review of PGW's
7 Universal Service and Energy Conservation Plan (USEP) which is currently
8 underway at Docket No. M-2016-2542415 and for which a Tentative Order was
9 entered on January 26, 2017.

10

11 **Q. WHAT IS PGW'S PROPOSED 2017 LIURP BUDGET?**

12 A. PGW has proposed a budget of \$6,571,445 for fiscal year 2017 in its First
13 Amendment to Universal Service and Energy Conservation Plan for 2017-2020
14 submitted on November 16, 2016 at Docket No. M-2016-2542415.

15

16 **Q. ARE LIURP BUDGETS DETERMINED IN BASE RATE PROCEEDINGS**

17 A. No. As stated above, the LIURP budget is currently being evaluated and set in
18 PGW's USECP proceeding. Since LIURP is a part of PGW's USECP (recently
19 moved from the Demand Side Management Plan) the budget should be set, along
20 with the other parameters of the program, in the USECP proceeding. In addition,
21 the LIURP budget is set based on the needs present in PGW's service territory, an

1 issue which has not been evaluated in this proceeding but which is currently being
2 evaluated in the USECP proceeding.

3 In the Commission's Final Order entered October 6, 2016, in PGW's
4 Demand-Side Management Phase II ("DSM II") proceeding at Docket No. P-
5 2014-2459362 the Commission on pages 16-17 stated the following:

6 Accordingly, we direct that PGW's LIURP budget,
7 which includes the budget of its proposed Low-Income
8 Multifamily (LIME) Program, be referred to the
9 Commission's Bureau of Consumer Services (BCS)
10 for further review in conjunction with PGW's
11 currently-filed USECP for the 2017-2020 time period.
12 We further direct BCS to perform a current needs
13 assessment utilizing the information provided in
14 PGW's USECP for 2017-2020 to determine an up-to-
15 date budget...

16
17 While BCS is well-suited to recommend the amount at
18 which LIURP is "appropriately funded" per the
19 Competition Act to aid the Commission in maintaining
20 cost-effective programs, any recommendations we
21 receive from BCS will be released for public comment
22 in conjunction with PGW's pending USECP 2017-
23 2020 filing.³
24

25 Further, the Commission has indicated on page 34 of its Tentative Order in PGW's
26 USECP proceeding that PGW needs to recalculate its needs assessment and that
27 the Commission will reserve its determination of whether the CRP Home Comfort
28 Budget is appropriate until the revised needs assessment is reviewed.

³ *Petition of PGW for Approval of DSM Plan for FY 2016-2020, and PGW USECP for 2014-2016*. Docket No. P-2014-2459362 (Order entered October 6, 2016).

1 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE LIURP**
2 **BUDGET?**

3 A. I recommend that OCA's proposal to increase the LIURP budget to match the
4 percentage bill increase to the residential class at median usage be denied. The
5 LIURP budget is currently being set in the USECP proceeding per the
6 Commission's approved procedure in the DSM II Order and the Commission's
7 determination in the Tentative Order on PGW's USECP that PGW needs to
8 recalculate its needs assessment.

9
10 **PURCHASE OF RECEIVABLES PROGRAM**

11 **Q. WHAT IS A POR PROGRAM?**

12 A. A POR program is the process and the terms for buying another company's sales
13 on accounts (or accounts receivables). A natural gas distribution company
14 (NGDC) typically purchases the receivables of a participating natural gas supplier
15 (NGS) at a discount. The discount may be attributable to the uncollectible
16 expense (or bad debt) of the NGS's customers, and the NGDC's administrative
17 costs for billing and collection. These programs are normally provided in
18 conjunction with a utility's consolidated billing process. An NGDC will then
19 makes payments to the NGS equal to the amount the distribution company billed
20 on behalf of the NGS, less the discount rate.

1 **Q. WHAT DO THE COMMISSION REGULATIONS SAY REGARDING POR**
2 **PROGRAMS?**

3 A. 52 Pa. Code § 62.224 sets the regulations for the program design, customer care,
4 and transitions plans for an NGDC to purchase receivables from and NGS. 52 Pa.
5 Code § 62.224 (a) (5) states:

6 An NGDC's POR program shall use a discount rate designed to
7 reflect the NGDC's actual uncollectible rate for supply service
8 customers and the incremental costs associated with the
9 development, implementation and administration of the POR
10 program.

11
12 **Q. WHEN WAS PGW'S POR PROGRAM CREATED?**

13 A. As a condition of settlement in Docket No. R-2009-2139884, PGW and the
14 signing parties of the Joint Petition for Settlement began a collaborative process to
15 discuss the creation of shopping and a POR program. An order approving the
16 parties Joint Petition of settlement for PGW's POR collaborative, which was
17 submitted by Philadelphia Gas Works, the Office of Consumer Advocate, the
18 Office of Small Business Advocate, Hess Corporation, Interstate Gas Supply, Inc.
19 and Dominion Retail, was approved by the Commission on February 20, 2014.
20 The settlement agreed to the creation of a POR program which included an
21 uncollectible discount and an administrative discount on accounts purchased by
22 PGW.⁴

⁴ *Joint Petition for Settlement*, Docket Nos. R-2008-2073938 and R-2009-2139884 (Recommended Decision dated December 19, 2013 and Order entered February 20, 2014).

1 **Q. WHAT IS MR. CUSATI'S TESTIMONY REGARDING PGW'S POR**
2 **PROGRAM?**

3 A. Mr. Cusati disputes the inclusion of administrative expenses in the POR program
4 and as one of his alternatives to the current POR program, proposes to apply a
5 zero-discount rate.⁵ In other words, Mr. Cusati is proposing that PGW bear all of
6 the uncollectible expense and that no portion be passed on to suppliers enrolled in
7 PGW's Choice program.

8
9 **Q. DO YOU AGREE WITH MR. CUSATI'S RECOMMENDATION?**

10 A. No. It is not reasonable to expect that PGW will collect every dollar billed to its
11 customers and so the uncollectible expense that is incurred by the Company
12 should also be passed along to an NGS who wishes to operate on the Company's
13 system. When both the supply and distribution portions of natural gas service are
14 combined in one bill, and that bill is not paid or only partially paid by a customer,
15 uncollectible expenses are incurred for both distribution and supply services.
16 Since uncollectible expense is an expense related to both distribution and supply,
17 it should be borne by both the distribution and supply companies.

⁵ RESA Statement No. 1, p. 8.

1 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE DISCOUNT**
2 **RATE CHARGED IN PGW'S POR PROGRAM?**

3 A. I recommend that PGW continue to include in its POR program a discount rate
4 sufficient to cover supply-related uncollectible expenses.

5

6 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

7 A. Yes.

I&E Statement No. 1-SR
Witness: Rachel Maurer

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Surrebuttal Testimony

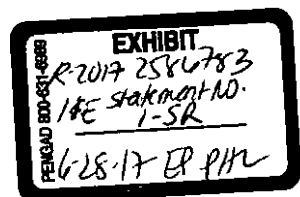
of

Rachel Maurer

Bureau of Investigation & Enforcement

Concerning:

Financial Metrics
Revenue Requirement



1 **INTRODUCTION OF WITNESS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Rachel Maurer. My business address is Pennsylvania Public Utility
4 Commission, P.O. Box 3265, Harrisburg, PA 17105-3265.

5
6 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

7 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
8 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
9 Analyst.

10
11 **Q. ARE YOU THE SAME RACHEL MAURER THAT SUBMITTED**
12 **I&E STATEMENT NO. 1 AMENDED, I&E EXHIBIT NO. 1 AMENDED,**
13 **AND I&E STATEMENT NO. 1-R?**

14 A. Yes.

15
16 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

17 A. The purpose of my surrebuttal testimony is to address the financial metrics
18 discussed in Philadelphia Gas Works (PGW or Company) Statement No. 2-R,
19 Rebuttal Testimony of Joseph F. Golden, Jr.; PGW Statement No. 3-R. Rebuttal
20 Testimony of Daniel J. Hartman; and PGW Statement No. 4-R, Rebuttal
21 Testimony of Frank C. Graves, and to present the updated overall revenue
22 requirement recommended by I&E.

1 **Q. SUMMARIZE THE COMPANY'S REBUTTAL TESTIMONY AS IT**
2 **RELATES TO YOUR RECOMMENDATIONS IN DIRECT TESTIMONY.**

3 A. The Company witnesses disagree with my recommended increase in debt funding,
4 my recommended debt service coverage ratio of 1.82 times, and my assessment of
5 days of cash on hand.¹
6

7 **CAPITAL STRUCTURE FOR CAPITAL EXPENDITURES**

8 **Q. WHAT FINANCING STRATEGY DID YOU RECOMMEND IN DIRECT**
9 **TESTIMONY FOR CAPITAL EXPENDITURES?**

10 A. I recommended that PGW move towards a more debt-heavy capital structure to
11 match the life of the financing with the life of the assets, which spreads out the
12 cost of capital improvements and causes less of an immediate burden for
13 ratepayers.²
14

15 **Q. WHAT WAS THE COMPANY'S RESPONSE IN REBUTTAL**
16 **TESTIMONY REGARDING THE CAPITAL STRUCTURE USED TO**
17 **FINANCE CAPITAL EXPENDITURES?**

18 A. The Company claims that using a higher level of debt to finance capital
19 expenditures defies the Commission's efforts to use internally generated funds and
20 claims that the Commission's approval of the Distribution System Improvement

¹ PGW Statement No. 2-R, pp. 5-9; PGW Statement No. 3-R, pp. 5-8; PGW Statement No. 4-R, pp. 2-6.

² I&E Statement No. 1 AMENDED, p. 6.

1 Charge (DSIC) demonstrates the Commission's approval of the use of internally
2 generated funds for capital expenditures.³ In addition, the Company claims that
3 debt financing is more expensive⁴ and compares the use of debt financing to
4 maxing out a credit card.⁵

5
6 **Q. DO YOU AGREE WITH THE COMPANY'S CONCLUSIONS**
7 **REGARDING THE DSIC?**

8 A. No. The DSIC was approved to provide timely internally generated funds for
9 capital expenditures but was not approved in order to provide any certain capital
10 structure. PGW is authorized to charge up to 7.5% of its billed distribution
11 revenue, which for the fully projected future test year (FPFTY) is estimated by
12 PGW to be \$30,579,000 or about 28%⁶ of its total capital structure for capital
13 improvements. I am not recommending any decrease to DSIC funding but have
14 included the full amount of DSIC revenue in my calculation of the capital
15 structure. The Company's rebuttal testimony claiming that an increase in debt will
16 somehow be contrary to the approval of the DSIC surcharge is incorrect.

17 At Docket No. P-2015-2501500, PGW petitioned to increase its DSIC cap
18 from 5% to 7.5% and I agreed with the increase in the cap in that proceeding in
19 I&E Statement No. 1. In that proceeding, PGW cited the need to further
20 accelerate the replacement of at risk mains as the reason for increasing the DSIC

³ PGW Statement No. 2-R, p. 5 and PGW Statement No. 3-R, p. 6.

⁴ PGW Statement No. 2-R, pp. 7-9.

⁵ PGW Statement No. 3-R, p. 6.

⁶ PGW Filing Volume I (Part 2 of 3), Response to H.A.5: \$30,579,000/\$109,010,000=28%.

1 cap.⁷ The DSIC was increased in order for PGW to have the opportunity to
2 accelerate its pipeline replacement, with the DSIC being the best method at that
3 time to accomplish the goal. I am not recommending that PGW reduce its
4 infrastructure improvement program, which would be contrary to the
5 Commission's goals, but rather I am recommending that PGW maintain its
6 infrastructure improvement program and use a higher level of debt to finance
7 capital expenditures.

8
9 **Q. DO YOU AGREE THAT OVER TIME, DEBT FINANCING IS MORE**
10 **EXPENSIVE THAN INTERNALLY GENERATED FUNDS?**

11 A. Yes. However, total cost should not be the only consideration when making
12 financing decisions. Financing PGW's capital improvements with all cash would
13 be the cheapest method in terms of the total amount spent but would significantly
14 increase rates in the near future and would allow ratepayers who are on the system
15 after the assets have been added to benefit from previous ratepayer's investments.
16 A balance must be struck between financing capital expenditures directly from
17 ratepayers through the use of cash and the use of debt financing. The use of
18 ratepayers as a funding source may be a cheaper way for PGW to fund its capital
19 expenditures, but it does not recognize the time value of money nor does it allow
20 the cost of the assets to be recovered from the ratepayers who benefit from those

⁷ *Petition of Philadelphia Gas Works for Waiver of Provision of Act 11 to Increase the Distribution System Improvement Charge Cap and to Permit Levelization of DSIC Charges*, Docket No. P-2015-2501500, September 1, 2015.

1 assets over the life of those assets. PGW has chosen to fund its capital
2 improvements with 50% debt and 50% internally generated funds, but this capital
3 structure does not fully recognize the ability of PGW to match the cost of capital
4 improvements to when the ratepayer will receive its benefit.

5
6 **Q. BASED ON THE COMPANY'S REBUTTAL TESTIMONY, HAVE YOU**
7 **CHANGED YOUR RECOMMENDATION?**

8 A. No. I continue to recommend that PGW move towards a more debt-heavy capital
9 structure to match the life of the financing with the life of the asset, which spreads
10 out the cost of capital improvements and causes less of an immediate burden for
11 ratepayers.

12
13 **DEBT SERVICE COVERAGE RATIO**

14 **Q. WHAT WAS YOUR RECOMMENDED DEBT SERVICE COVERAGE**
15 **RATIO IN DIRECT TESTIMONY?**

16 A. I recommended a debt service coverage ratio of 1.82x before the \$18 million city
17 payment or 1.65x after the city payment.⁸

18
19 **Q. WHAT WAS THE COMPANY'S REBUTTAL TESTIMONY REGARDING**
20 **THE DEBT SERVICE COVERAGE RATIO?**

⁸ I&E Exhibit No. 1, Schedule 1, pp. 1 and 4.

1 A. The Company claims that my debt service coverage ratio does not provide a
2 sufficient margin over its 1.5x bond covenant.⁹ The Company has claimed that a
3 debt service coverage ratio of 1.82x does not fully provide the Company the
4 ability to cover cash requirements that are not included in the operating expenses
5 of PGW's income statement.

6
7 **Q. HAS PGW INCREASED ITS REQUESTED DEBT SERVICE COVERAGE**
8 **RATIO IN REBUTTAL TESTIMONY?**

9 A. Yes. The Company has reduced some of its expense claims but is maintaining its
10 request for a \$70,000,000 revenue increase, so the Company's requested debt
11 service coverage ratio has increased from 2.16x in its filing to 2.20x in rebuttal
12 testimony, which also increases PGW's net available after debt service from
13 \$118,490,000 to \$121,993,000.¹⁰ The Company claims it needs a minimum of
14 \$105,402,000 after debt service but is requesting \$121,993,000 in order to
15 "increase the likelihood that it will be able to meet its obligations[.]"¹¹

16
17 **Q. DO YOU AGREE WITH THE COMPANY'S REQUESTED DEBT**
18 **SERVICE COVERAGE RATIO?**

19 A. No. The Company has not supported its claim for an increase to the net available
20 after debt service nor has it supported its claim for a debt service coverage ratio

⁹ PGW Statement No. 4-R, p. 4.

¹⁰ PGW Exhibit JFG-2, p. 3 and PGW Statement No. 2-R, pp. 2-11.

¹¹ PGW Statement No. 2-R, pp. 10-11.

1 that falls in Moody's Aaa rating criteria.¹² The amount that PGW collects through
2 rates is collected directly from ratepayers and should be set at a level that
3 adequately provides for the needs of the Company but is not overly burdensome to
4 ratepayers. The inclusion of an unsupported \$16,591,000 in income after debt
5 service in order to "increase the likelihood" that PGW will meet its obligations is
6 not an appropriate burden for ratepayers to bear.

7
8 **Q. WHAT DOES THE COMPANY CLAIM IN REBUTTAL IS THE AMOUNT**
9 **NEEDED AFTER DEBT SERVICE?**

10 **A.** Mr. Golden has claimed that PGW's obligations after debt service are as follows:¹³

City Payment	\$18,000,000
OPEB Payment	\$18,500,000
Retiree Insurance	\$5,120,000
Additional Pension	\$1,971,000
IGF	\$57,010,000
Health Escrow	\$1,167,000
Bond Fees	\$3,634,000
	<u>\$105,402,000</u>

11
12 **Q. HAVE YOU CHANGED YOUR DEBT SERVICE COVERAGE RATIO AS**
13 **A RESULT OF THE COMPANY'S REBUTTAL TESTIMONY?**

14 **A.** Yes. In I&E Statement No. 2-SR, Mr. Keller accepts Mr. Golden's adjustment to
15 pension expense and subsequent inclusion of \$1,971,000 to recognize an
16 additional pension obligation in income after debt service. I continue to

¹² I&E Exhibit No. 1 AMENDED, Schedule 2, p. 12.

¹³ PGW Statement No. 2-R, pp. 9-10.

1 recommend a reduction in internally generated funds to recognize my
2 recommended increase in debt funding. Based on Mr. Keller's pension testimony
3 and my debt recommendation, I recommend that PGW's debt service coverage
4 ratio be increased from the 1.82x included in I&E Statement No. 1 AMENDED to
5 1.87x to cover the following:

City Payment	\$18,000,000
OPEB Payment	\$18,500,000
Retiree Insurance	\$5,120,000
Additional Pension	\$1,971,000
DSIC	\$30,579,000
IGF	\$12,431,000
Bond Fees	\$3,634,000
Working Capital	\$3,021,000
	<u>\$93,256,000</u>

6
7 **RATING AGENCIES**

8 **Q. WHAT WAS YOUR DIRECT TESTIMONY REGARDING THE METRICS**
9 **USED BY RATING AGENCIES?**

10 A. I used the metrics set out in Moody's Investor Service rating methodology for U.S.
11 municipal utility revenue debt¹⁴ as a confirmation of the reasonableness of the
12 overall I&E position. 52 PA Code §69-2701-2703 states that the Commission
13 shall consider, among other factors, the level of financial performance needed to
14 maintain or improve PGW's Bond rating.¹⁵

¹⁴ I&E Exhibit No. 1 AMENDED, Schedule 2.

¹⁵ I&E Statement No. 1 AMENDED, pp. 2, 12.

1 **Q. WHAT IS THE COMPANY’S REBUTTAL REGARDING DAYS OF CASH**
2 **ON HAND?**

3 A. Mr. Hartman claims that the current Baa1 rating by Moody’s already considers
4 financial metrics for PGW that are above what I recommend. He claims that if the
5 Commission intentionally targets a lower cash reserve level, it would send a
6 negative message to rating agencies and investors.¹⁶

7
8 **Q. DID THE MOODY’S METRICS YOU EVALUATED DECREASE OR**
9 **INCREASE UNDER I&E’S OVERALL POSITION?**

10 A. I evaluated six metrics under both PGW’s present rates and I&E’s proposed rates
11 and only system size decreased.¹⁷ Asset condition, service area wealth, and debt
12 to operating revenues stayed the same while annual debt service coverage and
13 days of cash on hand improved under I&E’s proposed rates.¹⁸ Mr. Hartman’s
14 statement that PGW’s Baa1 rating already considers financial metrics above what
15 I recommend is incorrect. The financial metrics evaluated demonstrate that I&E’s
16 overall position is reasonable.

17
18 **Q. DID YOU RECOMMEND A SPECIFIC LEVEL OF DAYS OF CASH ON**
19 **HAND IN YOUR DIRECT TESTIMONY?**

¹⁶ PGW Statement No. 3-R, pp. 4-5.

¹⁷ System size is measured by total operations and maintenance expenses and falls into the Aaa rating category when above \$100M. PGW’s present rates included \$322M and I&E’s proposed rates included \$316M in operations and maintenance expenses.

¹⁸ I&E Exhibit No. 1 AMENDED, Schedule 3.

1 A. No. I used the financial metrics, including days of cash on hand, as a confirmation
2 of the reasonableness of the overall I&E position. PGW is currently rated Baa1
3 and to maintain or improve that rating, PGW would need to have days of cash on
4 hand of 15 or more days.¹⁹ At PGW's present rates it has days of cash on hand of
5 35.3 days. The overall I&E position was not set to create a specific number of
6 days cash on hand but the reasonableness of its position is confirmed by the 84 of
7 days of cash on hand that result from I&E's overall position.²⁰
8

9 **SUMMARY OF I&E OVERALL POSITION**

10 **Q. WHAT IS I&E'S TOTAL RECOMMENDED REVENUE REQUIREMENT?**

11 A. Based on the updates made in I&E Statement No. 2-SR by Christopher Keller,
12 I&E's total recommended revenue requirement for PGW is \$670,477,000. This
13 recommended revenue requirement represents an increase of \$39,645,000 to the
14 I&E-adjusted present rate revenues of \$630,832,000. This total recommended
15 allowance incorporates my adjustments to the debt service coverage ratio made in
16 I&E Statement No. 1 AMENDED and 1-SR and those made in the testimonies of
17 I&E witnesses Christopher Keller (I&E Statement No. 2 and 2-SR) and Kokou
18 Apetoh (I&E Statement No. 3 and 3-SR). A calculation of the I&E recommended
19 revenue requirement and the supporting financial statements are included in I&E
20 Exhibit No. 1-SR, Schedule 1.

¹⁹ I&E Statement No. 1 AMENDED, pp. 2, 12; I&E Exhibit No. 1, Schedule 1, p. 12.

²⁰ I&E Exhibit No. 1-SR, Schedule 1, p. 1.

1 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

2 **A. Yes.**

**I&E Exhibit No. 1-SR
Witness: Rachel Maurer**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Exhibit to Accompany

the

Surrebuttal Testimony

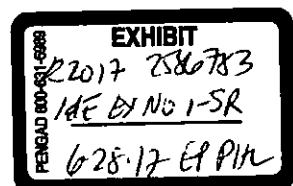
of

Rachel Maurer

Bureau of Investigation & Enforcement

Concerning:

**Financial Metrics
Revenue Requirement**



Philadelphia Gas Works R-2017-2586783
I&E Overall Position
(dollars in thousands)

I&E Exhibit No. I-SR
Schedule I
Page 1 of 6

	I&E				
	Proforma Present Rates	Adjustments	Present Rates	Allowances	Proposed
Funds Provided					
Operating Revenue	\$ 628,180	\$ 25	\$ 628,205	\$ 39,645	\$ 667,850
Other Income	1,707		1,707		1,707
AFUDC	920		920		920
Total Funds Provided	630,807	25	630,832	39,645	670,477
Funds Applied					
Operating Expenses	554,162	(5,491)	548,671	1,765	550,436
Less: Non-Cash Expenses	80,185		80,185		80,185
Total Funds Applied	473,977	(5,491)	468,486	1,765	470,251
Income Available for Debt Service	<u>\$ 156,830</u>	<u>\$ 5,516</u>	<u>\$ 162,346</u>	<u>\$ 37,879</u>	<u>\$ 200,226</u>
1998 Ordinance Debt Service	\$ 101,720	\$ 5,250	\$ 106,970		\$ 106,970
Debt Service Coverage	1.54		1.52		1.87
Payment to City	\$ 18,000		\$ 18,000		\$ 18,000
Debt Service Coverage After Payment	1.36		1.35		1.70
Days Cash on Hand	36.2		55.3		83.9
Uncollectibles	4.453%				

*Stated bad debt expense rate is 4% (PGW St 2, page 20).

Philadelphia Gas Works R-2017-2586783
Income Statement
(in thousands)

	FTY 2016-17	FPFTY 2017-18	I&E Adjustments	I&E Present Rates	I&E Allowances	I&E Proposed Rates
Total Operating Revenues	\$ 625,116	\$ 628,180	\$ 25	\$ 628,205	\$ 39,645	\$ 667,850
OPERATING EXPENSES						
Natural Gas	176,731	184,960		184,960		184,960
Other Raw Material	10	10		10		10
Sub-Total Fuel	176,741	184,970	-	184,970		184,970
CONTRIBUTION MARGINS	448,375	443,210	25	443,235		482,880
Sub-Total Other Operating & Maintenance	337,805	322,012	(5,491)	316,521	1,765	318,286
Depreciation	48,842	50,596		50,596		50,596
Cost of Removal	4,100	4,100		4,100		4,100
To Clearing Accounts	(6,771)	(7,516)		(7,516)		(7,516)
Net Depreciation	46,171	47,180	-	47,180		47,180
Sub-Total Other Operating Expenses	383,976	369,192	(5,491)	363,701	-	365,466
TOTAL OPERATING EXPENSES	560,717	554,162	(5,491)	548,671	1,765	550,436
OPERATING INCOME	64,399	74,018	5,516	79,534		117,413
Interest Gain / (Loss) and Other Income	2,898	3,031	-	3,031		3,031
INCOME BEFORE INTEREST	67,297	77,049	5,516	82,565		120,444
INTEREST						
Long-Term Debt	44,834	49,160	-	49,160		49,160
Other	(4,059)	(6,893)	-	(6,893)		(6,893)
AFUDC	(1,136)	(920)	-	(920)		(920)
Loss From Extinguishment of Debt	6,081	5,666	-	5,666		5,666
Total Interest	45,720	47,013	-	47,013		47,013
NET INCOME	21,577	30,036	5,516	35,552		73,431
City Payment	18,000	18,000		18,000		18,000
NET EARNINGS	\$ 3,577	\$ 12,036	\$ 5,516	\$ 17,552		\$ 55,431

*Financial statements are a modified version of PGW Exhibit JFG-1, original electronic copy provided as a response to I&E-RE-1D.

Philadelphia Gas Works R-2017-2586783
Cash Flow Statement
(in thousands)

	FTY 2016-17	FPFTY 2017-18	I&E Adjustments	I&E Present Rates	I&E Allowances	I&E Proposed Rates
SOURCES						
Net Income	\$ 21,577	\$ 30,036	\$ 5,516	\$ 35,552		\$ 73,431
Depreciation & Amortization	45,049	47,000	-	47,000		47,000
Earnings on Restricted Funds Withdrawal/(No Withdrawal)	(1,663)	(1,324)	-	(1,324)		(1,324)
Elimination of Accrued Interest on Refunded Debt		-	-	-		-
Equity Bond / Debt Reduction		-	-	-		-
Proceeds from Bond Refunding to Pay Cost of Issuance	2,700	-	5,000	5,000		5,000
Increased/(Decreased) Other Assets/Liabilities	29,078	(5,274)	-	(5,274)		(5,274)
Available From Operations	96,741	70,438	10,516	80,954		118,833
Drawdown of Bond Proceeds	65,000	52,000	14,000	66,000		66,000
Grant Income	-	-		-		-
Lease Funds Debt Service	-	-		-		-
Capitalized Interest	-	-		-		-
Release of Restricted Fund Asset	-	-		-		-
Release of Bond Proceeds to Pay Temporary Financing	71,000	-		-		-
Temporary Financing	-	-		-		-
TOTAL SOURCES	\$ 232,741	\$ 122,438	\$ 24,516	\$ 146,954		\$ 184,833
USES						
Net Construction Expenditures	132,632	109,010	-	109,010		109,010
Deposit Into Restricted Health Escrow Account		1,167		1,167		1,167
Funded Debt Reduction:	-	-	-	-		-
Revenue Bonds	34,790	51,834	-	51,834		51,834
Revenue Bond Subordinate Debt	-	-	-	-		-
Capital Lease	-	-	-	-		-
Equity Bond Contribution/ Debt Reduction	-	-	-	-		-
Temporary Financing Repayment	71,000	-	-	-		-
Distribution of Earnings	18,000	18,000	-	18,000		18,000
Additions To (Reductions of)						
Non-Cash Working Capital	(37,738)	188	-	188		188
Cash Needs	218,684	180,199	-	180,199		180,199
Cash Surplus (Shortfall)	14,057	(57,761)	24,516	(33,245)		4,634
TOTAL USES	\$ 232,741	\$ 122,438	\$ 24,516	\$ 146,954		\$ 184,833
Cash - Beginning of Period	91,743	105,800		105,800		105,800
Cash - Surplus (Shortfall)	14,057	(57,761)		(33,245)		4,634
ENDING CASH	\$ 105,800	\$ 48,039		\$ 72,555		\$ 110,434
Outstanding Commercial Paper	-	-	-	-		-
Outstanding Commercial Paper - Capital	-	-	-	-		-
DSIC Revenue	32,541	30,579	-	30,579		30,579
Internally Generated Funds	35,091	26,431	(14,000)	12,431		12,431
TOTAL IGF + Incremental DSIC Revenue	67,632	57,010	(14,000)	43,010		43,010

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Philadelphia Gas Works R-2017-2586783
Debt Service Coverage
(in thousands)

I&E Exhibit No. 1-SR
Schedule 1
Page 4 of 6

	FTY	FPFTY	I&E	I&E	I&E
	2016-17	2017-18	Adjustments	Present Rates	Proposed Rates
FUNDS PROVIDED					
Total Operating Revenues	\$ 625,116	\$ 628,180	\$ 25	\$ 628,205	\$ 667,850
Other Income Incr. / (Decr.) Restricted Funds	1,235	1,707	-	1,707	1,707
City Grant	-	-	-	-	-
AFUDC (Interest)	1,136	920	-	920	920
TOTAL FUNDS PROVIDED	627,487	630,807	25	630,832	670,477
FUNDS APPLIED					
Fuel Costs	176,741	184,970	-	184,970	184,970
Other Operating Costs	383,976	369,192	(5,491)	363,701	365,466
Total Operating Expenses	560,717	554,162	(5,491)	548,671	550,436
Less: Non-Cash Expenses	92,630	80,185	-	80,185	80,185
TOTAL FUNDS APPLIED	468,087	473,977	(5,491)	468,486	470,251
Funds Available to Cover Debt Service	159,400	156,830	5,516	162,346	200,226
1975 Ordinance Bonds Debt Service	-	-	-	-	-
Debt Service Coverage 1975 Bonds	-	-	-	-	-
Net Available after Prior Debt Service	159,400	156,830	5,516	162,346	200,226
Equipment Leasing Debt Service	-	-	-	-	-
Net Available after Prior Capital Leases	159,400	156,830	5,516	162,346	200,226
1998 Ordinance Bonds Debt Service	66,868	101,720	5,250	106,970	106,970
1999 Ordinance Subordinate Bonds Debt Service - (TXCP)	-	-	-	-	-
Total 1998 Ordinance Debt Service	\$ 66,868	\$ 101,720	5,250	\$ 106,970	\$ 106,970
Debt Service Coverage 1998 Bonds	2.38	1.54		1.52	1.87
Net Available after 1998 Debt Service	\$ 92,532	\$ 55,110	\$ 266	\$ 55,376	\$ 93,256
1998 Ordinance Subordinate Bond Debt Service	-	-	-	-	-
Debt Service Coverage Subordinate Bonds	-	-	-	-	-
Aggregate Debt Service	\$ 66,868	\$ 101,720	5,250	\$ 106,970	\$ 106,970
Debt Service Coverage (Combined liens)	2.38	1.54		1.52	1.87
	\$ 18,000	\$ 18,000	-	\$ 18,000	\$ 18,000
Debt Service Coverage (Combined liens with \$18.0 City Fee)	2.11	1.36		1.35	1.70

*Financial statements are a modified version of PGW Exhibit JFG-1, original electronic copy provided as a response to I&E-RE-1D.

Philadelphia Gas Works R-2017-2586783
Non-Cash Expenses
(in thousands)

	FTY 2016-17	FPFTY 2017-18	I&E Adjustments	I&E Present Rates	I&E Allowances	I&E Proposed Rates
DETAIL OF NON-CASH EXPENSES						
Depreciation on Historical Cost of Removal	\$ 48,842	\$ 50,596	\$ -	\$ 50,596		\$ 50,596
	4,100	4,100	-	4,100		4,100
	90.02%	88.11%	0.00%	88.11%		88.11%
Depreciation to Cleaning Accounts	(6,771)	(7,516)	-	(7,516)		(7,516)
Depreciation from MOAK Schedule	6,095	6,622	-	6,622		6,622
Depreciation to Capital	(676)	(894)	-	(894)		(894)
Total Depreciation	52,266	53,802	-	53,802		53,802
Gas Commission Expenses	955	965	-	965		965
City Payments	857	874	-	874		874
Sale Assessment Expenses	-	-	-	-		-
Other Post Employment Benefits	-	-	-	-		-
Pension Amortization of Unfunded Liability - GASB 68	38,552	22,573	-	22,573		22,573
Additional Pension Payment	-	1,971	-	1,971		1,971
Swap Option / GIC Proceeds	-	-	-	-		-
Total Non-Cash Expenses	92,630	80,185	-	80,185		80,185
DETAIL OF DEPRECIATION & AMORTIZATION						
Depreciation	48,842	50,596	-	50,596		50,596
Amortization Capital Lease	-	-	-	-		-
Discount, Premium & Issuance Expense	(9,874)	(9,262)	-	(9,262)		(9,262)
Extraordinary Loss	6,081	5,666	-	5,666		5,666
TOTAL	45,049	47,000	-	47,000		47,000
CHANGE OTHER ASSETS & LIABILITIES - SHOWN AS SOURCE OF CASH						
(Increase) Decrease Other Assets	30,429	27,071	-	27,071		27,071
Increase (Decrease) Other Liabilities	(1,351)	(32,345)	-	(32,345)		(32,345)
TECA Accretions - Payments	-	-	-	-		-
TECA Accretions	-	-	-	-		-
TOTAL	29,078	(5,274)	-	(5,274)		(5,274)
Total Other Assets & Liabilities - Increase / (Decrease)	29,078	(5,274)	0	(5,274)		(5,274)
TRANSFERS FROM INTEREST SCHEDULE						
Long Term Interest Accrued	44,834	49,160	-	49,160		49,160
Other Interest	(4,059)	(8,893)	-	(8,893)		(8,893)
Extraordinary Loss	6,081	5,666	-	5,666		5,666
Senior Revenue Bond Principal Paid	34,790	51,834	-	51,834		51,834
Total 1975 Revenue Bond Debt Service	-	-	-	-		-
Total 1998 Revenue Bond Debt Service	66,868	101,720	5,250	106,970		106,970
Revenue Bond Discount	45	50	-	50		50
Discount & Insurance & Premium	(9,874)	(9,262)	-	(9,262)		(9,262)
1998 Subordinate Bond Principal	-	-	-	-		-
1998 Subordinate Bond Total Debt Serv	-	-	-	-		-
Additional Debt Payment - Principal	-	-	-	-		-
Debt Debt - Principal	-	-	-	-		-
New Bond Sale	-	-	-	-		-
New Bond Premium	-	-	-	-		-
New Bond Discount	-	-	-	-		-
TECAS Interest Accruals	-	-	-	-		-
TECAS Interest Payments	-	-	-	-		-
Equipment Leasing Principal \$23	-	-	-	-		-
Equipment Leasing Interest \$20	-	-	-	-		-
Total \$23M Capital Lease	-	-	-	-		-
	138,685	192,275	5,250	197,525		197,525
TRANSFERS FROM OTHER INCOME						
Total Other Income	2,898	3,031	-	3,031		3,031
AFUDC - Interest	(1,136)	(920)	-	(920)		(920)
Capital Drawdown	65,000	52,000	14,000	66,000		66,000
Capital Spending	132,632	109,010	-	109,010		109,010
DSIC Spending/Revenue	32,541	30,579	-	30,579		30,579
OPEB Liability	6,632	31,028	-	31,028		31,028
Pension - Extra Contribution	2,790	1,971	-	1,971		1,971
Pension Expenses - GASB 68	35,762	22,573	-	22,573		22,573
RESTRICTED FUNDS	(1,663)	(1,324)	-	(1,324)		(1,324)
Non-Cash Working Capital	(37,738)	188	-	188		188
OTHER DATA						
Commercial Paper Fees	-	-	-	-		-
Ending Cash Balance	\$ 105,800	\$ 48,039	\$ -	\$ 72,555		\$ 110,434

*Financial statements are a modified version of PGW Exhibit JFG-1 original electronic copy provided as a response to I&E-RE-1D. The Statement of Non-Cash Expenses was not part of Exhibit JFG-1 but was included in the electronic copy of the exhibit.

Philadelphia Gas Works R-2017-2586783
Balance Sheet
(in thousands)

I&E Exhibit No. I-SR
Schedule 1
Page 6 of 6

	FTY BUDGET 8/31/17	FPFTY FORECAST 8/31/18	I&E Adjustments	I&E Proposed FPFTY 8/31/18
<u>ASSETS</u>				
Utility Plant Net	\$ 1,368,600	\$ 1,427,014		\$ 1,427,014
Sinking Fund Reserve	105,196	106,253		106,253
Capital Improvement Fund	113,603	61,864	56,000	117,864
Workers' Compensation Fund & Health Insurance Escrow	2,610	3,783		3,783
Cash	105,800	48,039		110,434
Accounts Receivable:				
Gas	136,100	132,838		132,838
Other	1,500	1,525		1,525
Accrued Gas Revenues	5,041	5,356		5,356
Reserve for Uncollectible	(71,890)	(70,389)		(70,389)
Total Accounts Receivable:	70,751	69,330		69,330
Materials & Supplies	47,005	49,220		49,220
Other Current Assets	455	459		459
Deferred Debits	4,782	4,987		4,987
Unamortized Bond Issuance Expense	393	341		341
Unamortized Loss on Reacquired Debt	47,865	42,199		42,199
Deferred Environmental	28,767	28,767		28,767
Deferred Pension Outflows	41,908	13,952		13,952
Other Assets	39,720	40,604		40,604
TOTAL ASSETS	\$ 1,977,455	\$ 1,896,812		\$ 2,015,207
<u>EQUITY & LIABILITIES</u>				
City Equity	30,427	42,463		85,858
Revenue Bonds	1,073,041	1,021,208	75,000	1,096,208
TECA Accretions				
Unamortized Discount	(875)	(825)		(825)
Unamortized Premium	78,667	69,303		69,303
Long Term Debt	1,150,833	1,089,686		1,164,686
Notes Payable	-	-		-
Accounts Payable	56,084	57,221		57,221
Customer Deposits	3,000	2,870		2,870
Other Current Liabilities	4,930	4,932		4,932
Pension Liability	291,253	285,870		285,870
Deferred Credits	2,091	4,497		4,497
Deferred Pension Inflows	-	-		-
Accrued Interest	15,564	14,839		14,839
Accrued Taxes & Wages	5,975	4,100		4,100
Accrued Distribution to City	3,000	3,000		3,000
Other Liabilities	414,298	387,334		387,334
TOTAL EQUITY & LIABILITIES	\$ 1,977,455	\$ 1,896,812		\$ 2,015,207
<u>CAPITALIZATION</u>				
Total Capitalization	1,181,260	1,132,149		1,250,544
Total Long Term Debt	1,150,833	1,089,686		1,164,686
Debt to Total Capital Ratio	97.42%	96.25%		93.13%
Capitalization Ratio	37.82	25.66		13.57
Total Capitalization Excluding Leases	1,181,260	1,132,149		1,250,544
Total Long Term Debt Excluding Leases	1,150,833	1,089,686		1,164,686
Debt to Total Capital Ratio	0.974	0.962		0.931
Plant in Service	2,252,163	2,384,795		2,384,795
Capital - 106&107	132,632	109,010		109,010
Total Plant	2,384,795	2,493,805		2,493,805
Accumulated Depreciation	(1,016,195)	(1,066,791)		(1,066,791)
Net Utility Plant	\$ 1,368,600	\$ 1,427,014		\$ 1,427,014

*Financial statements are a modified version of PGW Exhibit JFG-1, original electronic copy provided as a response to I&E-RE-1D.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission

v.

Philadelphia Gas Works

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Docket No. R-2017-2586783

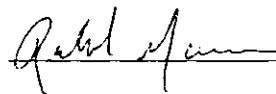
VERIFICATION OF RACHEL MAURER

I, **Rachel Maurer**, on behalf of the Bureau of Investigation and Enforcement, hereby verify that **I&E Statement No. 1 AMENDED, I&E Exhibit No. 1 AMENDED, I&E Statement No. 1-R, I&E Statement No. 1-SR, and I&E Exhibit No. 1-SR and any discovery responses which I have sponsored** were prepared by me or under my direct supervision and control.

Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same if called to the stand at any evidentiary hearing held in this matter.

This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Signed in Harrisburg, Pennsylvania, this 27 day of June, 2017.

A handwritten signature in cursive script, appearing to read "Rachel Maurer", is written over a horizontal line.

Rachel Maurer

I&E Statement No. 2
Witness: Christopher Keller

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Direct Testimony

of

Christopher Keller

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES
TAXES OTHER THAN INCOME

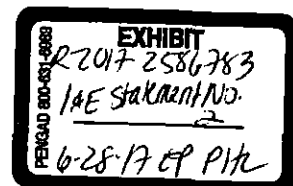


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1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Christopher Keller. My business address is Pennsylvania Public
3 Utility Commission, P.O. Box 3265, Harrisburg, PA 17105-3265.

4

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

6 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
7 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
8 Analyst.

9

10 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

11 A. An outline of my education and employment experience is attached as
12 Appendix A.

13

14 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

15 A. I&E is responsible for protecting the public interest in proceedings before the
16 Commission. I&E's analysis in the proceedings is based on its responsibility to
17 represent the public interest. This responsibility requires the balancing of the
18 interests of the ratepayers, the regulated utility, and the regulated community as a
19 whole.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. The purpose of my testimony is to review the base rate filing of Philadelphia Gas
3 Works (PGW or Company), and make recommended adjustments to PGW's
4 proposed operating and maintenance (O&M) expenses for the fully projected
5 future test year (FPFTY) ending August 31, 2018. My recommendations relate to
6 the following issues: payroll expense, payroll taxes, distribution expense,
7 collection expense, customer service expense, account management expense, rate
8 case expense, and pensions.

9
10 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

11 A. Yes. I&E Exhibit No. 2 contains schedules that support my direct testimony.
12

13 **Q. PLEASE SUMMARIZE YOUR RECOMMENDED ADJUSTMENTS.**

14 A. The following tables summarize my recommended adjustments.

	<u>Company Claim</u>	<u>I&E Adjustment</u>	<u>I&E Recommended Allowance</u>
O&M Expenses:			
Payroll Expense	\$93,743,000	(\$2,212,320)	\$91,530,680
Payroll Taxes	\$8,437,000	(\$199,109)	\$8,237,891
Distribution Expense	\$42,562,000	(\$1,740,860)	\$40,821,140
Collection Expense	\$4,420,000	(\$900,676)	\$3,519,324
Customer Service Expense	\$13,807,000	(\$331,244)	\$13,475,756
Account Management Exp.	\$8,487,000	(\$294,483)	\$8,192,517
Rate Case Expense	\$595,000	(\$244,049)	\$350,951
Total O&M Adjustments		(\$5,922,741)	

15

1 **PAYROLL EXPENSE**

2 **Q. WHAT IS INCLUDED IN PAYROLL EXPENSE?**

3 A. The payroll claim includes amounts for regular wages and overtime wages.

5 **Q. WHAT IS PGW'S CLAIM FOR PAYROLL?**

6 A. PGW's FPFTY claim for payroll expense consists of union labor of \$60,859,000
7 and non-union labor of \$32,884,000 for a total of \$93,743,000 (\$60,859,000 +
8 \$32,884,000) (I&E Ex. No. 2, Sch. 1, p. 2).

10 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

11 A. PGW based its claim on the budgeted payroll for the FPFTY with adjustments for
12 anticipated wage increases (PGW Filing, Volume I, Part 2, Responses to Filing
13 Requirements, III.A.21).

15 **Q. DO YOU AGREE WITH PGW'S CLAIM FOR PAYROLL EXPENSE?**

16 A. No.

18 **Q. WHAT IS YOUR RECOMMENDATION FOR PAYROLL EXPENSE?**

19 A. I recommend an allowance of \$91,530,680 for payroll expense, or a reduction of
20 \$2,212,320 (\$93,743,000 - \$91,530,680) to PGW's claim.

1 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

2 A. My recommendation is based on an adjustment for average historic vacancy levels
3 in order to reflect a more accurate employee complement in the FPFTY. It is
4 unreasonable to assume that PGW will maintain 100% full staffing based on its
5 own historic vacancy records. Since there will always be search and placement
6 time involved in filling vacancies, there will always be a certain level of vacancies
7 on a day-to-day operating basis that should be reflected in the Company's payroll
8 allowance.

9
10 **Q. EXPLAIN HOW YOU CALCULATED YOUR RECOMMENDATION.**

11 A. I determined the average historic vacancy level, estimated an average salary per
12 employee for the FPFTY, and multiplied the average salary by the average
13 vacancy level to determine my recommended adjustment.

14
15 **Q. PLEASE ELABORATE.**

16 A. I reviewed PGW's history of vacant positions relative to budgeted positions for
17 2014, 2015, and 2016 as provided in PGW's revised response to I&E-RE-2-D
18 dated April 13, 2017 (I&E Exhibit No. 2. Sch. 2). With this information, I
19 calculated an average monthly vacancy rate of 40 positions for the last three years
20 (I&E Exhibit No. 2, Sch. 3).

21 Next, I calculated an estimated FPFTY average salary per employee of
22 \$55,308 based on PGW's HTY claim for payroll expense of \$85,123,501

($\$29,941,696 + \$55,181,805$) (I&E Exhibit No. 2, Sch. 1, p. 1) divided by the HTY employee count 1,617 ($1,117 + 500$) (I&E Exhibit No. 2, Sch. 2, p. 1). I used this period because headcount numbers were not provided for the FPFTY. However, I did adjust for the claimed 2.5% increase in overall salaries between the HTY and the FTY, and the claimed 2.5% increase in overall salaries between the FTY and the FPFTY (I&E Exhibit No. 2, Sch. 4), calculated as follows:

HTY Payroll Claim	\$85,123,501
Divided by HTY Headcount	$\div \quad \underline{1,617}$
HTY Average Salary	\$52,643
Adjusted for FTY Overall Increase x	$\underline{1.025}$
FTY Average Salary	\$53,959
Adjusted for FPFTY Overall Incr. x	$\underline{1.025}$
FPFTY Est. Average Salary	<u>\$55,308</u>

I used the HTY salary and headcount figures for a starting point in my calculation, because PGW did not provide projected headcount figures for the end of the FTY or the FPFTY as requested in I&E-RE-2-D (I&E Exhibit No. 2, Sch. 2, p. 1). However, stepping up the average salary amount for proposed pay increases in the FTY and the FPFTY should address any concerns about using the historic figures as a starting point in my calculation. Finally, I multiplied the average monthly vacancies of 40 by the average salary of \$55,308 for the FPFTY to

1 produce my recommended reduction of \$2,212,320 (\$55,308 x 40) to payroll
2 expense.

3
4 **PAYROLL TAXES**

5 **Q. WHAT ARE PAYROLL TAXES?**

6 A. Payroll taxes represent taxes imposed on employers and employees that are
7 usually calculated as a percentage of the salaries paid to staff. Payroll taxes
8 generally fall into two categories: deductions from an employee's wages and taxes
9 paid by the employer based on the employee's wages. PGW has made a claim in
10 this filing for its employer share of those payroll taxes.

11
12 **Q. WHAT IS PGW'S CLAIM FOR PAYROLL TAXES?**

13 A. PGW's FPFTY claim for payroll tax expense is \$8,437,000 (I&E Exhibit No. 2,
14 Sch. 5).

15
16 **Q. WHAT IS THE BASIS FOR THE COMPANY'S CLAIM?**

17 A. PGW's claim consists of Social Security and Medicare taxes (together FICA),
18 state unemployment tax (SUTA), and is offset by an allocation for capital and
19 OAR tax.

20
21 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

22 A. No.

1 **Q. WHAT IS YOUR RECOMMENDATION FOR PAYROLL TAXES?**

2 A. I recommend an allowance of \$8,237,891 for payroll tax expense, or a reduction of
3 \$199,109 (\$8,437,000 - \$8,237,891) to PGW's claim.

5 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

6 A. My recommended adjustment is based on recognition of the payroll reduction
7 resulting from my vacancy adjustment and is based on the percentage of total
8 payroll taxes to total payroll. It is calculated as follows:

FPFTY Total Payroll Tax Claim ¹	\$8,437,000
FPFTY Total Payroll Claim ²	÷ <u>\$93,743,000</u>
% Payroll Taxes to Total Payroll Claim	9%
I&E Payroll Adjustment from Above	x <u>\$2,212,320</u>
I&E Payroll Tax – recommended adjustment	<u>\$199,109</u>

15 **DISTRIBUTION EXPENSE**

16 **Q. WHAT IS INCLUDED IN DISTRIBUTION EXPENSE?**

17 A. Distribution expense includes the cost of labor, materials, and other expenses
18 required to operate and maintain PGW's distribution system.

¹ I&E Exhibit No. 2, Sch. 5, p. 1.

² I&E Exhibit No. 2, Sch. 1, p. 2 (Total payroll for non-union of \$32,884,000 + union of \$60,859,000 = \$93,743,000).

1 **Q. WHAT IS PGW'S CLAIM FOR DISTRIBUTION EXPENSE?**

2 A. PGW is claiming \$42,562,000 for distribution expense (PGW Exhibit JFG-2, p. 1).

3

4 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

5 A. PGW used the actual HTY amount along with anticipated FTY and FPFTY

6 increases primarily for information services as a result of overhead charges (I&E

7 Ex. No. 2, Sch. 6), and street machinery and maintenance contractors as a result of

8 increased spending for maintenance of mains (I&E Ex. No. 2, Sch. 7 and I&E Ex.

9 No. 2, Sch. 8).

10 In response to I&E-RE-12-D, PGW provided a breakdown of its claim for

11 distribution expense which showed increases in maintenance contractors of

12 \$918,553 (\$4,135,000 - \$3,216,447), information services of \$634,163

13 (\$4,115,000 - \$3,480,837), and street machinery of \$656,697 (\$1,234,000 -

14 \$577,303) from the HTY 2016 to the FPFTY 2018 (I&E Ex. No. 2, Sch. 8, p. 2).

15

16 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

17 A. No.

18

19 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR DISTRIBUTION**
20 **EXPENSE?**

21 A. I recommend an allowance of \$40,821,140 for distribution expense, or a reduction

22 of \$1,740,860 (\$42,562,000 - \$40,821,140) to PGW's claim. I will discuss each

1 component (maintenance contractors, information services and street machinery)
2 of my recommended adjustment to distribution expense in detail below.
3

4 **Maintenance Contractors**

5 **Q. WHAT IS PGW'S CLAIM FOR MAINTENANCE CONTRACTORS?**

6 A. PGW is claiming \$4,135,000 for maintenance contractors (I&E Ex. No. 2, Sch. 8,
7 p. 2).
8

9 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

10 A. No.
11

12 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR MAINTENANCE**
13 **CONTRACTORS?**

14 A. I recommend an allowance of \$3,685,000 or a reduction of \$450,000 (\$4,135,000 -
15 \$3,685,000) to PGW's claim.
16

17 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

18 A. My recommendation is based on the normalization of hydrostatic testing. In
19 PGW's response to I&E-RE-41 (I&E Ex. No. 2, Sch. 9), which requested a
20 detailed explanation and supporting documentation for the increase in

1 maintenance contractors from HTY 2016 to FTY 2017, PGW states \$500,000 of
2 the increase is for hydrostatic testing in the FTY 2017 which occurs approximately
3 once every ten years. To normalize this expense, I divided the \$500,000 by ten
4 years resulting in an annual expense for the hydrostatic tests of \$50,000, which
5 produces a reduction to the Company's claim of \$450,000 (\$500,000 - \$50,000).

6 Therefore, I recommend an allowance of \$3,685,000 or a reduction of
7 \$450,000 (\$4,135,000 - \$3,685,000) to PGW's claim as this test does not occur on
8 an annual basis and should be normalized over a ten year period.

9
10 **Information Services**

11 **Q. WHAT IS PGW'S CLAIM FOR INFORMATION SERVICES?**

12 A. PGW is claiming \$4,115,000 for information services (I&E Ex. No. 2, Sch. 8).

13
14 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

15 A. No.

16
17 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR INFORMATION**
18 **SERVICES?**

19 A. I recommend an allowance equal to the HTY of \$3,480,837, or a reduction of
20 \$634,163 (\$4,115,000 - \$3,480,837) to PGW's claim.

1 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

2 A. PGW's response to OCA-VI-22 requesting a breakdown and explanation for the
3 increase in information services from the HTY 2016 to FTY 2017 states that
4 information services are overhead expenses that are applied to various departments
5 with approximately \$400,000 of the overall increase due to an increase in direct
6 allocations from year to year and approximately \$155,000 of the increase due to an
7 increase in per unit cost (I&E Ex. No. 2, Sch. 6).

8 However, PGW's response fails to provide any supporting documentation
9 to show how the allocation of overhead charges was calculated or how the increase
10 in per unit cost is determined. Therefore, in the absence of proper supporting
11 information for such a sizeable increase, I recommend an allowance equal to the
12 HTY of \$3,480,837, or a reduction of \$634,163 (\$4,115,000 - \$3,480,837) to
13 PGW's claim.

14
15 **Street Machinery**

16 **Q. WHAT IS PGW'S CLAIM FOR STREET MACHINERY?**

17 A. PGW is claiming \$1,234,000 for street machinery (I&E Ex. No. 2, Sch. 8).
18

19 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

20 A. No.

1 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR STREET**
2 **MACHINERY?**

3 A. I recommend an allowance equal to the HTY amount of \$577,303, or a reduction
4 of \$656,697 (\$1,234,000 - \$577,303) to PGW's claim.

6 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION FOR STREET**
7 **MACHINERY?**

8 A. PGW's response to OCA-VI-23 requests a breakdown and explanation for the
9 increase in street machinery from HTY 2016 to FTY 2017 (I&E Ex. No. 2,
10 Sch. 7). PGW's response states this is due to increases in the maintenance of
11 mains of \$455,000, maintenance of services of \$120,000, and mains and services
12 miscellaneous expenses of \$23,000. PGW's response fails to provide any
13 supporting documentation to show how the increase was calculated or determined,
14 and historic actual expenses have gone down every year from 2013 to 2016 (I&E
15 Ex. No. 2, Sch. 8). Therefore, in the absence of proper supporting information for
16 PGW's claim, I recommend an allowance equal to the HTY amount of \$577,303,
17 or a reduction of \$656,697 (\$1,234,000 - \$577,303) to PGW's claim as the
18 increases in the FTY and FPFTY are unsupported.

1 **Overall Recommendation for Distribution Expense**

2 **Q. WHAT IS YOUR OVERALL RECOMMENDED ALLOWANCE FOR**
3 **DISTRIBUTION EXPENSE?**

4 A. My recommended adjustments for maintenance contractors, information services,
5 and street machinery result in a total downward adjustment of \$1,740,860
6 (\$450,000 + \$634,163 + \$656,697) to PGW's claim or a recommended allowance
7 of \$40,821,140 (\$42,562,000 - \$1,740,860) for distribution expense.

8
9 **COLLECTION EXPENSE**

10 **Q. WHAT IS INCLUDED IN COLLECTION EXPENSE?**

11 A. Collection expense includes the cost of labor, materials, and other expenses
12 required for collections on customer accounts.

13
14 **Q. WHAT IS PGW'S CLAIM FOR COLLECTION EXPENSE?**

15 A. PGW is claiming \$4,420,000 for collection expense (PGW Exhibit JFG-2, p. 1).
16

17 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

18 A. PGW used the actual HTY amount along with anticipated FTY and FPFTY
19 increases primarily from an increase in purchased services to increase the number
20 of third party collection agencies from five in 2016 to ten in 2017, and the use of a

1 third party administrator to manage its third party collections process in 2017 (I&E
2 Ex. No. 2, Sch. 10).

3
4 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

5 A. No.

6
7 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR COLLECTION**
8 **EXPENSE?**

9 A. I recommend an allowance of \$3,519,324 for collection expense, or a reduction of
10 \$900,676 (\$4,420,000 - \$3,519,324) to PGW's claim.

11
12 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

13 A. My recommendation is based on using the HTY amount for PGW's claim for
14 purchases services of \$449,324, which is a reduction of \$900,676 (\$1,350,000 -
15 \$449,324) to PGW's claim for purchased services.

16 PGW's response to I&E-RE-42, which requested support for the expense
17 increase, fails to provide any of the requested supporting documentation to show
18 how the increase in the number of third party collectors of \$400,000 and the
19 anticipated use of a third party administrator to manage its third party collections
20 process of \$500,000 were calculated or determined. Therefore, in the absence of
21 proper supporting information for PGW's claim. I recommend an allowance equal
22 to the HTY amount of \$449,324, or a reduction of \$900,676 (\$1,350,000 -

1 \$449,324) to PGW's claim as the increases in the FTY and FPFTY are
2 unsupported.

3
4 **CUSTOMER SERVICE EXPENSE**

5 **Q. WHAT IS INCLUDED IN CUSTOMER SERVICE EXPENSE?**

6 A. Customer service expense includes the cost of labor, materials, and other expenses
7 required to provide instructions or assistance to customers to promote safe,
8 efficient and economical use of the utility's service.

