



March 14, 2024

Via Electronic Filing

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

Re: Petition of Philadelphia Gas Works for Approval of Demand-Side Management Plan for FY 2024-2026; Philadelphia Gas Works Universal Service and Energy Conservation Plan for 2024-2026, Docket No. P-2014-2459362

Your Honor:

Dear Secretary Chiavetta:

Consistent with 52 Pa. Code Section 5.412a of the Commission's regulations, which requires the electronic submission of pre-served testimony, and per Administrative Law Judge Brady's March 11, 2024, Order, please find the following "Admitted Evidence" on behalf of Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania:

- CAUSE-PA Statement 1: The Direct Testimony of Jim Grevatt
- CAUSE-PA Statement 1-SR: The Surrebuttal Testimony of Jim Grevatt
- Verification of Jim Grevatt to CAUSE-PA Statement 1 and Statement 1-SR.

Respectfully,

John W. Sweet, Esq.
Counsel for CAUSE-PA

CC: *The Honorable F. Joseph Brady*
Certificate of Service

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Petition of Philadelphia Gas Works for Approval :
of Demand Side Management Plan for FY 2014-2016, : Docket No. P-2014-2459362
52 Pa. Code § 62.4 – Request for Waivers :
 :
 :
 :
Petition of Philadelphia Gas Works :
for Approval of Demand-Side Management :
Plan for FY 2024-2026 :

Certificate of Service

I hereby certify that I have this day served copies of the following documents upon the parties of record in the above captioned proceeding in accordance with the requirements of 52 Pa. Code § 1.54:

- CAUSE-PA Statement 1: The Direct Testimony of Jim Grevatt
- CAUSE-PA Statement 1-SR: The Surrebuttal Testimony of Jim Grevatt
- Verification of Jim Grevatt to CAUSE-PA Statement 1 and Statement 1-SR

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March 14, 2024

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Philadelphia Gas Works :
for Approval of Demand-Side Management : Docket No. P-2014-2459362
Plan for FY 2025-2029 :

DIRECT TESTIMONY OF JIM GREVATT
ON BEHALF OF
THE COALITION FOR AFFORDABLE UTILITY SERVICES AND
ENERGY EFFICIENCY IN PENNSYLVANIA (“CAUSE-PA”)

November 13, 2023

1 **PREPARED DIRECT TESTIMONY OF JIM GREVATT**

2 **Q. Please state your name, title, and employer.**

3 A. My name is Jim Grevatt. I am a Managing Consultant at Energy Futures Group, located at
4 10298 Route 116, Hinesburg, VT 05461.

5 **Q. Please describe Energy Futures Group.**

6 A. Energy Futures Group (“EFG”) is a clean-energy consulting firm headquartered in
7 Hinesburg, Vermont, with offices in Boston and New York. EFG designs, implements, and
8 evaluates programs and policies to promote investments in efficiency, renewable energy, other
9 distributed resources, and strategic electrification. EFG staff have delivered projects on behalf of
10 energy regulators, government agencies, utilities, and advocacy organizations in 40 states, 8
11 Canadian provinces, and several countries in Europe. EFG brings to its work a unique combination
12 of technical, economic, program, and policy expertise. EFG staff have critically evaluated
13 hundreds of efficiency and renewable energy programs, playing key roles in developing many that
14 have subsequently won awards for excellence. Recent work involves efficiency program portfolios
15 and policies in each of the fifteen highest-ranking states on the ACEEE State Energy Efficiency
16 Scorecard, as well as in Ontario, Manitoba, and British Columbia. EFG staff have provided expert
17 witness testimony on efficiency programs, integrated resource planning, and related policy issues
18 in regulatory proceedings in twenty states and five Canadian provinces.

19 **Q. Please summarize your professional and educational experience.**

20 A. I have worked in the energy efficiency industry since 1991 in a wide variety of roles. Prior
21 to joining EFG, I served as the Director of Residential Energy Services at Efficiency Vermont and
22 the District of Columbia Sustainable Energy Utility. I also helped develop and launch the award-
23 winning gas energy efficiency programs at Vermont Gas Systems, where I worked for eleven

1 years, including four years as the Manager of Energy Services. In that role I managed both
2 residential and commercial energy efficiency programs after first leading comprehensive gas
3 residential retrofit and new constructions programs. I have extensive hands-on experience
4 conducting hundreds of energy audits for Vermont’s Low-Income Weatherization Assistance
5 Program and Vermont Gas Systems’ DSM programs.

6 In my current role as Managing Consultant at EFG, I have advised regulators, utilities, and
7 other energy efficiency program administrators, environmental organizations, and low-income and
8 affordable housing advocates in over twenty states and Canadian provinces, and I have provided
9 expert witness testimony in fourteen of those jurisdictions.

10 I received a B.F.A. from the University of Illinois. My resume, included as Attachment A,
11 provides additional details regarding my professional and educational experience.

12 **Q. Have you previously testified in any proceedings before the Pennsylvania Public**
13 **Utilities Commission?**

14 A. Yes, I have testified on behalf of CAUSE-PA in Docket No. P-2014-2459362, PGW’s
15 previous DSM III Plan filing, as well as the Act 129 Phase IV Energy Efficiency and Conservation
16 (EE&C) Plan filing of Metropolitan Edison Company, Pennsylvania Electric Company,
17 Pennsylvania Power Company, and West Penn Power Company (collectively First Energy),
18 Docket Nos. M-2020-3020820, M-2020-3020821, M-2020-3020822, M-2020-3020823; Duquesne
19 Light Company’s Act 129 Phase IV EE&C Filing, Docket No. M-2020-3020818; and PECO
20 Energy Company’s (PECO) Phase IV EE&C Filing, Docket No. M-2020-3020830.

21 **Q. On whose behalf are you testifying in this case?**

22 A. I am testifying on behalf of the Coalition for Affordable Utility Services and Energy
23 Efficiency in Pennsylvania (“CAUSE-PA”).

I. INTRODUCTION

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Q. What is the purpose of your testimony?

A. The purpose of my testimony is to offer observations on the portfolio of energy efficiency programs that Philadelphia Gas Works (“PGW”) proposes in hopes they will inform the Commission’s consideration of PGW’s proposed DSM Implementation Plan for 2024-2026.¹ Specifically, I discuss the relevance of PGW’s proposed gas combustion equipment rebates in the coming years and modifications it can make to better serve lower-income customers who are not eligible for other income-based efficiency programs.

Q. What are your principal observations about PGW’s filing?

A. My principal observations are as follows:

1. PGW proposes, for the most part, to continue implementing its core energy efficiency programs for another five years;
2. PGW proposes several modest enhancements to the portfolio, including an Energy Savings Kits (“ESK”) program, several added measures including roof insulation in the Residential Equipment Rebates (“RER”) program, and a new Small Business Assessments (“SBA”) program;
3. PGW has not analyzed whether high efficiency electric end use options, such as heat pumps, would be financially advantageous for participating customers compared with continuing to use gas;
4. PGW’s proposed budget levels for several programs – notably the RER program – continue to be much higher than warranted by its past performance. On average from 2018-2022

¹ I note here that, subsequent to filing its proposed DSM Implementation Plan for 2024-2026, PGW proposed to extend the plan to a five year term. *See* PGW St. 1 at 2, 12. I will address PGW’s proposal later in this testimony.

1 PGW only expended 52% of its proposed RER budget, with under-performance in the
2 FY18-FY19 pre-pandemic years that was similar to what occurred during the peak
3 pandemic years of FY20-FY21;²

4 5. At the total portfolio level PGW's under-spending is slightly worse: PGW proposed a total
5 five-year FY18-FY22 budget of \$11,858,714 but reported spending for the period of only
6 \$5,525,108, equal to only 47% of its approved budgets. PGW provides no evidence to
7 suggest it will effectively expend the nearly \$13 million it proposes for its FY25-FY29
8 budget;

9 6. Despite encouragement from Commission, PGW does not include in its Plan
10 weatherization services for customers just above income eligibility for LIURP and for low
11 income customers that do not meet the LIURP minimum usage threshold.³

12 **Q. What are your recommendations for the Commission?**

13 A. I recommend the Commission take the following steps prior to its approval of the Plan:
14 1. Direct PGW to stop providing all gas combustion equipment measure rebates and
15 incentives effective January 1, 2025, including those projected for the RER and
16 Commercial Equipment Rebate ("CER") programs;

² Budget and Actual data for FY18 from PGW Demand Side Management Program Annual Report FY 2018 Results, Table 1. DSM Costs and Budgets by Program, p.5; Budget and Actual data for FY19 from PGW Demand Side Management Program Annual Report FY 2019 Results, Table 1. DSM Costs and Budgets by Program, p.2; Budget and Actual data for FY20 from PGW Demand Side Management Program Annual Report FY 2020 Results, Table 1. DSM Costs and Budgets by Program, p.3; Budget and Actual data for FY21 from PGW Demand Side Management Program Annual Report FY 2021 Results, Table 2. DSM Costs and Budgets by Program, p.4; Budget and Actual data for FY22 from PGW Demand Side Management Program Annual Report FY 2018 Results, Table 2. DSM Costs and Budgets by Program, p.3.

³ *PGW Universal Service and Energy Conservation Plan for 2023-2027*, M-2021-3029323, Final Order at 62-63 (Entered Jan. 12, 2023).

