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E-FILE

May 31, 2024

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

**RE: Columbia Gas of Pennsylvania, Inc. (120700)  
Annual Resource Planning Report  
Summary Report and Forms 3-9**

Dear Ms. Chiavetta:

Enclosed for electronic filing please find Columbia Gas of Pennsylvania, Inc.'s 2024 Annual Resource Planning Summary Report and Forms 3 through 9.

Should you have any questions, please do not hesitate to contact the undersigned at (223) 488-0794.

Very truly yours,

A handwritten signature in blue ink that reads "Theodore J. Gallagher". The signature is fluid and cursive.

Theodore J. Gallagher

/kak  
Enclosure

cc: Paul Diskin/Bureau of Technical Utility Services  
Patrick Cicero/Office of Consumer Advocate  
NazArah Sabree/Small Business Advocate  
Allison Kaster/Bureau of Investigation and Enforcement

**BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Columbia Gas of Pennsylvania, Inc.  
121 Champion Way, Suite 100  
Canonsburg, PA 15317**

**2024 Annual Resource Planning Summary Report**

**Filed: June 2024**

**Information Submitted in Compliance with and Pursuant to Title 52  
Pennsylvania Code Sections 59.81-59.84**

**COLUMBIA GAS OF PENNSYLVANIA, INC.  
Annual Resource Planning Summary Report**

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## **INTRODUCTION**

By Order entered January 11, 1996 the Pennsylvania Public Utility Commission (PUC) adopted final regulations (52 PA Code §§ 59.81 - 59.84) which set forth revised requirements for filing annual resource planning reports (the Plan). The Plan submitted represents Columbia Gas of Pennsylvania's (CPA or the Company) belief that integrated resource planning (IRP) is a workable approach to utility planning.

This plan summary contains historical data and projections for annual, winter, and peak day supply to meet projected customer requirements in a least cost manner, while ensuring adequate and reliable service. It is organized into the following 6 sections:

I. Columbia's Overall Approach to Integrated Resource Planning

II. Demand Forecasting Methodology and Assumptions

III. Design Day Forecasting Methodology and Assumptions

IV. Three Year Resource Implementation Plan

V. CPA Service Territory Description and Map

VI. Summary Tables

## **I. COLUMBIA'S OVERALL APPROACH TO INTEGRATED RESOURCE PLANNING**

CPA views integrated resource planning (IRP) as part of an approach to utility management energy resource decision-making. This involves the integration of a number of planning processes; the unbiased evaluation of both supply-side and demand-side management (DSM) strategies; and the explicit recognition of the changing business, regulatory and competitive environments within which local distribution company (LDC) managers must plan and operate.

A successful IRP program should give sufficient consideration to an LDC's obligation to provide adequate and reliable service to its customers, and its role as supplier of last resort. The focus of IRP activities should be the optimal balance of low total societal costs associated with energy consumption; low total customer energy bills; low average system-wide unit costs; enhanced shareholder value; and mitigated environmental impact of energy resource decisions.

CPA also believes that in order to maximize the benefits to the energy consumers in the state of Pennsylvania, the practice of a comprehensive approach to IRP should consider end-uses and the optimal selection of fuel source based on consideration of conserving resources, energy and improving air quality.

CPA's overall IRP objective is to obtain a resource mix consisting of supply-side and demand-side resource options that satisfies customers' energy needs in a manner that balances costs, reliability and environmental impacts in both the short and long term.

### **THE ROLE OF IRP**

Integrated resource planning began in the 1970s as a response to changes in the electric utility industry. Increased uncertainty and risk caused by intermittent demand growth, increased competition from sources such as cogeneration, and risks associated with constructing new generation facilities caused electric utilities and regulators to re-evaluate traditional planning processes. In addition, there was greater diversity in energy resource options which challenged the traditional utility planning assumption that energy demand was a "given." Faced with many of the same concerns regarding risks, uncertainty and the need to consider a broader range of energy resource options, a number of regulatory commissions and natural gas utilities have adopted the IRP process.