9
10 **Q. WHAT IS PGW'S CLAIM FOR CUSTOMER SERVICE EXPENSE?**

11 A. PGW is claiming \$13,807,000 for customer service expense (PGW Exhibit JFG-2,
12 p. 1).

13
14 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

15 A. PGW used the actual HTY amount along with an anticipated FTY and FPFTY
16 increase in labor and information services with the increase in information
17 services resulting from the increase in the per unit cost of equipment (I&E Ex. No.
18 2, Sch. 11).

19
20 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

21 A. No.

1 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR CUSTOMER**
2 **SERVICE EXPENSE?**

3 A. I recommend an allowance of \$13,475,756 for customer service expense, or a
4 reduction of \$331,244 (\$13,807,000 - \$13,475,756) to PGW's claim.

6 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

7 A. My recommendation is based on using the HTY amount of \$2,776,756 for the
8 purchased services component of information services, which produces a
9 reduction of \$331,244 (\$3,108,000 - \$2,776,756) to PGW's claim for purchased
10 services.

11 PGW's response to OCA VI-27 (I&E Ex. No. 2, Sch. 11) fails to provide
12 any of the requested supporting documentation to show how the increase in per
13 unit cost of equipment was determined. Therefore, in the absence of proper
14 supporting information for PGW's claim, I recommend an allowance equal to the
15 HTY amount of \$2,776,756, or a reduction of \$331,244 (\$3,108,000 - \$2,776,756)
16 to PGW's claim as the increases in the FTY and FPFITY are unsupported.

18 **ACCOUNT MANAGEMENT EXPENSE**

19 **Q. WHAT IS INCLUDED IN ACCOUNT MANAGEMENT EXPENSE?**

20 A. Account management expense includes the cost of labor, materials, and other
21 expenses required for maintaining customer accounts.

1 **Q. WHAT IS PGW'S CLAIM FOR ACCOUNT MANAGEMENT EXPENSE?**

2 A. PGW is claiming \$8,487,000 for account management expense (PGW Exhibit
3 JFG-2, p. 1).
4

5 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

6 A. PGW used the actual HTY amount along with anticipated FTY and FPFTY
7 increases, primarily resulting from the increase in labor and purchased services.
8 The increase in purchased services was driven by inflationary cost increases and
9 expansion of services associated with renewals of PGW's bill printing and
10 remittance processing vendor contracts (I&E Ex. No. 2, Sch. 12).
11

12 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

13 A. No.
14

15 **Q. WHAT ALLOWANCE DO YOU RECOMMEND FOR ACCOUNT
16 MANAGEMENT EXPENSE?**

17 A. I recommend an allowance of \$8,192,517 for account management expense, or a
18 reduction of \$294,483 (\$8,487,000 - \$8,192,517) to PGW's claim.
19

20 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

21 A. My recommendation is based on using the HTY amount for purchased services of
22 \$1,622,517 or a reduction of \$294,483 (\$1,917,000 - \$1,622,517) to PGW's claim.

PGW's response to I&E-RE-44 (I&E Ex. No. 2, Sch. 12) fails to provide any of the requested supporting documentation to show how the increases in the inflationary cost increases and costs associated with bill printing and processing vendor contracts were determined. Therefore, in the absence of proper supporting information for PGW's claim, I recommend an allowance equal to the HTY amount of \$1,622,517 for the purchased services component of account management expense.

RATE CASE EXPENSE

Q. BREIFLY DESCRIBE THE NATURE AND TYPES OF EXPENDITURES TYPICALLY ALLOWED AS A PART OF A REGULATED UTILITY'S OVERALL RATE CASE EXPENSE.

A. The nature and types of individual expenditures that comprise a utility's allowable claim for rate case expense are those directly incurred to compile, present, and defend a utility's request for a base rate increase before the Commission. The actual expenditures and estimated costs typically found in an allowable rate case expense claim include legal fees for outside counsel, fees to outside consultants, and the cost of printing, document assembly, and postage.

Q. HOW HAS THE COMMISSION TRADITIONALLY TREATED RATE CASE EXPENSE FOR RATEMAKING PURPOSES?

1 A. The Commission has historically stated that it considers prudently incurred rate
2 case expense as an ongoing expense, occurring at irregular intervals, related to the
3 rendering of utility service. The Commission has also cited the importance of
4 considering the involved utility's history regarding the frequency of rate case
5 filings as an essential element to determine the normalized level of rate case
6 expense for ratemaking purposes.

7
8 **Q. HOW IS THE FREQUENCY OF RATE CASE FILINGS DETERMINED?**

9 A. The frequency is determined by calculating the average number of months
10 between the utility's previous rate case filings.

11
12 **Q. WHAT IS PGW'S CLAIM FOR RATE CASE EXPENSE?**

13 A. PGW's claim for rate case expense is \$595,000 (PGW Filing, Volume I, Part 2,
14 Responses to Filing Requirements, III.A.20).

15
16 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

17 A. PGW has estimated its total rate case expense amount to be \$1,784,000 and is
18 requesting an amortization period of three years (36 months) (PGW Filing,
19 Volume I, Part 2, Responses to Filing Requirements, III.A.20). This produces an
20 amortized claim of \$595,000 ($\$1,784,000 \div 3$).

1 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

2 A. No. I have two areas of disagreement with PGW's claim. First, I disagree with
3 PGW's attempt to amortize, rather than normalize, its rate case expense claim at
4 any amount. Second, PGW's claimed three-year, or 36 month, recovery period is
5 not supported by its historic record of filing frequency. PGW's proposal fails to
6 properly rely upon historic data and is speculative in nature. As such, it cannot be
7 justifiably relied upon to determine the appropriate recovery period.

8
9 **Q. WHAT IS YOUR RECOMMENDATION FOR RATE CASE EXPENSE?**

10 A. I recommend that PGW's rate case expense be normalized over a period of 61
11 months resulting in an annual expense of \$350,951 $[(\$1,784,000 \div 61 \text{ months}) \times$
12 12 months], or a reduction of \$244,049 $(\$595,000 - \$350,951)$ to PGW's claim.

13
14 **Q. YOUR FIRST ISSUE IDENTIFIED ABOVE PERTAINS TO THE**
15 **REQUIREMENT THAT RATE CASE EXPENSE SHOULD BE**
16 **NORMALIZED RATHER THAN AMORTIZED. BRIEFLY DISCUSS THE**
17 **CONCEPT OF NORMALIZATION.**

18 A. Normalization is a ratemaking concept that describes the transformation of an
19 operating expense that recurs at irregular intervals into a "normal" annual test year
20 expense allowance. Normalization specifically addresses the prospective recovery
21 of an ongoing expense that recurs sporadically. Allowed normalized expenses are

1 no different than any other O&M expense in that a company is given the
2 opportunity to achieve full recovery.

3
4 **Q. PLEASE EXPLAIN THE CONCEPT OF AMORTIZATION.**

5 A. Amortization is an accounting procedure that extinguishes an atypical, nonrecurring
6 expense over a pre-determined number of years by charging to operations, a pro rata
7 share based on the selected amortization period. Although a claim for an
8 unrecovered normalized expense would be disallowed if requested in a subsequent
9 rate case, because the base rate case gives the opportunity to reevaluate and reset the
10 normalized level of expense, an amortized expense allowance could be claimed in
11 succeeding rate cases as long as there is a remaining unamortized balance.

12
13 **Q. IS PGW'S PROPOSED AMORTIZATION OF RATE CASE EXPENSE**
14 **IMPROPER?**

15 A. Yes. PGW's rate case expense claim should be normalized, and done so over a
16 period of 61 months, rather than the proposal to amortize the claim over 36
17 months, because it is an ongoing expense that recurs at irregular intervals (the
18 precise circumstances for normalization treatment of an expense). It is well settled
19 that for ratemaking purposes the Commission normalizes rate case expense;
20 therefore, the Company's requested amortization must be rejected.

1 **Q. YOUR SECOND ISSUE RELATES TO PGW'S CLAIMED THREE-YEAR**
2 **RECOVERY PERIOD FOR RATE CASE EXPENSE. WHY DO YOU**
3 **DISAGREE WITH THE PROPOSED THREE-YEAR RECOVERY**
4 **PERIOD?**

5 A. I disagree with PGW's claimed three-year recovery period because it is not
6 supported by PGW's historic record of filing frequency. The proposed recovery
7 period fails to properly rely upon historic data and is speculative in nature. As
8 such, it should not be relied upon to determine the appropriate period to apply the
9 normalization treatment.

11 **Q. FURTHER EXPLAIN YOUR RATIONALE FOR RECOMMENDING A 61-**
12 **MONTH NORMALIZATION PERIOD FOR RATE CASE EXPENSE.**

13 A. In contrast to PGW's proposed three-year period, I recommend a 61-month
14 normalization period which is a reasonable interval given PGW's actual base rate
15 filing history. PGW's three most recent base rate case filing dates are as follows
16 (I&E Ex. No. 2, Sch. 13):

Docket No.	Date Filed
R-2017-2586783	February 27, 2017
R-2009-2139884	December 19, 2009
R-00061931	December 22, 2006

1 Using PGW's last three base rate case filing dates, an average interval is computed
2 to be 61 months $((86 \text{ mo.} + 36 \text{ mo.}) \div 2 \text{ intervals})$. PGW's requested 36 month
3 recovery period is unsupported by PGW's historic filing record. Thus, its three
4 year normalization period should be rejected as it would result in an unreasonable
5 increase in rates.

6
7 **PENSIONS**

8 **Q. WHAT IS INCLUDED IN PENSIONS?**

9 A. PGW's claim for pensions includes the amount for its defined benefit pension
10 plan.

11
12 **Q. WHAT IS PGW'S CLAIM FOR PENSIONS?**

13 A. PGW is claiming \$51,800,000 for pensions (PGW Exhibit JFG-2, p. 1); however,
14 PGW later removes \$22,573,000 from its expense line resulting in a net pension
15 expense claim of \$29,227,000. In addition, for calculating its debt service
16 coverage ratio, PGW adds back approximately \$2,000,000-\$3,000,000.

17
18 **Q. WHAT IS THE BASIS FOR PGW'S CLAIM?**

19 A. PGW states that its claim is based on the total of a required cash contribution,
20 additional cash contribution, and amortization of PGW's unfunded pension
21 liability for its defined benefit plan (I&E Ex. No. 2, Sch. 14). While the total
22 claim of \$51,800,000 is reflected on the pension expense line of PGW Exhibit

1 JFG-2, p.1, in response to I&E-RE-1-D, PGW stated that it removed \$22,573,000
2 of its claim from the expense line for the "Pension Amortization of Unfunded
3 Liability – GASB 68" and reflects it as a non-cash item when calculating its debt
4 service coverage ratio (I&E Ex. No. 2, Sch. 15). PGW argues that it needs a debt
5 service coverage ratio above 2.0x to produce enough cash to meet all of its
6 obligations which includes the up to \$3,000,000 for the pension fund (PGW
7 Statement No. 2, p. 14, lns. 3-4).

8
9 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

10 A. No.

11
12 **Q. WHAT DO YOU RECOMMEND FOR PENSIONS?**

13 A. I recommend disallowance of \$3,000,000, which represents the pension fund
14 amount included in determining a higher debt service coverage ratio (PGW
15 Statement No. 2, p. 14, ln. 3).

16
17 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

18 A. My recommendation is based on acceptance of the \$29,227,000 actual cash
19 contribution for the FPFTY and the recommended disallowance of the \$3,000,000
20 used in calculating PGW's debt service coverage ratio.

1 **Q. WHY DO YOU RECOMMEND AN ALLOWANCE LIMITED TO THE**
2 **CASH CONTRIBUTION?**

3 A. In PGW's response to OCA-II-9, the Company provides a breakdown of the three
4 components of its pension claim (I&E Ex. No. 2, Sch. 16, p. 3). The first two
5 components of PGW's expense claim, the required pension contribution of
6 \$27,256,000 and the additional pension contribution of \$1,971,000 result in a total
7 of \$29,227,000 (\$27,256,000 + \$1,971,000). This amount matches the actuarial
8 report's "Mid-Year Contribution" amount for the FPFTY which represents the
9 actual cash payment to be made by PGW into its pension plan in the FPFTY (I&E
10 Ex. No. 2, Sch. 17, p. 2). Therefore, recovery of this amount is appropriate.

11
12 **Q. WHY IS IT INAPPROPRIATE FOR THE COMPANY TO RECEIVE IN**
13 **BASE RATES AN AMOUNT HIGHER THAN THE EXPECTED FPFTY**
14 **CASH OUTLAY FOR PENSIONS?**

15 A. While the Company argues that the additional amount representing the unfunded
16 pension liability should be recovered in computing its debt service coverage ratio,
17 I disagree because the actuary would have taken the unfunded amount into
18 consideration when it determined the appropriate FPFTY cash contribution
19 amount. That FPFTY cash contribution amount is what was determined to be
20 necessary in order to bring the fund into a fully funded status. Thus, providing
21 recovery of an additional amount representing the amortization of unfunded
22 liability (non-cash item) in base rates is unnecessary.

1 For these reasons stated above, I recommend disallowance of any recovery
2 for the unfunded pension liability as it is not appropriate for a cash flow basis
3 company for ratemaking purposes.
4

5 **Q. HAS PGW STATED THE AMORTIZATION OF THE UNFUNDED**
6 **PENSION LIABILITY IS NOT INCLUDED IN THE REVENUE**
7 **REQUIREMENT?**

8 A. Yes. In response to I&E-RE-53 which requests the docket number of the
9 proceeding where PGW received authorization by the Commission to include the
10 amortization of PGW's unfunded pension liability in its pension claim for
11 ratemaking purposes, PGW states the amortization for the unfunded liability is not
12 included in its revenue requirement (I&E Ex. No. 2, Sch. 18).
13

14 **Q. DO YOU AGREE THAT THE UNFUNDED PENSION LIABILITY IS NOT**
15 **INCLUDED IN THE REVENUE REQUIREMENT?**

16 A. No. PGW is including an additional \$2,000,000 to \$3,000,000 for its pension fund
17 above the amount needed to fund the required cash contributions (PGW Statement
18 No. 2, p. 13, ln. 6 through p. 14, ln. 9). It appears this \$2,000,000 to \$3,000,000
19 represents a portion of the unfunded pension liability which is built into the
20 claimed overall revenue requirement.

1 **Q. PLEASE EXPLAIN.**

2 A. PGW's request to recover the unfunded pension liability is not included in the
3 revenue requirement as a traditional expense item; however, PGW has requested
4 *coverage for a portion of the unfunded pension liability as part of its rationale for*
5 higher debt service coverage ratio.

6
7 **Q. HOW HAS I&E REFLECTED ITS RECOMMENDED ADJUSTMENT FOR**
8 **THE PENSIONS?**

9 A. I&E Witness Maurer has incorporated this adjustment in her recommendation for
10 the debt service coverage ratio (I&E Statement No. 1, pp. 17-18).

11

12 **HEALTH INSURANCE**

13 **Q. WHAT IS INCLUDED IN HEALTH INSURANCE?**

14 A. PGW has a self-funded plan for active employees and related stop-loss insurance
15 that would reimburse PGW for claims above \$300,000 (PGW Statement No. 7,
16 p. 12, lns. 6-7 and I&E Ex. No. 2, Sch. 19).

17

18 **Q. WHAT IS PGW'S CLAIM FOR HEALTH INSURANCE?**

19 A. PGW's claim for health insurance is \$31,800,000 (PGW Exhibit JFG-2, p. 1).

20

21 **Q. DO YOU AGREE WITH PGW'S CLAIM?**

22 A. No. However, I am not making a dollar adjustment at this time.

1 **Q. WHY DO YOU DISAGREE WITH PGW’S HEALTH INSURANCE**
2 **CLAIM?**

3 A. I have concerns about the self-insured health plan and the possibility that
4 ratepayers may be harmed if exorbitantly large claims are submitted for major
5 illnesses or injuries.

6
7 **Q. PLEASE EXPLAIN.**

8 A. In response to I&E-RE-50 and in its notes to the financial statements, PGW
9 indicates that it has recently closed its Health Insurance Escrow Fund that was
10 used to track the activity of its self-insured plan in September 2015 (I&E Exhibit
11 No. 2, Sch. 20 and PGW Filing, Volume I, Part 1, Responses to Filing
12 Requirements, II.A.3, Philadelphia Gas Works, Basic Financial Statements and
13 Supplementary Information, August 31, 2016 and 2015, p. 32). A self-insured
14 employer takes on the risk of paying health-related claims for its employees;
15 therefore, it must have adequate funding to pay for claims made that can be
16 unpredictable in nature. By closing its Health Insurance Escrow Fund, PGW may
17 not have adequate funds available to pay those claims.

18
19 **Q. ARE YOU STATING THAT PGW SHOULD NOT HAVE A SELF-INSURED**
20 **PLAN?**

21 A. No. However, I am recommending additional measures to properly evaluate the
22 prudence of the Company’s self-funded health insurance in its next base rate case.

1 **Q. WHAT DO YOU RECOMMEND FOR HEALTH INSURANCE FUNDING?**

2 A. I recommend that the Commission instruct PGW to re-establish the Health
3 Insurance Escrow Fund in which it will be required to deposit any employee
4 contributions and Company contributions assessed in base rates toward its self-
5 insured health plan. I further recommend that the funds deposited in the Health
6 Insurance Escrow Fund be restricted for use in funding medical claims and health
7 insurance administrative costs, including stop-loss insurance premiums.

8
9 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

10 A. Requiring PGW to segregate funds collected from employees and ratepayers for
11 the purpose of administering its health care plan will provide a level of assurance
12 that ratepayers and the Company will be protected from financial harm in the
13 event that large unanticipated claims are made. I recognize that PGW has stop-
14 loss insurance, which is designed to limit the upper level of out-of-pocket costs for
15 the Company on a per employee basis. However, depending on the specific stop-
16 loss policy amendments, claims for certain medical conditions such as transplants
17 and premature births may be excluded. Additionally, some stop-loss insurance has
18 a once-and-done provision, which would exclude specific employees from future
19 stop-loss coverage subsequent to an initial payment for that employee.

20 Segregating funds in a Health Insurance Escrow Fund is the best way to ensure
21 that employees receive the health care coverage they are promised without risking
22 harm to the Company or the ratepayers.

1 **Q. DO YOU HAVE ANY ADDITIONAL RECOMMENDATIONS**
2 **REGARDING THE COMPANY'S HEALTH INSURANCE?**

3 A. Yes. I recommend that the Company be required to provide actuarial reports and
4 historical escrow account performance data for each intervening test year leading
5 up to the Company's next base rate case. Additionally, I recommend that the
6 Company secure competitive health insurance quotes for comparable health
7 insurance from the insurance industry at least biennially to properly evaluate the
8 costs of maintaining self-funded health insurance vs. subscribing to a premium
9 based health insurance plan.

10

11 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

12 A. Yes.

APPENDIX A
Professional and Educational Experience
Christopher Keller

Professional Experience

January 2014 to Present
Fixed Utility Financial Analyst
Pennsylvania Public Utility Commission, Harrisburg, Pennsylvania
Bureau of Investigation & Enforcement

September 2008 to January 2014
Insurance Company Financial Analyst
Pennsylvania Insurance Department, Harrisburg, Pennsylvania
Bureau of Licensing & Financial Analysis

Education and Training

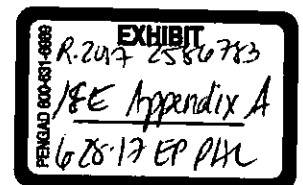
York College of Pennsylvania, York, Pennsylvania
Bachelor of Science, Accounting, 2006
Master of Business Administration, Finance Concentration, 2008

FAI Utility Finance and Accounting for Financial Professionals, Boston, MA
May 21-23, 2014

Testimony Submitted

I have testified and/or submitted testimony in the following proceedings:

- Docket No. R-2014-2420279 – UGI Central Penn Gas, Inc., 1307(f)
- Docket No. R-2014-2419774 – Wellsboro Electric Company
- Docket No. R-2014-2428304 – Borough of Hanover – Water
- Docket No. R-2014-2452705 – Delaware Sewer Company
- Docket No. P-2014-2404341 – Delaware Sewer Company
- Docket No. R-2015-2468056 – Columbia Gas of Pennsylvania, Inc.
- Docket No. P-2015-2511333 – Metropolitan Edison Company
- Docket No. P-2015-2511351 – Pennsylvania Electric Company
- Docket No. P-2015-2511355 – Pennsylvania Power Company
- Docket No. P-2015-2511356 – West Penn Power Company
- Docket No. R-2015-2518438 – UGI Utilities, Inc. – Gas Division
- Docket No. R-2016-2543311 – UGI Central Penn Gas, Inc., 1307(f)
- Docket No. R-2016-2537349 – Metropolitan Edison Company
- Docket No. R-2016-2537352 – Pennsylvania Electric Company
- Docket No. R-2016-2537355 – Pennsylvania Power Company
- Docket No. R-2016-2537359 – West Penn Power Company



APPENDIX A
Professional and Educational Experience
Christopher Keller

Testimony Submitted (continued)

I have testified and/or submitted testimony in the following proceedings:

- Docket No. R-2016-2531550 – Citizens' Electric Company
- Docket No. R-2016-2531551 – Wellsboro Electric Company
- Docket No. R-2017-2587526 – Philadelphia Gas Works, 1307(f)

Assisted with the Following Cases

- Docket No. R-2013-2397353 – Pike County Light & Power Company (Gas)
- Docket No. R-2013-2397237 – Pike County Light & Power Company (Electric)
- Docket No. R-2014-2428742 – West Penn Power Company
- Docket No. R-2014-2428743 – Pennsylvania Electric Company
- Docket No. R-2014-2428744 – Pennsylvania Power Company
- Docket No. R-2014-2428745 – Metropolitan Edison Company
- Docket No. R-2014-2462723 – United Water Pennsylvania

I&E Exhibit No. 2
Witness: Christopher Keller

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Exhibit to Accompany

the

Direct Testimony

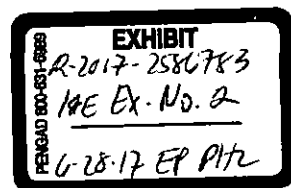
of

Christopher Keller

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES
TAXES OTHER THAN INCOME



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

Request: I&E RE-3-D

Reference Company's response to the Filing Requirements III.A.21 and Company Exhibits JFG-1 and JFG-2 concerning payroll expenses. Provide the following:

A. Total payroll expenses for the fiscal years ended August 31, 2015, 2016, 2017, and 2018 broken down by union and non-union and by category of operating expenses listed in Company Exhibit JFG-1 and JFG-2;

B. Breakdown similar to the Company's response to Filing Requirements III.A.21.f for the fiscal years ended August 31, 2014, 2015, HTY 2016, FTY 2017, and FPFTY 2018 broken down by union and non-union for employee benefits.

Response: A. Labor expense is the same for both JFG-1 and JFG-2. Please see below for the breakout.

	FY 2015	
DEPARTMENT	NON-UNION	UNION
ACCOUNT MANAGEMENT	490,928	2,142,741
ADMINISTRATIVE & GENERAL	14,282,505	3,062,139
COLLECTION	364,902	1,683,383
CUSTOMER SERVICE	1,379,925	6,348,810
DISTRIBUTION	2,364,660	19,427,945
FIELD SERVICES	4,151,272	18,643,437
GAS PROCESSING	2,943,002	6,518,583
MARKETING	2,475,313	242,981
Grand Total	28,452,508	58,070,020
	FY 2016	
DEPARTMENT	NON-UNION	UNION
ACCOUNT MANAGEMENT	403,132	2,067,909
ADMINISTRATIVE & GENERAL	15,886,628	2,840,354
COLLECTION	261,180	1,732,641
CUSTOMER SERVICE	1,720,105	5,775,245
DISTRIBUTION	2,219,936	17,970,619
FIELD SERVICES	4,299,286	18,180,122
GAS PROCESSING	3,146,947	6,408,837
MARKETING	2,004,482	206,078
Grand Total	29,941,696	55,181,805
	FY 2017	
DEPARTMENT	NON-UNION	UNION
ACCOUNT MANAGEMENT	593,000	2,379,000

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

ADMINISTRATIVE & GENERAL	15,937,002	1,954,998
COLLECTION	402,000	1,612,000
CUSTOMER SERVICE	2,075,000	6,362,000
DISTRIBUTION	2,736,000	19,700,658
FIELD SERVICES	4,474,655	20,101,687
GAS PROCESSING	3,160,000	5,669,000
MARKETING	2,274,000	222,000
Grand Total	31,651,657	58,001,343
FY 2018		
DEPARTMENT	NON-UNION	UNION
ACCOUNT MANAGEMENT	608,000	2,438,000
ADMINISTRATIVE & GENERAL	16,777,000	3,412,000
COLLECTION	412,000	1,652,000
CUSTOMER SERVICE	2,127,000	6,521,000
DISTRIBUTION	2,804,000	20,122,000
FIELD SERVICES	4,587,000	20,675,000
GAS PROCESSING	3,239,000	5,811,000
MARKETING	2,330,000	228,000
Grand Total	32,884,000	60,859,000

B. For Filing Requirements III.A.21.F, PGW does not break down employee benefits by union and non-union.

Response

Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: March 27, 2017

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

Request: I&E RE-2-D

Concerning employee numbers. Provide the following:

- A. Employee counts, total and by union and non-union categories for the following fiscal years ended August 31, 2014, 2015, Historic Test Year (HTY) 2016, Future Test Year (FTY) 2017, and Fully Projected Future Test Year (FPFTY) 2018;
- B. Indicate the number of employee positions that have been eliminated by month since the commencement of the HTY and that are expected to be eliminated during the FTY or FPFTY; and
- C. Number of vacant positions by month for the following fiscal years ended August 31, 2014, 2015, and HTY 2016 broken down by union and non-union.

Response:

- A. FY2014 – Union 1,136 & Non-Union 495
FY2015 – Union 1,147 & Non-Union 442
HTY2016 – Union 1,117 & Non-Union 500
FY2017 as of 2/28/17 – Union 1,140 & Non-Union 503
- B. PGW does not track this data in the manner requested. The end of year number of personnel by department as well as the yearly average number of personnel by department from 2014 through 2018 is presented in OCA-II-7(i)-(n) & (p) Attachment A.
- C. The number of vacant positions is not tracked on a monthly basis, however, overall headcount is. Following is a listing of the difference between actual headcount and budgeted headcount for the time periods requested.

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

Month Ending	(+/-) Budgeted Headcount
FY 2014	
Sep-13	-53
Oct-13	-54
Nov-13	-47
Dec-13	-55
Jan-14	-85
Feb-14	-80
Mar-14	-81
Apr-14	-85
May-14	-90
Jun-14	-88
Jul-14	-95
Aug-14	-57

Month Ending	(+/-) Budgeted Headcount
FY 2015	
Sep-14	43
Oct-14	54
Nov-14	47
Dec-14	52
Jan-15	-52
Feb-15	-31
Mar-15	-32
Apr-15	-49
May-15	-48
Jun-15	-57
Jul-15	-48
Aug-15	-44

Month Ending	(+/-) Budgeted Headcount
FY 2016	
Sep-15	-41
Oct-15	-51
Nov-15	-52
Dec-15	-48
Jan-16	-38
Feb-16	-30
Mar-16	-34
Apr-16	-35
May-16	-28
Jun-16	-20
Jul-16	-21
Aug-16	-23

Response Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer PGW
William J. Ambrose, Jr., Director, Administration and Human Resources, PGW

Dated: April 13, 2017

Philadelphia Gas Works
 Computation of Average Monthly Vacancies for Payroll Expense Adjustment
 For the Year Ended August 31, 2018

Line	Month	(1) 2014	(2) 2015	(3) 2016
1	September	(53)	43	(41)
2	October	(54)	54	(51)
3	November	(47)	47	(52)
4	December	(55)	52	(48)
5	January	(85)	(52)	(38)
6	February	(80)	(31)	(30)
7	March	(81)	(32)	(34)
8	April	(85)	(49)	(35)
9	May	(90)	(48)	(28)
10	June	(88)	(57)	(20)
11	July	(95)	(48)	(21)
12	August	(57)	(44)	(23)
13	Total (Add Line 1 through Line 12)	<u>(870)</u>	<u>(165)</u>	<u>(421)</u>
14				
15	3 Year Average Vacancy Level ((Col. 1, Ln 13 + Col. 2, Ln 13 + Col. 3, Ln 13) / 36)	<u><u>(40)</u></u>		

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

Request: I&E RE-4-D Provide a copy of all current union employee contracts and outline any and all contractual wage increases for the fiscal years ending August 31, 2017 and August 31, 2018.

Response: See I&E-RE-4-D Attach A. The Company and the Union agreed to the following wage increases: (i) 2.5% - Effective May 15, 2017; and, (ii) 2.5% - Effective May 15, 2018

Response Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW
Provided by: William J. Ambrose, Jr., Director, Administration and Human Resources, PGW

Dated: April 13, 2017

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

Request: I&E RE-5-D Provide supporting documentation for all wage increases for all non-union employees for the fiscal years ending August 31, 2017 and August 31, 2018.

Response: Wages for all non-union employees are budgeted to increase by approximately 2.5% for the fiscal years ending August 31, 2017 and August 31, 2018 (subject to PGW Board approval). This assumption is consistent with the collective bargaining agreement between PGW and Local 686, Utility Workers' Union of America AFL-CIO. See I&E RE-4-D Attachment A.

PGW also adjusted non-union employee salaries in the amount of \$3.5 million on January 1, 2017 in order to adjust for PGW's lower than market salaries. This adjustment is based on a 2010 comparison to utility industry companies prepared by the Hay Group¹ (for which salaries were updated by the Hay Group in 2015).

The Hay Group compensation study was recognized in PGW's 2015 PUC Management Audit in Finding II-8 (which is provided below).² The Management Audit noted that PGW compensation levels were well below market levels -- around the 15th percentile for lower level management (i.e. the lowest 15%) and much lower for upper level management. Finding II-8 also provides "Schumaker & Company believes that compensation rates this far below market make it difficult to attract and retain top talent."

The salary adjustment was provided to 312 of the 506 non-union PGW/Philadelphia Gas Commission employees and the adjustments were calculated as follows:

- non-union employees whose compensation did not rise to the minimum of the salary 50th percentiles were adjusted to the minimum except for Executive Grades 1-4;
- Executive Grades 1-4 were adjusted to the minimum of the 37.5 percentile; and
- the salaries of the CEO, COO and CFO were not adjusted.

Finding II-8 Compensation for management-level positions is below market, making it difficult to attract talent.

The most recent compensation study for PGW was conducted in 2010 by Hay Group, a global management consulting firm. This study revealed that PGW compensation levels for exempt employees was well below market (i.e., around the 15th percentile for lower-level management and much lower for upper-level management).

¹ The Hay Group is now Korn Ferry-Hay Group.

² Philadelphia Gas Works Final Stratified Management and Operations Audit Report -- Docket No. D-2015-2468141 -- dated August 2015 -- see pages 46-47 -- can be found at the following link:
<http://www.puc.state.pa.us/pdocs/1389279.pdf>.

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

Salary ranges were last adjusted in 2005 and even then were only applied to upper-level management positions. PGW has not implemented an incentive compensation system as was recommended by Schumaker & Company in the 2008 PaPUC Stratified Management & Operations Audit.

Exhibit II-10 is a chart from the 2010 Hay Group study comparing PGW compensation levels to comparable positions in the energy sector as rated using the Hay point system (the figures on the horizontal axis). The linear data represents the average pay within a percentile group. As such, the P25 line, is the average pay at the bottom 25th percentile of reported compensation. In every case, PGW's level of compensation falls well below the 25th percentile.

Since the completion of the 2010 report, PGW reports that it is falling further behind the market on compensation.

Schumaker & Company believes that compensation rates this far below market make it difficult to attract and retain top talent. As was discussed in Finding II-6, 42% of PGW's 57 most senior managers are eligible for retirement immediately. PGW has reported difficulty in filling key positions. Most notable is the difficulty the organization has had in attracting and retaining the Director of Customer Affairs. The job has been filled twice in two years after lengthy searches. Finding IT professionals also remains a challenge. A sudden surge in retirements combined with difficulty attracting and retaining talent represents a continuity of operations risk for PGW.

Response	Joseph Golden, Executive Vice President and Acting Chief Financial Officer PGW
Provided by:	Charles J. Grant, SVP, HR, Labor, & Corporate Communications
Dated:	April 13, 2017

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

Request: I&E RE-23-D Reference Company Exhibits JFG-1, p. 1 and JFG-2, p. 1 and the Company's responses to the Filing Requirements III.A.14 and III.A.50 concerning taxes. Provide the following:

- A. Copy of the most recent PUC Assessment invoice;
- B. Detailed breakdown of all taxes included on line 29 in Exhibit JFG-1, p. 1 for the fiscal years ended August 31, 2015, HTY 2016, FTY 2017, and FPFTY 2018;
- C. Detailed breakdown of all taxes included on line 30 in Exhibit JFG-2, p. 1 for the fiscal years ended August 31, 2015, HTY 2016, FTY 2017, and FPFTY 2018; and
- D. Reconciliation between the Company's claim for taxes in Exhibit JFG-2 of \$8,437,000 and the Company's response to Filing Requirements III.A.50 of taxes totaling \$12,962,000 (\$9,427,000 + \$184,000 + \$3,351,000) for Social Security, Unemployment, and PUC Assessments for the FPFTY.

Response:

- A. See I&E-RE-23-D Attachment A
- B. Taxes are the same for both Exhibit JFG-1 and Exhibit JFG-2. Please see table below for a breakdown of all taxes.

DESCRIPTION	FY 2015	FY 2016	FY 2017	FY 2018
Capital & OAR Tax Allocations (Credit)	\$-1,092,625	\$-1,227,016	\$-1,145,000	\$-1,174,000
FICA Employers' Medicare Contribution	1,662,750	1,646,663	1,752,000	1,795,000
FICA Employers' Old Age Survivors Contribution	7,017,429	6,963,819	7,445,000	7,632,000
State Unemployment Taxes	234,957	137,244	180,000	184,000
Grand Total	7,822,511	7,520,710	8,232,000	8,437,000

- C. Please refer to the response to question I&E RD-23-D-B for a detailed breakdown of all taxes on line 30 in Exhibit JFG-2, p. 1, for the fiscal years ended August 31, 2015, HTY 2016, FTY 2017, and FPFTY 2018.

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

- D. The difference between FY 2018 taxes on Exhibit JFG-2, line 30, of \$8,437,000 and the PGW's response to Filing Requirements III.A.50 of taxes totaling \$12,962,000 are the PUC Assessments fee and Capital & OAR Tax Allocation credits. PGW does not include the PUC Assessment fee as tax on line 30 of Exhibit JFG-2, p. 1. Please see the table below for the reconciliation of the aforementioned schedules.

DESCRIPTION	FY 2018	
	Exhibit JFG-2	III.A.50
Capital & OAR Tax Allocations (Credit)	\$-1,174,000	\$0
Social Security and Medicare Taxes	9,427,000	9,427,000
State Unemployment Taxes	184,000	184,000
P.U.C. Assessment Fees	0	3,351,000
Grand Total	8,437,000	12,962,000

Response

Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer PGW

Dated: March 27, 2017

**Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Office of Consumer Advocate, Set VI in
Docket No. R-2017-2586783**

Request: OCA-VI-22 Refer to the response to I&E-RE-12. Provide a breakdown and explanation for the \$553,163 (16%) increase in Information Services expense between 2016 and 2017.

Response: Information Services expenses are overhead charges that are applied to various departments and are charged to various operating and capital accounts. Moreover, the methodology used to determine expenses is directly tied to how many devices such as computers, printers, phones, laptops, etc., are used by the department and unit cost. Approximately \$400,000 of the increase in Information Services expense is due to an increase in direct allocations year over year for leases, purchases, services, maintenance software and department labor. Approximately \$155,000 of the increase is due to an increase in per unit cost.

Response
Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: April 19, 2017

**Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Office of Consumer Advocate ("OCA"), Set VI in
Docket No. R-2017-2586783**

Request: OCA-VI-23 Refer to the response to I&E-RE-12. Provide a breakdown and explanation for the \$632,697 (110%) increase in Street Machinery expense between 2016 and 2017.

Response: Mains & Services Miscellaneous Expenses increased by \$23,000, Maintenance of Mains increased by \$455,000, Maintenance of Measuring & Regulation Station increased by \$35,000 and Maintenance of Services increased by \$120,000.

Response
provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Date: April 14, 2017

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

Request: I&E RE-12-D Reference Company Exhibits JFG-1, p. 1 and JFG-2, p. 1, concerning Distribution Expense, provide a detailed breakdown by category for the following fiscal years ended August 31:

- A. 2013;
- B. 2014;
- C. 2015 - \$38,629,000;
- D. HTY 2016 - \$37,173,000;
- E. FTY 2017 - \$41,690,000;
- F. FPFTY 2018 - \$42,562,000;
- G. For Parts A through F, provide a breakdown between labor and non-labor costs (for the non-labor portion, specifying a further breakdown by category); and
- H. For Part G, provide a detailed explanation for all changes in labor and non-labor costs, by category greater than 15% from the prior year.

Response: See RE-12-D Attachment A

In response to I&E RE-12-D-H, explanations were provided for deviations greater or less than 15% and over or under \$1,000,000. Expenses and deviations for all categories are the same for both JFG-1 and JFG-2.

Response
Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: March 27, 2017

**Philadelphia Gas Works
Distribution Department
Fiscal Years 2013 through 2018**

Expense Category	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Labor	18,058,051	20,969,661 ^(a)	21,792,605	20,190,554	22,367,000	22,926,000
Expense of Employees	33,463	49,911	44,059	64,529	62,000	63,000
General Material	1,829,734	3,488,469 ^(a)	3,341,856	3,821,814	3,405,000	3,473,000
Tools & Uniform	2,271,409	2,570,425	3,218,883	2,491,669	2,967,000	3,027,000
Electric	14,232	16,760	16,960	16,453	20,000	20,000
Utility Gas Usage	-	2	-	-	-	-
Postage	7,464	4,649	166	734	-	-
Dues & Subscriptions	3,670	1,897	2,925	2,050	5,000	5,000
Purchased Services	917,659	723,160	706,048	602,068	653,000	555,000
Equipment Rentals	73,438	101,282	39,283	29,094	17,000	17,000
Other Rents	3,954	4,321	8,309	5,683	7,000	7,000
Maint Contractors	1,195,088	2,434,904 ^(a)	2,709,905	3,216,447	4,016,000	4,135,000
Operating Exp Deduction	-	(12,379)	25,703	(102,069)	-	-
Facilities Management	1,012,428	975,738	1,094,686	1,137,530	1,027,000	1,047,000
Engineering	14,915	40,704	-	-	-	-
Information Services	2,619,111	2,838,141	3,243,753	3,480,837	4,034,000	4,115,000
Storeroom	5,171	(1,722)	-	-	-	-
Transportation	1,359,705	1,973,665	1,690,154	1,637,709	1,900,000	1,938,000
Street Machinery	839,065	749,448	693,820	577,303	1,210,000	1,234,000
Total Non-Labor Expenses	12,200,507	15,959,373	16,836,510	16,981,853	19,323,000	19,636,000
Department Total	30,258,558	36,929,034	38,629,116	37,172,407	41,690,000	42,562,000

a) In FY 2014, the primary reason for the large increases in labor, general materials, and maintenance contractors expenses, when compared to FY 2013, are the result of a large increase in spending for maintenance of mains. The number of broken mains more than doubled from 260 to 524 in FY 2014.

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

Request: I&E-RE-41

Reference PGW's response to I&E-RE-12-D concerning Distribution Expense. Provide the following:

- A. A detailed explanation and documentation to support the increase in Maintenance Contractors of \$799,553 (\$4,016,000 - \$3,216,447) from HTY 2016 to FTY 2017;
- B. Reference footnote "a." Provide the number and cost associated with broken mains by year from 2012 through 2016 and projected number of broken mains for FTY 2017 and FPFTY 2018.

Response:

A. The increase of \$800,000 in Maintenance Contractors spending from FY 2016 actual of \$3.216 million to FY 2017 budget of \$4.016 million is comprised of the following:

- 1. An expenditure of \$500,000 is budgeted in FY 2017 for hydrostatic testing of the TP-1 line. This line item only occurs approximately once every ten years.
- 2. External Corrosion Direct Assessment (ECDA) spend is budgeted for \$336,000 in FY 2017, and increase of \$305,000 from FY 2016 actual. This four step process covers the line through examination of places on the pipe where anomalies could form and corrode.
- 3. These increases are partially offset by small budgeted decreases in other line items from FY 2016 actuals. Bridge main inspection and repairs and environmental waste removal, for example.

B. PGW does not track the cost for broken main repairs separately nor does PGW have projections on broken mains moving forward.

Response

Provided by: Ray Welte, VP Field Operations, PGW

Dated:

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

Request: I&E-RE-42 Reference PGW's response to I&E-RE-13-D concerning Collection Expense. Provide a detailed explanation and documentation to support the increase in Purchased Services of \$900,676 (\$1,350,000 - \$449,324) from HTY 2016 to FTY 2017.

Response:

The increase is due to the following:

1. PGW's Collections' Department will increase the number of third party collectors in FTY 2017 to 10 from 5 in HTY 2016 (Four – 1st Placement Agencies, Four – 2nd Placement Agencies, and Two – Third/Warehouse Placement Agencies). The anticipated cost increase from going to 5 to 10 third party collection agencies was anticipated to be \$400,000.
2. In FTY2017, PGW's Collections' Department anticipates the use of a third party administrator to manage its third party collections process. The projected cost increase in FTY2017 over HTY2016 is \$500,000.

Response

Provided by: Bernard Cummings, Vice President of Customer Service and Collections, PGW

Dated: April 17, 2017

**Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Office of Consumer Advocate, Set VI in
Docket No. R-2017-2586783**

Request: OCA-VI-27 Refer to the response to I&E-RE-14. Provide a breakdown and explanation for the \$270,244 (10%) increase in Information Services expense between 2016 and 2017.

Response: The reason for the increase in Information Services expense between FY2016 and FY2017 is due to an increase in the per unit cost of equipment (computers, monitors, printers, etc.). As a result, the cost of purchasing equipment increased from \$2,776,756 in FY 2016 to \$3,047,000 in FY 2017, an increase of \$270,244.

Response Daniel E. Leonard, Jr., Director, Budgeting and Cash Management, PGW
Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: April 19, 2017

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

Request: I&E-RE-44 Reference PGW's response to I&E-RE-15-D concerning Account Management Expense. Provide a detailed explanation and documentation to support the increase in Purchased Services of \$294,483 (\$1,917,000 - \$1,612,517) from HTY 2016 to FTY 2017.

Response:

The increase in purchase services from HTY2016 to FTY 2017 is due to both inflationary cost increases and expansion of services associated with the renewals of PGW's bill print and remittance processing vendor contracts.

Response

Provided by: Bernard Cummings, Vice President of Customer Service and Collections, PGW

Dated: April 17, 2017

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

Revised

- Request: I&E RE-25-D** Reference the Company's response the Filing Requirements III.A.25 concerning Rate Case Expense. Provide the following information for the last three base rate cases filed with the Commission:
- A. Docket number, date of filing, and method of resolution (i.e., settlement or litigation);
- B. Requested rate case expense and the actual rate case expense incurred for each case listed in response to Part A above.

Response:

- A. Information for the last three base rate cases:

2009-2010 Base Rate Case

PUC Docket No. R-2009-2139884
Date of Filing: December 19, 2009
Resolution: Extraordinary Portion Litigated;
 Base Rate Portion Settled
Effective Date of Rates: September 1, 2010

This base rate filing (R-2009-2139884) was made in compliance with the Commission's Order entered December 19, 2008 at Docket No. R-2008-2073938. The settlement permitted PGW to: (a) maintain the \$60 million revenue increase authorized in the extraordinary rate relief proceeding (R-2008-2073938); and, (b) increase annual distribution revenues by \$16 million – the amount necessary to fund PGW's Other Than Post Employee Benefit (OPEB) obligations.

2006-2007 Base Rate Case

PUC Docket No. R-00061931
Date of Filing: December 22, 2006
Resolution: Litigated
Effective Date of Rates: October 19, 2007

2002 Base Rate Case

PUC Docket No. R-00017034
Date of Filing: February 25, 2002
Resolution: Extraordinary Portion Litigated;
 Base Rate Portion Settled
Effective Date of Rates: April 16, 2002

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

Concurrently with this base rate filing (R-00017034), PGW filed a Petition for Extraordinary Rate Relief. The settlement was equal to the \$36 million extraordinary rate award placed into effect on April 16, 2002 in accordance with the Commission's Extraordinary Rate Order which was entered on April 12, 2002 at Docket No. R-00017034.

- B. Expenses associated with the last three base rate cases are as stated below:

2009-2010 Base Rate Case	\$703,379
Extraordinary Rate Relief	\$236,322
2006-2007 Base Rate Case	\$695,174

Response Joseph Golden, Executive Vice President and Acting Chief Financial Officer PGW
Provided by: Daniel E. Leonard, Jr., Director, Budget & Cash Management & Finance, PGW

Dated: March 27, 2017

**Revised
Response**

Dated: April 13, 2017

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

REVISED

- Request: I&E-RE-34** Reference PGW's response to the Filing Requirements III.A.21 and PGW Exhibits JFG-1 and JFG-2 concerning pensions. Provide the following:
- A. Breakdown the \$51,800,000 claim between defined contribution plan and defined benefit plans;
 - B. Explanation of method used to develop the portion of the claim attributable to the defined benefit plan(s) identified in Part A above (e.g., accrual basis, actuarial-determined cash contributions, or some other method);
 - C. For PGW's last three base rate cases, state the dollar amount of each pension claim and the method used to determine the claim (e.g., accrual, cash-basis, or some other method);
 - D. If the claims as detailed in response to Part C above were based on something other than accrual or cash contributions in any of the last three base rate cases, provide a detailed explanation for each.

Response:

- A. Please refer to the table below for a detailed breakdown of the \$51,800,000 of pension expenses.

<u>PHILADELPHIA GAS WORKS</u>		
<u>DETAIL OF PENSION EXPENSES</u>		
	<u>2017</u>	<u>2018</u>
Amortization of Liability Loss 2014	\$ 14,192,788	\$ 2,554,702
Amortization of Asset (Gain) 2014	(7,952,059)	(7,952,059)
Amortization of Liability Loss 2015	4,524,024	4,388,303
Amortization of Asset Loss 2015	3,050,693	3,050,693
Amortization of Assumption Changes 2015	11,303,615	10,965,021
Amortization of Liability (Gain) 2016	(2,272,757)	(2,272,757)
Amortization of Asset Loss 2016	7,007,520	7,007,520
Amortization of Assumption Changes 2016	6,876,078	6,876,078
Amortization of Liability (Gain) 2017	(967,901)	(967,901)
Amortization of Liability (Gain) 2018	-	(1,076,600)
Sub-total Pension Expense (GASB 67)	<u>35,762,000</u>	<u>22,573,000</u>
Required Pension Contribution	26,470,000	27,256,000
Additional Pension Contribution	<u>2,790,000</u>	<u>1,971,000</u>
Sub-total Pension Expense	<u>29,260,000</u>	<u>29,227,000</u>
Total Pension Expense	<u><u>\$ 65,022,000</u></u>	<u><u>\$ 51,800,000</u></u>

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

B. PGW's pension expenses consist of the following three components:

- 1) Required Cash Contribution – The required cash contribution of \$27,256,000 is an actuarial-determined cash contribution using a 30-year closed amortization schedule.
- 2) Additional Cash Contribution – The additional cash contribution of \$1,971,000 is the difference between the actuarial-determined cash contribution using a 30-year closed amortization schedule and the actuarial-determined cash contribution using a 20-year open amortization schedule.
- 3) Amortization of gain/loss of PGW's unfunded pension liability – The accrued actuarial liability, as of any date, "is determined as the excess of the total present value of benefits for both active and non-active lives, over the total present value of both future normal costs and future employee contributions. This is also equal to the accumulated total of past Normal Costs, assuming this cost method and these assumptions, for this group of participants" (*Source: Philadelphia Pension Plan, Actuarial Valuation Report for Fiscal Year Ending June 30, 2016, Accounting Under GASB 67/68, p. 21*).

For the cash contribution and the additional cash contribution calculation, please refer to the actuarial study, Philadelphia Gas Works Pension Plan – Funding Actuarial Valuation Report for the Plan Year July 1, 2016 – June 30, 2017, provided in response to III.A.21.G.

For the amortization of PGW's unfunded pension liability calculation, please refer to the actuarial study, Philadelphia Gas Works Pension Plan Actuarial Valuation Report for the Fiscal Year Ending June 30, 2016 – Accounting under GASB 67/68, provided in response to III.A.21.G.

C. The dollar amount of each pension expense claimed in the last three base rate cases is as follows:

\$24,062,000	R.2009.2139884, Statement No. 2, Schedule JRB-1,
\$15,075,000	R.00061931, Statement No. 2, Schedule JRB-1,
\$3,091,000	R.00017034, Volume No. 2, Exhibit A-1-1,

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

- D. The pension expenses detailed in response to Part C above were based on actuarial-determined cash contributions using a 20-year open amortization schedule.

Response Daniel E. Leonard, Jr., Director, Budgeting and Cash Management, PGW
Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: May 2, 2017

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

Request: I&E RE-1-D Reference Philadelphia Gas Works (PGW or Company) Exhibits JFG-1 and JFG-2. Provide all schedules in live Microsoft Excel format with all formulas intact.

Response: See I&E-RE-1-D Attach A and Attach B.

Response

Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: March 27, 2017

PHILADELPHIA GAS WORKS
DETAIL OF NON-CASH EXPENSES
(DOLLARS IN THOUSANDS)

LINE NO.	DETAIL OF NON-CASH EXPENSES	ACTUAL 2014-15	ACTUAL 2015-16	30-YR HDD BUDGET 2016-17	10-YR HDD FORECAST 2017-18	10-YR HDD FORECAST 2018-19	10-YR HDD FORECAST 2019-20	10-YR HDD FORECAST 2020-21	10-YR HDD FORECAST 2021-22	LINE NO.
1	Depreciation on Historical	\$ 46,474	\$ 47,894	\$ 48,842	\$ 50,596	\$ 52,436	\$ 54,244	\$ 56,019	\$ 57,827	1.
2	Cost of Removal	2,897	3,785	4,100	4,100	4,100	4,100	4,100	4,100	2.
		92.08%	90.43%	90.02%	88.11%	88.11%	88.11%	88.11%	88.11%	
3	Depreciation to Clearing Accounts	(5,584)	(5,231)	(6,771)	(7,516)	(7,562)	(7,579)	(7,219)	(7,186)	3.
4	Depreciation from MOAK Schedule	5,142	5,635	6,095	6,622	6,663	6,678	6,361	6,332	4.
5	Depreciation to Capital	(442)	(596)	(676)	(894)	(899)	(901)	(858)	(854)	5.
6	Total Depreciation	48,929	51,083	52,266	53,802	55,637	57,443	59,261	61,073	6.
7	Gas Commission Expenses	905	752	955	965	987	1,007	1,027	1,048	7.
8	City Payments	1,099	1,364	857	874	892	909	928	946	8.
9	Sale Assessment Expenses	141	-	-	-	-	-	-	-	9.
10	Other Post Employment Benefits	-	-	-	-	-	-	-	-	10.
11	Pension Amortization of Unfunded Liability - GASB 68	23,461	35,860	38,552	22,573	10,947	10,411	(5,712)	(7,143)	11.
12	Swap Option / GIC Proceeds	-	-	-	-	-	-	-	-	12.
13	Total Non-Cash Expenses	74,535	89,059	92,630	78,214	68,463	69,770	55,503	55,924	13.
DETAIL OF DEPRECIATION & AMORTIZATION										
14	Depreciation	46,474	47,894	48,842	50,596	52,436	54,244	56,019	57,827	14.
15	Amortization Capital Lease	-	-	-	-	-	-	-	-	15.
16	Discount, Premium & Issuance Expense	2,684	(2,001)	(9,874)	(9,262)	(8,622)	(7,892)	(7,159)	(6,381)	16.
17	Extraordinary Loss	4,100	4,478	6,081	5,666	5,300	4,894	4,490	4,072	17.
18	TOTAL	53,258	50,371	45,049	47,000	49,114	51,246	53,350	55,518	18.
CHANGE OTHER ASSETS & LIABILITIES - SHOWN AS SOURCE OF CASH										
19	(Increase) Decrease Other Assets	(20,897)	2,417	30,429	27,071	14,595	325	(494)	(420)	19.
20	Increase (Decrease) Other Liabilities	44,593	25,792	(1,351)	(32,345)	(32,841)	(31,416)	(45,530)	(53,305)	20.
21	TECA Accretions - Payments	-	-	-	-	-	-	-	-	21.
22	TECA Accretions	-	-	-	-	-	-	-	-	22.
23	TOTAL	23,696	28,209	29,078	(5,274)	(18,246)	(31,091)	(46,024)	(53,725)	23.
24	Total Other Assets & Liabilities - Increase / (Decrease)	23,696	28,209	29,078	(5,274)	(18,246)	(31,091)	(46,024)	(53,725)	24.

PHILADELPHIA GAS WORKS
DEBT SERVICE COVERAGE
(Dollars in Thousands)

LINE NO.		ACTUAL 2014-16	ACTUAL 2015-16	30-YR HDD BUDGET 2016-17	10-YR HDD FORECAST 2017-18	10-YR HDD FORECAST 2018-19	10-YR HDD FORECAST 2019-20	10-YR HDD FORECAST 2020-21	10-YR HDD FORECAST 2021-22	LINE NO.
	FUNDS PROVIDED									
1	Total Gas Revenues	\$ 676,027	\$ 572,347	\$ 603,911	\$ 675,991	\$ 685,370	\$ 694,655	\$ 704,143	\$ 714,433	1.
2	Other Operating Revenues	21,220	18,890	21,205	21,022	21,250	21,475	21,701	21,940	2.
3	Total Operating Revenues	697,247	591,237	625,116	697,013	706,620	716,130	725,844	736,373	3.
4	Other Income Incr. / (Decr.) Restricted Funds	10,835	1,416	1,235	1,707	1,726	1,746	2,067	1,786	4.
5	City Grant	-	-	-	-	-	-	-	-	5.
6	AFUDC (Interest)	781	1,120	1,136	920	985	964	997	1,030	6.
7	TOTAL FUNDS PROVIDED	708,863	593,773	627,487	699,640	709,331	718,840	728,908	739,189	7.
	FUNDS APPLIED									
8	Fuel Costs	252,169	146,524	176,741	184,970	191,481	197,818	204,528	211,914	8.
9	Other Operating Costs	354,357	370,433	383,976	372,674	368,764	375,106	362,108	364,468	9.
10	Total Operating Expenses	606,526	516,957	560,717	557,644	560,245	572,924	566,636	576,382	10.
11	Less: Non-Cash Expenses	74,535	89,059	92,630	78,214	68,463	69,770	55,503	55,924	11.
12	TOTAL FUNDS APPLIED	531,991	427,898	468,087	479,430	491,762	503,154	511,133	520,458	12.
13	Funds Available to Cover Debt Service	176,872	165,875	159,400	220,210	217,549	215,686	217,775	218,731	13.
14	1975 Ordinance Bonds Debt Service	26,904	-	-	-	-	-	-	-	14.
15	Debt Service Coverage 1975 Bonds	6.57	-	-	-	-	-	-	-	15.
16	Net Available after Prior Debt Service	149,968	165,875	159,400	220,210	217,549	215,686	217,775	218,731	16.
17	Equipment Leasing Debt Service	-	-	-	-	-	-	-	-	17.
18	Net Available after Prior Capital Leases	149,968	165,875	159,400	220,210	217,549	215,686	217,775	218,731	18.
19	1998 Ordinance Bonds Debt Service	70,139	77,867	66,868	101,720	95,276	97,858	95,459	106,342	19.
20	1999 Ordinance Subordinate Bonds Debt Service - (TXCP)	-	-	-	-	-	-	-	-	20.
21	Total 1998 Ordinance Debt Service	70,139	77,867	66,868	101,720	95,276	97,858	95,459	106,342	21.
22	Debt Service Coverage 1998 Bonds	2.14	2.13	2.38	2.16	2.28	2.20	2.28	2.06	22.
23	Net Available after 1998 Debt Service	79,829	88,008	92,532	118,490	122,273	117,828	122,316	112,389	23.
24	Aggregate Debt Service	97,043	77,867	66,868	101,720	95,276	97,858	95,459	106,342	24.
25	Debt Service Coverage (Combined Liens)	1.82	2.13	2.38	2.16	2.28	2.20	2.28	2.06	25.
26	Debt Service Coverage (Combined Liens with \$18.0 City Fr)	1.64	1.90	2.11	1.99	2.09	2.02	2.09	1.89	26.

**Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Office of Consumer Advocate, Set II in
Docket No. R-2017-2586783**

Request: OCA-II-9 Please provide detailed workpapers and explain the following variances between the Statement of Income for FPFTY FY2017-18 and the Statement of Income for FTY 2016-17 18 shown on Exhibit JFG-2:

- a. Unbilled Adjustment: -\$1,358,000 or -81.17%;
- b. Natural Gas: +\$8,229,000 or +4.66%;
- c. Field Services: +\$971,000 or +2.47%;
- d. Distribution: +\$872,000 or +2.09%;
- e. Customer Service: +\$304,000 or +2.25%;
- f. Bad Debt Expense: -\$581,000 or -1.90%;
- g. Administrative & General: -\$2,691,000 or -3.90%;
- h. Health Insurance: -\$27,494,000 or -47.16%;
- i. Capitalized Administrative Charges: +\$2,846,000 or -18.02%;
- j. Pensions: -\$13,222,000 or -20.33%;
- k. Other Post Employment Benefits: +\$24,396,000 or +367.85%;
- l. Depreciation: +\$1,754,000 or +3.59%;
- m. Long-Term Debt: +\$4,326,000 or +9.65%;
- n. Other Interest: -\$2,834,000 or +69.82%;
- o. AFUDC: +\$216,000 or -19.01%;
- p. Loss From Extinguishment of Debt: -\$415,000 or -6.82%.

Response:

- a. The -\$1,358,000 difference between FPFTY FY2017-18 and the Statement of Income for FTY 2016-2017 is mainly due to two factors. First due to increase in rate per MCF from 10.2265 in FTY 2016-2017 to 10.7905 in FPFTY 2017-2018, an increase of \$0.56/MCF. Second, FY 2015-2016 unbilled balance is lower than expected unbilled balance in FPFTY 2017-2018. The actual unbilled balance as of August 31, 2016 was \$3,368,000; this was approximately \$2 million less than unbilled balance in FPFTY 2017-2018. Please refer to table below for more details.

**Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Office of Consumer Advocate, Set II in
Docket No. R-2017-2586783**

I&E Exhibit No. 2
Schedule 16
Page 2 of 3

- g. The -\$2,691,000 difference between FPFTY FY2017-18 and the Statement of Income for FTY 2016-17 is mainly due to a decrease in Administrative Consulting and Group Life Insurance, a combined total of -\$3,805,000. This amount is offset by an increase of \$1,114,000 in the combined total of departmental expenses.
- h. Starting FPFTY FY2017-18, PGW adopted a new accounting standard, GASB 75, Accounting and Financial Reporting for Other Post-Employment Benefits (OPEB). The Statement of Income for FPFTY FY2017-18 reports health insurance for \$30,811,000; however, on Statement of Income for FTY 2016-17 shown on Exhibit JFG-2 reports health insurance in the amount of \$58,305,000.
The new accounting procedure resulted in a \$27,494,000 decrease in health insurance, which reflects a decrease in the projection of medical coverage for both active and retired employees as well as an increase for prescription drug coverage.
- i. The decrease in Capitalized Administrative Charges is due to the decrease in Capital spending. Capital spending decreased by 19% from FY 2017 to FY 2018. A&G overhead is directly correlated with the increase or decrease in capital spending.
- j. The \$13,222,000 decrease between the Statement of Income for FPFTY FY2017-18 and the FTY FY2016-17 shown on Exhibit JFG-2 resulted primarily from a decrease in the amortization of the loss or gain on PGW's unfunded pension liability (Governmental Accounting Standards No. 67 or GASB 67). Please refer to PGW's response to the question III.A.21 for a copy of the October 28, 2016 actuarial valuations. The key changes that resulted in the decrease in pension expenses are listed in these reports. Please also refer to the table below for a breakdown of what is included in Pension Expense in FY 2017 and FY 2018.

**Response of Philadelphia Gas Works ("PGW")
to the Interrogatories of the Office of Consumer Advocate, Set II in
Docket No. R-2017-2586783**

I&E Exhibit No. 2
Schedule 16
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PHILADELPHIA GAS WORKS
DETAIL OF PENSION EXPENSES

	<u>2017</u>	<u>2018</u>
Amortization of Liability Loss 2014	\$ 14,192,788	\$ 2,554,702
Amortization of Asset (Gain) 2014	(7,952,059)	(7,952,059)
Amortization of Liability Loss 2015	4,524,024	4,388,303
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Amortization of Assumption Changes 2015	11,303,615	10,965,021
Amortization of Liability (Gain) 2016	(2,272,757)	(2,272,757)
Amortization of Asset Loss 2016	7,007,520	7,007,520
Amortization of Assumption Changes 2016	6,876,076	6,876,076
Amortization of Liability (Gain) 2017	(967,901)	(967,901)
Amortization of Liability (Gain) 2018	-	(1,076,600)
Sub-total Pension Expense (GASB 67)	<u>35,762,000</u>	<u>22,573,000</u>
Required Pension Contribution	26,470,000	27,256,000
Additional Pension Contribution	<u>2,790,000</u>	<u>1,971,000</u>
Sub-total Pension Expense	<u>29,260,000</u>	<u>29,227,000</u>
Total Pension Expense	<u>\$ 65,022,000</u>	<u>\$ 51,800,000</u>

- k. The \$24,396,000 increase between the Statement of Income for FPFTY FY2017-18 and the FTY FY2016-17 shown on Exhibit JFG-2 is primarily attributed to the implementation of a new accounting procedure regarding Governmental Accounting Standards No. 75 (GASB 75) in FY 2018. The key changes that resulted in the increase in OPEB expenses and made by GASB 75 are listed in these reports. Please refer to PGW's response to the question III.A.36 for a copy of the October 2016 actuarial valuation, the November 2016 projected GASB 75 costs, and a detail breakdown of the change in the accounting procedure as it relates to GASB 75. Please refer to PGW's response to question OCA-II-9 for a breakdown of what is included in Other Post-Employment Benefits in FY 2017 and FY 2018.
- l. The 3.59% increase in FPFTY FY2017-18 from FTY 2016-17 is due to the anticipated completion of additional Capital projects in FY2018.

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

Request: I&E-RE-32 Reference PGW's response to the Filing Requirements II.A.3, Philadelphia Gas Works, Basic Financial Statements and Supplementary Information, August 31, 2016 and 2015, p. 70 concerning actuarially determined pension contributions. Provide the following:

- A. Actuarially determined contribution amounts for fiscal year 2017 and fiscal year 2018;
- B. Provide a breakdown of the amounts given in response to Part A above by:
 - 1. Employer contributions;
 - 2. Employee contributions;
 - 3. Other (please explain).

Response:

- A. PGW's actuarial determined pension contribution amounts for FY 2017 (FTY) and FY 2018 (FPFTY) is \$29,260,000 and \$29,227,000, respectively.
- B. Please refer to Exhibit III.A.21.G for a copy of the Philadelphia Gas Works Pension Plan – Funding Actuarial Valuation Report for the Plan Year July 1, 2016 – June 30, 2017 and the Philadelphia Gas Works Pension Plan Actuarial Valuation Report for the Fiscal Year Ending June 30, 2016 – Accounting under GASB 67/68.

Please also refer to the actuarial determined mid-year contribution schedule, I&E-RE-32 Attachment A, titled Schedule of Prospective Funded Status, for both the 20-year open amortization period and the 30-closed amortization period.

Please refer to the response to question OCA-II-7-U for a detail of all pension expenses.

Response

Provided by: Daniel E. Leonard, Jr., Director, Budgeting and Cash Management, PGW

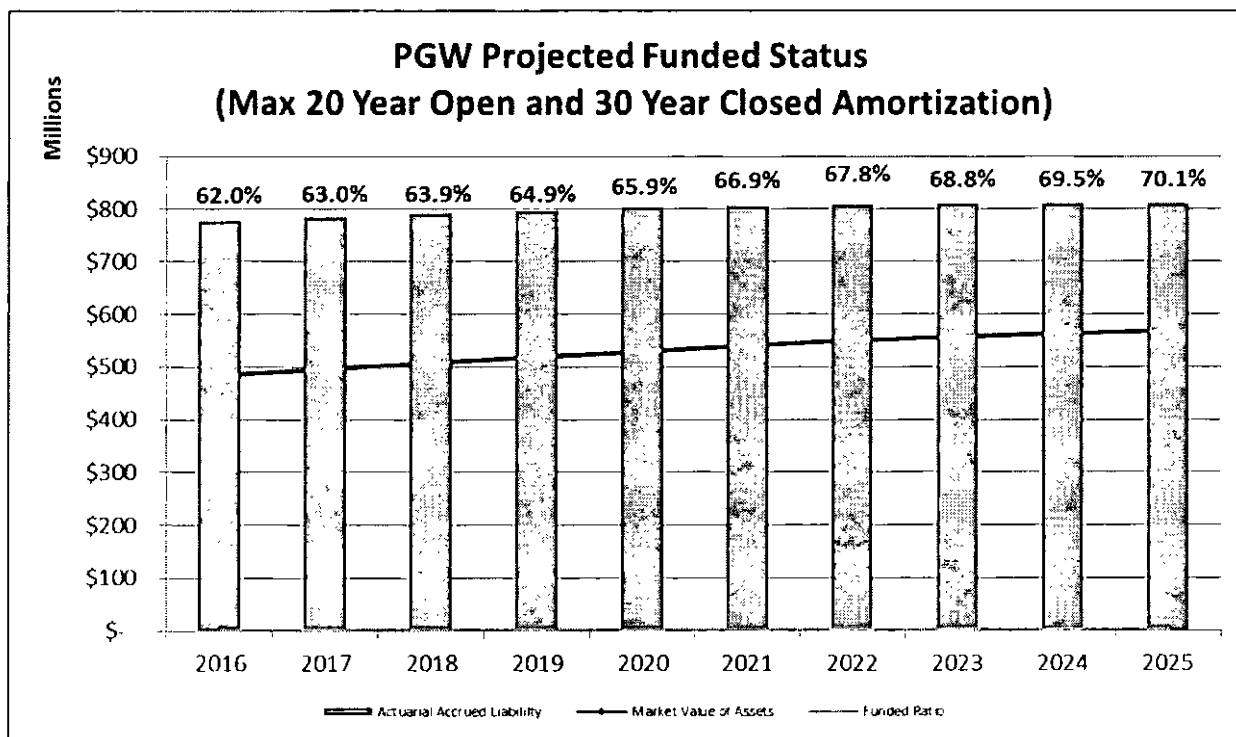
Dated: April 12, 2017

Aon Hewitt
Retirement and Investment Consulting

Schedule of Prospective Funded Status

Schedule of Prospective Funded Status (Max 20 Year Open and 30 Year Closed Amortization)

Actuarial Valuation Date	Market Value of Assets	Total Pension Liability	Net Pension Liability	Mid-Year Contribution	Funded Ratio	Covered Payroll	Contribution as % of Covered Payroll	NPL as a % of Covered Payroll
7/1/2016	\$ 483,259	\$ 779,351	\$ 296,092	\$ 29,260	62.01%	\$ 90,860	32.20%	325.88%
7/1/2017	495,290	786,543	291,253	29,201	62.97%	94,949	30.75%	306.75%
7/1/2018	506,966	792,836	285,870	29,227	63.94%	99,222	29.46%	288.11%
7/1/2019	518,249	798,300	280,051	29,361	64.92%	103,687	28.32%	270.09%
7/1/2020	529,287	803,703	274,416	29,267	65.86%	108,353	27.01%	253.26%
7/1/2021	539,874	807,408	267,534	28,403	66.87%	113,229	25.08%	236.28%
7/1/2022	549,285	809,665	260,380	27,526	67.84%	118,324	23.26%	220.06%
7/1/2023	557,447	810,756	253,309	26,709	68.76%	123,649	21.60%	204.86%
7/1/2024	564,315	811,491	247,175	25,598	69.54%	129,213	19.81%	191.29%
7/1/2025	569,580	812,168	242,587	25,018	70.13%	135,028	18.53%	179.66%



Investment returns assumed to be 7.30% per year.

Covered payroll projected to increase by 4.5% per year.

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

Request: I&E-RE-53 Reference PGW's response to OCA-II-9 concerning Pensions. Provide the docket number of the proceeding where PGW received authorization by the Commission to include the amortization of PGW's unfunded pension liability in its pension claim for ratemaking purposes.

Response: Please see attached response to OTS RE-74 served in PGW's most recent base rate case – Docket No. R-2009-2139884 which states the following:

PGW's policy regarding the funding of the employee's pension fund is to contribute the normal cost plus an amount equal to the amortization of the unfunded liability on a 20 year basis.

PGW's pension expense in the amount of \$24,062,000 remained the same from the initial filing to the settlement agreement (financial statements were provided as an exhibit to the May 2010 settlement agreement). The Joint Petition requests that, "except as provided [in the Settlement Agreement] PGW's base rate increase filing ... be approved." Joint Petition for Settlement, ¶15. It is important to note that the current GASB pension expense disclosure requirements were not effective in 2009-2010. At that time, PGW's income statement only disclosed the cash contribution to the pension fund which was calculated as explained in OTS RE-74.

Current GASB pension expense disclosure requirements provide that pension expense must include both cash contributions to the pension fund and accrued pension expense – the total of these 2 components appear in Exhibit JFG-2 on Line 29. The defined benefit pension plan cash contribution for the FPFTY is calculated the same as it was in the most recent base rate case. PGW uses the cash flow ratemaking methodology, therefore, the cash component of the FPFTY (i.e. FY 2018) pension expense totaling \$29,227,000 is included in PGW's revenue requirement and the accrual component is not.

The following provides the cash and accrual components of pension expense for FY 2015 to FY 2018:

	<u>ACTUAL</u> <u>2014-15</u>	<u>ACTUAL</u> <u>2015-16</u>	<u>BUDGET</u> <u>2016-17</u>	<u>FORECAST</u> <u>2017-18</u>
Pension Expense (Cash)	21,526	26,476	29,260	29,227
Pension Expense (Accrual)	22,222	35,860	35,762	22,573
Total Pension Expense				
Line 29 - Exhibit JFG-2	43,748	62,336	65,022	51,800

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

I&E Exhibit No. 2
Schedule 18
Page 2 of 2

Please see the responses to OCA II-7.u. and OCA II-9.j. for more
detailed information about the cash and accrual components of the FY
2017 and FY 2018 pension expense.

Response

Provided by:

Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated:

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

Revised

- Request: I&E RE-19-D** Reference Company Statement No. 7, p. 12, lns. 5-20, concerning health insurance, provide the following:
- A. Copy of all stop loss insurance policies for the Company's health insurance plan;
 - B. Costs associated with the Company's stop loss insurance for its health insurance plan for the fiscal years ended August 31, 2015, HTY 2016, FTY 2017, and FPFTY 2018;
 - C. In response to Part B, provide supporting documentation for the Company's estimate for stop loss insurance for the FTY and FPFTY;
 - D. Identify the account name(s) and amount(s) where the costs associated with the Company's stop loss insurance are reflected in Company Exhibits JFG-1, p. 1 and JFG-2, p. 1;
 - E. State the designated level(s) the stop loss insurance for the Company's health insurance plan covers;
 - F. State the amount by which the Company has exceeded any of the designated level(s) in the Company's stop loss insurance policy in Part D for the fiscal years ended August 31, 2014, 2015, and HTY 2016;
 - G. State whether dental benefits are covered under the stop loss insurance noted in Part B; and
 - H. If the response to Part G is yes, provide details on how stop loss protection for dental benefits is applied.

Response:

- A. See I&E-RE-19-D(A) Attachment A
- B. FY2015 = \$1,665,500
 FY2016 = \$1,246,890
 FTY2017 = \$621,555 as of February 28, 2017
 FPFTY2018 = N/A
- C. See Response to A.

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

I&E Exhibit No. 2
Schedule 19
Page 2 of 2

- D. The costs associated with the Company's stop loss insurance for its health insurance plan can be found on line number 25 of Exhibit JFG-1, p.1 and JFG-2, p.2. (revised)
- E. The current amount is \$300,000.
- F. See I&E-RE-19-D(F) Attachment A.
- G. No.
- H. N/A

Response

Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer PGW

Response Dated: March 27, 2017

Revised Response

Dated: April 13, 2017

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

Request: I&E-RE-50 Reference PGW's response to I&E-RE-19-D concerning Health Insurance. Provide the following:

- A. State whether PGW is claiming the cost of stop loss insurance in PGW's claim for Health Insurance in the FPFTY as the response to Part B states "N/A" for the FPFTY;
- B. If PGW is claiming the cost of stop loss insurance, state the amount PGW is claiming in the FPFTY and provide documentation to support PGW's claim;
- C. Year-end balances for PGW's health fund by year since inception of the self-insured plan;
- D. State the person(s)/parties that are responsible for determining the amount of stop loss insurance for PGW's Health Insurance;
- E. Supporting documentation used in determining the amount of stop loss insurance to be purchased by PGW (e.g., internal PGW correspondence, letters or reports from actuaries and/or other consultants, etc.); and
- F. Documentation, including but not limited to quotes, showing the cost of stop loss insurance for coverage levels above the current \$300,000 deductible.

Response:

- A. Yes.
- B. Active - \$750,000; Retired - \$750,000. Copies of the invoices from PGW's insurance carrier can be provided upon request.
- C. PGW does not have a fund.
- D. Lorraine Webb and William J. Ambrose, Jr in consultation with PGW's Healthcare Consultants
- E. See I&E-RE-19-D(F) Attachment A.
- F. See I&E-RE-19-D(A) Attachment A at pdf pages 46-48.

Response Lorraine Webb, Vice President, Human Resources and Organizational Development, PGW
Provided by: William J. Ambrose, Jr., Director, Administration and Human Resources, PGW

Dated: April 17, 2017

I&E Statement No. 2-SR
Witness: Christopher Keller

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Surrebuttal Testimony

of

Christopher Keller

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES
TAXES OTHER THAN INCOME

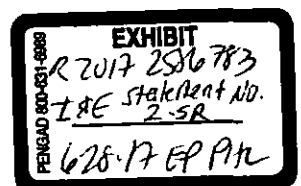


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1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Christopher Keller. My business address is Pennsylvania Public
3 Utility Commission, P.O. Box 3265, Harrisburg, PA 17105-3265.

4

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

6 A. I am employed by the Pennsylvania Public Utility Commission (Commission or
7 PUC) in the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility
8 Financial Analyst.

9

10 **Q. ARE YOU THE SAME CHRISTOPHER KELLER WHO SUBMITTED**
11 **THE DIRECT TESTIMONY CONTAINED IN I&E STATEMENT NO. 2**
12 **AND I&E EXHIBIT NO. 2?**

13 A. Yes.

14

15 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

16 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of
17 Philadelphia Gas Works (PGW or Company) witness Joseph F. Golden, Jr. (PGW
18 Statement No. 2-R).

1 **Q. DOES YOUR SURREBUTTAL INCLUDE AN ACCOMPANYING**
2 **EXHIBIT?**

3 A. Yes. I&E Exhibit No. 2-SR contains schedules that support my surrebuttal
4 testimony. In this surrebuttal testimony, I will also make references to my direct
5 testimony and its accompanying exhibit (I&E Statement No. 2 and I&E Exhibit
6 No. 2).

7
8 **PAYROLL EXPENSE**

9 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
10 **FOR PAYROLL EXPENSE.**

11 A. In direct testimony, I recommended an allowance of \$91,530,680 for payroll
12 expense, or a reduction of \$2,212,320 (\$93,743,000 - \$91,530,680). My
13 recommendation was based on an adjustment for the average historic vacancy
14 levels in order to reflect a more accurate employee complement in the FPFTY
15 (I&E Statement No. 2, pp. 3-6).

16
17 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
18 **TO YOUR RECOMMENDATION FOR PAYROLL EXPENSE?**

19 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my payroll expense
20 recommendation. In his response, Mr. Golden states that PGW's claim is based on
21 a headcount of 1,650 employees and it currently has 1,648 employees as of June
22 2017 with employee count trending up and with plans to stay at that level. Mr.

1 Golden further states my vacancy adjustment is based on 1,690 employees but that
2 PGW did not use that expected headcount in formulating its FPFTY payroll
3 expense claim (PGW Statement No. 2-R, pp. 21-22).
4

5 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT THE**
6 **EMPLOYEE COUNT IS TRENDING UPWARDS?**

7 A. No. While the employee count is up as of June 2017 at 1,648 employees,
8 employee counts for 2014, 2015, and 2016 were 1,631; 1,589; and 1,617
9 respectively (I&E Exhibit No. 2, Sch. 2, p. 1). In addition, the average vacancy
10 levels for 2014, 2015, and 2016 were 73, 14, and 35, respectively (I&E Exhibit
11 No. 2-SR, Sch. 1). This information suggests that the employee count varies from
12 year to year and is not trending upward as Mr. Golden argues.
13

14 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT YOUR**
15 **ADJUSTMENT IS BASED ON 1,690 TOTAL EMPLOYEES?**

16 A. No. My recommended vacancy adjustment reflects staffing at 1,610 or 40 *less*
17 positions in order to more accurately portray non-vacant positions, as it is
18 unreasonable to assume that PGW will maintain 100% full staffing based on its
19 own historic vacancy records. Since there will always be search and placement
20 time involved in filling vacancies, there will always be a certain level of vacancies
21 on a day-to-day operating basis that should be reflected in PGW's payroll
22 allowance.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **PAYROLL EXPENSE?**

3 A. Yes. I continue to recommend that payroll expense be reduced to reflect average
4 vacancies, however, I am updating my recommendation, which is now based on
5 PGW's employee count used in formulating its FPFTY claim as presented in Mr.
6 Golden's rebuttal testimony. This updated recommendation produces an
7 allowance of \$91,470,440 for payroll expense, or a reduction of \$2,272,560
8 (\$93,743,000 - \$91,470,440) to PGW's claim.

10 **Q. EXPLAIN HOW YOU CALCULATED YOUR UPDATED**
11 **RECOMMENDATION.**

12 A. I applied the average historic vacancy level of 40 positions from my direct
13 testimony, estimated an average salary per employee for the FPFTY, and
14 multiplied the average salary by the average vacancy level to determine my
15 recommended adjustment.

17 **Q. PLEASE ELABORATE.**

18 A. I calculated an estimated FPFTY average salary per employee of \$56,814 based on
19 PGW's FPFTY claim for payroll expense of \$93,743,000 (\$32,884,000 +
20 \$60,859,000) (I&E Exhibit No. 2, Sch. 1, p. 1) divided by the FPFTY employee
21 count of 1,650 provided in Mr. Golden's rebuttal testimony (PGW Statement No.
22 2-R, p. 21). I then multiplied the average monthly vacancy rate of 40 positions

1 from my direct testimony (I&E Exhibit No. 2, Sch. 3) by the average salary of
2 \$56,814 for the FPFTY to produce my recommended reduction of \$2,272,560
3 (\$56,814 x 40) to payroll expense.

4 The average salary calculated in my surrebuttal testimony of \$56,814 is
5 higher than my average salary calculated in my direct testimony of \$52,643 as the
6 FPFTY headcount numbers were not provided until Mr. Golden's rebuttal
7 testimony and I divided the HTY payroll amount by the HTY headcount and then
8 adjusted this amount to account for the 2.5% salary increases in the FTY and
9 FPFTY (I&E Statement No. 2, pp. 4-5).

10
11 **PAYROLL TAX EXPENSE**

12 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
13 **FOR PAYROLL TAX EXPENSE.**

14 A. In direct testimony, I recommended an allowance of \$8,237,891 for payroll tax
15 expense, or a reduction of \$199,109 (\$8,437,000 - \$8,237,891). My
16 recommendation was based on recognition of the payroll reduction resulting from
17 my vacancy adjustment and was based on the percentage of total payroll taxes to
18 total payroll (I&E Statement No. 2, pp. 6-7).

19
20 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
21 **TO YOUR RECOMMENDATION FOR PAYROLL EXPENSE?**

1 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my payroll tax expense
2 recommendation. In his response, Mr. Golden disagrees with my recommended
3 adjustment to payroll taxes for the same reasons that he disagrees with my payroll
4 expense recommendation (PGW Statement No. 2-R, p. 22).

5
6 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
7 **PAYROLL TAX EXPENSE?**

8 A. Yes. I continue to recommend that payroll tax expense be based on recognition of
9 the payroll reduction resulting from my recommended vacancy adjustment. Thus,
10 my updated recommendation, which is based on PGW's updated employee count
11 used in formulating the FPFTY claim as discussed above results in a
12 recommended payroll tax expense allowance of \$8,232,470, or a reduction of
13 \$204,530 (\$8,437,000 - \$8,232,470) to PGW's claim. My updated
14 recommendation is calculated as follows:

FPFTY Total Payroll Tax Claim ¹	\$8,437,000
FPFTY Total Payroll Claim ²	÷ <u>\$93,743,000</u>
% Payroll Taxes to Total Payroll Claim	9%
I&E Payroll Adjustment from Above	x <u>\$2,272,560</u>
I&E Payroll Tax – recommended adjustment	<u>\$204,530</u>

¹ I&E Exhibit No. 2, Sch. 5, p. 1.

² I&E Statement No. 2, Sch. 1, p. 2 (Total payroll for non-union of \$32,884,000 + union of \$60,859,000 = \$93,743,000).

1 **DISTRIBUTION EXPENSE**

2 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
3 **FOR DISTRIBUTION EXPENSE.**

4 A. In direct testimony, I recommended an allowance of \$40,821,140 for distribution
5 expense, or a reduction of \$1,740,860 (\$42,562,000 - \$40,821,140) (I&E
6 Statement No. 2, pp. 7-13). My recommendation was based on adjustments to
7 maintenance contractors, information services and street machinery, and I will
8 summarize each component separately below.

9
10 **Maintenance Contractors**

11 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
12 **FOR MAINTENANCE CONTRACTORS.**

13 A. In direct testimony, I recommended an allowance of \$3,685,000 for maintenance
14 contractors, or a reduction of \$450,000 (\$4,135,000 - \$3,685,000). My
15 recommendation was based on the normalization of hydrostatic testing which
16 occurs approximately once every ten years (I&E Statement No. 2, pp. 9-10).

17
18 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
19 **TO YOUR RECOMMENDATION FOR MAINTENANCE**
20 **CONTRACTORS?**

21 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my maintenance contractor
22 recommendation. Mr. Golden states that the hydrostatic testing, which occurs

1 every ten years, was incurred during the FTY and was not included in PGW's
2 claim for the FPFTY (PGW Statement No. 2-R, p. 22).

3
4 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
5 **MAINTENANCE CONTRACTORS?**

6 A. Yes. I am withdrawing my recommendation to normalize the hydrostatic testing
7 based on Mr. Golden's rebuttal testimony that the PGW did not include
8 hydrostatic testing expense in the FPFTY.

9
10 **Information Services**

11 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
12 **FOR INFORMATION SERVICES.**

13 A. In direct testimony, I recommended an allowance of \$3,480,837 for information
14 services, or a reduction of \$634,163 (\$4,115,000 - \$3,480,837). My
15 recommendation was based on using the HTY amount for information services as
16 PGW failed to provide supporting documentation to show how the allocation of
17 overhead charges was calculated or how the increase in per unit cost was
18 determined (I&E Statement No. 2, pp. 10-11).

1 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
2 **TO YOUR RECOMMENDATION FOR INFORMATION SERVICES?**

3 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my information services
4 recommendation. Mr. Golden states that information services are overhead
5 expenses that are applied to various departments with approximately \$400,000 of
6 the overall increase being due to an increase in direct allocations from year to year
7 and approximately \$155,000 of the increase due to an increase in per unit cost.
8 Mr. Golden further states the methodology used to determine expenses is directly
9 tied to the number of devices used by each department and the unit cost (PGW
10 Statement No. 2-R, pp. 23-24). Additionally, Mr. Golden provides a narrative
11 description for the budget allocation model used by PGW (PGW Exhibit JFG-5).

13 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT PGW**
14 **PROVIDED SUFFICIENT INFORMATION FOR HOW PGW'S CLAIM**
15 **WAS CALCULATED AND IS REASONABLE?**

16 A. No. Prior to submitting rebuttal testimony, PGW sent an interrogatory to I&E
17 requesting suggested types of documentation that could be used to support the
18 increase in information services expense. I&E's response to this interrogatory
19 stated the burden of proof is on PGW to provide adequate supporting
20 documentation, however, a comprehensive list of examples of the types of
21 supporting documentation was provided (I&E Exhibit No. 2-SR, Sch. 2. p. 2).
22 Additionally, while the narrative description for the budget allocation model used

1 by PGW provides insight, this does not provide information to support PGW's
2 claim that the per-unit cost has increased and direct allocations have increased.
3

4 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
5 **INFORMATION SERVICES?**

6 A. No. PGW failed to provide supporting documentation to show how the allocation
7 of overhead charges was calculated or how the increase in per unit cost was
8 determined despite being provided a comprehensive list of examples of suggested
9 supporting documentation.
10

11 **Street Machinery**

12 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
13 **FOR STREET MACHINERY.**

14 A. In direct testimony, I recommended an allowance of \$577,303 for street
15 machinery, or a reduction of \$656,697 (\$1,234,000 - \$577,303). My
16 recommendation was based on using the HTY amount for street machinery as
17 PGW failed to provide any supporting documentation to show how the increase
18 was calculated or determined, in addition to historic actual expenses having
19 decreased every year from 2013 to 2016 (I&E Statement No. 2, pp. 11-12).
20

21 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
22 **TO YOUR RECOMMENDATION FOR STREET MACHINERY?**

1 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my street machinery
2 recommendation. Mr. Golden opines that the breakdown provided by PGW in
3 response to OCA-VI-23 (I&E Exhibit No. 2, Sch. 7) adequately explains the
4 increase in street machinery (PGW Statement No. 2-R, p. 24). Mr. Golden also
5 provides a narrative of PGW's Allocation Budget Model, which is used to
6 determine the budget amount for street machinery (PGW Exhibit JFG-6).

7
8 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT THE**
9 **BREAKDOWN PROVIDED ADEQUATELY EXPLAINS THE INCREASE**
10 **TO STREET MACHINERY?**

11 A. No. The breakdown only provides the amount of the items that make up PGW's
12 claim for street machinery, but does not demonstrate how these amounts were
13 determined or how they are reasonable. As I stated in my direct testimony, PGW
14 failed to show how the increase was calculated or determined, and historic actual
15 expenses have decreased every year from 2013 to 2016 (I&E Statement No. 2, p.
16 12).

17 Additionally, prior to submitting rebuttal testimony, PGW sent an
18 interrogatory to I&E requesting types of documentation that could be used to
19 support the increase in street machinery. I&E's response to this interrogatory
20 stated that the burden of proof is on PGW to provide adequate supporting
21 documentation, however, a comprehensive list of examples of the types of

1 supporting documentation was provided (I&E Exhibit No. 2-SR, Sch. 2, p. 3).

2 The Company failed to provide any of the supporting documentation.

3 Finally, while the narrative description of PGW's Allocation Budget Model
4 provides insight, this does not provide information to support PGW's claim for an
5 increase in street machinery which has decreased each year from 2013 through
6 2016.

7
8 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
9 **STREET MACHINERY?**

10 A. No. PGW failed to provide supporting documentation to show how the increase
11 was calculated or determined despite being provided a comprehensive list of
12 examples of the types of supporting documentation that could be used in an
13 attempt to support its claim.

14
15 **Updated Overall Recommendation for Distribution Expense**

16 **Q. PLEASE SUMMARIZE YOUR UPDATED RECOMMENDED**
17 **ALLOWANCE FOR DISTRIBUTION EXPENSE.**

18 A. My updated recommended adjustments for maintenance contractors, information
19 services, and street machinery result in a total downward adjustment of \$1,290,860
20 (\$634,163 + \$656,697) to PGW's claim or a recommended allowance of
21 \$41,271,140 (\$42,562,000 - \$1,290,860) for distribution expense.

1 **COLLECTION EXPENSE**

2 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
3 **FOR COLLECTION EXPENSE.**

4 A. In direct testimony, I recommended an allowance of \$3,519,324 for collection
5 expense, or a reduction of \$900,676 (\$4,420,000 - \$3,519,324). My
6 recommendation was based on using the HTY amount for purchased services as
7 PGW failed to provide supporting documentation to show how the increase in the
8 number of third party collectors of \$400,000 and the anticipated use of a third
9 party administrator to manage its third party collections process of \$500,000 were
10 calculated or determined (I&E Statement No. 2, pp. 13-15).

11
12 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
13 **TO YOUR RECOMMENDATION FOR COLLECTION EXPENSE?**

14 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my collection expense
15 recommendation. Mr. Golden states that PGW provided supporting
16 documentation by providing each element of the increase and by noting that
17 increasing the number of third party collection agencies from five to ten would
18 increase costs by \$400,000 and the increase of contracting with a third party
19 administrator would result in an increase of \$500,000. Mr. Golden further states
20 he is unaware of what additional information PGW could provide to show how the
21 increases were determined and that type of information would only be available

1 through an audit and he opines that such a standard of proof is inappropriate
2 (PGW Statement No. 2-R, p. 25).

3
4 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT THE**
5 **BREAKDOWN OF PROJECTED INCREASES ADEQUATELY**
6 **EXPLAINS THE CLAIM FOR COLLECTION EXPENSE?**

7 A. No. The breakdown only provides the amount of the items that make up PGW's
8 claim for collection expense and not how these amounts were determined and are
9 reasonable. As stated in my direct testimony, PGW failed to provide the requested
10 supporting documentation to show how the increase in the number of third party
11 collectors of \$400,000 and the anticipated use of a third party administrator to
12 manage its third party collections process of \$500,000 were calculated or
13 determined (I&E Statement No. 2, pp. 13-15).

14 Additionally, prior to submitting rebuttal testimony, PGW sent an
15 interrogatory to I&E requesting types of documentation that could be used to
16 support the increase in customer service expense. I&E's response to this
17 interrogatory stated that the burden of proof is on PGW to provide adequate
18 supporting documentation, however, a comprehensive list of examples of the types
19 of supporting documentation was provided (I&E Exhibit No. 2-SR, Sch. 2, p. 4).
20 Furthermore, Mr. Golden provides some supporting documentation for other
21 expense items in his rebuttal testimony, but fails to provide the requested
22 supporting documentation despite being given a comprehensive list of examples of

1 types of supporting documentation that could be used in an attempt to support
2 PGW's claim.

3
4 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT THE TYPE**
5 **OF INFORMATION BEING REQUESTED WOULD ONLY BE**
6 **AVAILABLE THROUGH AN AUDIT AND THAT SUCH A STANDARD**
7 **OF PROOF IS INAPPROPRIATE?**

8 A. No. This information should be readily available considering PGW increased its
9 number of third party collectors from five to ten and began using a third party
10 administrator to manage its third party collections process during the FTY which
11 ends on August 31, 2017.

12
13 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
14 **COLLECTION EXPENSE?**

15 A. No. PGW failed to provide supporting documentation to show how the increase in
16 the number of third party collectors of \$400,000 and the anticipated use of a third
17 party administrator to manage its third party collections process of \$500,000 were
18 calculated or determined.

1 **CUSTOMER SERVICE EXPENSE**

2 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
3 **FOR CUSTOMER SERVICE EXPENSE.**

4 A. In direct testimony, I recommended an allowance of \$13,475,756 for customer
5 service expense, or a reduction of \$331,244 (\$13,807,000 - \$13,475,756). My
6 recommendation was based on using the HTY amount for the purchased services
7 component of information services as PGW failed to provide supporting
8 documentation to show how the increase in per unit cost of equipment was
9 determined (I&E Statement No. 2, pp. 15-16).

10
11 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
12 **TO YOUR RECOMMENDATION FOR CUSTOMER SERVICE**
13 **EXPENSE?**

14 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my customer service
15 expense recommendation. Mr. Golden opines that PGW's response to OCA-VI-27
16 (I&E Exhibit No. 2, Sch. 11) adequately explains the increase in customer service
17 expense. Mr. Golden also states that PGW has additional information that would
18 support its claim and I&E should ask for the information (PGW Statement No. 2-
19 R, p. 26).

1 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT THE**
2 **EXPLANATION PROVIDED ADEQUATELY EXPLAINS THE**
3 **INCREASE TO CUSTOMER SERVICE EXPENSE?**

4 A. No. While the response provides a breakdown and explanation for the increase,
5 PGW fails to provide supporting documentation showing how the increase in per
6 unit cost of equipment was determined.

7 Additionally, prior to submitting rebuttal testimony, PGW sent an
8 interrogatory to I&E requesting types of documentation that could be used to
9 support the increase in customer service expense. I&E's response to this
10 interrogatory stated that the burden of proof is on PGW to provide adequate
11 supporting documentation, however, a comprehensive list of examples of the types
12 of supporting documentation was provided (I&E Exhibit No. 2-SR, Sch. 2, p. 5).

13 While Mr. Golden states that PGW has additional information that would
14 support its claim and I&E should ask for the information, he willingly provides
15 similar documentation within his rebuttal testimony for other expense items but
16 does not provide this information to support customer service expense.

17
18 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
19 **CUSTOMER SERVICE EXPENSE?**

20 A. No. PGW failed to provide supporting documentation to show how the increase in
21 per unit cost of equipment was determined despite be given a comprehensive list
22 of items that would adequately support PGW's claim. Mr. Golden states this

1 information is available, but does not provide any of this supporting
2 documentation in his rebuttal testimony despite providing supporting
3 documentation for other expense items throughout his rebuttal testimony.
4

5 **ACCOUNT MANAGEMENT EXPENSE**

6 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
7 **FOR ACCOUNT MANAGEMENT EXPENSE.**

8 A. In direct testimony, I recommended an allowance of \$8,192,517 for account
9 management expense, or a reduction of \$294,483 (\$8,487,000 - \$8,192,517). My
10 recommendation was based on using the HTY amount for the purchased services
11 as PGW failed to provide the requested supporting documentation to show how
12 the inflationary cost increases and increase in costs associated with bill printing
13 and processing vendor contracts were determined (I&E Statement No. 2, pp. 16-
14 18).

15
16 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
17 **TO YOUR RECOMMENDATION FOR ACCOUNT MANAGEMENT**
18 **EXPENSE?**

19 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my account management
20 expense recommendation. Mr. Golden states that PGW's response to I&E-RE-25-
21 D (I&E Exhibit No. 2, Sch. 12) explains the inflationary cost increases and
22 expansion of services associated with the renewals of PGW's bill print and

1 remittance processing vendor contracts. Mr. Golden further states that these are
2 projections for a year that has yet to begin and he opines that the detailed
3 explanation and breakdown is adequate (PGW Statement No. 2-R, pp. 26-27).
4

5 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE THAT THE**
6 **EXPLANATION AND BREAKDOWN IS ADEQUATE?**

7 A. No. The explanation and breakdown does not adequately support PGW's claim
8 for purchased services. As I stated in my direct testimony, while PGW provided
9 an explanation for the increase in purchased services, PGW failed to provide any
10 of the requested *documentation* to support the increase (I&E Statement No. 2,
11 pp. 16-18).

12 Additionally, prior to submitting rebuttal testimony, PGW sent an
13 interrogatory to I&E requesting types of documentation that could be used to
14 support the increase in purchased services. I&E's response to this interrogatory
15 stated that the burden of proof is on PGW to provide adequate supporting
16 documentation, however, a comprehensive list of examples of the types of
17 supporting documentation was provided (I&E Exhibit No. 2-SR, Sch. 2, p. 6).

18 Furthermore, Mr. Golden provides supporting documentation for other
19 expense items in his rebuttal testimony, but fails to provide the requested
20 supporting documentation despite being given a comprehensive list of examples of
21 types of supporting documentation that could be used in an attempt to support
22 PGW's claim.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **ACCOUNT MANAGEMENT EXPENSE?**

3 A. No. PGW failed to provide the requested supporting documentation to show how
4 the inflationary cost increases and expansion of services associated with the
5 renewals of PGW's bill print and remittance processing vendor contracts were
6 determined despite being provided a comprehensive list of examples of the types
7 of supporting documentation that could be used in an attempt to support its claim.

8
9 **RATE CASE EXPENSE**

10 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
11 **CONCERNING RATE CASE EXPENSE.**

12 A. In direct testimony, I recommended rate case expense be normalized over 61
13 months resulting in an annual expense of \$350,951 [$(\$1,784,000 \div 61 \text{ months}) \times$
14 12 months], or a reduction of \$244,049 ($\$595,000 - \$350,951$). I disagreed with
15 PGW's attempt to amortize, rather than normalize, its rate case expense claim and
16 PGW's claimed three-year normalization period which was not supported by the
17 Company's historic filing frequency (I&E Statement No. 2, pp. 18-23).

18
19 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
20 **TO YOUR RECOMMENDATION FOR RATE CASE EXPENSE?**

21 A. Yes. PGW witness Joseph F. Golden, Jr. accepted my recommendation to
22 normalize (as opposed to amortize) PGW's rate case expense claim. Mr. Golden,

1 however, expressed disagreement with my recommendation that rate case expense
2 be normalized over a 61-month period opining that the claimed 36-month (three-
3 year) normalization period is the proper time period for normalizing rate case
4 expense and depending on the outcome of this proceeding, PGW currently plans to
5 file another rate case within three years (PGW Statement No. 2-R, pp. 16-17).

6
7 **Q. DO YOU AGREE WITH MR. GOLDEN'S RESPONSE?**

8 A. No. As stated in my direct testimony, the Commission has cited the importance of
9 considering the involved utility's history regarding the frequency of rate case
10 filings as an essential element in determining the normalized level of rate case
11 expense for ratemaking purposes (I&E Statement No. 2, pp. 18-19). While the
12 Commission allows utilities to normalize this expense, it is not appropriate to do
13 so over a time period that is based on mere speculation of future filings or a simple
14 statement that PGW currently plans to file another rate case within three years.

15
16 **Q. HAVE OTHER UTILITIES BEEN GRANTED A NORMALIZATION**
17 **PERIOD BASED ON SPECULATION OF FUTURE FILINGS, AND IF SO,**
18 **WHAT WAS THE RESULT?**

19 A. Yes. In 2012, the Commission granted PPL Electric Utilities Corporation (PPL)
20 permission to normalize its rate case expense over a twenty-four month period

1 based on the expected timing of future base rate case filings.³ That particular base
2 rate case was filed on March 30, 2012; however, PPL did not file its next rate case
3 until March 31, 2015, which was thirty-six months after the 2012 rate case filing.
4 The twelve month discrepancy between PPL's *intention to file* and its actual filing
5 date of the subsequent rate case shows that future projections are unreliable when
6 determining an appropriate normalization period for rate case expense. Instead,
7 the Commission should continue to use the Company's actual historic filing
8 frequency, rather than its future intentions, to determine the appropriate
9 normalization period.

10
11 **Q. DID PGW PROVIDE AN UPDATE TO RATE CASE EXPENSE?**

12 A. Yes. In response to OCA Witness Everette, PGW provided an updated rate case
13 expense claim of \$1,441,513, however, PGW continues to propose normalizing
14 rate case expense over three years for an annual expense of \$480,504
15 (\$1,441,513 ÷ 3) (PGW Statement 2-R, pp. 17-19).

16
17 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
18 **RATE CASE EXPENSE?**

19 A. Yes. I continue to recommend that rate case expenses be normalized over 61
20 months as PGW's historic filing frequency does not support the three-year
21 normalization period claimed by the PGW (I&E Statement No. 2, pp. 18-23). My

3 Docket No. R-2012-2290597, PA Public Utility Commission Opinion and Order, p. 48.

1 updated recommendation, which is based on the updated rate case expense claim
2 as presented in Mr. Golden's rebuttal testimony, results in an annual expense of
3 \$283,576 [(\$1,441,513 ÷ 61 months) x 12 months], or a decrease to PGW's
4 updated annual rate case expense claim of \$196,928 (\$480,504 – \$283,576).

5
6 **PENSIONS**

7 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
8 **FOR PENSIONS.**

9 A. In direct testimony, I recommend disallowance of \$3,000,000, which represents
10 the pension fund amount included in determining a higher debt service coverage
11 ratio (I&E Statement No. 2, pp. 23-27).

12
13 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
14 **TO YOUR PENSION RECOMMENDATION?**

15 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my pension
16 recommendation. Mr. Golden states I referenced the FTY 2017 amount of
17 \$3,000,000 for additional pension expense instead of the \$1,971,000 for the
18 FPFTY additional pension expense and that PGW inadvertently omitted removing
19 \$1,971,000 in additional pension expense when calculating the debt service
20 coverage ratio. As a result, non-cash expenses should increase by the \$1,971,000
21 in calculating the debt service coverage ratio (PGW Statement No. 2-R,

1 pp. 27-28). Mr. Golden provides revised financial statements that reflect the
2 removal of the additional pension expense (PGW Exhibit JFG-1-A).

3
4 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
5 **PENSIONS?**

6 A. Yes. Based on the information provided in rebuttal testimony, I am withdrawing
7 my recommendation and accept Mr. Golden's updated calculation as it relates to
8 the additional pension payment of \$1,971,000.

9
10 **HEALTH INSURANCE**

11 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
12 **FOR HEALTH INSURANCE.**

13 A. In direct testimony, I recommended that the Commission instruct PGW to re-
14 establish the Health Insurance Escrow Fund in which it will be required to deposit
15 any employee contributions and PGW contributions assessed in base rates toward
16 its self-insured health plan. I further recommended that the funds deposited in the
17 Health Insurance Escrow Fund be restricted for use in funding medical claims and
18 health insurance administrative costs, including stop-loss insurance premiums.

19 In addition, I recommended that PGW be required to provide actuarial
20 reports and historical escrow account performance data for each intervening test
21 year leading up to the PGW's next base rate case. Finally, I recommended that the
22 Company secure competitive health insurance quotes for comparable health

1 insurance from the insurance industry at least biennially to properly evaluate the
2 costs of maintaining self-funded health insurance vs. subscribing to a premium
3 based health insurance plan. My recommendations were to provide a level of
4 assurance that ratepayers and PGW will be protected from financial harm in the
5 event that large unanticipated claims are made (I&E Statement No. 2, pp. 27-30).

6
7 **Q. DID THE COMPANY SUBMIT REBUTTAL TESTIMONY IN RESPONSE**
8 **TO YOUR RECOMMENDATION FOR HEALTH INSURANCE?**

9 A. Yes. PGW witness Joseph F. Golden, Jr. responded to my health insurance
10 recommendation. Mr. Golden states PGW is willing to establish a health escrow
11 account but that it will need an additional \$1,167,000 in revenue to fund this
12 account over the next three years to produce a fund of \$3,500,000 as PGW will not
13 have these funds available to cover other obligations.

14 Mr. Golden further states that due to the collective bargaining agreement,
15 PGW is restricted to use certain carriers for health care which limits PGW's ability
16 to alter its health insurance carrier. Finally, since PGW is self-insured with a stop-
17 loss program, PGW is uncertain if obtaining competitive health insurance quotes
18 will result in a material change in its health care costs (PGW Statement No. 2-R,
19 pp. 28-29).

1 **Q. WHAT IS YOUR RESPONSE TO MR. GOLDEN'S ASSERTION IN**
2 **REBUTTAL TESTIMONY THAT PGW WILL NEED AN ADDITIONAL**
3 **\$3.5 MILLION IN ORDER TO ESTABLISH THE HEALTH INSURANCE**
4 **ESCROW FUND?**

5 A. I&E's response to PGW-I&E-III-2 stated that if PGW anticipates additional cash
6 requirements for reestablishing the health insurance escrow fund, it should provide
7 information to support the additional cash contributions necessary above what is
8 included in base rates. To date, I&E has not received any information to support
9 the additional cash contribution is necessary (I&E Exhibit No. 2-SR, Sch. 3, p. 2).
10 Therefore, I recommend disallowance of any additional funding until PGW is able
11 to provide information to adequately support the costs associated with establishing
12 a health insurance escrow fund.

13
14 **Q. DID PGW CORRECTLY INTERPRET YOUR RECOMMENDATION TO**
15 **ESTABLISH THE HEALTH INSURANCE ESCROW FUND?**

16 A. No. The \$3,500,000 PGW is referring to is the amount PGW previously placed in
17 its Health Insurance Escrow Fund that was equal to one month's premium. I
18 simply used PGW's terminology to recommend a restricted fund or trust account
19 to appropriately secure the self-funded health insurance. Therefore, there is no
20 basis for the additional \$3,500,000 as this does not correlate with my
21 recommendation.

1 **Q. WHAT IS YOUR RESPONSE TO MR. GOLDEN'S COMMENT THAT**
2 **PGW IS RESTRICTED TO THE USE OF CERTAIN CARRIERS FOR**
3 **HEALTH INSURANCE DUE TO THE COLLECTIVE BARGAINING**
4 **AGREEMENT AND IS SELF-INSURED THROUGH A STOP-LOSS**
5 **PROGRAM?**

6 **A. As I stated in my direct testimony, I recommended that PGW secure competitive**
7 health insurance quotes for comparable health insurance from the insurance
8 industry at least biennially to properly evaluate the costs of maintaining self-
9 funded health insurance vs. subscribing to a premium based health insurance plan
10 (I&E Statement No. 2, p. 30).

11 I am not recommending that PGW switch from a self-funded plan and
12 subscribe to a premium based health insurance plan, I am recommending that
13 PGW perform its due diligence to ensure that the Company is continuing to
14 maintain reasonable health insurance costs in the future to ensure employees
15 receive the health care coverage they are promised without risking harm to PGW
16 or its ratepayers. In addition, collective bargaining agreements are inherently time
17 limited and are subject to future negotiations where PGW can reassess its health
18 insurance in order to provide reasonable health insurance benefits to its employees
19 that are at a reasonable cost to ratepayers.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **HEALTH INSURANCE EXPENSE?**

3 A. No, I continue to recommend the following:

- 4 • The Commission instruct PGW to re-establish a health insurance escrow
5 fund to capture all income and expenditures associated with health
6 insurance;
- 7 • The funds deposited in the Health Insurance Escrow Fund be restricted for
8 use in funding medical claims and health insurance administrative costs,
9 including stop-loss insurance premiums;
- 10 • PGW be required to provide actuarial reports and historical escrow account
11 performance data for each intervening test year leading up to the PGW's
12 next base rate case;
- 13 • PGW secure competitive health insurance quotes for comparable health
14 insurance from the insurance industry at least biennially; and
- 15 • Additionally, I recommend the Commission reject PGW's request for an
16 additional \$1,167,000 to the revenue requirement to fund this account over
17 the next three years for a total of \$3,500,000 to reestablish the Health
18 Insurance Escrow Fund as PGW's position is not consistent with our
19 recommendation as this additional amount is not applicable.

SUMMARY OF RECOMMENDED ADJUSTMENTS

Q. PLEASE SUMMARIZE YOUR RECOMMENDED ADJUSTMENTS.

A. The following table summarizes my recommended adjustments.

	<u>Company Updated Claim</u>	<u>I&E Adjustment</u>	<u>I&E Recommended Allowance</u>
O&M Expenses:			
Payroll Expense	\$93,743,000	(\$2,272,560)	\$91,470,440
Payroll Taxes	\$8,437,000	(\$204,530)	\$8,232,470
Distribution Expense	\$42,562,000	(\$1,290,860)	\$41,271,140
Collection Expense	\$4,420,000	(\$900,676)	\$3,519,324
Customer Service Expense	\$13,807,000	(\$331,244)	\$13,475,756
Account Management Exp.	\$8,487,000	(\$294,483)	\$8,192,517
Rate Case Expense	\$480,504	(\$196,928)	\$283,576
Total O&M Adjustments		<u>(\$5,491,281)</u>	

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.

I&E Exhibit No. 2-SR
Witness: Christopher Keller

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Exhibit to Accompany

the

Surrebuttal Testimony

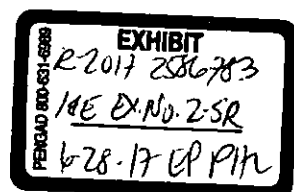
of

Christopher Keller

Bureau of Investigation and Enforcement

Concerning:

**OPERATING AND MAINTENANCE EXPENSES
TAXES OTHER THAN INCOME**



Philadelphia Gas Works
Computation of Average Monthly Vacancies
For the Year Ended August 31, 2018

Line	Month	(1) 2014	(2) 2015	(3) 2016
1	September	(53)	43	(41)
2	October	(54)	54	(51)
3	November	(47)	47	(52)
4	December	(55)	52	(48)
5	January	(85)	(52)	(38)
6	February	(80)	(31)	(30)
7	March	(81)	(32)	(34)
8	April	(85)	(49)	(35)
9	May	(90)	(48)	(28)
10	June	(88)	(57)	(20)
11	July	(95)	(48)	(21)
12	August	(57)	(44)	(23)
13	Yearly Average (Average Line 1 through Line 12)	<u>(73)</u>	<u>(14)</u>	<u>(35)</u>



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
P.O. BOX 3265, HARRISBURG, PA 17105-3265

I&E Exhibit No. 2-SR
Schedule 2
Page 1 of 6

IN REPLY PLEASE
REFER TO OUR FILE

June 1, 2017

Daniel Clearfield, Esquire
Eckert Seamans
213 Market Street
Harrisburg, PA 17101

Re: Pennsylvania Public Utility Commission v.
Philadelphia Gas Works – Base Rate
Docket No. R-2017-2586783

Dear Mr. Clearfield:

Enclosed please find two (2) copies of the Bureau of Investigation and Enforcement's (I&E) **Interrogatory Responses** to the following interrogatories:

PGW to I&E Sct II

If you have any questions, please contact me at (717) 783-6156.

Sincerely,

Carrie B. Wright
Prosecutor
Bureau of Investigation and Enforcement
PA Attorney I.D. #208185

Erika L. McLain
Prosecutor
Bureau of Investigation and Enforcement
PA Attorney I.D. #320526

CBW/ELM/snc
Enclosure

cc: Certificate of Service
Secretary Chiavetta (Cover Letter and COS only)

Pennsylvania Public Utility Commission
v.
Philadelphia Gas Works – Base Rate
Docket No. R-2017-2586783

I&E Exhibit No. 2-SR
Schedule 2
Page 2 of 6

Responses of the Bureau of Investigation and Enforcement
to Philadelphia Gas Works – Set II
Witness: Christopher Keller

PGW-I&E-II-8 Please refer to Direct Testimony of Christopher Keller, I&E Statement No. 2, pages 10-11. Mr. Keller recommends a reduction of \$634,163 to PGW's claim for distribution expenses for information services.

- a) Please indicate whether you requested the specific additional information that you indicate was wanting from PGW.
- b) Please explain what additional supporting documentation is needed to support the increases in information services expenses that were actually incurred by PGW.
- c) Do you agree that if PGW continues to incur this cost that PGW, as a cash-flow regulated company, ultimately will recover these dollars from ratepayers as PGW has no shareholders and has no other source of funds by which to fund operating expenses? If you do not agree, please explain your answer.

Response:

- a) Not directly. The recommendation is based on information provided in response to OCA-VI-22.
- b) The burden of proof is on the Company to provide adequate supporting documentation for its claim. However, supporting documentation could include invoices, contracts, rental/lease agreements, detailed calculations, or correspondence that supports the increase in direct allocations by year for leases, purchases, services, maintenance software, and department labor. Additionally, invoices, statements, detailed calculations, etc. could be provided to support PGW's claim that the per-unit cost has increased, and to support the per-unit cost for the fiscal years ended August 31, 2014, 2015, HTY 2016, FTY 2017, and FPFTY 2018.
- c) No. Even as a cash-flow basis company, PGW must demonstrate that all expenses claimed in rates are just, reasonable, and prudent. The ratepayers should not be responsible for expenses that PGW is unable to justify.

**Responses of the Bureau of Investigation and Enforcement
to Philadelphia Gas Works – Set II**

Witness: Christopher Keller

PGW-I&E-II-9 Please refer to Direct Testimony of Christopher Keller, I&E Statement No. 2, pages 11-12. Mr. Keller recommends a reduction of \$656,697 to PGW's claim for distribution expenses for street machinery.

- a) Please indicate whether you requested additional information from PGW to support this claim.
- b) Please explain what additional supporting documentation is needed to support the increases in street machinery expenses that were actually incurred by PGW.

Response:

- a) Yes. The recommendation is based on information provided in response to OCA-VI-23. Mr. Keller also requested information concerning the history of broken mains in I&E-RE-41; however, PGW failed to provide the requested information.
- b) The burden of proof is on the Company to provide adequate supporting documentation for its claim. However, supporting documentation could include a breakdown of miscellaneous expenses of \$23,000 in the FTY as well as invoices, contracts, and any other information used to determine the increased cost of maintenance of mains of \$455,000, maintenance of measuring and regulation station of \$35,000, and maintenance of services of \$120,000.

Pennsylvania Public Utility Commission
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I&E Exhibit No. 2-SR
Schedule 2
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**Responses of the Bureau of Investigation and Enforcement
to Philadelphia Gas Works – Set II**
Witness: Christopher Keller

PGW-I&E-II-10 Please refer to Direct Testimony of Christopher Keller, I&E Statement No. 2, pages 13-15. Mr. Keller recommends a reduction of \$900,676 for collection expense related to purchased services.

- a) Please explain your rationale for using historical test year data for this expense when PGW is using a fully projected future test year for this proceeding.
- b) Please indicate whether you requested additional information from PGW to support this claim.
- c) Please identify what you would view as “proper supporting information” for PGW’s claim.

Response:

- a) Please see I&E Statement No. 2, p. 14, line 12 through p. 15, line 2.
- b) Yes. Please see I&E-RE-42 which requests the following information (bolded for emphasis):

I&E-RE-42 Reference PGW’s response to I&E-RE-13-D concerning Collection Expense. Provide a detailed explanation and **documentation** to support the increase in Purchased Services of \$900,676 (\$1,350,000 - \$449,324) from HTY 2016 to FTY 2017.

