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September 30, 2026

**Via Electronic Filing**

Matthew L. Homsher, Secretary  
PA Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

Re: 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,  
Docket No. P-2014-2459362

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Dear Secretary Homsher:

On behalf of Philadelphia Gas Works (“PGW”), enclosed please find its Demand Side Management Program (“DSM”) Implementation Plan for Fiscal Years 2028-2031 with regard to the above-referenced matter. The Implementation Plan describes program budgets and implementation details that PGW will follow to implement of its EnergySense Demand Side Management Portfolio from September 1, 2027 to August 31, 2031 (“Phase V”). PGW’s 2028-2031 Technical Reference Manual is also included with this filing.

This document is being submitted consistent with the directives of the Commission in its tentative opinion and order entered August 6, 2016 and its final opinion and order entered November 1, 2016 at this docket.

Please note that PGW and the Office of Small Business Advocate (“OSBA”) have agreed to a settlement, the terms of which are included in Appendix E. These settlement terms will be incorporated in the Phase V Plan upon approval by the Commission.

Additionally, in the event that the Commission has not yet approved the Phase V Plan or Phase V is not yet in place when the current Phase IV Plan expires on August 31, 2027, the Office of Consumer Advocate (“OCA”), the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania (“CAUSE-PA”), the Tenant Union Representative Network (“TURN”), and OSBA have authorized PGW to state that they do not oppose continuing the current Phase IV until the Phase V Plan is approved and implemented.

In compliance with Paragraph 18 of the settlement in PGW's Phase IV proceeding at Docket No. P-2014-2459362, PGW is separately providing the parties Excel spreadsheets with program budget breakouts and budget calculations for the individual DSM programs and overall DSM budget.

Copies to be served in accordance with the attached Certificate of Service.

Sincerely,

A handwritten signature in black ink, appearing to read "Lauren M. Burge". The signature is fluid and cursive, with the first name "Lauren" being more prominent than the last name "Burge".

Lauren M. Burge

Enclosure

cc: Certificate of Service w/enc.  
Hon. F. Joseph Brady w/enc.

## **CERTIFICATE OF SERVICE**

I hereby certify that this day I served a copy of PGW's Demand Side Management Implementation Plan for FY2028-2031 upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

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/s/ Lauren M. Burge

Lauren M. Burge, Esq.

Dated: September 30, 2026

**PHILADELPHIA GAS WORKS  
ENERGYSENSE DEMAND SIDE MANAGEMENT  
PORTFOLIO**

**IMPLEMENTATION PLAN  
FISCAL YEARS 2028-2031**

**SEPTEMBER 30, 2026**

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# **I. DSM PORTFOLIO IMPLEMENTATION PLAN**

## ***A. Introduction***

Philadelphia Gas Works' ("PGW" or the "Company") Demand Side Management ("DSM") portfolio, marketed as EnergySense, is a portfolio of conservation programs that PGW launched in fiscal year 2011 and was initially approved by the Pennsylvania Public Utility Commission ("PUC" or "Commission") for a 5-year term. On December 23, 2014, PGW filed a Petition for Approval of Demand Side Management Plan 2016-2020 ("DSM Phase II") with the PUC. The PUC subsequently approved a DSM Bridge Plan for an interim period effective September 1, 2015, through the earlier of the effective date of the Phase II Plan or August 31, 2016. On November 1, 2016 the PUC entered a final Opinion and Order at Docket No. P-2014-2459362 ("Final Order") that approved the continuation of five market rate DSM programs from FY 2017 – FY 2020.

Pursuant to that Final Order, DSM programming beyond FY 2020 was effectuated by PGW's filing with the Commission ongoing triennial implementation plans, with an opportunity for parties to propose a termination on an anniversary date by filing 180 days in advance of the close of the fiscal year. Accordingly, PGW filed a Petition for Approval of its DSM plan for Fiscal Years 2021-2023 ("DSM Phase III") on May 6, 2020. Following the filing of the Petition for Approval, several Notices of Intervention by interested parties were filed with the PUC. These interventions and subsequent administrative proceedings resulted in a Joint Petition for Settlement that was approved by the PUC on May 6, 2021. Pursuant to that approval, the Revised EnergySense DSM Portfolio Implementation Plan for Fiscal Years 2021-2023 was filed on June 4, 2021.

On June 16, 2023, during the latter months of DSM Phase III and in accordance with the Final Order, PGW filed a Petition for Approval of its DSM plan for Fiscal Years 2024-2026 ("DSM Phase IV"). Like the previous plan, interventions were filed, and the ensuing administrative proceedings resulted in a Joint Petition for Settlement (dated February 29, 2024) that was approved by the PUC on April 25, 2024. PGW filed a Revised EnergySense DSM Portfolio Plan for Fiscal Years 2025-2027 in accordance with that Settlement on July 24, 2024. PGW has reserved the right to re-evaluate the appropriateness and effectiveness of maintaining the ongoing DSM programs based on future developments, and respond accordingly, including possibly announcing a termination of the programs.

Prior to filing this Plan, PGW engaged in informal meetings with stakeholders from the Coalition for Affordable Utility Services and Energy Efficiency in Pennsylvania ("CAUSE-PA"), Tenant Union Representative Network ("TURN"), the Pennsylvania Office of the Consumer Advocate ("OCA"), the Pennsylvania Office of Small Business Advocate ("OSBA"), and Philadelphia Industrial and Commercial Gas Users Group ("PICGUG") about the proposed continuation and changes to PGW's DSM programs. As an outcome of these meetings, OSBA indicated that they support PGW's DSM Phase V plan with the set forth in the Settlement Terms (Appendix III.E. OSBA Settlement Terms - PGW Phase V DSM Plan.) herein, while reserving their rights to respond to any

alterations or additions to them. The OSBA settlement terms are being provided as Appendix E to this filing but will be incorporated into the Plan through a compliance filing upon approval by the Commission.

In addition to soliciting feedback on the DSM Phase V plan, PGW has requested that the Stakeholders support a continuation of the DSM Phase IV plan budgets and programs until the PUC issues a final order in the DSM Phase V proceeding. Shuttering DSM programs can create significant customer service issues and may have negative financial impacts on customers who were planning on rebates or grants for their efficiency projects. Furthermore, re-starting shuttered DSM programs carry significant upfront costs and lengthy timelines. During previous DSM proceedings, PGW continued to operate its programs at the plan's final fiscal year levels until the PUC reached a decision on PGW's continuation request. OCA, OSBA and CAUSE-PA/TURN have indicated that they do not oppose continuing the DSM Phase IV FY 2027 budget level until the DSM Phase V Plan is approved and implemented.

The following plan ("Implementation Plan") describes program budgets and implementation details that PGW will follow to implement its EnergySense Demand-Side Management Portfolio ("DSM Portfolio") in Fiscal Years 2028 through 2031 ("DSM Phase V"). PGW's Fiscal Year is September through August.

PGW's DSM Portfolio has been and will be implemented to achieve three broad goals:

1. Reduce customer bills.
2. Maximize customer value.
3. Help the Commonwealth and the City of Philadelphia reduce greenhouse gas emissions and reduce PGW's overall carbon footprint.

The period of time covered by this Implementation Plan is September 1, 2027 to August 31, 2031, spanning FY 2028, FY 2029, FY 2030, and FY 2031. PGW will continue to file its annual report four months after the close of the fiscal year. PGW will file an amended implementation plan four months prior to the upcoming fiscal year, if necessary, to propose major program changes that would modify the portfolio budget caps from the plans documented herein.<sup>1</sup>

PGW may perform periodic reviews of the rebates being offered and may change the types of measures covered, the minimum efficiency level required, or the rebate amount based on changing market conditions; and may reallocate funds between programs.

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<sup>1</sup> Program goals are subject to change based on market activity and deviation from the budgets documented herein.

## ***B. New Features and DSM Portfolio Updates Commencing September 1, 2027***

### **1. Expanded Affordable EnergySense Rebate Offerings**

In DSM Phase V PGW will expand its Affordable EnergySense rebates that offer higher rebate amounts for low-income customers. PGW launched this rebate tier in DSM IV targeting customers with incomes in the ranges of 0-150% of the Federal Poverty Level (FPL). Beginning in DSM Phase V, PGW will expand access to these higher incentives to customers with incomes in the 151-250% FPL range.

### **2. Incentive and Eligibility Updates**

PGW will adjust some incentive amounts and designs for residential and commercial rebates. This change is necessitated so that the equipment rebates keep pace with inflation since the last plan filing. Additionally, PGW will change the basis of its insulation and air sealing rebate to simplify communications and the application process. PGW will also offer a flat rate for all furnaces, boilers and combination boilers installed in the Residential Equipment Rebate Program. Previously PGW offered a separate dollar amount for the first rebated piece of equipment in a building (ex: \$400 for a furnace), and then a smaller rebate amount for additional units installed in that building (ex: \$250 per furnace). PGW has elected to offer the same rebate for all units installed in a building, as independent analysis has shown that multifamily buildings typically have higher incremental costs due to venting challenges, therefore making the larger incentive impactful to customers, in addition to being easier to communicate to customers.

PGW will update the eligibility criteria for the Small Business Energy Check program by eliminating the usage threshold. This stems from the finding that some small businesses that use natural gas for cooking or process equipment exceed the usage threshold set for the program in Phase IV. By eliminating the usage threshold the program will open to small businesses like restaurants and commissaries, that were previously ineligible.

### **3. Home Support Program**

As provided in the DSM Phase IV Settlement, PGW will launch a new program in DSM Phase V as follows,

*“...to deliver no-cost energy efficiency measures to especially vulnerable customers in the 151-200% FPL income tier, up to the amount of \$500,000 to fund these programs, and will offer the program as part of the next DSM plan until these funds are exhausted. The criteria for qualification will include customers with a medical certificate in the prior 6 months, customers with an active Protection from Abuse (“PFA”) order or court order issued by a court of competent jurisdiction providing clear evidence of domestic violence or households with senior citizens over age 65 or children under age 5.” (Joint Petition for Settlement at ¶16. Docket No. P-2014-2459362)*

PGW will launch the new Home Support program to meet this settlement requirement. This program will offer a free energy assessment and direct install (“DI”) measures like smart thermostats, pipe wrap, water conservation devices, and basic air sealing measures. Participants may be eligible for additional free measures based on the energy assessment, including: air sealing, insulation, heating and hot water heating system repairs and replacements. The Home Support Program will end when the budget is exhausted or the three-year term has ended.

#### **4. Four Year Plan Term**

PGW’s first DSM plan implementation period was a five-year term, running from FY 2011 through FY 2015. The DSM Phase II plan was proposed as a five-year term but was four in implementation due to the length of the litigated proceeding. The DSM Phase III and DSM Phase IV plan terms were three years each, as a result of settlement discussions with stakeholders. The longer duration of the DSM Phase I and DSM Phase II plans was beneficial for customer satisfaction and program implementation purposes. Home and business building retrofit projects and new construction projects can take several years of planning before the work is completed. The longer DSM plan terms allowed customers to have confidence that the EnergySense rebate(s) they wished to apply for would be available when their project was completed. It also reduced resource time for the PUC and stakeholders’ review of new plans. For the reasons set forth above, PGW is returning to a longer plan duration which was agreed to by OSBA. As a result of its pre-filing discussions with OSBA, PGW is proposing its DSM Phase V plan as a four-year term.

## C. Portfolio Budgets, Savings, and Cost-Effectiveness

### 1. Budgets

The following are PGW's budgets for the periods beginning in FY 2028 and running through FY 2031.

**Table 1 – Projected Portfolio Budget by Program (Nominal)**

| EnergySense Program                               | FY 2028             | FY 2029            | FY 2030            | FY 2031            | TOTAL              |
|---------------------------------------------------|---------------------|--------------------|--------------------|--------------------|--------------------|
| Residential Equipment Rebates                     | \$737,000           | \$737,000          | \$737,000          | \$737,000          | \$2,948,000        |
| Energy Savings Kit                                | \$165,000           | \$167,000          | \$169,000          | \$170,000          | \$671,000          |
| Smart Thermostat Marketplace                      | \$94,000            | \$94,000           | \$94,000           | \$94,000           | \$376,000          |
| Low Income Smart Thermostat                       | \$110,000           | \$110,000          | \$110,000          | \$110,000          | \$440,000          |
| Residential Construction Grants                   | \$261,000           | \$263,000          | \$266,000          | \$268,000          | \$1,058,000        |
| Commercial Equipment Rebates                      | \$311,000           | \$311,000          | \$311,000          | \$311,000          | \$1,244,000        |
| Small Business Energy Check                       | \$100,000           | \$100,000          | \$100,000          | \$100,000          | \$400,000          |
| Portfolio-wide Costs <sup>2</sup>                 | \$640,000           | \$706,000          | \$723,000          | \$690,000          | \$2,759,000        |
| <b>TOTAL PORTFOLIO</b>                            | <b>\$2,418,000</b>  | <b>\$2,488,000</b> | <b>\$2,510,000</b> | <b>\$2,480,000</b> | <b>\$9,896,000</b> |
| <b>DSM Phase IV Settlement Compliance Program</b> |                     |                    |                    |                    |                    |
|                                                   | <b>Total Budget</b> |                    |                    |                    |                    |
| <b>Home Support</b>                               | \$500,000           |                    |                    |                    |                    |

**Table 2 – Projected Portfolio Budget by Cost Category (Nominal)**

| Category                                          | FY 2028            | FY 2029            | FY 2030            | FY 2031            | TOTAL              |
|---------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Customer Incentives                               | \$1,565,000        | \$1,587,000        | \$1,587,000        | \$1,587,000        | \$6,326,000        |
| Administration                                    | \$657,000          | \$655,000          | \$677,000          | \$697,000          | \$2,686,000        |
| Marketing <sup>3</sup>                            | \$180,000          | \$180,000          | \$180,000          | \$180,000          | \$720,000          |
| Inspections and Technical Review                  | \$16,000           | \$16,000           | \$16,000           | \$16,000           | \$64,000           |
| Evaluation                                        |                    | \$50,000           | \$50,000           |                    | \$100,000          |
| <b>Total</b>                                      | <b>\$2,418,000</b> | <b>\$2,488,000</b> | <b>\$2,510,000</b> | <b>\$2,480,000</b> | <b>\$9,896,000</b> |
| <b>DSM Phase IV Settlement Compliance Program</b> |                    |                    |                    |                    |                    |
| Customer Incentives                               | \$412,000          |                    |                    |                    |                    |
| Administration                                    | \$72,000           |                    |                    |                    |                    |
| Inspections and Technical Review                  | \$16,000           |                    |                    |                    |                    |

<sup>2</sup> See OSBA settlement agreement term 4 in section III.E for additional details about the portfolio-wide administrative costs applicable to commercial and industrial rate class customers (the OSBA settlement agreement is hereinafter referred to as the OSBA Settlement Agreement).

<sup>3</sup> Pursuant to the OSBA Settlement Agreement, the DSM Phase V marketing budget was increased to \$180,000 in total for each fiscal year. Included within this total amount is \$40,000 dedicated for the marketing of Commercial Equipment Rebates and Small Business Energy Check, with a focus on targeting small commercial and industrial customers to the extent possible. See OSBA Settlement Agreement, Appendix E, Para. 7.

The portfolio budget cost categories above are defined as:

- **Customer Incentives:** These are the funds paid directly as grant and rebate recipients for qualifying energy efficiency upgrades; or otherwise paid to facilitate the subsidization or direct-install of qualifying energy efficiency measures.
- **Administration:** This is the cost of implementing the programs, including portfolio overhead costs for PGW labor, fringe and facilities, regulatory and reporting support, rebate and grant processing, and platform costs.
- **Marketing:** Costs associated with communication and outreach activities promoting the EnergySense programs to encourage participation.
- **Inspections and Technical Review:** These are costs associated with verification and quality assurance activities; and project and equipment analysis to assess energy savings.

Consistent with prior DSM phases, PGW reserves the right to reallocate funds between programs and between budget categories within a fiscal year, provided that it does not exceed the overall portfolio budget amount. The portfolio evaluation budget may be reallocated across fiscal years to ensure adequate sample size and post-treatment usage when conducting the evaluation, so the evaluations can be completed with the scientific rigor needed to inform future DSM planning efforts.

## 2. Savings<sup>4</sup>

### a) Gas savings

**Table 3 – Projected Annual Natural Gas Savings (MMBtu)**

| <b>Program</b>                  | <b>FY 2028</b> | <b>FY 2029</b> | <b>FY 2030</b> | <b>FY 2031</b> | <b>FY 2028 – FY 2031</b> |
|---------------------------------|----------------|----------------|----------------|----------------|--------------------------|
| Residential Equipment Rebates   | 8,036          | 8,036          | 8,036          | 8,036          | 32,145                   |
| Energy Savings Kit              | 4,955          | 4,955          | 4,955          | 4,955          | 19,820                   |
| Smart Thermostat Marketplace    | 4,196          | 4,196          | 4,196          | 4,196          | 16,785                   |
| Low Income Smart Thermostat     | 921            | 1,177          | 1,177          | 1,177          | 4,453                    |
| Residential Construction Grants | 2,471          | 2,471          | 2,471          | 2,471          | 9,883                    |
| Commercial Equipment Rebates    | 19,159         | 19,159         | 19,159         | 19,159         | 76,636                   |
| Small Business Energy Check     | 547            | 547            | 547            | 547            | 2,188                    |
| Home Support <sup>5</sup>       | 1,479          | 1,479          | 1,479          | -              | 4,438                    |
| <b>Total</b>                    | <b>41,765</b>  | <b>42,021</b>  | <b>42,021</b>  | <b>40,542</b>  | <b>166,348</b>           |

<sup>4</sup> The sum of the annual figures may not equal the totals displayed because the values have been truncated for display in this plan rather than rounded.

<sup>5</sup> The Home Support program is projected to last for three years or until the budget is exhausted. Savings figures reflect annualized values over three years.

**Table 4 – Projected Lifetime Natural Gas Savings (MMBtu)**

| <b>Program</b>                  | <b>FY 2028</b> | <b>FY 2029</b> | <b>FY 2030</b> | <b>FY 2031</b> | <b>FY 2028 – FY 2031</b> |
|---------------------------------|----------------|----------------|----------------|----------------|--------------------------|
| Residential Equipment Rebates   | 167,574        | 167,574        | 167,574        | 167,574        | 670,297                  |
| Energy Savings Kit              | 49,550         | 49,550         | 49,550         | 49,550         | 198,202                  |
| Smart Thermostat Marketplace    | 37,766         | 37,766         | 37,766         | 37,766         | 151,063                  |
| Low Income Smart Thermostat     | 8,288          | 10,595         | 10,595         | 10,595         | 40,074                   |
| Residential Construction Grants | 49,415         | 49,415         | 49,415         | 49,415         | 197,659                  |
| Commercial Equipment Rebates    | 383,891        | 383,891        | 383,891        | 383,891        | 1,535,565                |
| Small Business Energy Check     | 10,940         | 10,940         | 10,940         | 10,940         | 43,759                   |
| Home Support                    | 19,026         | 19,026         | 19,026         | -              | 57,079                   |
| <b>Total</b>                    | <b>726,450</b> | <b>728,758</b> | <b>728,758</b> | <b>709,732</b> | <b>2,893,699</b>         |

**b) Non-Gas Savings****Table 5 – Projected Incremental Annual Electricity Savings (MWh)**

| <b>Program</b>                  | <b>FY 2028</b> | <b>FY 2029</b> | <b>FY 2030</b> | <b>FY 2031</b> | <b>FY 2028 – FY 2031</b> |
|---------------------------------|----------------|----------------|----------------|----------------|--------------------------|
| Residential Equipment Rebates   | 4              | 4              | 4              | 4              | 17                       |
| Energy Savings Kit              | 41             | 41             | 41             | 41             | 163                      |
| Smart Thermostat Marketplace    | 61             | 61             | 61             | 61             | 244                      |
| Low Income Smart Thermostat     | 13             | 17             | 17             | 17             | 65                       |
| Residential Construction Grants | 0.43           | 0.43           | 0.43           | 0.43           | 2                        |
| Commercial Equipment Rebates    | -              | -              | -              | -              |                          |
| Small Business Energy Check     | 4              | 4              | 4              | 4              | 15                       |
| Home Support                    | 16             | 16             | 16             |                | 48                       |
| <b>Total</b>                    | <b>140</b>     | <b>143</b>     | <b>143</b>     | <b>127</b>     | <b>554</b>               |

**Table 6 – Projected Incremental Lifetime Electricity Savings (MWh)**

| <b>Program</b>                  | <b>FY 2028</b> | <b>FY 2029</b> | <b>FY 2030</b> | <b>FY 2031</b> | <b>FY 2028 – FY 2031</b> |
|---------------------------------|----------------|----------------|----------------|----------------|--------------------------|
| Residential Equipment Rebates   | 62             | 62             | 62             | 62             | 250                      |
| Energy Savings Kits             | 408            | 408            | 408            | 408            | 1,634                    |
| Smart Thermostat Marketplace    | 549            | 549            | 549            | 549            | 2,195                    |
| Low Income Smart Thermostat     | 120            | 154            | 154            | 154            | 582                      |
| Residential Construction Grants | 9              | 9              | 9              | 9              | 35                       |
| Commercial Equipment Rebates    | -              | -              | -              | -              | -                        |
| Small Business Energy Check     | 77             | 77             | 77             | 77             | 309                      |
| Home Support                    | 222            | 222            | 222            |                | 666                      |
| <b>Total</b>                    | <b>1,448</b>   | <b>1,481</b>   | <b>1,481</b>   | <b>1,259</b>   | <b>5,670</b>             |

**Table 7 – Projected Incremental Annual Water Savings (Millions of Gallons)**

| <b>Program</b>                  | <b>FY 2028</b> | <b>FY 2029</b> | <b>FY 2030</b> | <b>FY 2031</b> | <b>FY 2028 – FY 2031</b> |
|---------------------------------|----------------|----------------|----------------|----------------|--------------------------|
| Residential Equipment Rebates   | -              | -              | -              | -              | -                        |
| Energy Savings Kits             | 3              | 3              | 3              | 3              | 12                       |
| Smart Thermostat Marketplace    | -              | -              | -              | -              | -                        |
| Low Income Smart Thermostat     | -              | -              | -              | -              | -                        |
| Residential Construction Grants | 1              | 1              | 1              | 1              | 5                        |
| Commercial Equipment Rebates    | 1              | 1              | 1              | 1              | 3                        |
| Small Business Energy Check     | 0.04           | 0.04           | 0.04           | 0.04           | 0.16                     |
| Home Support                    | 0.52           | 0.52           | 0.52           | 0.52           | 2                        |
| <b>Total</b>                    | <b>6</b>       | <b>6</b>       | <b>6</b>       | <b>5</b>       | <b>22</b>                |

### 3. Cost-Effectiveness

Table 8 presents PGW’s projected cost-effectiveness results. PGW estimates that under the Total Resource Cost (“TRC”) test, the programs have a combined present value (“PV”) of net benefits, in 2027 dollars, of \$14.95 million with a benefit cost ratio (“BCR”) of 2.00.

#### a) Projected Performance

**Table 8 – Projected Cost-Effectiveness Results (2027\$)**

| <b>Program</b>                            | <b>TRC PV Benefits</b> | <b>TRC PV Costs</b> | <b>TRC PV Net Benefits</b> | <b>TRC BCR</b> |
|-------------------------------------------|------------------------|---------------------|----------------------------|----------------|
| Portfolio-wide Costs                      | -                      | \$2,482,808         | (\$2,482,808)              | -              |
| Residential Equipment Rebates             | \$6,475,860            | \$5,599,754         | \$876,106                  | 1.16           |
| Energy Savings Kit                        | \$3,341,106            | \$623,595           | \$2,717,511                | 5.36           |
| Smart Thermostat Marketplace              | \$1,894,173            | \$512,875           | \$1,381,299                | 3.69           |
| Low Income Smart Thermostat               | \$501,338              | \$411,808           | \$89,531                   | 1.22           |
| Residential Construction Grants           | \$2,736,267            | \$1,845,044         | \$891,223                  | 1.48           |
| Commercial Equipment Rebates <sup>6</sup> | \$13,220,695           | \$2,724,082         | \$10,496,613               | 4.85           |
| Small Business Energy Check               | \$491,729              | \$251,841           | \$239,887                  | 1.95           |
| Home Support                              | \$1,224,429            | \$474,140           | \$750,290                  | 2.58           |
| <b>Total</b>                              | <b>\$29,885,598</b>    | <b>\$14,925,945</b> | <b>\$14,959,653</b>        | <b>2.00</b>    |

### D. Portfolio Implementation and Management

PGW staff will continue their strategic planning and management of the EnergySense portfolio. Day-to-day administration of the programs will be conducted internally by

<sup>6</sup> The Commercial Equipment Rebates savings and benefits do not include the new measures proposed under the OSBA Settlement Agreement. The savings and benefits for these measures have not been calculated or incorporated into that program’s projections.

PGW and by a consultant firm or firms. Vendors may fulfill the following roles, subject to change based on cost competitiveness and PGW staffing capacity. PGW may, over the course of the plan, modify these roles, hire vendors for additional implementation activities or bring vendor performed duties in-house.

- Technical Assistance Provider – in this role, the vendor will be responsible for engineering and project analysis and project inspections.
- Marketing and Outreach Support Providers – in this role, the vendors will work with PGW to develop and implement communications strategies to promote EnergySense programs and drive customer participation.
- Small Business Energy Check Contractor – in this role, the vendor will perform walk-through energy assessments, install low-cost energy efficiency measures, and recommended energy efficiency improvements to customers.
- Smart Thermostat Marketplace Provider – in this role, the vendor will manage online ordering and shipment of ENERGY STAR® certified smart thermostats.
- Low Income Smart Thermostat Installation Vendor – in this role, the vendor will provide and install ENERGY STAR certified smart thermostats in the homes of eligible low-income PGW customers, at no cost to the customer.
- Energy Savings Kit Provider – in this role, the vendor will assemble and ship energy saving kits to PGW customers at no cost to PGW customers.
- Home Support Conservation Service Provider – this vendor will perform energy assessments and the installation of energy conservation measures under the Home Support program.
- Program Evaluation Contractor – this vendor will conduct energy billing analysis and perform third-party evaluations on the EnergySense portfolio programs.