Natural gas is a fuel of choice, facing competition from alternate energy sources for almost all end-uses. As such, the natural gas industry has historically operated in a competitive environment. This level of competition has increased for LDCs. Economic climates along with other factors such as increasing gas costs have caused energy consumers, on a national and global level, to place greater emphasis on controlling energy costs. Deregulation and increased access to alternate energy sources for end-users have caused greater competition in the energy marketplace.

Technological improvements have resulted in greater end-use efficiencies. This, combined with increased environmental awareness on a global scale has led to the advancement of energy conservation and energy efficiency. This has resulted in stricter codes and standards for equipment, appliances, buildings and homes. As these energy-efficient appliances, codes and standards have been applied through the normal building and appliance replacement life-cycle, customers have been

given an unprecedented ability to reduce household energy consumption.

Integrated resource planning provides a mechanism to address the new challenges of our industry. Properly developed, IRP pulls together a number of traditional planning processes, explicitly recognizes and accounts for uncertainties, gives equal considerations to supply- and demand-side resource options and recognizes that the integrated resource plan is a *living document* that is updated and modified to reflect changes in relevant parameters and increased knowledge and experience.

## **DSM**

Certain DSM activities can be an important element of utility resource management, especially when targeted to specific, well-defined applications such as those involving low-income customers. Demand side planning is the process of identifying, evaluating and selecting the most effective means of managing customer requirements for natural gas. Within the context of IRP, DSM represents one broad category of resource options with which current and future energy requirements can be met. Some potential benefits of implementing appropriate DSM programs could be enhanced customer value, lower total societal costs, lower consumer energy bills, increased overall resource energy and end-use efficiency, improved overall system efficiency and utilization, reduced environmental degradation and the promotion of economic development.

# **DEMAND FORECASTING METHODOLOGY AND ASSUMPTIONS**

## **BASIC ASSUMPTIONS**

Columbia Gas of Pennsylvania, Inc. (CPA) obtains historic and forecasted data for national, state and local economic and demographic concepts from IHS Markit Ltd (IHS). CPA obtains historic and forecasted data for energy efficiency concepts from Itron, Inc. (Itron). Both IHS and Itron are well-known and reputable firms in the utility forecasting industry. CPA also obtains historic and forecasted natural gas prices from the U.S. Energy Information Administration (EIA). These data are used in building econometric models that are used in the demand forecasts on Form 1A. The basis for the peak day demand forecast on Form 1B is explained in a separate section.

## **PENNSYLVANIA AND SERVICE AREA PROJECTIONS**

CPA Economic Growth - CPA relies upon IHS's state-level and county-level forecasts of a series of economic variables, including number of households, housing starts, income, population, commercial employment, gross county product, and industrial production. These forecasts are consistent with IHS's national forecasts.

CPA Energy Prices - Historical and forecasted natural gas price data are collected from EIA based on class (residential, commercial, industrial) and territory (state). Afterward, the price of natural gas is divided by the consumer price index to yield an inflation – adjusted price of gas.

## RESIDENTIAL AND COMMERCIAL DEMAND FORECAST METHODOLOGY

The demand forecast for the residential and commercial classes of customers has two main components: the number of customers and the average gas use per customer (UPC). The analytical work that supports the demand forecast is based upon data accumulated for CPA's service territory. The forecast insights and trends from this analysis are then used as the basis to project demand for the company.