- c) The burden of proof is on the Company to provide adequate supporting documentation for its claim. However supporting documentation could include but not be limited to, invoices, contracts, any other information used to determine the cost and necessity of the additional third party collection agencies and a third party administrator to manage PGW’s third party collections process.

Pennsylvania Public Utility Commission
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I&E Exhibit No. 2-SR
Schedule 2
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Responses of the Bureau of Investigation and Enforcement
to Philadelphia Gas Works – Set II
Witness: Christopher Keller

PGW-I&E-II-11 Please refer to *Direct Testimony of Christopher Keller, I&E Statement No. 2*, pages 15-16. Mr. Keller recommends a reduction of \$331,244 for customer service expense.

- a) Please explain your rationale for using historical test year data for this expense when PGW is using a fully projected future test year for this proceeding.
- b) Please indicate whether you requested additional information from PGW to support this claim.
- c) Please identify what you would view as “proper supporting information” for PGW’s claim.

Response:

- a) Please see I&E Statement No. 2, p. 16 line 6 through line 16.
- b) Not directly. The recommendation is based on the information provided in response to OCA-VI-27.
- c) The burden of proof is on the Company to provide adequate supporting documentation for its claim. However, examples of documentation that could support PGW’s claim that the per unit cost of equipment (computers, monitors, printers, etc.) is increasing are receipts, invoices, statements, etc. that show how the per unit cost for equipment is determine as well as the per unit cost for equipment in addition to calculations for the fiscal years ended August 31, 2014, 2015, and HTY 2016 and calculations used to determine allocations for FTY 2017, and FPFTY 2018.

Pennsylvania Public Utility Commission
v.
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I&E Exhibit No. 2-SR
Schedule 2
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Responses of the Bureau of Investigation and Enforcement
to Philadelphia Gas Works – Set II
Witness: Christopher Keller

PGW-I&E-II-12 Please refer to Direct Testimony of Christopher Keller, I&E Statement No. 2, pages 15-16. Mr. Keller recommends a reduction of \$294,483 for account management expense.

- a) Please explain your rationale for using historical test year data for this expense when PGW is using a fully projected future test year for this proceeding.
- b) Please indicate whether you requested additional information from PGW to support this claim.
- c) Please identify what “supporting documentation” you view as necessary to show increases of historical test year expenses for purposes of evaluating PGW’s expenses in the fully projected future test year.

Response:

- a) Please see I&E Statement No. 2, p. 17 line 20 through p. 18 line 7.
- b) Yes. Please see I&E-RE-44 which requests the following information (bolded for emphasis):

I&E-RE-44 Reference PGW’s response to I&E-RE-15-D concerning Account Management Expense. Provide a detailed explanation and **documentation** to support the increase in Purchased Services of \$294,483 (\$1,917,000 - \$1,612,517) from HTY 2016 to FTY 2017.

- c) The burden of proof is on the Company to provide adequate supporting documentation for its claim. However, examples of supporting documentation could include documents showing the method and sources used to determine an inflationary cost increase along with supporting calculations, invoices, receipts, statements, etc.



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
P.O. BOX 3265, HARRISBURG, PA 17105-3265

I&E Exhibit No. 2-SR
Schedule 3
Page 1 of 2

IN REPLY PLEASE
REFER TO OUR FILE

June 2, 2017

Daniel Clearfield, Esquire
Eckert Scamans
213 Market Street
Harrisburg, PA 17101

Re: Pennsylvania Public Utility Commission v.
Philadelphia Gas Works – Base Rate
Docket No. R-2017-2586783

Dear Mr. Clearfield:

Enclosed please find two (2) copies of the Bureau of Investigation and Enforcement's (I&E) **Interrogatory Responses** to the following interrogatories:

PGW to I&E Set I- Updated No. 5 Attachment
PGW to I&E Set III

If you have any questions, please contact me at (717) 783-6156.

Sincerely,

Carrie B. Wright
Prosecutor
Bureau of Investigation and Enforcement
PA Attorney I.D. #208185

Erika L. McLain
Prosecutor
Bureau of Investigation and Enforcement
PA Attorney I.D. #320526

CBW/ELM/snc
Enclosure

cc: Certificate of Service
Secretary Chiavetta (Cover Letter and COS only)

Pennsylvania Public Utility Commission
v.
Philadelphia Gas Works – Base Rate
Docket No. R-2017-2586783

I&E Exhibit No. 2-SR
Schedule 3
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Responses of the Bureau of Investigation and Enforcement
to Philadelphia Gas Works – Set III
Witness: Christopher Keller

PGW-I&E-III-2 I&E St. No. 2 (Keller) p. 29.

- a) On what terms is Mr. Keller recommending PGW reestablish the Health Escrow Fund (Amount, amount per year, use, etc.)

Does Mr. Keller agree that reestablishing the Health Insurance Escrow Fund will create an additional cash requirement for PGW?
Has I&E's recommended revenue requirement recognized that additional cash requirement?

Response:

a) Please see I&E Statement No. 2, p. 29, lines 1 through 7 for term recommendations. No. Mr. Keller is not aware that any additional funding is required as none has been identified by the Company. If the PGW anticipates additional cash requirements for reestablishing the Health Insurance Escrow Fund, it should provide information to support the additional cash contributions necessary to reestablish the Health Insurance Escrow Fund.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission

v.

Philadelphia Gas Works

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Docket No. R-2017-2586783

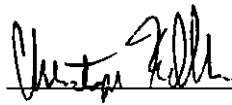
VERIFICATION OF CHRISTOPHER KELLER

I, **Christopher Keller**, on behalf of the Bureau of Investigation and Enforcement, hereby verify that **I&E Statement No. 2, I&E Exhibit No. 2, I&E Statement No. 2-SR, and I&E Exhibit No. 2-SR and any discovery responses which I have sponsored** were prepared by me or under my direct supervision and control.

Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same if called to the stand at any evidentiary hearing held in this matter.

This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Signed in Harrisburg, Pennsylvania, this 27th day of June, 2017.



Christopher Keller

PENNSYLVANIA PUBLIC UTILITY COMMISSION

V.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Direct Testimony

Of

Kokou M. Apetoh

Bureau of Investigation and Enforcement

Concerning:

Test Year
Weather Normalization
Present Rate Revenue
Forfeited Discounts
Cost of Service
Customer Cost Analysis
Customer Charges
Scale Back of Rates

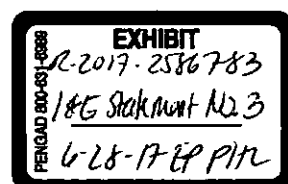


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1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Kokou M. Apetoh. My business address is P.O. Box 3265,
3 Harrisburg, Pennsylvania 17105-3265.

4

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

6 A. I am employed by the Pennsylvania Public Utility Commission in the Bureau of
7 Investigation and Enforcement (“I&E”) as a Fixed Utility Valuation Engineer.

8

9 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

10 A. Appendix A, which is attached to my testimony, describes my educational
11 background and professional experience.

12

13 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

14 A. I&E is responsible for protecting the public interest in proceedings before the
15 Commission. The I&E analysis in the proceeding is based on its responsibility to
16 represent the public interest. This responsibility requires balancing the interests of
17 the ratepayers, the company and the regulated community.

18

19 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

20 A. The purpose of my testimony is to present I&E's recommendations regarding
21 Philadelphia Gas Works (“PGW” or “Company”) request for \$70 million or 11.6%
22 in overall additional annual revenues for the fully projected future test year

1 (“FPFTY”) ending August 31, 2018. My testimony will address the Company’s
2 test year, weather normalization methodology, present rate revenue, forfeited
3 discounts, cost of service study (“COSS”), customer cost analysis, customer
4 charges, and conclude with a proposed scale back of rates methodology should the
5 Commission grants PGW less than the requested \$70 million.

6
7 **TEST YEAR**

8 **Q. WHAT IS A TEST YEAR AND HOW IS IT USED?**

9 A. A test year is a twelve-month period over which a utility’s costs and revenues are
10 measured as the basis for setting prospective base rates. A historic test year
11 (“HTY”) is a twelve-month period representing a company’s recent full year of
12 actual data. A future test year (“FTY”) starts the day following the end of the
13 historic test year and is a projection of a utility’s historic actual data into the
14 future.

15
16 **Q. HAVE THERE BEEN ANY STATUTORY AMENDMENTS THAT HAVE**
17 **MODIFIED A UTILITY’S TEST YEAR OPTIONS?**

18 A. Yes. Prior to the passage of Act 11 by the Pennsylvania Legislature, utilities could
19 use either a historic test year or a future test year. Act 11, which was signed on
20 February 14, 2012, permits utilities to use a fully projected future test year in order
21 to meet their burden of proof in rate cases. The FPFTY is defined as the twelve-
22 month period that begins with the first month that the new rates will be placed into

1 effect, after the application of the full suspension period permitted under Section
2 1308(d).

3
4 **Q. HAS THE COMMISSION ADOPTED RULES AND REGULATIONS**
5 **REGARDING THE USE OF THE FULLY PROJECTED FUTURE TEST**
6 **YEAR?**

7 A. No. On August 2, 2012, the Commission entered its Final Implementation Order
8 at Docket No. M-2012-2293611 addressing Act 11 (“*Implementation Order*”). In
9 the *Implementation Order*, the Commission initiated a separate proceeding at
10 Docket No. L-2012-2317273 for the purposes of adopting rules and regulations
11 regarding the use of the FPFTY in accordance with Section 315(e) of the Public
12 Utility Code, 66 Pa.C.S.A. §315(e) (relating to burden of proof).

13
14 **Q. WHAT TEST YEARS HAS THE COMPANY USED IN THIS**
15 **PROCEEDING?**

16 A. PGW used the fiscal year or the twelve-month period ended August 31, 2016 as
17 the HTY, the fiscal year ending August 31, 2017 as the FTY, and the fiscal year
18 ending August 31, 2018 as the FPFTY.¹

¹ PGW Statement No. 4, page 47, lines 27-29.

1 **Q. WHAT TEST YEAR HAS THE COMPANY BASED ITS REVENUE**
2 **REQUIREMENT UPON IN THIS PROCEEDING?**

3 A. PGW based its requested revenue requirement on the FPFTY ending
4 August 31, 2018.²
5

6 **WEATHER NORMALIZATION**

7 **Q. WHAT IS WEATHER NORMALIZATION?**

8 A. Weather normalization measures the impact of weather on energy consumption,
9 which is expressed in heating degree days (“HDD”). Due to variations in weather
10 patterns over time, utilities use weather normalization to restate HTY actual sales
11 on a per customer basis to reflect the level of sales, if the actual heating or cooling
12 degree days had been normal.
13

14 **Q. WHAT IS A HDD?**

15 A. A HDD is the difference between the average temperature on a given day (usually
16 rounded to the nearest degree) and a base temperature, which is 65°F. The result
17 correlates to the amount of energy needed to heat a building. A higher HDD
18 indicates greater energy requirements and indicates colder weather.
19 To calculate the HDD, the average of the day’s high and low temperatures would
20 be determined and then that result would be subtracted from the established base

² PGW Statement No. 2, page 5, lines 18-19.

1 temperature of 65°F. For example, if a daily temperature varied from a low of 2°F
2 to a high of 28°F on a given day, the average temperature for that day is 15°F ((2°
3 + 28°) ÷ 2). Accordingly, the HDD for that day would be 50° (65° - 15°).
4

5 **Q. WHAT IS NORMAL AS IT RELATES TO HDD?**

6 A. The National Oceanic and Atmospheric Administration (“NOAA”) defines normal
7 when used in a weather normalization calculation as the level of heating or cooling
8 degree days averaged over a period of time. The standard has historically been the
9 30-year average calculated and published by NOAA. The current 30-year average
10 is based on the years 1981 through 2010.³ For example, if 5,000 actual HDDs
11 occurred in the HTY and the normal level of HDDs is 5,500, the test year is
12 considered to have been warmer than normal by 500 (5,500 – 5,000) HDDs, less
13 energy consumption necessary than in the normal year. The previous example
14 implies that had the weather been normal from a HDD standpoint, the utility
15 would have realized a higher level of retail sales during the HTY. Conversely, if
16 the HTY level of actual HDDs exceeds the normal level, then the utility’s HTY
17 sales would have been higher than normal because the higher than normal HDD
18 result correlates into a temperature that was colder than normal.

³ <https://data.noaa.gov/dataset/u-s-hourly-climate-normals-1981-2010>.

1 **Q. HOW IS THE NORMAL LEVEL OF HDDs COMPILED?**

2 A. Then normal level of HDDs is compiled by taking the arithmetic average of the
3 values of the average temperature over a 30 year period.

4

5 **Q. WHAT DATA IS REQUIRED TO CALCULATE WEATHER
6 NORMALIZED SALES?**

7 A. Weather normalized sales are a function of the following:

- 8 • The number of customers by month for each month of the HTY;
- 9 • The actual sales to the customers in the HTY;
- 10 • The base non-temperature sensitive load of the customers for the HTY;
- 11 • The actual monthly HDDs for each month of the HTY; and
- 12 • The monthly normal HDDs for each month.

13

14 **Q. WHAT IS A BASE LOAD?**

15 A. A base load is the monthly usage of each customer that is considered to be
16 unaffected by a change in temperature. A customer's base load usage represents
17 the amount of gas used to operate appliances such as a water heater, clothes dryer,
18 kitchen range and oven or an outside post lamp. Generally, the base load usage is
19 the average usage per customer for the months of the HTY during which zero or
20 only a very few normal HDDs occur. The base load usage is excluded from the
21 weather normalization calculation because it is assumed to be non-weather
22 sensitive.

1 **Q. HOW IS THE BASE LOAD EXCLUDED FROM WEATHER**
2 **NORMALIZATION CALCULATION?**

3 A. For each month, the base load is subtracted from the actual sales volumes to derive
4 the weather sensitive load. This ensures that certain months of the year (normally
5 July and August) are eliminated from further calculations as there typically is not
6 any weather sensitive load during those months.

7
8 **Q. ARE ANY OF THE COMPANY'S CUSTOMER CLASSES WEATHER**
9 **SENSITIVE?**

10 A. Yes. The Company has a high volume of heating customers, primarily its
11 residential and some commercial classes, whose heating load is greatly affected by
12 the weather.

13
14 **Q. DID THE COMPANY INCORPORATE A WEATHER NORMALIZATION**
15 **ADJUSTMENT INTO ITS BASE RATE FILING?**

16 A. Yes. In developing sales, the Company factored normal HDDs into its forecasting
17 methodology.⁴

⁴ PGW Statement No. 6, page 4, lines 10-18.

1 **Q. WHAT IS THE NUMBER OF HDDs USED BY THE COMPANY IN ITS**
2 **PROPOSED WEATHER NORMALIZATION ADJUSTMENT?**

3 A. The Company used 3,855 HDDs.⁵
4

5 **Q. WHAT IS THE BASIS FOR THE COMPANY'S 3,855 HDDs?**

6 A. The 3,855 HDDs is the average of the Port Richmond Station, Philadelphia for the
7 10-year period 2006-2015.⁶
8

9 **Q. DO YOU AGREE WITH THE USE OF A 10-YEAR AVERAGE OF HDDs**
10 **TO DETERMINE PRESENT RATE REVENUES IN THIS PROCEEDING?**

11 A. Yes, for this case. While NOAA's 30-year average continues to be the traditional
12 standard, using a 10-year average in this proceeding is acceptable because PGW
13 has a Weather Normalization Adjustment ("WNA"), which adjusts a customer's
14 monthly revenue based on actual HDDs rather than normal HDDs. For example,
15 should actual temperatures be lower than normal, the WNA would result in a
16 credit to customers. The WNA will mitigate the impact of any errors potentially
17 attributable to selection of a shorter weather history.

⁵ PGW Statement No. 6, page 4, lines 12-14.

⁶ PGW Statement No. 5, page 27, lines 20-22.

1 **PRESENT RATE REVENUE**

2 **Q. WHAT IS PGW'S CLAIM FOR PRESENT RATE REVENUE FOR THE**
3 **FULLY PROJECTED FUTURE TEST YEAR ENDING AUGUST 31, 2018?**

4 A. The Company's FPFTY claim for present rate revenue is \$491,318,000.⁷

5 **Q. IS THE COMPANY'S CLAIMED \$491,318,000 PRESENT RATE**
6 **REVENUE FOR THE FPFTY ENDING AUGUST 31, 2018 BASED ON A**
7 **FORECASTED NUMBER OF BILLS AND SALES VOLUMES?**

8 A. Yes. The Company's claimed \$491,318,000 present rate revenue is based on the
9 utility's forecasted number of bills (customers) and sales volumes.⁸

10
11 **FORFEITED DISCOUNTS**

12 **Q. WHAT ARE FORFEITED DISCOUNTS?**

13 A. Forfeited discounts represents revenue generated by the failure of a customer to
14 pay an amount due either in a specified discount period or later than a specified
15 due date. In response to I&E-RS-12-D, subpart B, PGW stated that forfeited
16 discounts are late penalty fees.⁹

⁷ PGW Exhibit PQH-1, Page 1, line 1.

⁸ PGW Statement No. 5, page 19, lines 1-21.

⁹ I&E Exhibit No. 3, Schedule No. 1, page 1.

1 **Q. WHAT IS PGW’S LATE PAYMENT CHARGE?**

2 A. The Company defines a late payment charge as: “A charge placed on any bill not
3 paid by the due date.”¹⁰

4 Additionally, per the Company:

5 PGW will assess a late penalty for any overdue bill, in an
6 amount which does not exceed 1.5% interest per month on the
7 full unpaid and overdue balance of the bill. These charges are
8 to be calculated on the overdue portions of PGW Charges
9 only. The interest rate, when annualized, may not exceed 18%
10 simple interest per annum. Late Payment Charges will not be
11 imposed on disputed estimated bills, unless the estimated bill
12 was required because utility personnel were unable to access
13 the affected premises to obtain an Actual Meter Reading.¹¹
14

15 **Q. IS THE COMPANY CLAIMING FORFEITED DISCOUNTS IN THIS**
16 **PROCEEDING?**

17 A. Yes. For the FPFTY ending August 31, 2018, PGW is claiming \$7,853,000 of
18 forfeited discounts.¹²
19

20 **Q. HOW DID THE COMPANY DETERMINE THE \$7,853,000 OF**
21 **FORFEITED DISCOUNT REVENUE?**

22 A. In response to I&E interrogatories, PGW explained the process it used to compute
23 the claimed \$7,853,000 of forfeited discount revenue as follows. First, the
24 Company determined a percentage of forfeited discounts to billed gas revenue

¹⁰ PGW Supplement No. 84, Gas Service Tariff – Pa P.U.C. No. 2, Second Revised Page No. 12.

¹¹ PGW Supplement No. 84, Gas Service Tariff – Pa P.U.C. No. 2, Second Revised Page No. 26.

¹² PGW Rate Case – Volume I, Part 3 – Filing Requirements, Section III, Balance Sheet and Operating Statement, Operating Revenue and Other Income for the Twelve Months ending August 31, 2018.

1 based upon the three-year average of fiscal years 2012, 2013, and 2014, which is
2 1.3%. Then, PGW applied the calculated percentage to projected gas revenue for
3 the FPFTY of \$605,459,000, to arrive at the \$7,853,000 of forfeited discount
4 revenue claimed in this proceeding.¹³

5
6 **Q. DO YOU HAVE ANY CONCERN REGARDING THE COMPANY'S**
7 **CLAIMED \$7,853,000 OF FORFEITED DISCOUNT REVENUE?**

8 A. Yes, I do. The Company's forfeited discount revenue should be based on the
9 three-year average of its most recent historic fiscal years 2014, 2015, and 2016
10 rather than the timeframe chosen by PGW, which is the three-year average of
11 historic fiscal years 2012, 2013, and 2014.

12
13 **Q. WHY SHOULD FORFEITED DISCOUNTS BE BASED UPON THE**
14 **THREE-YEAR AVERAGE OF HISTORIC FISCAL YEARS 2014, 2015,**
15 **AND 2016 IN THIS PROCEEDING?**

16 A. Revenues, including forfeited discount revenue, fluctuate with general economic
17 conditions. Consequently, revenues should always reflect recent actual trends.
18 Given that the historic test year selected by the Company in this proceeding is the
19 twelve months ended August 31, 2016, the three-year average of historic fiscal
20 years 2014, 2015, and 2016 is more indicative of recent actual trends than the

¹³ I&E Exhibit No. 3, Schedule No. 1, pages 2-3.

1 three-year average of historic fiscal years 2012, 2013, and 2014 upon which PGW
2 based its claim.

3
4 **Q. HAVE YOU COMPUTED THE COMPANY'S FORFEITED DISCOUNTS**
5 **BASED UPON THE THREE-YEAR AVERAGE OF HISTORIC FISCAL**
6 **YEARS 2014, 2015, AND 2016?**

7 A. Yes. Using the three-year average of historic fiscal years 2014, 2015, and 2016, I
8 determined that the forfeited discount revenue in this proceeding is \$9,045,000.¹⁴

9
10 **Q. HOW DID YOU DETERMINE THE \$9,045,000 OF FORFEITED**
11 **DISCOUNTS REVENUE?**

12 A. First, I computed the percentage of billed gas sales by dividing the average of
13 forfeited discounts revenue by the average billed gas revenue for the fiscal years
14 2014, 2015, and 2016, which gave me a percentage of 1.5%. I then applied the
15 calculated percentage to the projected gas revenues of the FPFTY to arrive at the
16 \$9,045,000 forfeited discounts revenue for the FPFTY ending August 31, 2018.¹⁵

17
18 **Q. WHAT IMPACT DOES YOUR CALCULATED \$9,045,000 OF**
19 **FORFEITED DISCOUNT REVENUE HAVE ON THE COMPANY'S**
20 **PRESENT RATE REVENUE?**

¹⁴ I&E Exhibit No. 3, Schedule No. 1, page 4, column M, line 7.

¹⁵ I&E Exhibit No. 3, Schedule No. 1, page 4, column M, line 7.

1 A. Based on my calculated \$9,045,000 of forfeited discount revenue, the Company's
2 claimed \$491,318,000 of total present rate revenue should be increased by
3 \$1,192,000 to \$492,510,000, which represents the difference between my
4 calculated \$9,045,000 and PGW's calculated \$7,853,000 of forfeited discounts.¹⁶

5
6 **COST OF SERVICE**

7 **Q. WHAT IS A COSS?**

8 A. A COSS uses a variety of allocators to assign total Company operating costs
9 across its various customer classes based on demand and usage patterns. In other
10 words, a COSS is a formalized analysis of costs that attempts to assign to each
11 customer or rate class its proportionate share of the Company's total cost of
12 serving its customers (i.e., the Company's total revenue requirement) based on
13 customer class service differences. The results of such a study can be utilized to
14 determine the relative cost of service for each class and help determine the
15 individual class revenue requirements and, to the extent a particular class is above
16 or below the system average rate of return, show the additional revenues each
17 class utilizes or the additional revenues that each class contributes to the
18 Company's overall revenues.

¹⁶ I&E Exhibit No. 3, Schedule No. 1, page 1, line 7, column K.

1 **Q. DID THE COMPANY PROVIDE A COSS IN THIS PROCEEDING?**

2 A. Yes. The Company provided a COSS, which is sponsored by Mr. Philip Q.
3 Hanser.¹⁷

4 Overall, the Company's COSS is based on the three-step process of cost analysis
5 as follows:

6 1. Costs functionalization – a process in which the Company segregated its
7 costs into the following six service functions:

8 i. Supply;

9 ii. Storage;

10 iii. Transmission;

11 iv. Distribution;

12 v. Onsite;

13 vi. Universal Service and Energy Conservation ("USEC").

14 2. Classification of functionalized costs into:

15 i. Demand;

16 ii. Commodity;

17 iii. Customer cost categories; and

18 3. Class allocation of functionalized costs, which is a process that attributes
19 functionalized costs to the different rate classes.

20

¹⁷ PGW Volume III – Class Cost of Service Study

1 **Q. WHAT IS THE SINGLE LARGEST CAPITAL COST FOR MOST**
2 **NATURAL GAS DISTRIBUTION COMPANIES (“NGDCS”)?**

3 A. The cost of mains is one of the driving forces for NGDC capital costs.
4

5 **Q. HOW DID THE COMPANY CLASSIFY AND ALLOCATE THE COSTS**
6 **OF DISTRIBUTION MAINS IN ITS COSS?**

7 A. The Company allocated 50 percent of distribution mains to the demand
8 classification factor and the remaining 50 percent to the customer classification
9 factor.¹⁸ This method of allocating the costs of distribution mains is known as the
10 customer/demand methodology.
11

12 **Q. PLEASE EXPLAIN THE CUSTOMER/DEMAND METHODOLOGY.**

13 A. The customer/demand methodology classifies distribution mains as partially
14 customer related and partially demand related. The customer portion of mains is
15 allocated to the various customer classes based on the total number of customers,
16 while the demand portion of mains is allocated to classes based on peak day
17 contributions or demand. This methodology has previously been rejected by the
18 Commission in other NGDC base rate cases.

¹⁸ PGW Volume III – Class Cost of Service Study, Exhibit PQH-7B, page 1.

1 **Q. WHY DID THE COMPANY USE THE CUSTOMER/DEMAND**
2 **METHODOLOGY TO ALLOCATE THE COSTS OF ITS DISTRIBUTION**
3 **MAINS?**

4 A. Per PGW, mains serve a dual purpose: to connect customers and to meet the
5 maximum demand level of the customers connected to the mains. As a result, the
6 Company not only functionalized mains to distribution, but also classified mains
7 to both customer and demand allocators.¹⁹

8
9 **Q. DO YOU AGREE WITH THE WAY THE COMPANY ALLOCATED THE**
10 **COSTS OF DISTRIBUTION MAINS IN THIS PROCEEDING?**

11 A. No. Distribution mains should be allocated 50 percent to the demand classification
12 factor and 50 percent to the commodity classification factor. In other words, the
13 fixed costs and depreciation expense of mains should be allocated on a volumetric
14 basis based upon the demand and commodity method.

15
16 **Q. WHAT IS THE DEMAND AND COMMODITY METHOD?**

17 A. The demand and commodity method is a classification method that allocates fixed
18 costs to the demand and commodity factors.

¹⁹ PGW Statement No. 5, page 11, lines 14-19.

1 **Q. WHY SHOULD THE COSTS OF MAINS BE ALLOCATED 50 PERCENT**
2 **TO THE DEMAND ALLOCATOR AND 50 PERCENT TO THE**
3 **COMMODITY ALLOCATOR IN THIS PROCEEDING?**

4 A. First, allocating distribution mains costs based on the number of customers is
5 improper because distribution mains are not sized based on the number of
6 customers they serve but on the loads placed upon them.

7 Second, the Commission has previously determined that mains should not
8 be allocated based on the number of customers. For example, the Commission
9 affirmed I&E's recommendation to allocate mains 50 percent to demand and 50
10 percent to commodity in the Company's 2007 base rate proceeding at Docket No.
11 R-00061931 when it stated:

12 "We find the ALJs' recommendation to be reasonable and
13 that PGW's proposal to allocate a percentage of the cost of
14 the distribution mains as a customer cost not to be acceptable.
15 PGW has not presented evidence to show that it is correctly
16 classifying and allocating the cost of the distribution mains.
17 Reviewing the record, we find that the allocation of
18 distribution mains investment costs should be done using both
19 annual and peak demands. As a result, we accept the ALJs'
20 recommendation on this issue and deny the Exceptions of
21 PGW, the OCA and the OSBA."²⁰
22

23 Additionally, in PPL's 2007 base rate proceeding, the Commission reaffirmed that
24 the cost of mains should be allocated on a combination of throughput and demand,
25 and therefore not allocated to the customer function (PPL Gas Utilities, Docket

²⁰ Pa PUC v. Philadelphia Gas Works, Docket No. R-00061931. Order entered September 28, 2007, at page 80.

1 No. R-00061398, Order entered February 8, 2007). Furthermore, the Commission
2 determined in a 1994 Pennsylvania American Water Company case at Docket No.
3 R-00932670, (Order entered July 26, 1994), that direct customer costs include “the
4 depreciation, return and income taxes associated with meter and service
5 investment, the operation and maintenance expense for meters and services, and
6 the expense associated with meter reading and billing.” Mains are not included in
7 any of these categories, and therefore should not be considered or classified as a
8 customer cost.

9 Third, the basis for this determination is that the quantity and investment in
10 mains does not change significantly if one customer joins or leaves the system.
11 Mains are built to deliver gas, and the cost of mains cannot be assigned to one
12 specific customer. Therefore, no portion of the fixed costs or depreciation expense
13 associated with mains should be allocated to the customer cost function.
14

15 **Q. DID YOU ASK THE COMPANY TO PROVIDE A COSS BASED UPON**
16 **ALLOCATING MAINS 50 PERCENT TO DEMAND AND 50 PERCENT**
17 **TO COMMODITY?**

18 A. Yes. In response to I&E-RS-21-D, PGW provided a second COSS that allocates
19 50 percent of distribution mains to demand and the remaining 50 percent to

commodity, which I used for my revenue reallocation, scale back of rates, and to derive my customer charges.²¹

Q. WHAT IS THE MAIN DIFFERENCE BETWEEN THE DEMAND/CUSTOMER COSS USED BY PGW AND THE COSS YOU RECOMMEND?

A. As stated above, the demand/customer COSS used by the Company in this proceeding and the demand/commodity COSS I used allocate the costs of mains differently. Consequently, the two COSSs yield different relative rates of return for the various customer classes.

Q. WHAT IS THE IMPACT ON THE RELATIVE RATE OF RETURN UNDER THE COSS USED BY THE COMPANY AND THE ONE BASED UPON THE DEMAND/COMMODITY COSS?

A. With the demand/customer COSS, which the Company used in this proceeding, the relative rate of return under present rates for the residential class is 0.97.²² Under this scenario, the Company does not recoup the full costs it incurs to provide service for the residential customer class. However, under the demand and commodity method, the relative rate of return under present rates for the

²¹ I&E Exhibit No. 3, Schedule No. 2.

²² PGW Exhibit PQH-1: Summary of Allocation Results, page 1, line 14.

1 residential customer class is 1.00.²³ With the demand/commodity methodology,
2 the residential customer class is at full cost. In other words, the Company fully
3 recoups the costs it incurs to provide service for the residential customer class
4 under present rates.

5 This difference can be explained by the fact that the demand/customer
6 COSS utilized by the PGW places more cost obligation on the customer
7 component of the distribution system, which must be designed to reach all
8 customers. This design aspect implies a greater impact on the largest class of
9 customers in terms of number of customers. The demand component of the
10 distribution system is the sizing of the system to meet peak demand, which would
11 have a greater impact on largest class of customers in terms of volume.

13 **CUSTOMER COST ANALYSIS**

14 **Q. WHAT IS A CUSTOMER COST ANALYSIS AND HOW IS IT USED?**

15 A. A customer cost analysis is part of a COSS that includes only customer related
16 costs. It is important in the rate making process as it helps determine the proper
17 customer charges for the different customer classes.

²³ I&E Exhibit No. 3, Schedule No. 2, page 2, line 14.

**Q. DID PGW PREPARE A CUSTOMER COST ANALYSIS TO SUPPORT
THE PROPOSED CUSTOMER CHARGE INCREASES IN THIS
PROCEEDING?**

A. Yes. The results of the Company's prepared customer cost analysis, which includes the costs of distribution mains, are as follows:²⁴

- \$50.98 for Rate GS – Residential customers;
- \$126.38 for Rate GS – Commercial customers;
- \$379.17 for Rate GS – Industrial customers;
- \$47.46 for Rate GS – Public Housing Authority customers (PHA);
- \$203.79 for Rates PHA (Rate 8) and MS – Public Housing Authority and Municipal customers;
- \$178.50 for Rate NGVS – Natural Gas Vehicle Service customers;
- \$259.13 for Rate IT – Interruptible customers; and
- \$616.45 for Rate GTS/IT – Gas Transportation Service (Firm and Interruptible) customers.

**Q. HOW DID THE COMPANY DETERMINE THE FIXED MONTHLY
COSTS BY CUSTOMER CLASS ABOVE?**

A. According to PGW witness Mr. Kenneth S. Dybalski, the Company designed its rates on the following premises:²⁵

²⁴ PGW Exhibit PQH-2, page 1, line 20.

- 1 • Rely on the results of the COSS to recover most fixed customer costs
- 2 through the customer charges;
- 3 • Gradually move the various rate classes closer to their full cost of service
- 4 through the revenue allocation;
- 5 • Avoid inter-customer class subsidization while allocating the revenue; and
- 6 • Ensure the increases to the customer classes are reflective of cost causation.

7

8 **Q. HAS THE COMMISSION PREVIOUSLY DETERMINED WHAT ITEMS**

9 **SHOULD BE RECOVERED IN A CUSTOMER CHARGE?**

10 A. Yes, in *Pennsylvania Public Utility Commission v. Aqua Pennsylvania* docketed at

11 R-00038805 (Order entered August 5, 2004) and in *Pennsylvania Public Utility*

12 *Commission v. PPL Electric* at Docket R-2012-2290597 (Order entered December

13 28, 2012) the Commission determined what should be recovered in a customer

14 charge. In the Aqua case on page 72, the Commission stated the following:

15 “First, the ALJ correctly found that the cost of customer

16 equipment, and also of meters and service line maintenance,

17 is properly includable in a cost study...

18

19 Second, we find that it is reasonable and proper to

20 include allocated portions of indirect costs, such as employee

21 benefits, local taxes and other general and administrative

22 costs, in a cost study. We caution that these are costs which

23 may be considered for inclusion in the customer charge, but

24 such claims are subject to scrutiny on a case-by-case basis.

25 We note that in *Citizens, supra*, the Commission adopted the

26 utility’s claim to include the allocated portion of associated

²⁵ PGW Statement No. 6, page 5, lines 6 – 19.

1 payroll taxes and benefits as part of customer expenses. In
2 the matter before us, we find that AP met its statutory burden
3 pursuant to Section 332(a) of the Code, of establishing the
4 reasonableness of its claim.”
5
6

7 In the PPL case, the Commission approved the customer cost analysis submitted
8 by PPL that included both direct and indirect customer costs. Therefore, it is
9 proper to include direct customer costs as well as certain indirect customer costs in
10 a customer cost analysis.
11

12 **Q. WHAT ARE DIRECT AND INDIRECT CUSTOMER COSTS?**

13 A. Direct customer costs are those the Company must have in place to serve its
14 customers every month. A direct customer cost is a dynamic cost that changes
15 every time the Company adds new customers or when customers leave the system.
16 An example of a direct customer cost would be the costs related to meters.
17 Indirect costs are static and, therefore, do not change with the addition or
18 subtraction of customers. An example of an indirect customer cost would be the
19 costs related to supervision.
20

21 **Q. HAVE YOU PREPARED A CUSTOMER COST ANALYSIS TO**
22 **DETERMINE THE APPROPRIATE LEVELS OF MONTHLY**
23 **CUSTOMER CHARGE FOR THE VARIOUS CLASSES SERVED BY**
24 **PGW?**

1 A. Yes. I&E Exhibit No. 3, Schedule No. 3 depicts my customer cost analysis, which
2 is guided by my analysis and the Commission's decisions in the Aqua and PPL
3 cases mentioned above. Under my customer cost analysis, PGW incurs the
4 following costs on a monthly basis to provide service to each customer of the
5 corresponding rate schedules it serves:²⁶

- 6 • \$30.87 for Rate GS – Residential customers;
- 7 • \$100.18 for Rate GS – Commercial customers;
- 8 • \$317.67 for Rate GS – Industrial customers;
- 9 • \$30.33 for Rate GS – Public Housing Authority customers (PHA);
- 10 • \$162.37 for Rates PHA (Rate 8) and MS – Public Housing Authority and
11 Municipal customers;
- 12 • \$125.00 for Rate NGVS – Natural Gas Vehicle Service customers;
- 13 • \$125.00 for Rate IT – Interruptible customers; and
- 14 • \$393.53 for Rate GTS/IT – Gas Transportation Service (Firm and
15 Interruptible) customers.

16
17 **Q. WHAT ITEMS DID YOU INCLUDE IN YOUR CUSTOMER COST**
18 **ANALYSIS TO ARRIVE AT YOUR RECOMMENDATIONS FOR THE**
19 **APPROPRIATE LEVEL OF CUSTOMER CHARGES?**

20 A. I included the following customer costs in my customer cost analysis:

²⁶ I&E Exhibit No. 3, Schedule No. 3, page 1, line 26.

- Distribution plant costs related to services (Account 380), meters (Account 381), meter installations (Account 382), house regulators (Account 383), house regulator installations (Account 384), meter and house regulator (Account 878), customer installation (Account 879), customer installation – parts and labor plant (Account 879PLP), maintenance of services (Account 892), maintenance of meters and house regulators (Account 893);
- Depreciation reserve costs related to services (Account 108.54), meters (Account 108.55);
- Cash working capital expenses related to customer deposits (Account 131.18), accrued interest (Account 131.19); accrued taxes and wages (Account 131.20);
- Depreciation expense (Account 403);
- Taxes other than income (Account 408);
- Administrative and general labor expenses related to employee pensions and benefits (Account 926), as well as OPEB funding (Account 999);
- Customer accounts expenses related to meter reading (Account 902), customer records and collection (Account 903); and
- Customer service and informational expenses related to customer assistance (Account 908).

**Q. WHAT ARE THE MAIN DIFFERENCES BETWEEN YOUR CUSTOMER
COST ANALYSIS AND THE COMPANY'S?**

A. My customer cost analysis only allows direct and some previously approved indirect expenses and excludes the costs of distribution mains. Using the Commission's Orders in Aqua and PPL mentioned above as a guide, I excluded the following costs from my customer cost analysis:

- \$351,000 of general plant costs related to land and land rights (Account 389);
- \$7,848,000 of general plant costs related to structures and improvements (Account 390);
- \$10,314,000 of general plant costs related to office furniture and equipment (Account 391);
- \$3,788,000 of general plant costs related to transportation equipment (Account 392);
- \$71,000 of general plant costs related to stores equipment (Account 393);
- \$1,015,000 of general plant costs related to tools, shop and garage equipment (Account 394);
- \$116,000 of general plant costs related to power operated equipment (Account 396);
- \$1,971,000 of general plant costs related to communication equipment (Account 397);

- 1 • \$1,351,000 of general plant costs related to miscellaneous equipment
2 (Account 398);
- 3 • \$13,845,000 of general plant costs related to miscellaneous equipment
4 (Account 108.8);
- 5 • \$27,298,000 of cash working capital expenses related to accounts
6 receivable-gas (Account 131.11);
- 7 • \$3,800,000 of cash working capital expenses related to materials and
8 supplies (Account 131.12);
- 9 • \$2,078,000 of cash working capital expenses related to prepaid accounts,
10 other current assets (Account 131.13);
- 11 • \$842,000 of distribution expenses related to operation supervision and
12 engineering (Account 870);
- 13 • \$2,202,000 of distribution expenses related to mains and services
14 (Account 874);
- 15 • \$11,584,000 of distribution costs related to other expenses (Account 880);
- 16 • \$3,000 of distribution costs related to rents (Account 881);
- 17 • \$125,000 of distribution costs related to maintenance supervision and
18 engineering (Account 885);
- 19 • \$1,365,000 of administrative and general labor expenses related to salaries
20 (Account 920);

- 1 • \$16,495,000 of customer accounts expenses related to uncollectible
- 2 accounts (Account 904);
- 3 • \$2,146,000 of administrative and general labor expenses related to office
- 4 supplies (Account 921);
- 5 • \$158,000 of administrative and general labor expenses related to outside
- 6 services employed (Account 923);
- 7 • \$607,000 of administrative and general labor expenses related to injuries
- 8 and damages (Account 925);
- 9 • \$1,807,000 of plant administrative and general labor expenses related to
- 10 property insurance (Account 924);
- 11 • \$5,156,000 of other administrative and general expenses related to
- 12 regulatory commission (Account 928);
- 13 • \$570,000 of other administrative and general expenses related to general
- 14 advertising expenses, miscellaneous (Account 930);
- 15 • \$30,000 of other administrative and general expenses related to rents
- 16 (Account 931); and
- 17 • \$1,108,000 of customer account expenses related to supervision
- 18 (Account 901).

19

20 **Q. WHY IS IT APPROPRIATE TO EXCLUDE THE EXPENSES LISTED**

21 **ABOVE FROM THE CUSTOMER COST ANALYSIS?**

1 A. The expenses identified above are not direct costs, since the costs would not
2 change with the addition or subtraction of a single customer. In addition, my
3 recommendation emulates the allowance of specific indirect costs as previously
4 approved by the Commission in the 2012 PPL customer cost analysis at Docket
5 No. R-2012-2290597 (I&E Exhibit No. 3, Schedule No. 4, pages 2 and 5).

6 Except for those indirect costs specifically allowed by the Commission, I
7 believe that only those costs that change with the addition or subtraction of a
8 single customer, or direct customer costs, should be included in a customer cost
9 analysis. Since the expenses identified above are not direct or previously allowed
10 indirect customer costs, they should not be included in the customer cost analysis.

11
12 **CUSTOMER CHARGES**

13 **Q. WHAT CRITERIA DID YOU USE TO DETERMINE THE APPROPRIATE**
14 **CUSTOMER CHARGES?**

15 A. I used a combination of the results of my customer cost analysis, which is based
16 on the COSS that allocates 50 percent of mains to the demand allocator and 50
17 percent to the commodity allocator, as well as the fact that the customer charges
18 should reflect only actual customer count dependent direct costs and certain
19 indirect costs as previously allowed by the Commission. In addition, my customer
20 charge recommendations incorporate the important ratemaking concept of
21 gradualism.

1 **Q. WHAT IS GRADUALISM?**

2 A. Gradualism is a well-established ratemaking concept that seeks to mitigate the
3 impact of increases customers receive when rates are increased. Significant rate
4 changes due to misaligned class relative rates of return will occur on a more
5 gradual basis over successive rate cases in order to avoid rate shock.

6

7 **RESIDENTIAL CLASS**

8 **Q. IS THE COMPANY PROPOSING TO INCREASE THE MONTHLY**
9 **CUSTOMER CHARGE FOR RESIDENTIAL CUSTOMERS?**

10 A. Yes. The Company is proposing to increase the present monthly \$12.00 customer
11 charge by \$6.00 to \$18.00 per month for residential customers, which represents a
12 50 percent increase.²⁷

13

14 **Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE**
15 **LEVEL OF CUSTOMER CHARGE FOR RESIDENTIAL CUSTOMERS?**

16 A. I recommend a monthly residential customer charge of \$15.00, which represents
17 a 25 percent increase for the residential customer class. Although my customer
18 cost analysis supports a much higher customer charge, an increase of that
19 magnitude would violate the concept of gradualism and add a significant
20 additional burden for PGW's large low-income customer base.

²⁷ PGW Statement No. 6, page 6, Table 1.

1 **Q. WHAT IS THE BASIS FOR RECOMMENDING THAT THE CUSTOMER**
2 **CHARGE FOR THE RESIDENTIAL CUSTOMER CLASS BE**
3 **INCREASED TO \$15.00 PER MONTH?**

4 A. I believe the Company's proposal to increase the Residential customer charge by
5 50 percent violates the ratemaking concept of gradualism.

6 **Q. WHAT IS ONE FACTOR YOU TOOK INTO CONSIDERATION?**

7 A. One factor I considered is the proposed increase in the residential usage rate
8 compared to the customer charge increase. The Company is proposing that the
9 residential usage rate be increased by only 9.4 percent from \$7.7183 to \$8.4438.²⁸
10 Considering the residential usage rate increase is only 9.4 percent, I believe a 50
11 percent increase in the customer charge is unreasonable and should be reduced so
12 that the increase does not fall more proportionally on low usage customers.

13

14 **Q. WHAT IS ANOTHER FACTOR YOU TOOK INTO CONSIDERATION?**

15 A. I believe it is important to consider conservation and as a result, my
16 recommendation will promote the Commission's philosophy of designing utility
17 rates in such a way as to encourage conservation on the part of the customers. The
18 Company's proposed rate structure does not adhere to that philosophy because a
19 50 percent increase to the customer charge, which is a fixed charge, does not
20 encourage conservation. My proposal, on the other hand, alleviates the impact of

²⁸ PGW Rate Case – Volume I (Part 3 of 3) – Filing Requirements, Company response to filing requirement III.E.20.

1 the increase on the Company's Residential customers and moves the customer
2 charge toward the appropriate customer cost level over time.

3
4 **COMMERCIAL CLASS**

5 **Q. IS THE COMPANY PROPOSING TO INCREASE THE MONTHLY**
6 **CUSTOMER CHARGE FOR COMMERCIAL CUSTOMERS?**

7 A. Yes. The Company is proposing to increase the present monthly \$18.00 customer
8 charge by \$9.00 to \$27.00 per month for Commercial customers, which represents
9 a 50 percent increase.²⁹

10
11 **Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE**
12 **LEVEL OF CUSTOMER CHARGE FOR COMMERCIAL CUSTOMERS?**

13 A. I recommend that the customer charge for the Commercial class be scaled back
14 proportionally to the usage charge. For example, if usage rate increase is 1.7
15 percent (or half of the current proposed 3.5 percent increase) over current rates,
16 the customer charge increase would be 25 percent (half of the current proposed 50
17 percent.)

18
19 **Q. WHAT IS THE BASIS FOR RECOMMENDING THAT THE CUSTOMER**
20 **CHARGE FOR THE COMMERCIAL CUSTOMER CLASS BE SCALED**

²⁹ PGW Statement No. 6, page 6, Table 1.

1 **BACK PROPORTIONALLY TO THE TOTAL PERCENT INCREASE**
2 **ALLOCATED TO USAGE CHARGE?**

3 A. Similar to the Residential customer class, I believe the Company's proposed 50
4 percent customer charge increase to the Commercial class violates the ratemaking
5 concept of gradualism. My proposal would not only lessen the impact of the
6 increase on the Company's Commercial customers but also move the customer
7 charge toward the appropriate customer cost level over time.

8
9 **INDUSTRIAL CLASS**

10 **Q. IS THE COMPANY PROPOSING TO INCREASE THE MONTHLY**
11 **CUSTOMER CHARGE FOR INDUSTRIAL CUSTOMERS?**

12 A. Yes. The Company is proposing to increase the present monthly \$50.00 customer
13 charge by \$25.00 to \$75.00 per month for both industrial heat and non-heat
14 customers, which represents a 50 percent increase.³⁰

15
16 **Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE**
17 **LEVEL OF CUSTOMER CHARGE FOR INDUSTRIAL CUSTOMERS?**

18 A. Similar to the Commercial customer class, I recommend that the customer charge
19 for the Industrial class be scaled back proportional to the usage and demand
20 charges.

³⁰ PGW Statement No. 6, page 6, Table 1.

1 **Q. WHAT IS THE BASIS FOR RECOMMENDING THAT THE CUSTOMER**
2 **CHARGE FOR THE INDUSTRIAL CUSTOMER CLASS BE SCALED**
3 **BACK PROPORTIONAL TO THE TOTAL PERCENT INCREASE**
4 **ALLOCATED TO THE USAGE RATE?**

5 **A.** I believe the Company's proposed 50 percent customer charge increase to the
6 Industrial customer class violates the ratemaking concept of gradualism. My
7 proposal would not only lessen the impact of the increase on the Company's
8 Industrial customers but also move the customer charge toward the appropriate
9 customer cost level over time.

11 **PHILADELPHIA PUBLIC HOUSING AUTHORITY – GENERAL**
12 **SERVICE CLASS**

13 **Q. IS THE COMPANY PROPOSING TO INCREASE THE MONTHLY**
14 **CUSTOMER CHARGE FOR THE PHILADELPHIA PUBLIC HOUSING**
15 **AUTHORITY CUSTOMERS?**

16 **A.** Yes. The Company is proposing to increase the present monthly \$12.00 customer
17 charge by \$6.00 to \$18.00 per month for the Philadelphia Public Housing
18 Authority customers, which represents a 50 percent increase.³¹

³¹ PGW Statement No. 6, page 6, Table 1.

1 **Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE**
2 **LEVEL OF CUSTOMER CHARGE FOR THE PHILADELPHIA PUBLIC**
3 **HOUSING AUTHORITY CUSTOMERS?**

4 A. I recommend that the customer charge for the Philadelphia Public Housing
5 Authority customers be scaled back proportionally to the usage charge. For
6 example, if usage rate increase is 12 percent (or half of the current proposed 24
7 percent increase) over current rates, the customer charge increase would be 25
8 percent (half of the current proposed 50 percent.)

9
10 **Q. WHAT IS THE BASIS FOR RECOMMENDING THAT THE CURRENT**
11 **CUSTOMER CHARGE FOR THE PHILADELPHIA PUBLIC HOUSING**
12 **AUTHORITY CUSTOMER CLASS BE SCALED BACK PROPORTIONAL**
13 **TO THE TOTAL PERCENT INCREASE ALLOCATED TO THE USAGE**
14 **RATE?**

15 A. I believe the Company's proposed 50 percent customer charge increase to the
16 Philadelphia Public Housing Authority customer class violates the ratemaking
17 concept of gradualism. My proposal would not only lessen the impact of the
18 increase on the Company's Philadelphia Public Housing Authority customers but
19 also move the customer charge toward the appropriate customer cost level over
20 time.

1 **MUNICIPAL SERVICE – RATE MS**

2 **Q. IS THE COMPANY PROPOSING TO INCREASE THE MONTHLY**
3 **CUSTOMER CHARGE FOR THE MUNICIPAL SERVICE – RATE MS**
4 **CUSTOMERS?**

5 A. Yes. The Company is proposing to increase the present monthly \$18.00 customer
6 charge by \$9.00 to \$27.00 per month for Municipal Rate MS customers, which
7 represents a 50 percent increase.³²

8
9 **Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE**
10 **LEVEL OF CUSTOMER CHARGE FOR THE MUNICIPAL SERVICE –**
11 **RATE MS CUSTOMERS?**

12 A. I recommend that the customer charge for the Municipal Rate MS customers be
13 scaled back proportionally to the usage charge. For example, if usage rate
14 increase is 12 percent (or half of the current proposed 24 percent increase) over
15 current rates, the customer charge increase would be 25 percent (half of the current
16 proposed 50 percent.)

17
18 **Q. WHAT IS THE BASIS FOR RECOMMENDING THAT THE CURRENT**
19 **CUSTOMER CHARGE FOR THE MUNICIPAL SERVICE – RATE MS**

³² PGW Statement No. 6, page 6, Table 1.

**CUSTOMER CLASS BE SCALED BACK PROPORTIONAL TO THE
TOTAL PERCENT INCREASE ALLOCATED TO THE USAGE RATE?**

A. I believe the Company's proposed 50 percent customer charge increase to the Municipal Rate MS customer class violates the ratemaking concept of gradualism. My proposal would not only lessen the impact of the increase on the Company's Municipal Rate MS customers but also move the customer charge toward the appropriate customer cost level over time.

**Q. WHAT ARE THE COMPANY'S VIEWS REGARDING CUSTOMER
CHARGES?**

A. Mr. Dybalski claims that since PGW is still recovering a majority of its fixed customer costs in its variable delivery charges, the monthly customer charges should be increased to recover more fixed charges. He goes on to state that since the recovery of fixed costs are contingent upon PGW projected normal sales volumes, it would be better for PGW's cash flow if more fixed costs were recovered in the customer charge.³³

**Q. PLEASE ADDRESS MR. DYBALSKI'S CLAIM THAT MORE FIXED
CUSTOMER COSTS SHOULD BE RECOVERED IN THE CUSTOMER
CHARGE.**

³³ PGW Statement No. 6, page 7.

1 A. Mr. Dybalski is confusing customer related costs with direct customer costs. Mr.
2 Dybalski recommendation if adopted will result in higher customer charge than
3 appropriate.

4
5 **Q. WHAT IS THE DIFFERENCT BETWEEN CUSTOMER RELATED**
6 **COSTS AND DIRECT CUSTOMER COSTS?**

7 A. As mentioned above, customer related costs refer to costs that may be allocated
8 based on the number of customers in a COSS. Direct customer costs on the other
9 hand, are a limited subset of customer related costs in a customer cost analysis
10 used to determine customer charges.

11
12 **Q. WHY DID THE COMMISSION ISSUE ORDERS DESCRIBING THAT**
13 **THE CUSTOMER CHARGE SHOULD ONLY RECOVER DIRECT**
14 **CUSTOMER COSTS AND SOME LIMITED INDIRECT COSTS?**

15 A. This was done to reflect proper cost recovery, promote or encourage conservation,
16 and prevent low usage customers form subsidizing large usage customers. For
17 example, if there are two side-by-side residential customers and one uses 45 Mcf
18 per year and the other uses 145 Mcf per year, the best approach and fairest method
19 is to establish rates that require the larger usage customer to contribute more to the
20 cost of the system through a higher total bill. Conversely, it would be unfair to
21 charge them both the same monthly bill.

1 **Q. SHOULD CUSTOMER CHARGES BE ESTABLISHED TO IMPROVE**
2 **THE CASH FLOW OF PGW AS SUGGESTED BY MR. DYBALSKI?**

3 A. No. Customer charges should not be increased over a reasonable level to improve
4 the Company's cash flow. Furthermore, the Company utilizes a WNA that
5 mitigates some of the fluctuation in revenue that results from abnormal weather.
6

7 **PROPOSED REVENUE**

8 **Q. HOW IS THE COMPANY PROPOSING TO DISTRIBUTE ITS**
9 **REQUESTED ANNUAL REVENUE INCREASES AMONG THE**
10 **DIFFERENT CUSTOMER CLASSES IN THIS PROCEEDING?**

11 A. Using the Company revenues at proposed and present rates, I determined the
12 following revenue increase allocations as well as percentage increases for the
13 PGW's different customer classes.³⁴

³⁴ PGW Exhibit PQH-1, page 1, lines 1 and 17.

Philadelphia Gas Works

R-2017-2586783

**Summary of Company Allocation Of Proposed Rate Increase for the Twelve-Month ending
August 31, 2018
(\$1,000)**

Line No.	Rate Class	Present Rate	Increase from Present		Percent of Total Increase	Proposed Rate Revenues
		Revenues	Amount	Percent		
(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Residential	\$385,459	\$59,000	15.31%	84.29%	\$444,459
2	Commercial	\$77,324	\$5,000	6.47%	7.14%	\$82,324
3	Industrial	\$5,899	(\$400)	-6.78%	-0.57%	\$5,499
4	PHA GS	\$1,499	\$400	26.68%	0.57%	\$1,899
5	Municipal PHA (Rate 8)	\$8,852	\$500	5.65%	0.71%	\$9,352
6	NGVS	\$20	\$0	0.00%	0.00%	\$20
7	Interruptible	\$18	\$0	0.00%	0.00%	\$18
8	GTS/IT	\$12,246	\$5,500	44.91%	7.86%	\$17,746
9	Total	\$491,317	\$70,000	14.25%	100.00%	\$561,317

2

3

4 **Q. WHAT ASPECTS OF RATE STRUCTURE SHOULD THE COMMISSION**
5 **CONSIDER WHEN ESTABLISHING PROPOSED RATES?**

6 A. Generally, the primary goal in establishing proposed rates is the resulting rate of
7 return by customer class and their corresponding relative rate of return, which
8 indicates how the rate of return of each customer class compares to the system
9 average rate of return. Additionally, the principle of cost causation dictates that
10 proposed rates be established so that the revenue received from a particular class is
11 equal to the corresponding costs of providing service to that class. Generally, a
12 relative rate of return above 1.00 for a class indicates that revenue received from that

class is more than the cost of providing service to that class. Conversely, a relative rate of return below 1.00 for a class indicates that the revenue received from that class is less than the cost of providing service to that class. Based on the Company's COSS, the relative rate of return for each class is as follows:³⁵

Summary of Company Relative Rate of Return at Present Rates									
		Customer Class							
Line		PHA Municipal							
No.	Description	Residential	Commercial	Industrial	GS	PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	Relative Rate of Return at Present Rates	0.97	1.18	1.19	0.97	1.00	1.19	0.58	0.94

From the above table, the Company does not recover the costs it incurs to provide service for the Residential, the PHA – GS, Interruptible, and GTS/IT customer classes at present rates, which all have relative rate of return below 1.00, the system average. On the other hand, the relative rate of return for the Commercial, Industrial and NGVS customer classes is above 1.00, which indicates that PGW recovers more money than it incurs to provide service for these customer classes at present rates. The relative of return for the Municipal/PHA customer class is equal to 1.00, which means that PGW also recovers the full costs it incurs to provide service for the Municipal/PHA customer class at present rates.

³⁵ PGW Exhibit PQH-1, page 1, line 14.