1 if granted its rate increase, it would file a comprehensive conservation plan with “its goal to reduce
2 natural gas usage by PGW customers, and, in turn save them money on their overall gas bill.”⁶

3 In 2011, when PGW first launched its DSM program, it proposed to include its Low Income
4 Usage Reduction Program (LIURP) as part of its DSM program portfolio. In its subsequent review
5 of PGW’s DSM Phase II plan, the Commission determined that PGW’s LIURP should be included
6 as a component of its universal service program portfolio, within its Universal Service and Energy
7 Conservation Plan.⁷

8 LIURP, on its own, is insufficient to address the level of need for energy efficiency
9 measures among low income customers. As I will discuss further below, PGW’s voluntary DSM
10 program must also include targeted low income programming for customers that aren’t served
11 under LIURP – consistent with the requirements of electric utilities under Act 129.⁸

12 **Q. How do energy efficiency programs help customers “achieve usage reductions?”**

13 A. Energy efficiency, in the context of utility programs, means helping customers achieve the
14 same benefit from their energy using appliances while using less energy. This is in contrast to
15 “conservation” which generally implies achieving less benefit and thus using less energy as a
16 result. For example, an energy efficient home that is well-insulated will use less gas to maintain
17 an indoor temperature of 68° F in the winter than an inefficient home that lacks sufficient

⁶ *Id.*

⁷ *Petition of Philadelphia Gas Works for Approval of Demand-Side Management Plan for FY 2016-2020, and Philadelphia Gas Works Universal Service and Energy Conservation Plan for 2014-2016, 52 Pa. Code § 62.4 – Request for Waivers, P-2014-2459362, Final Opinion and Order at 1, 26-276 (Entered Oct. 6, 2016).*

⁸ *Act 129 Energy Efficiency & Conservation (EE&C) Implementation, Docket No. M-2020-3015228 Implementation Order, p.36, (Entered June 18, 2020).*

1 insulation. Both houses are kept at the same temperature, but the efficient home requires less gas
2 to stay warm, thus it is more efficient.

3 **Q. How would “conservation” differ from efficiency in the same example?**

4 A. Conservation would be achieved by turning the temperature down – say to 60° F instead of
5 68° F. Both the efficient and inefficient houses used in the previous example would use less gas
6 by turning the temperature down. In both cases the occupants would give up comfort in order to
7 use less gas.

8 **Q. In your prior experience as Manager of Energy Services for a gas utility, what types
9 of programs were typically offered to residential customers to help them use gas more
10 efficiently?**

11 A. At Vermont Gas, we offered a program designed to provide comprehensive building shell
12 improvements by adding insulation and air sealing to existing buildings; a program designed to
13 encourage home builders to build more efficient homes by providing technical assistance and
14 incentives; and a low-income energy efficiency program that provided significant incentives for
15 comprehensive home retrofits for income-eligible households. The low-income program was
16 implemented in partnership with the local Weatherization Assistance Program (“WAP”) and the
17 local electric distribution companies (“EDCs”). Note that these programs were recognized by the
18 American Council for an Energy Efficient Economy (“ACEEE”) for their exemplary design and
19 performance.⁹ When I was with Vermont Gas, now nearly twenty years ago, PGW also
20 implemented a program that provided rebates for customers purchasing high efficiency gas
21 furnaces, boilers, and water heaters. At that time high efficiency equipment was relatively new to

⁹ Kushler, Martin et al, *Responding to the Natural Gas Crisis: America’s Best Natural Gas Energy Efficiency Programs*, American Council for an Energy Efficient Economy, 2003. <https://www.aceee.org/research-report/u035>

1 the market and those rebate programs were appropriate to bolster widespread adoption of high
2 efficiency technologies. However, for a number of reasons I will discuss, it is no longer reasonable
3 for gas utilities to provide rebates for high efficiency combustion equipment.

4 **Q. Did Vermont Gas also offer programs for commercial and industrial customers?**

5 A. Yes, the non-residential programs were organized similarly to the residential programs, in
6 that they offered different opportunities for customers so that, regardless of whether or not the
7 customer was at the point of replacing old equipment, there were ways for them to save energy by
8 participating in the efficiency programs. It is a general practice when designing a portfolio of
9 energy efficiency programs, whether for a gas or electric utility, to include programs that address
10 different types of opportunities and that are available to different categories of customers. This is
11 intended to ensure that all customers have the opportunity to participate in energy efficiency if
12 they so choose. Given that all classes of customers typically contribute to the costs of the programs
13 through rates it would be unreasonable not to include programs that meet the different needs of
14 different customers.

15 **Q. Is it reasonable for PGW to provide tools, in the form of DSM programs, to help its**
16 **customers manage their energy use?**

17 A. Yes, absolutely. Utility customers rarely have the knowledge and training that are required
18 to effectively manage their energy use on their own, and when investments are required, many
19 customers simply will not be able to afford to make them, even when they will save more money
20 over time than it will cost to install energy efficiency measures. This is especially true for low to
21 moderate income customers who are most prone both to being highly energy-burdened and to
22 lacking the financial resources to invest in EE.

1 **Q. How is the general practice you describe above typically applied to low-income**
2 **customers?**

3 A. In every utility example I can think of, targeted low-income programs are included in the
4 portfolio. It would be unreasonable for a utility not to offer efficiency programs that are specifically
5 designed for its low-income customers. Low-income customers pay for programs through rates,
6 and most often lack the financial resources to manage the cost-sharing requirements for
7 participation in general residential programs. Low-income households face disproportionately
8 high energy burdens,¹⁰ and often struggle profoundly to afford and maintain energy service to their
9 home. It is fundamentally unreasonable for these households to pay for programs that benefit
10 higher income households that they cannot themselves access. PGW includes modest offerings in
11 its proposed Plan to support low-income households become more energy efficient, though these
12 offerings are inadequate to meet identified need and are not proportionate to the number of low
13 income customers in PGW's service territory.

14 For reference, the Commission's Act 129 Phase IV Order requires the EDCs to obtain 5.8%
15 of total portfolio savings for customers whose income is equal to or less than 150% FPL.¹¹ The
16 Phase IV Energy Efficiency and Peak Demand Reduction Market (EEPDR) Potential Study was
17 used to help the Commission set compliance targets for Act 129 Phase IV implementation. In the
18 EEPDR, the Statewide Evaluator ("SWE") estimated that low-income customers at or below 150%

¹⁰Energy burden is defined by the percent of gross monthly household income allocated towards home energy costs. High energy-burdened households spend between 6-10% of their gross income on energy bills, while severely burdened households spend greater than 10% of their gross income. *See, e.g., American Council for an Energy-Efficient Economy (ACEEE), Energy Burden Report*, available at: <https://www.aceee.org/energy-burden>.

¹¹ *Implementation of Act 129 of 2008—Phase IV Energy Efficiency and Conservation Plan Template*, Docket No. M-2020-3015228 Docket No. M-2020-3015228 Final Implementation Order, Table 11, p.35, (Entered June 18, 2020). Note the exception of Duquesne, which is only required to achieve 5.3%.

1 FPL could achieve approximately 6.5% of statewide portfolio savings when 12.7% of EEPDR
 2 budgets are allocated to specific low-income programs.¹²

3 **Q. Is the Phase IV low-income savings requirement a replacement for the EDCs’ Low-**
 4 **income Usage Reduction Program (“LIURP”) requirements?**

5 A. No –EDCs implement both LIURP programs and Act 129 low-income programs, which
 6 makes sense given that the eligibility criteria are different for the Act 129 low-income programs
 7 and LIURP. I am advised by counsel that this is not only logical, but is also a statutory requirement
 8 within Act 129.¹³

9 PGW’s “Home Comfort” LIURP is only available to low-income customers with weather
 10 normalized usage in the top 50% of income eligible customers; thus, approximately half of PGW’s
 11 low-income customers do not qualify, even if their usage is disproportionately high compared to
 12 similarly sized homes.¹⁴ In contrast, the EDCs’ Act 129 low-income programs are intended to be
 13 broadly available to all income-eligible customers. This is an important distinction, because even
 14 low-income customers with average energy bills face enormous challenges with energy
 15 affordability and often face disproportionately high energy burdens due to inefficiencies in their
 16 homes. In the absence of the Act 129 low-income programs those customers would be unable to
 17 access any efficiency program support from the EDCs. Similarly, PGW’s DSM IV program

¹² See *Pennsylvania Act 129 - Phase IV EEPDR Study Report*, submitted by Optimal Energy, Inc., et. al., February 28, 2020.

¹³ See 66 Pa. C.S. § 2806.1(b)(i)(G) (“The plan shall include specific energy efficiency measures for households at or below 150% of the Federal poverty income guidelines. The number of measures shall be proportionate to the households’ share of the total energy usage in the service territory. The electric distribution company shall coordinate measures under this clause with other programs administered by the commission or another Federal or State agency. The expenditures of an electric distribution company under this clause shall be in addition to expenditures made under 52 Pa. Code Ch. 58 (relating to residential low-income usage reduction programs).”).

¹⁴ *PGW 2023-2027 USECP* at 20-21.

1 proposal should provide access to efficiency support to low income customers who are ineligible
2 for its LIURP program.

3 **Q. What level of income qualifies a household as a “low income”?**

4 A. With some exceptions, most utility assistance programs require households to have income
5 that is not greater than 150% of the federal poverty level (FPL) to qualify. The FPL is a measure
6 of poverty based exclusively on income and household size, but not the composition of the
7 household (i.e., whether the household consists of adults or children) or geography. As a baseline,
8 in 2023, a family of four at 150% FPL has a gross annual income of just \$45,000, while for a
9 family of four at 50% FPL the number would be just \$15,000.¹⁵ For reference, in 2021, the Self-
10 Sufficiency Standard¹⁶ for Philadelphia County for a family of four with two adults and two
11 school-aged children living in Philadelphia was \$61,533 (\$16,533 more than a four-person
12 household with income at 150% FPL makes in a given year).¹⁷

13 **Q. How many low income consumers reside in PGW’s service territory?**

14 A. Roughly, between 25% and 38% of PGW residential customers have “low income” –
15 meaning their household income is at or below 150% of the federal poverty level.¹⁸ PGW reports
16 its low-income customer population two ways: estimated low-income customers and confirmed

¹⁵ U.S. Dept. of Health and Human Services, *2023 U.S. Federal Poverty Guidelines*, available at <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

¹⁶ The Self Sufficiency Standard is a benchmark developed to determine how much income a household needs to afford life’s most basic necessities (food, rent, clothing, medicine/medical care, childcare, utilities, transportation, and taxes) without assistance. *See* University of Washington, Center for Women’s Welfare, *Self Sufficiency Standard*, available at: <http://www.selfsufficiencystandard.org/Pennsylvania>.

¹⁷ *See id.* (2021 Pennsylvania Data Set).

¹⁸ *See Pa. PUC, BCS, 2022 Report on Universal Service Programs & Collections Performance*, at 7-10 (Sep. 2023). (herein 2022 Universal Service Report).

1 low-income customers.¹⁹ The “estimated low-income” customer number is derived using local
2 census data, scaled against residential customer counts in a given geographic area, to approximate
3 the percentage of low-income households in a utility’s service territory.²⁰ The “confirmed low-
4 income” number is a count of those customers for whom PGW has obtained information that would
5 reasonably indicate that their income is at or below 150% of the federal poverty level (FPL).²¹ In
6 2022, PGW reported that it had 487,336 residential customers, of which 183,969 (37.7%) were
7 estimated low-income and 115,093 (23.6%) were confirmed low-income.²² PGW has by far the
8 highest percentage of low-income customers of any major Pennsylvania utility, given the high
9 concentration of poverty in the City of Philadelphia.²³ Notably, PGW’s service territory of
10 Philadelphia has a poverty rate nearly double the statewide poverty rate. In Philadelphia, 22.8%²⁴
11 of residents live in poverty, versus 12.1% statewide and 12.8% nationwide.²⁵ In Philadelphia,
12 34.2% of children live in poverty, which is double the statewide rate of 16.9%, and 21.2% of
13 Philadelphia senior citizens live in poverty, double the statewide rate of 9.6%.²⁶

¹⁹ *Id.*

²⁰ *Id.* at 9

²¹ *Id.* at 2

²² *Id.* at 7-10.

²³ *Id.*

²⁴ United States Census Bureau, *2021 American Community Survey 1-Year Estimates*, available at: <https://data.census.gov/table?q=poverty+in+Philadelphia+city,+Pennsylvania&tid=ACSST1Y2021.S1701> .

²⁵ United States Census Bureau, *2021 American Community Survey 1-Year Estimates*, available at: <https://data.census.gov/table?q=poverty+Pennsylvania> .

²⁶ United States Census Bureau, *2021 American Community Survey 1-Year Estimates*, available at: <https://data.census.gov/table?q=poverty+philadelphia+city> .

1 **Q. Do PGW's low-income customers currently struggle to afford their bills?**

2 A. Yes. The Commission's Universal Service Reports shows that PGW's confirmed low-
3 income customers are terminated for nonpayment at **more than double the rate** of PGW's non
4 low-income customers. In 2022, the termination rate for PGW's residential customers was only
5 3.0%, but for PGW's confirmed low-income customers it was 8.3%.²⁷ Confirmed low-income
6 customers are also more likely to be payment troubled. Despite making up only 23.6% of PGW's
7 customers, confirmed low-income customers make up 66.7% of payment troubled customers
8 (failing to maintain at least one payment arrangement).²⁸ Notably, the confirmed low income
9 customer data only reflects the subgroup of customers from which PGW has received
10 documentation confirming the customer meets its definition of low-income customer. Many of
11 PGW's estimated low-income customers are not included, and the actual number of low-income
12 customers is estimated to be significantly higher. As such, the number of households in poverty
13 who are terminated and/or payment troubled is likely to be significantly higher than what is
14 reflected in these statistics.

15 **Q. Will PGW's low-income customers pay for PGW's DSM Program?**

16 A. Yes. PGW's DSM costs are recovered through the Efficiency Cost Recovery Surcharge,
17 which is charged to all firm customer rate classes – including PGW's residential ratepayers
18 (inclusive of low income customers).²⁹ Some of PGW's low-income customers who participate in

²⁷ See 2022 Universal Service Report, at 16.

²⁸ *Id.* at 8, 11.

²⁹ PGW, *Supplement No. 165 to Gas Service Tariff – Pa. PUC No. 2*, 65th Revised Pg. No. 80,
[https://www.pgworks.com/uploads/pdfs/PGW_Tariff_through_Supplement_166_with_WNA_Changes_10.3.23\(114145389\).pdf](https://www.pgworks.com/uploads/pdfs/PGW_Tariff_through_Supplement_166_with_WNA_Changes_10.3.23(114145389).pdf).

1 PGW's Customer Responsibility Program (CRP) will not pay more on their monthly bill as a result
2 of the Efficiency Cost Recovery Surcharge because their monthly bill is tied directly to a
3 percentage of their monthly income (known as a percentage of income rate). However, PGW still
4 assesses an Efficiency Cost Recovery Surcharge on CRP customers that receive a percentage of
5 income rate, which means the surcharge adds to the cost of PGW's CRP.

6 Importantly, CRP only reaches a small percentage of eligible low income customers. and
7 some CRP customers must pay the full rate, including DSM costs, because their CRP rate is based
8 on their average Budget Bill amount.³⁰ In 2022, only 27.4% of PGW's estimated low-income
9 customers were enrolled in CRP.³¹ In short, the vast majority of PGW's low income customers
10 pay the Efficiency Cost Recovery Surcharge directly through their bills.

11 III. PGW'S PROPOSED DSM PROGRAMS

12 Q. What DSM programs does PGW propose in its Plan?

13 A. PGW proposes to "continu[e] its existing DSM programming with certain
14 modifications."³² It proposes to continue to offer the "Residential Equipment Rebates ("RER")
15 Program; the Residential Construction Grants ("RCG") Program; the Commercial Equipment
16 Rebates ("CER") Program; the Smart Thermostat Marketplace; and the Low-Income Smart
17 Thermostat Program."³³ It also proposes to add the EnergySense Kits and Small Business

³⁰ PGW 2023-2027 USECP at 6.

³¹ 2022 Universal Service Report at 9, 58.

³² PGW St. 1 at 3, lines 7-8.

³³ *Id.* at 8, lines 23-25 through 9, line 1.

1 Assessments programs.³⁴ PGW “has adjusted some incentive amounts for residential and
2 commercial rebates, and has increased efficiency requirements for some equipment”³⁵ and also
3 proposes “incentives for Residential Roof Insulation and Commercial Variable Refrigerant Flow
4 (“VFR”) Natural Gas Heat Pumps.”³⁶ Effectively, PGW is proposing to extend its current program
5 offering for another five years with a few modest adjustments.

6 **Q. Does PGW propose to continue the current practice of providing rebates to customers
7 who purchase high efficiency combustion equipment, such as furnaces or water heaters?**

8 A. Yes. PGW proposes to continue both its Residential Equipment Rebates (“RER”) and
9 Commercial Equipment Rebates (“CER”) Programs through 2029. Over the five-year proposed
10 implementation period, the RER program budget is roughly 32% of the total portfolio and the CER
11 program budget is roughly 13% of the total portfolio.³⁷ If portfolio-wide costs are excluded so that
12 the comparison only considers direct program costs, then the RER program budget is roughly 44%
13 of the total and the CER program is roughly 18%.³⁸ The RER program has the largest budget of
14 any of the proposed programs, and the CER program has the second largest budget.

³⁴ *Id.* at 9, line 3.

³⁵ *Id.* at 9, lines 8-9.

³⁶ *Id.* at 9, lines 14-15.

³⁷ *Id.*, Exhibit DA-1, Table 1 at 7.

³⁸ *Id.*

1 **Q. You state above that you do not think it is reasonable to continue to provide rebates**
2 **for gas combustion equipment. Why is this the case, and what are the implications for PGW’s**
3 **proposed programs?**

4 A. There are two fundamental reasons why I believe it is no longer reasonable for gas utilities
5 to promote high efficiency gas equipment by providing customer rebates. The first is that there is
6 significant evidence that high efficiency equipment already has the lion’s share of the market in
7 the region. The Consortium for Energy Efficiency, which facilitates collaboration among utilities
8 that offer EE programs by working to develop common efficiency program standards, reports that
9 of the different furnace models that were available nationally in 2019, over 70% had an Annual
10 Fuel Utilization Efficiency (“AFUE”) of at least 90%.³⁹ In arguing against higher equipment
11 efficiency standards PGW itself stated in 2016 that “AHRI, which represents manufacturers, has
12 provided DOE with data demonstrating that the six New England states and the five states in the
13 upper Midwest will have 95% saturation of condensing furnaces by 2021.”⁴⁰ However, despite its
14 assertion that the vast majority of customers would be purchasing high efficiency furnaces by
15 2021, “PGW has not conducted or obtained any studies that characterize the efficiency of any types
16 of gas combustion equipment sold in its service territory.”⁴¹ Rather, in its cost-effectiveness
17 analysis for the RER program PGW simply assumed that, absent its rebate program, customers

³⁹ Consortium for Energy Efficiency Residential Heating and Cooling Systems Initiative, *Program Resources*, January 1, 2023, Table 2, p.10. <https://ceel.org/content/cec-program-resources>.

⁴⁰ Comments of Philadelphia Gas Works to the U.S. Department of Energy regarding Energy Conservation Standards for Residential Furnaces; Docket Number EERE-2014-BT-STD-0031/ RIN NO. 1904-AD20, November 22, 2016, p.3.

⁴¹ PGW response to CAUSE-PA to PGW IV-14.

1 would install an 80% efficient furnace,⁴² thus directly contradicting its prior assertion and
 2 artificially inflating the savings that would be achieved. What is more, the U.S. Department of
 3 Energy recently announced that new furnace efficiency standards will go into effect in late 2028
 4 (within the Plan period proposed by PGW) that will require non-weatherized gas furnaces to be
 5 95% efficient.⁴³ It is not clear that the furnace rebates proposed by PGW are actually influencing
 6 any customers to choose high efficiency equipment when they otherwise would not, but regardless,
 7 any lingering influence the rebates may have will end within the next several years.

8 **Q. What is the second reason you believe PGW should not provide rebates for efficient**
 9 **gas equipment?**

10 A. There is growing momentum for low-carbon energy solutions based on the combination of
 11 electrification of homes and EE, including insulation and air sealing. This is reflected in the federal
 12 Inflation Reduction Act (“IRA”) which will provide significant financial incentives for low and
 13 moderate income households to replace existing gas equipment with high efficiency electric heat
 14 pumps and to weatherize their homes. The IRA will also provide tax credits for such improvements
 15 .⁴⁴ However, gas equipment rebates from PGW would potentially compete with the IRA
 16 initiatives, which could cause confusion about what the most cost-effective low-carbon solutions
 17 are, and lead customers to miss the opportunity to update from inefficient older furnaces to high

⁴² Attachment A to PGW Response to CAUSE-PA-II-21 - Market Rate (5yr) 2023_0926 (used in Revised Plan)(114277159).

⁴³ Dep’t of Energy, *DOE Finalizes Energy Efficiency Standards for Residential Furnaces to Save Americans \$1.5 Billion in Annual Utility Bills* (Sept. 29, 2023), available at: <https://www.energy.gov/articles/doe-finalizes-energy-efficiency-standards-residential-furnaces-save-americans-15-billion#:~:text=With%20these%20modernized%20standards%2C%20starting,heat%20for%20the%20living%20space>.

⁴⁴ See, e.g., *Rewiring America, IRA Savings Calculator*, available at: <https://www.rewiringamerica.org/app/ira-calculator>.

1 efficiency, low-emitting heat pumps using rebates provided by the IRA. For these reasons I do not
2 believe that it would be a good use of ratepayer-funded program dollars for the Commission to
3 approve PGW's proposal to continue its gas combustion equipment rebate measures. Rather, I
4 recommend the Commission direct PGW to phase out these measures no later than January 1,
5 2025. If PGW is concerned that low-income customers won't be able to choose high efficiency gas
6 equipment without its program rebates there are emergency furnace repair and replacement
7 programs – such as the LIHEAP Crisis Interface Program and the “Heater Hotline”⁴⁵ – that can
8 cover the *full* cost of a low income furnace replacement. Replacements through the LIHEAP Crisis
9 Interface Program are already required to install high efficiency furnaces when replacing a broken
10 furnace.

11 **Q. Will electric heat pumps and heat pump water heaters be better long run solutions**
12 **for low income households than staying on gas?**

13 A. There are compelling reasons to think they will be. In addition to being far more efficient
14 than, say, a 95% efficient gas furnace, converting to all-electric appliances will relieve low
15 income households from paying monthly fixed charges for gas service. Over time these fixed
16 charges will inevitably increase as the costs of maintaining and operating the gas system are
17 shared among fewer customers as an increasing number of higher income families transition
18 their homes to high efficiency electric heat. Leaving low and moderate income families to bear
19 the cost of maintaining PGW's gas system will become increasingly harmful to those households
20 as the broad transition to electrification occurs.

⁴⁵ Heater Hotline, run by the Energy Coordinating Agency, provides free heater repairs, and refers heater replacements to the Basic Systems Repair Program run by the Philadelphia Housing Development Corporation (PHDC). See *PHDC Basic Systems Repair Program*, available at: <https://phdcphila.org/residents-and-landlords/home-repair-and-improvements/basic-systems-repair-program/>.

1 **Q. Do you support PGW's proposal to add rebates for roof insulation to the RER**
2 **program?**

3 A. Yes. I am pleased to see the introduction of an insulation measure to PGW's portfolio – in
4 fact, I recommend PGW increase its proposed targets for the roof insulation measure and increase
5 the proposed air sealing bonus to make the combination of attic air sealing and insulation more
6 attractive and affordable for customers. If the Commission adopts my recommendation that PGW
7 end its rebates for gas combustion equipment it could reasonably direct PGW to use the funds it
8 had proposed for equipment rebates to increase the number of households that are targeted for roof
9 insulation – thus helping customers reduce their energy costs without competing with federally-
10 funded electrification programs established by the IRA.

11 **Q. Does PGW justify its proposal that air sealing is not required in order to receive a**
12 **roof insulation rebate?**

13 A. In response to discovery from CAUSE-PA, PGW explains its view that “[a]lthough the
14 installation of air sealing in conjunction with insulation is a building science best practice...PGW
15 does not want to discourage participation among customers whose homes have attics where air
16 sealing may not be feasible, or where it may be cost-prohibitive.”⁴⁶ I appreciate PGW's desire to
17 make the program accessible, but recommend a more affirmative approach to air sealing. Based
18 on my extensive experience in this area, I suggest the Commission direct PGW to incorporate air
19 sealing by default wherever feasible and to increase the proposed rebate to make it appealing to
20 customers. PGW estimates that savings from projects that include air sealing will be double those

⁴⁶ Response to CAUSE-PA to PGW II-10.

1 that do not.⁴⁷ Also, because insulating attic spaces without first air sealing the leakage of heated
2 air from a home can exacerbate building moisture issues and lead to condensation on the under-
3 side of the roof deck, I further recommend that roof insulation rebates without air sealing only be
4 provided when a qualified professional has determined that there is no risk of air leakage causing
5 rot in structural components of the roof. This is critical to protect the health and safety of
6 households participating in PGW's efficiency programs.

7 **Q. If roof insulation combined with air sealing is a measure that will benefit customers**
8 **without locking them into the long-term use of gas, should PGW try to reach more customers**
9 **with this measure?**

10 A. Yes, I think it should. For example, the Commission could adopt my recommendation to
11 reject PGW's proposed residential gas combustion equipment incentives, and instead direct PGW
12 to increase the roof insulation incentive budget by the ~\$2.9 million over five years PGW budgeted
13 but would not spend on furnace and water heater rebates. This would quadruple the roof insulation
14 and air sealing incentive budget, thereby increasing the number of homes that receive this measure
15 from 1,400 over five years to 5,600⁴⁸ – a significant increase.

16 **Q. Do you recommend that the Commission direct PGW to increase the number of**
17 **market-rate roof insulation jobs it provides?**

18 A. While that would be a good step, a better alternative would be for the Commission to direct
19 PGW to focus on supporting participation by the financially vulnerable customers that are not
20 eligible for its LIURP programs – including low income households that do not meet the LIURP

⁴⁷ Response to OCA to PGW II-9.

⁴⁸ I calculate this increase simply by increasing the proposed participation in proportion to my proposed budget increase.

1 high usage threshold and those with incomes greater than the 150% of federal poverty level
 2 (“FPL”) limit for LIURP, but less than 200% of FPL.⁴⁹ To effectively reach this economically
 3 vulnerable customer group, the rebates would need to be larger than the ~ 60% of the installed cost
 4 that appears to be assumed in PGW’s budgeting for roof insulation and air sealing for low income
 5 customers.⁵⁰ In order to cover the full cost of installing the measures, according to PGW’s
 6 estimated costs, the rebates for roof insulation and air sealing for low income participants would
 7 need to average around \$1,600 per job, which could still yield an additional 1,800 roof insulation
 8 jobs⁵¹ from reallocating the proposed residential and low income equipment rebate budgets to low
 9 income roof insulation and air sealing – benefitting a significant number of households that would
 10 otherwise not be eligible for enhanced EE rebates.

11 My recommendation therefore is that instead of offering enhanced equipment rebates for
 12 customers at or below 150% FPL, PGW should provide installation of roof insulation and air
 13 sealing at no cost to customers whose household income is at or below 200% FPL. I encourage
 14 PGW to coordinate closely with the Basic Systems Repair Program⁵² and Built to Last⁵³ so that
 15 this work can be combined with installation of new roofs and home repairs where needed. As I

⁴⁹ Notably, in its Final Order in PGW’s most recent Universal Service and Energy Conservation Plan proceeding, the Commission noted that it encourages public utilities to offer LIURP services to vulnerable customers within the 151-200% FPL income range. *See PGW Universal Service and Energy Conservation Plan for 2023-2027*, M-2021-3029323, Final Order at 62-63 (Entered Jan. 12, 2023).

⁵⁰ Attachment A to PGW Response to CAUSE-PA-II-21 - Market Rate (5yr) 2023_0926 (used in Revised Plan)(114277159), tab “RER”.

⁵¹ Calculated from tab “RER” in file “Attachment A to PGW Response to CAUSE-PA-II-21 - Market Rate (5yr) 2023_0926 (used in Revised Plan)(114277159).”

⁵² *See PHDC Basic Systems Repair Program*, available at: <https://phdcphila.org/residents-and-landlords/home-repair-and-improvements/basic-systems-repair-program/>.

⁵³ *See Philadelphia Energy Authority, Built to Last*, available at: <https://philaenergy.org/programs-initiatives/built-to-last/>.

1 explained above, low income customers already struggle to afford their monthly expenses and
2 lack the funds to afford the upfront cost of energy efficiency measures. PGW currently provides
3 similar services to low income customers at no cost through its Low Income Usage Reduction
4 Program (LIURP), however eligibility for the program is tightly restricted and the number of
5 customers treated through the program has declined significantly in recent years.⁵⁴ Thus, the
6 DSM program should specifically target low income customers whose who are otherwise
7 ineligible for LIURP.

8 **Q. Will PGW achieve significantly less savings if it ceases offering equipment rebates**
9 **than it otherwise would?**

10 A. PGW may *report* less savings, but I think there is an open question about how many
11 customers will purchase high efficiency equipment anyway if PGW does not offer equipment
12 incentives. Based on PGW's own assumptions about the market share of high efficiency furnaces,
13 for example, it would seem that its influence would be modest at best. I note that the Colorado
14 Public Utilities Commission recently determined that ending gas equipment incentives would be
15 in the interest of customers and consistent with that state's climate goals:

16 The Commission notes that a material portion of customers with gas-fired space
17 heating appliances may already utilize high efficiency units in their homes and
18 businesses, since they have been widely available for at least 15 years, meeting
19 or exceeding the typical life cycle of many residential heating units. The
20 Commission finds it appropriate to assume those customers would likely replace
21 their heating appliances with another high efficiency unit, even without utility
22 incentives. Further, we have a good cause to believe the heat pump market will
23 evolve rapidly over the next several years, including the manufacture,
24 distribution, and installation segments of the market. We similarly expect
25 customer comprehension and comfort with the technology to rapidly improve
26 due to the availability of IRA incentives and other factors facilitating market
27 adoption. Accordingly, the Commission finds it necessary to restrict DSM
28 incentives for high efficiency gas-fired space heating equipment to only

⁵⁴ See *Pa. PUC v. PGW*, R-2023-3037933, CAUSE-PA/TURN St. 1, Geller, at 23-24 (Submitted May 31, 2023).

1 customers replacing lower efficiency units for the market rate, retrofit portion of
2 Public Service’s DSM activity starting January 1, 2024, and for all incentives
3 for gas heating appliances in this market segment to end by January 1, 2027.
4 Otherwise, we risk incentivizing behavior that would have occurred without
5 incentives and over-counting savings and benefits by assuming lower efficiency
6 units were being removed, even in situations where that is not the case, and no
7 savings were actually caused by the Company’s rebate.⁵⁵

8 I believe it would be reasonable for the Commission to come to a similar conclusion. The Colorado
9 PUC further ordered that “[w]ith the federal minimum efficiency standards increasing shortly, and
10 widely available alternatives, we find it reasonable to phase-out incentives for gas water heaters in
11 the retrofit market beginning January 1, 2025.⁵⁶

12 **Q. Is there additional evidence to support your suggestion that PGW may be overstating**
13 **its influence in inducing customers to purchase high efficiency equipment when they**
14 **otherwise would not?**

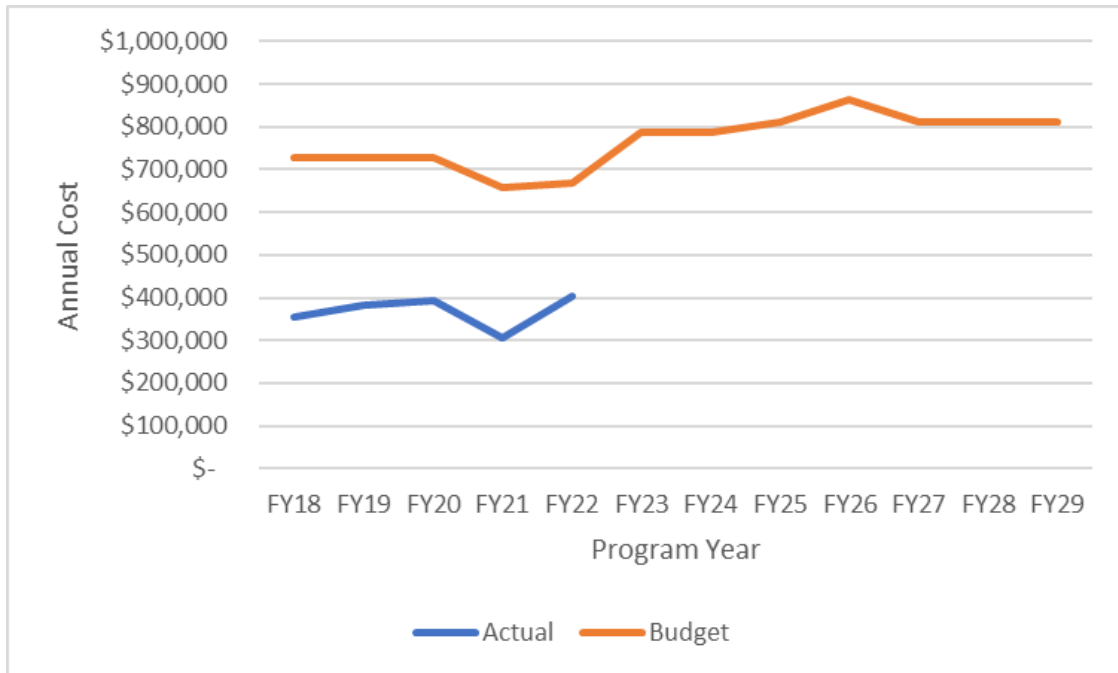
15 A. I believe that PGW’s own performance in the RER program over the past several years
16 suggests that PGW is overly optimistic about its value and influence. Figure 1 clearly illustrates a
17 consistent and significant gap between PGW’s RER budgets and its actual accomplishments,
18 suggesting PGW overestimates the demand for these rebates. This underperformance is consistent
19 throughout the FY18-FY22 reports and started well before the COVID-19 pandemic may have
20 affected customer participation. Given the combination of factors I describe above I see no benefit
21 in PGW continuing to implement this program.

⁵⁵ Colorado PUC, Proceeding No. 22A-0309EG, Decision No. C23-0413, at 91. I note that the City of Philadelphia has also set climate goals. According to the Philadelphia Office of Sustainability (OOS), the city is committed to achieving carbon neutrality by 2050. See Philadelphia Office of Sustainability, *Philadelphia Climate Action Playbook* at 15 (Jan. 2021), available at <https://www.phila.gov/media/20210113125627/Philadelphia-Climate-Action-Playbook.pdf>.

⁵⁶ *Id.* at 91-92.

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Figure 1: PGW RER Program Actual vs. Budgeted Spending⁵⁷



2

3 **Q. What are your recommendations regarding the proposed Residential Construction**
 4 **Grants (“RCG”) Program?**

5 A. While in concept programs that support the design and construction of efficient new
 6 buildings can provide meaningful savings, I do not believe it is appropriate at this time for PGW
 7 to field a program that “provides incentives for homebuilders, building owners, engineers,
 8 architects, and contractors to incorporate natural gas energy efficiency into the design of their

⁵⁷ Budget and Actual data for FY18 from PGW Demand Side Management Program Annual Report FY 2018 Results, Table 1. DSM Costs and Budgets by Program, p.5; Budget and Actual data for FY19 from PGW Demand Side Management Program Annual Report FY 2019 Results, Table 1. DSM Costs and Budgets by Program, p.2; Budget and Actual data for FY20 from PGW Demand Side Management Program Annual Report FY 2020 Results, Table 1. DSM Costs and Budgets by Program, p.3; Budget and Actual data for FY21 from PGW Demand Side Management Program Annual Report FY 2021 Results, Table 2. DSM Costs and Budgets by Program, p.4; Budget and Actual data for FY22 from PGW Demand Side Management Program Annual Report FY 2018 Results, Table 2. DSM Costs and Budgets by Program, p.3; 2023 Budget from Revised Implementation Plan Fiscal Years 2021-2023, Revised June 4, 2021, Table 1 – Projected Portfolio Budget by Program, p.7; FY2024 assumed to be consistent with FY2023 per PGW proposal “to delay implementation of the FY24-26 Plan and instead maintain its currently effective Plan (“FY21-23 Plan”) until it receives Commission approval to implement the FY24-26 Plan”; FY25-FY29 proposed budgets from Exhibit DA-1, Table 1 – Projected Portfolio Budget by Program, p. 7.

1 projects.”⁵⁸ Given the advances in heat pump technology for heating and cooling and for heating
2 hot water, there is reason to believe that all-electric homes will be less expensive to operate than
3 homes that use both gas and electricity, and will cost less to build because they will not require the
4 installation of gas piping. RMI published an analysis which found that a “typical all-electric,
5 single-family home constructed in Philadelphia, Pennsylvania will save \$200 per year on utility
6 bills. That’s 7% less than the annual utility bills for a Philadelphia household living in a new home
7 with gas.”⁵⁹ In response to discovery asking if PGW had conducted analysis comparing the
8 operating costs of electric and dual fuel homes, PGW replied “PGW has not conducted analyses
9 or studies that compare the relative capital, operating, and/or lifecycle costs of new single-family
10 homes that rely on gas-fired equipment for space- and water-heating to new single-family homes
11 that rely on electric measures for space- and water-heating.”⁶⁰ PGW answered similarly with
12 respect to multifamily homes.⁶¹ Given the lack of analysis by PGW, and the lower operating and
13 construction costs for all-electric homes identified in independent research, it is not clear what the
14 benefit would be of providing construction incentives for homes that must use gas in order to
15 receive them. For this reason I do not recommend the Commission approve the continuation of the
16 RCG program.

⁵⁸ PGW St. 2 at 4, lines 15-17.

⁵⁹ Rocky Mountain Institute, *State-Level Building Electrification Factsheets 2023*, available at: <https://rmi.org/insight/state-level-building-electrification-factsheets/>

⁶⁰ PGW response to CAUSE-PA to PGW II-13.

⁶¹ PGW response to CAUSE-PA to PGW II-14.

1 **Q. Do you recommend approval of the Smart Thermostat Marketplace and the Low-**
2 **Income Smart Thermostat Programs?**

3 A. Yes. Smart thermostats can help customers better manage their gas use, and the framework
4 of the Low Income Smart Thermostat (“LIST”) program would appear to make it easier for
5 qualifying customers to take advantage of these technologies. However, PGW needs to
6 significantly improve its performance for both of these programs compared with its FY2022
7 results. In FY 2022 PGW succeeded in investing only 10% of its Smart Thermostat Marketplace
8 program budget and only 75% of its Low Income Smart Thermostat program budget.⁶² Either
9 PGW’s implementation processes need to be improved to achieve better results (preferably) or else
10 it should better align its proposed budgets with what it can be realistically expected to achieve.

11 **Q. What action do you recommend the Commission take with respect to the proposed**
12 **Energy Sense Kits (“ESK”) program?**

13 A. I do not support approval of the ESK program. I appreciate PGW’s desire to “fill a crucial
14 gap by providing energy savings to customers who may not qualify for LIURP (such as customers
15 who, for example, may be just above the low-income threshold)”⁶³ but a much more meaningful
16 way for it to do that would be to shift funding from combustion equipment rebates to roof
17 insulation for low-income households who do not qualify for LIURP or have incomes below 00%
18 FPL as I describe above. PGW states that “its new EnergySense Kits and Small Business
19 Assessment programs...will be low/no cost gateways for customers to learn about all the offerings

⁶² PGW 2022 Annual Report, Table 2. DSM Costs and Budgets by Program (Nominal), p. 3.

⁶³ PGW St. 1 at 9, lines 19-21.

1 PGW has for saving energy.”⁶⁴ While there may be merit in using the kits to market PGW’s other
2 programs as Mr. Love describes, there is little reason to think that the air sealing materials provided
3 in the kits (a tube of caulk, one set of weatherstripping, and an outlet gasket)⁶⁵ will themselves
4 save an appreciable amount of energy for most customers, as the energy savings benefits that could
5 result will be highly dependent on customers knowing how and where to install the measures.
6 Low-flow showerheads and faucet aerators will similarly only save energy if they are installed,
7 and if they are replacing existing showerheads and aerators that have higher flows.

8 IV. A FIVE-YEAR PLAN

9 **Q. In the current filing does PGW propose a three-year program plan as it has in the**
10 **past?**

11 A. As originally filed, PGW’s DSM IV plan proposed a three-year plan. However, through
12 testimony, PGW witness Adamucci indicates that PGW proposes to “change the proposal from a
13 three-year plan to a five-year plan,”⁶⁶ because “it would be more beneficial and cost effective going
14 forward for the DSM plan to be approved for a five-year period.”⁶⁷ Presumably PGW means it
15 will be less costly to prepare a plan less often, though I do not see that explicitly stated.

16 **Q. Do you support PGW’s proposal that the Commission approve a five-year Plan?**

17 A. As noted above, there are numerous components of PGW’s Plan that I recommend the
18 Commission reject – specifically, I do not support any Plan components that are contingent on the

⁶⁴ PGW St. 2 at 17, lines 15-17.

⁶⁵ PGW response to CAUSE-PA to PGW II-18.

⁶⁶ PGW St. 1 at 1, line 24 through 2, line1.

⁶⁷ *Id.* at 12, lines 11-12.

1 installation of new gas combustion equipment. I also recommend the Commission reject PGW's
2 request for a five-year Plan approval, and approve only a more limited Plan - consistent with my
3 recommended amendments - for a three-year duration. The nation's energy systems are
4 experiencing an extraordinary period of change due to increasingly volatile weather patterns,
5 global conflicts, and imperatives to address climate change and equity. Energy market volatility
6 and an increasing focus on decarbonization are driving rapid changes that may not be anticipated
7 in this five-year Plan – which could require programs to be modified or discontinued before the
8 next Plan would be submitted. Thus I recommend the Commission reject PGW request for a five-
9 year approval and suggest it only approve programs for a three-year period to ensure that programs
10 are not implemented beyond the time when they will provide reasonable benefits for customers. I
11 do not support the Plan as proposed, especially given its high level of reliance on gas equipment
12 measures. That said, in the event the Commission determines to approve any elements of the Plan's
13 proposal for continuation of rebates for gas equipment I would strongly urge it to limit the duration
14 of that approval by limiting its consideration to a three-year Plan.

15 **V. PROGRAMS FOR LOW-INCOME CUSTOMERS**

16 **Q. If the Commission accepts your recommendation for PGW to end its rebates for**
17 **programs that support gas combustion equipment will there be sufficient programming**
18 **available for low income customers?**

19 A. As PGW observes in its application, the mainstay of its EE program support for income-
20 eligible customers is provided through its mandatory LIURP programs. However, that should not
21 mean that PGW can omit programs for LI customers in its DSM programming, and I am glad to
22 see that it has once again included the LIST program in this Plan. While I urge the Commission to
23 reject gas combustion equipment rebates across the board, I do want to acknowledge that PGW's

1 proposal includes higher rebates for income eligible customers. That said, I believe it would be
2 highly beneficial for PGW to reallocate the funds it proposes for residential equipment rebates to
3 enhanced roof insulation program for customers with household incomes below 200% of FPL and
4 those whose gas usage is not sufficient for LIURP eligibility, as I have laid out in my testimony.

5 **VI. CONCLUSION**

6 **Q. In summary, what do you recommend to the Commission regarding PGW's Plan?**

7 A. I recommend the Commission take the following steps prior to its approval of the Plan:

- 8 1. Direct PGW to stop providing all gas combustion equipment measure rebates and
9 incentives effective January 1, 2025, including those projected for the RER and
10 Commercial Equipment Rebate ("CER") programs;
- 11 2. Direct PGW to revise its roof insulation measure budgets by allocating the remaining gas
12 combustion equipment measure budgets to roof insulation rebates for households whose
13 gas usage is insufficient for LIURP eligibility or with incomes below 200% of the federal
14 poverty level ("FPL");
- 15 3. Direct PGW to retire the Residential Construction Grants ("RCG") program effective
16 January 1, 2025;
- 17 4. Reject the ESK program;
- 18 5. Approve the Smart Thermostat Marketplace and Low Income Smart Thermostat programs.

19 **Q. Does this conclude your testimony?**

20 A. Yes.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Philadelphia Gas Works :
for Approval of Demand-Side Management : Docket No. P-2014-2459362
Plan for FY 2016-2020 :

**SURREBUTTAL TESTIMONY OF JIM GREVATT
ON BEHALF OF
THE COALITION FOR AFFORDABLE UTILITY SERVICES AND
ENERGY EFFICIENCY IN PENNSYLVANIA (“CAUSE-PA”)**

January 11, 2024

PREPARED SURREBUTTAL TESTIMONY OF JIM GREVATT

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Q: Please state your name, title, and employer.

A: My name is Jim Grevatt. I am a Managing Consultant at Energy Futures Group, located at 10298 Route 116, Hinesburg, VT 05461.

Q: Did you previously submit testimony in this proceeding?

A: Yes, I submitted direct testimony that was pre-marked as CAUSE-PA Statement 1.

Q: What is the purpose of your surrebuttal testimony?

A: My surrebuttal testimony responds to the rebuttal testimony of Denise Adamucci and Theodore M. Love, submitted on behalf of Philadelphia Gas Works (PGW), which were pre-marked as PGW St. No. 1-R and PGW St. No. 2-R respectively. My silence in response to any position contained in the testimony of Ms. Adamucci or Mr. Love does not indicate my agreement with that testimony. Unless required for context, I will not reiterate the arguments and evidence that I provided in my direct testimony. To the extent an argument raised by any party in rebuttal was already sufficiently addressed in direct, I do not intend to respond, and stand firmly on the evaluation, analysis, and recommendations contained in my direct testimony.

1. Response to Adamucci

Q: Please summarize the testimony of Denise Adamucci to which you wish to respond.

A: Ms. Adamucci makes several legal assertions and allegations about my perceived motive for recommending that PGW focus its program on providing roof insulation and air sealing rather than focusing on rebates for gas combustion equipment. Specifically, she incorrectly asserts that my recommendations are somehow designed to force PGW to convert customers to electric heating. She also asserts that I have conflated PGW's DSM and LIURP programs. She argues that DSM is open to all customers including low income customers and notes that CAUSE-PA entered

1 a settlement in the DSM III program. She argues that it is not appropriate for me to criticize PGW
2 for lack of low income programs, while criticizing the ones they currently offer. Regarding my
3 recommendation that PGW ensure that air sealing be performed in conjunction with attic insulation
4 unless a qualified professional determines that it won't damage the property, she argues that I did
5 not identify any criteria for who is a qualified professional.

6 **Q: How do you respond to Ms. Adamucci's assertions that your testimony is designed to**
7 **have the Commission order PGW to phase out natural gas equipment in its service**
8 **territory?**¹

9 A: Ms. Adamucci apparently misunderstands my direct testimony in that regard. My
10 testimony is not designed to have the Commission "order PGW to phase out natural gas
11 equipment"² and I have not made any such recommendations to that effect. My recommendations
12 are designed to help PGW implement its DSM program in a manner that provides a meaningful,
13 durable, energy and cost-saving benefit to low income customers in the context of the current
14 energy landscape. That means that PGW needs to design its program to provide a benefit to
15 customers without creating barriers that would preclude them from converting gas-fired equipment
16 to electric equipment if the current trend toward electrification continues to advance, and if it will
17 be in customers' best financial interest to follow that trend. The best way to do this in the context
18 of PGW's DSM is to provide attic insulation and air sealing to low income households, including
19 those with incomes between 151%-200% of the federal poverty level (FPL) who are otherwise not
20 eligible for PGW's LIURP, at no cost to the household. Despite Ms. Adamucci's assertion to the

¹ PGW St. 1-R at 11:20-22.

² *Id.*

1 contrary, I provided ample evidence in my direct testimony that there is growing momentum
2 toward low carbon energy solutions and that electric heat pumps and heat pump water heaters may
3 offer more efficient and cost-effective long run solutions for low income households, especially in
4 light of substantial new federal investments.³ Ultimately, my recommendations for reforms to
5 PGW's DSM are intended to ensure the most effective and informed investment of ratepayer
6 supported funding so that - irrespective of a household's long-term heating source – the program
7 will meaningfully reduce energy usage and costs through participation in the DSM program.

8 **Q: How do you respond to Ms. Adamucci's assertions that (1) there is no legal basis for your**
9 **recommendations and (2) you admitted in response to a discovery request that your**
10 **statements "based on [your] own opinion"?**

11 A: Ms. Adamucci has mischaracterized my discovery responses, which were meant to clarify
12 that, as a non-attorney, I did not intend to make legal assertions or legal arguments in my direct
13 testimony. What I actually said in response to PGW's interrogatory number I-3 was that my
14 recommendation was based on my "professional experience and opinion about best practices for
15 equitably designed DSM programs."⁴ Likewise, my response to PGW interrogatory number I-13
16 was that my "recommendation that PGW model its program based on Act 129 requirements is a
17 result of [my] professional judgment regarding best practice utility program design."⁵ I stand by
18 my recommendations, which are based on my thirty-two years of experience working with all
19 aspects of energy efficiency programming.⁶

³ See CAUSE-PA St. 1 at 17-18.

⁴ PGW to CAUSE-PA I-3 (emphasis added).

⁵ PGW to CAUSE-PA I-13 (emphasis added).

⁶ See CAUSE-PA St. 1, Append A.

1 I understand from counsel that the legal arguments advanced by Ms. Adamucci will be
2 addressed through briefing.

3 **Q: How do you respond to Ms. Adamucci's opinion that your testimony focused on**
4 **achieving certain policy objectives through a non-legislative process?**

5 A: Again, Ms. Adamucci has either misunderstood or mischaracterized my testimony, and
6 appears not to even consider the merits of my proposals. I reiterate that I am not recommending
7 that PGW convert anyone's home to electric heating. I am merely recommending that PGW design
8 its program in a manner to benefit customers whether or not the current trend toward electrification
9 continues. The practical effect of my recommendations is to provide meaningful benefits to low
10 income customers, including those with incomes between 151%-200% FPL, through PGW's DSM
11 program. I do not have any devious underlying motives, as Ms. Adamucci seems to suggest.

12 **Q: How do you respond to Ms. Adamucci's assertion that you conflate PGW's DSM with**
13 **its Low Income Usage Reduction Program?**

14 A: I do not conflate these two distinct programs. My explanation and analysis of PGW's low
15 income population and existing programs was meant to provide context about the existing need
16 for low income energy efficiency programming – above and beyond the limited services available
17 to high usage low income customers who are currently eligible for PGW's LIURP.

18 In her rebuttal, Ms. Adamucci also asserts that the Commission has previously rejected
19 efforts to require PGW to provide LIURP services to vulnerable special needs customers in the
20 151-200% income tier.⁷ However, I understand from counsel that in PGW's most recent USECP
21 proceeding, although the Commission stopped short of requiring PGW to establish a criteria for

⁷ PGW St. 1-R at 13-14.

1 serving such vulnerable customers, the Commission “encouraged” PGW to work with its
2 Universal Service Advisory Committee (USAC) to develop a special needs criterion for potential
3 LIURP prioritization.⁸ I further understand from counsel that the issue was raised in PGW’s
4 most recent base rate case, however Ms. Adamucci argued that special needs customers with
5 income between 151-200% FPL should not qualify for LIURP because they are not “low income
6 customers.”⁹ Yet the ability to reduce gas bills through energy efficiency and conservation
7 measures is especially critical for households with income above 150% FPL but less than 200%
8 FPL precisely because they are ineligible for bill assistance programs like CRP and LIHEAP. It
9 is critical that these households be able to reduce their energy costs through energy efficiency
10 and conservation programming. If it is PGW’s position that these customers should not qualify
11 for LIURP, then PGW should make a much greater effort to serve them through its DSM
12 programs.

13 **Q: How do you respond to Ms. Adamucci’s argument that many low income customers**
14 **may not qualify for emergency heater repair or replacement programs if their heaters are**
15 **functional, regardless of the efficiency of the heater?**

16 A: While that may be true, I reiterate that low income customers are unlikely to be able to
17 afford the upfront cost of the equipment regardless of whether they will receive a rebate. As Ms.
18 Adamucci admits, low-income customers are most likely to replace their heating equipment only
19 when the equipment breaks down, rather than planning ahead to replace older equipment before it

⁸ *PGW Universal Service and Energy Conservation Plan for 2023-2027*, M-2021-3029323, Final Order at 62-63 (Entered Jan. 12, 2023).

⁹ *Pa. PUC v. PGW*, R-2023-3037933, PGW St. 1-R at 28-29 (submitted June 26, 2023).

1 fails.¹⁰ In the event of equipment failure, these customers would have access to free repair or
2 replacement services through the programs I referenced in my direct testimony. In contrast, to
3 receive a rebate through PGW's DSM, they would have to pay the full upfront cost of a new furnace
4 (which they cannot afford) and apply for a rebate through PGW. I disagree with the implication in
5 Ms. Adamucci's rebuttal testimony that low income customers have the resources to undertake
6 furnace replacements on a non-emergency basis.¹¹ My conclusion is supported by the fact that,
7 only two low income customers out of 555 program participants (0.3%) were actually able to
8 receive a rebate through the program in 2023.¹² PGW needs to design its program in a manner that
9 ensures that proportionate levels of benefits are *actually accessible* to low income families.

10 **Q: How do you respond to Ms. Adamucci's argument that identifying customers that are**
11 **between 151-200% of FPL poses an administrative challenge to PGW?**

12 A: I do not agree that identifying customers between 151%-200% FPL will create an
13 unreasonably burdensome administrative challenge. In response to discovery, PGW indicates that
14 it allows customers to self-report income for its Low Income Smart Thermostat program (LIST)
15 through an online application or direct intake with the contractor.¹³ It can use the same
16 methodology for confirming income qualifications for insulation and air sealing rebates. Further,
17 I am advised by counsel that PGW already necessarily has procedures in place for identifying
18 customers at or below 250% FPL because it is legally obligated to adhere to the Commission's
19 winter moratorium on low income utility termination. The moratorium applies to customers up to

¹⁰ PGW St. 1-R at 18.

¹¹ *Id.* at 17.

¹² PGW DSM Program Annual Report, FY 2023 Results, p. 7.

¹³ CAUSE-PA to PGW IV-3.

1 250% FPL. It should not create an additional administrative burden to identify customers at or
2 below 200% FPL.

3 **Q: How do you respond to Ms. Adamucci's argument that the Act 129 requirements for**
4 **targeting energy efficiency measures to low income households do not apply to PGW?**

5 A: Act 129 offers a model for ratepayer supported energy efficiency and conservation
6 programming that has been created by the legislature and implemented by the Commission. The
7 Act 129 model provides a helpful framework for assessing ratepayer supported energy efficiency
8 and conservation programming. While I do not have the legal qualifications to offer an opinion on
9 the legal bearing of Act 129 on PGW's programs, it is sound public policy for the Commission to
10 follow the best practices incorporated in the Act 129 framework in reviewing and approving
11 voluntary gas efficiency and conservation programming. As I explained in my direct testimony,
12 inclusion of proportionate programming for low income customers – irrespective of a utilities'
13 separate LIURP funding – is an explicit requirement pursuant to Act 129 for Pennsylvania's
14 electric distribution companies, and I believe it is prudent, just, and reasonable for gas distribution
15 companies to be held to this same standard.¹⁴

16 **Q: Do you agree with Ms. Adamucci's assertion that its gas customers can choose to**
17 **install electric equipment by taking advantage of Act 129 programs?**¹⁵

18 A: I think the point Ms. Adamucci is making is irrelevant to assessing PGW's proposed DSM.
19 Again, none of my recommendations were designed to force PGW to convert gas heating
20 customers to electric heating. My observation that PGW failed to analyze whether high efficiency

¹⁴ CAUSE-PA St. 1 at 9.

¹⁵ PGW St. 1-R at 15.

1 electric equipment would be advantageous to customers was made because, in my view, it would
2 be bad policy for a public utility to encourage its customers to make investments that would not
3 be to their long-term benefit. In contrast, customers will experience benefits from insulation and
4 air sealing regardless of future decisions regarding electric vs. gas heating equipment. Regardless
5 of whether EDCs may offer fuel switching from gas to electric heating as part of Act 129,
6 customers who receive attic insulation and air sealing through PGW's DSM would still enjoy the
7 benefits of those measures.

8 **Q: How do you respond to Ms. Adamucci's assertion that DSM is open to all customers**
9 **including low income customers?**

10 A: I acknowledge that low income households may, sometimes, participate in general
11 residential energy efficiency programs and should not be excluded from them. However, the fact
12 that low income customers are allowed to participate does not mean that they can. In fact, low
13 income customers are not accessing PGW's enhanced rebates in any meaningful way – and this
14 makes sense because low income customers will rarely have the resources to contribute to the cost
15 of installing energy efficiency measures. In 2022, the first year that PGW offered the enhanced
16 low income rebates it issued 97 enhanced rebates, however, 95 of those rebates went to a single
17 low income housing project.¹⁶ PGW has not indicated whether the remaining two rebates were
18 actually issued to low income customers, or whether they were also provided to landlords. In its
19 recently filed Demand Side Management (“DSM”) Program Annual Report for Fiscal Year 2023
20 Results, PGW indicated that only two enhanced low income rebates were provided in the

¹⁶ PGW DSM 2022 Annual Report (revised) at 7-8 (Submitted December 29, 2022).

1 Residential Equipment Rebates program in FY 2023, compared with 555 non-low income
2 rebates.¹⁷

3 **Q: Do you agree with Ms. Adamucci that it is not appropriate to criticize PGW for lack**
4 **of low income programs, while criticizing the ones they currently offer?**

5 A: No. The mere presence of low income programs does not mean that they are sufficient or
6 appropriately designed to serve the needs of low income customers. Indeed, I criticize the programs
7 because they are neither sufficient nor appropriately designed to serve the needs of low income
8 customers. As I explained in my direct testimony, I do support PGW's LIST program, which
9 appears to provide a tangible benefit to low income customers based on PGW's reporting.
10 However, the other low income DSM programs have proven insufficient and ineffective. As
11 discussed in my testimony, I have reviewed PGW's reporting and determined some of the
12 programs that were approved in the settlement are falling far short of projections, thus I have
13 concluded that the money would be better spent on roof insulation and air sealing for low income
14 customers.¹⁸

15 **Q: How do you respond to Ms. Adamucci's argument about the cost of electrical**
16 **upgrades necessary for electric heat pumps?**

17 A: Again, I want to be clear that I am not arguing that PGW should be converting its
18 customers' homes to be heated by electric heat pumps, but rather recommending that PGW focus
19 its DSM program on providing direct install measures that will benefit customers regardless of
20 future heating source. With that being said, it is my understanding that there will likely be

¹⁷ PGW DSM Program Annual Report, FY 2023 Results, p. 7.

¹⁸ CAUSE-PA St. 1 at 23.

1 additional funding available through the Inflation Reduction Act (IRA) to help with the cost of
2 electrical upgrades for the installation of electric heat pumps and heat pump water heaters.

3 **Q: Regarding your recommendation that roof insulation rebates only be provided**
4 **without air sealing when a qualified professional has determined that there is no risk of**
5 **damaging structural components of the roof, Ms. Adamucci asserts you did not provide**
6 **criteria for a “qualified professional.”¹⁹ How do you respond?**

7 A: As I indicated in my response to PGW’s interrogatory number 18 (b), “At minimum, a
8 ‘qualified professional’ should hold the relevant Building Performance Institute (“BPI”)
9 certifications.”²⁰

10 **1. Response to PGW Witness Theodore Love**

11 **Q: Please summarize the testimony of Theodore Love to which you wish to respond.**

12 A: Mr. Love disagrees with my statement that high efficiency equipment already has most of
13 the market share and he takes issue with the Consortium for Energy Efficiency (“CEE”) study
14 that I cited in my direct testimony. He also argues that I ignored the methodology and source of
15 baseline equipment that PGW cites in its proposed TRM. He further argues that installation of
16 insulation is challenging in Philadelphia due to the prevalence of rowhomes. He argues that the
17 poverty rate in Philadelphia makes it less likely that Philadelphians can afford high efficiency
18 equipment without rebates. He points to knob and tube wiring as an additional barrier to
19 installation retrofits.

¹⁹ PGW St. 1-R at 20.

²⁰ PGW to CAUSE-PA I-18(b).

1 **Q: How do you respond to Mr. Love's assertions about the market share of high**
2 **efficiency equipment?**

3 A: Mr. Love states that the information I provided regarding the market share of furnaces
4 that are more than 90% efficient is misleading because "it ignores the efficiency requirement for
5 furnace rebates in PGW's DSM program."²¹ Mr. Love appears to suggest that it is not relevant if
6 customers are buying furnaces that are between 90%-95% efficient because PGW's program
7 requires a 95% furnace in order for a customer to receive a DMS rebate. However, as I stated in
8 my testimony, "in its cost-effectiveness analysis for the RER program PGW simply assumed
9 that, absent its rebate program, customers would install an 80% efficient furnace." In other
10 words, PGW assumes that all customers who receive a rebate would, absent that rebate, choose
11 the minimum efficiency furnace allowable by law, despite market data indicating this is unlikely.
12 Because of this assumption, the cost-effectiveness of the program is almost certainly overstated.
13 Using baseline efficiency assumptions that are supported by market data would reduce program
14 cost-effectiveness, and could, in fact, result in a program that is not cost-effective at all. Thus, it
15 is entirely relevant if customers are purchasing condensing 90%+ furnaces without getting a
16 rebate.

17 **Q: Did you ignore the methodology in PGW's proposed TRM as Mr. Love implies?**

18 A: No. As I stated in my testimony, the TRM assumes that all participating customers would
19 have chosen an 80% efficient furnace without a rebate.²² In light of the market summary data I
20 cited from CEE, PGW's own assertion that the region would achieve a 95% penetration rate of

²¹ PGW St. 2-R at 5:2-3.

²² CAUSE-PA St. 1 at 16-17.

1 condensing (90%+) furnaces by 2021, and PGW's failure to conduct any market baseline studies,
2 PGW's position is indefensible. Mr. Love's assertion that the TRM is consistent with the
3 approach taken by the Act 129 TRM does not make its calculation correct.

4 **Q: How do you respond to Mr. Love's argument that insulation measures are**
5 **challenging in Philadelphia due to the prevalence of rowhomes?**

6 A: I do not disagree that there are technical challenges associated with installing attic
7 insulation in row homes. However, that does not provide a justification for the Company to
8 simply shrug its shoulders and propose a watered-down program that will not be sufficient to
9 allow the City's most vulnerable households to participate. Neither does it mean that the
10 Company would be justified in adopting program protocols that might lead to serious damage to
11 participants' homes. If air sealing an attic before adding insulation is not possible because of
12 restrictive access to the attic space, then a determination must be made as to whether adding
13 insulation without air sealing will exacerbate moisture-driven structural failures in that attic. If
14 the answer is yes, the attic should not be insulated unless air sealing and/or other risk-reducing
15 measures can be implemented. PGW's proposal to ignore building science makes no sense.

16 **Q. Does Mr. Love's identification of health and safety issues as barriers to installing**
17 **roof insulation lead you to change your recommendation for an expanded roof insulation**
18 **and air sealing program?**

19 A. No. Certainly, health and safety issues such as those identified by Mr. Love must be
20 addressed if the installation of roof insulation and the introduction of air sealing could worsen
21 them in any way, but it is clearly best practice for such issues to be remediated in the course of
22 the energy efficiency work being completed. For example, knob and tube wiring in an attic
23 should be replaced with modern wiring at no cost to low income households before insulation is

1 installed. However, Mr. Love provides no information regarding the prevalence of knob and tube
2 wiring in Philadelphia, nor does his testimony identify Philadelphia-specific cost data.

3 Nonetheless, in my experience it is best program practice for wiring upgrades to be done as one
4 component of a comprehensive project. Importantly, coordination with other funding sources
5 must be incorporated in the Company's programs to make sure important opportunities to
6 address health and safety issues and install energy efficiency are maximized. Such funding
7 sources may include:

- 8 • Weatherization readiness funds through the Weatherization Assistance Program
- 9 • LIHEAP Deferral Program
- 10 • Philadelphia Basic Systems Repair Program
- 11 • Philadelphia Energy Authority's Built to Last Program
- 12 • Philadelphia's Whole Home Repair Fund

13 PGW should be expected to leverage such funds/programs. Rather than simply focusing on the
14 challenges, PGW should take steps to coordinate on behalf of its customers to maximize the
15 implementation of energy savings for low income households.

16 **Q: How do you respond to Mr. Love's argument that the poverty rate in Philadelphia**
17 **makes it less likely that Philadelphians can afford high efficiency equipment without**
18 **rebates?**

19 A: Mr. Love seems to assume that a rebate of a few hundred dollars will make the difference
20 in whether a low income household will choose a baseline or high efficiency furnace when
21 purchasing new equipment, but this ignores the fact that low income households most often
22 cannot afford the upfront cost of any new furnace – regardless of whether or not it is baseline or
23 high efficiency or whether there is a rebate available. As I explained earlier, according to PGW's

1 reported data, almost no low income customers have been able to access PGW's enhanced
2 rebates program.

3 **Q. Does this conclude your surrebuttal testimony?**

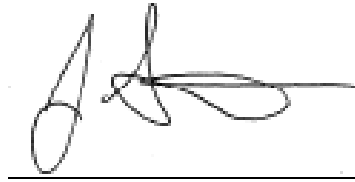
4 A. Yes.

VERIFICATION

I, Jim Grevatt, hereby state that the facts set forth in:

- CAUSE-PA Statement 1: The Direct Testimony of Jim Grevatt
- CAUSE-PA Statement 1-SR: The Surrebuttal Testimony of Jim Grevatt

are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements made herein are subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsifications to authorities.)

A handwritten signature in black ink, appearing to read 'Jim Grevatt', is written above a solid horizontal line.

February 20, 2024
Date

Jim Grevatt, Energy Futures Group
Expert Witness for CAUSE-PA