### ***E. Coordination Activities***

PGW continually seeks to coordinate EnergySense efforts as much as possible with other organizations and programs in order to leverage existing resources and avoid lost opportunities and duplication of services. PGW expects to continue the following coordination activities (subject to modification during the implementation of DSM Phase V):

| Program or Organization and Description of Coordination                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>ENERGY STAR®</b></p> <p>PGW is an ENERGY STAR Energy Efficiency Program Sponsor, which has allowed it to be included in its national registries of rebates and incentives and get updates on ENERGY STAR equipment activities. The coordination has been useful to promote the CER commercial food service rebates for ENERGY STAR rated equipment, and is expected to be useful to promote the smart thermostat rebates for ENERGY STAR certified equipment.</p> |

| Program or Organization and Description of Coordination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>PECO</b></p> <p>PGW has partnered with PECO in PGW’s Low Income Smart Thermostat program, in which PECO has contributed an incentive to reduce PGW’s costs, for projects where a smart thermostat will generate electric savings. PGW regularly reviews opportunities to partner with PECO when feasible and beneficial to our shared customers.</p>                                                                                                                                                                                                                     |
| <p><b>Philadelphia Office of Sustainability</b></p> <p>PGW has coordinated with the Office of Sustainability for their Community Resilience &amp; Environmental Justice Fund, in which the city provides grant funding to organizations to address issues around energy burden and heat resilience, indoor air quality, climate emergency preparedness and other focus areas. The Office of Sustainability is promoting the Small Business Energy Check program to its grant recipients. PGW seeks other opportunities for coordinating with the Office of Sustainability.</p> |
| <p><b>National Energy Improvement Fund</b></p> <p>National Energy Improvement Fund’s (“NEIF”) Keystone Energy Efficiency Program Home Energy Loan offers low interest loans for residential energy efficiency projects. PGW has shared program information on its website, and NEIF has shared EnergySense info with its contractor network, with the goal of encouraging more customers and contractors to take advantage of both EnergySense rebates and low interest loans.</p>                                                                                             |
| <p><b>Green Building United (“GBU”)</b></p> <p>GBU is the Philadelphia chapter of the U.S. Green Building Council and is dedicated to environmentally responsible practices in the building industry. PGW has partnered with GBU for events in the past and its EnergySense programs are listed on GBU’s Better Buildings Hub.</p>                                                                                                                                                                                                                                             |
| <p><b>Housing Alliance of Pennsylvania</b></p> <p>The Housing Alliance of Pennsylvania is an organization that consists of affordable housing property owners, developers, advocates and related stakeholders. PGW has coordinated outreach efforts with Housing Alliance to promote EnergySense programs as a resource.</p>                                                                                                                                                                                                                                                   |
| <p><b>PGW Programs</b></p> <p>PGW plans to cross reference other PGW programs where feasible, for the best interest of the customer, including listing PGW’s Low Income Usage Reduction Program, Home Comfort, information on program materials where appropriate.</p>                                                                                                                                                                                                                                                                                                         |

## ***F. Marketing***

PGW will continue to focus its marketing activities on three main activities: consumer-focused market awareness, supply chain and trade ally engagement, and direct to customer marketing. These will be carried out by PGW and its marketing and outreach support vendors.

## **1. Mass Market Awareness**

PGW will rely on marketing activities to build awareness about EnergySense and its rebate offerings. This approach will continue to be used in support of PGW's Energy Savings Kit program, which is broadly available to PGW residential customers. PGW will need to conduct mass marketing activities to generate awareness about this offering among its residential customer base.

## **2. Supply Chain and Trade Ally Engagement**

PGW's supply chain engagement encompasses all activities targeting equipment suppliers, project designers, installers, manufacturers, and an assortment of related categories. The goal of outreach project intermediaries and influencers is to educate the individuals that supply and recommend natural gas equipment and project designs.

Supply chain and trade ally marketing has been the greatest source of rebate program referrals since the inception of the EnergySense portfolio. This is due to the fact that replacement of heating equipment is often reactionary, where customers replace equipment because it fails rather than through a planned retirement. In these instances, customer decisions are influenced most by equipment installers. By continuing to build and expand on PGW's relationship with these installers and suppliers, EnergySense will remain top of mind as an effective sales tool.

## **3. Direct to Customer Targeted Marketing**

PGW will conduct targeted direct-to-customer marketing, which will focus on encouraging customers to act and make energy efficient purchases and upgrades. PGW will utilize its customer information system to target outreach to customers or neighborhoods with high concentrations of customers that are eligible for specific programs. For example, it may identify neighborhoods for door-to-door outreach to businesses. PGW may also launch targeted outreach campaigns for the Affordable EnergySense Rebates tiers or the Home Support program, targeting outreach to customers that may benefit the most from these programs.

## ***G. Evaluation and Verification Inspections***

PGW will perform on-site verifications on a portion of equipment to ensure the equipment installed qualifies for the program and matches the specifications listed on the rebate application. Inspection quotas are detailed in the individual program sections.

In addition to on-site in-person inspections, PGW will rely on virtual inspections using digital tools that allow for greater customer convenience and cost-savings, while still ensuring quality. For customers who prefer virtual inspections, they may be given an option to record and upload verification videos to a secure site at their convenience or conduct video-chats via a smartphone or tablet, rather than accept on-site visits. The video will need to show clear images of the rebated equipment with its nameplate model

and serial numbers matching the application, and proof of their residence. This approach is used in other utility DSM programs.

PGW will continue to perform third party evaluations on its programs to evaluate the actualized measure savings. PGW uses the results of these independent evaluations to assess program impacts, update savings estimates, and redirect program activities.

## ***H. Continuation and Reporting***

This Implementation Plan provides implementation details for the next four years of the DSM program from FY 2028 – FY 2031. During this time, PGW will continue to file its annual implementation plan four months prior to the upcoming fiscal year, but only when proposing major program changes that would increase the portfolio budget caps.

PGW will continue to file its annual report four months after the close of the fiscal year, which will include the following, as applicable, for each program: number of participants, annual savings, lifetime savings, value of customer incentives issued, customer costs incurred, and the Total Resource Cost ratio (TRC). PGW will also include the data points outlined in the OSBA Settlement Agreement set forth in Appendix III.E.

Table 9 – Timeline for Continuation & Reporting Process below provides the anticipated continuation and reporting process from FY 2028 – FY 2031.

**Table 9 – Timeline for Continuation & Reporting Process<sup>7</sup>**

| <b>Fiscal Year</b> | <b>Continuation or Reporting Activity</b>                                                                                                                                                                                                                                                                                                                             |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2028</b>        | <ul style="list-style-type: none"> <li>• FY 2027 Annual Report (December/January)</li> <li>• FY 2029 Implementation Plan (May, if warranted)</li> </ul>                                                                                                                                                                                                               |
| <b>2029</b>        | <ul style="list-style-type: none"> <li>• FY 2028 Annual Report (December/January)</li> <li>• FY 2030 Implementation Plan (May, if warranted)</li> </ul>                                                                                                                                                                                                               |
| <b>2030</b>        | <ul style="list-style-type: none"> <li>• FY 2029 Annual Report (December/January)</li> <li>• FY 2031 Implementation Plan (May, if warranted)</li> <li>• Stakeholder meeting with interested parties to present the Company’s proposal for the next phase of EnergySense programming. Meeting will be held three months in advance of filing, if warranted.</li> </ul> |
| <b>2031</b>        | <ul style="list-style-type: none"> <li>• FY 2030 Annual Report (December/January)</li> <li>• FY 2032 – FY 2035 DSM Phase VI filing (approx. Sept., if warranted)</li> </ul>                                                                                                                                                                                           |
| <b>2032</b>        | <ul style="list-style-type: none"> <li>• FY 2031 Annual Report (December/January)</li> </ul>                                                                                                                                                                                                                                                                          |

<sup>7</sup> See OSBA settlement Agreement III.E Para. 2 for additional details about continued stakeholder engagement and Para. 9 thereof for reporting on performance.

## ***I. Key Assumptions***

### **1. Avoided Costs**

PGW's avoided costs are used to evaluate project and program cost-effectiveness. The DSM Phase V plan uses avoided cost figures updated in 2026 based on current commodity costs and charges for pipeline and storage capacity. The 2026 avoided costs are presented in Appendix A.

Pursuant to the PUC's Tentative Order on PGW's Final Phase II Plan, PGW's cost effectiveness calculations include the additional value estimated for Demand Reduction Induced Price Effect ("DRIPE"). DRIPE calculates the impact of reductions in future gas prices caused by DSM reductions in market demand, and reductions in gas supply and price risk as a result of lower PGW system gas demand. PGW began including DRIPE impacts on avoided costs in its cost effectiveness tests in FY 2017.

Avoided costs for electric and water benefits are based on the Avoided Cost values used in Act 129 at Docket No M-2024-3048998.

### **2. Benefit-Cost Analysis**

PGW will continue to apply the TRC test for determining cost-effectiveness. PGW targets a minimum TRC BCR cost effectiveness threshold of 1.0 for all programs and the portfolio as a whole. However, programs or measures may not meet this threshold if included in the portfolio as a pilot or to satisfy settlement requirements.

### **3. Technical Reference Manual**

PGW has provided an update to its PUC approved DSM Phase IV Technical Reference Manual ("TRM") as Appendix D to this plan. PGW evaluated the TRM calculations based on the results of billing analyses and third-party evaluations conducted during DSM Phases I through IV. In instances where an energy efficiency measure's actual savings repeatedly varied from calculated savings, PGW reviewed the savings calculation for potential improvements.

To ensure consistency and follow industry best practices when revising its TRM, PGW developed a methodology for sourcing gas savings formulas and assumptions (ex: operating hours, EFLH, etc.). It established a hierarchy based on the following sources:

- i. Previous PGW program activity with verified savings
- ii. The current Act 129 Phase V TRM
- iii. Other Pennsylvania Natural Gas Energy Efficiency Programs' TRMs
- iv. Recently updated regional TRMs that have been comprehensively reviewed, including:
  - Northeast Energy Efficiency Partnerships' ("NEEP") Mid-Atlantic TRM
  - Illinois TRM
  - New York TRM

- Massachusetts TRM
- v. Other reputable TRMs (e.g. California, Wisconsin, Vermont) or Federal agencies (e.g. U.S. Department of Energy, U.S. Environmental Protection Agency)

For each source, the calculations were examined and, where required, climate dependent or location specific variables replaced with appropriate local values. Priority was also placed on recency of data or assumptions.

The TRM includes estimated incremental costs for each measure. The estimates are based on current market information and the available research, and may be updated if new or improved data becomes available. The costs included in PGW's TRM were obtained from a variety of sources determined by the order of importance outlined below, with priority placed on recent sources.

- i. Data from Pennsylvania specific studies conducted under Act 129 or using cost-estimating software
- ii. Baseline studies and evaluations that have been performed for PGW.
- iii. Data from Federal government studies, such as proceedings for calculating the effects of changing baselines, through ENERGY STAR, or through peer-review journals.
- iv. Data from well-regarded TRMs; specifically NEEP's Mid-Atlantic TRM, Illinois TRM, or California's DEER database. In such instances, costs were adjusted for regional differences and inflation.
- v. Contractor quotes and aggregated cost data from previous EnergySense projects, when available.

The TRM is considered a living document and is, and will continue to be, updated as new information becomes available. PGW may add other measures and new technologies to its TRM and add or discontinue rebate offers based on the effects of new cost and savings data on cost-effectiveness assessments. Since the first PGW DSM TRM was filed with the FY 2011 Implementation Plan, measure characterizations have been revised based on PGW program experience, evaluations and evolving standards. Sources for all measure characteristics are documented in the TRM. Updates to the TRM will be filed as an appendix to the Annual Reports, Implementation Plans, or as necessary, through a separate filing for immediate changes.

## ***J. Project Incentive Caps***

PGW will maintain the tiered incentive caps for commercial and multifamily projects that incorporate measures from different PGW-defined categories. Projects that incorporate measures from numerous categories will have higher incentive caps than projects with measures drawn from just one category. This approach will incentivize customers to

pursue deep energy-savings projects and address multiple gas end uses in order to achieve higher rebates. This design assures budget preservation and encourages customers to design comprehensive projects. The measure categories include: space heating, water heating, building controls and distribution, commercial cooking equipment, and commercial building envelope.

| Measure Categories | Incentive Cap |
|--------------------|---------------|
| 1                  | \$25,000      |
| 2                  | \$35,000      |
| 3                  | \$50,000      |

## **II. Program Plans**

This section provides an overview of the implementation activities planned for FY 2028-2031 for the seven DSM programs comprising PGW’s EnergySense Portfolio and the DSM Phase IV settlement compliance program, Home Support:

- Residential Equipment Rebates
- Commercial Equipment Rebates
- Residential Construction Grants
- Smart Thermostat Marketplace
- Low Income Smart Thermostats
- Small Business Energy Check
- Energy Savings Kit
- Home Support

### ***A. Residential Equipment Rebates Program***

#### **1. Program Description**

The Residential Equipment Rebates (“RER”) program issues prescriptive rebates on premium efficiency gas appliances and heating equipment to increase the penetration of these measures in the homes and buildings of PGW’s customers. Eligible customers may use their own contractor to install the premium efficiency equipment and receive rebates to offset most of the incremental cost of the higher efficiency equipment and installation. Customers are also able to receive a rebate for increasing their roof insulation and air sealing their attics. For this measure, PGW may provide customers with a list of participating contractors that are approved to offer customers instant rebates, though customers can still apply for rebates if they use their own contractor, provided that the contractor meets the program’s eligibility criteria. PGW’s EnergySense website will include printable applications and options for online submission.

#### **2. Costs, Savings, and Benefits**

##### Projections

The program aims to issue rebates for 3,834 pieces of equipment from FY 2028 – FY 2031, with associated annualized gas savings of 32,145 MMBtu. The program is projected to cost \$2,948,000 from FY 2028 – FY 2031. The following table shows a detailed breakout of participation, costs, and savings.

**Table 10 – Projected RER Impacts<sup>8</sup>**

|                                     | <b>FY 2028</b>   | <b>FY 2029</b>   | <b>FY 2030</b>   | <b>FY 2031</b>   | <b>FY 2028 – FY 2031</b> |
|-------------------------------------|------------------|------------------|------------------|------------------|--------------------------|
| <b>Projected Budgets (Nominal)</b>  |                  |                  |                  |                  |                          |
| Customer Incentives                 | \$727,000        | \$727,000        | \$727,000        | \$727,000        | \$2,908,000              |
| Administration                      | \$7,000          | \$7,000          | \$7,000          | \$7,000          | \$28,000                 |
| Inspections                         | \$3,000          | \$3,000          | \$3,000          | \$3,000          | \$12,000                 |
| <b>TOTAL:</b>                       | <b>\$737,000</b> | <b>\$737,000</b> | <b>\$737,000</b> | <b>\$737,000</b> | <b>\$2,948,000</b>       |
| <b>Natural Gas Savings (MMBtus)</b> |                  |                  |                  |                  |                          |
| Incremental Annual                  | 8,036            | 8,036            | 8,036            | 8,036            | 32,145                   |
| Incremental Lifetime                | 167,574          | 167,574          | 167,574          | 167,574          | 670,297                  |
| <b>Projected Participation</b>      |                  |                  |                  |                  |                          |
| Rebates Awarded                     | 958              | 958              | 958              | 958              | 3,834                    |

### **3. Program Eligibility, Incentives and Other Program Features**

RER is designed to persuade customers who are purchasing natural gas furnaces, boilers, combi boilers and tankless water heaters to choose high efficiency models. A rebate for installing roof insulation and air sealing was added in Phase IV to motivate customers to reduce energy usage by improving the thermal envelope of existing homes. All PGW firm-rate customers are eligible. Existing and new construction homes and building are eligible to participate, including:

- Single-family homes
- Multifamily buildings
- Commercial facilities using residential-sized equipment

PGW will continue offering residential-sized equipment rebate offerings targeting high efficiency furnaces, boilers, combination boilers, and tankless water heaters. It will also continue its offering for residential roof and attic insulation with air sealing.

Pursuant to the Phase IV settlement agreement, a market baseline study was conducted to determine the typical efficiencies of gas furnaces that are sold in PGW's service territory, and also examined the incremental costs for furnaces, boiler and combination boilers. The results of this study served as the basis for the updated incremental costs and proposed increase to the rebate amounts for residential furnaces and boilers. However, due to difficulties obtaining survey responses, the study's sample size was too small to reach conclusions on furnace efficiency baselines in Philadelphia.

For this reason, in FY2026 PGW conducted an evaluation on its furnace rebates that found lower-than expected savings for the measure. PGW has updated its TRM savings

<sup>8</sup> The sum of the annual figures may not equal the totals in this table and all subsequent Program Plan tables displayed because the values have been truncated or rounded for display purposes.

calculation for furnaces to reflect the savings values of the billing evaluation. The measure is still cost-effective, and PGW will use the billing evaluation savings as deemed values until further measure evaluation is conducted.

In DSM Phase V, PGW will expand its Residential Equipment Rebates Program Affordable EnergySense rebates to increase incentive tier to include customers with incomes in the 151-250% Federal Poverty Level (FPL) range. With this expansion, customers with incomes from 0 – 250% FPL will be eligible to receive rebates in the increased incentive tier. PGW plans to use its billing system records or customer provided income documentation to verify customer eligibility for the 0-150% tier, and will accept income documentation to verify eligibility for customers in the 151-250% FPL tier, as PGW does not have income documentation for most of the customers in this tier.

The following table outlines the incentives that PGW will offer at the start of Phase V. PGW will perform a periodic review of the rebates being offered and may change the types of measures covered, the minimum efficiency level required, or the rebate amount based on changing market conditions.

**Table 11 – Residential Equipment Rebate Amounts**

| Measure                                                        | Eligibility                                                | Rebate Per-Project                                               | Rebate Per-Project (Affordable Tier)                             |
|----------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| Natural Gas Furnace                                            | 95% AFUE                                                   | \$700                                                            | \$800                                                            |
| Natural Gas Water Boiler                                       | 94% AFUE                                                   | \$1,100                                                          | \$1,400                                                          |
| Natural Gas Combination Boiler                                 | 94% AFUE                                                   | \$1,400                                                          | \$2,000                                                          |
| Tankless Water Heater                                          | ENERGY STAR®                                               | \$400                                                            | \$700                                                            |
| Insulation and Air Sealing with a Participating Contractor     |                                                            |                                                                  |                                                                  |
| Residential Roof Insulation                                    | Finished R-Value $\geq$ R-38 or maximum achievable R-value | 35% of insulation project cost (\$1,500 max)                     | 50% of insulation project cost (\$2,500 max)                     |
| Insulation and Air Sealing with a Non-Participating Contractor |                                                            |                                                                  |                                                                  |
| Residential Roof Insulation (Tier 1)                           | Finished R-Value $\geq$ R-49                               | \$0.65/sf (Default w/Air Sealing)<br>\$0.60/sf (w/o Air Sealing) | \$0.95/sf (Default w/Air Sealing)<br>\$0.90/sf (w/o Air Sealing) |
| Residential Roof Insulation (Tier 2)                           | Finished R-Value $\geq$ R-38                               | \$0.35/sf (Default w/Air Sealing)                                | \$0.50/sf (Default w/Air Sealing)                                |

|  |  |                             |                             |
|--|--|-----------------------------|-----------------------------|
|  |  | \$0.30/sf (w/o Air Sealing) | \$0.40/sf (w/o Air Sealing) |
|--|--|-----------------------------|-----------------------------|

PGW equipment rebates are designed to cover between 35-100% of the incremental cost between standard efficiency and high efficiency models. Given PGW's expanded prescriptive rebate structure, RER incentives per project will continue to be capped at different levels based on the project's installation tier as described in Section I.B.1.

Air Sealing and Insulation. PGW will continue offering its air sealing and insulation rebate in Phase V. All PGW residential customers who use natural gas for space heating and install insulation in existing buildings will be eligible to receive this rebate.

Beginning in Phase V, the insulation and air sealing incentive will be offered primarily as a percentage of project cost up to a per-project maximum, through participating contractors. This change is necessary so the program is easier to communicate to customers. Most customers don't know the square foot area of their attic to compute a potential rebate amount, but could easily compute a rebate amount when presented with a total project cost. At Phase V launch, the target incentive amounts will be 35% of insulation project cost with a \$1,500 maximum for non-low-income customers; and 50% of insulation project cost with a \$2,500 maximum for low and moderate income customers participating in the Affordable EnergySense tier. These amounts may be adjusted within Phase V.

Contractors. PGW will provide a list of participating contractors on PGW's program website so customers may contact them directly to inquire about the rebate. Similar to Phase IV, these contractors will be identified through an application or RFI/RFQ process based on certifications, licensure, and other requirements. PGW will encourage, but not require, that the insulation be installed by a contractor with Building Performance Institute (BPI) certification. Customers may assign the insulation rebate to the participating contractor, in exchange for the contractor offering a reduced cost for the services.

If a customer refuses to hire a participating contractor to do the work, the customer may still receive a rebate based on a dollar per-square feet incentive calculation.

### Projected Activity

PGW updated projections for rebates based on new incentive levels and market acceptance. Updated projections can be found in the following table:

**Table 12 – Projected Rebates Participation by Equipment Type**

| Product             | FY 2028 | FY 2029 | FY 2030 | FY 2031 | FY 2028 – FY 2031 |
|---------------------|---------|---------|---------|---------|-------------------|
| Natural Gas Furnace | 495     | 495     | 495     | 495     | 1,980             |
| Natural Gas Boiler  | 175     | 175     | 175     | 175     | 700               |
| Combi Boiler        | 76      | 76      | 76      | 76      | 306               |

|                                       |            |            |            |            |              |
|---------------------------------------|------------|------------|------------|------------|--------------|
| Tankless Water Heater                 | 52         | 52         | 52         | 52         | 208          |
| Roof/Attic Insulation and Air Sealing | 160        | 160        | 160        | 160        | 640          |
| <b>Total</b>                          | <b>958</b> | <b>958</b> | <b>958</b> | <b>958</b> | <b>3,834</b> |

#### 4. Evaluation, Monitoring, and Verification

PGW will perform on-site verifications as outlined in section I.G. PGW has set a target to inspect at least ten percent of claims to ensure the equipment installed qualifies for the program and matches the equipment listed on the rebate application.

#### ***B. Residential Construction Grants Program***

##### 1. Program Description

The Residential Construction Grants (“RCG”) program seeks to convince homebuilders, building owners, engineers, architects, and contractors to incorporate natural gas energy efficiency into the design of their projects and go beyond standards dictated by the building energy code. The program provides incentives for reaching a certain level of natural gas savings. Customers will submit their projects to PGW virtually.

##### 2. Costs, Savings, and Benefits

###### Projections

The program aims to issue grants for 464 single-family and 200 multifamily residential homes from FY 2028 – FY 2031, with associated annualized gas savings of 9,883 MMBtu. The program is projected to cost \$1,058,000 from FY 2028 – FY 2031.

**Table 13 – Projected RCG Impacts**

|                                     | <b>FY 2028</b>   | <b>FY 2029</b>   | <b>FY 2030</b>   | <b>FY 2031</b>   | <b>FY 2028 – FY 2031</b> |
|-------------------------------------|------------------|------------------|------------------|------------------|--------------------------|
| <b>Projected Budgets (Nominal)</b>  |                  |                  |                  |                  |                          |
| Customer Incentives                 | \$211,000        | \$211,000        | \$211,000        | \$211,000        | \$844,000                |
| Administration                      | \$50,000         | \$52,000         | \$55,000         | \$57,000         | \$214,000                |
| <b>TOTAL:</b>                       | <b>\$261,000</b> | <b>\$263,000</b> | <b>\$266,000</b> | <b>\$268,000</b> | <b>\$1,058,000</b>       |
| <b>Natural Gas Savings (MMBtus)</b> |                  |                  |                  |                  |                          |
| Incremental Annual                  | 2,471            | 2,471            | 2,471            | 2,471            | 9,883                    |
| Incremental Lifetime                | 49,415           | 49,415           | 49,415           | 49,415           | 197,659                  |
| <b>Projected Participation</b>      |                  |                  |                  |                  |                          |
| Single Family                       | 116              | 116              | 116              | 116              | 464                      |
| Multifamily                         | 50               | 50               | 50               | 50               | 200                      |

### **3. Program Eligibility and Incentives**

RCG's target market is a new construction or gut rehabilitation single and multi-family homes that will use natural gas provided by PGW for both space heating and water heating. Gut rehabilitation is generally understood to be a project wherein at least two building systems are being replaced and these renovations require energy code compliance.

Under the Residential Construction Grants program, PGW will pay an incentive for achieving natural gas savings beyond energy code requirements. It consists of two tracks:

Single family track: The single family new construction track will award incentives for homes that exceed the residential building code (2021 International Energy Conservation Code, or "IECC") by at least 15%. The expected grant award is \$1,600. This is a continuation of the RCG program that PGW has implemented in prior phases, however, the baseline has shifted from 2018 IECC to 2021 IECC as a result of the City of Philadelphia shift to the 2021 IECC as the Philadelphia Energy Code requirement. This program will be based on the applicable baselines in the residential building code in effect in the City of Philadelphia. Builders must use natural gas for both space heat and domestic hot water.

Multifamily track: The multifamily RCG track offer grants for multifamily homes that exceed the 2021 IECC by at least 15%. Buildings that use natural gas for space heating and domestic hot water will earn \$550 per unit, and buildings that use natural gas solely for space heating will earn \$375 per unit. The program will be designed in coordination with other EnergySense programs in order to give the builder the most generous incentive. For example, if a project would earn \$5,500 for a 10 unit building through RCG, but would earn \$7,000 if it went through the prescriptive equipment rebate programs for a commercial boiler and water heaters, PGW would approve the \$7,000 incentive.

For both program tracks, applicants must demonstrate the savings by completing an energy model. PGW may work with approved energy engineering firms to implement the program and verify energy model savings.

If new building codes go into effect during the period that the Plan is active, PGW will reevaluate program cost-effectiveness, and may update incentives based on the updated codes, or discontinue the program if no longer cost-effective.