### CUSTOMERS

Residential and commercial customer forecasts were developed using monthly econometric models of total customer count. The residential monthly econometric model of total customers specifies monthly total customer count as a function of number of households, and monthly fluctuations in the intercepts (using binary variables). The commercial monthly econometric model of total customers specifies monthly total customers as a function of real gross county product, and monthly fluctuations in the intercepts (using binary variables).

$$\text{CPA Residential Monthly Customers} = a_0 + \beta_1 \times (\text{HHC}) + \beta_i \times M_i + \beta_j \times D_j$$

$$\text{CPA Commercial Monthly Customers} = a_0 + \beta_1 \times (\text{RGCP}) + \beta_i \times M_i + \beta_j \times D_j$$

where:

- $a_n, \beta_n$  = model coefficients
- $M_i$  = a set of binary variables to quantify the monthly shifts in customers for the models
- $D_j$  = a set of binary variables to quantify the structural break points
- HHC = numbers of households at county level
- RGCP = Real Gross County Product

## USE PER CUSTOMER

One econometric model of total UPC is estimated for the total residential class, and one econometric model of total UPC is estimated for the total commercial class. Each model is monthly, allowing forecasts of July and August values from these models to provide the basis for calculating non-temperature-sensitive UPC and allowing forecasts of UPC values for the remaining months to provide the basis for calculating temperature-sensitive UPC.

The monthly econometric models specify actual UPC as a function of independent variables chosen from a set of variables representing real gas prices, gas-using equipment efficiency, monthly fluctuations in the intercepts (using binary variables), and weather. The residential and commercial UPC equations have the following form:

$$\text{CPA Residential Monthly UPC} = a_0 \beta_1 \times (\text{MAR}) + \beta_2 \times (\text{HDD}) + \beta_i \times M_i + \beta_j \times D_j$$

$$\text{CPA Commercial Monthly UPC} = a_0 \beta_1 \times (\text{HDD}) + \beta_i \times M_i + \beta_j \times D_j$$

where:

$a_n, \beta_n$  = model coefficients

$M_i$  = a set of binary variables to quantify the monthly shifts in volumes for the models

$D_j$  = a set of binary variables to quantify the structural break points

MAR = energy intensity variable

HDD = heating degree days

## VOLUMES

Gas volume is calculated monthly by multiplying forecasted UPC by forecasted customers. The reasonableness of the forecasted volumes is gauged by ensuring that forecast patterns are reflective of recent historical patterns as well as the company's new business department's intelligence on future projects. Calendar month demands are obtained by adding an adjustment for unbilled volume.

### Transportation Volume

The models described thus far are used to forecast total throughput. This section describes the methodologies used to forecast transportation volume that is subtracted from the throughput forecast to arrive at tariff sales volume.

Traditional (non-Choice) transportation volume for the commercial class is forecasted based on forecasts of large transportation customers provided by the Large Customer Relations group, past levels, and trend. Similarly Forecasted Choice Transportation volume is forecasted based on past levels and trend.

## INDUSTRIAL FORECASTING METHODOLOGY

The monthly industrial forecast is provided by CPA's Large Customer Relations group by incorporating information generated through individual customer interviews concerning expectations of future industrial gas demand. Since the Large Customer Relations group cover over 90% of the

total industrial volumes, it is assumed that the remaining industrial customers grow at the same rate as those forecasted by the Large Customer Relations group.

Transportation volume for the industrial class is forecasted based on forecasts of large transportation customers provided by the Large Customer Relations group, past levels, and trend. Forecasted transportation volume is subtracted from total industrial demand to arrive at tariff sales volume.

## DESIGN DAY FORECASTING METHODOLOGY AND ASSUMPTIONS

Each year, a five-year estimate of the requirements anticipated under CPA's design day operating conditions is prepared to ensure that adequate supplies are contracted at a level so that CPA can fulfill its utility obligation to its firm customer requirements at Design Day Conditions. The projected demands, as generated in CPA's 2023 Design Day Forecast (DDF) and shown on Form 1B (attached), represent the sum total of CPA's Design Day Demand calculated at the Design Current Day Temperature, Design Prior Day Temperature, Design Current Day Wind Speed, and assume Design Day occurrence on a weekday for each of CPA's eight Pipeline Scheduling Points (PSPs).

Design Current Day Temperature results from the Gumbel Distribution of annual minimum temperatures for all available years of history through heating season 2014/2015 for the National Weather Service Stations located at Hagerstown, Maryland; Morgantown, West Virginia; and Harrisburg, Pittsburgh, and Bradford, Pennsylvania. These are the weather stations within or having proximity to CPA's service territory that are used to discern customers' sensitivities to the weather variables of temperature and wind speed. The Design Current Day Temperature is premised upon a risk level having a 1 in 15 probability of occurrence. That is, the probability is 6.7 percent, or 1 in 15, that any given winter will have one or more days with an average daily temperature equal to or colder than CPA's design temperature. CPA's company-wide Design Current Day Temperature is -5 degrees Fahrenheit.

Design Prior Day Temperature results from the mean temperature difference between historical cold days and their associated prior days. Cold days are defined as those days that are no warmer than the Design Current Day Temperature plus 5 degrees Fahrenheit. This resultant average difference is then added to the Design Current Day Temperature to give Design Prior Day Temperature. CPA's company-wide Design Prior Day Temperature is 6 degrees Fahrenheit.

Consistent with the Design Prior Day Temperature methodology, the approach of using an average of cold days is used to establish Design Current Day Wind Speed. Because Wind Speed data has only been available since 1991/92, Design Current Day Temperature plus five degrees Fahrenheit does not give many observations for a representative average. Using Cold Days defined as 15 degrees plus Design Current Day Temperature provides more observations per station. CPA's company-wide Design Current Day Wind Speed is 11 mph.

These design conditions are developed for each of the aforementioned National Weather Service Stations used by CPA. The associated factors for each station are then weighted as a function of the firm demand associated with each weather station to arrive at the design conditions for each PSP and CPA in aggregate.

The DDF methodology has the following eight steps.

### **Step 1. Obtaining Actual Total Daily Demand**

The first step in the preparation of the DDF is to obtain the actual total daily demand that was observed in the months of December through February from the most recent two heating seasons. CPA derives the actual total daily demand by cumulating daily supply data from all sources. Based on twelve months ending December 2022, CPA has 97% of its total deliveries daily measured at

the **Point of Delivery (POD)**. The volumes that are monthly read are allocated to a daily volume using a base load / heat load allocation process. The daily volume for every POD is summarized to produce the actual total daily demand for each PSP.

## **Step 2. Obtaining Non-Firm Daily Demand**

The second step is the calculation of the daily demand for CPA's industrial and commercial customers receiving services (sales and banking and balancing service) from the Company on a non-firm basis. Approximately 84% of CPA's total non-firm customer demand is subject to daily measurement. This percentage is based on the actual January 2023 throughput for all such customers. For those non-firm customers with monthly meter read capability, CPA estimates their daily consumption using a base load / heat load allocation process.

## **Step 3. Calculation of Daily Firm Demand**

Daily Firm Demand is calculated at the PSP level by subtracting the daily non-firm customer (industrial and commercial) demand, as described above, from the actual total daily demand. The resultant daily demand is considered to be firm customer demand, for supply planning purposes, and is utilized in the regression process described below.

CPA has an additional firm obligation under its Standby Service contracts and **Elective Balancing Service (EBS)** contracts with transportation customers. This is an obligation that CPA stands ready to fulfill on any given day and is considered in CPA's supply/capacity portfolio. For this reason, it is categorized separately from the previously described daily system firm demand. Both Standby Service and EBS projections for each forecast season are held constant at the aggregate customer contract level at the time the DDF is prepared.

## **Step 4. Regression of Three Demand Components**

Using IBM's SPSS Modeler software, regressions are made to obtain coefficients for each PSP, for the following demand components:

1. Daily Firm Demand;
2. Daily Industrial Customer Non-firm Demand; and
3. Daily Commercial Customer Non-firm Demand.

Daily demand data for the months of December, January, and February from the past two heating seasons is analyzed and the three demand components are regressed against a group of four explanatory variables:

1. Current Day Temperature: the average daily temperature for the current day;
2. Prior Day Temperature: the average daily temperature for the prior day;
3. Wind Speed: the average daily wind speed for the current day; and
4. Day Type: weekdays, weekends, and holidays. The major holidays are the period December 24 through January 1.

The analysis is performed twice. First, CPA uses all observed days during December through February, and then just those days having average temperatures below 31 degrees Fahrenheit to

better capture customer responsiveness to colder temperatures.

### **Step 5. Design Actual**

The PSP regressed coefficients are then applied to the PSP Design Day Conditions to determine the resulting Design Actual demand. The purpose of calculating the “Design Actual” demand is to quantify, based on actual experience, what the Design Day Demand would equate to if Design Day Conditions had occurred for the subject period of time. CPA uses the 2022/23 Design Actual for firm (exclusive of Standby Service and EBS quantities) and total (sum of firm plus non-firm) demand along with prior winters’ Design Actuals as inputs in the growth process to project the 2023/24 - 2027/28 Design Day Demand.

### **Step 6. Determination of Design Day Demand by Revenue Class**

Once the regressions have been performed and the Firm Design Actual and the two (commercial and industrial) non-firm customers’ Design Actual demands are known, the allocation of demand types within a revenue class is performed.

Four steps are performed to allocate Firm Demand. In **Step 6a**, the classification Other is calculated. Other includes two categories, Company Use, and Unaccounted-For Gas. Company Use Design Day load is projected to be 1/20th of the January requirement from the 2024 Gas Estimate. The Design Day load of Unaccounted-For Gas is 1/365th of the annual Unaccounted-For Gas load from the Gas Estimate. Other Demand, like Residential Demand, is entirely firm; i.e., it contains no non-firm component.

In **Step 6b**, Industrial Firm Sales is developed by regression analysis of the estimated daily industrial firm sales demand of the most recent winter (derived from monthly billing data for December 2022 through February 2023) against the gas-day average temperature. The design temperature is then applied to the regression equation to arrive at the design industrial firm sales demand.

In **Step 6c**, the remainder of Firm Demand (Firm Demand less Industrial Firm Demand less Other) is allocated to Residential and Firm Commercial based on the estimates of residential and commercial demands as found in the Gas Estimate inclusive of Choice. Once the allocation is complete, the Firm Demand is equal to the sum of the revenue classes’ (Residential, Commercial, Industrial, and Other) firm demand component.

In **Step 6d**, the Firm Demand is then further categorized between sales and Choice customer demand. The Choice demands are derived from the input used in the development of CPA’s 2024 Gas Estimate. The total Choice Design Day Demand is anticipated to be 109.2 MDth by the last heating season (2027/28) of the 2023 forecast.

### **Step 7. Design Day Forecast**

Several years of the historical Design Actual Demands for each PSP are utilized as the basis for the regressions to determine the Design Day Forecast. The analyses at the PSP level is needed for planning purposes and allows for identifying variances in customer demand over the historical period studied. In the process, the impact on the annual Design Actual Demands of four variables

is determined. Those variables are:

- (1) Customer count in the month of January;
- (2) Actual weather in the two months (December and January) when the design peak day is most likely to occur;
- (3) Actual gas costs; and
- (4) Non-farm employment in the core winter months of December through February.

Note that for the purpose of forecasting both Firm and Non-Firm Design Day Demand, the gas cost is the forecasted January NYMEX Gas Monthly Price at Henry Hub (NGI Bidweek Prices). Historical and forecasted non-farm employment values come from the 2023 IHS Global Insight County Forecast and are the average of the December, January, and February values aggregated to the PSP level.

### **Step 8. Adjustment to Forecast**

The 2023 Design Day Forecast includes an adjustment to capture occurrences not entirely reflected in the historical input data. The forecast of CPA's non-firm customer demand has given consideration to a current projection of existing and expected new customer load.

#### **IV. THREE YEAR RESOURCE IMPLEMENTATION PLAN**

##### **PLANNING USING SUPPLY/DEMAND BALANCES**

Using contractual storage and transportation capacities, and guidelines described in this exhibit, