



PHILADELPHIA GAS WORKS

800 West Montgomery Avenue • Philadelphia, PA 19122

Craig Berry, Senior Attorney
Legal Department
Direct Dial: 215-684-6049
FAX: 215-684-6798
E-mail: craig.berry@pgworks.com

June 1, 2023

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
400 North Street
Harrisburg, PA 17120

**Re: Philadelphia Gas Works' ("PGW") Annual Resource Planning Report, Docket
No. M-2023-3037450**

Dear Secretary Chiavetta:

On behalf of Philadelphia Gas Works ("PGW") enclosed please find its Annual Resource Planning Report, Forms 3 through 9. Please contact me if you have any questions.

Respectfully,

/s/ Craig W. Berry

Craig W. Berry, Esquire

Enclosure

cc: Cert. of Service w/enc.

CERTIFICATE OF SERVICE

I hereby certify that this day I served a copy of PGW's Annual Resources Planning Report upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

Via Email

Aron Beatty, Esq.
Christy Appleby, Esq.
Office of Consumer Advocate
5th Floor, Forum Place Bldg.
555 Walnut Street
Harrisburg, PA 17101-1921
abeatty@paoca.org
cappleby@paoca.org

Sharon Webb, Esq.
Office of Small Business Advocate
Forum Place Building
555 Walnut St., 1st Fl.
Harrisburg, PA 17101
swebb@pa.gov

Richard Kanaskie, Esq.
Bureau of Investigation & Enforcement
PA Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265
rkanaskie@pa.gov

Charis Mincavage, Esq.
Adeolu Bakare, Esq.
Alessandra L. Hylander, Esq.
McNees Wallace & Nurick
100 Pine Street
Harrisburg, PA 17101
cmincavage@mcneeslaw.com
abakare@mcneeslaw.com
ahylander@mwn.com

Jerome D. Mierzwa
Exeter Associates, Inc.
10480 Little Patuxent Parkway
Columbia, MD 21044
jmierzwa@exeterassociates.com

Robert Knecht
Industrial Economics, Incorporated
2067 Massachusetts Ave.
Cambridge, MA 02140
rdk@indecon.com

Dated: June 1, 2023

/s/ Craig W. Berry
Craig W. Berry, Esq.

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

**Philadelphia Gas Works
800 West Montgomery Avenue
Philadelphia, Pennsylvania 19122**

ANNUAL RESOURCE PLANNING

REPORT June 2023

Forms 3 to 9

**Information Submitted in Compliance with and Pursuant to Title 52
Pennsylvania Code Section 59.81 and 59.82**

PHILADELPHIA GAS WORKS

TABLE OF CONTENTS

Exhibit No.¹	Regulation	Description
4	59.81	Form IRP-Gas-3 – Historical, Current, and Forecast Number of Customers
5	59.81	Forms IRP-Gas-4A and -4B – Annual and Peak Day Energy Supply Resources and Demand Requirements
6	59.82	Forms IRP-Gas-5 – Energy Conservation Report – Program Description
7	59.82	Forms IRP-Gas-6 – Energy Users
8	59.82	Forms IRP-Gas-7 – Energy Conservation and Load Management Program Summary
9	59.82	Forms IRP-Gas-8 – Energy Conservation and Load Management Program Cost-Benefit Analysis Inputs
10	59.82	Forms IRP-Gas-9 – Energy Conservation and Load Management Program Cost-Benefit Analysis Results

¹ PGW filed its Annual Resource Planning Report, Forms 1 and 2 on February 28, 2023. That Report contained three numbered exhibits, which are accounted for in this report.

Section 59.81

Form IRP-Gas-3 – Historical, Current, and Forecast Number of Customers

Response:

Please see the attached form.

FORM-IRP-GAS-3: Historical, Current, and Forecast Number of Customers ⁽¹⁾
 REPORTING UTILITY: PHILADELPHIA GAS WORKS

	Historical Data		Current Year	Three Year Forecast			
	Index Year Fiscal Year	-2 2020-2021	-1 2021-2022	0 2022-2023	1 2023-2024	2 2024-2025	3 2025-2026
Firm Customers							
Retail Residential		469,879	467,914	461,399	463,542	462,295	461,011
Retail Commercial		22,446	22,748	22,724	23,498	23,659	23,860
Retail Industrial		474	454	450	449	447	444
Other		-	-	-	-	-	-
Subtotal Sales Service		492,799	491,115	484,573	487,490	486,401	485,315
Electric Power Generation		-	-	-	-	-	-
Interruptible Customers		3	2	2	2	2	2
Transportation Service ⁽²⁾		24905	25896	31887	30,054	31,027	32,034
CUSTOMER TOTAL		517,707	517,014	516,461	517,546	517,430	517,351
Increase (Decrease)		5,361	(693)	(552)	1,084	(116)	(78)
Percent Change (%)		1.0%	-0.1%	-0.1%	0.2%	0.0%	0.0%

⁽¹⁾ Customer Count is based on the average number of billings over the course of the year.

⁽²⁾ The increase in Transportation customers is due to customers switching to transportation.

Section 59.81

**Forms IRP-Gas-4A and -4B – Annual and Peak Day Energy Supply
Resources and Demand Requirements**

Response:

Please see the attached forms.

FORM-IRP-GAS-4A: Annual Energy Supply Resources and Demand Requirements
 REPORTING UTILITY: PHILADELPHIA GAS WORKS
 (Volumes in MMcf)

	Historical Data		Current Year	Three Year Forecast		
Index Year Actual Year	-2 2020-2021	-1 2021-2022	0 2022-2023	1 2023-2024	2 2024-2025	3 2025-2026
Gas Supply:						
Supply Contracts	42,108	43,478	42,399	43,336	43,299	43,386
Storage Withdrawals	10,521	10,308	11,409	14,280	14,165	14,289
LNG	1,293	3,106	1,693	1,602	1,609	1,634
Exchanges with Other LDCs	-	-	-	-	-	-
Subtotal Gas Supply	53,922	56,891	55,501	59,218	59,073	59,309
Transportation Deliveries	31,109	31,315	32,092	31,717	31,785	31,857
TOTAL GAS SUPPLY	85,031	88,206	87,593	90,936	90,857	91,167
Requirements:						
Firm Requirements	41,564	41,308	41,386	42,263	42,223	42,329
Liquefaction	1,192	1,786	1,872	1,740	1,727	1,728
Interruptible Requirements	557	1,379	895	545	544	544
Storage Injections	10,608	12,418	11,348	14,670	14,578	14,708
Sales to other LDC's	-	-	-	-	-	-
Subtotal Firm & Interruptible	53,922	56,891	55,501	59,218	59,073	59,309
Transportation	31,109	31,315	32,092	31,717	31,785	31,857
Load Reductions						
TOTAL GAS REQUIREMENTS	85,031	88,206	87,593	90,936	90,857	91,167
Surplus (Deficiency)	0	0	0	(0)	0	0

FORM-IRP-GAS-4B: Peak Day Energy Supply Resources and Demand Requirements ⁽¹⁾
 REPORTING UTILITY: PHILADELPHIA GAS WORKS
 (Volumes in MMcf)

Index Year Actual Year	Historical Data		Current Year	Three Year Forecast		
	-2 2020-2021	-1 2021-2022	0 2022-2023	1 2023-2024	2 2024-2025	3 2025-2026
Gas Supply:						
Supply Contracts	153	84	265	241	241	240
Storage Withdraws	165	175	161	189	189	189
LNG	74	172	170	204	205	208
Subtotal Gas Supply	392	431	597	634	634	637
Transportation	161	151	32	30	30	31
TOTAL GAS SUPPLY	552	583	629	664	664	667
Requirements:						
Firm Requirements ⁽²⁾	391	431	530	568	568	570
Interruptible Requirements	0	1	2	2	2	2
Storage & LNG Fuels	-	-	9	12	12	12
Subtotal Firm & Interruptible	392	431	541	581	581	583
Transportation	161	151	88	82	83	84
Load Reductions	-	-	-	-	-	-
TOTAL GAS REQUIREMENTS	552	583	629	664	664	667
Surplus (Deficiency)	0	0	0	0	0	0

⁽¹⁾ Peak Day for the actual/estimated year is forecasted at a 5 degree temperature. For the fully forecasted years, the Peak Day is based on a 2 degree temperature.

⁽²⁾ Firm requirements for the forecast years include plant use.

Section 59.82

**Forms IRP-Gas-5 – Energy Conservation Report – Program
Description**

Response:

Please see the attached form.

FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Philadelphia Gas Works (PGW)

Program: Home Comfort Program

Existing [X] Proposed []

Contact Person: Steven Jerue
(215) 684-6499

Objective: Home Comfort provides free, in-home weatherization and energy conservation education services for income-qualified, single-family customers, including those enrolled in CRP. Home Comfort seeks to make the homes of eligible customers more energy efficient, which improves comfort and reduces the subsidy cost. In 2017 PGW also launched the Low Income Multifamily Efficiency pilot, which provides conservation services to multifamily buildings with low income residents.

Details of Activity and Implementation Schedule:

Eligible customers are targeted for program participation. For each participating household, PGW's contractors will perform an energy diagnostic audit, energy education, and conservation treatments such as home repairs, programmable thermostat, insulation, etc.

Actual and/or Anticipated Results:

Year	Peak Load Reduction Mcf	Energy Savings (4)			Other Results
		Electric Mwh	Gas Mcf	Oil Gallons	
2011 (2)			25		1,634 Homes w/Treatment
2012 (2)			35		2,158 Homes w/Treatment
2013 (2)			19		2,395 Homes w/Treatment
2014 (2)			14		2,673 Home w/Treatment
2015 (2)			12		3,707 Homes w/Treatment
2016 (2)			17		3,814 Homes w/Treatment
2017 (2) (6)			23		2,118 Homes w/Treatment
2018 (2) (6)			13		2,478 Homes w/Treatment
2019 (2) (6)			12		2,996 Homes w/Treatment
2020 (2) (6)			15		1,650 Homes w/Treatment
2021 (2) (6)			14		2,057 Homes w/Treatment

Monetary and Personnel Resources:

Year	Personnel Est. Hrs. (3)	Categorized Program Expenses		
		Outside Services	Admin.	Total
2011 (1)	17,974	\$2,191,948	\$54,382	\$2,246,330
2012 (1)	23,798	\$4,599,186	\$635,667	\$5,234,853
2013 (1)	26,345	\$7,032,750	\$1,021,654	\$8,054,404
2014 (1)	N/A	\$6,181,851	\$999,164	\$7,181,015
2015 (1) (5)	N/A	\$7,913,908	\$700,724	\$8,614,632
2016 (1) (5)	N/A	\$7,598,605	\$495,954	\$8,094,559
2017 (1) (5) (6)	N/A	\$4,876,103	\$375,680	\$5,251,783
2018 (1) (5) (6)	N/A	\$7,523,003	\$325,600	\$7,848,602
2019 (1) (5) (6)	N/A	\$7,681,082	\$287,386	\$7,968,468
2020 (1) (5) (6)	N/A	\$6,545,627	\$244,558	\$6,790,185

2021 (1) (5) (6)	N/A	\$9,070,724	\$117,560	\$9,188,284
------------------	-----	-------------	-----------	-------------

- (1) Actual
- (2) Actual number of participants, actual expenditure, estimated energy savings
- (3) PGW no longer tracks the personnel hours involved in CRP Home Comfort treatments, and instead tracks progress relative to cost-effectiveness goals.
- (4) Average energy savings per treated home.
- (5) Pursuant to the PUC's revisions to the annual Table 1 and Table 2 LIURP evaluation reports, administrative costs include PGW internal costs and allocated portfolio implementation costs. Outside services includes all program implementation and overhead costs.
- (6) Spending total includes programmatic and administrative costs (including labor) for the single family Home Comfort program and the Low Income Multifamily Efficiency (LIME) program. Completed jobs include single family homes treated in the Home Comfort program, and multifamily buildings treated in the LIME program.

Section 59.82 **Forms IRP-Gas-6 – Energy Users**

Response: Please see the attached form.

**FORM-IRP-GAS-6
ENERGY USERS
COMPANY: PHILADELPHIA GAS WORKS**

Fiscal Year Ending August 31, 2022

	<u>Number of Customers</u>	<u>Sales (Mcf)</u>
Firm:		
Residential:		
Heating	454,028	30,986,382
Non-heating	13,886	352,949
Commercial	22,748	8,155,269
Industrial	<u>454</u>	<u>464,450</u>
Sub-total Firm	491,115	39,959,049
Interruptible		
Commercial, Industrial, & Cogen	<u>2</u>	<u>1,318,917</u>
Total Gas Sold	491,117	41,277,966
Unbilled Adjustment	-	-
Transportation	25,896	30,890,261
Utility Use	<u>-</u>	<u>300,196</u>
Total	<u>517,014</u>	<u>72,468,423</u>

Section 59.82

**Forms IRP-Gas-7 – Energy Conservation and Load Management
Program Summary**

Response:

Please see the attached form.

FORM-IRP-GAS-7 PROGRAM SUMMARY

Company: Philadelphia Gas Works (PGW)

Program Name	Peak Load Reduction (Mcf)	Energy Use Change (Mcf)	Personnel Est. Hrs (2)	Categorized Program Expenses		
				Outside Services	Adm.	Total
Enhanced Low-Income Retrofit Program (ELIRP) - 2011 (1)	NA	25	17,974	\$2,191,948	\$54,382	\$2,246,330
Enhanced Low-Income Retrofit Program (ELIRP) - 2012 (1)	NA	35	23,798	\$4,599,186	\$635,667	\$5,234,853
Enhanced Low-Income Retrofit Program (ELIRP) - 2013 (1)	NA	19	26,345	\$7,032,750	\$1,021,654	\$8,054,404
Enhanced Low-Income Retrofit Program (ELIRP) - 2014 (1)	NA	14	N/A	\$6,181,851	\$999,164	\$7,181,015
CRP Home Comfort Program - 2015 (1)	NA	12	N/A	\$7,913,908	\$700,724	\$8,614,632
CRP Home Comfort Program - 2016 (1)	NA	17	N/A	\$7,598,605	\$495,954	\$8,094,559
Home Comfort Program - 2017 (1)	NA	23	N/A	\$4,876,103	\$375,680	\$5,251,783
Home Comfort Program - 2018 (1)	NA	13	N/A	\$7,523,003	\$325,600	\$7,848,602
Home Comfort Program - 2019 (1)	NA	12	N/A	\$7,681,082	\$287,386	\$7,968,468
Home Comfort Program - 2020 (1)	NA	15	N/A	\$6,545,627	\$244,558	\$6,790,185
Home Comfort Program - 2021 (1)	NA	14	N/A	\$9,070,724	\$117,560	\$9,188,284

(1) Actual

(2) PGW no longer tracks the personnel hours involved in LIURP treatments, and instead tracks progress relative to cost-effectiveness goals.

Section 59.82

**Forms IRP-Gas-8 – Energy Conservation and Load Management
Program Cost-Benefit Analysis Inputs**

Response:

Please see the attached form.

Company Name: Philadelphia Gas Works (PGW)
FORM-IRP-GAS-8 Cost-Benefit Analysis

PROGRAM: LIURP

t	Year	Energy Savings (1) Mcf E	Average Distribution Cost (2018\$) (2) \$/Mcf ACE	Avoided Energy Cost (2018\$) (3) \$/Mcf MCE	Participant Demand Savings (4) Mcf D	Utility Capacity Savings Mcf G	Average Demand Costs \$/Mcf ACD	Avoided Demand Costs \$/Mcf MCD	Participant Costs PC
1	2021	29,391	8.69	8.12	N/A	N/A	N/A	0	
2	2022	29,391	8.88	8.43	N/A	N/A	N/A	0	
3	2023	29,391	9.14	8.73	N/A	N/A	N/A	0	
4	2024	29,391	9.01	8.99	N/A	N/A	N/A	0	
5	2025	29,391	8.94	9.27	N/A	N/A	N/A	0	
6	2026	29,391	8.89	9.44	N/A	N/A	N/A	0	
7	2027	29,391	8.86	9.54	N/A	N/A	N/A	0	
8	2028	29,391	8.86	9.75	N/A	N/A	N/A	0	
9	2029	29,391	8.68	10.05	N/A	N/A	N/A	0	
10	2030	29,391	8.51	10.19	N/A	N/A	N/A	0	
11	2031	29,391	8.35	10.41	N/A	N/A	N/A	0	
12	2032	29,391	8.18	10.67	N/A	N/A	N/A	0	
13	2033	29,391	8.02	10.83	N/A	N/A	N/A	0	
14	2034	29,391	7.86	11.05	N/A	N/A	N/A	0	
15	2035	29,391	7.71	11.36	N/A	N/A	N/A	0	
16	2036	29,391	7.56	11.38	N/A	N/A	N/A	0	
17	2037	29,391	7.41	11.40	N/A	N/A	N/A	0	
18	2038	29,391	7.26	11.58	N/A	N/A	N/A	0	
19	2039	29,391	7.12	11.85	N/A	N/A	N/A	0	
20	2040	29,391	6.98	12.08	N/A	N/A	N/A	0	
21	2041	-	6.85	12.08	N/A	N/A	N/A	0	
22	2042	-	6.71	12.08	N/A	N/A	N/A	0	
23	2043	-	6.58	12.08	N/A	N/A	N/A	0	
24	2044	-	6.45	12.08	N/A	N/A	N/A	0	
25	2045	-	6.32	12.08	N/A	N/A	N/A	0	

(1) The Average Energy Costs are the annualized distribution costs for PGW firm ratepayers, and do not include the Weather Normalization Adjustment or Distribution System Improvement Charge.

(2) The Avoided Energy Costs used for this analysis were calculated in accordance with the avoided cost formula set forth in the DSM docket at R-2009-2139884 and P-2009-2097639.

Company Name: Philadelphia Gas Works (PGW)
 FORM-IRP-GAS-8 Cost-Benefit Analysis

PROGRAM: LIURP

t	Year	Incentive Cost I	Utility Costs UC	Discount Rates			Escalation Rate (3) % e	System Sales (4) Mcf S	Sales Ratio f
				Participant (d) %	Non-Participant (d) %	Utility (d) %			
1	2021	\$ -	\$ 9,188,284	2.92%	2.92%	2.92%	0	46,048,950	0.006362
2	2022	\$ -	\$ -	2.92%	2.92%	2.92%	0	48,469,115	0.0060
3	2023	\$ -	\$ -	2.92%	2.92%	2.92%	0	50,468,509	0.0058
4	2024	\$ -	\$ -	2.92%	2.92%	2.92%	0	50,544,858	0.0058
5	2025	\$ -	\$ -	2.92%	2.92%	2.92%	0	50,662,151	0.0058
6	2026	\$ -	\$ -	2.92%	2.92%	2.92%	0	50,749,743	0.0058
7	2027	\$ -	\$ -	2.92%	2.92%	2.92%	0	50,851,874	0.0058
8	2028	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
9	2029	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
10	2030	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
11	2031	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
12	2032	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
13	2033	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
14	2034	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
15	2035	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
16	2036	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
17	2037	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
18	2038	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
19	2039	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
20	2040	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0057
21	2041	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0063
22	2042	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0063
23	2043	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0063
24	2044	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0063
25	2045	\$ -	\$ -	2.92%	2.92%	2.92%	0	51,080,732	0.0063

(1) The Participant, Non-Participant and Utility discount rates are real discount rates based on PGW's long-term debt and AFUDC (Allowance for Funds Used During Construction).
 (2) The System Sales are sales to ratepayers subject to the Universal Service and Energy Conservation Surcharge.

Section 59.82

**Forms IRP-Gas-9 – Conservation and Load Management Program
Cost-Benefit Analysis Results**

Response:

Please see the attached form.

Company Name:
FORM-IRP-GAS-9

Philadelphia Gas Works (PGW)
Cost-Benefit Analysis

PROGRAM:

LIURP

Period of Analysis		Total Utility Benefits (Bu) \$	Total Utility Costs (Cu) \$	Revenue Reduction Cost (Cr) \$	Participant Revenue Requirement (Rp) \$	Total participant Benefits (Bp) \$	Total Participant Costs (Cp) \$
Beginning Year	Ending Year						
2021	2045	\$ 4,562,231	\$ 9,188,284	\$ 3,785,699	\$ 55,527	\$ 3,785,699	\$ 55,527

Discounted Payback Period Yrs.	NET PRESENT VALUE			BENEFIT COST RATIO			Rate Impact Non-Part (RIMnp) \$/Mcf
	Participant (NPVp) \$	Non-Part (NPVnp) \$	Utility (NPVu) \$	Participant (BCRp) \$	Non-Part (BCRnp) \$	Utility (BCRu) \$	
N/A	\$ 3,730,172	\$ (8,358,236)	\$ (4,626,053)	68.18	0.35	0.50	\$ 0.200

(1) This filing reports on the results of PGW's LIURP program. Results from PGW's demand side management programs are reported at docket numbers R-2009-2139884 and P-2009-2097639.

(2) The avoided costs used for this analysis were calculated in accordance with the avoided cost formula used for DSM program reporting set forth at docket numbers R-2009-2139884 and P-2009-2097639.