### **4. Evaluation, Monitoring, and Verification**

The program requirement for applicants to complete a Home Energy Rating System ("HERS") rating through a certified third-party rater, which is reviewed by PGW, helps to integrate an aspect of quality control / quality assurance even if PGW is not on-site. In addition to this requirement, PGW may perform additional HERS ratings and on-site visits as needed to validate savings claims.

## ***C. Commercial Equipment Rebates Program***

### **1. Program Description**

The Commercial Equipment Rebates (“CER”) program issues prescriptive rebates on premium efficiency gas appliances and heating equipment to increase the penetration of these measures in the facilities of PGW’s commercial, industrial, and multifamily customers. Eligible customers will use their own contractor to install the premium efficiency equipment and receive rebates to offset most of the incremental cost of the higher efficiency equipment. PGW’s EnergySense website will include printable applications and options for online submission.

### **2. Costs, Savings, and Benefits**

#### Projections

The program aims to issue rebates for over 480 pieces of equipment<sup>9</sup> from FY 2028 – FY 2031, with associated annualized gas savings of 76,636 MMBtu. The program is projected to cost \$1,244,000 from FY 2028 – FY 2031. The following table shows a detailed breakout of participation, costs, and savings.

Total PGW spending for the CER Program for the cumulative FY 2028 to FY 2031 period shall not exceed the budget shown in the table below (\$1,244,000) by more than 15 percent.

**Table 14 – Projected CER Impacts**

|                                     | <b>FY 2028</b>   | <b>FY 2029</b>   | <b>FY 2030</b>   | <b>FY 2031</b>   | <b>FY 2028 – FY 2031</b> |
|-------------------------------------|------------------|------------------|------------------|------------------|--------------------------|
| <b>Projected Budgets (Nominal)</b>  |                  |                  |                  |                  |                          |
| Customer Incentives                 | \$300,000        | \$300,000        | \$300,000        | \$300,000        | \$1,200,000              |
| Administration                      | \$1,000          | \$1,000          | \$1,000          | \$1,000          | \$4,000                  |
| Inspections                         | \$10,000         | \$10,000         | \$10,000         | \$10,000         | \$40,000                 |
| <b>TOTAL:</b>                       | <b>\$311,000</b> | <b>\$311,000</b> | <b>\$311,000</b> | <b>\$311,000</b> | <b>\$1,244,000</b>       |
| <b>Natural Gas Savings (MMBtus)</b> |                  |                  |                  |                  |                          |
| Incremental Annual                  | 19,159           | 19,159           | 19,159           | 19,159           | 76,636                   |
| Incremental Lifetime                | 383,891          | 383,891          | 383,891          | 383,891          | 1,535,565                |
| <b>Projected Participation</b>      |                  |                  |                  |                  |                          |
| Rebates Awarded                     | 120              | 120              | 120              | 120              | 480                      |

<sup>9</sup> Projected totals count rebates for low flow aerators and showerheads at the building-level.

### 3. Program Eligibility and Incentives

CER's target market includes PGW firm-rate customers seeking to purchase equipment that could be substituted with high-efficiency models incentivized through the program. Owners and renters, with the approval of the owner, are both eligible. Equipment must be purchased and installed within the applicable promotion period to be eligible.

PGW will continue offering rebates for commercial boilers and water heaters, steam traps, commercial cooking equipment, low-flow faucet aerators and showerheads, boiler reset controls, low-intensity infrared heaters, roof insulation and Variable Refrigerant Flow (VRF) natural gas heat pumps<sup>10</sup>. Incentives for CER measures range between 16% and 71% of measure incremental costs, with most measures ranging in the 40-50% range.

In addition to the prescriptive rebate measures referenced in the table below, PGW will re-introduce its custom commercial rebate track. This track is offered for cost-effective upgrades in commercial properties for individual measures that are not part of the prescriptive rebates. PGW offered this custom measure track in earlier DSM phases, and some of the custom rebate projects were introduced as prescriptive in subsequent phases, including infrared heaters and low-flow aerators and shower heads. Custom rebate measures will be evaluated for cost-effectiveness on an individual basis. The incentives will not exceed 33% of the total installed cost for retrofits, or 80% of the incremental cost of equipment replacements.<sup>11</sup>

The following table outlines the incentives that PGW will offer at the start of Phase V. PGW will perform a periodic review of the rebates being offered and may change the types of measures covered, the minimum efficiency level required, or the rebate amount based on changing market conditions.

**Table 15 – Commercial Equipment Rebate Amounts<sup>12</sup>**

| Equipment                          | Efficiency Requirement | Rebate               |
|------------------------------------|------------------------|----------------------|
| Commercial Boiler                  | 92 Et                  | \$2,700 - \$9,000    |
| Steam Trap (<15 PSIG)              | N/A                    | \$50                 |
| Steam Trap (≤ 15PSIG < 75)         | N/A                    | \$130                |
| Steam Trap (≥ 75 PSIG)             | N/A                    | \$150                |
| Low-flow Faucet Aerator (per unit) | 1.5 GPM                | \$5 (minimum of 10)  |
| Low-flow Showerhead (per unit)     | 1.75 GPM               | \$18 (minimum of 10) |
| Commercial Water Heater (Storage)  | 96 Et                  | \$4.25 / MBH         |

<sup>10</sup> See III.E, Para. 4 for additional details about the VRF measure consistent with the OSBA Settlement Agreement.

<sup>11</sup> See III.E, Para. 5 for additional details about the CER custom rebate pathway consistent with the OSBA Settlement Agreement.

<sup>12</sup> See III.E, Para. 3 for an expanded list of measures that will be offered in DSM Phase V, subject to the terms of the settlement consistent with the OSBA Settlement Agreement.

|                                    |             |              |
|------------------------------------|-------------|--------------|
| Commercial Water Heater (Tankless) | 96 Et       | \$4.25 / MBH |
| Gas Fryer (Standard)               | ENERGY STAR | \$425        |
| Gas Fryer (Large)                  | ENERGY STAR | \$625        |
| Steam Cooker (3 pans)              | ENERGY STAR | \$175        |
| Steam Cooker (4 pans)              | ENERGY STAR | \$300        |
| Steam Cooker (5 pans)              | ENERGY STAR | \$400        |
| Steam Cooker (6+ pans)             | ENERGY STAR | \$510        |
| Boiler Reset Controls              | N/A         | \$400        |
| Low-intensity Infrared Heater      | ≥ 80% Et    | \$300        |
| Roof Insulation                    | R-49        | \$0.60 / sf  |
| VRF Natural Gas Heat Pump          | >100% AFUE  | \$450/ton    |

#### 4. Evaluation and Verification

PGW will continue to implement evaluation and verification activities in accordance with the portfolio’s current timeline. Moreover, PGW will also continue to schedule and conduct inspections on at least 10 percent of Commercial Equipment Rebates program projects and rebates over \$10,000.

#### *D. Energy Savings Kit Program*

##### 1. Program Description

The Energy Savings Kit (“ESK”) program will offer free energy efficiency kits to all PGW residential customers. Customers will request kits on the program website, and kits will be shipped directly to customers for self-installation and will include installation instructions and contact information if further assistance is needed. ESK will provide two types of kits with a predetermined number of energy efficiency measures – one for customers with natural gas space heating and one for customers with natural gas water heating.

##### 2. Costs, Savings, and Benefits

###### Projections

The program aims to incentivize 11,428 kits over the next period, with associated annualized gas savings of 19,820 MMBtu. The program is projected to cost \$671,000 from FY 2028 – FY 2031.

**Table 16 – Projected Energy Savings Kit Program Impacts**

|                                    | FY 2028   | FY 2029   | FY 2030   | FY 2031   | FY 2028 – FY 2031 |
|------------------------------------|-----------|-----------|-----------|-----------|-------------------|
| <b>Projected Budgets (Nominal)</b> |           |           |           |           |                   |
| Customer Incentives                | \$125,000 | \$125,000 | \$125,000 | \$125,000 | \$500,000         |

|                                     |                  |                  |                  |                  |                  |
|-------------------------------------|------------------|------------------|------------------|------------------|------------------|
| Administration                      | \$40,000         | \$42,000         | \$44,000         | \$45,000         | \$171,000        |
| <b>TOTAL:</b>                       | <b>\$165,000</b> | <b>\$167,000</b> | <b>\$169,000</b> | <b>\$170,000</b> | <b>\$671,000</b> |
| <b>Natural Gas Savings (MMBtus)</b> |                  |                  |                  |                  |                  |
| Incremental Annual                  | 4,955            | 4,955            | 4,955            | 4,955            | 19,820           |
| Incremental Lifetime                | 49,550           | 49,550           | 49,550           | 49,550           | 198,202          |
| <b>Projected Participation</b>      |                  |                  |                  |                  |                  |
| Kits                                | 2,857            | 2,857            | 2,857            | 2,857            | 11,428           |

### 3. Program Eligibility and Incentives

The ESK program is open to all residential customers, but is designed to be particularly beneficial to low-income customers. It is a program that provides free energy saving equipment to all residential customers including low and moderate-income customers who may not be able to afford the equipment otherwise.

Customers with natural gas water heating will receive equipment such as faucet aerators and low-flow showerheads, while customers with gas space heating will receive measures such as caulk and weather stripping. Customers who use natural gas for both purposes will receive a single kit with measures from both the space heating and water heating kits. PGW may modify the types of measures that are included in the kits. Customers will complete a simple webform that will determine which kit they will receive. The program will be available to all residential customers at no cost. PGW will also provide kits to customers at tabling events after verifying those requesting are active PGW residential customers.

### 4. Evaluation and Verification Inspections

PGW may perform on-site or virtual verifications as outlined in section I.G. PGW will primarily perform verifications in this program by fielding online surveys to all participants to ensure the measures included in the kits are installed in homes with natural gas heating and/or water heating equipment and that the properties have active PGW service.

The program will be evaluated when there is adequate program activity to review post-usage data.

#### *E. Smart Thermostat Marketplace*

##### 1. Program Description

The Marketplace program offers direct sales of rebate-discounted ENERGY STAR certified smart thermostats to eligible PGW customers. PGW has relied on a third-party vendor to design the website and implement the program. The Marketplace website offers

smart thermostats discounted by the amount of PGW’s rebate. This creates an “instant rebate” that obviates the need for the customer to take any action after the purchase to receive the rebate. This arrangement provides energy-saving equipment that is affordable and can easily be retrofit on most HVAC systems. Thermostats purchased through the Marketplace must be self-installed by the customer or by a hired contractor. PGW does not provide installation services for thermostats purchased through the Marketplace.

## 2. Costs, Savings, and Benefits

### Projections

The program aims to incentivize 3,200 thermostats over the next period, with associated annualized gas savings of 16,785 MMBtu. The program is projected to cost \$376,000 from FY 2028 – FY 2031. The first year budget includes start-up costs, which are not expected to continue into the following years.

**Table 17 – Projected Smart Thermostat Marketplace Impact**

|                                     | <b>FY 2028</b>  | <b>FY 2029</b>  | <b>FY 2030</b>  | <b>FY 2031</b>  | <b>FY 2028 – FY 2031</b> |
|-------------------------------------|-----------------|-----------------|-----------------|-----------------|--------------------------|
| <b>Projected Budgets (Nominal)</b>  |                 |                 |                 |                 |                          |
| Customer Incentives                 | \$56,000        | \$56,000        | \$56,000        | \$56,000        | \$224,000                |
| Administration                      | \$35,000        | \$35,000        | \$35,000        | \$35,000        | \$140,000                |
| Inspections                         | \$3,000         | \$3,000         | \$3,000         | \$3,000         | \$12,000                 |
| <b>TOTAL:</b>                       | <b>\$94,000</b> | <b>\$94,000</b> | <b>\$94,000</b> | <b>\$94,000</b> | <b>\$376,000</b>         |
| <b>Natural Gas Savings (MMBtus)</b> |                 |                 |                 |                 |                          |
| Incremental Annual                  | 4,196           | 4,196           | 4,196           | 4,196           | 16,785                   |
| Incremental Lifetime                | 37,766          | 37,766          | 37,766          | 37,766          | 151,063                  |
| <b>Projected Participation</b>      |                 |                 |                 |                 |                          |
| Thermostats                         | 800             | 800             | 800             | 800             | 3,200                    |

## 3. Program Eligibility and Incentives

The program’s target market includes PGW firm-rate residential and commercial customers seeking to retrofit an existing natural gas heating system with an ENERGY STAR® certified smart thermostat. PGW offers a base rebate of \$70 and will occasionally increase the rebate amount to \$90 during limited time offers to increase program participation. PGW will perform a periodic review of the rebates being offered and may change the types of measures covered, the minimum efficiency level required, or the rebate amount based on changing market conditions.

Owners and renters are both eligible. Equipment must be purchased from PGW’s marketplace in order to be eligible. PGW limits the number of thermostats that may be purchased through the Marketplace to three per customer, with the second and third

purchases receiving smaller instant rebates. Building owners and builders that seek to install greater quantities may apply for rebates through the prescriptive RER program.

#### 4. Evaluation and Verification Inspections

PGW will perform on-site and virtual verifications as outlined in section I.G. PGW has set a target to inspect five to ten percent of claims to ensure the equipment purchased from the marketplace are installed on natural gas heating equipment at addresses with active PGW service.

### *F. Low Income Smart Thermostats*

#### 1. Program Description

The Low-Income Smart Thermostat (“LIST”) program will provide ENERGY STAR certified smart thermostats in the homes of eligible low-income PGW customers, at no cost to the customer. PGW will rely on a vendor to perform outreach to low-income populations, qualify program participants for income and program eligibility, install smart thermostats, and provide customers with education regarding how to use the thermostat, including how to achieve savings. The vendor will perform installations in customer homes as the primary program delivery vehicle. PGW will allow customers to apply for the program via a webform that can be accessed on the EnergySense website. They may also provide customers the thermostat for the customer to self-install when requested and deemed appropriate. Customers may be referred to PGW’s LIURP, the Home Comfort program, for comprehensive weatherization following the smart thermostat installation.

#### 2. Costs, Savings, and Benefits

##### Projections

The program aims to incentivize 849 thermostats over the next period, with associated annualized gas savings of 4,453 MMBtu. The program is projected to cost \$440,000 from FY 2028 – FY 2031. PGW has allocated a larger budget for administration in 2028 in case there are start-up costs associated, though any unspent funds from the Administration line item in FY 2028 will be directed to customer incentives, up to the total program spend of \$110,000.

**Table 18 – Projected Low Income Smart Thermostat Impacts**

|                                    | FY 2028          | FY 2029          | FY 2030          | FY 2031          | FY 2028 – FY 2031 |
|------------------------------------|------------------|------------------|------------------|------------------|-------------------|
| <b>Projected Budgets (Nominal)</b> |                  |                  |                  |                  |                   |
| Customer Incentives                | \$79,000         | \$101,000        | \$101,000        | \$101,000        | \$382,000         |
| Administration                     | \$31,000         | \$9,000          | \$9,000          | \$9,000          | 58,000            |
| <b>TOTAL:</b>                      | <b>\$110,000</b> | <b>\$110,000</b> | <b>\$110,000</b> | <b>\$110,000</b> | <b>\$440,000</b>  |

| <b>Natural Gas Savings (MMBtus)</b> |       |        |        |        |        |
|-------------------------------------|-------|--------|--------|--------|--------|
| Incremental Annual                  | 921   | 1,177  | 1,177  | 1,177  | 4,453  |
| Incremental Lifetime                | 8,288 | 10,595 | 10,595 | 10,595 | 40,074 |
| <b>Projected Participation</b>      |       |        |        |        |        |
| Thermostats                         | 176   | 224    | 224    | 224    | 849    |

### **3. Program Eligibility and Incentives**

The program's target market is low income PGW customers. Customers will be considered low income if they have been met any of the following criteria within the last year prior to applying: 1) enrolled in CRP, 2) have received a UESF grant, 3) or have received LIHEAP and assigned it to PGW. Customers will also be considered low-income if their annual income is below 150% of the Federal Poverty Level for their household size. PGW will not perform income verification as part of the LIST program. Customers will not be required to have WiFi connectivity in their homes in order to participate in the program; however, PGW will advise participants about the benefits of having the device connected to the internet.

### **4. Evaluation and Verification Inspections**

As deemed necessary, PGW will perform verification inspections to ensure that smart thermostats are installed in homes and businesses with active PGW service used for space heat. The program will be evaluated when there is adequate program activity to review post-usage data.

## ***G. Small Business Energy Check***

### **1. Program Description**

The Small Business Energy Check ("SBEC") program seeks to encourage PGW small business customers to take advantage of the prescriptive rebate programs by providing free walkthrough energy assessments that recommend energy efficiency upgrades. The free energy assessments may also include a limited number of no-cost or low-cost measures (i.e., Faucet aerators, temperature setbacks, etc.). Customers can sign up for SBEC through the program website or through email.

SBEC will serve as a lead generator to direct customers towards PGW's prescriptive rebate programs, namely CER, while also achieving energy savings through no-cost and low-cost opportunities. To make it as easy as possible to participate, PGW will seek to limit the number of visits necessary to receive the assessment and direct install measures. PGW will also conduct direct in-person outreach to businesses and may offer on-the-spot assessments and direct installations, if possible.

Commercial customers in buildings smaller than 50,000 square feet will receive a free walk-through energy assessment from PGW or a PGW-contracted vendor or vendors to identify energy savings opportunities. PGW or its vendors will perform free and low-cost energy efficiency improvements, such as updating temperature set-points, installing pipe wrap, low-flow devices, minor air sealing and similar measures. Customers must agree to this set of measures as a condition of receiving the free assessment. After the assessment, the customer will be given a list of recommended energy efficiency improvements with estimated savings, which will include measures offered in PGW's EnergySense equipment rebate programs.

## 2. Costs, Savings, and Benefits

### Projections

The program aims to perform assessments for 121 small business customers from FY 2028 – FY 2031, with associated annualized gas savings of 2,188 MMBtu. The program is projected to cost \$400,000 from FY 2028 – FY 2031.

**Table 19 – Projected SBEC Impacts**

|                                     | <b>FY 2028</b>   | <b>FY 2029</b>   | <b>FY 2030</b>   | <b>FY 2031</b>   | <b>FY 2028 – FY 2031</b> |
|-------------------------------------|------------------|------------------|------------------|------------------|--------------------------|
| <b>Projected Budgets (Nominal)</b>  |                  |                  |                  |                  |                          |
| Customer Incentives                 | \$67,000         | \$67,000         | \$67,000         | \$67,000         | \$268,000                |
| Administration                      | \$33,000         | \$33,000         | \$33,000         | \$33,000         | \$132,000                |
| <b>TOTAL:</b>                       | <b>\$100,000</b> | <b>\$100,000</b> | <b>\$100,000</b> | <b>\$100,000</b> | <b>\$400,000</b>         |
| <b>Natural Gas Savings (MMBtus)</b> |                  |                  |                  |                  |                          |
| Incremental Annual                  | 547              | 547              | 547              | 547              | 2,188                    |
| Incremental Lifetime                | 10,940           | 10,940           | 10,940           | 10,940           | 43,759                   |
| <b>Projected Participation</b>      |                  |                  |                  |                  |                          |
| Assessments                         | 30               | 30               | 30               | 30               | 121                      |

## 3. Program Eligibility and Incentives

Beginning in Phase V, PGW will eliminate the usage cap, so no small businesses are excluded from participating due to high gas usage. In Phase IV, PGW encountered several small businesses that were interested in participating but had gas usage that was too high to qualify for the program under its annual gas usage limit of 3,000 CCF. This was a common scenario for restaurants, commissaries, and small businesses that use gas for processing. In fact, such businesses are prime candidates to participate in SBEC. By expanding to offer SBEC to small businesses with usage over 3,000 CCF, the program will be able to serve small business customers who need its services the most. Additionally, this change will simplify the application process to streamline enrollment.

PGW will retain its requirement that buildings must be under 50,000 square feet. Buildings over 50,000 square feet will not be eligible for SBEC because they are already

mandated to participate in energy benchmarking and “Building Tune-ups” due to the City of Philadelphia’s requirements for commercial properties. As such, there is an existing incentive and pathway for these commercial customers to pursue energy efficiency. SBEC will seek to serve commercial customers whose size does not trigger compliance with the City’s programs, and who may not have resources available to purchase this type of work.

PGW will seek to spend no more than a total maximum incentive of \$3,000 per customer. This incentive cap will help to control costs and serve as many customers as possible. However, this amount may be adjusted during the plan term based on market conditions and program activity.

#### **4. Evaluation, Monitoring, and Verification**

PGW will perform on-site or virtual verifications as outlined in section I.G. PGW has set a target to inspect at least ten percent of claims to ensure that direct-install measures are installed on natural gas heating equipment at businesses with active PGW service.

The program will be evaluated when there is adequate program activity to review post-usage data.

### ***H. Home Support***

#### **1. Program Description**

In the DSM Phase IV settlement, PGW agreed to the following new program to be included if filing for a new DSM phase.

*If PGW files a new DSM plan with the Commission, PGW will include in such DSM plan a proposal for using unspent budgeted residential program DSM incentive funds from FY25-FY27 to deliver no-cost energy efficiency measures to especially vulnerable customers in the 151-200% FPL income tier, up to the amount of \$500,000 to fund these programs, and will offer the program as part of the next DSM plan until these funds are exhausted. The criteria for qualification will include customers with a medical certificate in the prior 6 months, customers with an active Protection from Abuse (“PFA”) order or court order issued by a court of competent jurisdiction providing clear evidence of domestic violence or households with senior citizens over age 65 or children under age 5. As evidence of income, such customers will orally provide income information establishing that their household income is in the 151%-200% FPL tier. As evidence of the age of household members, the customer will provide an oral statement, to be in effect at the time made and accepted for future work. (Recommend Decision at p. 6. Docket No. P-2014-2459362)*

The Home Support (“HS”) program is designed to satisfy the requirements of the DSM Phase IV settlement agreement.

## **2. Costs, Savings, and Benefits**

### Projections

The program aims to treat 426 homes with associated annualized gas savings of 4,438 MMBtu. The program will end when the budget is exhausted or when the three-year term has ended. The total budget is \$500,000.

**Table 20 – Projected HS Impacts**

|                                  | <b>Program Total</b> |
|----------------------------------|----------------------|
| Customer Incentives              | \$412,000            |
| Administration                   | \$72,000             |
| Inspections and Technical Review | \$16,000             |
| <b>TOTAL:</b>                    | <b>\$500,000</b>     |
| Incremental Annual               | 4,438                |
| Incremental Lifetime             | 57,079               |
| Projects                         | 426                  |

## **3. Program Eligibility and Incentives**

HS target market includes PGW residential customers in the 151-200% FPL income tier who meet the at least one of the following criteria: a medical certificate in the prior 6 months; an active Protection from Abuse (“PFA”) order; a court order issued by a court of competent jurisdiction providing clear evidence of domestic violence; OR households with senior citizens over age 65 or children under age 5. As evidence of income, such customers will orally provide income information establishing that their household income is in the 151%-200% FPL tier. As evidence of the age of household members, the customer will provide an oral statement, to be in effect at the time made and accepted for future work.

All participants will receive a free energy assessment and direct install (“DI”) measures like smart thermostats, pipe wrap, water conservation devices, and basic air sealing measures. Participants may be eligible for additional free measures based on the energy assessment, including: air sealing, insulation, heating and hot water heating system repairs and replacements. The EnergySense website will include a form for customers to sign up.

## **4. Evaluation, Monitoring, and Verification**

PGW may perform on-site or virtual verifications as outlined in section I.G.

### **III. Appendices**

**A. PGW Natural Gas Avoided Costs, including DRIPE (2027\$)**

| <b>Calendar Year</b> | <b>Baseload \$ / MMBTu</b> | <b>Space Heating \$ / MMBtu</b> | <b>DHW \$ / MMBtu</b> |
|----------------------|----------------------------|---------------------------------|-----------------------|
| 2027                 | \$5.13                     | \$12.54                         | \$6.98                |
| 2028                 | \$5.46                     | \$13.66                         | \$7.51                |
| 2029                 | \$5.70                     | \$13.81                         | \$7.73                |
| 2030                 | \$6.07                     | \$14.23                         | \$8.11                |
| 2031                 | \$6.56                     | \$14.79                         | \$8.62                |
| 2032                 | \$6.63                     | \$14.58                         | \$8.62                |
| 2033                 | \$6.60                     | \$14.35                         | \$8.54                |
| 2034                 | \$6.86                     | \$14.35                         | \$8.73                |
| 2035                 | \$6.93                     | \$14.24                         | \$8.76                |
| 2036                 | \$6.93                     | \$14.24                         | \$8.76                |
| 2037                 | \$6.94                     | \$14.25                         | \$8.77                |
| 2038                 | \$6.94                     | \$14.25                         | \$8.77                |
| 2039                 | \$6.94                     | \$14.25                         | \$8.77                |
| 2040                 | \$6.94                     | \$14.25                         | \$8.76                |
| 2041                 | \$6.94                     | \$14.25                         | \$8.77                |
| 2042                 | \$6.94                     | \$14.25                         | \$8.76                |
| 2043                 | \$6.94                     | \$14.25                         | \$8.76                |
| 2044                 | \$6.93                     | \$14.24                         | \$8.76                |
| 2045                 | \$6.93                     | \$14.24                         | \$8.76                |
| 2046                 | \$6.92                     | \$14.23                         | \$8.75                |
| 2047                 | \$6.91                     | \$14.23                         | \$8.74                |
| 2048                 | \$6.91                     | \$14.22                         | \$8.73                |
| 2049                 | \$6.90                     | \$14.21                         | \$8.73                |
| 2050                 | \$6.88                     | \$14.21                         | \$8.71                |
| 2051                 | \$6.88                     | \$14.21                         | \$8.71                |
| 2052                 | \$6.88                     | \$14.21                         | \$8.71                |
| 2053                 | \$6.88                     | \$14.21                         | \$8.71                |
| 2054                 | \$6.88                     | \$14.21                         | \$8.71                |
| 2055                 | \$6.88                     | \$14.21                         | \$8.71                |
| 2056                 | \$6.88                     | \$14.21                         | \$8.71                |

## ***B. List of Acronyms***

| <b>Acronym</b> | <b>Meaning</b>                                                     |
|----------------|--------------------------------------------------------------------|
| BCR            | Benefit-cost ratio                                                 |
| CER            | Commercial Equipment Rebates program                               |
| CY             | Calendar Year                                                      |
| DRIPE          | Demand-Reduction-Induced Price Effect                              |
| DSM            | Demand-Side Management                                             |
| HERS           | Home Energy Rating System                                          |
| HS             | Home Support program                                               |
| ESK            | Energy Savings Kit program                                         |
| FY             | Fiscal Year (PGW's fiscal year goes from September 1 to August 31) |
| LIST           | Low Income Smart Thermostat program                                |
| PA             | Pennsylvania                                                       |
| PV             | Present Value                                                      |
| PGW            | Philadelphia Gas Works                                             |
| RCG            | Residential Construction Grant program                             |
| RER            | Residential Equipment Rebates program                              |
| SBEC           | Small Business Energy Check program                                |
| TRC            | Total Resource Cost                                                |
| TRM            | Technical Reference Manual                                         |

### ***C. Units***

Dth = 10 therms

MDth = 10,000 therms

MMDth = 10,000,000 therms

Ccf = 100 cubic feet

Mcf = 1,000 cubic feet

MMcf = 1,000,000 cubic feet

Bcf = 1,000,000,000 cubic feet

MMBtu = 1,000,000 Btu

BBtu = 1,000,000,000 Btu

kW = 1,000 watts

MW = 1,000,000 watts

GW = 1,000,000,000 watts

1 MMBtu = 1 Dth

1.03 therm = 1 ccf

# **Technical Reference Manual**

Measure Savings Algorithms  
(Market Rate Programs)



**September 1, 2027**

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# 1 Background

## 1.1 Purpose of the TRM

This Technical Reference Manual (TRM) provides a transparent and consistent basis for calculating the energy savings generated by the market rate energy efficiency programs administered by Philadelphia Gas Works (PGW), collectively referred to as EnergySense. A previous version of PGW's TRM was filed with the Pennsylvania Public Utilities Commission (PUC) as part of its Demand Side Management Plan for FY2025-2027. The current version supersedes the aforementioned TRM, and, unless otherwise noted, serves as the primary source for savings calculations and incremental cost assumptions. Additionally, this TRM does not represent an exclusive set of measures that may be applied in EnergySense. Using the custom measure and assumption update methodology described herein, PGW may offer incentives to include new measures during the implementation period.

## 1.2 Updating Assumptions

To ensure consistency and follow industry best practices when updating its TRM, PGW uses the following hierarchy for adding new or revising existing gas savings formulas and assumptions (ex: operating hours, EFLH, etc.):

1. Previous PGW program activity with verified savings
2. The current Act 129 Phase V TRM
3. Other Pennsylvania Natural Gas Energy Efficiency Program TRMs
4. Recently updated regional TRMs that have been comprehensively reviewed, including:
  - a. Illinois TRM
  - b. Northeast Energy Efficiency Partnerships (NEEP) Mid-Atlantic TRM
  - c. New York TRM
  - d. Massachusetts TRM
5. Other reputable TRMs (e.g. California, Wisconsin, Vermont) or Federal agencies (e.g. U.S. Department of Energy, U.S. Environmental Protection Agency)

For each source, the calculations are examined and, where required, climate-dependent or location-specific variables are replaced with appropriate local values. Priority is also placed on recent data.

PGW has included a Realization Rate adjustment factor into many measure calculations. This is applied for measures that are reviewed through a post-usage analysis and have a realization rate calculated based on a statistically significant sample size. PGW will update these figures as new analyses become available.

The TRM contains estimated incremental costs (in 2027 dollars, unless otherwise noted) for each measure. The estimates are based on current market information and available research, and may be updated during the implementation if new or improved data becomes available. The current costs were obtained from a variety of sources using the hierarchy below, with preference given to recent sources. Costs were adjusted for regional differences and inflation.

- i. Data from Pennsylvania specific studies conducted under Act 129 or using cost-estimating software.
- ii. Baseline studies and evaluations that have been performed for PGW.
- iii. Data from Federal government studies, such as proceedings for calculating the effects of changing baselines, through ENERGY STAR, or through peer-review journals.
- iv. Data from well-regarded TRMs; specifically NEEP's Mid-Atlantic TRM, Illinois TRM, or California's DEER database. In such instances, costs were adjusted for regional differences and inflation.
- v. Contractor quotes and aggregated cost data from previous EnergySense projects, when available.

## 2 Residential Time of Replacement Market

### 2.1 Space Heating End Use

#### 2.1.1 Efficient Space Heating System

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

##### Measure Description

This measure applies to residential-sized gas furnaces and boilers purchased at the time of natural replacement. A qualifying furnace or boiler must meet minimum efficiency requirements (AFUE).

##### Definition of Baseline Condition

The efficiency levels of the gas-fired furnaces or boilers that would have been purchased absent this or another DSM program are shown in the following table.

| Equipment Type | Baseline AFUE    |
|----------------|------------------|
| Gas Furnace    | 80% <sup>1</sup> |
| Gas Boiler     | 84% <sup>2</sup> |

##### Definition of Efficient Condition

Efficient model minimum AFUE requirements are detailed in the table below. Installed gas furnaces or boilers must have an AFUE greater than those values shown. For boilers, the installed equipment must also have an input capacity of less than 300,000 Btu/hr.

| Equipment Type | Minimum AFUE |
|----------------|--------------|
| Gas Furnace    | 95%          |
| Gas Boiler     | 94%          |

##### Gas Savings Algorithms

MMBtu savings are realized due to the increase in AFUE of new equipment. MMBtu savings vary by equipment type due to differences in model specific baseline AFUE and high efficiency AFUE percentages. Savings are calculated from the baseline new unit to the installed efficient unit.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{Capacity}_{Out}}{1,000} \times \left( \frac{1}{AFUE_{Base}} - \frac{1}{AFUE_{Eff}} \right) \times EFLH_{Heat} \times RR_{Adj}$$

<sup>1</sup> 10 CFR 430. Energy Conservation Program: Energy Conservation Standards for Consumer Furnaces. (Up to date as of 7/1/2026).

<sup>2</sup> 10 CFR 430.32. Energy and Water Conservation Standards and their compliance dates. (Up to date as of 7/1/2026).

Where:

|                                |                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------|
| $\text{Capacity}_{\text{Out}}$ | = Output capacity of equipment to be installed (kBtu/hr)                        |
| 1,000                          | = Conversion from kBtu to MMBtu                                                 |
| $\text{AFUE}_{\text{Base}}$    | = Efficiency of new baseline equipment (Annual Fuel Utilization Efficiency)     |
| $\text{AFUE}_{\text{Eff}}$     | = Efficiency of new equipment                                                   |
| $\text{EFLH}_{\text{Heat}}$    | = Equivalent Full Load Heating Hours (682 hours) <sup>3</sup>                   |
| $\text{RR}_{\text{adj}}$       | = Realization Rate Adjustment (57% for furnaces, 102% for boilers) <sup>4</sup> |

### Energy Savings

$$\Delta \text{kWh} = 0 \text{ kWh}$$

### Demand Savings

$$\Delta \text{kW} = 0 \text{ kW}$$

Where:

|                     |                                                          |
|---------------------|----------------------------------------------------------|
| $\Delta \text{kWh}$ | = Gross customer annual kWh savings for the measure.     |
| $\Delta \text{kW}$  | = Gross customer summer load kW savings for the measure. |

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>5</sup>

| Equipment Type | Measure Lifetime |
|----------------|------------------|
| Gas Furnaces   | 20               |
| Gas Boilers    | 25               |

### Water Savings

There are no water savings for this measure.

### Deemed Measure Cost

Incremental cost of a furnace is \$1,394.<sup>6</sup>

Incremental cost of a boiler is \$2,183.<sup>7</sup>

<sup>3</sup> PUC; *Act 129, 2026 Technical Reference Manual, Appendix A – Climate Dependent Values*. (2024).

<sup>4</sup> PGW EnergySense Residential Equipment Rebate Usage Impact Analysis by APPRISE (2026).

<sup>5</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 3: Residential Measures*. September 19, 2025. Effective January 1, 2026.

<sup>6</sup> 2026 Baseline Study conducted by Acadis Consulting in the PGW service territory.

<sup>7</sup> Ibid.

## 2.1.2 Smart Thermostat

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

This is an ENERGY STAR®-certified smart thermostat, controlling a residential-sized gas furnace or boiler.

### Definition of Baseline Condition

The baseline is either a manual thermostat where each temperature setting change requires human intervention, or a conventional programmable (non-smart) thermostat.

### Definition of Efficient Condition

The efficient thermostat is one that automatically adjusts heating and cooling temperature settings for optimal performance, and has been independently certified and earned an ENERGY STAR® label based on actual field data, to deliver energy savings.

### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = SH_{pre} \times ESF$$

Where:

- $SH_{pre}$  = Space Heat MMBtu gas usage with manual thermostat. Enter actual space heat usage if known. If unknown, use 82 MMBtu.<sup>8</sup>
- $ESF$  = Percentage savings from smart thermostat compared to a manual or conventional programmable thermostat. See table below by installation method.

### Heating Energy Savings Factors (ESF)<sup>9</sup>

| Program Type                                   | Baseline                  | Furnace/Boiler Heating (Electric or Fossil) |
|------------------------------------------------|---------------------------|---------------------------------------------|
| Upstream Buy-Down (Customer Self-Installation) | Unknown Mix Default       | 6.4%                                        |
| Customer Self-Installation with Education      | Unknown Mix Default       | 7.7%                                        |
| Professional Installation                      | Manual                    | 11.5%                                       |
|                                                | Conventional Programmable | 7.9%                                        |

### Electric Savings Algorithms

If the type of air conditioning is known, then use the appropriate algorithm below.

Reduced furnace fan or boiler circulator pump usage is also likely to occur and provide electricity savings during both the heating and cooling seasons, but these auxiliary savings are not accounted for in the following algorithms.

<sup>8</sup> Average customer space heat usage for PGW Online Marketplace participants in FYs 2021 & 2022.

<sup>9</sup> Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024.

**Energy Savings**

$$\Delta kWh = \Delta kWh_{Aux} + \Delta kWh_{Cool}$$

$$\Delta kWh_{Aux} = \text{Furnace Fan kWh savings}$$

$$\Delta kWh_{Cool} = 0 \text{ kWh if house has no air conditioning, or unknown}$$

$$= \Delta kWh_{CAC}, \text{ if house has central air conditioning}$$

$$= 0 \text{ if house has room air conditioning}$$

**Deemed Savings  $\Delta kWh^{10}$** 

| Program Type                                   | Baseline                  | Fossil Fuel Furnace (Fan Only) $\Delta kWh_{Aux}$ | CAC Cooling $\Delta kWh_{CAC}$ |
|------------------------------------------------|---------------------------|---------------------------------------------------|--------------------------------|
| Upstream Buy-Down (Customer Self-Installation) | Unknown Mix Default       | 44                                                | 92                             |
| Customer Self-Installation with Education      | Unknown Mix Default       | 53                                                | 141                            |
| Professional Installation                      | Manual                    | 79                                                | 215                            |
|                                                | Conventional Programmable | 54                                                | 177                            |

**Demand Savings**

$$\Delta kW = 0 \text{ kW}$$

Where:

$\Delta kWh$  = Gross customer annual kWh savings for the measure.

$\Delta kW$  = Gross customer summer load kW savings for the measure.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>11</sup>**

| Equipment Type   | Measure Lifetime |
|------------------|------------------|
| Smart Thermostat | 9 <sup>12</sup>  |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

The incremental cost for an ENERGY STAR® Smart Thermostat is \$125.<sup>13</sup>

<sup>10</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 3: Residential Measures*. September 19, 2025. Effective January 1, 2026.

## 2.1.3 Residential Roof Insulation

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

This involves increasing the insulation levels in either the roof space or attic that directly define the boundary between the residential unit and the outdoors.

### Definition of Baseline Condition

The baseline is amount of insulation in the residential unit in its pre-treatment condition. If existing condition is unknown, pre-treatment condition is assumed to be R-19.

### Definition of Efficient Condition

An increase in insulation that will reduce energy consumption compared to the pre-treated condition. Minimum R-38.

### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{HDD}_t \times 24 \times \text{AREA} \times \left( \frac{1}{R_{\text{pre}}} - \frac{1}{R_{\text{post}}} \right)}{(\text{AFUE} \times 1,000,000)}$$

Where:

|                   |                                                                                                                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDD <sub>t</sub>  | = Heating degree days at temperature t, where t=63°F if no programmable thermostat has been installed and t=62°F if a programmable thermostat has been installed. See reference table in section 8.1 on page 66 for HDD63 and HDD62.                                              |
| 24                | = Hours per day                                                                                                                                                                                                                                                                   |
| AREA              | = Net insulated area in square feet. Estimated at 85% of gross area for cavities.                                                                                                                                                                                                 |
| R <sub>pre</sub>  | = R-value of roof/cavity pre-treatment. R <sub>pre</sub> = 5 if there is no existing insulation. R <sub>pre</sub> = 19 if the insulation level is unknown.                                                                                                                        |
| R <sub>post</sub> | = R-value of roof/ cavity after insulation is installed.                                                                                                                                                                                                                          |
| AFUE              | = Rated AFUE of heating system. If no rating is available then use the method described in the Efficient Space Heating System section for calculating the AFUE. The AFUE of replacement equipment should be used if the heating system replacement precedes the air sealing work. |

### Electric Savings Algorithms

If the type of air conditioning is known, then use the appropriate algorithm below.

### Energy Savings

|                      |                                                                                                                                                                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ΔkWh                 | = ΔkWh <sub>Aux</sub> + ΔkWh <sub>Cool</sub>                                                                                                                                                                                                        |
| ΔkWh <sub>Aux</sub>  | = Annual Gas Savings (MMBtu) × Auxiliary                                                                                                                                                                                                            |
| ΔkWh <sub>Cool</sub> | = 0 kWh if building has no air conditioning<br>= ΔkWh <sub>CAC</sub> if building has central air conditioning<br>= ΔkWh <sub>RAC</sub> if building has room air conditioning<br>= 83% × ΔkWh <sub>CAC</sub> if no information about air conditioner |

Where:

$$\Delta kWh_{CAC} = \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA}{SEER_{CAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right]$$

$$\Delta kWh_{RAC} = \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA \times F_{\text{Room AC}}}{\overline{EER}_{RAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right]$$

### Demand Savings

$$\begin{aligned} \Delta kW &= 0 \text{ kW if building has no air conditioning} \\ &= \Delta kW_{CAC} \text{ if building has central air conditioning} \\ &= \Delta kW_{RAC} \text{ if building has room air conditioning} \end{aligned}$$

Where:

$$\Delta kW_{CAC} = \frac{\Delta kWh_{CAC}}{EFLH_{cool}} \times CF_{CAC}$$

$$\Delta kW_{RAC} = \frac{\Delta kWh_{RAC}}{EFLH_{cool RAC}} \times CF_{RAC}$$

Where:

|                        |                                                                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\Delta kWh$           | = Gross customer annual kWh savings for the measure.                                                                                                                     |
| $\Delta kW$            | = Gross customer summer load kW savings for the measure.                                                                                                                 |
| Auxiliary              | = Heating system auxiliary usage per MMBTU consumption (5.02). <sup>14</sup>                                                                                             |
| CDD                    | = Cooling Degree Days. See reference tables section at the end of this document.                                                                                         |
| DUA                    | = Discretionary Use Adjustment to account for the fact that people do not always operate their air conditioning system when the outside temperature is greater than 65F. |
| $SEER_{CAC}$           | = Seasonal Energy Efficiency Ratio of existing home central air conditioner (Btu/W•hr) (See table below for default values if actual values are not available)           |
| $\overline{EER}_{RAC}$ | = Average Energy Efficiency Ratio of existing room air conditioner (Btu/W•hr) (See table below for default values if actual values are not available)                    |
| $CF_{CAC}$             | = Demand Coincidence Factor for central AC systems (See table below)                                                                                                     |
| $CF_{RAC}$             | = Demand Coincidence Factor for Room AC systems (See table below)                                                                                                        |
| $EFLH_{cool}$          | = Equivalent Full Load Cooling hours for Central AC and ASHP (See table below)                                                                                           |
| $EFLH_{cool RAC}$      | = Equivalent Full Load Cooling hours for Room AC (See table below)                                                                                                       |
| $F_{\text{Room AC}}$   | = Adjustment factor to relate insulated area to area served by Room AC units                                                                                             |

The default values for each term are shown in the tables below.

<sup>14</sup> Efficiency Vermont; *Technical Reference Manual: Measure Savings Algorithms and Cost Assumptions*. (2018).

**Default Values for Algorithm Terms, Ceiling/Attic and Wall Insulation**

| <b>Term</b>          | <b>Type</b> | <b>Value</b>                                                           | <b>Source</b> |
|----------------------|-------------|------------------------------------------------------------------------|---------------|
| DUA                  | Fixed       | 0.75                                                                   | 15            |
| SEER <sub>CAC</sub>  | Variable    | Default values:<br>Early Replacement = 12.1<br>Replace on Burnout = 13 | 16            |
|                      |             | Nameplate                                                              | 17            |
| EER <sub>RAC</sub>   | Variable    | Default = 10.6                                                         | 18            |
|                      |             | Nameplate                                                              | 19            |
| CF <sub>CAC</sub>    | Fixed       | 0.70                                                                   | 20            |
| CF <sub>RAC</sub>    | Fixed       | 0.58                                                                   | 21            |
| F <sub>Room,AC</sub> | Fixed       | 0.24                                                                   | 22            |

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>23</sup>**

| <b>Measure</b> | <b>Measure Lifetime</b> |
|----------------|-------------------------|
| Insulation     | 40                      |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

The incremental cost for this measure is \$1.76 per square foot of insulation.<sup>24</sup>

**Air Sealing Measure**

The calculations and costs for air sealing performed in coordination with insulation are addressed in section 4.1.4.

<sup>15</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>16</sup> Ibid.

<sup>17</sup> Contractor Gathering Data.

<sup>18</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>19</sup> Contractor Gathering Data.

<sup>20</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> NYSERDA Home Performance with ENERGY STAR®.

<sup>24</sup> PUC; Act 129, *SWE Team Incremental Measure Cost Database*. Volume 5.1. (2024). Inflated to 2027 dollars.

## 2.2 Domestic Hot Water End Use

### 2.2.1 Tankless Water Heater

Draft date: 7/1/26

Effective date: 9/1/27

End date: TBD

#### Measure Description

This measure is an on-demand “tankless” natural gas water heater.

#### Definition of Baseline Condition

The efficiency levels of the gas-fired stand-alone storage water heater that would have been purchased absent this or another DSM program are shown in the following table.

| Equipment Type                       | Baseline UEF       |
|--------------------------------------|--------------------|
| Gas Stand-alone Storage Water Heater | 0.58 <sup>25</sup> |

#### Definition of Efficient Condition

The installed tankless water heater must have a UEF greater than that shown in the table below. Efficient model minimum UEF requirements are detailed below.

| Equipment Type            | Minimum UEF |
|---------------------------|-------------|
| Gas Tankless Water Heater | 0.87        |

#### Gas Savings Algorithms

The following formula for gas savings is based on the DOE test procedure for water heaters.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\left( \frac{1}{UEF_{Base}} - \frac{1}{UEF_{Eff}} \right) \times V \times \rho \times c_p \times 67 \times 365}{1,000,000} \times RR_{Adj}$$

Where:

|                     |                                                                                  |
|---------------------|----------------------------------------------------------------------------------|
| UEF <sub>Base</sub> | = Uniform Energy Factor of baseline water heater = 0.58                          |
| UEF <sub>Eff</sub>  | = Uniform Energy Factor of efficient water heater                                |
| V                   | = Daily volume of hot water usage in gallons. If unknown, assume 55 gallons/day. |
| ρ                   | = Water density at 125° F (8.24 lb/gal)                                          |
| c <sub>p</sub>      | = Specific heat of water (1.00 Btu/lb °F)                                        |
| 67                  | = °F temperature rise between inlet and outlet of water heater                   |
| 365                 | = Days per year                                                                  |
| 1,000,000           | = Btu per MMBtu                                                                  |
| RR <sub>adj</sub>   | = Realization Rate Adjustment (78% for tankless water heaters) <sup>26</sup>     |

<sup>25</sup> 10 CFR 430.32. *Energy and Water Conservation Standards and their compliance dates*. (Up to date as of 7/1/2026). Based on the federal standard for residential gas-fired storage water heater and assumed typical 40 gallon storage. (Up to date as of 7/1/2026).

<sup>26</sup> PGW EnergySense Residential Equipment Rebate Usage Impact Analysis by APPRISE (2026).

### Electric Savings Algorithms

There are no electric savings from this measure.

### Energy Savings

$$\Delta \text{kWh} = 0 \text{ kWh}$$

### Demand Savings

$$\Delta \text{kW} = 0 \text{ kW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.

$\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>27</sup>

| Equipment Type        | Measure Lifetime |
|-----------------------|------------------|
| Tankless Water Heater | 20               |

### Water Savings

There are no water savings for this measure.

### Deemed Measure Cost

Incremental cost of a tankless water heater is \$668.<sup>28</sup>

<sup>27</sup> U.S. Energy Information Administration [EIA]; *Updated Buildings Sector Appliance Equipment Costs and Efficiency*. (2023).

<sup>28</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 11.0, Volume 3: Residential Measures*. September 22, 2022. Effective January 1, 2023.

## 2.3 Combined Space Heating and Domestic Hot Water End Use

### 2.3.1 Combination Boiler - Space Heating and DHW

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

#### Measure Description

This measure applies to residential-sized combination boilers purchased at the time of natural replacement. These are integrated boilers that provide hot water for space heating and on-demand domestic hot water with minimal or no hot water storage. A qualifying combination boiler (combi boiler) must meet minimum efficiency requirements (AFUE).

#### Definition of Baseline Condition

The efficiency levels of the gas-fired boiler and stand-alone storage water heater that would have been purchased absent this or another DSM program are shown in the following table.

| Equipment Type | Baseline               |
|----------------|------------------------|
| Gas Boiler     | 84% AFUE               |
| Gas DHW Tank   | 0.58 UEF <sup>29</sup> |

#### Definition of Efficient Condition

The installed combi boiler must have an AFUE greater than that shown in the table below. Efficient model minimum AFUE requirements are detailed below.

| Equipment Type   | Minimum AFUE         |
|------------------|----------------------|
| Gas Combi Boiler | 94% AFUE<br>0.94 UEF |

#### Gas Savings Algorithms

MMBtu savings are realized due to the increase in AFUE of the new equipment. Savings are calculated from the baseline new unit to the installed efficient unit.

$$\text{Annual Gas Savings (MMBtu)} = \text{Annual Gas Savings}_{SH} + \text{Annual Gas Savings}_{DHW}$$

Where:

$\text{Annual Gas Savings}_{SH}$  = Space heating annual gas savings (MMBtu)  
 $\text{Annual Gas Savings}_{DHW}$  = Domestic Hot Water annual gas savings (MMBtu)

$$\text{Annual Gas Savings}_{SH} = \frac{\text{Capacity}_{Out}}{1,000} \times \left( \frac{1}{AFUE_{Base}} - \frac{1}{AFUE_{Eff}} \right) \times EFLH_{Heat} (RR_{Adj})$$

<sup>29</sup> 10 CFR 430.32. *Energy and Water Conservation Standards and their compliance dates*. Based on the federal standard UEF for medium draw pattern DHW. (Up to date as of 7/1/2026).

Where:

|                         |                                                                             |
|-------------------------|-----------------------------------------------------------------------------|
| Capacity <sub>Out</sub> | = Output capacity of equipment to be installed (kBtu/hr)                    |
| 1,000                   | = Conversion from kBtu to MMBtu                                             |
| AFUE <sub>Base</sub>    | = Efficiency of new baseline equipment (Annual Fuel Utilization Efficiency) |
| AFUE <sub>Eff</sub>     | = Efficiency of new equipment                                               |
| EFLH <sub>Heat</sub>    | = Equivalent Full Load Heating Hours (682 hours) <sup>30</sup>              |
| RR <sub>Adj</sub>       | = Realization Rate Adjustment (61%) <sup>31</sup>                           |

The following formula for DHW gas savings is based on the DOE test procedure for water heaters.

$$Annual\ Gas\ Savings_{DHW} = \frac{\left( \frac{1}{UEF_{Base}} - \frac{1}{UEF_{Eff}} \right) \times V \times \rho \times c_p \times 67 \times 365}{1,000,000}$$

Where:

|                     |                                                                                                                                                                                           |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UEF <sub>Base</sub> | = Energy Factor of baseline water heater = 0.58                                                                                                                                           |
| UEF <sub>Eff</sub>  | = Energy Factor of efficient combi boiler. Since the combi boiler has no or little storage, standby losses are assumed to be negligible and the EF is assumed to be the same as the AFUE. |
| 365                 | = Days per year                                                                                                                                                                           |

### Electric Savings Algorithms

There are no electric savings from this measure.

### Energy Savings

$$\Delta kWh = 0 \text{ kWh}$$

### Demand Savings

$$\Delta kW = 0 \text{ kW}$$

Where:

|              |                                                          |
|--------------|----------------------------------------------------------|
| $\Delta kWh$ | = Gross customer annual kWh savings for the measure.     |
| $\Delta kW$  | = Gross customer summer load kW savings for the measure. |

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>32</sup>

| Equipment Type   | Measure Lifetime |
|------------------|------------------|
| Gas Combi Boiler | 20               |

### Water Savings

There are no water savings for this measure.

### Deemed Measure Cost

The incremental cost for a combination boiler is \$2,519.<sup>33</sup>

<sup>30</sup> PUC; Act 129, 2026 Technical Reference Manual, Appendix A – Climate Dependent Values. (2024).

<sup>31</sup> PGW EnergySense Residential Equipment Rebate Usage Impact Analysis by APPRISE (2026).

<sup>32</sup> Same as lifetime estimate used for tankless water heater.

<sup>33</sup> Illinois Commerce Commission. 2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 3: Residential Measures. September 19, 2025. Effective January 1, 2026.

## 2.4 All End Uses

### 2.4.1 Custom Measure

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

This measure applies to all residential time of replacement custom measures, not otherwise specified in this TRM.

#### Definition of Baseline Condition

The baseline represents the typical equipment that is installed without a DSM program. The efficiency level is based on the current Federal standards, or state and local building codes that are applicable.

#### Definition of Efficient Condition

The efficient measure is any equipment that uses less energy than the baseline equipment.

#### Gas Savings Algorithms

The generalized equation for a custom measure compares the baseline usage to the efficient usage.

$$\text{Annual Gas Savings (MMBtu)} = \text{BaselineUse} - \text{EfficientUse}$$

Where:

*BaselineUse* = The gas usage of baseline equipment or building.  
*EfficientUse* = The gas usage of efficient equipment or building.

#### Electric Savings Algorithms

##### Energy Savings

$$\Delta \text{kWh} = \text{BaselinekWh} - \text{EfficientkWh}$$

##### Demand Savings

$$\Delta \text{kW} = \text{BaselinekW} - \text{EfficientkW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.  
 $\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.  
*BaselinekWh* = The electric kWh usage of baseline equipment or building.  
*EfficientkWh* = The electric kWh usage of efficient equipment or building.  
*BaselinekW* = The electric kW usage of baseline equipment or building.  
*EfficientkW* = The electric kW usage of efficient equipment or building.

#### Persistence

The persistence factor is assumed to be one.

#### Measure Lifetimes

Where available, custom measure lifetimes should be based on similar measures defined elsewhere in this TRM, or be determined based on the hierarchy of sources in section 1.2 Updating Assumptions.

#### Water Savings

The water savings are the difference between the baseline and efficient equipment annual water usage in gallons.

#### Measure Cost

The incremental cost is the cost difference between the efficient equipment and the baseline equipment.

## 3 Residential New Construction

### 3.1 All End Uses

#### 3.1.1 Custom Measures

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

##### Measure Description

This measure applies to all residential new construction custom measures, not otherwise specified in this TRM.

##### Definition of Baseline Condition

The baseline represents the typical equipment that is installed without a DSM program. The efficiency level is based on the current Federal standards, or state and local building codes that are applicable. This may also be referred to as the “reference home”. The primary residential energy code required in Philadelphia is the 2021 International Energy Conservation Code (IECC).

##### Definition of Efficient Condition

The efficient condition is any building design that uses less energy than the baseline building design. This lower energy use may be demonstrated by the receipt of a Home Energy Rating System (HERS) index score that is lower than the baseline or reference home score, or other verifiable energy models.

##### Gas Savings Algorithms

The savings for residential new construction may be based on the HERS score as determined by accredited HERS software such as REM/Rate. The software will need to produce separate natural gas savings by space heating, domestic hot water, and appliances end uses.

The generalized equation for a custom measure(s) compares the baseline usage to the efficient usage.

$$\text{Annual Gas Savings (MMBtu)} = \text{BaselineUse} - \text{EfficientUse}$$

Where:

*BaselineUse* = The gas usage of baseline equipment or building.  
*EfficientUse* = The gas usage of efficient equipment or building.

##### Electric Savings Algorithms

##### Energy Savings

$$\Delta \text{kWh} = \text{BaselinekWh} - \text{EfficientkWh}$$

##### Demand Savings

$$\Delta \text{kW} = \text{BaselinekW} - \text{EfficientkW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.  
 $\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.  
*BaselinekWh* = The electric kWh usage of baseline equipment or building.  
*EfficientkWh* = The electric kWh usage of efficient equipment or building.  
*BaselinekW* = The electric kW usage of baseline equipment or building.  
*EfficientkW* = The electric kW usage of efficient equipment or building.

### **Persistence**

The persistence factor is assumed to be one.

### **Measure Lifetimes**

The measure lifetime of Residential New Construction is 20 years.<sup>34</sup> Where deemed appropriate, Residential New Construction lifetimes may be calculated on a custom basis from a weighting of the similar measures defined elsewhere in this TRM.

### **Water Savings**

The water savings are the difference between the baseline and efficient equipment annual water usage in gallons.

### **Deemed Measure Cost**

The incremental cost is the cost difference between the efficient equipment and the baseline equipment. The incremental cost for an average Philadelphia single-family home is \$2,966. It includes a cost of \$2,414 for gas conservation measures<sup>35</sup> and \$552 for HERS rating<sup>36</sup>.

The incremental cost for an average Philadelphia multifamily home is \$2,170. It includes a cost of \$1,870 for gas conservation measures<sup>37</sup> and \$300 for HERS rating<sup>38</sup>.

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<sup>34</sup> Determined by survey of estimated measure lifetime used in Pennsylvania Act 129 New Construction Programs, and Mid Atlantic TRM, V9.

<sup>35</sup> Cost & Savings Estimates ENERGY STAR Certified Homes, Version 3.2.

<sup>36</sup> Survey of costs in Act 129 Programs and local marketplace.

<sup>37</sup> Cost & Savings Estimates ENERGY STAR Certified Homes, Version 3.2.

<sup>38</sup> Survey of costs in Act 129 Programs and local marketplace.

## 4 Residential Early Replacement Market

### 4.1 Space Heating End Use

#### 4.1.1 Efficient Space Heating System

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

##### Measure Description

This measure applies to residential-sized high-efficiency gas furnaces and boilers replacing an existing and functioning furnace or boiler of lower efficiency.

##### Definition of Baseline Condition

The efficiency levels (AFUE) of existing and functioning gas-fired furnaces or boilers. The manufacturer's rated AFUE is used in the savings calculations if it is available. If the manufacturer's rated AFUE is not available, then calculate the existing heating system AFUE by multiplying the measured Steady State Efficiency by the appropriate multipliers in the following table<sup>39</sup>:

| Distribution Type | System Type                   | Default Multiplier |
|-------------------|-------------------------------|--------------------|
| Air               | Forced Air                    | 1.0                |
|                   | Gravity Feed                  | 0.8                |
|                   | Freestanding Heater           | 0.95               |
|                   | Floor Furnace                 | 0.9                |
|                   | Wall Furnace                  | 0.85               |
| Water             | Force Circulation (high mass) | 0.85               |
|                   | Force Circulation (low mass)  | 0.9                |
|                   | Gravity Feed                  | 0.85               |
|                   | Steam                         | 0.75               |

If a heater is inoperable and a baseline AFUE or Steady State Efficiency cannot be determined, refer to the calculation for time of replacement in section 2.1.1.

##### Definition of Efficient Condition

The installed gas furnace or boiler must have an AFUE greater than the baseline condition.

##### Gas Savings Algorithms

MMBtu savings are realized due to the increase in AFUE of the new equipment. MMBtu savings vary by equipment type due to differences in model-specific baseline AFUE and high efficiency AFUE percentages. Savings are calculated from the baseline existing unit to the installed efficient unit.

$$\text{Annual Gas Savings (MMBtu)} = \text{HeatingUse} \times \left( 1 - \frac{\text{AFUE}_{\text{Base}}}{\text{AFUE}_{\text{Eff}}} \right)$$

Where:

<sup>39</sup> Building Performance Institute; *Technical Standards for the Heating Professional* (2007).

|                      |                                                                                                                                                   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| HeatingUse           | = Annual heating use (MMBtu/yr) from weather normalized usage analysis of customer billing data from pre-treatment period. See description below. |
| AFUE <sub>Base</sub> | = Efficiency of existing baseline equipment                                                                                                       |
| AFUE <sub>Eff</sub>  | = Efficiency of new efficient equipment                                                                                                           |

### Heating Use weather normalization methods (HeatingUse):

**Method 1:** Use a linear regression model of use/day as a function of HDD63/day to estimate heating slope (MMBtu/HDD63) and baseload daily use (MMBtu/day). See reference table in section 8.1 on page 66 for HDD63.

**Method 2:** Calculate baseload (MMBtu/day) as the third lowest MMBtu/day bill for the analysis year. Then calculate raw heating use as the sum of monthly billed use minus the baseload. Then calculate weather adjusted heating use as raw heating use \* HDD63. See reference table in section 8.1 on page 66 for HDD63.

### Energy Savings

$$\Delta \text{kWh} = 0 \text{ kWh}$$

### Demand Savings

$$\Delta \text{kW} = 0 \text{ kW}$$

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>40</sup>

| Equipment Type | Measure Lifetime |
|----------------|------------------|
| Gas Furnaces   | 20               |
| Gas Boilers    | 25               |

### Water Savings

There are no water savings for this measure.

### Measure Cost

The actual installed cost shall be referenced, when known. If not known, then the deemed measure incremental costs shall be referenced.

The cost of a high efficiency early replacement furnace is \$4,524.<sup>41</sup>

The cost of a high efficiency early replacement boiler is \$10,710.<sup>42</sup>

The cost of a baseline efficiency furnace is \$4,019.

The cost of a baseline efficiency boiler is \$8,820.<sup>43</sup>

<sup>40</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 3: Residential Measures*. September 19, 2025. Effective January 1, 2026.

<sup>41</sup> Ibid.

<sup>42</sup> Ibid.

<sup>43</sup> Baseline equipment costs are included for deferral credit calculations. As the existing equipment nears the end of its useful life, the net cost after subtracting the deferral credit will be closer to the time of replacement incremental cost.

## 4.1.2 Residential Roof and Cavity Insulation

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

This involves increasing the insulation levels in either the attic or walls that directly define the boundary between the house or unit and the outdoors.

### Definition of Baseline Condition

The baseline is amount of insulation in the house in its pre-treatment condition. If the pre-treatment condition is unknown, it is assumed to be R-19.

### Definition of Efficient Condition

Any increase in insulation that will reduce energy consumption compared to the pre-treated house.

### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{HDD}_t \times 24 \times \text{AREA} \times \left( \frac{1}{R_{\text{pre}}} - \frac{1}{R_{\text{post}}} \right)}{(\text{AFUE} \times 1,000,000)} + \text{AS}_{\text{Adder}}$$

Where:

|                            |                                                                                                                                                                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\text{HDD}_t$             | = Heating degree days at temperature t, where t=63°F if no programmable thermostat has been installed and t=62°F if a programmable thermostat has been installed. <sup>44</sup><br>See reference table in section 8.1 on page 66 for HDD.                                         |
| 24                         | = Hours per day                                                                                                                                                                                                                                                                   |
| AREA                       | = Net insulated area in square feet. Estimated at 85% of gross area for cavities.                                                                                                                                                                                                 |
| $R_{\text{pre}}$           | = R-value of roof/cavity pre-treatment. $R_{\text{pre}} = 5$ if there is no existing insulation. $R_{\text{pre}} = 19$ if the insulation level is unknown.                                                                                                                        |
| $R_{\text{post}}$          | = R-value of roof/ cavity after insulation is installed.                                                                                                                                                                                                                          |
| AFUE                       | = Rated AFUE of heating system. If no rating is available then use the method described in the Efficient Space Heating System section for calculating the AFUE. The AFUE of replacement equipment should be used if the heating system replacement precedes the air sealing work. |
| $\text{AS}_{\text{Adder}}$ | = Air Sealing savings adder (5.24 MMBtu). <sup>45</sup>                                                                                                                                                                                                                           |

### Electric Savings Algorithms

If the type of air conditioning is known, then use the appropriate algorithm below.

Reduced furnace fan or boiler circulator pump usage is also likely to occur and provide electricity savings during both the heating and cooling seasons.

### Energy Savings

$$\Delta \text{kWh} = \Delta \text{kWh}_{\text{Aux}} + \Delta \text{kWh}_{\text{Cool}}$$

$$\Delta \text{kWh}_{\text{Aux}} = \text{Annual Gas Savings (MMBtu)} \times \text{Auxiliary}$$

<sup>44</sup> PUC; Act 129, 2021 Technical Reference Manual, Residential Measures. Volume 2. (2019).

<sup>45</sup> Average Air Sealing savings from PGW's LIURP Program. Applicable in scenarios where air sealing is installed along with the roof insulation.

$$\begin{aligned}
\Delta kWh_{Cool} &= 0 \text{ kWh if house has no air conditioning} \\
&= \Delta kWh_{CAC} \text{ if house has central air conditioning} \\
&= \Delta kWh_{RAC} \text{ if house has room air conditioning} \\
&= 83\% \times \Delta kWh_{CAC} \text{ if no information about air conditioner}
\end{aligned}$$

Where:

$$\begin{aligned}
\Delta kWh_{CAC} &= \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA}{SEER_{CAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right] \\
\Delta kWh_{RAC} &= \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA \times F_{Room AC}}{\overline{EER}_{RAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right]
\end{aligned}$$

### Demand Savings

$$\begin{aligned}
\Delta kW &= 0 \text{ kW if house has no air conditioning} \\
&= \Delta kW_{CAC} \text{ if house has central air conditioning} \\
&= \Delta kW_{RAC} \text{ if house has room air conditioning}
\end{aligned}$$

Where:

$$\begin{aligned}
\Delta kW_{CAC} &= \frac{\Delta kWh_{CAC}}{EFLH_{cool}} \times CF_{CAC} \\
\Delta kW_{RAC} &= \frac{\Delta kWh_{RAC}}{EFLH_{cool RAC}} \times CF_{RAC}
\end{aligned}$$

Where:

$$\begin{aligned}
\Delta kWh &= \text{Gross customer annual kWh savings for the measure.} \\
\Delta kW &= \text{Gross customer summer load kW savings for the measure.} \\
\text{Auxiliary} &= \text{Heating system auxiliary usage per MMBTU consumption (5.02).}^{46} \\
CDD &= \text{Cooling Degree Days. See reference tables in section 8.1 on page 66.} \\
DUA &= \text{Discretionary Use Adjustment to account for the fact that people do not always operate their air conditioning system when the outside temperature is greater than 65F.} \\
SEER_{CAC} &= \text{Seasonal Energy Efficiency Ratio of existing home central air conditioner (Btu/W•hr) (See table below for default values if actual values are not available)} \\
\overline{EER}_{RAC} &= \text{Average Energy Efficiency Ratio of existing room air conditioner (Btu/W•hr) (See table below for default values if actual values are not available)} \\
CF_{CAC} &= \text{Demand Coincidence Factor for central AC systems (See table below)} \\
CF_{RAC} &= \text{Demand Coincidence Factor for Room AC systems (See table below)} \\
EFLH_{cool} &= \text{Equivalent Full Load Cooling hours for Central AC and ASHP (See reference table in section 8.1 on page 66)} \\
EFLH_{cool RAC} &= \text{Equivalent Full Load Cooling hours for Room AC (See reference table in section 8.1 on page 66)} \\
F_{Room AC} &= \text{Adjustment factor to relate insulated area to area served by Room AC units}
\end{aligned}$$

The default values for each term are shown in the tables below.

<sup>46</sup> Efficiency Vermont; *Technical Reference Manual: Measure Savings Algorithms and Cost Assumptions*. (2018).

**Default Values for Algorithm Terms, Ceiling/Attic and Wall Insulation**

| Term                 | Type     | Value                                                                    | Source |
|----------------------|----------|--------------------------------------------------------------------------|--------|
| DUA                  | Fixed    | 0.75                                                                     | 47     |
| SEER <sub>CAC</sub>  | Variable | Default values:<br>Early Replacement = 13.2<br>Replace on Burnout = 13.4 | 48     |
|                      |          | Nameplate                                                                | 49     |
| EER <sub>RAC</sub>   | Variable | Default = 11.1                                                           | 50     |
|                      |          | Nameplate                                                                | 51     |
| CF <sub>CAC</sub>    | Fixed    | 0.70                                                                     | 52     |
| CF <sub>RAC</sub>    | Fixed    | 0.58                                                                     | 53     |
| F <sub>Room,AC</sub> | Fixed    | 0.24                                                                     | 54     |

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>55</sup>**

| Measure           | Measure Lifetime |
|-------------------|------------------|
| Roof Insulation   | 40               |
| Cavity Insulation | 40               |

**Water Savings**

There are no water savings for this measure.

**Measure Cost**

The incremental cost for this measure is \$1.76 per square foot of insulation for R49 and \$0.92 per square foot for R38.<sup>56</sup>

**Air Sealing Measure**

The calculations and costs for air sealing performed in coordination with insulation are addressed in section 4.1.4.

<sup>47</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>48</sup> Ibid.

<sup>49</sup> Contractor Gathering Data.

<sup>50</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>51</sup> Contractor Gathering Data.

<sup>52</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>53</sup> Ibid.

<sup>54</sup> Ibid.

<sup>55</sup> NYSEDA Home Performance with ENERGY STAR®.

<sup>56</sup> PUC; *Act 129, SWE Team Incremental Measure Cost Database*. Volume 5.1. (2024)

### 4.1.3 High Efficiency Window

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

This involves installing a window with a U-factor less than a baseline window.

#### Definition of Baseline Condition

The baseline for retrofits is the U-factor value of the existing window. The baseline for a natural replacement or new construction project is the minimum window required by code. IECC 2021 for Philadelphia requires a U-factor of 0.30 or less.

#### Definition of Efficient Condition

An efficient window is any window exceeding ENERGY STAR® 7.1 requirements for U-factor of 0.25 or less.<sup>57</sup>

#### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = \frac{HDD_t \times 24 \times AREA \times (U_{base} - U_{eff})}{(AFUE \times 1,000,000)}$$

Where:

|                   |                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDD <sub>t</sub>  | = Heating degree days at temperature t, where t=63°F if no programmable thermostat has been installed and t=62°F if a programmable thermostat has been installed. See reference table in section 8.1 on page 66 for HDD.                                                                                                                   |
| 24                | = Hours per day                                                                                                                                                                                                                                                                                                                            |
| AREA              | = Square feet of window area.                                                                                                                                                                                                                                                                                                              |
| U <sub>base</sub> | = U-factor of baseline window.                                                                                                                                                                                                                                                                                                             |
| U <sub>eff</sub>  | = U-factor of efficient window.                                                                                                                                                                                                                                                                                                            |
| AFUE              | = Rated AFUE of heating system. If no rating is available then use the method described in the Efficient Space Heating System section for calculating the AFUE. The AFUE of replacement equipment should be used if the heating system replacement precedes the air sealing work. Use default AFUE of 80% if actual AFUE is not available. |

#### Electric Savings Algorithms

If the type of air conditioning is known, then use the appropriate algorithm below. If the type or existence of air-conditioning is not known, then assume that 52% have air-conditioning and estimate the cooling savings as 52% of a house with central air conditioning.<sup>58</sup>

Reduced furnace fan or boiler circulator pump usage is also likely to occur and provide electricity savings during both the heating and cooling seasons.

#### Energy Savings

$$\Delta kWh = \Delta kWh_{Aux} + \Delta kWh_{Cool}$$

$$\Delta kWh_{Aux} = \text{Annual Gas Savings (MMBtu)} \times \text{Auxiliary}$$

<sup>57</sup> U.S. Environmental Protection Agency. (2022). *ENERGY STAR Program Requirements for Residential Windows, Doors, and Skylights, Version 7.0*. Effective October 23, 2023.

<sup>58</sup> Percentage of houses with air conditioning from Act 129 SWE Residential Baseline Survey. (2018).

$$\begin{aligned}
\Delta kWh_{Cool} &= 0 \text{ kWh if house has no air conditioning} \\
&= \Delta kWh_{CAC} \text{ if house has central air conditioning} \\
&= \Delta kWh_{RAC} \text{ if house has room air conditioning} \\
&= 83\% \times \Delta kWh_{CAC} \text{ if no information about air conditioner}
\end{aligned}$$

Where:

$$\begin{aligned}
\Delta kWh_{CAC} &= \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA}{SEER_{CAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right] \\
\Delta kWh_{RAC} &= \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA \times F_{Room AC}}{\overline{EER}_{RAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right]
\end{aligned}$$

### Demand Savings

$$\begin{aligned}
\Delta kW &= 0 \text{ kW if house has no air conditioning} \\
&= \Delta kW_{CAC} \text{ if house has central air conditioning} \\
&= \Delta kW_{RAC} \text{ if house has room air conditioning}
\end{aligned}$$

Where:

$$\begin{aligned}
\Delta kW_{CAC} &= \frac{\Delta kWh_{CAC}}{EFLH_{cool}} \times CF_{CAC} \\
\Delta kW_{RAC} &= \frac{\Delta kWh_{RAC}}{EFLH_{cool RAC}} \times CF_{RAC}
\end{aligned}$$

Where:

|                        |                                                                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\Delta kWh$           | = Gross customer annual kWh savings for the measure.                                                                                                                     |
| $\Delta kW$            | = Gross customer summer load kW savings for the measure.                                                                                                                 |
| Auxiliary              | = Heating system auxiliary usage per MMBTU consumption (5.02 From Vermont Technical Reference Manual).                                                                   |
| CDD                    | = Cooling Degree Days. See reference tables section in section 8.1 on page 66.                                                                                           |
| DUA                    | = Discretionary Use Adjustment to account for the fact that people do not always operate their air conditioning system when the outside temperature is greater than 65F. |
| $SEER_{CAC}$           | = Seasonal Energy Efficiency Ratio of existing home central air conditioner (Btu/W•hr) (See table below for default values if actual values are not available).          |
| $\overline{EER}_{RAC}$ | = Average Energy Efficiency Ratio of existing room air conditioner (Btu/W•hr) (See table below for default values if actual values are not available).                   |
| $CF_{CAC}$             | = Demand Coincidence Factor for central AC systems.                                                                                                                      |
| $CF_{RAC}$             | = Demand Coincidence Factor for Room AC systems.                                                                                                                         |
| $EFLH_{cool}$          | = Equivalent Full Load Cooling hours for Central AC and ASHP. (See reference table in section 8.1 on page 66)                                                            |
| $EFLH_{cool RAC}$      | = Equivalent Full Load Cooling hours for Room AC. (See reference table in section 8.1 on page 66)                                                                        |
| $F_{Room AC}$          | = Adjustment factor to relate insulated area to area served by Room AC units.                                                                                            |

The default values for each term are shown in the table below.

**Default Values for Algorithm Terms, Ceiling/Attic and Wall Insulation**

| Term                 | Type     | Value                                                                  | Source |
|----------------------|----------|------------------------------------------------------------------------|--------|
| DUA                  | Fixed    | 0.75                                                                   | 59     |
| SEER <sub>CAC</sub>  | Variable | Default values:<br>Early Replacement = 12.1<br>Replace on Burnout = 13 | 60     |
|                      |          | Nameplate                                                              | 61     |
| EER <sub>RAC</sub>   | Variable | Default = 10.6                                                         | 62     |
|                      |          | Nameplate                                                              | 63     |
| CF <sub>CAC</sub>    | Fixed    | 0.70                                                                   | 64     |
| CF <sub>RAC</sub>    | Fixed    | 0.58                                                                   | 65     |
| F <sub>Room,AC</sub> | Fixed    | 0.24                                                                   | 66     |

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetime<sup>67</sup>**

| Measure | Measure Lifetime |
|---------|------------------|
| Window  | 20               |

**Water Savings**

There are no water savings for this measure.

**Measure Cost**

The incremental cost is the difference between a standard efficiency window and a high efficiency window.

<sup>59</sup> “State of Ohio Energy Efficiency Technical Reference Manual,” prepared for the Public Utilities Commission of Ohio by Vermont Energy Investment Corporation. August 6, 2010.

<sup>60</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>61</sup> Contractor gathering data.

<sup>62</sup> DOE Federal Test Procedure 10 CFR 430, Appendix F (Used in ES Calculator for baseline).

<sup>63</sup> Contractor gathering data.

<sup>64</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>65</sup> Ibid.

<sup>66</sup> Ibid.

<sup>67</sup> National Renewable Energy Laboratory. (2025). *National Residential Efficiency Measures Database (NREMDB)*. U.S. Department of Energy. <https://catalog.data.gov/dataset/national-residential-efficiency-measures-database-remdb>.

### 4.1.4 Infiltration Reduction

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

This involves decreasing the amount of air exchange between the inside of the house or unit and the outdoors without buffering from any adjacent unit(s) by sealing the sources of leaks, while maintaining minimum air exchange for air quality.

#### Definition of Baseline Condition

The baseline is the house in its pre-treatment condition, with opportunities for infiltration reductions.

#### Definition of Efficient Condition

Any decrease in infiltration will reduce energy consumption compared to the pre-treated house.

#### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = \frac{HDD_t \times 24 \times (CFM50_{pre} - CFM50_{post})}{(21.5 \times AFUE \times 1,000,000)}$$

Where:

|                            |                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDD <sub>t</sub> =         | Heating degree days at temperature t, where t=63°F if no programmable thermostat has been installed and t=62°F if a programmable thermostat has been installed. See reference tables in section III.A for values.                                                                                                                                    |
| 24 =                       | hours/day                                                                                                                                                                                                                                                                                                                                            |
| CFM50 <sub>pre</sub><br>=  | CFM50 of building shell leakage as measured by a blower door test before treatment. If a blower door test cannot be performed due to health and safety reasons or other limitations, the CFM50 pre will be estimated based on a comparison of similar housing stock.                                                                                 |
| CFM50 <sub>post</sub><br>= | CFM50 of building shell leakage as measured by a blower door test after treatment. If a blower door cannot be performed due to health and safety reasons or other limitations, the CFM50 post will be calculated based on industry best practices as the estimated CFM50 pre value – (square inches of air sealing performed x 7.495). <sup>68</sup> |

<sup>68</sup> “Operating Instructions for the DG-700 Pressure and Flow Gauge,” The Energy Conservancy. 2007. P. 16. From: [http://toollending.com/tll\\_software/EnergyConservatory/dg700%20manual.pdf](http://toollending.com/tll_software/EnergyConservatory/dg700%20manual.pdf)

21.5 = factor to convert CFM50 value to Btu/hrF heat loss rate, calculated from hourly infiltration modeling<sup>69</sup>

AFUE = rated AFUE of heating system. If no rating is available then use the method described in the Efficient Space Heating System section for calculating the AFUE. The AFUE of replacement equipment should be used if the heating system replacement precedes the air sealing work.

### Deemed Savings

When air sealing is performed in coordination with an insulation job as part of the Equipment Rebates program, the deemed savings is 5.24 MMBtu for the air sealing portion of the savings.<sup>70</sup>

### Electric Savings Algorithms

If the type of air conditioning is known, then use the appropriate algorithm below. If the type or existence of air-conditioning is not known, then assume that 52% have air-conditioning and estimate the cooling savings as 52% of a house with central air conditioning.<sup>71</sup>

Reduced furnace fan or boiler circulator pump usage is also likely to occur and provide electricity savings during both the heating and cooling seasons.

### Energy Savings

$$\Delta kWh = \Delta kWh_{Aux} + \Delta kWh_{Cool}$$

$$\Delta kWh_{Aux} = \text{Annual Gas Savings (MMBtu)} \times \text{Auxiliary}$$

$$\Delta kWh_{Cool} = \Delta kWh_{CAC} \text{ if house has central air conditioning}$$

$$= 0 \text{ kWh if house has no air conditioning}$$

$$= \Delta kWh_{RAC} \text{ if house has room air conditioning}$$

$$= 52\% \times \Delta kWh_{CAC} \text{ if no information about air conditioner}$$

$$\Delta kWh_{CAC} = \frac{CDD \times 24 \times DUA \times (CFM50_{pre} - CFM50_{post})}{\left(21.5 \times SEER_{CAC} \times 1000 \frac{W}{kW}\right)}$$

$$\Delta kWh_{RAC} = \frac{CDD \times 24 \times DUA \times F_{Room AC} \times (CFM50_{pre} - CFM50_{post})}{\left(21.5 \times EER_{RAC} \times 1000 \frac{W}{kW}\right)}$$

<sup>69</sup> An hourly infiltration was calculated using a modified version of the LBL (a.k.a. Sherman-Grimsrud) infiltration model with a wind effect modification (EPRI RP 2034-40, Palmiter and Bond 1991) using Philadelphia TMY2 hourly weather data. This analysis result was then adjusted to account for an assumed party wall leakage fraction of 12% and an estimated 10% thermal regain from infiltration/exfiltration. The resulting value of 21.5 is consistent with statistical analyses of empirical data using CFM50 values and actual gas use and savings from CWP evaluations.

<sup>70</sup> Based on assumption of a reduction of 1,050 CFM50 in a house with an 85% AFUE heating system and a programmable thermostat.

<sup>71</sup> Percentage of houses with air conditioning from Act 129 SWE Residential Baseline Survey. (2018).

**Demand Savings**

$$\begin{aligned}\Delta kW &= 0 \text{ kW if house has no air conditioning} \\ &= \Delta kW_{CAC} \text{ if house has central air conditioning} \\ &= \Delta kW_{RAC} \text{ if house has room air conditioning}\end{aligned}$$

$$\Delta kW_{CAC} = \frac{\Delta kWh_{CAC}}{EFLH_{cool}} \times CF_{CAC}$$

$$\Delta kW_{RAC} = \frac{\Delta kWh_{RAC}}{EFLH_{cool RAC}} \times CF_{RAC}$$

Where:

$$\begin{aligned}\Delta kWh &= \text{gross customer annual kWh savings for the measure.} \\ \Delta kW &= \text{gross customer summer load kW savings for the measure.}\end{aligned}$$

|                          |   |                                                                                                                                                                         |
|--------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Auxiliary                | = | Heating system auxiliary usage per MMBTU of consumption (5.02) <sup>72</sup>                                                                                            |
| CDD                      | = | Cooling Degree Days. See reference tables in section III.A for values                                                                                                   |
| DUA                      | = | Discretionary Use Adjustment to account for the fact that people do not always operate their air conditioning system when the outside temperature is greater than 65F.* |
| SEER <sub>CAC</sub>      | = | Seasonal Energy Efficiency Ratio of existing home central air conditioner (Btu/W•hr)*                                                                                   |
| $\overline{EER}_{RAC}$   | = | Average Energy Efficiency Ratio of existing room air conditioner (Btu/W•hr)*                                                                                            |
| CF <sub>CAC</sub>        | = | Demand Coincidence Factor for central AC systems*                                                                                                                       |
| CF <sub>RAC</sub>        | = | Demand Coincidence Factor for Room AC systems*                                                                                                                          |
| EFLH <sub>cool</sub>     | = | Equivalent Full Load Cooling hours for Central AC and ASHP. See section III.A for values                                                                                |
| EFLH <sub>cool RAC</sub> | = | Equivalent Full Load Cooling hours for Room AC. See section III.A for values                                                                                            |
| F <sub>Room AC</sub>     | = | Adjustment factor to relate insulated area to area served by Room AC units*                                                                                             |

\* The default values for each term are shown in the table below.

<sup>72</sup> Efficiency Vermont; *Technical Reference Manual: Measure Savings Algorithms and Cost Assumptions*. (2018).

**Default values for algorithm terms, Infiltration Reduction**

| Term                                 | Type     | Value                                                                  | Source                    |
|--------------------------------------|----------|------------------------------------------------------------------------|---------------------------|
| DUA                                  | Fixed    | 0.75                                                                   | PUC TRM <sup>73</sup>     |
| SEER <sub>CAC</sub>                  | Variable | Default values:<br>Early Replacement = 12.1<br>Replace on Burnout = 13 | PUC TRM                   |
|                                      |          | Nameplate                                                              | Contractor Data Gathering |
| $\overline{\text{EER}}_{\text{RAC}}$ | Variable | Default = 10.6                                                         | PUC TRM                   |
|                                      |          | Nameplate                                                              | Contractor Data Gathering |
| CF <sub>CAC</sub>                    | Fixed    | 0.70                                                                   | PUC TRM                   |
| CF <sub>RAC</sub>                    | Fixed    | 0.58                                                                   | PUC TRM                   |
| F <sub>Room,AC</sub>                 | Fixed    | 0.38                                                                   | Calculated <sup>74</sup>  |

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>75</sup>**

| Measure                | Measure Lifetime |
|------------------------|------------------|
| Infiltration Reduction | 20               |

**Water Savings**

There are no water savings for this measure.

**Measure Cost**

The incremental cost for Air Sealing in the Residential Equipment Rebates program is the actual cost of installing the air sealing, both materials and labor. If not known, it is assumed to be \$624.<sup>76</sup>

The incremental cost for weatherstripping in the Energy Savings Kit program is \$2.76.

The incremental cost for caulking in the Energy Savings Kit program is \$3.07.

<sup>73</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Volume 2—Residential Measures*. 2024. New York Standard Approach for Estimating Energy Savings from Energy Efficiency Measures in Commercial and Industrial Programs, September 1, 2009.

<sup>74</sup> From PECO baseline study, average home size = 2323 ft<sup>2</sup>, average number of room AC units per home = 2.1. Average Room AC capacity = 10,000 BtuH per ENERGY STAR Room AC Calculator, which serves 425 ft<sup>2</sup> (average between 400 and 450 ft<sup>2</sup> for 10,000 BtuH unit per ENERGY STAR Room AC sizing chart).  $F_{\text{Room,AC}} = (425 \text{ ft}^2 * 2.1) / (2323 \text{ ft}^2) = 0.38$

<sup>75</sup> NYSERDA Home Performance with Energy Star.

<sup>76</sup> Nicor Gas, Energy Efficiency Plan January 2026 – December 2029. (March 1, 2025).

## 4.2 Domestic Hot Water End Use

### 4.2.1 Low Flow Showerhead

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

#### Measure Description

This measure relates to the installation of a low flow showerhead in a home. This is an early replacement direct install measure.

#### Definition of Baseline Condition

The baseline is the flow rate of the showerhead being replaced. If this is not available, a baseline value of 2.2 GPM will be used.<sup>77</sup>

#### Definition of Efficient Condition

The flow rate of the efficient showerhead should be lower than the flow rate of the baseline condition. If the exact flow rate is not available, it is assumed to be 1.5 GPM.

#### Water Savings Algorithms<sup>78</sup>

The water savings for low flow showerheads are due to the reduced amount of water being used per shower.

$$\Delta Gallons = \frac{(GPM_{base} - GPM_{eff}) \times N_{persons} \times T_{person-day} \times N_{showers-day} \times 365 \times ISR}{N_{showerheads-home}}$$

Where:

|                        |                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------|
| $\Delta Gallons$       | = Gallons of water saved                                                                                     |
| $GPM_{base}$           | = Maximum gallons per minute of baseline showerhead. Default = 2.2 GPM if measured rate is not available     |
| $GPM_{eff}$            | = Maximum gallons per minute of the efficient showerhead                                                     |
| $N_{persons}$          | = Average number of people per household. Actual or defaults: Single Family = 2.5, Multifamily = 1.7         |
| $T_{person-day}$       | = Average minutes per person per day used for showering. 7.8 min/day                                         |
| $N_{showers-day}$      | = Average number of showers per person per day. 0.6 showers/person/day                                       |
| 365                    | = Days per year                                                                                              |
| ISR                    | = In service rate. Self install Default = 35%. Contractor install Default = 100%. Kit Delivery Default = 21% |
| $N_{showerheads-home}$ | = Average number of showers per home. Actual or defaults: Single Family = 1.6, Multifamily = 1.1             |

#### Gas Savings Algorithms<sup>79</sup>

Gas energy savings result from reducing the amount of incoming cold water required to be heated due to the efficient showerhead.

$$\Delta MMBtu = \frac{[\Delta Gallons \times 8.3 \times c_p \times (T_{out} - T_{in})] / 1,000,000}{RE_{DHW}}$$

<sup>77</sup> Schuldt, March and Debra Tachibana; Energy-related water fixture measurements: Securing the baseline for Northwest Single Family Homes.” (2008).

Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>79</sup> Ibid.

Where:

|                |                                                                                      |
|----------------|--------------------------------------------------------------------------------------|
| $\Delta MMBtu$ | = MMBtu of saved natural gas.                                                        |
| 8.3            | = Constant to convert gallons to pounds (lbs).                                       |
| $c_p$          | = Average specific heat of water at temperature range (1.00 Btu/lb·°F).              |
| $T_{out}$      | = Assumed temperature of water coming out of showerhead (degrees Fahrenheit) 101 °F. |
| $T_{in}$       | = Assumed temperature of water entering house (degrees Fahrenheit) 52 °F.            |
| $RE_{DHW}$     | = Recovery efficiency of the domestic hot water heater = 75%.                        |

### Electric Savings Algorithms

It is assumed that all low flow showerheads are installed in homes that heat water using natural gas. There are no additional electric savings claimed.

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>80</sup>

| Equipment Type      | Measure Lifetime |
|---------------------|------------------|
| Low-flow showerhead | 10               |

### Deemed Measure Cost

Incremental cost of a low-flow showerhead is \$52.<sup>81</sup> If provided through the Energy Savings Kit program, utilize the actual program delivery cost. If unknown, assume \$12.

<sup>80</sup> Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>81</sup> PUC; Act 129, SWE Team Incremental Measure Cost Database. Volume 5.1. (2024). Inflated to 2027 dollars.

## 4.2.2 Low Flow Faucet Aerators

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

### Measure Description

This measure relates to the installation of a low flow faucet aerator in either a kitchen or bathroom.

### Definition of Baseline Condition

The baseline is the flow rate of the existing faucet. If this is not available, it is generally assumed that a faucet will already have a standard faucet aerator using 2.0 GPM.<sup>82</sup>

### Definition of Efficient Condition

The efficient condition is a faucet aerator that has a flow rate lower than the baseline condition. If this value is not available than the flow rate is assumed to be 1.5 GPM.

### Water Savings Algorithms<sup>83</sup>

The water savings for low flow faucet aerators are due to the reduced amount of water being used per minute that flows down the drain (instead of being collected in the sink).

$$\Delta Gallons = \frac{(GPM_{base} - GPM_{eff}) \times N_{persons} \times T_{person-day} \times DF \times 365 \times ISR}{N_{faucets-home}}$$

Where:

|                    |                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------|
| $\Delta Gallons$   | = Gallons of water saved                                                                               |
| $GPM_{base}$       | = Gallons per minute of baseline aerator = 2.0 GPM                                                     |
| $GPM_{eff}$        | = Gallons per minute of the efficient aerator                                                          |
| $N_{persons}$      | = Average number of people per household. Actual or Defaults: Single Family=2.5, Multifamily=1.7       |
| $T_{person-day}$   | = Average minutes per person per day of faucet hot water usage. Kitchen=4.5, Bathroom=1.6              |
| 365                | = Days per year                                                                                        |
| DF                 | = Drain rate, the percentage of water flowing down the drain. Kitchen=75%, Bathroom=90%, Unknown=79.5% |
| ISR                | = In service rate. Kit delivery default = 28%, Direct install default = 100%                           |
| $N_{faucets-home}$ | = Average Number of Faucets per home. Actual or for defaults see table below.                          |

### Average Number of Faucets per Home<sup>84</sup>

| Faucet Type | Single Family | Multifamily |
|-------------|---------------|-------------|
| Kitchen     | 1.1           | 1.0         |
| Bathroom    | 2.2           | 1.2         |
| Unknown     | 3.3           | 2.2         |

<sup>82</sup> Schuldt, March and Debra Tachibana; *Energy-related water fixture measurements: Securing the baseline for Northwest Single Family Homes.* (2008).

<sup>83</sup> PUC; *Act 129, 2021 Technical Reference Manual, Residential Measures.* Volume 2. (2019).

<sup>84</sup> Ibid.

### Gas Savings Algorithms

Gas energy savings result from avoiding having to heat the saved water due to the efficient aerator.

$$\Delta MMBtu = \frac{[\Delta Gallons \times 8.3 \times c_p \times (T_{out} - T_{in})] / 1,000,000}{RE_{DHW}}$$

Where:

|                |                                                                                                                              |
|----------------|------------------------------------------------------------------------------------------------------------------------------|
| $\Delta MMBtu$ | = MMBtu of saved natural gas                                                                                                 |
| 8.3            | = Constant to convert gallons to pounds (lbs.)                                                                               |
| $c_p$          | = Average specific heat of water at temperature range (1.00 Btu/lb·°F)                                                       |
| $T_{out}$      | = Average mixed water temperature flowing from the faucet (degrees Fahrenheit) Kitchen=93°F, Bathroom=86 °F, Unknown=87.8 °F |
| $T_{in}$       | = Assumed temperature of water entering house (degrees Fahrenheit) 52°F                                                      |
| $RE_{DHW}$     | = Recovery efficiency of the domestic hot water heater = 75%                                                                 |

### Electric Savings Algorithms

It is assumed that all faucet aerators are installed in homes that heat water using natural gas. There are no additional electric savings claimed.

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>85</sup>

| Equipment Type          | Measure Lifetime |
|-------------------------|------------------|
| Low-flow faucet aerator | 10               |

### Deemed Measure Cost

Incremental cost of a low-flow faucet aerator is \$10.19.<sup>86</sup> If provided through the Energy Savings Kit program, utilize the actual program delivery cost. If unknown, assume \$2.

<sup>85</sup> Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024..

<sup>86</sup> PUC; Act 129, SWE Team Incremental Measure Cost Database. Volume 5.1. (2024). Inflated to 2027 dollars.

### 4.2.3 Efficient Natural Gas Water Heater

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

#### Measure Description

This measure relates to an efficient natural gas water heater.

#### Definition of Baseline Condition

The baseline is the uniform energy factor (UEF) of the existing water heater. If possible, the UEF of the existing water heater should be used. If the UEF of the existing water heater is unknown, 0.58 should be used. The EF of the existing water heater may be used in place of the UEF, if the UEF of the existing water heater is unknown.

#### Definition of Efficient Condition

The efficient condition is a natural gas water heater that is more energy efficient than the existing water heater.

#### Water Savings Algorithms

There are no water savings due to this measure.

#### Gas Savings Algorithms

The following formula for gas savings is based on the DOE test procedure for water heaters.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\left( \frac{1}{\text{UEF}_{\text{Base}}} - \frac{1}{\text{UEF}_{\text{Eff}}} \right) \times V \times \rho \times c_p \times 67 \times 365}{1,000,000}$$

Where:

$\text{UEF}_{\text{Base}}$  = Uniform Energy Factor of baseline water heater = 0.58  
 $\text{UEF}_{\text{Eff}}$  = Uniform Energy Factor of efficient water heater  
 $V$  = Daily volume of hot water usage in gallons. If unknown, assume 55 gallons/day.  
 $\rho$  = Water density at 125° F (8.24 lb/gal)  
 $C_p$  = Specific heat of water (1.00 Btu/lb °F)  
 $67$  = °F temperature rise between inlet and outlet of water heater  
 $365$  = Days per year  
 $1,000,000$  = Btu per MMBtu

#### Electric Savings Algorithms

It is assumed that all water heaters are installed in homes that heat water using natural gas. There are no additional electric savings claimed.

#### Persistence

The persistence factor is assumed to be one.

#### Measure Lifetimes<sup>87</sup>

| Equipment Type        | Measure Lifetime |
|-----------------------|------------------|
| Tankless Water Heater | 20               |

<sup>87</sup> ENERGY STAR® Residential Water Heaters: Final Criteria Analysis p. 10, April 1, 2008.

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

The incremental cost is the difference between the full installed cost of a higher efficiency water heater and the full installed cost of a baseline efficiency water heater.

## 4.2.4 DHW Pipe Insulation

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

This measure relates to installing insulation on hot water pipes.

### Definition of Baseline Condition

The baseline condition is the current insulation thickness on the hot water pipe.

### Definition of Efficient Condition

The efficient condition is any insulation thicker than that already on the hot water pipe.

If the diameter of the cold/hot feeds directly to/from the storage tank is 1" or less, a maximum length of three feet for both the cold water inlet and hot water outlet piping above the tank (six total feet) per unit will be included in the savings calculations under the program and should be installed in accordance with best practices.

For each ½" increase in diameter of the hot feed directly from the storage tank beyond 1", an additional 6' length of pipe insulation should be installed along the hot water supply piping only and the additional savings will be credited.

If a DHW recirculating system is present, all hot water supply and return piping accessible without demolition should be insulated and the additional savings will be credited.

The thickness of the DHW pipe insulation should be equivalent to the diameter of the piping. For example, a 1" diameter pipe should be insulated with 1" thick insulation; a 2-1/2" diameter pipe with 2-1/2" thick insulation.<sup>88</sup>

If the hot water piping diameter is in other than a ½" increment, the dimension should be rounded to the next protocol increment.

In the event that the above appears not to cover the specific DHW piping circumstance, suitable pictures and descriptions should be sent to PGW or their implementation contractor for judgment.

### Water Savings Algorithms

There are no water savings due to this measure.

### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = \text{Length} \times \frac{(\text{HeatLoss}(Th_{base}) - \text{HeatLoss}(Th_{eff}))}{RE_{DHW} \times 1,000,000}$$

Where:

|                    |   |                                                                                        |
|--------------------|---|----------------------------------------------------------------------------------------|
| Length             | = | Number of linear feet of steam pipe insulated.                                         |
| Th <sub>base</sub> | = | Thickness of base condition insulation (inches).                                       |
| Th <sub>eff</sub>  | = | Thickness of efficient condition insulation (inches).                                  |
| HeatLoss(x)        | = | Heat loss through hot water pipe as a function of insulation thickness x (Btu/ft /yr). |
| RE <sub>DHW</sub>  | = | Recovery efficiency of the hot water heater = 75% <sup>89</sup>                        |

<sup>88</sup> Recommendation based on method pioneered by Gary Klein expert on DHW based in California.

<sup>89</sup> See assumption for low flow showerhead.

“HeatLoss(x)” can be found using the following lookup table:

| <b>Insulation Thickness (inches)</b> | <b>Heat Loss (Btu/ft/yr)</b> |
|--------------------------------------|------------------------------|
| Bare                                 | 268,231                      |
| 0.5                                  | 86,461                       |
| 1.0                                  | 65,350                       |
| 1.5                                  | 51,421                       |
| 2.0                                  | 44,851                       |
| 2.5                                  | 38,544                       |
| 3.0                                  | 36,004                       |
| 3.5                                  | 33,989                       |
| 4.0                                  | 32,412                       |
| 4.5                                  | 30,923                       |
| 5.0                                  | 29,872                       |

This table was calculated using the North American Insulation Manufacturers Association’s (NAIMA) 3E Plus 4.0 Insulation Thickness Computer Program. The following assumptions were used:

|                         |                                         |
|-------------------------|-----------------------------------------|
| Item Description        | = dhw pipe insulation                   |
| System Application      | = Pipe - Horizontal                     |
| Dimensional Standard    | = ASTM C 585 Rigid                      |
| Calculation Type        | = Heat Loss Per Hour Report             |
| Process Temperature     | = 120                                   |
| Ambient Temperature     | = 60                                    |
| Wind Speed              | = 0                                     |
| Nominal Pipe Size       | = 0.75                                  |
| Bare Metal              | = Copper                                |
| Bare Surface Emittance  | = 0.6                                   |
| Insulation Layer 1      | = Polystyrene PIPE, Type XIII, C578-11b |
| Outer Jacket Material   | = All Service Jacket                    |
| Outer Surface Emittance | = 0.9                                   |

### Electric Savings Algorithms

There are no electric savings associated with this measure.

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>90</sup>

| <b>Equipment Type</b> | <b>Measure Lifetime</b> |
|-----------------------|-------------------------|
| DHW Pipe Insulation   | 20                      |

### Measure Cost

The measure cost is the actual cost of installing the insulation, both materials and labor. If provided through the Energy Savings Kit program, utilize the actual program delivery cost. If unknown, assume \$18.

<sup>90</sup> NYSERDA Home Performance with ENERGY STAR®.

## 5 Non-Residential Time of Replacement Market

### 5.1 Space Heating End Use

#### 5.1.1 Efficient Boiler

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

##### Measure Description

This measure applies to non-residential-sized ( $\geq 300$ MBH) gas boilers purchased at the time of natural replacement. A qualifying boiler must meet minimum efficiency requirements (Thermal Efficiency).

##### Definition of Baseline Condition

The efficiency levels of the gas-fired boilers that would have been purchased absent this or another DSM program are shown in the following table.

| Equipment Type <sup>91</sup>                               | Baseline Thermal Efficiency |
|------------------------------------------------------------|-----------------------------|
| Gas Boiler $\geq 300,000$ Btu/h and $\leq 2,500,000$ Btu/h | 80% Thermal Efficiency      |
| Gas Boiler $> 2,500,000$ Btu/h                             | 82% Combustion Efficiency   |

##### Definition of Efficient Condition

Efficient model minimum Thermal Efficiency requirements are detailed in the table below. The installed gas boiler must have a Thermal Efficiency greater than that shown.

| Equipment Type | Minimum Thermal Efficiency |
|----------------|----------------------------|
| Gas Boiler     | 92%                        |

##### Gas Savings Algorithms

MMBtu savings are realized due to the increase in Thermal Efficiency of the new equipment. Savings are calculated from the baseline new unit to the installed efficient unit.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{Capacity}_{\text{Out}}}{1,000} \times \left( \frac{1}{TE_{\text{Base}}} - \frac{1}{TE_{\text{Eff}}} \right) \times EFLH_{\text{Heat}}$$

Where:

Capacity<sub>Out</sub> = Output capacity of equipment to be installed (kBtu/hr).  
1,000 = Conversion from kBtu to MMBtu.  
TE<sub>Base</sub> = Thermal Efficiency of new baseline equipment.  
TE<sub>Eff</sub> = Thermal Efficiency of new equipment.  
EFLH<sub>Heat</sub> = Equivalent Full Load Heating Hours.

<sup>91</sup> 10 CFR 431.87, Standards for Commercial Packaged Boilers. Up to date as of 7/1/2026.

**Equivalent Full Load Heating Hours by Building Type**

| <b>Building Type</b> | <b>EFLH<sup>92</sup></b> |
|----------------------|--------------------------|
| Multifamily          | 1,435                    |
| Education            | 1,529                    |
| Food Sales           | 1,846                    |
| Food Service         | 2,021                    |
| Health Care          | 2,779                    |
| Lodging              | 778                      |
| Retail               | 1,519                    |
| Office               | 1,457                    |
| Public Assembly      | 1,752                    |
| Public Order/Safety  | 1,250                    |
| Religious Worship    | 1,509                    |
| Service              | 2,478                    |
| Warehouse/Storage    | 1,047                    |

**Electric Savings Algorithms**

There are no electric savings associated with this measure.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes**

| <b>Equipment Type</b> | <b>Measure Lifetime</b> |
|-----------------------|-------------------------|
| Gas Boilers           | 25                      |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost<sup>93</sup>**

The table below lists incremental costs for commercial boilers based on capacity ranges.

| <b>Min Capacity</b> | <b>Max Capacity</b> | <b>Incremental Cost</b> |
|---------------------|---------------------|-------------------------|
| 300                 | 499                 | \$7,056                 |
| 500                 | 799                 | \$11,476                |
| 800                 | 1,199               | \$17,319                |
| 1,200               | 1,599               | \$27,721                |
| 1,600               | n/a                 | \$37,758                |

<sup>92</sup> From NJ Protocols for Philadelphia, adjusted based on 2015 Commercial Equipment Rebate Program evaluation.

<sup>93</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 2: Commercial and Industrial Measures*. September 19, 2025. Effective January 1, 2026.

## 5.1.2 Low-Intensity Infrared Heater

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

This measure applies to infrared heaters purchased at the time of natural replacement. A qualifying heater must meet minimum efficiency requirement.

### Definition of Baseline Condition

The baseline equipment is a standard natural gas fired non-infrared heater.

### Definition of Efficient Condition

The installed heaters must have electric ignition and use non-conditioned air for combustion.

### Gas Savings Algorithms

A low-intensity infrared heater achieves MMBtu savings by providing same level of comfort at lower air temperatures than non-radiant systems, so the thermostat is set lower and conduction heat transfer is lower.

Savings are calculated from the baseline new unit to the installed efficient unit.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{Capacity}_{\text{Out}}}{1,000} \times \left( \frac{1}{\text{TE}_{\text{Base}}} - \frac{\text{UF}}{\text{TE}_{\text{Eff}}} \right) \times \text{EFLH}_{\text{Heat}}$$

Where:

|                         |                                                                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity <sub>Out</sub> | = Output capacity of equipment to be installed (kBtu/hr).                                                                                                           |
| 1,000                   | = Conversion from kBtu to MMBtu.                                                                                                                                    |
| TE <sub>Base</sub>      | = Thermal Efficiency of new baseline equipment.                                                                                                                     |
| TE <sub>Eff</sub>       | = Thermal Efficiency of new equipment.                                                                                                                              |
| UF                      | = Usage factor for infrared heater compared to conventional unit heater (75%) <sup>94</sup> . If the efficient heater is not an infrared heater then the UF = 100%. |
| EFLH <sub>Heat</sub>    | = Equivalent Full Load Heating Hours.                                                                                                                               |

<sup>94</sup> Based on 25% savings assumption for infrared heater compared to conventional unit heater from Massachusetts and Connecticut technical reference manuals as of June 2016.

**Equivalent Full Load Heating Hours by Building Type<sup>95</sup>**

| <b>Building Type</b> | <b>EFLH</b> |
|----------------------|-------------|
| Multifamily          | 854         |
| Education            | 910         |
| Food Sales           | 1,099       |
| Food Service         | 1,203       |
| Health Care          | 1,654       |
| Lodging              | 463         |
| Retail               | 904         |
| Office               | 867         |
| Public Assembly      | 1,043       |
| Public Order/Safety  | 744         |
| Religious Worship    | 898         |
| Service              | 1,475       |
| Warehouse/Storage    | 623         |

**Electric Savings Algorithms**

There are no electric savings associated with this measure.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>96</sup>**

| <b>Equipment Type</b>         | <b>Measure Lifetime</b> |
|-------------------------------|-------------------------|
| Low-Intensity Infrared Heater | 15                      |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

Incremental cost of a low-intensity infrared heater is \$281.<sup>97</sup>

<sup>95</sup> From NJ Protocols for Philadelphia, adjusted based on EnergySense program independent evaluations.

<sup>96</sup> Mass Save; *Technical Reference Manual for estimating savings from energy efficiency measures*. (2016).

<sup>97</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 2: Commercial and Industrial Measures*. September 19, 2025. Effective January 1, 2026.

### 5.1.3 Steam Trap

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

This measure applies to replacing non-residential steam traps on heating systems or repair of the steam trap by replacing the internal working parts with a new insert.

#### Definition of Baseline Condition

The baseline criterion is a faulty steam trap in need of replacing. No minimum leak rate is required. Any leaking or blow through trap can be repaired or replaced. If a customer chooses to repair or replace all the steam traps at the facility without verification, the savings are adjusted. Savings for full replacement projects are reduced by the percentage of traps found to be leaking on average as indicated in the table below. If an audit is performed on a site, then the leaking and blowdown can be adjusted.

#### Definition of Efficient Condition

Customers must have leaking traps to qualify. However, if a customer opts to replace all traps without inspection, the savings are discounted to take into consideration the fact that some traps are being replaced that have not yet failed. This measure may consist of either installation of a whole new steam trap or replacement of the internal working parts with an insert.

#### Gas Savings Algorithms

$$\Delta MMBtu = S \times \left( \frac{Hv}{B} \right) \times Hr \times A \times L / 1,000,000$$

Where:

|                |   |                                                                                                                                                                                             |
|----------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\Delta MMBtu$ | = | MMBtu of saved gas per year.                                                                                                                                                                |
| $S$            | = | Maximum theoretical steam loss per trap (lb/hr/trap). See table of values.                                                                                                                  |
| $Hv$           | = | Heat of vaporization of steam, (Btu/lb). See table of values.                                                                                                                               |
| $B$            | = | Boiler efficiency, (%).                                                                                                                                                                     |
| $Hr$           | = | Annual operating hours of steam plant. See table of values.                                                                                                                                 |
| $A$            | = | Adjustment factor to account for reducing the maximum theoretical steam flow (S) to the average steam flow (the Enbridge factor).                                                           |
| $L$            | = | Leaking and blow-thru factor. If the steam trap has been audited and is known to be leaking, then this factor is 100%, if unaudited and unknown if leaking, then see table of values below. |
| 1,000,000      | = | Btu to MMBtu.                                                                                                                                                                               |

### Steam Trap Algorithm Input Values

| Steam Trap Application and Pressure   | Avg. Steam Loss, S (lb/hr/trap) <sup>98</sup> | Heat of Vaporization, Hv (Btu/lb) <sup>99</sup> | Default Boiler Efficiency, B <sup>100</sup> | Operating Hours, H <sup>101</sup> | Adjustment Factor, A <sup>102</sup> | Leaking & Blow-thru Factor for Unaudited Traps, L <sup>103</sup> |
|---------------------------------------|-----------------------------------------------|-------------------------------------------------|---------------------------------------------|-----------------------------------|-------------------------------------|------------------------------------------------------------------|
| Commercial/Multifamily, Low Pressure  | 13.8                                          | 951                                             | 80%                                         | 2,720                             | 50%                                 | 27%                                                              |
| Dry Cleaners                          | 38.1                                          | 890                                             | 80%                                         | 2,425                             | 50%                                 | 27%                                                              |
| Industrial Low Pressure PSIG<15       | 13.8                                          | 951                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |
| Industrial Medium Pressure 15<PSIG<30 | 12.7                                          | 945                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |
| Industrial Medium Pressure 30<PSIG<75 | 19                                            | 915                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |
| Industrial High Pressure 75<PSIG<125  | 67.9                                          | 880                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |
| Industrial High Pressure 125<PSIG<175 | 105.8                                         | 859                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |
| Industrial High Pressure 175<PSIG<250 | 143.7                                         | 837                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |
| Industrial High Pressure PSIG>250     | 200.5                                         | 816                                             | 80%                                         | 7,752                             | 50%                                 | 16%                                                              |

### Electric Savings Algorithms

There are no electric savings associated with this measure.

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetime<sup>104</sup>

| Equipment Type | Measure Lifetime |
|----------------|------------------|
| Steam Traps    | 6                |

<sup>98</sup> CLEAResult. *Work Paper Steam Traps Revision #2*. (March 2012).

<sup>99</sup> Ibid. Heat of vaporization of steam at the inlet pressure to the steam trap. Implicit assumption that the average boiler nominal pressure where the vaporization occurs is essentially that same pressure.

<sup>100</sup> Ibid. Reference to California Energy Commission Efficiency Data for Steam Boilers.

<sup>101</sup> Ibid. Reference to Enbridge service territory data and kW Engineering study. Commercial/Multifamily hours adjusted to Philadelphia based on the HDD base 55 in Philadelphia relative to Chicago

<sup>102</sup> Enbridge adjustment factor used, as referenced in CLEAResult *Work paper Steam Traps Revision #2*. (2012) and DOE Federal Energy Management Program Steam Trap Performance Assessment.

<sup>103</sup> CLEAResult; "Work Paper Steam Traps Revision #2(2012). If trap is known to be leaking, then this factor is 100%.

<sup>104</sup> Source paper is the Resource Solutions Group "Steam Traps Revision #1" dated August 2011. Primary studies used to prepare the source paper include Enbridge Steam Trap Survey, KW Engineering Steam Trap Survey, Enbridge Steam Saver Program 2005, Armstrong Steam Trap Survey, DOE Federal Energy Management Program Steam Trap Performance Assessment, Oak Ridge National Laboratory Steam System Survey Guide, KEMA Evaluation of PG&E's Steam Trap Program, Sept. 2007. Communication with vendors suggested an inverted bucket steam trap life typically in the range of 5 - 7 years, float and thermostatic traps 4- 6 years, float and thermodynamic disc traps of 1 - 3 years.

**Water Savings**

There may be water savings for this measure, but the amount has not been calculated.

**Deemed Measure Cost<sup>105</sup>**

The incremental cost of a <15 PSIG steam trap is \$80.

The incremental cost of a <15 PSIG <75 steam trap is \$187.

The incremental cost of a >75 PSIG steam trap is \$232.

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<sup>105</sup> Illinois Commerce Commission [ICC]: *Illinois Statewide Technical Reference Manual for Energy Efficiency-Commercial and Industrial Measures*, Version 14.0, Volume 2. (2025).

### 5.1.4 Boiler Reset Controls

Draft date: 7/1/26  
Effective date: 9/1/27

End date: TBD

#### Measure Description

This measure applies to improving system efficiency by adding controls to commercial heating boilers to vary the boiler entering water temperature relative to heating load as a function of the outdoor air temperature.

#### Definition of Baseline Condition

The baseline condition is an existing boiler without boiler reset controls.

#### Definition of Efficient Condition

Installation of boiler reset controls. The system must be set so that the minimum temperature is no greater than 10 degrees above manufacturer's recommended minimum return temperature.

#### Gas Savings Algorithms

$$\Delta MMBtu = \frac{CAP \times ESF \times EFLH}{1,000}$$

Where:

ESF = Estimated percent reduction in heating load due to controls being installed. See Savings Percentage table below.  
EFLH = Full Load Heating Hours. If unknown, see table "Equivalent Full Load Heating Hours by Location" in Section 5.1.1.  
CAP = Input capacity of boiler (BTU/hr).

#### Savings Percentage

|              |      |
|--------------|------|
| Boiler Reset | 8.0% |
|--------------|------|

#### Electric Savings Algorithms

There are no electric savings associated with this measure.

#### Persistence

The persistence factor is assumed to be one.

#### Measure Lifetimes<sup>106</sup>

| Equipment Type        | Measure Lifetime |
|-----------------------|------------------|
| Boiler Reset Controls | 20               |

#### Water Savings

There are no water savings for this measure.

#### Deemed Measure Cost

Incremental cost of this measure is \$649.46.<sup>107</sup>

<sup>106</sup> Illinois Commerce Commission. 2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 2: Commercial and Industrial Measures. September 19, 2025. Effective January 1, 2026.

<sup>107</sup> Ibid.

## 5.1.5 Commercial Roof Insulation

Draft date: 7/1/26  
Effective date: 9/1/27

End date: TBD

### Measure Description

This involves increasing the insulation levels in either the attic or walls that directly define the boundary between the commercial unit and the outdoors.

### Definition of Baseline Condition

The baseline is amount of insulation in the commercial unit in its pre-treatment condition.

### Definition of Efficient Condition

Any increase in insulation that will reduce energy consumption compared to the pre-treated condition.

### Gas Savings Algorithms

$$\text{Annual Gas Savings (MMBtu)} = \frac{HDD_t \times 24 \times AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right)}{(AFUE \times 1,000,000)}$$

Where:

|                   |                                                                                                                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDD <sub>t</sub>  | = Heating degree days at temperature t, where t=63°F if no programmable thermostat has been installed and t=62°F if a programmable thermostat has been installed. See reference table in section 8.1 on page 66 for HDD63 and HDD62.                                              |
| 24                | = Hours per day                                                                                                                                                                                                                                                                   |
| AREA              | = Net insulated area in square feet. Estimated at 85% of gross area for cavities.                                                                                                                                                                                                 |
| R <sub>pre</sub>  | = R-value of roof/cavity pre-treatment. R <sub>pre</sub> = 5 unless there is existing insulation.                                                                                                                                                                                 |
| R <sub>post</sub> | = R-value of roof/ cavity after insulation is installed.                                                                                                                                                                                                                          |
| AFUE              | = Rated AFUE of heating system. If no rating is available then use the method described in the Efficient Space Heating System section for calculating the AFUE. The AFUE of replacement equipment should be used if the heating system replacement precedes the air sealing work. |

### Electric Savings Algorithms

If the type of air conditioning is known, then use the appropriate algorithm below.

### Energy Savings

|                      |                                                                                                                                                                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ΔkWh                 | = ΔkWh <sub>Aux</sub> + ΔkWh <sub>Cool</sub>                                                                                                                                                                                                        |
| ΔkWh <sub>Aux</sub>  | = <i>Annual Gas Savings (MMBtu) × Auxiliary</i>                                                                                                                                                                                                     |
| ΔkWh <sub>Cool</sub> | = 0 kWh if building has no air conditioning<br>= ΔkWh <sub>CAC</sub> if building has central air conditioning<br>= ΔkWh <sub>RAC</sub> if building has room air conditioning<br>= 83% × ΔkWh <sub>CAC</sub> if no information about air conditioner |

Where:

$$\Delta kWh_{CAC} = \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA}{SEER_{CAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right]$$

$$\Delta kWh_{RAC} = \frac{CDD \times 24 \frac{\text{hr}}{\text{day}} \times DUA \times F_{\text{Room AC}}}{\overline{EER}_{RAC} \times 1000 \frac{\text{W}}{\text{kW}}} \times \left[ AREA \times \left( \frac{1}{R_{pre}} - \frac{1}{R_{post}} \right) \right]$$

### Demand Savings

$$\begin{aligned} \Delta kW &= 0 \text{ kW if building has no air conditioning} \\ &= \Delta kW_{CAC} \text{ if building has central air conditioning} \\ &= \Delta kW_{RAC} \text{ if building has room air conditioning} \end{aligned}$$

Where:

$$\Delta kW_{CAC} = \frac{\Delta kWh_{CAC}}{EFLH_{cool}} \times CF_{CAC}$$

$$\Delta kW_{RAC} = \frac{\Delta kWh_{RAC}}{EFLH_{cool RAC}} \times CF_{RAC}$$

Where:

|                        |                                                                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\Delta kWh$           | = Gross customer annual kWh savings for the measure.                                                                                                                     |
| $\Delta kW$            | = Gross customer summer load kW savings for the measure.                                                                                                                 |
| Auxiliary              | = Heating system auxiliary usage per MMBTU consumption (5.02). <sup>108</sup>                                                                                            |
| CDD                    | = Cooling Degree Days. See reference tables section at the end of this document.                                                                                         |
| DUA                    | = Discretionary Use Adjustment to account for the fact that people do not always operate their air conditioning system when the outside temperature is greater than 65F. |
| $SEER_{CAC}$           | = Seasonal Energy Efficiency Ratio of existing home central air conditioner (Btu/W•hr) (See table below for default values if actual values are not available)           |
| $\overline{EER}_{RAC}$ | = Average Energy Efficiency Ratio of existing room air conditioner (Btu/W•hr) (See table below for default values if actual values are not available)                    |
| $CF_{CAC}$             | = Demand Coincidence Factor for central AC systems (See table below)                                                                                                     |
| $CF_{RAC}$             | = Demand Coincidence Factor for Room AC systems (See table below)                                                                                                        |
| $EFLH_{cool}$          | = Equivalent Full Load Cooling hours for Central AC and ASHP (See table below)                                                                                           |
| $EFLH_{cool RAC}$      | = Equivalent Full Load Cooling hours for Room AC (See table below)                                                                                                       |
| $F_{\text{Room AC}}$   | = Adjustment factor to relate insulated area to area served by Room AC units                                                                                             |

The default values for each term are shown in the tables below.

<sup>108</sup> Efficiency Vermont; *Technical Reference Manual: Measure Savings Algorithms and Cost Assumptions*. (2018).

**Default Values for Algorithm Terms, Ceiling/Attic and Wall Insulation**

| <b>Term</b>          | <b>Type</b> | <b>Value</b>                                                             | <b>Source</b> |
|----------------------|-------------|--------------------------------------------------------------------------|---------------|
| DUA                  | Fixed       | 0.75                                                                     | 109           |
| SEER <sub>CAC</sub>  | Variable    | Default values:<br>Early Replacement = 13.2<br>Replace on Burnout = 13.4 | 110           |
|                      |             | Nameplate                                                                | 111           |
| EER <sub>RAC</sub>   | Variable    | Default = 11.1                                                           | 112           |
|                      |             | Nameplate                                                                | 113           |
| CF <sub>CAC</sub>    | Fixed       | 0.70                                                                     | 114           |
| CF <sub>RAC</sub>    | Fixed       | 0.58                                                                     | 115           |
| F <sub>Room,AC</sub> | Fixed       | 0.38                                                                     | 116           |

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>117</sup>**

| <b>Measure</b> | <b>Measure Lifetime</b> |
|----------------|-------------------------|
| Insulation     | 40                      |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

The incremental cost for this measure is \$1.67 per square foot of insulation.<sup>118</sup>

<sup>109</sup> Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>110</sup> Ibid.

<sup>111</sup> Contractor Gathering Data.

<sup>112</sup> Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>113</sup> Contractor Gathering Data.

<sup>114</sup> Pennsylvania Public Utility Commission. 2026 *Technical Reference Manual: Volume 2—Residential Measures*. 2024.

<sup>115</sup> Ibid.

<sup>116</sup> From PECO baseline study, average home size = 2,323 ft<sup>2</sup>, average number of room AC units per home = 2.1. Average Room AC capacity = 10,000 BtuH per ENERGY STAR® Room AC Calculator, which serves 425 ft<sup>2</sup> (average between 400 and 450 ft<sup>2</sup> for 10,000 BtuH unit per ENERGY STAR® Room AC sizing chart).  $F_{\text{Room,AC}} = (425 \text{ ft}^2 * 2.1) / (2,323 \text{ ft}^2) = 0.38$ .

<sup>117</sup> NYSERDA Home Performance with ENERGY STAR®.

<sup>118</sup> Illinois Commerce Commission. 2026 *Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 2: Commercial and Industrial Measures*. September 19, 2025. Effective January 1, 2026

## 5.1.6 Variable Refrigerant Flow (VRF) Natural Gas Heat Pump

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

This measure applies to Variable Refrigerant Flow heat pumps purchased at the time of natural replacement of a heating equipment. A qualifying heat pump must meet minimum efficiency requirements (CoP).

### Definition of Baseline Condition

The efficiency levels of the gas-fired boilers that would have been purchased absent this or another DSM program are shown in the following table.

| Equipment Type <sup>119</sup>                  | Baseline Thermal Efficiency |
|------------------------------------------------|-----------------------------|
| Gas Boiler <300,000 Btu/h                      | 84% AFUE                    |
| Gas Boiler ≥300,000 Btu/h and ≤2,500,000 Btu/h | 80% Thermal Efficiency      |
| Gas Boiler >2,500,000 Btu/h                    | 82% Combustion Efficiency   |

### Definition of Efficient Condition

Efficient model minimum Coefficient of Performance (CoP) requirements are detailed in the table below. The installed gas boiler must have a COP greater than that shown.

| Equipment Type | Minimum CoP Efficiency |
|----------------|------------------------|
| VRF Heat Pump  | >100%                  |

### Gas Savings Algorithms

MMBtu savings are realized due to the increase in Coefficient of Performance (CoP) of the new equipment. Savings are calculated from the baseline new unit to the installed efficient unit.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{Capacity}_{\text{Out}}}{1,000} \times \left( \frac{1}{\text{TE}_{\text{Base}}} - \frac{1}{\text{CoP}_{\text{Eff}}} \right) \times \text{EFLH}_{\text{Heat}}$$

Where:

Capacity<sub>Out</sub> = Output capacity of equipment to be installed (kBtu/hr).  
 1,000 = Conversion from kBtu to MMBtu.  
 TE<sub>Base</sub> = Thermal Efficiency of new baseline equipment.  
 CoP<sub>Eff</sub> = Coefficient of Performance of new equipment.  
 EFLH<sub>Heat</sub> = Equivalent Full Load Heating Hours.

<sup>119</sup> 10 CFR 431, Standards for Commercial Packaged Boilers. Up to date as of 7/1/2026.

**Equivalent Full Load Heating Hours by Building Type**

| <b>Building Type</b> | <b>EFLH<sup>120</sup></b> |
|----------------------|---------------------------|
| Multifamily          | 1,435                     |
| Education            | 1,529                     |
| Food Sales           | 1,846                     |
| Food Service         | 2,021                     |
| Health Care          | 2,779                     |
| Lodging              | 778                       |
| Retail               | 1,519                     |
| Office               | 1,457                     |
| Public Assembly      | 1,752                     |
| Public Order/Safety  | 1,250                     |
| Religious Worship    | 1,509                     |
| Service              | 2,478                     |
| Warehouse/Storage    | 1,047                     |

**Electric Savings Algorithms**

VRF heat pumps consume electricity during their operation and therefore result in increased site electric load.

$$\Delta kWh = \frac{-Power \times EFLH}{1,000}$$

Where:

Power = Nominal maximum electrical power requirement for the gas fired heat pump in watts. If unknown, assume 0.0052 W per Btu/hr heating input capacity.<sup>121</sup>  
EFLH<sub>Heat</sub> = Equivalent Full Load Heating Hours.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes**

| <b>Equipment Type</b> | <b>Measure Lifetime</b> |
|-----------------------|-------------------------|
| VRF Heat Pumps        | 20                      |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost<sup>122</sup>**

The incremental cost for this measure is \$0.122 per output capacity (kBtu/h) of the efficient equipment.

<sup>120</sup> From NJ Protocols for Philadelphia, adjusted based on 2015 Commercial Equipment Rebate Program evaluation.

<sup>121</sup> Iowa Utilities Board: *Iowa Energy Efficiency Statewide Technical Reference Manual*, Version 6.0, Volume 3. (2022).

<sup>122</sup> Ibid.

## 5.2 Commercial Kitchen End Uses

### 5.2.1 Commercial Gas Fryer

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

An appliance, including a cooking vessel, in which oil is placed to such a depth that the cooking food is essentially supported by displacement of the cooking fluid rather than by the bottom of the vessel. Heat is delivered to the cooking fluid by heat transfer from gas burners through either the walls of the fryer or through tubes passing through the cooking fluid.

- Standard Fryer: A fryer with a vat that measures >12 inches and < 18 inches wide, and a shortening capacity > 25 pounds and < 65 pounds.
- Large Vat Fryer: A fryer with a vat that measures > 18 inches and < 24 inches wide, and a shortening capacity > 50 pounds.

#### Definition of Baseline Condition

Heavy Load (French Fry) Cooking Energy Efficiency of 35%. Idle energy rate:

- 14,000 Btu/h for Standard Fryer
- 16,000 Btu/h for Large Vat Fryer

#### Definition of Efficient Condition

Heavy Load (French Fry) Cooking Energy Efficiency greater than or equal to 50%. Idle energy rate less than or equal to:

- 9,000 Btu/h for Standard Fryer
- 12,000 Btu/h for Large Vat Fryer

All criteria are the same as the ENERGY STAR® certification requirements.

#### Gas Savings Algorithms

The following shows the expected gas savings from ENERGY STAR® commercial fryers meeting the above specifications. These savings come from the ENERGY STAR® calculator.<sup>123</sup>

Standard Fryer (per fry pot): *Annual Gas Savings (MMBtu) = 51.2 MMBtu*

Large Vat Fryer (per fry pot): *Annual Gas Savings (MMBtu) = 42.0 MMBtu*

#### Electric Savings Algorithms

There are no electric savings from this measure.

#### Energy Savings

$\Delta\text{kWh} = 0 \text{ kWh}$

#### Demand Savings

$\Delta\text{kW} = 0 \text{ kW}$

Where:

$\Delta\text{kWh}$  = Gross customer annual kWh savings for the measure.

$\Delta\text{kW}$  = Gross customer summer load kW savings for the measure.

<sup>123</sup> U.S. Environmental Protection Agency. (2024). *ENERGY STAR Commercial Food Service (CFS) Equipment Calculator*. ENERGY STAR. Up to date as of 7/1/2026.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>124</sup>**

| Equipment Type   | Measure Lifetime |
|------------------|------------------|
| Commercial Fryer | 12               |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

The incremental cost of a standard fryer is \$1,061.<sup>125</sup>

The incremental cost of a large vat fryer is \$2,122.<sup>126</sup>

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<sup>124</sup> UGI Gas; *Technical Reference Manual*. (2024).

<sup>125</sup> U.S. Environmental Protection Agency. 2024. *ENERGY STAR Commercial Food Service (CFS) Equipment Calculator*. ENERGY STAR. Up to date as of 7/1/2026.

<sup>126</sup> Ibid.

## 5.2.2 Commercial Gas Steamers (Cooking)

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

### Measure Description

Also referred to as a “compartment steamer,” a device with one or more food steaming compartments in which the energy in the steam is transferred to the food by direct contact. Models may include countertop models, wall-mounted models and floor-models mounted on a stand, pedestal, or cabinet-style base.

### Definition of Baseline Condition

Cooking energy efficiency of 18% and Idle Energy Rate of 3,000 Btu/h per pan<sup>127</sup>.

### Definition of Efficient Condition

Cooking energy efficiency greater than or equal to 38% and an Idle Energy Rates less than the maximum values in the table below.

| # of Pans | Cooking Efficiency | Idle Energy Rate (Btu/hr) |
|-----------|--------------------|---------------------------|
| 3 pans    | 38%                | 6,250                     |
| 4 pans    | 38%                | 8,350                     |
| 5 pans    | 38%                | 10,400                    |
| 6 + pans  | 38%                | 12,500                    |

All criteria are the same as the ENERGY STAR® certification requirements.

### Gas Savings Algorithms

The following shows the expected gas savings from a commercial steam cooker meeting the above specifications. These savings come from the ENERGY STAR® calculator.<sup>128</sup>

| # of Pans             | Annual Gas Savings (MMBtu) |
|-----------------------|----------------------------|
| 3 pans                | 52.30                      |
| 4 pans <sup>129</sup> | 58.85                      |
| 5 pans                | 65.40                      |
| 6+ pans               | 71.30                      |

### Electric Savings Algorithms

There are no electric savings from this measure.

### Energy Savings

$$\Delta \text{kWh} = 0 \text{ kWh}$$

### Demand Savings

$$\Delta \text{kW} = 0 \text{ kW}$$

Where:

$$\Delta \text{kWh} = \text{Gross customer annual kWh savings for the measure.}$$

<sup>127</sup> The baseline comes from PG&E’s online calculator at <http://www.fishnick.com/saveenergy/tools/calculators/gsteamer.calc.php>

<sup>128</sup> USEPA & USDOE; *Savings Calculator for EnergyStar Certified Commercial Kitchen Equipment*. (2015).

<sup>129</sup> The four pan is interpolated between 3 and 5 pan.

$\Delta kW$  = Gross customer summer load kW savings for the measure.

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>130</sup>

| Equipment Type          | Measure Lifetime |
|-------------------------|------------------|
| Commercial Steam Cooker | 12               |

### Water Savings

According to the ENERGY STAR® calculator the water savings would be 103,563 gallons per year for an ENERGY STAR® steamer compared to a baseline steamer.

### Deemed Measure Cost<sup>131</sup>

The incremental cost of a 3-pan commercial steam cooker is \$1,061.  
 The incremental cost of a 4-pan commercial steam cooker is \$1, 061.  
 The incremental cost of a 5-pan commercial steam cooker is \$1, 061.  
 The incremental cost of a 6-pan+ commercial steam cooker is \$1, 061.

<sup>130</sup> California Public Utilities Commission [CPUC]; *Database of Energy Efficiency Resources*. 2011.

<sup>131</sup> U.S. Environmental Protection Agency. 2024. *ENERGY STAR Commercial Food Service (CFS) Equipment Calculator*. ENERGY STAR. Up to date as of 7/1/2026.

## 5.3 Commercial Domestic Hot Water End Use

### 5.3.1 Commercial Domestic Hot Water Heater

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

#### Measure Description

Installation of high-efficiency, gas-fired, storage-type or tankless, domestic hot water heaters greater than 75,000 Btu/hr.

#### Definition of Baseline Condition

Baseline water heater is a standard efficiency gas-fired water heater, with a .81 UEF.<sup>132</sup>

#### Definition of Efficient Condition

The efficient heater is a storage or tankless gas water heater with a Thermal Efficiency equal to or exceeding 94%.

#### Gas Savings Algorithms

If multiple heaters are used, they are treated as a single unit, with system input capacity and standby loss rate equal to the sum of all units.

$$\Delta MMBtu = BaselineUse - EfficientUse$$

For commercial buildings other than multifamily:

The maximum of:

$$\begin{aligned} BaselineUse &= A \times E_b \\ \text{or} \\ BaselineUse &= \frac{SLR_b \times 8760}{10^6} \end{aligned}$$

For multifamily buildings:

The maximum of:

$$\begin{aligned} BaselineUse &= U \times E_b \\ \text{or} \\ BaselineUse &= \frac{SLR_b \times 8760}{10^6} \end{aligned}$$

All building types:

$$EfficientUse = \left( BaselineUse - 8760 \times \frac{(SLR_b - SLR_e)}{10^6} \times \eta_b \right) \times \frac{\eta_b}{\eta_e}$$

$$SLR_b = CAP_{H,b} \times \frac{1000}{800} + 110 \times \sqrt{CAP_{W,b}}$$

$$CAP_{H,b} = CAP_{H,e} \times \frac{\eta_e}{\eta_b}$$

<sup>132</sup> DOE Standard 10 CFR 430, Residential-Duty and Commercial Federal Standard

Where:

|                |                                                                                                                                                                                                                                                                                                           |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\Delta MMBtu$ | = MMBtu of saved gas per year.                                                                                                                                                                                                                                                                            |
| $BaselineUse$  | = Baseline DHW gas usage (MMBtu).                                                                                                                                                                                                                                                                         |
| $EfficientUse$ | = Efficient DHW gas usage (MMBtu).                                                                                                                                                                                                                                                                        |
| $A$            | = Building floor area (ft <sup>2</sup> ), input.                                                                                                                                                                                                                                                          |
| $E_b$          | = For commercial buildings other than multifamily this is the annual baseline gas energy usage rate per building ft <sup>2</sup> (MMBtu/ft <sup>2</sup> /yr). For multifamily this is the annual baseline gas energy usage rate per apartment unit (MMBtu/unit/yr). See table of values by building type. |
| $U$            | = Number of apartment units in multifamily building, input.                                                                                                                                                                                                                                               |
| $SLR_e$        | = Proposed efficient water heater standby loss rate (Btu/hr), input. Equal to zero if tankless. If unavailable, assume the same as $SLR_b$ .                                                                                                                                                              |
| $\eta_e$       | = Thermal Efficiency of proposed efficient water heater (%).                                                                                                                                                                                                                                              |
| $\eta_b$       | = Thermal Efficiency of baseline water heater (80%) <sup>133</sup> .                                                                                                                                                                                                                                      |
| $CAP_{H,e}$    | = Heat Input capacity of proposed efficient water heater (MBh, 1000 Btu/hr), input.                                                                                                                                                                                                                       |
| $CAP_{W,e}$    | = Water Storage capacity of proposed efficient water heater (gal), input.                                                                                                                                                                                                                                 |
| $CAP_{W,b}$    | = Water Storage capacity of baseline water heater (gal), equal to the maximum of $CAP_{W,e}$ or 60 gal, whichever is greater, since it is assumed that the baseline water heater is of the storage type.                                                                                                  |
| $CAP_{H,b}$    | = Heat Input capacity of baseline water heater (MBh).                                                                                                                                                                                                                                                     |
| $SLR_b$        | = Baseline water heater standby loss rate (Btu/hr).                                                                                                                                                                                                                                                       |

| Annual Baseline Gas Usage Rate by Building Type | Annual Baseline Gas Usage Rate, $E_b$ (MMBtu/ft <sup>2</sup> /yr) <sup>134</sup> |
|-------------------------------------------------|----------------------------------------------------------------------------------|
| Education                                       | 0.007                                                                            |
| Grocery/Convenience Store                       | 0.004                                                                            |
| Restaurant/Cafeteria                            | 0.0392                                                                           |
| Inpatient Health Care                           | 0.0343                                                                           |
| Outpatient Health Care                          | 0.0039                                                                           |
| Lodging                                         | 0.026                                                                            |
| Retail (other than in mall)                     | 0.0025                                                                           |
| Retail (in mall)                                | 0.00141                                                                          |
| Office                                          | 0.0048                                                                           |
| Police/Fire Station/Jail                        | 0.0214                                                                           |
| Other                                           | 0.0023                                                                           |
| Building Type                                   | Annual Baseline Gas Usage Rate, $E_b$ (MMBtu/unit/yr) <sup>135</sup>             |
| Multifamily                                     | 22.5                                                                             |

### Electric Savings Algorithms

There are no electric savings from this measure.

<sup>133</sup> ASHRAE 90.1-2007, Table 7.8.

<sup>134</sup> U.S. Energy Information Administration; 2012 Commercial Buildings Energy Consumption Survey: Energy Usage Summary Cooling energy sources, number of buildings and floorspace. Table E7. (2016).

<sup>135</sup> GDS Associates, Inc. (2009). Natural Gas Energy Efficiency Potential in Massachusetts. Prepared for GasNetworks.

**Energy Savings**

$$\Delta \text{kWh} = 0 \text{ kWh}$$

**Demand Savings**

$$\Delta \text{kW} = 0 \text{ kW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.

$\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes<sup>136</sup>**

| Equipment Type                   | Measure Lifetime |
|----------------------------------|------------------|
| Commercial Tankless Water Heater | 20               |
| Commercial Storage Water Heater  | 15               |

**Water Savings**

There are no water savings for this measure.

**Deemed Measure Cost**

The incremental cost for a tankless commercial DHW heater is \$2,497.<sup>137</sup>

The incremental cost for a storage commercial DHW heater is \$1,885.<sup>138</sup>

<sup>136</sup> CA DEER 08, EUL\_Summary\_10-1-08.xls; MA TRM, October 2015; IL TRM, Volume 2, February 8, 2017.

<sup>137</sup> Illinois Commerce Commission. *2026 Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 14.0, Volume 2: Commercial and Industrial Measures*. September 19, 2025. Effective January 1, 2026.

<sup>138</sup> Ibid.

## 5.4 All End Uses

### 5.4.1 Custom Measure

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

This measure applies to all custom measures, not otherwise specified in this TRM. This includes measures that may be in the TRM but are used in atypical ways and also includes multiple measures that may have interactive effects when combined.

#### Definition of Baseline Condition

The baseline represents the typical equipment that is installed without a DSM program. The efficiency level is based on the current Federal standards, or state and local building codes that are applicable.

#### Definition of Efficient Condition

The efficient measure is any equipment that uses less energy than the baseline equipment.

#### Gas Savings Algorithms

The generalized equation for a custom measure compares the baseline usage to the efficient usage. Baseline and efficient usages may be determined by either engineering equations or modeling software.

$$\text{Annual Gas Savings (MMBtu)} = \text{BaselineUse} - \text{EfficientUse}$$

Where:

*BaselineUse* = The gas usage of baseline equipment or building.  
*EfficientUse* = The gas usage of efficient equipment or building.

#### Electric Savings Algorithms

##### Energy Savings

$$\Delta \text{kWh} = \text{BaselinekWh} - \text{EfficientkWh}$$

##### Demand Savings

$$\Delta \text{kW} = \text{BaselinekW} - \text{EfficientkW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.  
 $\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.  
*BaselinekWh* = The electric kWh usage of baseline equipment or building.  
*EfficientkWh* = The electric kWh usage of efficient equipment or building.  
*BaselinekW* = The electric kW usage of baseline equipment or building.  
*EfficientkW* = The electric kW usage of efficient equipment or building.

#### Persistence

The persistence factor is assumed to be one.

#### Measure Lifetimes

Where available, custom measure lifetimes should be based on similar measures defined elsewhere in this TRM.

**Water Savings**

The water savings are the difference between the baseline and efficient equipment annual water usage in gallons.

**Deemed Measure Cost**

The incremental cost is the difference between the efficient equipment and the baseline equipment.

## 6 Non-Residential New Construction

### 6.1 All End Uses

#### 6.1.1 Custom Measures

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

##### Measure Description

This measure applies to all non-residential custom measures applicable to new construction, not otherwise specified in this TRM. New construction is defined as the construction of a new “greenfield” building, or the major renovation of an existing building.

##### Definition of Baseline Condition

The baseline represents the typical equipment that is installed without a DSM program. The efficiency level is based on the current Federal standards, or state and local building codes that are applicable. This may also be referred to as the “reference building”. The primary non-residential energy code required in Philadelphia is the 2021 International Energy Conservation Code (IECC).

##### Definition of Efficient Condition

The efficient condition is any building design that uses less energy than the baseline building design. This lower energy use may be demonstrated by the receipt of an energy model that with savings is lower than the baseline or reference building score, or other verifiable energy models.

##### Gas Savings Algorithms

The generalized equation for a custom measure compares the baseline usage to the efficient usage. This will likely be determined using building modeling software.

$$\text{Annual Gas Savings (MMBtu)} = \text{BaselineUse} - \text{EfficientUse}$$

Where:

*BaselineUse* = The gas usage of baseline equipment or building.  
*EfficientUse* = The gas usage of efficient equipment or building.

##### Electric Savings Algorithms

##### Energy Savings

$$\Delta \text{kWh} = \text{BaselinekWh} - \text{EfficientkWh}$$

##### Demand Savings

$$\Delta \text{kW} = \text{BaselinekW} - \text{EfficientkW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.  
 $\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.  
*BaselinekWh* = The electric kWh usage of baseline equipment or building.  
*EfficientkWh* = The electric kWh usage of efficient equipment or building.  
*BaselinekW* = The electric kW usage of baseline equipment or building.  
*EfficientkW* = The electric kW usage of efficient equipment or building.

**Persistence**

The persistence factor is assumed to be one.

**Measure Lifetimes**

Where available, custom measure lifetimes should be based on similar measures defined elsewhere in this TRM.

**Water Savings**

The water savings are the difference between the baseline and efficient equipment annual water usage in gallons.

**Deemed Measure Cost**

The incremental cost is the difference between the efficient equipment and the baseline equipment.

## 7 Non-Residential Early Replacement

### 7.1 Space Heating End Use

#### 7.1.1 Efficient Space Heating System

Draft date: 7/1/26  
Effective date: 9/1/27  
End date: TBD

##### Measure Description

This measure applies to high-efficiency gas furnaces and boilers replacing an existing and functioning furnace or boiler of lower efficiency and possibly different capacity.

##### Definition of Baseline Condition

The baseline represents the existing equipment that is currently installed. The efficiency level and capacity are based on measurements or nameplate information.

##### Definition of Efficient Condition

The efficient measure is any equipment that uses less energy than the baseline equipment.

##### Gas Savings Algorithms

The following equation accounts for differences between the baseline and efficient space heating equipment efficiencies and capacities.

$$\text{Annual Gas Savings (MMBtu)} = \frac{\text{Capacity}_{\text{base}}}{1,000} \times \left[ \frac{1}{\text{AFUE}_{\text{base}}} - \frac{\text{SR} \times (1 + A_{\text{avg}})}{\text{AFUE}_{\text{eff}}} \right] \times \text{EFLH}_{\text{Heat,base}}$$

Where:

$$\text{SR} = \frac{\text{Capacity}_{\text{eff}}}{\text{Capacity}_{\text{base}}}$$

$$\text{EFLH}_{\text{Heat,base}} = \frac{\text{Annual Gas Use}_{\text{base}} \times \text{AFUE}_{\text{base}}}{\text{Capacity}_{\text{base}}}$$

Where:

|                                      |                                                                                                               |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <i>Annual Gas Savings (MMBtu)</i>    | = The annual gas savings of the efficient space heating equipment compared to the existing equipment.         |
| <i>Capacity<sub>base</sub></i>       | = The existing space heating equipment output capacity (MBH).                                                 |
| <i>AFUE<sub>base</sub></i>           | = Efficiency of existing space heating equipment.                                                             |
| <i>SR</i>                            | = Sizing ratio of new efficient relative to the existing baseline equipment (See algorithm above).            |
| <i>A<sub>avg</sub></i>               | = Runtime percent change adjustment. See table of values below based on <i>SR</i> value.                      |
| <i>AFUE<sub>eff</sub></i>            | = Efficiency of proposed efficient space heating equipment.                                                   |
| <i>EFLH<sub>Heat,base</sub></i>      | = Equivalent full load heating hours for existing baseline equipment (See algorithm above).                   |
| <i>Capacity<sub>eff</sub></i>        | = The proposed efficient space heating equipment output capacity (MBH).                                       |
| <i>Annual Gas Use<sub>base</sub></i> | = The annual gas usage of the existing space heating equipment, based on weather-normalized gas bills (kBtu). |

**Runtime Percent Change Adjustment<sup>139</sup>**

| <b>Sizing Ratio (SR)</b> | <b>Runtime Adjustment (<math>A_{avg}</math>)</b> |
|--------------------------|--------------------------------------------------|
| 50%                      | 78%                                              |
| 55%                      | 65%                                              |
| 60%                      | 54%                                              |
| 65%                      | 45%                                              |
| 70%                      | 36%                                              |
| 75%                      | 28%                                              |
| 80%                      | 21%                                              |
| 85%                      | 15%                                              |
| 90%                      | 10%                                              |
| 95%                      | 5%                                               |
| 100%                     | 0%                                               |
| 105%                     | -4%                                              |
| 110%                     | -8%                                              |
| 115%                     | -12%                                             |
| 120%                     | -15%                                             |
| 125%                     | -18%                                             |
| 130%                     | -21%                                             |
| 135%                     | -23%                                             |
| 140%                     | -26%                                             |
| 145%                     | -28%                                             |
| 150%                     | -30%                                             |
| 155%                     | -32%                                             |
| 160%                     | -34%                                             |
| 165%                     | -36%                                             |
| 170%                     | -37%                                             |
| 175%                     | -39%                                             |
| 180%                     | -40%                                             |
| 185%                     | -42%                                             |
| 190%                     | -43%                                             |
| 195%                     | -44%                                             |
| 200%                     | -46%                                             |

**Electric Savings Algorithms****Energy Savings**

$$\Delta kWh = \text{Baseline}kWh - \text{Efficient}kWh$$

**Demand Savings**

$$\Delta kW = \text{Baseline}kW - \text{Efficient}kW$$

<sup>139</sup> Developed by Practical Energy Solutions using simulation modeling.

Where:

|                 |                                                              |
|-----------------|--------------------------------------------------------------|
| $\Delta kWh$    | = Gross customer annual kWh savings for the measure.         |
| $\Delta kW$     | = Gross customer summer load kW savings for the measure.     |
| $Baseline kWh$  | = The electric kWh usage of baseline equipment or building.  |
| $Efficient kWh$ | = The electric kWh usage of efficient equipment or building. |
| $Baseline kW$   | = The electric kW usage of baseline equipment or building.   |
| $Efficient kW$  | = The electric kW usage of efficient equipment or building.  |

### Persistence

The persistence factor is assumed to be one.

### Measure Lifetimes<sup>140</sup>

| Equipment Type | Measure Lifetime |
|----------------|------------------|
| Gas Furnaces   | 20               |
| Gas Boilers    | 25               |

### Water Savings

The water savings are the difference between the baseline and efficient equipment annual water usage in gallons.

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<sup>140</sup> Lifetime estimates used by Efficiency Vermont and PGW.

## 7.2 All End Uses

### 7.2.1 Custom Measures

Draft date: 7/1/26  
 Effective date: 9/1/27  
 End date: TBD

#### Measure Description

This measure applies to all custom non-residential early replacement or retrofit measures, not otherwise specified in this TRM.

#### Definition of Baseline Condition

The baseline represents the existing equipment that is currently installed. The efficiency level is based on measurements or nameplate information.

#### Definition of Efficient Condition

The efficient measure is any equipment that uses less energy than the baseline equipment.

#### Gas Savings Algorithms

The generalized equation for a custom measure compares the baseline usage to the efficient usage.

$$\text{Annual Gas Savings (MMBtu)} = \text{BaselineUse} - \text{EfficientUse}$$

Where:

*BaselineUse* = The gas usage of baseline equipment or building.  
*EfficientUse* = The gas usage of efficient equipment or building.

#### Electric Savings Algorithms

##### Energy Savings

$$\Delta \text{kWh} = \text{BaselinekWh} - \text{EfficientkWh}$$

##### Demand Savings

$$\Delta \text{kW} = \text{BaselinekW} - \text{EfficientkW}$$

Where:

$\Delta \text{kWh}$  = Gross customer annual kWh savings for the measure.  
 $\Delta \text{kW}$  = Gross customer summer load kW savings for the measure.  
*BaselinekWh* = The electric kWh usage of baseline equipment or building.  
*EfficientkWh* = The electric kWh usage of efficient equipment or building.  
*BaselinekW* = The electric kW usage of baseline equipment or building.  
*EfficientkW* = The electric kW usage of efficient equipment or building.

#### Persistence

The persistence factor is assumed to be one.

#### Measure Lifetimes

Where available, custom measure lifetimes should be based on similar measures defined elsewhere in this TRM.

#### Water Savings

The water savings are the difference between the baseline and efficient equipment annual water usage in gallons.

## 8 Reference Tables

### 8.1 Heating Degree Days, Cooling Degree Days, and EFLH

Heating Degree Days and Cooling Degree Days

| <b>Territory</b> | <b>HDD63<sup>141</sup></b> | <b>HDD62<sup>142</sup></b> | <b>CDD65<sup>143</sup></b> | <b>EFLH<sub>cool</sub><br/>CAC<br/>(Hours)<sup>144</sup></b> | <b>EFLH<sub>cool</sub><br/>RAC<br/>(Hours)<sup>145</sup></b> |
|------------------|----------------------------|----------------------------|----------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Philadelphia     | 3,667                      | 3,463                      | 1,450                      | 972                                                          | 301                                                          |

<sup>141</sup> Philadelphia Five Year Degree Day Average from 2021-2025 from DegreeDays.net.

<sup>142</sup> Ibid

<sup>143</sup> Pennsylvania Public Utility Commission. *2026 Technical Reference Manual: Appendix A – Climate Dependent Values*. 2024

<sup>144</sup> Ibid

<sup>145</sup> Ibid

### ***E. OSBA Settlement Terms - PGW Phase V DSM Plan***

*The following are initial settlement terms favored by OSBA for the PGW Phase V DSM plan, based on information provided by PGW as of September 24, 2026. OSBA supports the plan as filed. If new or relevant information affecting small business customers is made available through the discovery process in PUC proceeding occurring prior to the filing of intervenor direct testimony, OSBA will immediately advise PGW of its concern and work cooperatively with PGW to address such concerns so it can continue to support the settlement reached between OSBA and PGW.*

1. **Term:** The Plan will be a four-year plan to be in effect from PGW's FY 2028 (beginning on September 1, 2027) through FY 2031 (ending on August 31, 2031).
2. **Continued stakeholder engagement:** By June 1, 2028 PGW will hold a stakeholder meeting to discuss the DSM Plan participation rates, marketing activities and marketing strategy. PGW will provide sixty (60) days of advance notice to stakeholders, including all parties to this case, so that parties have sufficient time to plan for and attend the meeting.
  - a. PGW will hold parallel meetings by June 1, 2029, June 1, 2030, and June 1, 2031.
  - b. PGW will work with OSBA to incorporate updates to the small business marketing strategy document that arise from these meetings. PGW will share the updated document with OSBA after updates are made stemming from this meeting, and will work collaboratively with OSBA to incorporate additional changes as needed.
  - c. At least three (3) months in advance of filing a new DSM plan, PGW will host a meeting with interested parties to present the Company's proposal. PGW will coordinate with all parties to this case to select a meeting date.
3. **Expanded CER measure offering:**
  - a. Subject to PGW's review of the referenced programs, PGW will add the following prescriptive measures offered by other, nearby gas utilities to the CER program, barring any technical concerns that arise during measure finalization. PGW will include the measures irrespective of the cost effectiveness, which may lower the cost-effectiveness of the program and portfolio. Rebate amounts will be finalized during implementation, upon review of the reference materials and incremental costs.

| Category     | Equipment                       | Efficiency Requirement                                                           | Reference Program   | Reference program rebate amount; PGW to propose amount |
|--------------|---------------------------------|----------------------------------------------------------------------------------|---------------------|--------------------------------------------------------|
| Heating      | Large furnace                   | 95% AFUE                                                                         | WG / Columbia       | \$2.00/MBH                                             |
| Food service | Kitchen griddle                 | ENERGY STAR                                                                      | UGI / WG / Columbia | \$400 - \$1,200                                        |
|              | Commercial dishwasher           | PGW to determine; must be demonstrably more efficient than conventional product. | UGI / WG / Columbia | \$600 - \$1,100                                        |
|              | Convection oven                 | ENERGY STAR                                                                      | WG                  | \$1,500                                                |
|              | Conveyor oven                   | PGW to determine; must be demonstrably more efficient than conventional product. | WG                  | \$3,000                                                |
|              | Rack oven                       | ENERGY STAR                                                                      | WG                  | \$3,000 - \$4,000                                      |
| Misc.        | Gas dryer                       | PGW to determine; must be demonstrably more efficient than conventional product. | UGI                 | \$100                                                  |
| Controls     | Advanced rooftop control (ARCs) | n/a                                                                              | WG                  | \$950                                                  |

- b. PGW will include air sealing and insulation as an eligible measure with prescriptive rebates in the CER program, following a similar approach as used in the Residential Equipment Rebates program.
  - i. Prescriptive rebates shall be offered per square foot or as a percentage of project costs up to a maximum amount. PGW will also explore offering the rebate to small businesses through participating contractors, similar to the Residential Equipment Rebates prescriptive rebate measure.
  - ii. Air sealing and insulation will also be eligible under custom rebate projects, and included as part of the total project costs and incentives.

#### 4. CER gas VRF heat pumps:

- a. PGW will continue to be permitted to offer natural gas variable refrigerant flow (“VRF”) natural gas heat pumps as a pilot program under the Commercial Equipment Rebate (“CER”) program.
- b. The pilot will be limited to a total of 18 units over the course of the Phase IV Plan.
- c. Customers participating in the pilot will be asked to complete an optional questionnaire with up to 10 questions about their project. This questionnaire will be developed with the opportunity for input by OSBA.

- d. After 18 units are rebated, PGW will provide the customer survey results in its next filed Annual Report.

**5. CER custom rebate pathway:**

- a. Pre-approval shall be required for custom pathway projects, prior to installation.
- b. A technical analysis or engineering study must be conducted prior to the approval of any custom rebate over \$15,000, to ensure that the solution being proposed is technically feasible and cost-effective. The analysis shall be submitted as part of pre-approval.
- c. Any measure included in a custom project that is in the PA TRM must use the PA TRM formulas; only measures outside of the TRM will receive bespoke calculations.
- d. Baseline assumptions for the custom rebate program should be clearly defined and consistent with the guidance in the PA TRM. If the PA TRM does not provide adequate baseline guidance for a commercial custom pathway for gas projects, PGW shall articulate a baseline policy for the pathway in a revised version of its plan.

**6. Commercial portfolio administrative costs:** As measured over the Plan's full term, PGW will not incur portfolio administrative costs applicable proportionally to commercial customers beyond the levels described in the DSM Phase V plan and this settlement agreement, which is 26% of total budget, excluding marketing, inspections and technical review, and evaluation. PGW will continue to recover the administrative costs proportional to the incentive expenditures for each rate class.

**7. Marketing budget:** The DSM Phase V marketing budget will be increased to \$180,000 total. Included within this total is \$40,000 dedicated for the marketing of Commercial Equipment Rebates and Small Business Energy Check, with a focus on targeting small commercial and industrial customers to the extent possible.

**8. Marketing text and materials:**

- a. PGW will share an overall marketing strategy with OSBA prior to developing specific language during the DSM Phase V proceeding for OSBA to provide comments.
- b. PGW will share proposed language intended to advertise and explain the SBEC program and CER applicability to Small C&I on the SBEC website (<https://pgwenergysense.com/sbec/>), and the language it intends to use on

marketing collateral designed to reach Small C&I customers during the DSM Phase V proceeding, for OSBA to provide comments.

- i. This will include language explaining commercial customer eligibility for rebates for residential-sized equipment and language on the custom rebate program.
  - ii. PGW will finalize key text for marketing collateral prior to settlement.
- c. PGW will share a draft of the actual marketing materials designed to reach Small C&I with OSBA prior to distribution, and will provide two weeks for with OSBA to provide comments.
- d. The PGW website will provide clear, direct information on the C&I table in the PGW website that small C&I is eligible for the residential list.

**9. Reporting on performance:** In its Annual Report, PGW will report to the PUC and the Parties on:

- a. PGW's marketing activities for the SBEC and CER programs.
- b. Small business participation in the SBEC and CER programs. Specifically, the report will include:
  - i. Number of commercial and small C&I participants in each program (SBEC and CER) segmented by pre-usage tier
  - ii. Total number of commercial customers and small C&I customers that received rebates for each prescriptive measure offered
  - iii. Total number of commercial customers and small C&I customers that received custom rebates, and total custom rebate amount
  - iv. Summary of the types of measures that received prescriptive rebates.
  - v. Summary of the measures covered by custom rebates
  - vi. Annual savings of each program
  - vii. Incentive payments made for each program
  - viii. Customer costs incurred under each program derived from incremental cost data.
  - ix. Costs and benefits of each program (TRC)