Q. HOW DOES THE COMPANY'S PROPOSED RATE DESIGN IMPACT THE RELATIVE RATE OF RETURN FOR EACH CUSTOMER CLASS?

A. The Company's COSS indicates the following movements of the relative rate of return at present and proposed rates:

Summary of Company's Movements of Relative Rate of Return at Present and Proposed Rates									
Line No.	Description	Customer Class							
		Residential	Commercial	Industrial	PHA GS	Municipal PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	Relative Rate of Return at Present Rates	0.97	1.18	1.19	0.97	1.00	1.19	0.58	0.94
2	Relative Rate of Return at Proposed Rates	0.98	1.10	0.97	1.07	0.92	1.04	0.51	1.19

Q. WHAT IS THE COMPANY'S PROPOSED REVENUE ALLOCATION UNDER THE DEMAND/COMMODITY COSS METHODOLOGY?

A. The Company's proposed revenue allocation under the demand/commodity methodology COSS is as follows:

Philadelphia Gas Works						
R-2017-2586783						
Summary of Company Allocation of Proposed Rate Increase for the Twelve-Month ending 8/31/2018 under the Demand/Commodity COSS (\$1,000)						
Line No.	Rate Class	Present Rate Revenues	Increase from Present Rate Revenues		Percent of Total Increase	Proposed Rate Revenues
(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	Residential	\$385,361	\$53,562	13.90%	76.52%	\$438,923
2	Commercial	\$77,404	\$10,154	13.12%	14.51%	\$87,558
3	Industrial	\$5,908	\$926	15.67%	1.32%	\$6,834
4	PHA GS	\$1,500	\$263	17.53%	0.38%	\$1,763
5	Municipal PHA (Rate 8)	\$8,865	\$2,520	28.43%	3.60%	\$11,385
6	NGVS	\$20	\$5	25.00%	0.01%	\$25
7	Interruptible	\$17	\$0	0.00%	0.00%	\$17
8	GTS/IT	\$12,246	\$2,570	20.99%	3.67%	\$14,816
9	Total	\$491,321	\$70,000	14.25%	100.00%	\$561,321

2

3

4 Q. WHAT RELATIVE RATE OF RETURN DOES THE

5 DEMAND/COMMODITY COSS METHODOLOGY YIELD UNDER

6 PRESENT AND PROPOSED RATES?

7 A. Under present and proposed rates, the demand/commodity methodology COSS

8 yields the following relative rate of return:

1

Summary of Company Movements of Relative Rate of Return at Present and Proposed Rates under the Demand/Commodity COSS									
Line	No.	Description	Customer Class						
			Residential	Commercial	Industrial	PHA GS	Municipal PHA	NGVS	Interruptible
(A)		(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
									(J)
1		Relative Rate of Return at Present Rates	1.00	1.01	0.99	0.97	0.84	0.82	0.61
2		Relative Rate of Return at Proposed Rates	1.01	0.94	0.81	1.08	0.77	0.72	0.54

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Under this scenario, at present rates, the Company recoups the full costs it incurs to provide service for the Residential and Commercial customer classes. The Company however, does not recover the costs it incurs to provide service for the Industrial, PHA-GS, Municipal PHA, NGVS, Interruptible and GTS/IT customer classes as these customer classes have a relative rate of return below 1.00.

At proposed rates, PGW would be recovering more money from the Residential, PHA-GS, and GTS/IT, which have relative rate of return greater than 1.00.

Q. DO YOU HAVE ANY RECOMMENDATION REGARDING THE PROPOSED REVENUE ALLOCATION UNDER THE DEMAND/COMMODITY COSS METHOD?

A. Yes. I recommend the following:

- For the Residential customer class, the Company's proposed \$59,000,000 increase be reduced by \$5,438,000 to \$53,562,000;

- 1 • For the Commercial customer class, the Company's proposed \$5,000,000
- 2 be increased by \$5,154,000 to \$10,154,000;
- 3 • For the Industrial customer class, the Company's proposed \$400,000
- 4 decrease be changed to an increase of \$926,000;
- 5 • For the Philadelphia Public Housing Authority – General Service customer
- 6 class, the Company's proposed \$400,000 increase be reduced by \$137,000
- 7 to \$263,000;
- 8 • For the Municipal/Philadelphia Public Housing Authority – Rate 8
- 9 customer class, the Company's proposed \$500,000 increase be increased by
- 10 \$2,020,000 to \$2,520,000;
- 11 • \$5,000 be reallocated to the Natural Gas Vehicle Service customer class;
- 12 • For the Gas Transportation Service/Interruptible customer class, the
- 13 Company's proposed \$5,500,000 increase be reduced by \$2,930,000 to
- 14 \$2,570,000.³⁶

15

16 **Q. WHY DO YOU RECOMMEND THAT THE PROPOSED REVENUE BE**

17 **REALLOCATED?**

18 A. As described above, one goal in ratemaking is that the rates established for each

19 customer class produce revenue equal to the corresponding cost of providing

20 service to that class. My recommendation satisfies this goal by achieving the 1.0

³⁶ I&E Exhibit No. 3. Schedule No. 5, page 1, line 18.

relative rate of return for all classes except Municipal/PHA – Rate 8 and the Interruptible customer classes.³⁷

Philadelphia Gas Works										
R-2017-2586783										
Allocated Class COSS - Fully Projected Future Test Year ending August 31, 2018										
I&E Revenues Relative to the Demand/Commodity COSS										
Line	Description	Total	Customer Class							
		Allocated				PHA	Municipal			
No.		Dollars	Residential	Commercial	Industrial	GS	PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	Revenues Relative to COSS	1.00	1.00	1.00	1.00	1.00	0.94	0.93	0.53	1.00

Q. WHY DID YOU LIMIT THE INCREASES FOR THE MUNICIPAL/PHA, AND NGVS CUSTOMER CLASSES?

A. One of my goals in this proceeding is to limit my percentage increases to no more than twice the system average increase of 14.2 percent to alleviate the effect of the increase on the different customer classes. My revenue reallocations achieve that goal for the Municipal/PHA customer class whose percentage increase is equal to 28.4 percent (twice the system average) and for NGVS customer class whose percentage increase is equal 25.0 percent.³⁸

³⁷ I&E Exhibit No. 3, Schedule No. 5, page 1, line 23.

³⁸ I&E Exhibit No. 3, Schedule No. 5, page 1, line 22, columns H and I.

SCALE BACK OF RATES

Q. WHAT DO YOU RECOMMEND IF THE COMMISSION GRANTS AN INCREASE LESS THAN THE \$70 MILLION REQUESTED?

A. If the Commission grants PGW less than the full increase it has requested, I recommend that the revenues for the Municipal – PHA, Natural Gas Vehicle Service – NGVS, and Interruptible customer classes be increased to the level I recommend and that all remaining classes' proposed rates be reduced so that the increase for each class is proportional to the percentage increases shown on I&E Exhibit No. 3, Schedule No. 5, line 22.

Q. WHY DO YOU RECOMMEND SUCH A SCALE BACK?

A. This modified proportional scale back begins with a more reasonable allocation of the increase, thus scaling back the revenue will result in a reasonable revenue allocation at the level of revenue ultimately allowed by the Commission.

Q. WHAT IS YOUR SCALE BACK RECOMMENDATION BASED ON I&E'S RECOMMENDED OVERALL REVENUE INCREASE OF \$28,204,000?

A. An overall revenue increase of ~~\$28,204,000~~ **\$33,802,000** results in the need to scale back revenue by ~~\$41,796,000~~ **\$36,198,000** (~~\$70,000,000 - \$28,204,000~~ **\$70,000,000 - \$33,802,000**). The I&E recommended revenue increase of approximately ~~\$28,204,000~~ **\$33,802,000** by class is shown on I&E Exhibit No. 3, Schedule No. 6, page 1, line 20.

1 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

2 **A. Yes.**

3

KOKOU M. APETOH

**THE PENNSYLVANIA PUBLIC UTILITY COMMISSION
PO BOX 3265
HARRISBURG, PA 17105-3265**

Education: Bachelor of Science in Electrical Engineering, 2004; the Pennsylvania State University; Middletown, PA.

Continuing

Education: Coursework in Civil Engineering Technology at the Harrisburg Area Community College.

Rate School: The National Association of Regulatory Utility Commissioners and the Institute of Public Utilities of the Michigan State University's Rate School – Clearwater, FL – October/November 2012.

Title: **FIXED UTILITY VALUATION ENGINEER**
July 2013 – Present

Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement
Harrisburg, PA

Duties: Perform and analyze fixed utilities' engineering valuation, depreciation, cost of service, quality and reliability of service.

Title: **FIXED UTILITY VALUATION ENGINEER TRAINEE**
July 2012 – July 2013

Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement
Harrisburg, PA

Duties: Assisted senior fixed utility valuation engineers with their rate case assignments.

Title: ADJUNCT INSTRUCTOR

Fall 2010 – December 2013

Harrisburg Area Community College
Harrisburg, PA

Duties: Provided academic instruction and student academic support for assigned classes in Electricity, Safety, and Mathematics.

Title: ESTIMATOR

March 2008 – October 2008

Cumberland Valley Corporation
Camp Hill, PA

Duties: Estimated construction projects (electrical).

Title: INDUSTRIAL ENGINEER

September 2005 – December 2007

United Parcel Service, Incorporated
Harrisburg, PA

Duties: Worked on process improvement and supervised hourly workers.

TESTIMONY

I have filed testimony or testify in the following cases:

<u>NO.</u>	<u>CASE</u>	<u>DOCKET NUMBER</u>
1.	The York Water Company	R-2012-2336379
2.	Duquesne Light Company	R-2013-2372129
3.	Penn Estates, Incorporated – Sewer Division	R-2013-2370455
4.	Peoples Natural Gas, LLC. – Equitable Division	R-2014-2403935
5.	Peoples Natural Gas, LLC. – TWP	R-2014-2399598
6.	Company of Lancaster – Bureau of Water	R-2014-2418872
7.	West Penn Power Company	R-2014-2428742
8.	Pennsylvania Electric Company	R-2014-2428743

9.	Pennsylvania Power Company	R-2014-2428744
10.	Metropolitan Edison Company	R-2014-2428745
11.	Delaware Sewer Company	R-2014-2452705
12.	Peoples Natural Gas, LLC. – TWP	R-2014-2456648
13.	PECO Energy Company – Electric Division	R-2015-2468981
14.	UGI Utilities, Inc. – Gas Division	R-2015-2518438
15.	Peoples Natural Gas, LLC. – TWP	R-2016-2528557
16.	Peoples Natural Gas, LLC. – Equitable Division	R-2016-2529260
17.	Peoples Natural Gas, LLC.	R-2016-2528562
18.	Columbia Gas of Pennsylvania	R-2016-2529660
19.	Community Utilities of Pennsylvania	R-2016-2538660
20.	West Penn Power Company	R-2016-2537359
21.	Pennsylvania Electric Company	R-2016-2537352
22.	Pennsylvania Power Company	R-2016-2537355
23.	Metropolitan Edison Company	R-2016-2537349
24.	Peoples Natural Gas, LLC. – TWP	R-2017-2586317
25.	Peoples Natural Gas, LLC. – Equitable Division	R-2017-2586318
26.	Peoples Natural Gas, LLC.	R-2017-2586310
27.	Delaware Sewer Company	I-2016-2526085

I&E Exhibit No. 3
Witness: Kokou M. Apetoh

PENNSYLVANIA PUBLIC UTILITY COMMISSION

V.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Exhibit to Accompany

The

Direct Testimony

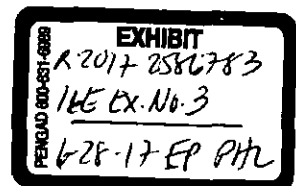
Of

Kokou M. Apetoh

Bureau of Investigation and Enforcement

Concerning:

Test Year
Weather Normalization
Present Rate Revenue
Forfeited Discounts
Cost of Service
Customer Cost Analysis
Customer Charges
Scale Back of Rates



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

Request: I&E-RS-12-D Reference PGW Rate Case – Volume I (Part 3 of 3) – Filing Requirements. Reference the \$7,853,000 Forfeited Discounts shown on III. Balance Sheet and Operating Statement.

- A. Please provide the monthly Forfeited Discounts for the test years ended August 31, 2010-2016 as well as from September 2016 until the most recent month available; and
- B. Please indicate the amount of monthly late penalty fees included in part A above

Response:

A.

FERC YEAR	NAME	Total	AUG	JUL	JUN	MAY	APR	MAR	FEB	JAN	DEC	NOV	OCT	SEPT
4870 2017	Forfeited Discounts	(2,502,075)	(543,104)	(628,712)	(786,566)	(910,510)	(1,051,541)	(1,232,090)	(896,203)	(765,692)	(638,598)	(459,852)	(488,524)	(407,389)
4870 2016	Forfeited Discounts	(8,808,881)	(598,665)	(654,697)	(768,215)	(974,429)	(1,147,254)	(1,438,968)	(1,142,989)	(999,629)	(659,104)	(574,980)	(579,256)	(634,446)
4870 2015	Forfeited Discounts	(10,172,631)	(721,107)	(850,217)	(870,552)	(1,277,816)	(1,271,971)	(1,380,305)	(1,073,869)	(938,993)	(636,673)	(530,850)	(525,618)	(466,749)
4870 2014	Forfeited Discounts	(10,544,720)	(561,221)	(625,336)	(744,080)	(949,184)	(1,128,159)	(1,303,477)	(917,900)	(859,116)	(539,172)	(362,254)	(447,073)	(451,419)
4870 2013	Forfeited Discounts	(8,888,390)	(564,699)	(531,211)	(657,511)	(808,616)	(764,776)	(1,100,356)	(892,094)	(737,695)	(620,001)	(451,095)	(455,308)	(473,231)
4870 2012	Forfeited Discounts	(8,056,595)	(522,742)	(572,006)	(704,246)	(802,560)	(1,014,537)	(1,189,864)	(1,003,742)	(673,377)	(510,771)	(423,966)	(429,179)	(430,816)
4870 2011	Forfeited Discounts	(8,277,805)	(515,451)	(581,861)	(678,819)	(782,881)	(951,232)	(1,177,360)	(948,336)	(734,679)	(459,686)	184,127	(504,207)	(525,610)
4870 2010	Forfeited Discounts	(7,675,994)												

B. Forfeited Discounts consist solely of late penalty fees.

Response

Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW

Dated: March 21, 2017

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

Request: I&E-RS-16-D Reference PGW Rate Case -- Volume I (Part 2 of 3) -- Filing Requirements. Reference Comparative Operating Statements Twelve Months ended August 31, 2017 & 2018 shown on Section III.A.18. of III. Balance Sheet and Operating Statement.

- A. Please provide an explanation for the \$259,000 decrease in Forfeited Discounts from Fiscal Years 2017 to 2018; and
- B. Please provide all documentation and assumptions used to support the response in part A above.

Response: Forfeited Discounts or finance charges applied to delinquent accounts are projected to decrease in FY 2018 by \$259,000 reflecting a decrease in billed gas revenue.

Billed gas revenue is projected to be approximately \$622,888,000 and \$605,459,000 in the FY 2017 and FY 2018 periods, respectively. Forfeited discounts were calculated to be approximately 1.3% of billed gas revenue in both the FY 2017 and FY 2018 periods. A table detailing the calculation has been included below. There are no additional supporting documents.

<u>Description</u>	(\$ 000s)	
	<u>FPTY FY 2017</u>	<u>FPFTY FY 2018</u>
Total Gas Revenue	603,911	605,991
Non-Heating GCR Adjustment	860	(9)
Heating GCR Adjustment	19,790	(208)
Unbilled Gas Adjustment	(1,673)	(315)
Billed Gas Revenue	622,888	605,459
% of Billed Gas Sales	1.3%	1.3%
Forfeited Discounts	8,112	7,853

Response Provided by: Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW
Daniel E. Leonard, Jr., Director, Budget & Cash Management & Finance, PGW

Dated: March 21, 2017

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

I&E Exhibit No. 3
Schedule No. 1
Page 3 of 4

Request: I&E-RS-19-D

Reference PGW Rate Case – Volume I (Part 3 of 3) – Filing Requirements. Reference Operating Revenue and Other Income, Twelve Months ended August 31, 2016 and 2017 shown in Section III.E.6 of III. Balance Sheet and Operating Statement.

- A. Please provide an explanation for the \$696,881 decrease in Forfeited Discounts revenues from the test years ending August 31, 2016 to August 31, 2017; and
- B. Please provide all documentation and assumptions used to support the response in part A above.

Response:

The factor used to determine forfeited discounts in the FY 2017 period was calculated based upon a three-year average of historic years FY 2012, FY 2013, and FY 2014. This factor was then applied to FY 2017 billed gas revenue to determine forfeited discounts.

Billed gas revenue is projected to be approximately \$622,888,000 in the FY 2017 period. Forfeited discounts were calculated using a factor of 1.3% of billed gas revenue. A table detailing the calculation has been included below. There are no additional supporting documents.

<u>Description</u>	(\$ 000s)					
	<u>Actual FY 2012</u>	<u>Actual FY 2013</u>	<u>Actual FY 2014</u>	<u>Actual FY 2015</u>	<u>Actual FY 2016</u>	<u>Estimate FY 2017</u>
Total Gas Revenue	628,387	675,154	736,138	676,026	572,347	603,911
Non-Heating GCR Adjustment	(433)	842	(218)	511	(762)	860
Heating GCR Adjustment	(4,244)	12,408	(6,174)	12,124	(17,424)	19,790
Unbilled Gas Adjustment	6,201	(1,398)	(5)	2,105	1,830	(1,673)
Billed Gas Revenue	629,911	687,006	729,741	690,766	555,991	622,888
% of Billed Gas Sales	1.3%	1.3%	1.4%	1.5%	1.6%	1.3%
Forfeited Discounts	8,057	8,888	10,545	10,173	8,809	8,112
3-YR Average	1.3%	1.3%	1.4%	->		1.3%

Response

Provided by:

Joseph Golden, Executive Vice President and Acting Chief Financial Officer, PGW
Daniel E. Leonard, Jr., Director, Budget & Cash Management & Finance, PGW

Dated:

March 21, 2017

Philadelphia Gas Works
R-2017-2586783
Calculation of Forfeited Discounts Revenue
For the Fully Projected Future Test Year ending August 31, 2018
(\$1,000)

Line No.	Description	Actual FY 2012	Actual FY 2013	Actual FY 2014	Actual FY 2015	Actual FY 2016	Company		I&E Adjustment		I&E	
							Estimate FY 2017	Estimate FY 2018	FY 2017	FY 2018	Estimate FY 2017	Estimate FY 2018
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
1	Total Gas Revenue	\$628,387	\$675,154	\$736,138	\$676,026	\$572,347	\$603,911	\$605,991			\$603,911	\$605,991
2	Non-Heating GCR Adjustment	(\$433)	\$842	(\$218)	\$511	(\$762)	\$860	(\$9)			\$860	(\$9)
3	Heating GCR Adjustment	(\$4,244)	\$12,408	(\$6,174)	\$12,124	(\$17,424)	\$19,790	(\$208)			\$19,790	(\$208)
4	Unbilled Gas Adjustment	\$6,201	(\$1,398)	(\$5)	\$2,105	\$1,830	(\$1,673)	(\$315)			(\$1,673)	(\$315)
5	Billed Gas Revenue	\$629,911	\$687,006	\$729,741	\$690,766	\$555,991	\$622,888	\$605,459			\$622,888	\$605,459
6	% of Billed Gas Sales	1.3%	1.3%	1.4%	1.5%	1.6%	1.3%	1.3%			1.5%	1.5%
7	Forfeited Discounts	\$8,057	\$8,888	\$10,545	\$10,173	\$8,809	\$8,112	\$7,853	\$1,193	\$1,192	\$9,305	\$9,045

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

Request: I&E-RS-21-D Please provide a Cost of Service Study in MS Excel or similar formats with all the formulae live, which allocates 50% of Mains to the Demand Allocator and the remaining 50% to the Commodity Allocator.

Response: See I&E RS-21-D showing the CCOSS results for the requested revised classification of mains. The Cost of Service Model is a proprietary model. While live Excel spreadsheets are not provided, I provide detailed printouts of the exhibits that include all information needed to validate computations.

I do note that a classification of mains as 50% demand and 50% commodity is not appropriate. Such a classification implies that these costs vary with the amount natural gas sold to, or transported for, customers. The appropriate method classifies mains as demand and customer, and the results of this approach are provided in the Cost of Service Study submitted with my direct testimony.

Response

Provided by: Philip Q Hanser, Principal, The Brattle Group

Dated:

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-1: Summary of Allocation Results

Dollars in Thousands		Total	Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS	Interruptible	GTS/IT
AT CURRENT RATES										
Total Revenue	[1]	491,318	385,362	77,402	5,906	1,499	8,865	20	18	12,246
Share of Revenue, by Class	[2]	100.0%	78.4%	15.8%	1.2%	0.3%	1.8%	0.0%	0.0%	2.5%
Total Operating Expenses	[3]	435,418	339,414	68,268	5,410	1,335	9,280	22	26	11,663
Share of Operating Expenses, by Class	[4]	100.0%	78.0%	15.7%	1.2%	0.3%	2.1%	0.0%	0.0%	2.7%
Income Before Interest & Surplus	[5] [1] - [3]	55,899	45,948	9,133	496	165	(415)	(2)	(9)	582
Interest & Surplus	[6]	125,013	98,204	19,065	1,402	423	2,815	6	6	3,092
Current Revenue Over (Under) Requirements	[7] [5] - [6]	(69,114)	(52,256)	(9,931)	(906)	(259)	(3,230)	(8)	(15)	(2,509)
Total Revenue Requirement*	[8] [1] - [7]	560,431	437,618	87,333	6,812	1,758	12,095	28	32	14,755
Revenue Increase for Full Cost of Service	[9]	14.1%	14%	13%	15%	17%	36%	38%	85%	20%
Rate Base	[10]	1,188,371	933,527	181,228	13,328	4,024	26,757	59	60	29,389
Return on Rate Base Before Interest & Surplus	[11] [5] / [10]	4.7%	4.9%	5.0%	3.7%	4.1%	(1.6%)	(2.9%)	(14.3%)	2.0%
Relative Return	[12]	1.00	1.05	1.07	0.79	0.87	(0.33)	(0.61)	(3.04)	0.42
Revenues Relative to COS	[13] [1] / [8]	0.88	0.88	0.89	0.87	0.85	0.73	0.72	0.54	0.83
Relative to Total for all Classes	[14]	1.00	1.00	1.01	0.99	0.97	0.84	0.82	0.61	0.95
AFTER PROPOSED INCREASE										
Proposed Increase (decrease)	[15]	70,000	59,000	5,000	(400)	400	500	0	0	5,500
Share of Proposed Increase, by Class	[16]	100.0%	84.3%	7.1%	-0.6%	0.6%	0.7%	0.0%	0.0%	7.9%
Total Distribution Revenue with Increase	[17] [1] + [15]	561,318	444,362	82,402	5,506	1,899	9,365	20	18	17,746
Increase (Decrease) %	[18] [15] / [1]	14.2%	15.3%	6.5%	-6.8%	26.7%	5.6%	0.0%	0.0%	44.9%
Income Before Interest & Surplus	[19] [5] + [15]	125,899	104,948	14,133	96	565	85	(2)	(9)	6,082
Return on Rate Base Before Interest & Surplus	[20] [19] / [10]	10.6%	11.2%	7.8%	0.7%	14.0%	0.3%	(2.9%)	(14.3%)	20.7%
Relative Return	[21]	1.00	1.06	0.74	0.07	1.32	0.03	(0.27)	(1.35)	1.95
Revenues Relative to COS	[22] [17] / [8]	1.00	1.02	0.94	0.81	1.08	0.77	0.72	0.54	1.20
Relative to Total for all Classes	[23]	1.00	1.01	0.94	0.81	1.08	0.77	0.72	0.54	1.20

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-2: Summary of Allocation Results by Functional Classification

Dollars in Thousands		Total	Residential	Commercial	Industrial	PHA GS	Municipal/PHA	NGVS	Interruptible	GTS/IT
SUPPLY										
Demand Costs	[1]	26,026	19,855	4,747	351	93	788	1	0	191
Commodity Costs	[2]	(2,484)	(2,023)	(406)	(22)	(10)	(37)	(0)	14	0
Supply Total	[3]	23,542	17,831	4,341	329	83	752	1	15	191
STORAGE										
Demand Costs	[4]	29,490	22,404	5,503	407	106	925	1	0	145
Storage Total	[5]	29,490	22,404	5,503	407	106	925	1	0	145
DISTRIBUTION										
Demand Costs	[6]	83,744	56,948	14,115	1,105	277	2,339	3	5	8,953
Commodity Costs	[7]	75,353	53,718	15,011	1,154	261	2,168	8	3	3,030
Customer Costs	[8]	110,725	95,025	11,087	818	337	1,739	4	8	1,707
Distribution Total	[9]	269,823	205,691	40,214	3,077	874	6,246	15	16	13,690
ONSITE										
Customer Costs	[10]	158,910	129,583	23,891	1,982	467	2,306	5	2	673
Onsite Total	[11]	158,910	129,583	23,891	1,982	467	2,306	5	2	673
USEC										
Customer USEC Costs	[12]	53,460	38,851	11,805	920	188	1,690	7	0	0
USEC Total	[13]	53,460	38,851	11,805	920	188	1,690	7	0	0
TARIFF REVENUE REQUIREMENT										
Demand Costs	[14]	139,260	99,206	24,364	1,863	475	4,052	4	6	9,289
Commodity Costs	[15]	72,870	51,695	14,605	1,132	251	2,131	8	17	3,030
Customer Costs	[16]	269,636	224,608	34,979	2,800	804	4,045	9	9	2,380
Customer USEC Costs	[17]	53,460	38,851	11,805	920	188	1,690	7	0	0
Tariff Revenue Requirement	[18]	535,225	414,360	85,753	6,715	1,718	11,919	28	32	14,700
Customer Months	[19]	6,028,249	5,671,204	300,544	7,596	22,356	21,353	48	48	5,100
Customer-Related Costs, \$/month	[20] [16] / [19]	39.61	116.39	368.63	35.98	189.45	185.79	196.51	466.68	

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-3: Allocation Results

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE															
2	A. INTANGIBLE PLANT	301-303														
3	B. PRODUCTION PLANT															
4	Land and land rights	304	1,453	10	1,085	32	252	6	15	5	28	5	16	0	0	0
5	Structures and improvements	305	20,968	144	15,651	460	3,630	85	218	70	409	76	225	1	0	0
6	Boiler plant equipment	306	2,900	20	2,165	64	502	12	30	10	57	11	31	0	0	0
7	Other power equipment	307	407	3	303	9	70	2	4	1	8	1	4	0	0	0
8	LPG equipment	311	2,270	16	1,694	50	393	9	24	8	44	8	24	0	0	0
9	Purification equipment	317	13	0	10	0	2	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	8	0	6	0	1	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	32,341	221	24,141	709	5,598	131	336	108	630	117	347	1	0	0
13	Subtotal - Production Plant	304-347	60,359	413	45,056	1,323	10,449	244	627	202	1,176	219	648	2	0	0
14	C. STORAGE AND PROCESSING PLANT															
15	Land and land rights	360	328	2	245	7	57	1	3	1	6	1	4	0	0	0
16	Structures and improvements	361	13,780	94	10,286	302	2,385	56	143	46	269	50	148	0	0	0
17	Gas holders	362	33,779	231	25,214	740	5,847	137	351	113	658	123	363	1	0	0
18	Purification equipment	363	251	2	188	6	44	1	3	1	5	1	3	0	0	0
19	Liquefaction equipment	363.1	31,182	214	23,276	684	5,398	126	324	104	608	113	335	1	0	0
20	Vaporizing equipment	363.2	14,977	103	11,179	328	2,593	61	156	50	292	54	161	0	0	0
21	Compressor equipment	363.3	17,509	120	13,070	384	3,031	71	182	59	341	64	188	0	0	0
22	Measuring and regulating equipment	363.4	6,294	43	4,698	138	1,089	25	65	21	123	23	68	0	0	0
23	Other equipment	363.5	27,013	185	20,164	592	4,676	109	281	90	526	98	290	1	0	0
24	Subtotal - Storage and Processing Plant	360-364	145,112	994	108,320	3,181	25,120	588	1,508	485	2,828	526	1,558	4	0	0
25	D. TRANSMISSION PLANT	365-371														
26	E. DISTRIBUTION PLANT															
27	Land and land rights	374	101	1	64	2	15	0	1	0	2	0	1	0	0	15
28	Structures and improvements	375	2,707	16	1,718	50	398	10	25	8	45	8	25	0	0	404
29	Mains	376	773,759	5,722	527,947	19,278	131,560	3,590	7,910	2,647	13,181	2,574	7,665	59	24	51,603
30	Mains - Direct Assignment	376Direct	7,574	0	0	0	0	0	0	0	0	0	0	0	0	7,574
31	Compressor station equipment	377	1,255	7	812	24	188	4	11	4	21	4	12	0	0	167
32	Measuring station equipment - General	378	17,886	106	11,570	340	2,683	63	161	52	302	56	166	0	1	2,386
33	Services	380	705,810	26,044	605,303	9,542	40,645	1,102	2,839	601	3,536	2,489	5,674	25	75	7,937
34	Meters	381	75,453	2,384	55,411	2,752	11,723	153	395	173	492	228	790	2	3	945
35	Meter installations	382	94,565	2,988	69,447	3,449	14,692	192	495	217	617	286	990	3	4	1,184
36	House regulators	383	2,202	90	2,103	0	0	0	0	0	0	9	0	0	0	0
37	House regulator installations	384	4,142	170	3,955	0	0	0	0	0	0	16	0	0	0	0
38	Measuring station equipment - Industrial	385	314	0	0	0	0	88	226	0	0	0	0	0	0	0
39	Other equipment	387	3,980	23	2,525	74	586	15	37	11	66	12	36	0	0	594
40	Subtotal - Distribution Plant	374-387	1,689,747	37,551	1,280,854	35,512	202,490	5,217	12,101	3,714	18,263	5,682	15,359	89	108	72,807

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3: Allocation Results

Dollars in Thousands				Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	GS	Rate B	Non-Heat	Sales	
41	F. GENERAL PLANT															
42	Land and land rights	389	3,713	77	2,789	87	493	15	36	8	39	11	30	0	0	126
43	Structures and improvements	390	82,900	1,722	62,268	1,943	11,015	332	805	190	876	256	673	3	2	2,816
44	Office furniture and equipment	391	108,966	2,263	81,847	2,554	14,478	436	1,058	249	1,151	337	884	4	3	3,702
45	Transportation equipment	392	40,027	831	30,065	938	5,318	160	388	92	423	124	325	2	1	1,360
46	Stores equipment	393	755	16	567	18	100	3	7	2	8	2	6	0	0	26
47	Tools, shop and garage equipment	394	10,723	223	8,054	251	1,425	43	104	25	113	33	87	0	0	364
48	Power operated equipment	396	1,235	26	928	29	164	5	12	3	13	4	10	0	0	42
49	Communication equipment	397	20,815	432	15,634	488	2,766	83	202	48	220	64	169	1	1	707
50	Miscellaneous equipment	398	14,279	297	10,725	335	1,897	57	199	33	151	44	116	1	0	485
51	Subtotal - General Plant	389-399	283,413	5,886	212,877	6,643	37,656	1,135	2,751	648	2,995	876	2,299	12	8	9,628
52	TOTAL UTILITY PLANT		2,178,632	44,844	1,647,107	46,659	275,714	7,184	16,988	5,049	25,262	7,304	19,865	106	115	82,435
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	34,623	237	25,845	759	5,993	140	360	116	675	126	372	1	0	0
55	Local storage plant	108.3	95,160	652	71,033	2,086	16,473	385	989	318	1,855	345	1,022	2	0	0
56	Mains	108.52	282,895	2,092	193,023	7,048	48,100	1,313	2,892	968	4,819	941	2,803	21	9	18,867
57	Mains - Direct Assignment	108.52Direct	7,574	0	0	0	0	0	0	0	0	0	0	0	0	7,574
58	Services	108.54	355,556	13,120	304,925	4,807	20,475	555	1,430	303	1,781	1,254	2,858	13	38	3,998
59	Meters	108.55	39,464	1,247	28,981	1,439	6,131	80	207	91	258	119	413	1	2	494
60	Distribution other	108.58	61,295	357	38,893	1,142	9,019	224	575	174	1,016	189	559	1	4	9,141
61	General Plant	108.8	146,255	3,037	109,855	3,428	19,433	586	1,420	334	1,545	452	1,187	6	4	4,968
62	Total Depreciation Reserve	108	1,022,821	20,741	772,555	20,710	125,624	3,283	7,872	2,304	11,948	3,426	9,213	46	56	45,043
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		1,155,811	24,103	874,552	25,949	150,090	3,901	9,115	2,745	13,313	3,878	10,652	60	59	37,393
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	70,158	1,095	55,975	1,568	9,298	272	554	140	581	221	453	2	0	0
70	Materials and supplies	131.12	9,768	152	7,285	186	1,189	31	72	22	114	28	78	1	1	608
71	Prepaid accounts, other current assets	131.13	5,342	83	3,984	102	650	17	39	12	62	15	43	0	0	332
72	Gas, LNG in storage	131.14	38,344	313	31,258	638	5,030	84	261	117	451	153	32	1	7	0
73	Accounts payable - Gas	131.15	(12,110)	(68)	(5,551)	(235)	(1,454)	(44)	(88)	(30)	(131)	(27)	(81)	(1)	(3)	(4,398)
74	Accounts payable, other - 50% Labor	131.16	(22,271)	(306)	(15,681)	(476)	(3,109)	(84)	(190)	(61)	(311)	(73)	(205)	(1)	(1)	(1,773)
75	Accounts payable, other - 50% O&MxGas	131.17	(22,271)	(348)	(16,610)	(424)	(2,711)	(72)	(165)	(51)	(261)	(64)	(179)	(1)	(1)	(1,385)
76	Customer deposits	131.18	(2,935)	(46)	(2,342)	(66)	(389)	(11)	(23)	(6)	(24)	(9)	(19)	(0)	0	0
77	Accrued interest	131.19	(15,202)	(312)	(11,629)	(340)	(1,978)	(51)	(119)	(36)	(172)	(51)	(134)	(1)	(1)	(376)
78	Accrued Taxes & Wages	131.2	(16,263)	(254)	(12,129)	(310)	(1,980)	(52)	(120)	(37)	(190)	(47)	(130)	(1)	(1)	(1,012)
79	Total Working Capital	131	32,561	310	34,561	643	4,546	91	221	70	119	146	(142)	(2)	1	(8,003)
80	V. TOTAL RATE BASE		1,188,371	24,413	909,114	26,592	154,636	3,992	9,337	2,815	13,433	4,024	10,509	59	60	29,389

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3: Allocation Results

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate \$	NGVS Non-Heat	Interruptible Sales	GT5/IT
81	1. OPERATION & MAINTENANCE EXPENSE															
82	A. PRODUCTION EXPENSES															
83	1. Manufactured Gas Production Expenses															
84	Operation labor and expenses	701	191	1	143	4	33	1	2	1	4	1	2	0	0	0
85	Boiler fuel	702	98	1	73	2	17	0	1	0	2	0	1	0	0	0
86	Miscellaneous steam expenses	703	335	2	250	7	58	1	3	1	7	1	4	0	0	0
87	Maintenance of structures	706	3	0	2	0	1	0	0	0	0	0	0	0	0	0
88	Maintenance of boiler plant equipment	707	212	1	158	5	37	1	2	1	4	1	2	0	0	0
89	Maintenance of other production plant	708	10	0	7	0	2	0	0	0	0	0	0	0	0	0
90	Operation supervision and engineering	710	5	0	4	0	1	0	0	0	0	0	0	0	0	0
91	Other power expenses	712	793	5	592	17	137	3	8	3	15	3	9	0	0	0
92	Duplicate charges - Credit	734	(622)	(4)	(464)	(14)	(108)	(3)	(6)	(2)	(12)	(2)	(7)	(0)	0	0
93	Miscellaneous production expenses	735	1,143	8	853	25	198	5	12	4	22	4	12	0	0	0
94	Maintenance supervision and engineering	740	303	2	226	7	52	1	3	1	6	1	3	0	0	0
95	Maintenance of structures	741	102	1	76	2	18	0	1	0	2	0	1	0	0	0
96	Maintenance of production equipment	742	395	3	295	9	68	2	4	1	8	1	4	0	0	0
97	Subtotal - Manufactured Gas Production	701-743	2,968	20	2,215	65	514	12	31	10	58	11	32	0	0	0
98	2. Other Gas Supply Expenses															
99	Natural gas city gate purchases	804	14	0	0	0	0	0	0	0	0	0	0	0	14	0
100	Purchased gas expenses	807	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	Gas withdrawn from storage	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Gas used for other utility operations	812	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	LNG used for other utility operations	812LNG	(6,487)	(64)	(5,189)	(147)	(909)	(15)	(42)	(20)	(69)	(25)	(7)	(0)	0	0
104	Other gas supply expenses	813	8,840	87	7,071	200	1,239	21	58	27	95	35	9	0	0	0
105	Subtotal - Production Expenses	701-813	5,335	44	4,098	118	843	18	46	17	83	20	34	0	14	0
106	B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
107	Operation supervision and engineering	840	1,066	7	796	23	185	4	11	4	21	4	11	0	0	0
108	Operation labor and expenses	841	3,050	21	2,277	67	528	12	32	10	59	11	33	0	0	0
109	Rents	842	421	3	314	9	73	2	4	1	8	2	5	0	0	0
110	Maintenance	843	5,699	39	4,254	125	987	23	59	19	111	21	61	0	0	0
111	Operation supervision and engineering	850	1,278	9	954	28	221	5	13	4	25	5	14	0	0	0
112	Subtotal - Storage Expenses	840-850	11,514	79	8,595	252	1,993	47	120	39	224	42	124	0	0	0
113	C. TRANSMISSION EXPENSES															

Schedule No. 2

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Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D
Exhibit PQH-3: Allocation Results

Line	FERC Account Description	Account Code	Dollars in Thousands		Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA G5	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
			Total														
114	0. DISTRIBUTION EXPENSES																
115	Operation supervision and engineering	870	2,018	45	1,527	40	230	6	15	4	21	7	17	0	0	105	
116	Distribution load dispatching	871	1,650	9	756	32	198	6	12	4	18	4	11	0	0	599	
117	Mains and services expenses	874	4,617	99	3,536	90	537	15	34	10	52	16	42	0	0	186	
118	Measuring station expenses - General	875	2,102	12	1,360	40	315	7	19	6	36	7	20	0	0	280	
119	Measuring station expenses - Industrial	876	47	0	0	0	0	13	34	0	0	0	0	0	0	0	
120	Measuring station expenses - City gate	877	550	3	356	10	83	2	5	2	9	2	5	0	0	73	
121	Meter and house regulator expenses	878	18,417	595	13,839	656	2,792	37	94	41	117	57	188	1	0	0	
122	Customer installation expenses	879	5,642	181	4,196	208	888	12	30	13	37	17	60	0	0	0	
123	Customer installation expenses - Parts and Labor Plan	879PLP	3,746	155	3,591	0	0	0	0	0	0	0	0	0	0	0	
124	Other expenses	880	12,935	471	10,937	204	869	21	53	13	67	45	107	0	1	147	
125	Rents	881	7	0	5	0	1	0	0	0	0	0	0	0	0	0	
126	Maintenance supervision and engineering	885	300	7	227	6	34	1	2	1	3	1	3	0	0	16	
127	Maintenance of mains	887	25,719	190	17,548	641	4,373	119	263	88	438	86	255	2	1	1,715	
128	Maintenance of measuring station expenses - General	889	1,184	7	766	22	178	4	11	3	20	4	11	0	0	158	
129	Maintenance of measuring station expenses - Industrial	890	6	0	0	0	0	2	4	0	0	0	0	0	0	0	
130	Maintenance of measuring station expenses - City gate	891	487	3	223	9	58	2	4	1	5	1	3	0	0	177	
131	Maintenance of services	892	1,800	66	1,544	24	104	3	7	2	9	6	14	0	0	20	
132	Maintenance of meters and house regulators	893	3,810	123	2,863	136	578	8	19	9	24	12	39	0	0	0	
133	Subtotal - Distribution Expenses	870-893	85,037	1,966	63,276	2,119	11,238	257	606	197	857	263	774	4	3	3,476	
134	TOTAL OPERATION & MAINTENANCE EXPENSES		101,886	2,088	75,968	2,490	14,075	321	772	252	1,164	325	932	4	18	3,476	
135	II. CUSTOMER ACCOUNTS EXPENSES																
136	Supervision	901	1,109	32	926	23	109	2	4	1	4	3	3	0	0	1	
137	Meter reading expenses	902	785	22	666	12	64	1	3	1	4	3	3	0	0	7	
138	Customer records and collection expenses	903	26,657	776	22,247	550	2,627	43	94	28	101	75	79	1	0	35	
139	Uncollectible accounts	904	16,495	287	15,637	81	465	3	21	0	0	0	0	0	0	0	
140	Uncollectible accounts in CRP	904CRP	10,461	93	7,509	323	1,988	60	120	41	180	37	110	1	0	0	
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		55,507	1,210	46,985	988	5,254	109	241	72	289	118	195	2	0	43	
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES																
143	Customer assistance expenses	908	1,617	57	1,321	7	30	55	141	0	1	3	1	0	0	0	
144	Customer assistance expenses - ELIRP	908CAP	3,859	34	2,771	119	734	22	44	15	66	14	41	0	0	0	
145	CRP Shortfall	480CRP	36,351	322	26,096	1,117	6,910	210	416	142	625	128	382	5	0	0	
146	Senior Discounts	480Sen	2,789	25	2,002	86	530	16	32	11	48	10	29	0	0	0	
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		44,616	438	32,189	1,329	8,203	303	633	169	740	154	453	6	0	0	
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		100,123	1,648	79,174	2,317	13,457	412	874	241	1,028	272	648	8	0	44	

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3: Allocation Results

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	14,442	300	10,848	338	1,919	58	140	33	153	45	117	1	0	491
152	Office supplies and expenses	921	22,663	471	17,023	531	3,011	91	220	52	239	70	184	1	1	770
153	Administrative expenses transferred - Credit	922	(24,565)	(510)	(18,451)	(576)	(3,264)	(98)	(238)	(56)	(260)	(76)	(199)	(1)	(1)	(834)
154	Outside services employed	923	1,660	34	1,247	39	221	7	16	4	18	5	13	0	0	56
155	Injuries and damages	925	6,415	133	4,818	150	852	26	62	15	68	20	52	0	0	218
156	Employee pensions and benefits	926	115,230	2,393	86,552	2,701	15,310	461	1,118	263	1,218	356	935	5	3	3,914
157	OPEB funding and expenses	999	26,500	550	19,905	621	3,521	106	257	61	280	82	215	1	1	900
158	Subtotal - Labor Related A&G		162,345	3,372	121,941	3,805	21,570	650	1,576	371	1,715	502	1,317	7	4	5,515
159	B. PLANT RELATED															
160	Property insurance	924	4,853	100	3,673	102	610	15	36	11	57	16	45	0	0	186
161	Subtotal - Plant Related A&G		4,853	100	3,673	102	610	15	36	11	57	16	45	0	0	186
162	C. OTHER A&G															
163	Regulatory commission expenses	928	5,157	106	3,945	115	671	17	41	12	58	17	46	0	0	128
164	Duplicate charges - Credit	929	(913)	(6)	(682)	(20)	(158)	(4)	(9)	(3)	(18)	(3)	(10)	(0)	0	0
165	General advertising expenses, miscellaneous	930	6,020	125	4,522	141	800	24	58	14	64	19	49	0	0	205
166	Rents	931	330	7	248	8	44	1	3	1	3	1	3	0	0	11
167	Subtotal - Other A&G		10,594	232	8,033	244	1,357	39	93	24	108	34	87	0	0	343
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		177,792	3,703	133,646	4,152	23,537	705	1,705	406	1,880	552	1,449	7	5	6,045
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		379,801	7,439	288,788	8,958	51,069	1,438	3,351	899	4,073	1,149	3,030	19	23	9,564
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	47,180	970	35,704	996	5,926	151	354	110	554	160	437	2	3	1,812
172	Depreciation expense - Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		47,180	970	35,704	996	5,926	151	354	110	554	160	437	2	3	1,812
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	8,437	175	6,337	198	1,121	34	82	19	89	26	68	0	0	287
176	TOTAL EXPENSES		435,418	8,584	330,830	10,152	58,116	1,622	3,787	1,028	4,716	1,335	3,536	22	26	11,663

Philadelphia Gas Works

Allocated Class COS Study -- Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3: Allocation Results

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible		
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	GS	Rate 8	Non-Heat	Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	400,217	6,084	317,004	9,202	54,766	1,614	3,272	835	3,493	1,271	2,664	13	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	0	0	0	0	0	0	0	0	0	0	0	17	0
181	USEC Revenue	480-483USC	53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	7,853	141	7,700	2	10	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	1,206	19	962	27	160	5	10	2	10	4	8	0	0	0
185	GTS/IT Revenue	489	12,190	0	0	0	0	0	0	0	0	0	0	0	0	12,190
186	Other gas revenue	495	4,634	46	3,707	104	649	11	30	14	50	18	5	0	0	0
187	Revenue Adjustments	495Adj	217	2	174	5	30	1	1	1	2	1	0	0	0	0
188	Subtotal - Gas Revenues		480,022	6,767	368,088	10,989	65,820	1,940	3,927	1,062	4,477	1,482	3,241	20	17	12,190
189	Bill paid turn ons & dig ups	903Rev	1,883	73	1,698	18	76	1	2	1	2	7	3	0	0	2
190	Customer installation expenses	879Rev	6,382	263	6,119	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		8,265	336	7,817	18	76	1	2	1	2	7	3	0	0	2
192	TOTAL OPERATING REVENUES		488,287	7,104	375,905	11,007	65,896	1,941	3,929	1,063	4,479	1,489	3,245	20	17	12,192
193	Non-operating rental income	418	166	3	127	4	22	1	1	0	2	1	1	0	0	4
194	Interest and dividend income	419	2,010	41	1,538	45	262	7	16	5	23	7	18	0	0	50
195	Miscellaneous non-operating income	421	855	6	638	19	148	3	9	3	17	3	9	0	0	0
196	Total Non-Operating Income		3,031	51	2,303	67	431	11	26	8	41	10	28	0	0	54
197	TOTAL REVENUE		491,318	7,154	378,208	11,075	66,327	1,951	3,955	1,071	4,521	1,499	3,273	20	18	12,246
198	Income Before Interest and Surplus		55,899	(1,430)	47,379	922	8,211	329	167	43	(196)	165	(263)	(2)	(9)	582
199	Interest on long-term debt	427	49,160	1,010	37,608	1,100	6,397	165	386	116	556	166	435	2	2	1,216
200	Amortization of debt discount	428	4,348	89	3,326	97	566	15	34	10	49	15	38	0	0	108
201	Amortization of premium on debt	429	(9,364)	(192)	(7,164)	(210)	(1,218)	(31)	(74)	(22)	(106)	(32)	(83)	(0)	(0)	(232)
202	Other interest expense	431	3,789	78	2,899	85	493	13	30	9	43	13	34	0	0	94
203	AFUDC	432	(920)	(19)	(704)	(21)	(120)	(3)	(7)	(2)	(10)	(3)	(8)	(0)	(0)	(23)
204	Surplus Requirement	499	60,000	1,233	45,900	1,343	7,807	202	471	142	678	203	531	3	3	1,484
205	Total Interest & Surplus		107,013	2,198	81,866	2,395	13,925	359	841	253	1,210	362	946	5	5	2,646
206	Appropriations of retained earnings	436	18,000	370	13,770	403	2,342	60	141	43	203	61	159	1	1	445
207	Total Interest & Surplus, Other		125,013	2,568	95,636	2,797	16,267	420	982	296	1,413	423	1,106	6	6	3,092
208	Over (Under) Total Requirements		(69,114)	(3,998)	(48,257)	(1,875)	(8,056)	(91)	(815)	(253)	(1,609)	(259)	(1,358)	(8)	(15)	(2,509)
209	Tariff Revenue Requirements		535,225	10,557	403,802	12,726	73,027	2,015	4,701	1,298	6,024	1,718	4,597	28	32	14,700

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
149	IV. ADMINISTRATIVE & GENERAL EXPENSES														
150	A. LABOR RELATED														
151	Administrative and general salaries	920	1,184	8	884	26	205	5	12	4	23	4	13	0	0
152	Office supplies and expenses	921	1,858	13	1,387	41	322	8	19	6	36	7	20	0	0
153	Administrative expenses transferred - Credit	922	(2,014)	(14)	(1,503)	(44)	(349)	(8)	(21)	(7)	(39)	(7)	(22)	(0)	0
154	Outside services employed	923	136	1	102	3	24	1	1	0	3	0	1	0	0
155	Injuries and damages	925	526	4	392	12	91	2	5	2	10	2	6	0	0
156	Employee pensions and benefits	926	9,445	65	7,050	207	1,635	38	98	32	184	34	101	0	0
157	OPEB funding and expenses	999	2,172	15	1,621	48	376	9	23	7	42	8	23	0	0
158	Subtotal - Labor Related A&G		13,307	91	9,933	292	2,303	54	138	45	259	48	143	0	0
159	B. PLANT RELATED														
160	Property insurance	924	155	1	115	3	27	1	2	1	3	1	2	0	0
161	Subtotal - Plant Related A&G		155	1	115	3	27	1	2	1	3	1	2	0	0
162	C. OTHER A&G														
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	493	3	368	11	85	2	5	2	10	2	5	0	0
166	Rents	931	27	0	20	1	5	0	0	0	1	0	0	0	0
167	Subtotal - Other A&G		520	4	389	11	90	2	5	2	10	2	6	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		13,982	96	10,437	307	2,420	57	145	47	273	51	150	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		16,950	116	12,652	372	2,934	69	176	57	330	61	182	0	0
170	V. DEPRECIATION EXPENSE														
171	Depreciation expense	403	1,503	10	1,122	33	260	6	16	5	29	5	16	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		1,503	10	1,122	33	260	6	16	5	29	5	16	0	0
174	VI. TAXES OTHER THAN INCOME TAXES														
175	Taxes other than income taxes	408	692	5	516	15	120	3	7	2	13	3	7	0	0
176	TOTAL EXPENSES		19,144	131	14,290	420	3,314	78	199	64	373	69	206	0	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3A: Allocation Results - Supply-Demand Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
193	Non-operating rental income	418	10	0	8	0	1	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	127	3	97	3	16	0	1	0	1	0	1	0	0	3
195	Miscellaneous non-operating income	421	855	6	638	19	148	3	9	3	17	3	9	0	0	0
196	Total Non-Operating Income		992	9	743	22	166	4	10	3	18	4	10	0	0	3
197	TOTAL REVENUE		992	9	743	22	166	4	10	3	18	4	10	0	0	3
198	Income Before Interest and Surplus		(18,152)	(122)	(13,547)	(398)	(3,148)	(74)	(189)	(61)	(355)	(66)	(195)	(0)	0	3
199	Interest on long-term debt	427	3,096	64	2,369	69	403	10	24	7	35	10	27	0	0	77
200	Amortization of debt discount	428	274	6	209	6	36	1	2	1	3	1	2	0	0	7
201	Amortization of premium on debt	429	(590)	(12)	(451)	(13)	(77)	(2)	(5)	(1)	(7)	(2)	(5)	(0)	(0)	(15)
202	Other interest expense	431	239	5	183	5	31	1	2	1	3	1	2	0	0	6
203	AFUDC	432	(58)	(1)	(44)	(1)	(8)	(0)	(0)	(0)	(1)	(0)	(1)	(0)	(0)	(1)
204	Surplus Requirement	499	3,779	78	2,891	85	492	13	30	9	43	13	33	0	0	93
205	Total Interest & Surplus		6,740	138	5,156	151	877	23	53	16	76	23	60	0	0	167
206	Appropriations of retained earnings	436	1,134	23	867	25	148	4	9	3	13	4	10	0	0	28
207	Total Interest & Surplus, Other		7,874	162	6,023	176	1,025	26	62	19	89	27	70	0	0	195
208	Over (Under) Total Requirements		(26,026)	(284)	(19,571)	(574)	(4,173)	(100)	(251)	(79)	(444)	(93)	(265)	(1)	(0)	(191)
209	Tariff Revenue Requirements		26,026	284	19,571	574	4,173	100	251	79	444	93	265	1	0	191

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

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

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

Philadelphia Gas Works
 Allocated Class CDS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
 Exhibit PQH-3B: Allocation Results - Supply-Commodity Classification

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

Schedule No. 2

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

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

[illegible]

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 • For I&E-RS-21-D

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

[illegible]

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

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

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	Office supplies and expenses	921	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	Administrative expenses transferred - Credit	922	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	Outside services employed	923	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	Injuries and damages	925	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	Employee pensions and benefits	926	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	OPEB funding and expenses	999	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	Subtotal - Labor Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	B. PLANT RELATED															
160	Property insurance	924	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Subtotal - Plant Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Rents	931	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		2,367	23	1,882	53	330	6	15	7	25	9	2	0	14	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	TOTAL EXPENSES		2,367	23	1,882	53	330	6	15	7	25	9	2	0	14	0

Philadelphia Gas Works

Allocated Class COS Study -- Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

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

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT	
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	GS	Rate B	Non-Heat	Sales	
177	VII. REVENUES															
178	Distribution Revenue	480-483	32,804	499	25,984	754	4,489	132	268	68	286	104	218	1	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	0	0	0	0	0	0	0	0	0	0	0	17	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	4,634	46	3,707	104	649	11	30	14	50	18	5	0	0	0
187	Revenue Adjustments	495Adj	217	2	174	5	30	1	1	1	2	1	0	0	0	0
188	Subtotal - Gas Revenues		37,673	547	29,864	863	5,169	144	300	83	338	123	223	1	17	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		37,673	547	29,864	863	5,169	144	300	83	338	123	223	1	17	0
193	Non-operating rental income	418	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	TOTAL REVENUE		37,673	547	29,864	863	5,169	144	300	83	338	123	223	1	17	0
198	Income Before Interest and Surplus		35,305	523	27,982	810	4,839	138	284	76	313	114	221	1	3	0
199	Interest on long-term debt	427	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	Amortization of debt discount	428	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	Amortization of premium on debt	429	0	0	0	0	0	0	0	0	0	0	0	0	0	0
202	Other interest expense	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0
203	AFUDC	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0
204	Surplus Requirement	499	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	Total Interest & Surplus		0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	Appropriations of retained earnings	436	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	Total Interest & Surplus, Other		0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	Over (Under) Total Requirements		35,305	523	27,982	810	4,839	138	284	76	313	114	221	1	3	0
209	Tariff Revenue Requirements		(2,484)	(25)	(1,999)	(56)	(350)	(6)	(16)	(7)	(27)	(10)	(3)	(0)	14	0

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

Dollars in Thousands		Residential														GTS/IT		
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE																	
2	A. INTANGIBLE PLANT	301-303																
3	B. PRODUCTION PLANT																	
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT																	
15	Land and land rights	360	328	2	245	7	57	1	3	1	6	1	4	0	0	0	0	0
16	Structures and improvements	361	13,780	94	10,286	302	2,385	56	143	46	269	50	148	0	0	0	0	0
17	Gas holders	362	33,779	231	25,214	740	5,847	137	351	113	658	123	363	1	0	0	0	0
18	Purification equipment	363	251	2	188	6	44	1	3	1	5	1	3	0	0	0	0	0
19	Liquefaction equipment	363.1	31,182	214	23,276	684	5,398	126	324	104	608	113	335	1	0	0	0	0
20	Vaporizing equipment	363.2	14,977	103	11,179	328	2,593	61	156	50	292	54	161	0	0	0	0	0
21	Compressor equipment	363.3	17,509	120	13,070	384	3,031	71	182	59	341	64	188	0	0	0	0	0
22	Measuring and regulating equipment	363.4	6,294	43	4,698	138	1,089	25	65	21	123	23	68	0	0	0	0	0
23	Other equipment	363.5	27,013	185	20,164	592	4,676	109	281	90	526	98	290	1	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	145,112	994	108,320	3,181	25,120	588	1,508	485	2,828	526	1,558	4	0	0	0	0
25	D. TRANSMISSION PLANT	365-371																
26	E. DISTRIBUTION PLANT																	
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA G5	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
41	F. GENERAL PLANT															
42	Land and land rights	389	190	1	142	4	33	1	2	1	4	1	2	0	0	0
43	Structures and improvements	390	4,238	29	3,163	93	734	17	44	14	83	15	45	0	0	0
44	Office furniture and equipment	391	5,570	38	4,158	122	964	23	58	19	109	20	60	0	0	0
45	Transportation equipment	392	2,046	14	1,527	45	354	8	21	7	40	7	22	0	0	0
46	Stores equipment	393	39	0	29	1	7	0	0	0	1	0	0	0	0	0
47	Tools, shop and garage equipment	394	548	4	409	12	95	2	6	2	11	2	6	0	0	0
48	Power operated equipment	396	63	0	47	1	11	0	1	0	1	0	1	0	0	0
49	Communication equipment	397	1,064	7	794	23	184	4	11	4	21	4	11	0	0	0
50	Miscellaneous equipment	398	730	5	545	16	126	3	8	2	14	3	8	0	0	0
51	Subtotal - General Plant	389-399	14,487	99	10,814	318	2,508	59	151	48	282	53	156	0	0	0
52	TOTAL UTILITY PLANT		159,600	1,093	119,134	3,499	27,628	646	1,659	534	3,111	579	1,714	4	0	0
53	II. DEPRECIATION RESERVE															
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	95,160	652	71,033	2,086	16,473	385	989	318	1,855	345	1,022	2	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	7,476	51	5,581	164	1,294	30	78	25	146	27	80	0	0	0
62	Total Depreciation Reserve	108	102,636	703	76,614	2,250	17,767	416	1,067	343	2,000	372	1,102	3	0	0
63	III. OTHER RATE BASE ITEMS															
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		56,964	390	42,521	1,249	9,861	231	592	191	1,110	207	612	1	0	0
68	IV. WORKING CAPITAL															
69	Accounts receivable - Gas	131.11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	Materials and supplies	131.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	Prepaid accounts, other current assets	131.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	Customer deposits	131.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	Accrued Interest	131.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	Accrued Taxes & Wages	131.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	Total Working Capital	131	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	V. TOTAL RATE BASE		56,964	390	42,521	1,249	9,861	231	592	191	1,110	207	612	1	0	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

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Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

[illegible]

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	738	5	551	16	128	3	8	2	14	3	8	0	0	0
152	Office supplies and expenses	921	1,158	8	865	25	201	5	12	4	23	4	12	0	0	0
153	Administrative expenses transferred - Credit	922	(1,256)	(9)	(937)	(28)	(217)	(5)	(13)	(4)	(24)	(5)	(13)	(0)	0	0
154	Outside services employed	923	85	1	63	2	15	0	1	0	2	0	1	0	0	0
155	Injuries and damages	925	328	2	245	7	57	1	3	1	6	1	4	0	0	0
156	Employee pensions and benefits	926	5,890	40	4,397	129	1,020	24	61	20	115	21	63	0	0	0
157	OPEB funding and expenses	999	1,355	9	1,011	30	234	5	14	5	26	5	15	0	0	0
158	Subtotal - Labor Related A&G		8,299	57	6,195	182	1,437	34	86	28	162	30	89	0	0	0
159	B. PLANT RELATED															
160	Property insurance	924	372	3	277	8	64	2	4	1	7	1	4	0	0	0
161	Subtotal - Plant Related A&G		372	3	277	8	64	2	4	1	7	1	4	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	(913)	(6)	(682)	(20)	(158)	(4)	(9)	(3)	(18)	(3)	(10)	(0)	0	0
165	General advertising expenses, miscellaneous	930	308	2	230	7	53	1	3	1	6	1	3	0	0	0
166	Rents	931	17	0	13	0	3	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		(588)	(4)	(439)	(13)	(102)	(2)	(6)	(2)	(11)	(2)	(6)	(0)	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		8,082	55	6,033	177	1,399	33	84	27	158	29	87	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		19,596	134	14,627	430	3,392	79	204	66	382	71	210	1	0	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	3,612	25	2,697	79	625	15	38	12	70	13	39	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		3,612	25	2,697	79	625	15	38	12	70	13	39	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	431	3	322	9	75	2	4	1	8	2	5	0	0	0
176	TOTAL EXPENSES		23,639	162	17,646	518	4,092	96	246	79	461	86	254	1	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3C: Allocation Results - Storage-Demand Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	20,458	311	16,204	470	2,799	82	167	43	179	65	136	1	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		20,458	311	16,204	470	2,799	82	167	43	179	65	136	1	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		20,458	311	16,204	470	2,799	82	167	43	179	65	136	1	0	0
193	Non-operating rental income	418	8	0	6	0	1	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	96	2	73	2	12	0	1	0	1	0	1	0	0	2
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		104	2	79	2	13	0	1	0	1	0	1	0	0	3
197	TOTAL REVENUE		20,561	313	16,284	473	2,813	83	168	43	180	65	137	1	0	3
198	Income Before Interest and Surplus		(3,078)	151	(1,362)	(46)	(1,279)	(13)	(78)	(36)	(281)	(20)	(117)	0	0	3
199	Interest on long-term debt	427	2,342	48	1,791	52	305	8	18	6	26	8	21	0	0	58
200	Amortization of debt discount	428	207	4	158	5	27	1	2	0	2	1	2	0	0	5
201	Amortization of premium on debt	429	(446)	(9)	(341)	(10)	(58)	(1)	(4)	(1)	(5)	(2)	(4)	(0)	(0)	(11)
202	Other interest expense	431	180	4	138	4	23	1	1	0	2	1	2	0	0	4
203	AFUDC	432	(44)	(1)	(34)	(1)	(6)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
204	Surplus Requirement	499	2,858	59	2,186	64	372	10	22	7	32	10	25	0	0	71
205	Total Interest & Surplus		5,097	105	3,899	114	663	17	40	12	58	17	45	0	0	126
206	Appropriations of retained earnings	436	857	18	656	19	112	3	7	2	10	3	8	0	0	21
207	Total Interest & Surplus, Other		5,954	122	4,555	133	775	20	47	14	67	20	53	0	0	147
208	Over (Under) Total Requirements		<u>(9,032)</u>	<u>29</u>	<u>(5,918)</u>	<u>(129)</u>	<u>(2,054)</u>	<u>(33)</u>	<u>(124)</u>	<u>(50)</u>	<u>(348)</u>	<u>(41)</u>	<u>(169)</u>	<u>(0)</u>	<u>(0)</u>	<u>(145)</u>
209	Tariff Revenue Requirements		29,490	282	22,122	649	4,853	115	292	93	527	106	306	1	0	145

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3D: Allocation Results - Distribution-Demand Classification

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3D: Allocation Results - Distribution-Demand Classification

Dollars in Thousands		Residential		Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Sales	
41	F. GENERAL PLANT													
42	Land and land rights	389	649	4	420	12	97	2	6	2	11	2	0	87
43	Structures and improvements	390	14,499	86	9,379	275	2,175	51	131	42	245	46	135	1,934
44	Office furniture and equipment	391	19,058	113	12,328	362	2,859	67	172	55	322	60	177	2,542
45	Transportation equipment	392	7,001	42	4,528	133	1,050	25	63	20	118	22	65	934
46	Stores equipment	393	132	1	85	3	20	0	1	0	2	0	1	18
47	Tools, shop and garage equipment	394	1,875	11	1,213	36	281	7	17	5	32	6	17	250
48	Power operated equipment	396	216	1	140	4	32	1	2	1	4	1	2	29
49	Communication equipment	397	3,640	22	2,355	69	546	13	33	11	61	11	34	486
50	Miscellaneous equipment	398	2,497	15	1,615	47	375	9	22	7	42	8	23	333
51	Subtotal - General Plant	389-399	49,569	294	32,064	942	7,436	174	446	144	837	156	461	6,612
52	TOTAL UTILITY PLANT		470,265	2,743	299,004	8,781	69,340	1,711	4,393	1,340	7,807	1,453	4,301	69,354
53	II. DEPRECIATION RESERVE													
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	141,447	839	91,495	2,687	21,218	496	1,274	410	2,389	445	1,316	18,867
57	Mains - Direct Assignment	108.52Direct	7,574	0	0	0	0	0	0	0	0	0	0	7,574
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	61,295	357	38,893	1,142	9,019	224	575	174	1,016	189	559	9,141
61	General Plant	108.8	25,580	152	16,546	486	3,837	90	230	74	432	80	238	3,412
62	Total Depreciation Reserve	108	235,896	1,348	146,934	4,315	34,074	810	2,079	658	3,837	714	2,113	38,994
63	III. OTHER RATE BASE ITEMS													
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		234,369	1,395	152,070	4,466	35,265	901	2,313	681	3,971	739	2,187	30,360
68	IV. WORKING CAPITAL													
69	Accounts receivable - Gas	131.11	22,679	354	18,094	507	3,005	88	179	45	188	72	146	0
70	Materials and supplies	131.12	3,158	19	2,042	60	473	11	28	9	53	10	29	422
71	Prepaid accounts, other current assets	131.13	1,727	10	1,116	33	259	6	16	5	29	5	16	231
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	(9,210)	(55)	(5,957)	(175)	(1,382)	(32)	(83)	(27)	(156)	(29)	(86)	(1,228)
75	Accounts payable, other- 50% O&MxGas	131.17	(7,199)	(43)	(4,655)	(137)	(1,079)	(25)	(65)	(21)	(122)	(23)	(67)	(963)
76	Customer deposits	131.18	(949)	(15)	(757)	(21)	(126)	(4)	(7)	(2)	(8)	(3)	(6)	0
77	Accrued interest	131.19	(4,226)	(87)	(3,233)	(95)	(550)	(14)	(33)	(10)	(48)	(14)	(37)	(105)
78	Accrued Taxes & Wages	131.2	(5,257)	(31)	(3,399)	(100)	(788)	(18)	(47)	(15)	(89)	(17)	(49)	(703)
79	Total Working Capital	131	723	153	3,251	72	(187)	11	(13)	(15)	(151)	1	(53)	(2,346)
80	V. TOTAL RATE BASE		235,091	1,548	155,321	4,538	35,078	912	2,301	666	3,819	740	2,134	28,014

Exhibit PCH-3D: Allocation Results - Distribution-Demand Classification

113 C. TRANSMISSION EXPENSES

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Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 • For I&E-RS-21-D

Exhibit PQH-3D: Allocation Results - Distribution-Demand Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate B	Non-Heat	Sales	
114	D. DISTRIBUTION EXPENSES														
115	Operation supervision and engineering	870	502	3	325	10	75	2	5	1	8	2	5	0	67
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	1,207	7	781	23	181	4	11	3	20	4	11	0	161
118	Measuring station expenses - General	875	2,102	12	1,360	40	315	7	19	6	36	7	20	0	280
119	Measuring station expenses - Industrial	876	47	0	0	0	0	13	34	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	550	3	356	10	83	2	5	2	9	2	5	0	73
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	2	0	1	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	75	0	48	1	11	0	1	0	1	0	1	0	10
127	Maintenance of mains	887	12,860	76	8,318	244	1,929	45	116	37	217	40	120	0	1,715
128	Maintenance of measuring station expenses - General	889	1,184	7	766	22	178	4	11	3	20	4	11	0	158
129	Maintenance of measuring station expenses - Industrial	890	6	0	0	0	0	2	4	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	18,535	110	11,955	351	2,772	80	205	54	312	58	172	0	2,465
134	TOTAL OPERATION & MAINTENANCE EXPENSES		18,535	110	11,955	351	2,772	80	205	54	312	58	172	0	2,465
135	II. CUSTOMER ACCOUNTS EXPENSES														
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES														
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0

Schedule No. 2

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3D: Allocation Results - Distribution-Demand Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
149	IV. ADMINISTRATIVE & GENERAL EXPENSES														
150	A. LABOR RELATED														
151	Administrative and general salaries	920	2,526	15	1,634	48	379	9	23	7	43	8	24	0	337
152	Office supplies and expenses	921	3,964	24	2,564	75	595	14	36	11	67	12	37	0	529
153	Administrative expenses transferred - Credit	922	(4,296)	(25)	(2,779)	(82)	(644)	(15)	(39)	(12)	(73)	(14)	(40)	(0)	(573)
154	Outside services employed	923	290	2	188	6	44	1	3	1	5	1	3	0	39
155	Injuries and damages	925	1,122	7	726	21	168	4	10	3	19	4	10	0	150
156	Employee pensions and benefits	926	20,154	120	13,036	383	3,023	71	182	58	340	63	188	0	2,688
157	OPEB funding and expenses	999	4,635	27	2,998	88	695	16	42	13	78	15	43	0	618
158	Subtotal - Labor Related A&G		28,394	168	18,367	539	4,259	100	256	82	480	89	264	1	3,787
159	B. PLANT RELATED														
160	Property insurance	924	1,077	6	684	20	159	4	10	3	18	3	10	0	161
161	Subtotal - Plant Related A&G		1,077	6	684	20	159	4	10	3	18	3	10	0	161
162	C. OTHER A&G														
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	1,053	6	681	20	158	4	9	3	18	3	10	0	140
166	Rents	931	58	0	37	1	9	0	1	0	1	0	1	0	8
167	Subtotal - Other A&G		1,111	7	718	21	167	4	10	3	19	3	10	0	148
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		30,582	181	19,769	581	4,584	107	276	89	516	96	284	1	4,096
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		49,117	291	31,723	932	7,357	187	480	142	828	154	456	1	6,561
170	V. DEPRECIATION EXPENSE														
171	Depreciation expense	403	10,473	61	6,645	195	1,541	38	98	30	174	32	96	0	1,562
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		10,473	61	6,645	195	1,541	38	98	30	174	32	96	0	1,562
174	VI. TAXES OTHER THAN INCOME TAXES														
175	Taxes other than income taxes	408	1,476	9	955	28	221	5	13	4	25	5	14	0	197
176	TOTAL EXPENSES		61,065	361	39,323	1,155	9,119	231	592	176	1,027	191	566	1	8,320

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3D: Allocation Results - Distribution-Demand Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	54,716	832	43,340	1,258	7,487	221	447	114	478	174	364	2	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	2,538	46	2,489	1	3	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	390	6	311	9	52	2	3	1	3	1	3	0	0	0
185	GTS/IT Revenue	489	12,190	0	0	0	0	0	0	0	0	0	0	0	0	12,190
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		69,835	884	46,140	1,267	7,542	222	450	115	481	175	367	2	0	12,190
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		69,835	884	46,140	1,267	7,542	222	450	115	481	175	367	2	0	12,190
193	Non-operating rental income	418	35	1	26	1	5	0	0	0	0	0	0	0	0	1
194	Interest and dividend income	419	419	9	321	9	55	1	3	1	5	1	4	0	0	10
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		454	9	347	10	59	2	4	1	5	2	4	0	0	11
197	TOTAL REVENUE		70,289	893	46,487	1,277	7,601	224	454	116	486	176	371	2	0	12,202
198	Income Before Interest and Surplus		9,223	532	7,164	123	(1,518)	(7)	(138)	(60)	(541)	(15)	(195)	0	(4)	3,882
199	Interest on long-term debt	427	10,248	211	7,840	229	1,334	34	81	24	116	35	91	1	1	253
200	Amortization of debt discount	428	906	19	693	20	118	3	7	2	10	3	8	0	0	22
201	Amortization of premium on debt	429	(1,952)	(40)	(1,493)	(44)	(254)	(7)	(15)	(5)	(22)	(7)	(17)	(0)	(0)	(48)
202	Other interest expense	431	790	16	604	18	103	3	6	2	9	3	7	0	0	20
203	AFUDC	432	(192)	(4)	(147)	(4)	(25)	(1)	(2)	(0)	(2)	(1)	(2)	(0)	(0)	(5)
204	Surplus Requirement	499	12,508	257	9,569	280	1,628	42	98	30	141	42	111	1	1	309
205	Total Interest & Surplus		22,308	458	17,066	499	2,903	75	175	53	252	76	197	1	1	552
206	Appropriations of retained earnings	436	3,752	77	2,871	84	488	13	29	9	42	13	33	0	0	93
207	Total Interest & Surplus, Other		26,061	535	19,937	583	3,391	88	205	62	295	88	230	1	1	644
208	Over (Under) Total Requirements		(16,837)	(3)	(12,773)	(461)	(4,909)	(94)	(343)	(122)	(835)	(103)	(425)	(1)	(5)	3,237
209	Tariff Revenue Requirements		83,744	835	56,113	1,719	12,396	315	790	236	1,313	277	790	3	5	8,953

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	GS	Rate 8	Non-Heat	Sales
1	I. GAS PLANT IN SERVICE														
2	A. INTANGIBLE PLANT	301-303													
3	B. PRODUCTION PLANT														
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT														
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371													
26	E. DISTRIBUTION PLANT														
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	386,880	3,426	277,694	11,928	73,526	2,233	4,426	1,526	6,647	1,358	4,066	50	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Meter installations	382	0	0	0	0	0	0	0	0	0	0	0	0	0
36	House regulators	383	0	0	0	0	0	0	0	0	0	0	0	0	0
37	House regulator installations	384	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	386,880	3,426	277,694	11,928	73,526	2,233	4,426	1,526	6,647	1,358	4,066	50	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GT5/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
41	F. GENERAL PLANT														
42	Land and land rights	389	569	5	384	16	102	3	6	2	9	2	6	0	34
43	Structures and improvements	390	12,715	106	8,577	368	2,268	69	137	47	205	42	125	2	769
44	Office furniture and equipment	391	16,713	139	11,274	484	2,982	91	179	62	270	55	165	2	1,011
45	Transportation equipment	392	6,139	51	4,141	178	1,095	33	66	23	99	20	61	1	371
46	Stores equipment	393	116	1	78	3	21	1	1	0	2	0	1	0	7
47	Tools, shop and garage equipment	394	1,645	14	1,109	48	293	9	18	6	27	5	16	0	99
48	Power operated equipment	396	189	2	128	5	34	1	2	1	3	1	2	0	11
49	Communication equipment	397	3,192	27	2,154	92	570	17	34	12	51	11	32	0	193
50	Miscellaneous equipment	398	2,190	18	1,477	63	391	12	24	8	35	7	22	0	132
51	Subtotal - General Plant	389-399	43,469	361	29,324	1,258	7,755	235	467	161	701	143	429	5	2,628
52	TOTAL UTILITY PLANT		430,349	3,787	307,018	13,186	81,281	2,468	4,892	1,687	7,348	1,501	4,495	55	2,628
53	II. DEPRECIATION RESERVE														
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	141,447	1,253	101,528	4,361	26,882	816	1,618	558	2,430	496	1,487	18	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	22,432	186	15,132	649	4,002	121	241	83	362	74	221	3	1,356
62	Total Depreciation Reserve	108	163,879	1,439	116,660	5,010	30,884	938	1,859	641	2,792	570	1,708	21	1,356
63	III. OTHER RATE BASE ITEMS														
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		266,469	2,348	190,358	8,176	50,397	1,530	3,033	1,046	4,556	931	2,787	34	1,272
68	IV. WORKING CAPITAL														
69	Accounts receivable - Gas	131.11	20,181	315	16,101	451	2,674	78	159	40	167	64	130	1	0
70	Materials and supplies	131.12	2,810	24	1,909	82	505	15	30	10	46	9	28	0	151
71	Prepaid accounts, other current assets	131.13	1,537	13	1,044	45	276	8	17	6	25	5	15	0	83
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	(12,110)	(68)	(5,551)	(235)	(1,454)	(44)	(88)	(30)	(131)	(27)	(81)	(1)	(4,398)
74	Accounts payable, other- 50% Labor	131.16	(8,076)	(67)	(5,448)	(234)	(1,441)	(44)	(87)	(30)	(130)	(27)	(80)	(1)	(488)
75	Accounts payable, other- 50% O&MxGas	131.17	(6,406)	(54)	(4,352)	(187)	(1,151)	(35)	(69)	(24)	(104)	(21)	(64)	(1)	(345)
76	Customer deposits	131.18	(844)	(13)	(674)	(19)	(112)	(3)	(7)	(2)	(7)	(3)	(5)	(0)	0
77	Accrued interest	131.19	(3,886)	(80)	(2,973)	(87)	(506)	(13)	(31)	(9)	(44)	(13)	(34)	(0)	(96)
78	Accrued Taxes & Wages	131.2	(4,678)	(39)	(3,178)	(136)	(841)	(26)	(51)	(17)	(76)	(16)	(46)	(1)	(252)
79	Total Working Capital	131	(11,474)	31	(3,122)	(320)	(2,049)	(62)	(125)	(56)	(255)	(28)	(137)	(2)	(5,344)
80	V. TOTAL RATE BASE		254,996	2,379	187,236	7,856	48,348	1,468	2,908	990	4,301	903	2,650	32	(4,073)

Philadelphia Gas Works

Allocated Class CO\$ Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

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Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Rate B	Non-Heat	Sales	
114	D. DISTRIBUTION EXPENSES														
115	Operation supervision and engineering	870	462	4	312	13	81	3	5	2	7	2	5	0	28
116	Distribution load dispatching	871	1,650	9	756	32	198	6	12	4	18	4	11	0	599
117	Mains and services expenses	874	1,207	11	867	37	229	7	14	5	21	4	13	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	0	0	0	0	0	0	0	0	0	0	0	0	0
125	Rents	881	2	0	1	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	69	1	46	2	12	0	1	0	1	0	1	0	4
127	Maintenance of mains	887	12,860	114	9,230	396	2,444	74	147	51	221	45	135	2	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	487	3	223	9	58	2	4	1	5	1	3	0	177
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	16,736	141	11,436	491	3,025	92	182	63	273	56	167	2	808
134	TOTAL OPERATION & MAINTENANCE EXPENSES		16,736	141	11,436	491	3,025	92	182	63	273	56	167	2	808
135	II. CUSTOMER ACCOUNTS EXPENSES														
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES														
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	2,215	18	1,494	64	395	12	24	8	36	7	22	0	0	134
152	Office supplies and expenses	921	3,476	29	2,345	101	620	19	37	13	56	11	34	0	0	210
153	Administrative expenses transferred - Credit	922	(3,768)	(31)	(2,542)	(109)	(672)	(20)	(40)	(14)	(51)	(12)	(37)	(0)	(0)	(228)
154	Outside services employed	923	255	2	172	7	45	1	3	1	4	1	3	0	0	15
155	Injuries and damages	925	984	8	664	28	176	5	11	4	16	3	10	0	0	59
156	Employee pensions and benefits	926	17,674	147	11,922	511	3,153	96	190	65	285	58	174	2	1	1,069
157	OPEB funding and expenses	999	4,064	34	2,742	118	725	22	44	15	66	13	40	0	0	246
158	Subtotal - Labor Related A&G		24,900	207	16,797	720	4,442	135	267	92	402	82	246	3	1	1,506
159	B. PLANT RELATED															
160	Property insurance	924	991	9	711	31	188	6	11	4	17	3	10	0	0	0
161	Subtotal - Plant Related A&G		991	9	711	31	188	6	11	4	17	3	10	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	923	8	623	27	165	5	10	3	15	3	9	0	0	56
166	Rents	931	51	0	34	1	9	0	1	0	1	0	0	0	0	3
167	Subtotal - Other A&G		974	8	657	28	174	5	10	4	16	3	10	0	0	59
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		26,865	224	18,165	779	4,804	146	289	100	434	89	266	3	1	1,564
169	TOTAL OPERATING EXPENSES (Excluding Dep. Tax)		43,601	365	29,601	1,270	7,829	238	471	162	708	145	433	5	1	2,373
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	9,631	85	6,913	297	1,830	56	110	38	165	34	101	1	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		9,631	85	6,913	297	1,830	56	110	38	165	34	101	1	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	1,294	11	873	37	231	7	14	5	21	4	13	0	0	78
176	TOTAL EXPENSES		54,526	461	37,387	1,604	9,890	300	595	205	894	183	547	7	2	2,451

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-3E: Allocation Results - Distribution-Commodity Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
177	VII. REVENUES														
178	Distribution Revenue	480-483	48,691	740	38,567	1,119	6,663	196	398	102	425	155	324	2	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	2,259	41	2,215	0	3	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	347	5	277	8	46	1	3	1	3	1	2	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		51,297	786	41,059	1,128	6,712	198	401	102	428	156	326	2	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		51,297	786	41,059	1,128	6,712	198	401	102	428	156	326	2	0
193	Non-operating rental income	418	32	1	24	1	4	0	0	0	0	0	0	0	1
194	Interest and dividend income	419	383	8	293	9	50	1	3	1	4	1	3	0	9
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		415	9	318	9	54	1	3	1	5	1	4	0	10
197	TOTAL REVENUE		51,712	795	41,376	1,137	6,766	199	404	103	433	157	330	2	10
198	Income Before Interest and Surplus		(2,814)	334	3,989	(467)	(3,125)	(101)	(191)	(102)	(462)	(26)	(217)	(5)	(1)
199	Interest on long-term debt	427	9,378	193	7,174	210	1,220	32	74	22	106	32	83	0	232
200	Amortization of debt discount	428	829	17	634	19	108	3	7	2	9	3	7	0	21
201	Amortization of premium on debt	429	(1,786)	(37)	(1,367)	(40)	(232)	(6)	(14)	(4)	(20)	(6)	(16)	(0)	(44)
202	Other interest expense	431	723	15	553	16	94	2	6	2	8	2	6	0	18
203	AFUDC	432	(176)	(4)	(134)	(4)	(23)	(1)	(1)	(0)	(2)	(1)	(2)	(0)	(4)
204	Surplus Requirement	499	11,446	235	8,756	256	1,489	38	90	27	129	39	101	1	283
205	Total Interest & Surplus		20,415	419	15,617	457	2,656	69	160	48	231	69	181	1	505
206	Appropriations of retained earnings	436	3,434	71	2,627	77	447	12	27	8	39	12	30	0	85
207	Total Interest & Surplus, Other		23,849	490	18,244	534	3,103	80	187	56	270	81	211	1	590
208	Over (Under) Total Requirements		(26,663)	(156)	(14,255)	(1,001)	(6,228)	(181)	(379)	(158)	(731)	(106)	(428)	(6)	(3)
209	Tariff Revenue Requirements		75,353	896	52,822	2,120	12,891	378	777	260	1,156	261	752	8	3,030

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-AS-21-D
Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

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

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Dollars in Thousands		Residential		Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
41	F. GENERAL PLANT														
42	Land and land rights	389	351	13	301	5	20	1	1	0	2	1	3	0	4
43	Structures and improvements	390	7,848	290	6,730	106	452	12	32	7	39	28	63	0	88
44	Office furniture and equipment	391	10,315	381	8,846	139	594	16	41	9	52	36	83	0	116
45	Transportation equipment	392	3,789	140	3,250	51	218	6	15	3	19	13	30	0	43
46	Stores equipment	393	72	3	61	1	4	0	0	0	0	0	1	0	1
47	Tools, shop and garage equipment	394	1,015	37	871	14	58	2	4	1	5	4	8	0	11
48	Power operated equipment	396	117	4	100	2	7	0	0	0	1	0	1	0	1
49	Communication equipment	397	1,970	73	1,690	27	113	3	8	2	10	7	16	0	22
50	Miscellaneous equipment	398	1,352	50	1,159	18	78	2	5	1	7	5	11	0	15
51	Subtotal - General Plant	389-399	26,829	990	23,009	363	1,545	42	108	23	134	95	216	1	302
52	TOTAL UTILITY PLANT		732,639	27,034	628,311	9,905	42,190	1,144	2,946	624	3,670	2,583	5,889	26	8,239
53	II. DEPRECIATION RESERVE														
54	Production plant	108.2	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Local storage plant	108.3	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Mains	108.52	0	0	0	0	0	0	0	0	0	0	0	0	0
57	Mains - Direct Assignment	108.52Direct	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Services	108.54	355,556	13,120	304,925	4,807	20,475	555	1,430	303	1,781	1,254	2,858	13	3,998
59	Meters	108.55	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Distribution other	108.58	0	0	0	0	0	0	0	0	0	0	0	0	0
61	General Plant	108.8	13,845	511	11,874	187	797	22	56	12	69	49	111	0	156
62	Total Depreciation Reserve	108	369,401	13,631	316,798	4,994	21,272	577	1,486	315	1,851	1,303	2,969	13	4,154
63	III. OTHER RATE BASE ITEMS														
64	Completed construction - Unclassified	106	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Total Other Rate Base Items		0	0	0	0	0	0	0	0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		363,238	13,403	311,513	4,911	20,917	567	1,461	309	1,820	1,281	2,920	13	4,085
68	IV. WORKING CAPITAL														
69	Accounts receivable - Gas	131.11	27,298	426	21,780	510	3,618	106	215	54	226	86	176	1	0
70	Materials and supplies	131.12	3,801	110	3,335	44	211	5	13	3	15	9	21	0	34
71	Prepaid accounts, other current assets	131.13	2,078	60	1,823	24	115	3	7	2	8	5	12	0	19
72	Gas, LNG in storage	131.14	0	0	0	0	0	0	0	0	0	0	0	0	0
73	Accounts payable - Gas	131.15	0	0	0	0	0	0	0	0	0	0	0	0	0
74	Accounts payable, other- 50% Labor	131.16	(4,985)	(184)	(4,275)	(67)	(287)	(8)	(20)	(4)	(25)	(18)	(40)	(0)	(56)
75	Accounts payable, other- 50% O&MxGas	131.17	(8,666)	(251)	(7,603)	(101)	(480)	(11)	(30)	(6)	(35)	(21)	(48)	(0)	(78)
76	Customer deposits	131.18	(1,142)	(18)	(911)	(26)	(151)	(4)	(9)	(2)	(9)	(4)	(7)	(0)	0
77	Accrued interest	131.19	(7,090)	(146)	(5,424)	(159)	(923)	(24)	(56)	(17)	(80)	(24)	(63)	(0)	(175)
78	Accrued Taxes & Wages	131.2	(6,328)	(183)	(5,552)	(74)	(351)	(8)	(22)	(5)	(26)	(15)	(35)	(0)	(57)
79	Total Working Capital	131	4,968	(186)	3,173	252	1,751	58	99	24	75	19	16	(0)	(313)
80	V. TOTAL RATE BASE		368,205	13,218	314,686	5,163	22,669	625	1,559	334	1,894	1,300	2,935	13	3,771

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
114	D. DISTRIBUTION EXPENSES														
115	Operation supervision and engineering	870	843	31	723	11	49	1	3	1	4	3	7	0	9
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	2,202	81	1,889	30	127	3	9	2	11	8	18	0	25
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Customer installation expenses	879	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	0	0	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	11,585	427	9,935	157	667	18	47	10	58	41	93	0	130
125	Rents	881	3	0	3	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	125	5	107	2	7	0	1	0	1	0	1	0	1
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	1,800	66	1,544	24	104	3	7	2	9	6	14	0	20
132	Maintenance of meters and house regulators	893	0	0	0	0	0	0	0	0	0	0	0	0	0
133	Subtotal - Distribution Expenses	870-893	16,559	611	14,201	224	954	26	67	14	83	58	133	1	186
134	TOTAL OPERATION & MAINTENANCE EXPENSES		16,559	611	14,201	224	954	26	67	14	83	58	133	1	186
135	II. CUSTOMER ACCOUNTS EXPENSES														
136	Supervision	901	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Meter reading expenses	902	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Customer records and collection expenses	903	0	0	0	0	0	0	0	0	0	0	0	0	0
139	Uncollectible accounts	904	16,495	287	15,637	81	465	3	21	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		16,495	287	15,637	81	465	3	21	0	0	0	0	0	0
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES														
143	Customer assistance expenses	908	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		16,495	287	15,637	81	465	3	21	0	0	0	0	0	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	1,367	50	1,172	18	79	2	5	1	7	5	11	0	0	15
152	Office supplies and expenses	921	2,145	79	1,840	29	124	3	9	2	11	8	17	0	0	24
153	Administrative expenses transferred - Credit	922	(2,325)	(86)	(1,994)	(31)	(134)	(4)	(9)	(2)	(12)	(8)	(19)	(0)	(0)	(26)
154	Outside services employed	923	157	6	135	2	9	0	1	0	1	1	1	0	0	2
155	Injuries and damages	925	607	22	521	8	35	1	2	1	3	2	5	0	0	7
156	Employee pensions and benefits	926	10,908	403	9,355	147	628	17	44	9	55	38	88	0	1	123
157	OP&B funding and expenses	999	2,509	93	2,151	34	144	4	10	2	13	9	20	0	0	28
158	Subtotal - Labor Related A&G		15,368	567	13,180	208	885	24	62	13	77	54	124	1	2	173
159	B. PLANT RELATED															
160	Property insurance	924	1,807	67	1,550	24	104	3	7	2	9	6	15	0	0	20
161	Subtotal - Plant Related A&G		1,807	67	1,550	24	104	3	7	2	9	6	15	0	0	20
162	C. OTHER A&G															
163	Regulatory commission expenses	928	5,157	106	3,945	115	671	17	41	12	58	17	46	0	0	128
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	570	21	489	8	33	1	2	0	3	2	5	0	0	6
166	Rents	931	31	1	27	0	2	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		5,758	128	4,461	124	706	18	43	13	61	20	50	0	0	134
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		22,934	762	19,190	356	1,695	45	112	27	147	80	189	1	2	327
169	TOTAL OPERATING EXPENSES (Excluding Dep. Tax)		55,987	1,660	49,028	661	3,114	74	199	41	230	139	322	1	4	514
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	17,571	648	15,069	238	1,012	27	71	15	88	62	141	1	2	198
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		17,571	648	15,069	238	1,012	27	71	15	88	62	141	1	2	198
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	799	29	685	11	46	1	3	1	4	3	6	0	0	9
176	TOTAL EXPENSES		74,356	2,338	64,782	909	4,171	103	273	57	322	203	469	2	6	720

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3F: Allocation Results - Distribution-Customer Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	GS	Rate 8	Non-Heat	Sales	
177	VII. REVENUES														
178	Distribution Revenue	480-483	65,862	1,001	52,168	1,514	9,013	266	538	137	575	209	438	2	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	3,056	55	2,996	1	4	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	469	7	374	10	62	2	4	1	4	1	3	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		69,386	1,063	55,538	1,525	9,079	267	542	138	579	211	441	2	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		69,386	1,063	55,538	1,525	9,079	267	542	138	579	211	441	2	0
193	Non-operating rental income	418	54	1	41	1	7	0	0	0	1	0	0	0	1
194	Interest and dividend income	419	653	13	499	15	85	2	5	2	7	2	6	0	16
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		707	15	541	16	92	2	6	2	8	2	6	0	17
197	TOTAL REVENUE		70,093	1,078	56,079	1,541	9,170	270	548	140	587	213	448	2	17
198	Income Before Interest and Surplus		(4,263)	(1,260)	(8,703)	632	4,999	167	274	83	264	10	(22)	0	(6)
199	Interest on long-term debt	427	15,966	328	12,214	357	2,078	54	125	38	180	54	141	1	395
200	Amortization of debt discount	428	1,412	29	1,080	32	184	5	11	3	16	5	12	0	35
201	Amortization of premium on debt	429	(3,041)	(62)	(2,326)	(68)	(396)	(10)	(24)	(7)	(34)	(10)	(27)	(0)	(75)
202	Other interest expense	431	1,231	25	941	28	160	4	10	3	14	4	11	0	30
203	AFUDC	432	(299)	(6)	(229)	(7)	(39)	(1)	(2)	(1)	(3)	(1)	(3)	(0)	(7)
204	Surplus Requirement	499	19,486	400	14,907	436	2,536	65	153	46	220	66	172	1	482
205	Total Interest & Surplus		34,755	714	26,588	778	4,522	117	273	82	393	118	307	2	859
206	Appropriations of retained earnings	436	5,846	120	4,472	131	761	20	46	14	66	20	52	0	145
207	Total Interest & Surplus, Other		40,600	834	31,060	908	5,283	136	319	96	459	137	359	2	1,004
208	Over (Under) Total Requirements		(44,864)	(2,094)	(39,763)	(277)	(284)	31	(45)	(13)	(195)	(128)	(381)	(2)	(8)
209	Tariff Revenue Requirements		110,725	3,095	91,930	1,791	9,297	235	583	151	769	337	819	4	1,707

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D
Exhibit PQH-3G: Allocation Results - Onsite-Customer Classification

Line	FERC Account Description	Account Code	Dollars In Thousands		Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate B	NGVS Non-Heat	Interruptible Sales	GTS/IT
1	I. GAS PLANT IN SERVICE																	
2	A. INTANGIBLE PLANT	301-303																
3	B. PRODUCTION PLANT																	
4	Land and land rights	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Structures and improvements	305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Boiler plant equipment	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Other power equipment	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	LPG equipment	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Purification equipment	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Residual refining equipment	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Gas mixing equipment	319	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other equipment	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Subtotal - Production Plant	304-347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	C. STORAGE AND PROCESSING PLANT																	
15	Land and land rights	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Structures and improvements	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Gas holders	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Purification equipment	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Liquefaction equipment	363.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Vaporizing equipment	363.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Compressor equipment	363.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Measuring and regulating equipment	363.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Other equipment	363.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Subtotal - Storage and Processing Plant	360-364	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	D. TRANSMISSION PLANT	365-371																
26	E. DISTRIBUTION PLANT																	
27	Land and land rights	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Structures and improvements	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Mains	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Mains - Direct Assignment	376Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Compressor station equipment	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Measuring station equipment - General	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Services	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Meters	381	75,453	2,384	55,411	2,752	11,723	153	395	173	492	228	790	2	3	945		
35	Meter installations	382	94,565	2,988	69,447	3,449	14,692	192	495	217	617	286	990	3	4	1,184		
36	House regulators	383	2,202	90	2,103	0	0	0	0	0	0	9	0	0	0	0	0	0
37	House regulator installations	384	4,142	170	3,955	0	0	0	0	0	0	16	0	0	0	0	0	0
38	Measuring station equipment - Industrial	385	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Other equipment	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Subtotal - Distribution Plant	374-387	176,362	5,633	130,916	6,202	26,415	346	891	391	1,110	538	1,780	5	7	2,128		

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

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

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

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

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Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible	GTS/IT
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	GS	Rate 8	Non-Heat	Sales
114	D. DISTRIBUTION EXPENSES														
115	Operation supervision and engineering	870	211	7	168	5	24	1	2	0	1	1	1	0	0
116	Distribution load dispatching	871	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Mains and services expenses	874	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Measuring station expenses - General	875	0	0	0	0	0	0	0	0	0	0	0	0	0
119	Measuring station expenses - Industrial	876	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Measuring station expenses - City gate	877	0	0	0	0	0	0	0	0	0	0	0	0	0
121	Meter and house regulator expenses	878	18,417	595	13,839	656	2,792	37	94	41	117	57	188	1	0
122	Customer installation expenses	879	5,642	181	4,196	208	888	12	30	13	37	17	60	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	3,746	155	3,591	0	0	0	0	0	0	0	0	0	0
124	Other expenses	880	1,350	43	1,002	47	202	3	7	3	8	4	14	0	16
125	Rents	881	1	0	1	0	0	0	0	0	0	0	0	0	0
126	Maintenance supervision and engineering	885	31	1	25	1	4	0	0	0	0	0	0	0	0
127	Maintenance of mains	887	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Maintenance of measuring station expenses - General	889	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	0	0	0	0	0	0	0	0	0	0	0	0
130	Maintenance of measuring station expenses - City gate	891	0	0	0	0	0	0	0	0	0	0	0	0	0
131	Maintenance of services	892	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Maintenance of meters and house regulators	893	3,810	123	2,863	136	578	8	19	9	24	12	39	0	0
133	Subtotal - Distribution Expenses	870-893	33,208	1,104	25,685	1,053	4,488	59	153	66	188	91	302	1	16
134	TOTAL OPERATION & MAINTENANCE EXPENSES		33,208	1,104	25,685	1,053	4,488	59	153	66	188	91	302	1	16
135	II. CUSTOMER ACCOUNTS EXPENSES														
136	Supervision	901	1,109	32	926	23	109	2	4	1	4	3	3	0	1
137	Meter reading expenses	902	785	22	666	12	64	1	3	1	4	3	3	0	7
138	Customer records and collection expenses	903	26,657	776	22,247	550	2,627	43	94	28	101	75	79	1	35
139	Uncollectible accounts	904	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Uncollectible accounts in CRP	904CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		28,551	830	23,839	584	2,800	46	101	31	109	81	85	1	43
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES														
143	Customer assistance expenses	908	1,617	57	1,321	7	30	55	141	0	1	3	1	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	0	0	0	0	0	0	0	0	0	0	0	0
145	CRP Shortfall	480CRP	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Senior Discounts	480Sen	0	0	0	0	0	0	0	0	0	0	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		1,617	57	1,321	7	30	55	141	0	1	3	1	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		30,168	887	25,159	592	2,831	101	242	31	110	84	87	1	44

Philadelphia Gas Works

Allocated Class COS Study -- Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

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

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

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-3G: Allocation Results - Onsite-Customer Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA GS	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	177,687	2,701	140,742	4,085	24,315	717	1,453	371	1,551	564	1,183	6	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		177,687	2,701	140,742	4,085	24,315	717	1,453	371	1,551	564	1,183	6	0	0
189	Bill paid turn ons & dig ups	903Rev	1,883	73	1,698	18	76	1	2	1	2	7	3	0	0	2
190	Customer installation expenses	879Rev	6,382	263	6,119	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		8,265	336	7,817	18	76	1	2	1	2	7	3	0	0	2
192	TOTAL OPERATING REVENUES		185,952	3,037	148,559	4,103	24,391	717	1,454	372	1,553	571	1,186	6	0	2
193	Non-operating rental income	418	27	1	21	1	4	0	0	0	0	0	0	0	0	1
194	Interest and dividend income	419	332	7	254	7	43	1	3	1	4	1	3	0	0	8
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		360	7	275	8	47	1	3	1	4	1	3	0	0	9
197	TOTAL REVENUE		186,312	3,045	148,835	4,111	24,438	718	1,457	373	1,557	572	1,190	6	0	10
198	Income Before Interest and Surplus		39,452	(1,590)	31,692	262	7,399	217	202	143	862	167	259	2	(1)	(162)
199	Interest on long-term debt	427	8,130	167	6,220	182	1,058	27	64	19	92	28	72	0	0	201
200	Amortization of debt discount	428	719	15	550	16	94	2	6	2	8	2	6	0	0	18
201	Amortization of premium on debt	429	(1,549)	(32)	(1,185)	(35)	(202)	(5)	(12)	(4)	(18)	(5)	(14)	(0)	(0)	(38)
202	Other interest expense	431	627	13	479	14	82	2	5	1	7	2	6	0	0	15
203	AFUDC	432	(152)	(3)	(116)	(3)	(20)	(1)	(1)	(0)	(2)	(1)	(1)	(0)	(0)	(4)
204	Surplus Requirement	499	9,923	204	7,591	222	1,291	33	78	24	112	34	88	0	1	245
205	Total Interest & Surplus		17,698	364	13,539	396	2,303	59	139	42	200	60	157	1	1	438
206	Appropriations of retained earnings	436	2,977	61	2,277	67	387	10	23	7	34	10	26	0	0	74
207	Total Interest & Surplus, Other		20,675	425	15,817	463	2,690	69	162	49	234	70	183	1	1	511
208	Over (Under) Total Requirements		18,727	(2,015)	15,875	(200)	4,709	147	39	94	628	97	76	1	(2)	(673)
209	Tariff Revenue Requirements		158,910	4,716	124,867	4,286	19,606	569	1,413	277	923	467	1,107	5	2	673

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

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Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3H: Allocation Results - USEC-Customer Classification

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Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3H: Allocation Results - USEC-Customer Classification

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-3H: Allocation Results - USEC-Customer Classification

Dollars in Thousands																
Line	FERC Account Description	Account Code	Total	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA G5	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
149	IV. ADMINISTRATIVE & GENERAL EXPENSES															
150	A. LABOR RELATED															
151	Administrative and general salaries	920	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	Office supplies and expenses	921	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	Administrative expenses transferred - Credit	922	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	Outside services employed	923	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	Injuries and damages	925	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	Employee pensions and benefits	926	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	OPEB funding and expenses	999	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	Subtotal - Labor Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	B. PLANT RELATED															
160	Property Insurance	924	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Subtotal - Plant Related A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	C. OTHER A&G															
163	Regulatory commission expenses	928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Duplicate charges - Credit	929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	General advertising expenses, miscellaneous	930	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Rents	931	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Subtotal - Other A&G		0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		53,460	473	38,377	1,644	10,161	309	612	209	919	188	562	7	0	0
170	V. DEPRECIATION EXPENSE															
171	Depreciation expense	403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Depreciation expense- Direct Assignment	403Direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	TOTAL EXPENSES		53,460	473	38,377	1,644	10,161	309	612	209	919	188	562	7	0	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-3H: Allocation Results - USEC-Customer Classification

Dollars in Thousands			Residential	Residential	Commercial	Commercial	Industrial	Industrial	Municipal	Municipal	PHA	PHA	NGVS	Interruptible		
Line	FERC Account Description	Account Code	Total	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	Non-Heat	Heat	GS	Rate 8	Non-Heat	Sales	GTS/IT
177	VII. REVENUES															
178	Distribution Revenue	480-483	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	GCR Revenue	480-483GCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0
181	USEC Revenue	480-483USC	53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
182	REC Revenue	480-483REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Forfeited discounts	487	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Miscellaneous service revenue	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0
185	GTS/IT Revenue	489	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Other gas revenue	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
187	Revenue Adjustments	495Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Subtotal - Gas Revenues		53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
189	Bill paid turn ons & dig ups	903Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190	Customer installation expenses	879Rev	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Subtotal - Other operating revenues		0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	TOTAL OPERATING REVENUES		53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
193	Non-operating rental income	418	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Interest and dividend income	419	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	Miscellaneous non-operating income	421	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Total Non-Operating Income		0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	TOTAL REVENUE		53,687	475	38,541	1,650	10,205	310	614	210	923	188	564	7	0	0
198	Income Before Interest and Surplus		226	2	163	6	43	1	3	1	4	1	2	0	0	0
199	Interest on long-term debt	427	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	Amortization of debt discount	428	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	Amortization of premium on debt	429	0	0	0	0	0	0	0	0	0	0	0	0	0	0
202	Other interest expense	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0
203	AFUDC	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0
204	Surplus Requirement	499	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	Total Interest & Surplus		0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	Appropriations of retained earnings	436	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	Total Interest & Surplus, Other		0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	Over (Under) Total Requirements		226	2	163	6	43	1	3	1	4	1	2	0	0	0
209	Tariff Revenue Requirements		53,460	473	38,377	1,644	10,161	309	612	209	919	188	562	7	0	0

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-4: Classification Results

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

Philadelphia Gas Works
Allocated Class COS Study -- Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-4: Classification Results

Line	FERC Account Description	Account Code	Supply				Distribution				Customer
			Total	Factor	Demand	Energy	Total	Factor	Demand	Energy	
41	F. GENERAL PLANT										
42	Land and land rights	389	304	SUPPLABOR	304	0	1,570	DISTLABOR	649	569	351
43	Structures and improvements	390	6,795	SUPPLABOR	6,795	0	35,062	DISTLABOR	14,499	12,715	7,848
44	Office furniture and equipment	391	8,932	SUPPLABOR	8,932	0	46,086	DISTLABOR	19,058	16,713	10,315
45	Transportation equipment	392	3,281	SUPPLABOR	3,281	0	16,929	DISTLABOR	7,001	6,139	3,789
46	Stores equipment	393	62	SUPPLABOR	62	0	319	DISTLABOR	132	116	72
47	Tools, shop and garage equipment	394	879	SUPPLABOR	879	0	4,535	DISTLABOR	1,875	1,645	1,015
48	Power operated equipment	396	101	SUPPLABOR	101	0	522	DISTLABOR	216	189	117
49	Communication equipment	397	1,706	SUPPLABOR	1,706	0	8,803	DISTLABOR	3,640	3,192	1,970
50	Miscellaneous equipment	398	1,170	SUPPLABOR	1,170	0	6,039	DISTLABOR	2,497	2,190	1,352
51	Subtotal - General Plant	389-399	23,230		23,230	0	119,867		49,569	43,469	26,829
52	TOTAL UTILITY PLANT		83,590		83,590	0	1,633,252		470,265	430,349	732,639
53	II. DEPRECIATION RESERVE										
54	Production plant	108.2	34,623	SUPPPT	34,623	0	0	None	0	0	0
55	Local storage plant	108.3	0	None	0	0	0	None	0	0	0
56	Mains	108.52	0	None	0	0	282,895	MAINS	141,447	141,447	0
57	Mains - Direct Assignment	108.52Direct	0	None	0	0	7,574	DEMAND	7,574	0	0
58	Services	108.54	0	None	0	0	355,556	CUST	0	0	355,556
59	Meters	108.55	0	None	0	0	0	None	0	0	0
60	Distribution other	108.58	0	None	0	0	61,295	DEMAND	61,295	0	0
61	General Plant	108.8	11,988	SUPPLABOR	11,988	0	61,857	DISTLABOR	25,580	22,432	13,845
62	Total Depreciation Reserve	108	46,611		46,611	0	769,177		235,896	163,879	369,401
63	III. OTHER RATE BASE ITEMS										
64	Completed construction - Unclassified	106	0	None	0	0	0	None	0	0	0
65	Construction work in progress (CWIP)	107	0	None	0	0	0	None	0	0	0
66	Total Other Rate Base Items		0		0	0	0		0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		36,979		36,979	0	864,075		234,369	266,469	363,238
68	IV. WORKING CAPITAL										
69	Accounts receivable - Gas	131.11	0	None	0	0	70,158	DIST_REV	22,679	20,181	27,298
70	Materials and supplies	131.12	0	None	0	0	9,768	DISTO&MXG.	3,158	2,810	3,801
71	Prepaid accounts, other current assets	131.13	0	None	0	0	5,342	DISTO&MXG.	1,727	1,537	2,078
72	Gas, LNG in storage	131.14	38,344	COMMODITY	0	38,344	0	None	0	0	0
73	Accounts payable - Gas	131.15	0	None	0	0	(12,110)	COMMODITY	0	(12,110)	0
74	Accounts payable, other- 50% Labor	131.16	0	None	0	0	(22,271)	DISTLABOR	(9,210)	(8,076)	(4,985)
75	Accounts payable, other- 50% O&MxGas	131.17	0	None	0	0	(22,271)	DISTO&MXG.	(7,199)	(6,406)	(8,666)
76	Customer deposits	131.18	0	None	0	0	(2,935)	DIST_REV	(949)	(844)	(1,142)
77	Accrued interest	131.19	0	None	0	0	(15,202)	DISTPT	(4,226)	(3,886)	(7,090)
78	Accrued Taxes & Wages	131.2	0	None	0	0	(16,263)	DISTO&MXG.	(5,257)	(4,678)	(6,328)
79	Total Working Capital	131	38,344		0	38,344	(5,783)		723	(11,474)	4,968
80	V. TOTAL RATE BASE		75,323		36,979	38,344	858,292		235,091	254,996	368,205

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-4: Classification Results

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

Philadelphia Gas Works

Allocated Class CQS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-4: Classification Results

Dollars in Thousands		Supply				Distribution					
Line	FERC Account Description	Account Code	Total	Factor	Demand	Energy	Total	Factor	Demand	Energy	Customer
114	D. DISTRIBUTION EXPENSES										
115	Operation supervision and engineering	870	0	None	0	0	1,807	DISTPT	502	462	843
116	Distribution load dispatching	871	0	None	0	0	1,650	COMMODITY	0	1,650	0
117	Mains and services expenses	874	0	None	0	0	4,617	MAIN&SERVI	1,207	1,207	2,202
118	Measuring station expenses - General	875	0	None	0	0	2,102	DEMAND	2,102	0	0
119	Measuring station expenses - Industrial	876	0	None	0	0	47	DEMAND	47	0	0
120	Measuring station expenses - City gate	877	0	None	0	0	550	DEMAND	550	0	0
121	Meter and house regulator expenses	878	0	None	0	0	0	None	0	0	0
122	Customer installation expenses	879	0	None	0	0	0	None	0	0	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	0	None	0	0	0	None	0	0	0
124	Other expenses	880	0	None	0	0	11,585	CUST	0	0	11,585
125	Rents	881	0	None	0	0	6	DISTPT	2	2	3
126	Maintenance supervision and engineering	885	0	None	0	0	269	DISTPT	75	69	125
127	Maintenance of mains	887	0	None	0	0	25,719	MAINS	12,860	12,860	0
128	Maintenance of measuring station expenses - General	889	0	None	0	0	1,184	DEMAND	1,184	0	0
129	Maintenance of measuring station expenses - Industrial	890	0	None	0	0	6	DEMAND	6	0	0
130	Maintenance of measuring station expenses - City gate	891	0	None	0	0	487	COMMODITY	0	487	0
131	Maintenance of services	892	0	None	0	0	1,800	CUST	0	0	1,800
132	Maintenance of meters and house regulators	893	0	None	0	0	0	None	0	0	0
133	Subtotal - Distribution Expenses	870-893	0		0	0	51,829		18,535	16,736	16,559
134	TOTAL OPERATION & MAINTENANCE EXPENSES		5,335		2,968	2,367	51,829		18,535	16,736	16,559
135	II. CUSTOMER ACCOUNTS EXPENSES										
136	Supervision	901	0	None	0	0	0	None	0	0	0
137	Meter reading expenses	902	0	None	0	0	0	None	0	0	0
138	Customer records and collection expenses	903	0	None	0	0	0	None	0	0	0
139	Uncollectible accounts	904	0	None	0	0	16,495	CUST	0	0	16,495
140	Uncollectible accounts in CRP	904CRP	0	None	0	0	0	None	0	0	0
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		0		0	0	16,495		0	0	16,495
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES										
143	Customer assistance expenses	908	0	None	0	0	0	None	0	0	0
144	Customer assistance expenses - ELIRP	908CAP	0	None	0	0	0	None	0	0	0
145	CRP Shortfall	480CRP	0	None	0	0	0	None	0	0	0
146	Senior Discounts	480Sen	0	None	0	0	0	None	0	0	0
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		0		0	0	0		0	0	0
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		0		0	0	16,495		0	0	16,495

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-4: Classification Results

Dollars in Thousands		Supply				Distribution					
Line	FERC Account Description	Account Code	Total	Factor	Demand	Energy	Total	Factor	Demand	Energy	Customer
149	IV. ADMINISTRATIVE & GENERAL EXPENSES										
150	A. LABOR RELATED										
151	Administrative and general salaries	920	1,184	SUPPLABOR	1,184	0	6,108	DISTLABOR	2,526	2,215	1,367
152	Office supplies and expenses	921	1,858	SUPPLABOR	1,858	0	9,585	DISTLABOR	3,964	3,476	2,145
153	Administrative expenses transferred - Credit	922	(2,014)	SUPPLABOR	(2,014)	0	(10,390)	DISTLABOR	(4,296)	(3,768)	(2,325)
154	Outside services employed	923	136	SUPPLABOR	136	0	702	DISTLABOR	290	255	157
155	Injuries and damages	925	526	SUPPLABOR	526	0	2,713	DISTLABOR	1,122	984	607
156	Employee pensions and benefits	926	9,445	SUPPLABOR	9,445	0	48,736	DISTLABOR	20,154	17,674	10,908
157	OPEB funding and expenses	999	2,172	SUPPLABOR	2,172	0	11,208	DISTLABOR	4,635	4,064	2,509
158	Subtotal - Labor Related A&G		13,307		13,307	0	68,662		28,394	24,900	15,368
159	B. PLANT RELATED										
160	Property insurance	924	155	SUPPPT	155	0	3,875	DISTPT	1,077	991	1,807
161	Subtotal - Plant Related A&G		155		155	0	3,875		1,077	991	1,807
162	C. OTHER A&G										
163	Regulatory commission expenses	928	0	None	0	0	5,157	CUST	0	0	5,157
164	Duplicate charges - Credit	929	0	None	0	0	0	None	0	0	0
165	General advertising expenses, miscellaneous	930	493	SUPPLABOR	493	0	2,546	DISTLABOR	1,053	923	570
166	Rents	931	27	SUPPLABOR	27	0	140	DISTLABOR	58	51	31
167	Subtotal - Other A&G		520		520	0	7,843		1,111	974	5,758
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		13,982		13,982	0	80,380		30,582	26,865	22,934
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		19,317		16,950	2,367	148,705		49,117	43,601	55,987
170	V. DEPRECIATION EXPENSE										
171	Depreciation expense	403	1,503	SUPPPT	1,503	0	37,675	DISTPT	10,473	9,631	17,571
172	Depreciation expense- Direct Assignment	403Direct	0	None	0	0	0	DEMAND	0	0	0
173	TOTAL DEPRECIATION EXPENSE		1,503		1,503	0	37,675		10,473	9,631	17,571
174	VI. TAXES OTHER THAN INCOME TAXES										
175	Taxes other than income taxes	408	692	SUPPLABOR	692	0	3,568	DISTLABOR	1,476	1,294	799
176	TOTAL EXPENSES		21,511		19,144	2,367	189,947		61,065	54,526	74,356

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-4: Classification Results

Dollars in Thousands		Supply				Distribution					
Line	FERC Account Description	Account Code	Total	Factor	Demand	Energy	Total	Factor	Demand	Energy	Customer
177	VII. REVENUES										
178	Distribution Revenue	480-483	32,804	COMMODITY	0	32,804	169,268	DISTO&MXG.	54,716	48,691	65,862
179	GCR Revenue	480-483GCR	0	COMMODITY	0	0	0	None	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	COMMODITY	0	17	0	None	0	0	0
181	USEC Revenue	480-483USC	0	None	0	0	0	None	0	0	0
182	REC Revenue	480-483REC	0	None	0	0	0	DISTBASE	0	0	0
183	Forfeited discounts	487	0	None	0	0	7,853	DIST_REV	2,538	2,259	3,056
184	Miscellaneous service revenue	488	0	None	0	0	1,206	DIST_REV	390	347	469
185	GTS/IT Revenue	489	0	None	0	0	12,190	DEMAND	12,190	0	0
186	Other gas revenue	495	4,634	COMMODITY	0	4,634	0	None	0	0	0
187	Revenue Adjustments	495Adj	217	COMMODITY	0	217	0	None	0	0	0
188	Subtotal - Gas Revenues		37,673		0	37,673	190,518		69,835	51,297	69,386
189	Bill paid turn ons & dig ups	903Rev	0	None	0	0	0	None	0	0	0
190	Customer installation expenses	879Rev	0	None	0	0	0	None	0	0	0
191	Subtotal - Other operating revenues		0		0	0	0		0	0	0
192	TOTAL OPERATING REVENUES		37,673		0	37,673	190,518		69,835	51,297	69,386
193	Non-operating rental income	418	10	SUPPBASE	10	0	120	DISTBASE	35	32	54
194	Interest and dividend income	419	127	SUPPBASE	127	0	1,455	DISTBASE	419	383	653
195	Miscellaneous non-operating income	421	855	DEMAND	855	0	0	None	0	0	0
196	Total Non-Operating Income		992		992	0	1,575		454	415	707
197	TOTAL REVENUE		38,665		992	37,673	192,093		70,289	51,712	70,093
198	Income Before Interest and Surplus		17,153		(18,152)	35,305	2,146		9,223	(2,814)	(4,263)
199	Interest on long-term debt	427	3,096	SUPPBASE	3,096	0	35,592	DISTBASE	10,248	9,378	15,966
200	Amortization of debt discount	428	274	SUPPBASE	274	0	3,148	DISTBASE	906	829	1,412
201	Amortization of premium on debt	429	(590)	SUPPBASE	(590)	0	(6,780)	DISTBASE	(1,952)	(1,786)	(3,041)
202	Other interest expense	431	239	SUPPBASE	239	0	2,743	DISTBASE	790	723	1,231
203	AFUDC	432	(58)	SUPPBASE	(58)	0	(666)	DISTBASE	(192)	(176)	(299)
204	Surplus Requirement	499	3,779	SUPPBASE	3,779	0	43,440	DISTBASE	12,508	11,446	19,486
205	Total Interest & Surplus		6,740		6,740	0	77,478		22,308	20,415	34,755
206	Appropriations of retained earnings	436	1,134	SUPPBASE	1,134	0	13,032	DISTBASE	3,752	3,434	5,846
207	Total Interest & Surplus, Other		7,874		7,874	0	90,510		26,061	23,849	40,600
208	Over (Under) Total Requirements		9,280		(26,026)	35,305	(88,364)		(16,837)	(26,663)	(44,864)

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-R5-21-D

Exhibit PQH-5: Functionalization Results

Dollars in Thousands

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
41	F. GENERAL PLANT									
42	Land and land rights	389	3,713	O&M	304	190	0	1,570	1,648	0
43	Structures and improvements	390	82,900	O&M	6,795	4,238	0	35,062	36,806	0
44	Office furniture and equipment	391	108,966	O&M	8,932	5,570	0	46,086	48,378	0
45	Transportation equipment	392	40,027	O&M	3,281	2,046	0	16,929	17,771	0
46	Stores equipment	393	755	O&M	62	39	0	319	335	0
47	Tools, shop and garage equipment	394	10,723	O&M	879	548	0	4,535	4,761	0
48	Power operated equipment	396	1,235	O&M	101	63	0	522	548	0
49	Communication equipment	397	20,815	O&M	1,706	1,064	0	8,803	9,241	0
50	Miscellaneous equipment	398	14,279	O&M	1,170	730	0	6,039	6,340	0
51	Subtotal - General Plant	389-399	283,413		23,230	14,487	0	119,867	125,828	0
52	TOTAL UTILITY PLANT		2,178,632		83,590	159,600	0	1,633,252	302,190	0
53	II. DEPRECIATION RESERVE									
54	Production plant	108.2	34,623	SUPP_PT	34,623	0	0	0	0	0
55	Local storage plant	108.3	95,160	STOR_PT	0	95,160	0	0	0	0
56	Mains	108.52	282,895	DIST	0	0	0	282,895	0	0
57	Mains - Direct Assignment	108.52Direct	7,574	DIST	0	0	0	7,574	0	0
58	Services	108.54	355,556	DIST	0	0	0	355,556	0	0
59	Meters	108.55	39,464	ONSITE	0	0	0	0	39,464	0
60	Distribution other	108.58	61,295	DIST	0	0	0	61,295	0	0
61	General Plant	108.8	146,255	O&M	11,988	7,476	0	61,857	64,934	0
62	Total Depreciation Reserve	108	1,022,821		46,611	102,636	0	769,177	104,397	0
63	III. OTHER RATE BASE ITEMS									
64	Completed construction - Unclassified	106	0	None	0	0	0	0	0	0
65	Construction work in progress (CWIP)	107	0	None	0	0	0	0	0	0
66	Total Other Rate Base Items		0		0	0	0	0	0	0
67	TOTAL RATE BASE (Excl. Working Capital)		1,155,811		36,979	56,964	0	864,075	197,793	0
68	IV. WORKING CAPITAL									
69	Accounts receivable - Gas	131.11	70,158	DIST	0	0	0	70,158	0	0
70	Materials and supplies	131.12	9,768	DIST	0	0	0	9,768	0	0
71	Prepaid accounts, other current assets	131.13	5,342	DIST	0	0	0	5,342	0	0
72	Gas, LNG in storage	131.14	38,344	SUPP	38,344	0	0	0	0	0
73	Accounts payable - Gas	131.15	(12,110)	DIST	0	0	0	(12,110)	0	0
74	Accounts payable, other- 50% Labor	131.16	(22,271)	DIST	0	0	0	(22,271)	0	0
75	Accounts payable, other- 50% O&MxGas	131.17	(22,271)	DIST	0	0	0	(22,271)	0	0
76	Customer deposits	131.18	(2,935)	DIST	0	0	0	(2,935)	0	0
77	Accrued interest	131.19	(15,202)	DIST	0	0	0	(15,202)	0	0
78	Accrued Taxes & Wages	131.2	(16,263)	DIST	0	0	0	(16,263)	0	0
79	Total Working Capital	131	32,561		38,344	0	0	(5,783)	0	0
80	V. TOTAL RATE BASE		1,188,371		75,323	56,964	0	858,292	197,793	0

Exhibit PQH-S: Functionalization Results

Dollars in Thousands

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

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
114	D. DISTRIBUTION EXPENSES									
115	Operation supervision and engineering	870	2,018	DIST_PT	0	0	0	1,807	211	0
116	Distribution load dispatching	871	1,650	DIST	0	0	0	1,650	0	0
117	Mains and services expenses	874	4,617	MAIN_SERV	0	0	0	4,617	0	0
118	Measuring station expenses - General	875	2,102	DIST	0	0	0	2,102	0	0
119	Measuring station expenses - Industrial	876	47	DIST	0	0	0	47	0	0
120	Measuring station expenses - City gate	877	550	DIST	0	0	0	550	0	0
121	Meter and house regulator expenses	878	18,417	ONSITE	0	0	0	0	18,417	0
122	Customer installation expenses	879	5,642	ONSITE	0	0	0	0	5,642	0
123	Customer installation expenses - Parts and Labor Plan	879PLP	3,746	ONSITE	0	0	0	0	3,746	0
124	Other expenses	880	12,935	DIST_PT	0	0	0	11,585	1,350	0
125	Rents	881	7	DIST_PT	0	0	0	6	1	0
126	Maintenance supervision and engineering	885	300	DIST_PT	0	0	0	269	31	0
127	Maintenance of mains	887	25,719	DIST	0	0	0	25,719	0	0
128	Maintenance of measuring station expenses - General	889	1,184	DIST	0	0	0	1,184	0	0
129	Maintenance of measuring station expenses - Industrial	890	6	DIST	0	0	0	6	0	0
130	Maintenance of measuring station expenses - City gate	891	487	DIST	0	0	0	487	0	0
131	Maintenance of services	892	1,800	DIST	0	0	0	1,800	0	0
132	Maintenance of meters and house regulators	893	3,810	ONSITE	0	0	0	0	3,810	0
133	Subtotal - Distribution Expenses	870-893	85,037		0	0	0	51,829	33,208	0
134	TOTAL OPERATION & MAINTENANCE EXPENSES		101,886		5,335	11,514	0	51,829	33,208	0
135	II. CUSTOMER ACCOUNTS EXPENSES									
136	Supervision	901	1,109	ONSITE	0	0	0	0	1,109	0
137	Meter reading expenses	902	785	ONSITE	0	0	0	0	785	0
138	Customer records and collection expenses	903	26,657	ONSITE	0	0	0	0	26,657	0
139	Uncollectible accounts	904	16,495	DIST	0	0	0	16,495	0	0
140	Uncollectible accounts in CRP	904CRP	10,461	USEC	0	0	0	0	0	10,461
141	TOTAL CUSTOMER ACCOUNTS EXPENSES		55,507		0	0	0	16,495	28,551	10,461
142	III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES									
143	Customer assistance expenses	908	1,617	ONSITE	0	0	0	0	1,617	0
144	Customer assistance expenses - ELIRP	908CAP	3,859	USEC	0	0	0	0	0	3,859
145	CRP Shortfall	480CRP	36,351	USEC	0	0	0	0	0	36,351
146	Senior Discounts	480Sen	2,789	USEC	0	0	0	0	0	2,789
147	TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES		44,616		0	0	0	0	1,617	42,999
148	TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES		100,123		0	0	0	16,495	30,168	53,460

Philadelphia Gas Works

Allocated Class CDS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
149	IV. ADMINISTRATIVE & GENERAL EXPENSES									
150	A. LABOR RELATED									
151	Administrative and general salaries	920	14,442	O&M	1,184	738	0	6,108	6,412	0
152	Office supplies and expenses	921	22,663	O&M	1,858	1,158	0	9,585	10,062	0
153	Administrative expenses transferred - Credit	922	(24,565)	O&M	(2,014)	(1,256)	0	(10,390)	(10,906)	0
154	Outside services employed	923	1,660	O&M	136	85	0	702	737	0
155	Injuries and damages	925	6,415	O&M	526	328	0	2,713	2,848	0
156	Employee pensions and benefits	926	115,230	O&M	9,445	5,890	0	48,736	51,159	0
157	OPEB funding and expenses	999	26,500	O&M	2,172	1,355	0	11,208	11,765	0
158	Subtotal - Labor Related A&G		162,345		13,307	8,299	0	68,662	72,077	0
159	B. PLANT RELATED									
160	Property insurance	924	4,853	PSD_PT	155	372	0	3,875	452	0
161	Subtotal - Plant Related A&G		4,853		155	372	0	3,875	452	0
162	C. OTHER A&G									
163	Regulatory commission expenses	928	5,157	DIST	0	0	0	5,157	0	0
164	Duplicate charges - Credit	929	(913)	STOR	0	(913)	0	0	0	0
165	General advertising expenses, miscellaneous	930	6,020	O&M	493	308	0	2,546	2,673	0
166	Rents	931	330	O&M	27	17	0	140	147	0
167	Subtotal - Other A&G		10,594		520	(588)	0	7,843	2,819	0
168	TOTAL ADMINISTRATIVE & GENERAL EXPENSES		177,792		13,982	8,082	0	80,380	75,348	0
169	TOTAL OPERATING EXPENSES (Excluding Dep, Tax)		379,801		19,317	19,596	0	148,705	138,723	53,460
170	V. DEPRECIATION EXPENSE									
171	Depreciation expense	403	47,180	PSD_PT	1,503	3,612	0	37,675	4,390	0
172	Depreciation expense- Direct Assignment	403Direct	0	DIST	0	0	0	0	0	0
173	TOTAL DEPRECIATION EXPENSE		47,180		1,503	3,612	0	37,675	4,390	0
174	VI. TAXES OTHER THAN INCOME TAXES									
175	Taxes other than income taxes	408	8,437	O&M	692	431	0	3,568	3,746	0
176	TOTAL EXPENSES		435,418		21,511	23,639	0	189,947	146,860	53,460

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D
Exhibit PQH-5: Functionalization Results

Dollars in Thousands

Line	FERC Account Description	Account Code	Total	Factor	Supply	Storage	Transmission	Distribution	Onsite	USEC
177	VII, REVENUES									
178	Distribution Revenue	480-483	400,217	O&M	32,804	20,458	0	169,268	177,687	0
179	GCR Revenue	480-483GCR	0	GCR_REV	0	0	0	0	0	0
180	Interruptible Gas Revenue	480-483Int	17	SUPP	17	0	0	0	0	0
181	USEC Revenue	480-483USC	53,687	USEC	0	0	0	0	0	53,687
182	REC Revenue	480-483REC	0	DIST	0	0	0	0	0	0
183	Forfeited discounts	487	7,853	DIST	0	0	0	7,853	0	0
184	Miscellaneous service revenue	488	1,206	DIST	0	0	0	1,206	0	0
185	GTS/IT Revenue	489	12,190	DIST	0	0	0	12,190	0	0
186	Other gas revenue	495	4,634	SUPP	4,634	0	0	0	0	0
187	Revenue Adjustments	495Adj	217	SUPP	217	0	0	0	0	0
188	Subtotal - Gas Revenues		480,022		37,673	20,458	0	190,518	177,687	53,687
189	Bill paid turn ons & dig ups	903Rev	1,883	ONSITE	0	0	0	0	1,883	0
190	Customer installation expenses	879Rev	6,382	ONSITE	0	0	0	0	6,382	0
191	Subtotal - Other operating revenues		8,265		0	0	0	0	8,265	0
192	TOTAL OPERATING REVENUES		488,287		37,673	20,458	0	190,518	185,952	53,687
193	Non-operating rental income	418	166	RATEBASE	10	8	0	120	27	0
194	Interest and dividend income	419	2,010	RATEBASE	127	96	0	1,455	332	0
195	Miscellaneous non-operating income	421	855	SUPP	855	0	0	0	0	0
196	Total Non-Operating Income		3,031		992	104	0	1,575	360	0
197	TOTAL REVENUE		491,318		38,665	20,561	0	192,093	186,312	53,687
198	Income Before Interest and Surplus		55,899		17,153	(3,078)	0	2,146	39,452	226
199	Interest on long-term debt	427	49,160	RATEBASE	3,096	2,342	0	35,592	8,130	0
200	Amortization of debt discount	428	4,348	RATEBASE	274	207	0	3,148	719	0
201	Amortization of premium on debt	429	(9,364)	RATEBASE	(590)	(446)	0	(6,780)	(1,549)	0
202	Other interest expense	431	3,789	RATEBASE	239	180	0	2,743	627	0
203	AFUDC	432	(920)	RATEBASE	(58)	(44)	0	(666)	(152)	0
204	Surplus Requirement	499	60,000	RATEBASE	3,779	2,858	0	43,440	9,923	0
205	Total Interest & Surplus		107,013		6,740	5,097	0	77,478	17,698	0
206	Appropriations of retained earnings	436	18,000	RATEBASE	1,134	857	0	13,032	2,977	0
207	Total Interest & Surplus, Other		125,013		7,874	5,954	0	90,510	20,675	0
208	Over (Under) Total Requirements		(69,114)		9,280	(9,032)	0	(88,364)	18,777	226
209	Tariff Revenue Requirements		535,225		23,542	29,490	0	269,823	158,910	53,460

Philadelphia Gas Works
Allocated Class COS Study ~ Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-C
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Functionalization		Classification Factor					Allocation Factor								
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer	
1	I. GAS PLANT IN SERVICE																
2	A. INTANGIBLE PLANT	301-303															
3	B. PRODUCTION PLANT																
4	Land and land rights	304	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
5	Structures and improvements	305	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
6	Boiler plant equipment	306	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
7	Other power equipment	307	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
8	LPG equipment	311	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
9	Purification equipment	317	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
10	Residual refining equipment	318	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
11	Gas mixing equipment	319	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
12	Other equipment	320	SUPP	DEMAND	None	None	None	None	None	DesDay-Supp							
13	Subtotal - Production Plant	304-347															
14	C. STORAGE AND PROCESSING PLANT																
15	Land and land rights	360	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
16	Structures and improvements	361	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
17	Gas holders	362	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
18	Purification equipment	363	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
19	Liquefaction equipment	363.1	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
20	Vaporizing equipment	363.2	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
21	Compressor equipment	363.3	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
22	Measuring and regulating equipment	363.4	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
23	Other equipment	363.5	STOR	None	DEMAND	None	None	None	None	DesDay-Supp							
24	Subtotal - Storage and Processing Plant	360-364															
25	D. TRANSMISSION PLANT	365-371															
26	E. DISTRIBUTION PLANT																
27	Land and land rights	374	DIST	None	None	DEMAND	None	None	None	DistPt-D							
28	Structures and improvements	375	DIST	None	None	DEMAND	None	None	None	DistPt-D							
29	Mains	376	DIST	None	None	MAINS	None	None	None	DesDay-Mains	Deliveries_Firm						
30	Mains - Direct Assignment	376Direct	DIST	None	None	DEMAND	None	None	None	GTS							
31	Compressor station equipment	377	DIST	None	None	DEMAND	None	None	None	DesDay-Mains							
32	Measuring station equipment - General	378	DIST	None	None	DEMAND	None	None	None	DesDay-Mains							
33	Services	380	DIST	None	None	CUST	None	None	None				Service_Invest				
34	Meters	381	ONSITE	None	None	None	CUST	None	None						Meter_Invest		
35	Meter installations	382	ONSITE	None	None	None	CUST	None	None						Meter_Invest		
36	House regulators	383	ONSITE	None	None	None	CUST	None	None						Cust_Small		
37	House regulator installations	384	ONSITE	None	None	None	CUST	None	None						Cust_Small		
38	Measuring station equipment - Industrial	385	DIST	None	None	DEMAND	None	None	None	Cust_Ind							
39	Other equipment	387	DIST	None	None	DEMAND	None	None	None	DistPt-D							
40	Subtotal - Distribution Plant	374-387															

Philadelphia Gas Works
Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-C
Exhibit PQH-6: Summary of Factors Used

Line	FERC Account Description	Functionalization		Classification Factor					Allocation Factor								
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer	
41	F. GENERAL PLANT																
42	Land and land rights	389	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
43	Structures and improvements	390	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
44	Office furniture and equipment	391	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
45	Transportation equipment	392	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
46	Stores equipment	393	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
47	Tools, shop and garage equipment	394	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
48	Power operated equipment	396	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
49	Communication equipment	397	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
50	Miscellaneous equipment	398	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
51	Subtotal - General Plant	389-399															
52	TOTAL UTILITY PLANT																
53	II. DEPRECIATION RESERVE																
54	Production plant	108.2	SUPP_PT	SUPPPT	None	None	None	None	SuppPt-D								
55	Local storage plant	108.3	STOR_PT	None	STORPT	None	None	None			StorPt-D						
56	Mains	108.52	DIST	None	None	MAINS	None	None				DesDay-Mains	Deliveries_Firm				
57	Mains - Direct Assignment	108.52Direct	DIST	None	None	DEMAND	None	None				GTS					
58	Services	108.54	DIST	None	None	CUST	None	None						Service_invest			
59	Meters	108.55	ONSITE	None	None	None	CUST	None							Meter_invest		
60	Distribution other	108.58	DIST	None	None	DEMAND	None	None				DistPt-D					
61	General Plant	108.8	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSilab-C		
62	Total Depreciation Reserve	108															
63	III. OTHER RATE BASE ITEMS																
64	Completed construction - Unclassified	106	None	None	None	None	None	None				BaseRate_Rev	BaseRate_Rev	BaseRate_Rev			
65	Construction work in progress (CWIP)	107	None	None	None	None	None	None				DistOMxG-D	DistOMxG-E	DistOMxG-C			
66	Total Other Rate Base Items																
67	TOTAL RATE BASE (Excl. Working Capital)																
68	IV. WORKING CAPITAL																
69	Accounts receivable - Gas	131.11	DIST	None	None	DIST_REV	None	None				BaseRate_Rev	BaseRate_Rev	BaseRate_Rev			
70	Materials and supplies	131.12	DIST	None	None	DISTO&MXGAS	None	None				DistOMxG-D	DistOMxG-E	DistOMxG-C			
71	Prepaid accounts, other current assets	131.13	DIST	None	None	DISTO&MXGAS	None	None				DistOMxG-D	DistOMxG-E	DistOMxG-C			
72	Gas, LNG in storage	131.14	SUPP	COMMODITY	None	None	None	None									
73	Accounts payable - Gas	131.15	DIST	None	None	COMMODITY	None	None	Winter3					Thruput			
74	Accounts payable, other- 50% Labor	131.16	DIST	None	None	DISTLABOR	None	None				DistLab-D	DistLab-E	DistLab-C			
75	Accounts payable, other- 50% O&MxGas	131.17	DIST	None	None	DISTO&MXGAS	None	None				DistOMxG-D	DistOMxG-E	DistOMxG-C			
76	Customer deposits	131.18	DIST	None	None	DIST_REV	None	None				BaseRate_Rev	BaseRate_Rev	BaseRate_Rev			
77	Accrued interest	131.19	DIST	None	None	DISTPT	None	None				Ratebase	Ratebase	Ratebase			
78	Accrued Taxes & Wages	131.2	DIST	None	None	DISTO&MXGAS	None	None				DistOMxG-D	DistOMxG-E	DistOMxG-C			
79	Total Working Capital	131															
80	V. TOTAL RATE BASE																

FERC Account Description	Functionalization		Classification Factor					Allocation Factor							
	Account Code	Factor	Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
1. OPERATION & MAINTENANCE EXPENSE															
A. PRODUCTION EXPENSES															
1. Manufactured Gas Production Expenses															
Operation labor and expenses	701	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Boiler fuel	702	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Miscellaneous steam expenses	703	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Maintenance of structures	706	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Maintenance of boiler plant equipment	707	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Maintenance of other production plant	708	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Operation supervision and engineering	710	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Other power expenses	712	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Duplicate charges - Credit	734	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Miscellaneous production expenses	735	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Maintenance supervision and engineering	740	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Maintenance of structures	741	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Maintenance of production equipment	742	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
Subtotal - Manufactured Gas Production	701-743														
2. Other Gas Supply Expenses															
Natural gas city gate purchases	804	SUPP	COMMODITY	None	None	None	None	Gas_Sales_Interr							
Purchased gas expenses	807	SUPP	COMMODITY	None	None	None	None	Gas_Sales_Firm							
Gas withdrawn from storage	808	SUPP	COMMODITY	None	None	None	None	Gas_Sales_Firm							
Gas used for other utility operations	812	SUPP	COMMODITY	None	None	None	None	Gas_Sales_Firm							
LNG used for other utility operations	812LNG	SUPP	COMMODITY	None	None	None	None	Gas_Sales_Firm							
Other gas supply expenses	813	SUPP	COMMODITY	None	None	None	None	Gas_Sales_Firm							
Subtotal - Production Expenses	701-813														
B. NATURAL GAS STORAGE, TERMINALING & PROCESSING EXPENSES															
Operation supervision and engineering	840	STOR	None	DEMAND	None	None	None			DesDay-Supp					
Operation labor and expenses	841	STOR	None	DEMAND	None	None	None			DesDay-Supp					
Rents	842	STOR	None	DEMAND	None	None	None			DesDay-Supp					
Maintenance	843	STOR	None	DEMAND	None	None	None			DesDay-Supp					
Operation supervision and engineering	850	STOR	None	DEMAND	None	None	None			DesDay-Supp					
Subtotal - Storage Expenses	840-850														
C. TRANSMISSION EXPENSES															
D. DISTRIBUTION EXPENSES															
Operation supervision and engineering	870	DIST_PT	None	None	DISTPT	CUST	None			DistLab-D	DistLab-E	DistLab-C	OnSiLab-C		
Distribution load dispatching	871	DIST	None	None	COMMODITY	None	None				Thruput				
Mains and services expenses	874	MAIN_SERVICE	None	None	MAIN&SERVICE	None	None			DistMS-D	Deliveries_Firm	DistMS-C			
Measuring station expenses - General	875	DIST	None	None	DEMAND	None	None			DesDay-Mains					
Measuring station expenses - Industrial	876	DIST	None	None	DEMAND	None	None			Cust_Ind					
Measuring station expenses - City gate	877	DIST	None	None	DEMAND	None	None			DesDay-Mains					
Meter and house regulator expenses	878	ONSITE	None	None	None	CUST	None						OnSi-MR-C		
Customer installation expenses	879	ONSITE	None	None	None	CUST	None						Cust_Premises		
Customer installation expenses - Parts and Labor Plan	879PLP	ONSITE	None	None	None	CUST	None						Cust_Res		
Other expenses	880	DIST_PT	None	None	CUST	CUST	None					DistPt-C	OnSiPt-C		
Rents	881	DIST_PT	None	None	DISTPT	CUST	None			DistLab-D	DistPt-E	DistLab-C	OnSiLab-C		
Maintenance supervision and engineering	885														

FERC Account Description	Functionalization		Classification Factor					Allocation Factor							
	Account Code	Factor	Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
II. CUSTOMER ACCOUNTS EXPENSES															
Supervision	901	ONSITE	None	None	None	CUST	None							Account903	
Meter reading expenses	902	ONSITE	None	None	None	CUST	None							MeterRead	
Customer records and collection expenses	903	ONSITE	None	None	None	CUST	None							Account903	
Uncollectible accounts	904	DIST	None	None	CUST	None	None								
Uncollectible accounts in CRP	904CRP	USEC	None	None	None	None	CUST						WriteOff-Dol		
TOTAL CUSTOMER ACCOUNTS EXPENSES															
III. CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
Customer assistance expenses	908	ONSITE	None	None	None	CUST	None							Account908	
Customer assistance expenses - ELIRP	908CAP	USEC	None	None	None	None	CUST								USEC_Rev
CRP Shortfall	480CRP	USEC	None	None	None	None	CUST								USEC_Rev
Senior Discounts	480Sen	USEC	None	None	None	None	CUST								USEC_Rev
TOTAL CUSTOMER SERVICE & INFORMATIONAL EXPENSES															
TOTAL CUSTOMER ACCOUNTS, SERVICE & INFORMATIONAL EXPENSES															
IV. ADMINISTRATIVE & GENERAL EXPENSES															
A. LABOR RELATED															
Administrative and general salaries	920	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Office supplies and expenses	921	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Administrative expenses transferred - Credit	922	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Outside services employed	923	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Injuries and damages	925	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Employee pensions and benefits	926	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
OPEB funding and expenses	999	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Subtotal - Labor Related A&G															
B. PLANT RELATED															
Property insurance	924	PSD_PT	SUPPPT	STORPT	DISTPT	CUST	None	SuppPt-D		StorPt-D	DistPt-D	DistPt-E	DistPt-C	OnsPt-C	
Subtotal - Plant Related A&G															
C. OTHER A&G															
Regulatory commission expenses	928	DIST	None	None	CUST	None	None							Ratebase	
Duplicate charges - Credit	929	STOR	None	DEMAND	None	None	None			DesDay-Supp					
General advertising expenses, miscellaneous	930	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Rents	931	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	Supplab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnsLab-C	
Subtotal - Other A&G															
TOTAL ADMINISTRATIVE & GENERAL EXPENSES															
TOTAL OPERATING EXPENSES (Excluding Dep, Tax)															
V. DEPRECIATION EXPENSE															
Depreciation expense	403	PSD_PT	SUPPPT	STORPT	DISTPT	CUST	None	SuppPt-D		StorPt-D	DistPt-D	DistPt-E	DistPt-C	OnsPt-C	
Depreciation expense- Direct Assignment	403Direct	DIST	None	None	DEMAND	None	None				GTS				
TOTAL DEPRECIATION EXPENSE															

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Line	FERC Account Description	Functionalization		Classification Factor					Allocation Factor							
				Supply	Storage	Distribution	Onsite	USEC	Supply Demand	Supply Commodity	Storage Demand	Distribution Demand	Distribution Commodity	Distribution Customer	Onsite Customer	USEC Customer
174	VI. TAXES OTHER THAN INCOME TAXES															
175	Taxes other than income taxes	408	O&M	SUPPLABOR	STORLABOR	DISTLABOR	CUST	None	SupLab-D		StorLab-D	DistLab-D	DistLab-E	DistLab-C	OnSiteLab-C	
176	TOTAL EXPENSES															
177	VII. REVENUES															
178	Distribution Revenue	480-483	O&M	COMMODITY	DEMAND	DISTO&MXGAS	CUST	CUST		Dist_Rev	Dist_Rev	Dist_Rev	Dist_Rev	Dist_Rev	Dist_Rev	
179	GCR Revenue	480-483GCR	GCR_REV	COMMODITY	None	None	None	None		GCR_Revenue						
180	Interruptible Gas Revenue	480-483Int	SUPP	COMMODITY	None	None	None	None		InterGas_Rev						
181	USEC Revenue	480-483USEC	USEC	None	None	None	None	CUST								USEC_Rev
182	REC Revenue	480-483REC	DIST	None	None	DISTBASE	None	None				REC_Rev	REC_Rev	REC_Rev		
183	Forfeited discounts	487	DIST	None	None	DIST_REV	None	None				Over60-Dol	Over60-Dol	Over60-Dol		
184	Miscellaneous service revenue	488	DIST	None	None	DIST_REV	None	None				BaseRate_Rev	BaseRate_Rev	BaseRate_Rev		
185	GTS/IT Revenue	489	DIST	None	None	DEMAND	None	None				GTS				
186	Other gas revenue	495	SUPP	COMMODITY	None	None	None	None		GCR_Revenue						
187	Revenue Adjustments	495Adj	SUPP	COMMODITY	None	None	None	None		GCR_Revenue						
188	Subtotal - Gas Revenues															
189	Bill paid turn ons & dig ups	903Rev	ONSITE	None	None	None	CUST	None							Cust_Avg	
190	Customer installation expenses	879Rev	ONSITE	None	None	None	CUST	None							Cust_Res	
191	Subtotal - Other operating revenues															
192	TOTAL OPERATING REVENUES															
193	Non-operating rental income	418	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
194	Interest and dividend income	419	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
195	Miscellaneous non-operating income	421	SUPP	DEMAND	None	None	None	None	DesDay-Supp							
196	Total Non-Operating income															
197	TOTAL REVENUE															
198	Income Before Interest and Surplus															
199	Interest on long-term debt	427	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
200	Amortization of debt discount	428	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
201	Amortization of premium on debt	429	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
202	Other interest expense	431	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
203	AFUDC	432	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
204	Surplus Requirement	499	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
205	Total Interest & Surplus															
206	Appropriations of retained earnings	436	RATEBASE	SUPPBASE	STORBASE	DISTBASE	CUST	None	Ratebase		Ratebase	Ratebase	Ratebase	Ratebase	Ratebase	
207	Total Interest & Surplus, Other															

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-7A: Functionalization Factor Values

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

Philadelphia Gas Works**Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D****Exhibit PQH-7B: Classification Factor Values**

Allocator Name	Demand	Commodity	Customer
External Factors			
DEMAND	100.0%	0.0%	0.0%
COMMODITY	0.0%	100.0%	0.0%
CUST	0.0%	0.0%	100.0%
MAINS	50.0%	50.0%	0.0%
Distribution Plant-Related Factors			
DISTPT	27.8%	25.6%	46.6%
MAIN&SERVICE	26.1%	26.1%	47.7%
Distribution Labor and Expense-Related Factors			
DISTLABOR	41.4%	36.3%	22.4%
DISTO&MXGAS	32.3%	28.8%	38.9%
Distribution Revenue Factor			
DIST_REV	32.3%	28.8%	38.9%
Distribution Rate Base Factor			
DISTBASE	28.8%	26.3%	44.9%
Supply Labor and Expense-Related Factors			
SUPPLABOR	100.0%	0.0%	0.0%
SUPPO&M	85.6%	14.4%	0.0%
SUPPO&MXGAS	100.0%	0.0%	0.0%
Supply Plant-Related Factors			
SUPPPT	100.0%	0.0%	0.0%
SUPPBASE	100.0%	0.0%	0.0%
Storage-Related Factors			
STORLABOR	100.0%	0.0%	0.0%
STORPT	100.0%	0.0%	0.0%
STORBASE	100.0%	0.0%	0.0%

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-7C: Allocation Factor Values

Allocator Name	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA G5	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
DesDay-Supp	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
Gas_Sales_Interr	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%
Gas_Sales_Firm	0.99%	79.98%	2.26%	14.01%	0.24%	0.65%	0.30%	1.07%	0.39%	0.10%	0.00%	0.00%	0.00%
BaseRate_Rev	1.56%	79.78%	2.23%	13.25%	0.39%	0.79%	0.20%	0.83%	0.32%	0.65%	0.00%	0.00%	0.00%
GCR_Revenue	0.99%	80.00%	2.25%	14.01%	0.24%	0.65%	0.30%	1.07%	0.39%	0.10%	0.00%	0.00%	0.00%
InterGas_Rev	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%
GTS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
DesDay-Mains	0.59%	64.68%	1.90%	15.00%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.34%
Cust_Ind	0.00%	0.00%	0.00%	0.00%	27.96%	72.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Over60-Dol	1.80%	98.05%	0.02%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Thruput	0.56%	45.84%	1.94%	12.01%	0.36%	0.72%	0.25%	1.08%	0.22%	0.67%	0.01%	0.02%	36.31%
Gas_Sales	0.99%	79.95%	2.26%	14.01%	0.24%	0.65%	0.30%	1.07%	0.39%	0.10%	0.00%	0.04%	0.00%
Winter3	0.82%	81.52%	1.66%	13.12%	0.22%	0.68%	0.30%	1.17%	0.40%	0.08%	0.00%	0.02%	0.00%
Cust_Avg	3.88%	90.20%	0.95%	4.04%	0.04%	0.09%	0.06%	0.11%	0.37%	0.18%	0.00%	0.00%	0.08%
Service_Invest	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
WriteOff-Dol	1.74%	94.80%	0.49%	2.82%	0.02%	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Meter_Invest	3.16%	73.44%	3.65%	15.54%	0.20%	0.52%	0.23%	0.65%	0.30%	1.05%	0.00%	0.00%	1.25%
Cust_Small	4.11%	95.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%	0.00%	0.00%
Cust_Premises	3.20%	74.37%	3.69%	15.73%	0.21%	0.53%	0.23%	0.66%	0.31%	1.06%	0.00%	0.00%	0.00%
Cust_Res	4.13%	95.87%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Account903	2.91%	83.46%	2.06%	9.86%	0.16%	0.35%	0.11%	0.38%	0.28%	0.30%	0.00%	0.00%	0.13%
MeterRead	2.81%	84.86%	1.51%	8.15%	0.17%	0.38%	0.14%	0.47%	0.36%	0.33%	0.00%	0.00%	0.84%
Account908	3.51%	81.69%	0.44%	1.88%	3.39%	8.74%	0.03%	0.05%	0.17%	0.08%	0.00%	0.00%	0.02%
Deliveries_Firm	0.89%	71.78%	3.08%	19.00%	0.58%	1.14%	0.39%	1.72%	0.35%	1.05%	0.01%	0.00%	0.00%
USEC_Rev	0.89%	71.79%	3.07%	19.01%	0.58%	1.14%	0.39%	1.72%	0.35%	1.05%	0.01%	0.00%	0.00%
CustChg_Rev	3.77%	87.58%	1.38%	5.88%	0.14%	0.37%	0.09%	0.16%	0.36%	0.26%	0.00%	0.00%	0.00%
Dist_Rev	1.52%	79.21%	2.30%	13.68%	0.40%	0.82%	0.21%	0.87%	0.32%	0.67%	0.00%	0.00%	0.00%
DeliveryChg_Rev	0.95%	77.13%	2.53%	15.63%	0.47%	0.93%	0.24%	1.03%	0.31%	0.77%	0.00%	0.00%	0.00%
SuppLab-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
SuppPt-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
Ratebase	2.05%	76.50%	2.24%	13.01%	0.34%	0.79%	0.24%	1.13%	0.34%	0.88%	0.00%	0.01%	2.47%
StorLab-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
StorPt-D	0.68%	74.65%	2.19%	17.31%	0.40%	1.04%	0.33%	1.95%	0.36%	1.07%	0.00%	0.00%	0.00%
DistPt-D	0.58%	63.45%	1.86%	14.71%	0.37%	0.94%	0.28%	1.66%	0.31%	0.91%	0.00%	0.01%	14.91%
DistLab-D	0.59%	64.68%	1.90%	15.00%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.34%
DistLab-E	0.83%	67.46%	2.89%	17.84%	0.54%	1.07%	0.37%	1.61%	0.33%	0.99%	0.01%	0.00%	6.05%
DistLab-C	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
OnSiLab-C	3.16%	79.73%	2.59%	11.44%	0.42%	1.06%	0.15%	0.47%	0.27%	0.63%	0.00%	0.00%	0.07%
LABOR	2.27%	75.69%	2.43%	13.06%	0.41%	1.00%	0.22%	0.94%	0.30%	0.77%	0.00%	0.00%	2.91%
DistMS-D	0.59%	64.68%	1.90%	15.00%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.34%
DistOMxG-D	0.59%	64.65%	1.90%	14.99%	0.35%	0.90%	0.29%	1.69%	0.31%	0.93%	0.00%	0.01%	13.38%
DistOMxG-E	0.84%	67.94%	2.91%	17.97%	0.55%	1.08%	0.37%	1.62%	0.33%	0.99%	0.01%	0.00%	5.38%
DistOMxG-C	2.90%	87.74%	1.16%	5.54%	0.13%	0.35%	0.07%	0.40%	0.24%	0.55%	0.00%	0.01%	0.90%
DistPt-E	0.89%	71.78%	3.08%	19.00%	0.58%	1.14%	0.39%	1.72%	0.35%	1.05%	0.01%	0.00%	0.00%
DistPt-C	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
DistMS-C	3.69%	85.76%	1.35%	5.76%	0.16%	0.40%	0.09%	0.50%	0.35%	0.80%	0.00%	0.01%	1.12%
OnSiPt-C	3.19%	74.23%	3.52%	14.98%	0.20%	0.51%	0.22%	0.63%	0.31%	1.01%	0.00%	0.00%	1.21%
OnSi-MR-C	3.23%	75.14%	3.56%	15.16%	0.20%	0.51%	0.22%	0.64%	0.31%	1.02%	0.00%	0.00%	0.00%

Philadelphia Gas Works

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

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Philadelphia Gas Works

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

Number of Customers by Rate Class and Month

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

Notes:

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

Philadelphia Gas Works

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

Development of Customer-Related Allocators

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

Notes:

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

Philadelphia Gas Works

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

Sendout by Rate Class and Month, mcf

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

Notes:

The term "sales" refers to the amount of gas that arrives at the customer premises, while the term "sendout" is equal to sales plus system losses.

The Sendout allocator is annual throughput volumes for each rate class, which represents volumes on mains.

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

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

Notes:

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

Philadelphia Gas Works

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

Sales-Related Allocators, mcf

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

Notes:

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

Philadelphia Gas Works

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

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

Notes:

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

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

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

Notes:

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

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

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

Notes:

[A]: Design Day Supply allocator + Interruptible

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

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

Notes:

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

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

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

Notes:

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

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

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

Notes:

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

Service Costs for 2015-2016

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

Source: PGW

Philadelphia Gas Works

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

Meter Installation Costs Allocator

Class	Use	Meter Type	Base Meter Cost, \$	Factor	Meter Cost, \$	Customers	Total Cost Excluding Interruptible & GTS/IT	
							Total Cost, \$	Customers, \$
			[A]	[B]	[C]	[D]	[E]	[F]
						[B] x [C]	[D] x [E]	[G]
Residential	Non-Heat	1	257	1.0	257	19,496	5,008,671	5,008,671
Residential	Heat	1	257	1.0	257	453,105	116,409,076	116,409,076
Commercial	Non-Heat	2	1,214	1.0	1,214	4,762	5,781,925	5,781,925
Commercial	Heat	2	1,214	1.0	1,214	20,283	24,627,618	24,627,618
Industrial	Non-Heat	2	1,214	1.5	1,821	177	322,365	322,365
Industrial	Heat	2	1,214	1.5	1,821	456	830,499	830,499
Municipal	Non-Heat	2	1,214	1.0	1,214	300	364,254	364,254
Municipal	Heat	2	1,214	1.5	1,821	568	1,034,481	1,034,481
PHA	GS	1	257	1.0	257	1,863	478,631	478,631
PHA	Rate 8	2	1,214	1.5	1,821	911	1,659,936	1,659,936
NGVS	Non-Heat	2	1,214	1.0	1,214	4	4,857	4,857
Interruptible	Sales	3	1,668	1.0	1,668	4	6,671	0
GTS/IT		4	4,669	1.0	4,669	425	1,984,321	0

Notes:

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

Installed Meters: FY 2016 Actual Costs

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

Source: PGW

FY 2016 Average Meter Cost by Meter Type

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

Philadelphia Gas Works

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

Meter Reading Costs Allocator

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

Sources:

[A]: Tariff Revenue Allocator

[B]: Average Customers Allocator

[C]: Meter Reading Scrap/Special x [A]

[D]: Meter Reading AMR x [B]

[E]: [C] + [D]

Notes:

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

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

Account Description	Total, \$ Sub Allocator	Residential Non-Heat	Residential Heat	Commercial Non-Heat	Commercial Heat	Industrial Non-Heat	Industrial Heat	Municipal Non-Heat	Municipal Heat	PHA G5	PHA Rate 8	NGVS Non-Heat	Interruptible Sales	GTS/IT
Account Management	1,509,000 Cust_Res	62,249	1,446,751											
Account Management - Bill Preparation Office	4,270,000 Cust_Avg	165,711	3,851,382	40,477	172,408	1,504	3,876	2,550	4,828	15,835	7,747	34	34	3,612
Account Management - Mail Receipts	1,409,000 Cust_Avg	54,681	1,270,866	13,356	56,891	496	1,279	841	1,593	5,225	2,556	11	11	1,192
Commercial Resource Center	1,276,000 Cust_Comm_Ind			232,779	991,503	8,652	22,290							20,775
Collection - Revenue - Bill Paid Turn Ons & Dig Ups	-1,883,000 Over60-Dol	-33,915	-1,846,367	-403	-2,305	-1	-9							
Collection - Field	155,000 Over60-Dol	2,792	151,985	33	190	0	1							
Collection - Office	4,265,000 Over60-Dol	76,818	4,182,025	912	5,222	3	20							
Customer Service - CRP Other Expenses	4,457,000 Deliveries_Firm	39,470	3,199,144	137,419	847,047	25,721	50,984	17,578	76,579	15,644	46,840	575		
Customer Service - District Offices - Labor	1,767,000 Cust_xl	68,633	1,595,131	16,764	71,406	623	1,605	1,056	2,000	6,559	3,209	14		
Customer Service - Indirect Field Expenses	9,000 Cust_Avg	349	8,118	85	363	3	8	5	10	33	16	0	0	8
Customer Service - Telephone Service	5,649,000 Cust_Avg	219,228	5,095,189	53,549	228,087	1,990	5,128	3,374	6,387	20,950	10,249	45	45	4,779
Field Services - Collections	312,000 Over60-Dol	5,620	305,930	67	382	0	1							
Field Services - Meter Investigating Unit (MIU)	161,000 MeterRead	4,521	136,617	2,432	13,115	276	608	219	761	573	524	4	3	1,349
VP Regulatory Compliance & Customer Programs - DRU	1,418,000 Cust_Avg	55,030	1,278,984	13,442	57,254	500	1,287	847	1,603	5,259	2,573	11	11	1,200
Allocator	Account903	721,186	20,675,755	510,913	2,441,562	39,768	87,079	26,470	93,761	70,078	73,714	694	104	32,915

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

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

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

Notes:

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

Philadelphia Gas Works

Allocated Class COS Study — Fully Projected Future Test Year Ended August 31, 2018 - For I&E-RS-21-D

Exhibit PQH-9: Proposed Delivery Charges

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

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

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

Sources and Notes:

Projected delivery volumes and customer counts provided by PGW.

Total ITA-ITE customer revenues are allocated to each subclass by the share of current revenue for each subclass.

[11]: [9] / [10]

Philadelphia Gas Works

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

Exhibit PQH-10: Computation of the Gas Procurement Charge

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

Sources:

[1]: PGW

[2]: PGW

[3]: [1] + [2]

[4]: PGW

[5]: [3]/[4]

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

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

Sources:

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

Philadelphia Gas Works
R-2017-2586783
Allocated Class COS Study - Fully Projected Future Test Year Ending August 31, 2018
I&E Customer Cost Analysis

Line No.	Description	Total	Residential	Commercial	Industrial	PHA GS	Municipal PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	Supply									
2	Demand Costs	\$26,026	\$19,855	\$4,749	\$351	\$93	\$786	\$0	\$0	\$192
3	Commodity Costs	(\$2,482)	(\$2,024)	(\$405)	(\$21)	(\$9)	(\$37)	\$0	\$14	\$0
4	Total Supply	\$23,544	\$17,831	\$4,344	\$330	\$84	\$749	\$0	\$14	\$192
5	Storage									
6	Demand Costs	\$29,492	\$22,405	\$5,503	\$407	\$107	\$925	\$0	\$0	\$145
7	Total Storage	\$29,492	\$22,405	\$5,503	\$407	\$107	\$925	\$0	\$0	\$145
8	Distribution									
9	Demand Costs	\$83,742	\$56,948	\$14,113	\$1,106	\$277	\$2,338	\$2	\$5	\$8,953
10	Commodity Costs	\$75,349	\$53,717	\$15,006	\$1,160	\$260	\$2,167	\$6	\$2	\$3,031
11	Customer Costs	\$69,959	\$57,950	\$8,396	\$630	\$253	\$1,356	\$3	\$5	\$1,366
12	Total Distribution	\$229,050	\$168,615	\$37,515	\$2,896	\$790	\$5,861	\$11	\$12	\$13,350
13	Onsite									
14	Customer Costs	\$143,782	\$117,105	\$21,713	\$1,783	\$425	\$2,111	\$3	\$1	\$641
15	Total Onsite	\$143,782	\$117,105	\$21,713	\$1,783	\$425	\$2,111	\$3	\$1	\$641
16	USEC									
17	Customer USEC Costs	\$53,464	\$38,852	\$11,807	\$920	\$189	\$1,690	\$6	\$0	\$0
18	Total USEC	\$53,464	\$38,852	\$11,807	\$920	\$189	\$1,690	\$6	\$0	\$0
19	Tariff Revenue Requirement									
20	Demand Costs	\$139,260	\$99,208	\$24,365	\$1,864	\$477	\$4,049	\$2	\$5	\$9,290
21	Commodity Costs	\$72,867	\$51,693	\$14,601	\$1,139	\$251	\$2,130	\$6	\$16	\$3,031
22	Customer Costs	\$213,741	\$175,055	\$30,109	\$2,413	\$678	\$3,467	\$6	\$6	\$2,007
23	Customer USEC Costs	\$53,464	\$38,852	\$11,807	\$920	\$189	\$1,690	\$6	\$0	\$0
24	Tariff Revenue Requirement	\$479,332	\$364,808	\$80,882	\$6,336	\$1,595	\$11,336	\$20	\$27	\$14,328
25	Customer Months	6,028,249	5,671,204	300,544	7,596	22,356	21,353	48	48	5,100
26	I&E Customer-Related Costs, \$/Month	\$35.46	\$30.87	\$100.18	\$317.67	\$30.33	\$162.37	\$125.00	\$125.00	\$393.53

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Docket No. R-2012-2290597

PPL Electric Utilities Corporation

Exhibit JMK 5

Residential Customer Charge

PPL ELECTRIC UTILITIES CORPORATION
COST OF SERVICE SUMMARY - RS CUSTOMER CHARGE
REVENUE REQUIREMENTS
(\$1,000)

Customer Class: RS	Rate Class	Total	Total								
	Total	Demand	Customer	Meters	Services	Meter Reading	Other Cust Exps	Total Direct ¹	Allocated Costs ²	Total Customer Charge	Excluded Expenses
Rate Base:											
Plant in Service	3,391,885	836,767	2,555,118	171,016	497,616			668,632	1,886,486	2,555,118	
Depreciation Reserve	1,249,089	280,412	968,677	94,731	241,367			336,098	632,579	968,677	
Net Plant	2,142,796	556,355	1,586,441	76,285	256,249			332,534	1,253,907	1,586,441	
Subtractive Adjustments	501,254	125,655	375,599	18,061	60,666			78,729	296,870	375,599	
Additive Adjustments	46,658	10,521	36,437	1,752	5,685			7,638	28,799	36,437	
Total Rate Base	1,688,500	441,221	1,247,279	59,976	201,466			261,442	985,837	1,247,279	
Operating Expenses:											
Misc Distrib Expenses	12,463	3,253	9,205						9,205	9,205	
Customer Service Costs ³	12,764		12,764				12,764	12,764	12,764	12,764	
PUC Annual Assessment	3,635	598	3,037						3,037	3,037	
Employee Benefits	23,611	3,837	19,774	6,034	783	1,390	6,989	15,176	4,598	19,774	
Other A&G	58,765	14,421	74,344	8,846	4,096	2,532	26,201	39,774	34,570	74,344	
Other O&M Expenses	163,328	27,626	135,702	12,676	7,475	4,621	47,826	72,600	53,102	135,702	
Proforma Adjustments	3,738	627	3,111					0	3,111	3,111	
Depreciation Expense	97,165	21,270	75,895	10,399	9,050			19,449	56,448	75,895	
Taxes Other Than Income	6,504	1,205	5,299	255	656			1,111	4,188	5,299	
Return	8.46%	142,847	37,327	5,074	17,044			22,118	83,402	105,520	
Income Taxes	41.49%	68,718	17,957	2,441	8,199			10,640	40,121	50,761	
Tax Adjustment		13,983	4,947	9,036				0	9,036	9,036	
Gross Revenue Requirements		637,521	133,073	504,448	43,826	47,503	8,542	93,760	323,581	504,448	
Annualization Adjustment		(1,209)	(252)	(957)	(83)	(90)	(18)	(367)	(589)	(957)	
Late Payment Charges		10,666	2,227	8,441	733	795	143	1,569	5,201	8,441	
Other Operating Revenues		27,296	7,136	20,160	1,751	1,898	341	3,747	12,422	20,160	
Total Revenues		36,755	9,110	27,645	2,402	2,603	468	5,138	17,033	27,645	
Net Revenue Requirements		600,766	123,963	476,804	41,424	44,900	8,074	88,622	306,547	476,804	
GRT Base		610,225	125,937	484,288	42,075	45,605	8,201	90,013	311,159	484,288	
GRT Gross-up		648,486	133,833	514,653	44,713	48,484	8,715	95,657	330,668	514,653	
GRT	5.90%	38,261	7,896	30,365	2,638	2,859	514	5,844	19,509	30,365	
Total Revenue Requirements		675,782	140,969	534,813	46,464	50,382	9,057	99,404	343,090	534,813	
Customer Charge		64,898		\$36.70	\$3.19	\$8.46	\$0.82	\$8.82	\$14.09	\$36.70	
Number Customers			1,214,512								
Annual Customer Billings			14,574,144								

Notes:

¹ Includes meters, services and directly assignable operating costs.

² Includes all other (overhead lines, underground lines, line transformers and general and intangible) allocated capital and operating costs.

³ Excludes Universal Service Rider costs.

PPL ELECTRIC UTILITIES CORPORATION

Exhibit JMK 2

**Cost Allocation Study
Test Year Ending December 31, 2012**

Witness: Joseph M. Kleha

Docket No. R-2012-2290597

SECTION III

PART II

ALLOCATION TO PENNSYLVANIA RETAIL SERVICE CUSTOMERS

PPL ELECTRIC UTILITIES CORPORATION
COST ALLOCATION DETAILS - 12 MONTHS ENDED 12/31/2012
OPERATING EXPENSES
\$1,000

Line No.		Alloc	Pa Jurisdict Distribution	RS	RTS	GS-1	GS-3
OPERATION & MAINTENANCE EXPENSES CONTINUED							
CUSTOMER ACCOUNTS							
1	METER READING	RCW2	1,974	1,707	17	204	41
2	COLLECTION EXPENSES	RCW5	20,248	18,932	71	398	450
3	PROPERTY DAMAGE DISTRIBUTION	RP30	1,259	862	17	119	156
4	UNCOLLECTIBLE ACCOUNTS	RCW5	14,055	13,142	49	276	312
5	OTHER CUSTOMER ACCTS EXPENSE	RC10	20,429	17,658	175	2,108	420
6	TOTAL CUSTOMER ACCTS		57,965	52,301	329	3,105	1,379
CUSTOMER SERVICE & INFORMATIONAL							
7	908 - ONTRACK ARREARAGE FORGIVENESS	R0TRK	0	0	0	0	0
8	OTHER CUSTOMER SERVICE & INFO EXPENSE	R0TRK	12,943	12,764	179	0	0
9	TOTAL CUSTOMER SERVICE & INFO EXPENSE		12,943	12,764	179	0	0
10	SALES	DAT2	2,472	1,260	55	172	668
ADMINISTRATIVE & GENERAL EXPENSES							
11	PPUC REGULATORY	P01	5,000	3,635	59	493	472
12	DEMAND COMPONENT	DP01	1,175	598	26	82	317
13	CUSTOMER COMPONENT	CP01	3,825	3,037	33	411	155
14	EMPLOYEE BENEFITS	K929	32,031	23,611	389	3,107	3,019
15	DEMAND COMPONENT	DK929	7,525	3,837	168	524	2,033
16	CUSTOMER COMPONENT	CK929	24,506	19,774	221	2,583	986
17	PROPERTY INSURANCE	P30	9,967	6,821	134	946	1,233
18	DEMAND COMPONENT	DP30	3,498	1,784	78	244	945
18	CUSTOMER COMPONENT	CP30	6,469	5,037	56	702	288
19	OTHER A & G	K929	120,422	88,785	1,460	11,681	11,352
20	DEMAND COMPONENT	DK929	28,291	14,421	631	1,971	7,644
21	CUSTOMER COMPONENT	CK929	92,131	74,344	829	9,710	3,708
22	TOT ADMIN & GENERAL EXPENSES		167,420	122,832	2,042	16,227	16,076
23	DEMAND COMPONENT		40,489	20,640	903	2,821	10,939
24	CUSTOMER COMPONENT		126,931	102,192	1,139	13,406	5,137
25	AMORTIZATION OF 2010 RATE CASE EXPENSE	P30	674	462	9	64	83
26	DEMAND COMPONENT	DP30	237	121	5	17	64
27	CUSTOMER COMPONENT	CP30	437	341	4	47	19
28	AMORTIZATION - 2005 ICE STORM DEFERRAL	P30	1,611	1,103	22	152	200
29	DEMAND COMPONENT	DP30	565	288	13	39	153
30	CUSTOMER COMPONENT	CP30	1,046	815	9	113	47
31	TOTAL OPER & MAINT EXPENSES		413,751	304,566	4,928	35,272	38,593
32	DEMAND COMPONENT		98,242	49,740	2,178	6,797	26,364
33	CUSTOMER COMPONENT		315,509	254,826	2,750	28,475	12,229

Philadelphia Gas Works

R-2017-2586783

Allocated Class COS Study - Fully Projected Future Test Year Ending August 31, 2018

Exhibit PQH-1: Summary of Allocation Results - Dollars in Thousands - I&E

Line No.	Description	Total Allocated Dollars	Residential	Commercial	Industrial	PHA GS	Municipal PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	<u>At Current Rates</u>									
2	Total Revenue	\$491,321	\$385,361	\$77,404	\$5,908	\$1,500	\$8,865	\$20	\$17	\$12,246
3	Share of Revenue, by Class	100.0%	78.4%	15.8%	1.2%	0.3%	1.8%	0.0%	0.0%	2.5%
4	Total Operating Expenses	\$435,415	\$339,413	\$68,268	\$5,410	\$1,335	\$9,279	\$21	\$26	\$11,663
5	Share of Operating Expenses, by Class	100.0%	78.0%	15.7%	1.2%	0.3%	2.1%	0.0%	0.0%	2.7%
6	Income Before Interest & Surplus	\$55,906	\$45,948	\$9,136	\$498	\$165	(\$414)	(\$1)	(\$9)	\$583
7	Interest & Surplus	\$125,012	\$98,204	\$19,064	\$1,402	\$423	\$2,815	\$6	\$6	\$3,092
8	Current Revenue Over (Under) Requirements	(\$69,106)	(\$52,256)	(\$9,928)	(\$904)	(\$258)	(\$3,229)	(\$7)	(\$15)	(\$2,509)
9	Total Revenue Requirements	\$560,427	\$437,617	\$87,332	\$6,812	\$1,758	\$12,094	\$27	\$32	\$14,755
10	Revenue Increase for Full Cost of Service	14.1%	13.6%	12.8%	15.3%	17.2%	36.4%	35.0%	88.2%	20.5%
11	Rate Base	\$1,188,364	\$933,525	\$181,229	\$13,324	\$4,022	\$26,756	\$59	\$58	\$29,391
12	Return on Rate Base Before Interest & Surplus	4.7%	4.9%	5.0%	3.7%	4.1%	-1.5%	-1.7%	-15.5%	2.0%
13	Relative Return	1.00	1.05	1.07	0.79	0.87	-0.33	-0.36	-3.30	0.42
14	Revenues Relative to COS	0.88	0.88	0.89	0.87	0.85	0.73	0.74	0.53	0.83
15	Relative to Total for all Classes	1.00	1.00	1.01	0.99	0.97	0.84	0.84	0.61	0.95
16	<u>After Proposed Increase</u>									
17	Proposed Increase (Decrease)	\$70,000	\$59,000	\$5,000	(\$400)	\$400	\$500	\$0	\$0	\$5,500
18	I&E Reallocation	\$0	(\$5,438)	\$5,154	\$1,326	(\$137)	\$2,020	\$5	\$0	(\$2,930)
19	Total I&E	\$70,000	\$53,562	\$10,154	\$926	\$263	\$2,520	\$5	\$0	\$2,570
20	Share of Proposed Increase, by Class	100.0%	84.3%	7.1%	-0.6%	0.6%	0.7%	0.0%	0.0%	7.9%
21	Total Distribution Revenue with Increase	\$61,321	\$48,923	\$7,558	\$6,834	\$1,763	\$11,385	\$25	\$17	\$14,816
22	Increase (Decrease) %	14.2%	13.9%	13.1%	15.7%	17.5%	28.4%	25.0%	0.0%	21.0%
23	Revenues Relative to COS	1.00	1.00	1.00	1.00	1.00	0.94	0.93	0.53	1.00

Philadelphia Gas Works
R-2017-2586783
Allocated Class COS Study - Fully Projected Future Test Year Ending August 31, 2018 in Thousands
Updated I&E Scale Back Recommendation (Revised 6/1/2017)

Line No.	Description	Total Allocated Dollars	Residential	Commercial	Industrial	PHA / GS	Municipal PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	<u>At Current Rates</u>									
2	Total Revenue	\$491,321	\$385,361	\$77,404	\$5,908	\$1,500	\$8,865	\$20	\$17	\$12,246
3	Share of Revenue, by Class	100.0%	78.4%	15.8%	1.2%	0.3%	1.8%	0.0%	0.0%	2.5%
4	Total Operating Expenses	\$435,415	\$339,413	\$68,268	\$5,410	\$1,335	\$9,279	\$21	\$26	\$11,663
5	Share of Operating Expenses, by Class	100.0%	78.0%	15.7%	1.2%	0.3%	2.1%	0.0%	0.0%	2.7%
6	Income Before Interest & Surplus	\$55,906	\$45,948	\$9,136	\$498	\$165	(\$414)	(\$1)	(\$9)	\$583
7	Interest & Surplus	\$125,012	\$98,204	\$19,064	\$1,402	\$423	\$2,815	\$6	\$6	\$3,092
8	Current Revenue Over (Under) Requirements	(\$69,106)	(\$52,256)	(\$9,928)	(\$904)	(\$258)	(\$3,229)	(\$7)	(\$15)	(\$2,509)
9	Total Revenue Requirements	\$560,427	\$437,617	\$87,332	\$6,812	\$1,758	\$12,094	\$27	\$32	\$14,755
10	Revenue Increase for Full Cost of Service	14.1%	13.6%	12.8%	15.3%	17.2%	36.4%	35.0%	88.2%	20.5%
11	Rate Base	\$1,188,364	\$933,525	\$181,229	\$13,324	\$4,022	\$26,756	\$59	\$58	\$29,391
12	Return on Rate Base Before Interest & Surplus	4.7%	4.9%	5.0%	3.7%	4.1%	-1.5%	-1.7%	-15.5%	2.0%
13	Relative Return	1.00	1.05	1.07	0.79	0.87	-0.33	-0.36	-3.30	0.42
14	Revenues Relative to COS	0.88	0.88	0.89	0.87	0.85	0.73	0.74	0.53	0.83
15	Relative to Total for all Classes	1.00	1.00	1.01	0.99	0.97	0.84	0.84	0.61	0.95
16	<u>After Proposed Increase</u>									
17	Proposed Increase (Decrease)	\$70,000	\$59,000	\$5,000	(\$400)	\$100	\$500	\$0	\$0	\$5,500
18	I&E Reallocation	\$0	(\$5,438)	\$5,154	\$1,326	(\$137)	\$2,020	\$5	\$0	(\$2,930)
19	Sample Scaleback	(\$36,198)	(\$28,734)	(\$5,448)	(\$497)	(\$141)	\$0	\$0	\$0	(\$1,379)
20	Total I&E	\$33,802	\$24,828	\$4,706	\$429	\$122	\$2,520	\$5	\$0	\$1,191
21	Share of Proposed Increase, by Class	100.0%	84.3%	7.1%	-0.6%	0.6%	0.7%	0.0%	0.0%	7.9%
22	Total Distribution Revenue with Increase	\$25,123	\$10,189	\$8,110	\$6,337	\$1,622	\$13,855	\$25	\$17	\$13,437
23	Increase (Decrease) %	6.88%	6.44%	6.08%	7.26%	8.13%	28.43%	25.00%	0.00%	9.727%
24	Income Before Interest & Surplus	\$125,906	\$104,948	\$14,136	\$98	\$565	\$86	(\$1)	(\$9)	\$6,083
24	Revenues Relative to COS	0.94	0.94	0.94	0.93	0.92	0.94	0.93	0.53	0.91

25

(Note: The Rate of Return is Below 1.00 because Expenses and Coverage have not been Adjusted to the I&E Level)

I&E Statement No. 3-R
Witness: Kokou M. Apetoh

PENNSYLVANIA PUBLIC UTILITY COMMISSION

V.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Rebuttal Testimony

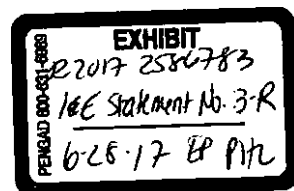
Of

Kokou M. Apetoh

Bureau of Investigation and Enforcement

Concerning:

Cost of Service Study
Gradualism



1 **Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS**
2 **ADDRESS?**

3 A. My name is Kokou M. Apetoh. My business address is P. O. Box 3265,
4 Harrisburg, Pennsylvania 17105-3265.

6 **Q. ARE YOU THE SAME KOKOU M. APETOH WHO SUBMITTED I&E**
7 **STATEMENT NO. 3 AND I&E EXHIBIT NO. 3 ON MAY 16, 2017?**

8 A. Yes, I am.

10 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

11 A. The purpose of my rebuttal testimony is to address the direct testimony of Mr.
12 Richard A. Baudino on behalf of Philadelphia Industrial and Commercial Gas
13 Users Group (“PICGUG”), identified as PICGUG Statement No. 1. First, my
14 rebuttal testimony will focus on the classification of distribution mains in a cost of
15 service study (“COSS”) and specifically on the inappropriateness of the use of the
16 Customer/Demand allocation methodology in this proceeding as recommended by
17 PICGUG. Second, I will present I&E’s view regarding Mr. Baudino’s
18 recommendation that the Company separate the costs to provide service to the
19 Interruptible Transportation (“IT”) and General Transportation Service (“GTS”)
20 customer classes in its next base rate case. Third, I will address PICGUG’s
21 concern regarding the excessiveness of Company’s proposed increase to the IT
22 customer class.

1 **COST OF SERVICE STUDY**

2 **Q. WHAT IS A COSS?**

3 A. A mentioned in my direct testimony, a COSS is a formalized analysis of costs that
4 attempts to assign to each customer or rate class its proportionate share of the
5 Company's total cost of serving its customers (i.e., the Company's total revenue
6 requirement) based on customer class service differences.¹

7
8 **Q. DID THE COMPANY INCLUDE A COSS IN THE FILING?**

9 A. Yes. The Company's COSS is sponsored by Mr. Philip Q. Hanser.²

10
11 **Q. WHAT IS ONE OF THE LARGEST DRIVING FORCES FOR CAPITAL**
12 **INVESTMENTS FOR MOST NATURAL GAS DISTRIBUTION**
13 **COMPANIES ("NGDCs")?**

14 A. The cost of mains is one of the driving forces for NGDC capital investments.

15
16 **Q. HOW DID PGW WITNESS HANSER CLASSIFY AND ALLOCATE THE**
17 **COSTS OF DISTRIBUTION MAINS IN HIS COSS?**

18 A. Mr. Hanser used the demand and customer methodology and allocated 50 percent of
19 distribution mains to the demand classification factor and the remaining 50 percent
20 to the customer classification factor.³

¹ I&E Statement No. 3, page 13, lines 10-13.

² PGW Volume III – Class Cost of Service Study.

³ PGW Volume III – Class Cost of Service Study, Exhibit PQH-7B, page 1.

1 **Q. WHAT IS MR. BAUDINO'S RECOMMENDATION REGARDING THE**
2 **ALLOCATION OF DISTRIBUTION MAINS IN THIS PROCEEDING?**

3 A. Mr. Baudino agrees with PGW that the costs of distribution mains should be
4 allocated based on peak demand contribution and the number of customers.⁴
5

6 **Q. DO YOU AGREE WITH MR. BAUDINO'S ASSERTION THAT**
7 **DISTRIBUTION MAIN COSTS SHOULD BE ALLOCATED BASED ON**
8 **THE NUMBER OF CUSTOMERS?**

9 A. No, I do not.
10

11 **Q. WHY SHOULD DISTRIBUTION MAIN COSTS NOT BE ALLOCATED**
12 **BASED ON THE NUMBER OF CUSTOMERS?**

13 A. The basis for this determination is that the quantity and investment in mains does
14 not change significantly if one customer joins or leaves the system. Mains are
15 built to deliver gas, and the cost of mains cannot be assigned to one specific
16 customer. Therefore, no portion of the fixed costs or depreciation expense
17 associated with mains should be allocated to the customer cost function.

18 As I stated on pages 17-18 of my direct testimony, distribution mains are
19 not sized based on the number of customers they serve but on the loads placed
20 upon them. Also, the Commission has rejected the Company and ultimately Mr.

⁴ PICGUG Statement No. 1, page 5, lines 19-24.

1 Baudino's methodology of allocating the costs of distribution mains in PGW's
2 previous base rate case at Docket No. R-00061931 when it stated:

3 We find the ALJs' recommendation to be reasonable
4 and that PGW's proposal to allocate a percentage of
5 *the cost of the distribution mains as a customer cost*
6 not to be acceptable. PGW has not presented evidence
7 to show that it is correctly classifying and allocating
8 the cost of the distribution mains. Reviewing the
9 record, we find that the allocation of distribution mains
10 investment costs should be done using both annual and
11 peak demands. As a result, we accept the ALJs'
12 recommendation on this issue and deny the Exceptions
13 of PGW, the OCA and the OSBA.⁵
14

15 Additionally, in PPL Gas' 2007 base rate proceeding, the Commission
16 reaffirmed that the cost of mains should be allocated on a combination of
17 throughput and demand, not to the customer allocator (PPL Gas Utilities, Docket
18 No. R-00061398, Order entered February 8, 2007). Further, the Commission
19 determined in a 1994 Pennsylvania American Water Company case at Docket No.
20 R-00932670, (Order entered July 26, 1994), that direct customer costs include "the
21 depreciation, return and income taxes associated with meter and service
22 investment, the operation and maintenance expense for meters and services, and
23 the expense associated with meter reading and billing." Mains are not included in
24 any of these categories, and therefore should not be considered or classified as a
25 customer cost.

⁵ Pa PUC v. Philadelphia Gas Works, Docket No. R-00061931, Order entered September 28, 2007, at page 80.

1 **Q. WHAT IS YOUR RECOMMENDATION REGARDING MR. BAUDINO'S**
2 **PROPOSAL TO ALLOCATE 50 PERCENT OF THE COST OF**
3 **DISTRIBUTION MAINS TO THE CUSTOMER ALLOCATOR IN THIS**
4 **PROCEEDING?**

5 A. I recommend that the Commission reject Mr. Baudino's recommended methodology
6 to allocate the costs of distribution mains based on the number of customers as it not
7 only violates the notion that distribution mains are sized based on the load placed
8 upon them, but also Commission precedent.

9
10 **GTS AND IT CUSTOMER CLASSES**

11 **Q. PLEASE DESCRIBE THE GTS AND IT CUSTOMER CLASSES.**

12 A. Per PGW's tariff, Rate GTS is available to all Transportation Service customers
13 who utilized this service on or before September 1, 2003 pursuant to a currently
14 valid agreement with the Company. Further, transportation service under this rate
15 schedule is firm and shall be interrupted only in cases of operating emergencies
16 experienced by PGW.⁶

17 Per the Company tariff, Rate IT is available to any Commercial or Industrial
18 gas user who is willing to be curtailed or interrupted at any time at the sole
19 judgment of PGW. Each customer under this rate must contract for a minimum of

⁶ PGW Gas Tariff – Pa P.U.C. No. 2, page 118.

1 15,000 Dth/year or up to 10 customers may aggregate their loads into a supplier
2 pool that meets the 15,000 Dth/year requirement.⁷
3

4 **Q. HOW DID THE COMPANY TREAT THE COSTS OF PROVIDING**
5 **SERVICE TO THE GTS AND IT CUSTOMER CLASSES IN ITS COSS?**

6 A. In his COSS, Mr. Hanser combined the GTS and IT customer classes into one
7 customer class referred to as the GTS/IT customer class. As a result, the costs of
8 providing service to both customer classes were also combined into one.⁸
9

10 **Q. DID PICGUG AGREE WITH GROUPING THE COSTS OF PROVIDING**
11 **SERVICE TO THE GTS AND IT CUSTOMER CLASSES IN THE COSS?**

12 A. No. Mr. Baudino disagreed with combining the costs of providing service to the
13 GTS and IT customer classes as Mr. Hanser did in the Company's COSS. Referring
14 to, among other things, the fact that GTS customers take firm service from PGW
15 while IT customers are interruptible customers as well as the ratemaking concept of
16 gradualism, PICGUG recommended that the Commission require PGW to propose
17 firm transportation service for large commercial and industrial customers that is
18 cost-based and in alignment with other Pennsylvania NGDCs in the Company's next
19 base rate case.⁹

⁷ PGW Gas Tariff – Pa P.U.C. No. 2, page 111.

⁸ PGW Statement No. 5, page 6, line 19.

⁹ PICGUG Statement No. 1, page 18, lines 11-18.

1 **Q. DID YOU SEPARATE THE COSTS OF PROVIDING SERVICE TO THE**
2 **GTS AND IT CUSTOMER CLASSES IN YOUR DIRECT TESTIMONY?**

3 A. No, I did not. For the GTS and IT customer classes, I used the cost allocations
4 provided by the Company in my direct testimony.
5

6 **Q. DO YOU HAVE ANY OBJECTIONS TO PICGUG'S**
7 **RECOMMENDATION THAT PGW SEPARATE THE COSTS OF**
8 **PROVIDING SERVICE TO THE GTS AND IT CUSTOMER CLASSES IN**
9 **THE COMPANY'S NEXT BASE RATE CASE?**

10 A. I&E does not object to PICGUG's proposal that PGW separate the costs of
11 providing service to the GTS and IT customer classes in the Company's next base
12 rate case since the GTS and IT customer classes are fundamentally different in that
13 IT customers can be interrupted while the GTS class takes firm service from PGW.
14

15 **Q. DOES YOUR DIRECT TESTIMONY ADDRESS MR. BAUDINO'S**
16 **CONCERN REGARDING GRADUALISM TO THE IT CUSTOMER**
17 **CLASS?**

18 A. Yes. In my proposed revenue allocation, I reduced the amount of the increase to the
19 GTS/IT customer class by \$2,930,000.¹⁰ Additionally, my scale-back reduced the
20 increase to the GTS/IT customer class by another \$1,592,000.¹¹ The initial revenue

¹⁰ I&E Exhibit No. 3, Schedule No. 5, page 1, line 18, column K.

¹¹ I&E Exhibit No. 3, Schedule No. 6, page 1, line 19, column K.

1 allocation as well as my scale back reduce the increase for the IT customer class and
2 should address some of the gradualism concerns raised by Mr. Baudino in his direct
3 testimony.

4
5 **Q. DOES THIS COMPLETE YOUR REBUTTAL TESTIMONY?**

6 **A. Yes.**

I&E Statement No. 3-SR
Witness: Kokou M. Apetoh

PENNSYLVANIA PUBLIC UTILITY COMMISSION

V.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Surrebuttal Testimony

Of

Kokou M. Apetoh

Bureau of Investigation and Enforcement

Concerning:

Forfeited Discounts
Cost of Service
Customer Cost Analysis
Customer Charges
Scale Back of Rates

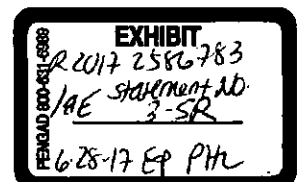


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1 **Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS**
2 **ADDRESS?**

3 A. My name is Kokou M. Apetoh. My business address is P. O. Box 3265,
4 Harrisburg, Pennsylvania 17105-3265.

5
6 **Q. ARE YOU THE SAME KOKOU M. APETOH WHO SUBMITTED I&E**
7 **STATEMENT NO. 3 AND I&E EXHIBIT NO. 3 ON MAY 16, 2017 AND I&E**
8 **STATEMENT NO. 3-R ON JUNE 9, 2017?**

9 A. Yes, I am.

10
11 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

12 A. The purpose of my surrebuttal testimony is to address the rebuttal testimony of
13 Philadelphia Gas Works' ("PGW" or "Company") witnesses Mr. Joseph F.
14 Golden, Jr., identified as PGW Statement No. 2-R, and Mr. Philip Q. Hanser,
15 identified as PGW Statement No. 5-R. Additionally, my surrebuttal testimony will
16 address the rebuttal testimony of Mr. Richard A. Baudino on behalf of
17 Philadelphia Industrial and Commercial Gas Users Group ("PICGUG"), identified
18 as PICGUG Statement No. 1-R as well as the rebuttal testimony of Mr. Robert B.
19 Knecht on behalf of the Pennsylvania Office of Small Business Advocate
20 ("OSBA"), identified as OSBA Statement No. 1R. First, my rebuttal testimony
21 will focus on the Company's claimed \$7,853,000 of forfeited discount revenue in
22 this proceeding and specifically on the inappropriateness to use the historic three-

1 year average of Historic Fiscal Years 2012, 2013, and 2014 data to compute
2 forfeited discounts. Second, I will address the impropriety of PGW's proposed
3 customer charges as well as the classification of distribution mains in a cost of
4 service study ("COSS") and specifically on the inappropriateness of the use of the
5 Customer/Demand allocation methodology in this proceeding as recommended by
6 PGW and PICGUG. Additionally, I will address the inappropriateness of the use
7 of the Average and Excess methodology in this proceeding as recommended by
8 Mr. Knecht of the OSBA.

9
10 **Q. DOES YOUR SURREBUTTAL INCLUDE AN ACCOMPANYING**
11 **EXHIBIT?**

12 A. Yes. I&E Exhibit No. 3-SR contains a schedule that supports my surrebuttal
13 testimony. In this surrebuttal testimony, I will also make references to my direct
14 testimony and its accompanying exhibit (I&E Statement No. 3 and I&E Exhibit
15 No. 3) as well as my rebuttal testimony (I&E Statement No. 3-R).

16
17 **FORFEITED DISCOUNTS**

18 **Q. WHAT ARE FORFEITED DISCOUNTS?**

19 A. As mentioned in my direct testimony, forfeited discounts represent revenue
20 generated by the failure of a customer to pay an amount due either in a specified

discount period or later than a specified due date. In the case of PGW, forfeited discounts are late penalty fees.¹

Q. WHAT IS PGW'S LATE PAYMENT CHARGE?

A. PGW defines a late payment charge as: "A charge placed on any bill not paid by the due date."² Additionally, the Company's tariff states as follows:

PGW will assess a late penalty for any overdue bill, in an amount which does not exceed 1.5% interest per month on the full unpaid and overdue balance of the bill. These charges are to be calculated on the overdue portions of PGW Charges only. The interest rate, when annualized, may not exceed 18% simple interest per annum. Late Payment Charges will not be imposed on disputed estimated bills, unless the estimated bill was required because utility personnel were unable to access the affected premises to obtain an Actual Meter Reading.³

Q. WHAT IS THE COMPANY'S CLAIM FOR FORFEITED DISCOUNTS IN THIS PROCEEDING?

A. PGW's \$7,853,000 forfeited discount claim is based on the three-year average of historic fiscal years 2012, 2013, and 2014.

Q. DID YOU ADDRESS THE COMPANY'S CLAIM FOR FORFEITED DISCOUNTS IN YOUR DIRECT TESTIMONY?

A. Yes. I recommended that PGW's claim of forfeited discounts in this proceeding be based on the more recent three-year average of historic fiscal years 2014, 2015,

¹ I&E Exhibit No. 3, Schedule No. 1, page 1.

² PGW Supplement No. 84, Gas Service Tariff – Pa P.U.C. No. 2, Second Revised Page No. 12.

³ PGW Supplement No. 84, Gas Service Tariff – Pa P.U.C. No. 2, Second Revised Page No. 26.

1 and 2016, which increases the Company's claimed \$7,853,000 of forfeited
2 discounts by \$1,192,000 to \$9,045,000. As a result, the Company's claimed
3 \$491,318,000 of total present rate revenue should be increased by \$1,192,000 to
4 \$492,510,000.⁴

5
6 **Q. DID THE COMPANY AGREE WITH YOUR RECOMMENDED**
7 **FORFEITED DISCOUNTS?**

8 A. No. Company witness Mr. Joseph F. Golden, Jr. rejected my recommendation.
9 PGW states that the fact that forfeited discounts as a percentage of revenue
10 through April 2017 equals 1.3%, the same percentage used by the Company to
11 compute its claimed \$7,853,000 of forfeited discounts, validates the Company's
12 use of the historic fiscal years 2012, 2013, and 2014. Additionally, Mr. Golden
13 claimed that the fiscal year 2016 data was unavailable when PGW finalized its
14 filing for this proceeding and is an outlier.⁵

15
16 **Q. DO YOU AGREE WITH PGW THAT FISCAL YEAR 2016 DATA SHOULD**
17 **BE EXCLUDED FROM THE COMPUTATION OF FORFEITED**
18 **DISCOUNTS IN THIS PROCEEDING?**

19 A. No, I do not. As mentioned in my direct testimony, revenues, including forfeited
20 discount revenue, fluctuate with general economic conditions. As a result, revenues

⁴ I&E Statement No. 3, page 13, lines 1-4.

⁵ PGW Statement No. 2-R, page 14, lines 18-24.

1 should always reflect recent actual trends. PGW's use of the 2012-2014 data
2 improperly fails to reflect the 2015 and 2016 data. Given that the historic test year
3 selected by the Company in this proceeding is the twelve months ended August 31,
4 2016, the three-year average of historic fiscal years 2014, 2015, and 2016 is more
5 indicative of recent actual trends than the three-year average of historic fiscal years
6 2012, 2013, and 2014 upon which PGW based its claim. Additionally, the
7 Company provided no reason as to why the 2015 data should be excluded. To
8 exclude fiscal year 2015 and 2016 data from the computation of forfeited discounts
9 in this proceeding as PGW did is not sound ratemaking and therefore, the
10 Commission should reject PGW's claimed forfeited discounts in this proceeding.

11
12 **COST OF SERVICE STUDY**

13 **Q. WHAT IS A COSS?**

14 A. A COSS is a formalized analysis of costs that attempts to assign to each customer or
15 rate class its proportionate share of the Company's total cost of serving its
16 customers (i.e., the Company's total revenue requirement) based on customer class
17 service differences.⁶

18
19 **Q. DID THE COMPANY INCLUDE A COSS IN THE FILING?**

20 A. Yes. The Company's COSS is sponsored by Mr. Philip Q. Hanser.⁷

⁶ I&E Statement No. 3, page 13, lines 10-13.

⁷ PGW Volume III – Class Cost of Service Study.

1 **Q. WHAT IS ONE OF THE LARGEST DRIVING FORCES FOR CAPITAL**
2 **INVESTMENTS FOR MOST NATURAL GAS DISTRIBUTION**
3 **COMPANIES (“NGDCs”)?**

4 A. The cost of mains is one of the driving forces for NGDC capital investments.
5

6 **Q. HOW DID MR. HANSER CLASSIFY AND ALLOCATE THE COSTS OF**
7 **DISTRIBUTION MAINS IN PGW’S COSS?**

8 A. Mr. Hanser used the demand and customer methodology and allocated 50 percent of
9 distribution mains to the demand classification factor and the remaining 50 percent
10 to the customer classification factor.⁸ Specifically, the customer/demand
11 methodology as its name implies, classifies distribution mains as partially customer
12 related and partially demand related. The customer portion of mains is allocated to
13 the various customer classes based on the total number of customers, while the
14 demand portion of mains is allocated to classes based on peak day contributions or
15 demand. This methodology has been rejected by the Commission in other natural
16 gas base rate cases.
17

18 **Q. WHAT METHODOLOGY DID YOU USE IN DIRECT TESTIMONY FOR**
19 **REVENUE ALLOCATION AND RATE DESIGN?**

20 A. In direct testimony, I used the demand and commodity methodology, also known as
21 the peak and average method to allocate the final revenue increases among the

⁸ PGW Volume III – Class Cost of Service Study, Exhibit PQH-7B, page 1.

1 different customer classes and to derive my customer charges. The Pennsylvania
2 Office of Consumer Advocate (“OCA”) also used the peak and average
3 methodology in direct testimony.
4

5 **Q. WHAT IS THE PEAK AND AVERAGE METHODOLOGY?**

6 A. The peak and average methodology allocates distribution mains to classes based
7 partially on contributions to peak day demand and partially on annual consumption
8 (average demand). This methodology has been accepted by the Commission in
9 prior proceedings.
10

11 **Q. BESIDE THE DEMAND AND CUSTOMER METHODOLOGY USED BY**
12 **THE COMPANY AND ACCEPTED BY PICGUG AND THE PEAK AND**
13 **AVERAGE METHODOLOGY USED BY I&E AND THE OCA, WAS**
14 **THERE ANY OTHER METHODOLOGY USED IN DIRECT**
15 **TESTIMONY?**

16 A. Yes, the OSBA advocated and used a third methodology, the average and excess
17 methodology.
18

19 **Q. WHAT IS THE AVERAGE AND EXCESS METHODOLOGY?**

20 A. The average and excess methodology, as its name implies, allocates the costs of
21 mains based on average demand (average annual consumption) and excess demand
22 (the portion in excess of average demand, determined by the peak demand minus the

average demand). The average and excess methodology classifies a portion of fixed costs (determined by a utility's load factors), as energy related.

In other words, the average and excess methodology allocates base costs to customer classes based on customer class usage. The costs incurred in providing the extra capacity caused by the variation in the rate of usage beyond the constant rate are allocated based on the excess of maximum demand over average demand for each class.

Q. WHAT IS A LOAD FACTOR?

A. A load factor is the ratio of the average load to peak load during a specified time interval. Mathematically, a load factor is equal to a utility's or a customer class annual average monthly usage divided by annual maximum monthly usage.

Q. WHAT ARE THE MAIN DIFFERENCES BETWEEN THE DEMAND/CUSTOMER METHODOLOGY USED BY PGW AND RECOMMENDED BY PICGUG AND THE PEAK AND AVERAGE METHODOLOGY THAT I&E USED IN DIRECT TESTIMONY?

A. The customer and demand methodology places more cost obligation on the customer component of the distribution system, which must be designed to reach all customers. This design aspect of the customer and demand methodology implies a greater impact on the largest class of customers in terms of number of customers. The demand component of the distribution system is the sizing of the system to

1 meet peak demand, which would have a greater impact on largest class of customers
2 in terms of volume.

3 Generally, the peak and average method is more favorable to small users in
4 terms of volume whereas the customer and demand methodology favors high
5 volumetric users.

6
7 **Q. DID THE COMPANY ACCEPT YOUR RECOMMENDATION**
8 **REGARDING THE USE OF THE PEAK AND AVERAGE METHOD TO**
9 **ALLOCATE COSTS AND DESIGN RATES IN THIS PROCEEDING?**

10 A. No, it did not. In rebuttal testimony, Mr. Hanser reprised the argument he made in
11 direct testimony and claimed that mains are used to connect customers and are sized
12 to meet the maximum demand placed upon them. To support Mr. Hanser's
13 argument, PGW stated that the total number of customers drives its investments in
14 distribution mains not the volume of gas transported in its system.⁹

15
16 **Q. DID PICGUG ACCEPT YOUR RECOMMENDATION REGARDING THE**
17 **USE OF THE PEAK AND AVERAGE METHOD TO ALLOCATE COSTS**
18 **AND DESIGN RATES IN THIS PROCEEDING?**

19 A. No, it did not. In rebuttal testimony, Mr. Richard A. Baudino on behalf of the
20 PICGUG also disagreed with the use of the peak and average methodology in this
21 proceeding. PICGUG argued that the peak and average method inappropriately

⁹ PGW Statement No. 5, page 8, lines 1-14, and page 9, lines 10-12.

1 classifies and allocates large amount of fixed distribution main costs based on
2 throughput.¹⁰

3
4 **Q. WHY SHOULD THE COMMISSION REJECT THE CUSTOMER AND**
5 **DEMAND METHODOLOGY IN THIS PROCEEDING?**

6 A. As mentioned in my direct testimony, allocating distribution mains costs based on
7 the number of customers is improper because distribution mains are sized based on
8 the loads placed upon them not on the number of customers they serve.
9 Additionally, the Commission has previously determined that mains should not be
10 allocated based on the number of customers. For example, the Commission
11 affirmed I&E's recommendation to allocate mains 50 percent to demand and 50
12 percent to commodity in the Company's 2007 base rate proceeding at Docket No.
13 R-00061931 when it stated:

14 We find the ALJs' recommendation to be reasonable and that
15 PGW's proposal to allocate a percentage of the cost of the
16 distribution mains as a customer cost not to be acceptable.
17 PGW has not presented evidence to show that it is correctly
18 classifying and allocating the cost of the distribution mains.
19 Reviewing the record, we find that the allocation of
20 distribution mains investment costs should be done using both
21 annual and peak demands. As a result, we accept the ALJs'
22 recommendation on this issue and deny the Exceptions of
23 PGW, the OCA and the OSBA.¹¹
24

¹⁰ PICGUG Statement No. 1-R, page 6, lines 12-14.

¹¹ Pa PUC v. Philadelphia Gas Works, Docket No. R-00061931. Order entered September 28, 2007, at page 80.

1 Additionally, in PPL's 2007 base rate proceeding, the Commission reaffirmed that
2 the cost of mains should be allocated on a combination of throughput and demand,
3 and therefore not allocated to the customer function (PPL Gas Utilities, Docket
4 No. R-00061398, Order entered February 8, 2007). Furthermore, the Commission
5 determined in a 1994 Pennsylvania American Water Company case at Docket No.
6 R-00932670, (Order entered July 26, 1994), that direct customer costs include "the
7 depreciation, return and income taxes associated with meter and service
8 investment, the operation and maintenance expense for meters and services, and
9 the expense associated with meter reading and billing." Mains are not included in
10 any of these categories, and therefore should not be considered or classified as a
11 customer cost.

12 Additionally, the basis for this determination is that the quantity and
13 investment in mains does not change significantly if one customer joins or leaves
14 the system. Mains are built to deliver gas, and the cost of mains cannot be assigned
15 to one specific customer. Therefore, no portion of the fixed costs or depreciation
16 expense associated with mains should be allocated to the customer cost function.
17 Consequently, the Commission should reject the Company and PICGUG's
18 recommendation regarding the use of the customer and demand method in allocating
19 the cost of mains in this proceeding.

1 **Q. DID ANOTHER PARTY ALSO DISAGREE WITH YOUR**
2 **RECOMMENDED USE OF THE PEAK AND AVERAGE**
3 **METHODOLOGY IN ALLOCATING COSTS OF MAINS IN THIS**
4 **PROCEEDING?**

5 A. Yes, Mr. Knecht on behalf of the OSBA disagreed with the use of the peak and
6 average methodology in this proceeding. The OSBA used the Commission's
7 decision in the Company's 2007 base rate case at Docket No. R-00061931 to
8 support his rejection of the use of the peak and average methodology in this
9 proceeding. The OSBA recommends a 50/50 weighted average and excess method
10 in this proceeding.¹² Furthermore, Mr. Knecht argued in rebuttal testimony that
11 because the average and excess method is more geared toward design day demand,
12 the average and excess method is somewhat more consistent with cost causation
13 than is the peak and average.¹³

15 **Q. DO YOU HAVE ANY OBSERVATION REGARDING THE**
16 **COMMISSION'S DECISION AT DOCKET NO. R-00061931?**

17 A. Yes, I do. The 50/50 weighted average and excess methodology the Commission
18 decided in the Company's 2007 proceeding was not based on the utility's load
19 factors. As I mentioned previously, one of the characteristics of the average and
20 excess methodology is that it uses a utility's load factor to classify a portion of fix

¹² OSBA Statement No. 1R, page 2, lines 18-22.

¹³ OSBA Statement No. 1R, page 5, lines 1-5.

1 costs as energy related. Moreover, the 50/50 split is atypical of the average and
2 excess methodology; a fact Mr. Knecht seems to point out in footnote number 4 on
3 page 2 of his rebuttal testimony, when he characterized it as “non-traditional.” The
4 50/50 split is more analogous to the peak and average method than it is to the
5 average and excess method.
6

7 **Q. DO YOU AGREE WITH THE OSBA’S ASSESSMENT THAT THE**
8 **AVERAGE AND EXCESS METHODOLOGY IS SOMEWHAT MORE**
9 **CONSISTENT WITH COST CAUSATION THAN THE PEAK AND**
10 **AVERAGE METHODOLOGY?**

11 A. No, I do not. Under the peak and average methodology, the allocation of demand
12 costs not only takes into account the average use of capacity but most importantly
13 the total capacity required to meet the maximum system demand. Under the
14 average and excess methodology on the other hand, the allocation of demand costs
15 takes into consideration the average use of capacity as well as the additional
16 capacity required to meet the maximum system demands. As a result, the average
17 and excess methodology makes little distinction between peak and off-peak demand
18 thus violating the cost causation standard.
19

20 **Q. DO YOU HAVE A RECOMMENDATION REGARDING THE USE OF**
21 **THE AVERAGE AND EXCESS METHODOLOGY IN THIS**
22 **PROCEEDING?**

1 A. Yes, I do. Based on the inconsistencies, which I described above in the
2 Commission's 2007 decision at Docket No. R-00061931 and the fact that the
3 average and excess methodology is not reflective of cost causation, I recommend
4 that the Commission reject the OSBA's proposed average and excess methodology
5 and adopt the peak and average methodology that I&E and the OCA recommend in
6 this proceeding.

7
8 **CUSTOMER COST ANALYSIS**

9 **Q. WHAT IS A CUSTOMER COST ANALYSIS AND HOW IS IT USED?**

10 A. A customer cost analysis is part of a COSS that includes only customer related
11 costs. It is important in the rate making process as it helps determine the proper
12 customer charges for the different customer classes.

13
14 **Q. DID YOU PREPARE A CUSTOMER COST ANALYSIS TO DETERMINE**
15 **THE APPROPRIATE LEVELS OF MONTHLY CUSTOMER CHARGE**
16 **FOR THE VARIOUS CLASSES IN DIRECT TESTIMONY?**

17 A. Yes. I&E Exhibit No. 3, Schedule No. 3 depicts my customer cost analysis, which
18 is guided by my analysis and the Commission's decisions in the *Pennsylvania*
19 *Public Utility Commission v. Aqua Pennsylvania* docketed at R-00038805 (Order
20 entered August 5, 2004) and in *Pennsylvania Public Utility Commission v. PPL*
21 *Electric* at Docket R-2012-2290597 (Order entered December 28, 2012). Under

my customer cost analysis, PGW incurs the following costs on a monthly basis to provide service to each customer of the corresponding rate schedules it serves:¹⁴

- \$30.87 for Rate GS – Residential customers;
- \$100.18 for Rate GS – Commercial customers;
- \$317.67 for Rate GS – Industrial customers;
- \$30.33 for Rate GS – Public Housing Authority customers (PHA);
- \$162.37 for Rates PHA (Rate 8) and MS – Public Housing Authority and Municipal customers;
- \$125.00 for Rate NGVS – Natural Gas Vehicle Service customers;
- \$125.00 for Rate IT – Interruptible customers; and
- \$393.53 for Rate GTS/IT – Gas Transportation Service (Firm and Interruptible) customers.

Q. WHAT ITEMS DID YOU INCLUDE IN YOUR CUSTOMER COST ANALYSIS TO ARRIVE AT YOUR RECOMMENDATIONS FOR THE APPROPRIATE LEVEL OF CUSTOMER CHARGES?

A. I included the following customer costs in my customer cost analysis:

- Distribution plant costs related to services (Account 380), meters (Account 381), meter installations (Account 382), house regulators (Account 383), house regulator installations (Account 384), meter and house regulator (Account 878), customer installation (Account 879), customer installation –

¹⁴ I&E Exhibit No. 3, Schedule No. 3, page 1, line 26.

1 parts and labor plant (Account 879PLP), maintenance of services (Account
2 892), maintenance of meters and house regulators (Account 893);

3 • Depreciation reserve costs related to services (Account 108.54), meters
4 (Account 108.55);

5 • Cash working capital expenses related to customer deposits (Account
6 131.18), accrued interest (Account 131.19); accrued taxes and wages
7 (Account 131.20);

8 • Depreciation expense (Account 403);

9 • Taxes other than income (Account 408);

10 • Administrative and general labor expenses related to employee pensions
11 and benefits (Account 926), as well as OPEB funding (Account 999);

12 • Customer accounts expenses related to meter reading (Account 902),
13 customer records and collection (Account 903); and

14 • Customer service and informational expenses related to customer assistance
15 (Account 908).

16
17 **Q. DID YOU EXCLUDE ANY ITEMS FROM YOUR CUSTOMER COST**
18 **ANALYSIS?**

19 A. Using the Commission's Orders in *Pennsylvania Public Utility Commission v.*
20 *Aqua Pennsylvania* docketed at R-00038805 (Order entered August 5, 2004) and
21 in *Pennsylvania Public Utility Commission v. PPL Electric* at Docket R-2012-

2290597 (Order entered December 28, 2012), I excluded the following costs from my customer cost analysis:

- \$351,000 of general plant costs related to land and land rights (Account 389);
- \$7,848,000 of general plant costs related to structures and improvements (Account 390);
- \$10,314,000 of general plant costs related to office furniture and equipment (Account 391);
- \$3,788,000 of general plant costs related to transportation equipment (Account 392);
- \$71,000 of general plant costs related to stores equipment (Account 393);
- \$1,015,000 of general plant costs related to tools, shop and garage equipment (Account 394);
- \$116,000 of general plant costs related to power operated equipment (Account 396);
- \$1,971,000 of general plant costs related to communication equipment (Account 397);
- \$1,351,000 of general plant costs related to miscellaneous equipment (Account 398);
- \$13,845,000 of general plant costs related to miscellaneous equipment (Account 108.8);

- 1 • \$27,298,000 of cash working capital expenses related to accounts
2 receivable-gas (Account 131.11);
- 3 • \$3,800,000 of cash working capital expenses related to materials and
4 supplies (Account 131.12);
- 5 • \$2,078,000 of cash working capital expenses related to prepaid accounts,
6 other current assets (Account 131.13);
- 7 • \$842,000 of distribution expenses related to operation supervision and
8 engineering (Account 870);
- 9 • \$2,202,000 of distribution expenses related to mains and services
10 (Account 874);
- 11 • \$11,584,000 of distribution costs related to other expenses (Account 880);
- 12 • \$3,000 of distribution costs related to rents (Account 881);
- 13 • \$125,000 of distribution costs related to maintenance supervision and
14 engineering (Account 885);
- 15 • \$1,365,000 of administrative and general labor expenses related to salaries
16 (Account 920);
- 17 • \$16,495,000 of customer accounts expenses related to uncollectible
18 accounts (Account 904);
- 19 • \$2,146,000 of administrative and general labor expenses related to office
20 supplies (Account 921);

- 1 • \$158,000 of administrative and general labor expenses related to outside
- 2 services employed (Account 923);
- 3 • \$607,000 of administrative and general labor expenses related to injuries
- 4 and damages (Account 925);
- 5 • \$1,807,000 of plant administrative and general labor expenses related to
- 6 property insurance (Account 924);
- 7 • \$5,156,000 of other administrative and general expenses related to
- 8 regulatory commission (Account 928);
- 9 • \$570,000 of other administrative and general expenses related to general
- 10 advertising expenses, miscellaneous (Account 930);
- 11 • \$30,000 of other administrative and general expenses related to rents
- 12 (Account 931); and
- 13 • \$1,108,000 of customer account expenses related to supervision
- 14 (Account 901).

15

16 **Q. DID THE COMPANY AGREE WITH YOUR CUSTOMER COST**

17 **ANALYSIS?**

18 A. Partly. Mr. Hanser, in rebuttal testimony, took issue with some indirect costs that

19 I excluded from my customer cost analysis, which he claimed was overly

20 restrictive. Furthermore, Mr. Hanser claimed that, after evaluation, the

21 Commission may find it appropriate to include certain of my excluded indirect

1 costs items in the computation of customer charges resulting in my analysis, which
2 would yield higher customer charges than those proposed by PGW.¹⁵
3

4 **Q. DO YOU AGREE WITH THE COMPANY'S ASSESSMENT THAT YOUR**
5 **CUSTOMER COST ANALYSIS IS OVERLY RESTRICTIVE?**

6 A. No, I do not. As mentioned in my direct testimony, I followed the Commission's
7 guidelines not only in the Aqua and PPL cases mentioned above but I also used
8 the appropriate distribution main allocation in excluding the indirect costs from
9 my customer cost analysis. Based upon what the Commission has allowed and
10 disallowed in previous base rate proceedings, the Commission should reject the
11 Company's overly inclusive customer charges.
12

13 **Q. DID PICGUG AGREE WITH YOUR CUSTOMER COST ANALYSIS?**

14 A. No, it did not. As mentioned previously, Mr. Baudino disagreed in rebuttal
15 testimony with my use of the peak and average method in this proceeding and that
16 criticism is naturally reflected in my customer cost analysis. Additionally,
17 PICGUG also took issue with the fact that I, along with the OCA, and the
18 Company, combined the GTS and IT customer classes in my customer cost
19 analysis. Per Mr. Baudino, the GTS and IT customer classes are distinct and
20 should be treated as such in this proceeding as IT customers are interruptible while
21 GTS customers are firm customers. Moreover, PICGUG asserts that combining

¹⁵ PGW Statement No. 5-R, page 3, lines 6-20.

1 the GTS and IT customer classes in this proceeding unfairly shifts a large amount
2 of distribution main costs to IT customers and is not proper.¹⁶

3
4 **Q. WOULD YOU LIKE TO RESPOND TO PICGUG'S CRITICISM**
5 **REGARDING THE FACT THAT YOU COMBINED THE GTS AND IT**
6 **CUSTOMER CLASSES IN DIRECT TESTIMONY?**

7 A. Yes. As I stated in my rebuttal testimony, I used the cost allocations provided by
8 the Company in my direct testimony and do not object to PICGUG's proposal that
9 PGW separate the costs of providing service to the GTS and IT customer classes in
10 the next base rate case since the GTS and IT customer classes are fundamentally
11 different in that IT customers can be interrupted while the GTS class takes firm
12 service from PGW. Furthermore, in my proposed revenue allocation in direct
13 testimony, I reduced the amount of the increase to the GTS/IT customer class by
14 \$2,930,000.¹⁷ Additionally, my scale-back reduced the increase to the GTS/IT
15 customer class by another \$1,592,000.¹⁸ The initial revenue allocation as well as my
16 scale back reduced the increase for the IT customer class and should address some
17 of the gradualism concerns raised by Mr. Baudino.

¹⁶ PICGUG Statement No. 1-R, page 11, lines 3-12.

¹⁷ I&E Exhibit No. 3, Schedule No. 5, page 1, line 18, column K.

¹⁸ I&E Exhibit No. 3, Schedule No. 6, page 1, line 19, column K.

1 **CUSTOMER CHARGES**

2 **Q. WHAT CUSTOMER CHARGE DID YOU RECOMMEND FOR THE**
3 **RESIDENTIAL CUSTOMER CLASS IN DIRECT TESTIMONY?**

4 A. I recommended a monthly residential customer charge of \$15.00, which represents
5 a 25 percent increase for the residential customer class.¹⁹

6
7 **Q. WHAT CUSTOMER CHARGES DID YOU RECOMMEND FOR THE**
8 **COMPANY'S OTHER CUSTOMER CLASSES IN DIRECT TESTIMONY?**

9 A. I recommended that the customer charge for the Company's other customer classes
10 be scaled back proportionally to the usage charge. For example, if the usage rate
11 increase is 1.7 percent for the commercial customer class (or half of the current
12 proposed 3.5 percent increase) over current rates, the customer charge increase
13 would be 25 percent (half of the current proposed 50 percent.)²⁰

14
15 **Q. DID THE COMPANY ACCEPT YOUR RECOMMENDED CUSTOMER**
16 **CHARGES?**

17 A. Although Mr. Hanser stated that my recommended residential customer charge was
18 a step in the right direction, PGW took issue with a statement I made in direct
19 testimony regarding the inappropriateness of the Company's proposed customer
20 charge for the residential customer class. Mr. Hanser then went on to claim that the

¹⁹ I&E Statement No. 3, page 31, lines 10-14.

²⁰ I&E Statement No. 3, page 33, lines 10-14.

1 appropriate level of customer charges should be determined by the customer-related
2 costs allocated on a per customer-month basis, which are higher than the Company's
3 proposed customer charges even with my excluded indirect cost items. PGW also
4 claimed that because the current monthly residential customer charge of \$12.00 has
5 been in place since 2001, the \$6.00 proposed increase to be effective in 2018
6 amounts to less than 2.6% per year, which on a yearly basis would conform to the
7 principle of gradualism. Additionally, per Mr. Hanser, a higher percentage increase
8 in the customer charge with respect to the usage rate is appropriate as long as it
9 leads to a rate structure that more accurately reflects cost causation.²¹
10

11 **Q. WHAT IS YOUR RESPONSE TO THE COMPANY'S TESTIMONY**
12 **REGARDING YOUR RECOMMENDED CUSTOMER CHARGES?**

13 A. First, the fact that PGW's current customer charges have been in place since 2001
14 underlines the inappropriateness of the Company's proposed 50 percent increase to
15 the customer charges in this proceeding. This is because, in general, residential
16 customers are used to paying the \$12.00 monthly customer charge as some of them
17 have for the past 15-16 years. A sudden \$6.00 or 50 percent increase would be
18 harder those ratepayers to absorb (however justified the increase may be). For that
19 reason, I&E is proposing a 25 percent increase to the residential customer class in
20 lieu of the Company's 50 percent increase. Second, like Mr. Hanser, I believe that
21 customer charges should be based on the costs the Company incurs to provide

²¹ PGW Statement No. 5-R, pages 4-5, lines 10-18 and 1-16.

1 service to its customers on a monthly basis. However, gradualism should always be
2 part of any rate increase decision and my notion of gradualism seems to differ from
3 Mr. Hanser's, who believes it is appropriate to "compound" annual increases due to
4 the fact that customer charges have been unchanged for so long. I disagree
5 because....

6
7 **Q. DID PICGUG AGREE WITH YOUR RECOMMENDED CUSTOMER**
8 **CHARGES?**

9 A. No, it did not. PICGUG believes that more of PGW's costs for the IT as well as
10 large transportation customers (those who do not have monthly demand charges) are
11 fixed and therefore should be collected through fixed charges rather than through
12 volumetric rates. Per PICGUG, doing so will ensure revenue stability for the utility
13 and reduce intra-class subsidies between rate IT customer and other high load
14 customers. According to Mr. Baudino, my customer cost analysis for large
15 transportation customers (including rate IT customers), violates the opinion stated
16 above.²²

17
18 **Q. WHAT IS YOUR RESPONSE TO MR. BAUDINO'S ASSESSMENT OF**
19 **YOUR RECOMMENDED CUSTOMER CHARGES?**

20 A. Mr. Baudino's recommendation should be rejected for the following reasons. First,
21 I believe that customer charges should be based on a customer cost analysis that

²² PICGUG Statement No. 1-R, page 18, lines 13-23.

1 includes only direct costs and some indirect costs previously approved by the
2 Commission. Additionally, the ratemaking concept of gradualism should also be
3 taken into account in rate design. Moreover, on page 40 of my direct testimony, I
4 described why customer charges should not be increased over a reasonable level to
5 improve the revenue stability of the Company. My recommended customer charges
6 in this proceeding are based on my customer cost analysis and, importantly, on the
7 ratemaking concept of gradualism.

8
9 **PROPOSED REVENUE**

10 **Q. DID YOU ADDRESS THE COMPANY'S PROPOSED REVENUE**
11 **ALLOCATION IN DIRECT TESTIMONY?**

12 **A.** Yes. I recommended the following revenue allocation based on the demand and
13 commodity COSS:

- 14 • For the Residential customer class, the Company's proposed
15 \$59,000,000 increase be reduced by \$5,438,000 to \$53,562,000;
- 16 • For the Commercial customer class, the Company's proposed
17 \$5,000,000 be increased by \$5,154,000 to \$10,154,000;
- 18 • For the Industrial customer class, the Company's proposed \$400,000
19 decrease be changed to an increase of \$926,000;
- 20 • For the Philadelphia Public Housing Authority – General Service
21 customer class, the Company's proposed \$400,000 increase be
22 reduced by \$137,000 to \$263,000;

- 1 • For the Municipal/Philadelphia Public Housing Authority – Rate 8
- 2 customer class, the Company’s proposed \$500,000 increase be
- 3 increased by \$2,020,000 to \$2,520,000;
- 4 • \$5,000 be reallocated to the Natural Gas Vehicle Service customer
- 5 class;
- 6 • For the Gas Transportation Service/Interruptible customer class, the
- 7 Company’s proposed \$5,500,000 increase be reduced by \$2,930,000
- 8 to \$2,570,000.²³

9

10 **Q. DID PICGUG ACCEPT YOUR REVENUE ALLOCATION?**

11 A. No, it did not. PICGUG’s issue with my revenue allocation stems from the fact that

12 I not only used the peak and average COSS but did not separate IT and GTS

13 customer classes. Mr. Baudino claimed that combining both customer classes

14 understates my proposed increase for the IT customer class whose customers cannot

15 negotiate their rate with the Company. Furthermore, PICGUG recommended a

16 system average increase for IT customers should the Commission adopt the peak

17 and average COSS in this proceeding.²⁴

²³ I&E Exhibit No. 3, Schedule No. 5, page 1, line 18.

²⁴ PICGUG Statement No. 1-R, pages 16-18.

1 **Q. WOULD YOU LIKE TO ADDRESS MR. BAUDINO'S ASSESSMENT OF**
2 **YOUR REVENUE ALLOCATION?**

3 A. I have already responded to PICGUG issues both in my rebuttal testimony and
4 above.²⁵

5
6 **SCALE BACK OF RATES**

7 **Q. WHAT WAS YOUR SCALE BACK RECOMMENDATION BASED ON**
8 **I&E'S RECOMMENDED OVERALL REVENUE INCREASE OF**
9 **\$33,802,000 IN DIRECT TESTIMONY?**

10 A. I&E's overall revenue increase of \$33,802,000 in direct testimony resulted in the
11 need to scale back revenue by \$36,198,000 (\$70,000,000 - \$33,802,000).

12
13 **Q. WHAT IS I&E'S CURRENT RECOMMENDED OVERALL REVENUE**
14 **INCREASE?**

15 A. As explained by I&E witness Rachel Maurer on page 10 of I&E Statement No. 1-
16 SR, I&E is now recommending an overall revenue increase of \$39,645,000 in this
17 proceeding.

²⁵ I&E Statement No. 3-R, pages 3 and 4.

1 **Q. PLEASE UPDATE YOUR SCALE BACK RECOMMENDATION BASED**
2 **ON I&E'S RECOMMENDED OVERALL REVENUE INCREASE OF**
3 **\$39,645,000.**

4 A. I&E's overall revenue increase of \$39,645,000 results in the need to scale back
5 revenue by \$30,355,000 (\$70,000,000 - \$39,645,000). The I&E recommended
6 revenue increase of approximately \$39,645,000 by class is shown on I&E Exhibit
7 No. 3-SR, Schedule No. 1, page 1, line 20.

8
9 **Q. DOES THIS COMPLETE YOUR SURREBUTTAL TESTIMONY?**

10 A. Yes.

I&E Exhibit No. 3-SR
Witness: Kokou M. Apetoh

PENNSYLVANIA PUBLIC UTILITY COMMISSION

V.

PHILADELPHIA GAS WORKS

Docket No. R-2017-2586783

Exhibit to Accompany

The

Surrebuttal Testimony

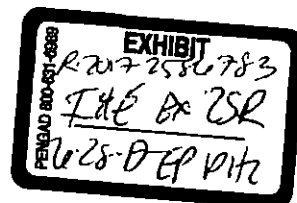
Of

Kokou M. Apetoh

Bureau of Investigation and Enforcement

Concerning:

Forfeited Discounts
Cost of Service
Customer Cost Analysis
Customer Charges
Scale Back of Rates



Philadelphia Gas Works
R-2017-2586783
Allocated Class COS Study - Fully Projected Future Test Year Ending August 31, 2018 in Thousands
Updated I&E Scale Back Recommendation (Revised 6/15/2017)

Line No.	Description	Total Allocated Dollars	Residential	Commercial	Industrial	PHA GS	Municipal PHA	NGVS	Interruptible	GTS/IT
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1	<u>At Current Rates</u>									
2	Total Revenue	\$491,321	\$385,361	\$77,404	\$5,908	\$1,500	\$8,865	\$20	\$17	\$12,246
3	Share of Revenue, by Class	100.0%	78.4%	15.8%	1.2%	0.3%	1.8%	0.0%	0.0%	2.5%
4	Total Operating Expenses	\$435,415	\$339,413	\$68,268	\$5,410	\$1,335	\$9,279	\$21	\$26	\$11,663
5	Share of Operating Expenses, by Class	100.0%	78.0%	15.7%	1.2%	0.3%	2.1%	0.0%	0.0%	2.7%
6	Income Before Interest & Surplus	\$55,906	\$45,948	\$9,136	\$498	\$165	(\$414)	(\$1)	(\$9)	\$583
7	Interest & Surplus	\$125,012	\$98,204	\$19,064	\$1,402	\$423	\$2,815	\$6	\$6	\$3,092
8	Current Revenue Over (Under) Requirements	(\$69,106)	(\$52,256)	(\$9,928)	(\$904)	(\$258)	(\$3,229)	(\$7)	(\$15)	(\$2,509)
9	Total Revenue Requirements	\$560,427	\$437,617	\$87,332	\$6,812	\$1,758	\$12,094	\$27	\$32	\$14,755
10	Revenue Increase for Full Cost of Service	14.1%	13.6%	12.8%	15.3%	17.2%	36.4%	35.0%	88.2%	20.5%
11	Rate Base	\$1,188,364	\$933,525	\$181,229	\$13,324	\$4,022	\$26,756	\$59	\$58	\$29,391
12	Return on Rate Base Before Interest & Surplus	4.7%	4.9%	5.0%	3.7%	4.1%	-1.5%	-1.7%	-15.5%	2.0%
13	Relative Return	1.00	1.05	1.07	0.79	0.87	-0.33	-0.36	-3.30	0.42
14	Revenues Relative to COS	0.88	0.88	0.89	0.87	0.85	0.73	0.74	0.53	0.83
15	Relative to Total for all Classes	1.00	1.00	1.01	0.99	0.97	0.84	0.84	0.61	0.95
16	<u>After Proposed Increase</u>									
17	Proposed Increase (Decrease)	\$70,000	\$59,000	\$5,000	(\$400)	\$400	\$500	\$0	\$0	\$5,500
18	I&E Reallocation	\$0	(\$5,438)	\$5,154	\$1,326	(\$137)	\$2,020	\$5	\$0	(\$2,930)
19	Sample Scaleback	(\$30,355)	(\$24,096)	(\$4,568)	(\$417)	(\$118)	\$0	\$0	\$0	(\$1,156)
20	Total I&E	\$39,645	\$29,466	\$5,586	\$509	\$145	\$2,520	\$5	\$0	\$1,414
21	Share of Proposed Increase, by Class	100.0%	84.3%	7.1%	-0.6%	0.6%	0.7%	0.0%	0.0%	7.9%
22	Total Distribution Revenue with Increase	\$30,966	\$14,827	\$2,990	\$6,417	\$1,645	\$11,385	\$25	\$17	\$13,660
23	Increase (Decrease) %	8.07%	7.65%	7.22%	8.62%	9.65%	28.43%	25.00%	0.00%	11.545%
24	Income Before Interest & Surplus	\$125,906	\$104,948	\$14,136	\$98	\$565	\$86	(\$1)	(\$9)	\$6,083
24	Revenues Relative to COS	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.53	0.93

(Note: The Rate of Return is Below 1.00 because Expenses and Coverage have not been Adjusted to the I&E Level)

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission

v.

Philadelphia Gas Works

Docket No. R-2017-2586783

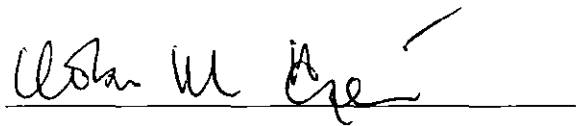
VERIFICATION OF KOKOU APETOH

I, **Kokou Apetoh**, on behalf of the Bureau of Investigation and Enforcement, hereby verify that **I&E Statement No. 3, I&E Exhibit 3, I&E Statement No. 3-R, I&E Statement No. 3-SR, and I&E Exhibit No. 3-SR and any discovery responses which I have sponsored** were prepared by me or under my direct supervision and control.

Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same if called to the stand at any evidentiary hearing held in this matter.

This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Signed in Harrisburg, Pennsylvania, this 27th day of June, 2017.

A handwritten signature in black ink, appearing to read 'Kokou Apetoh', is written over a horizontal line.

Kokou Apetoh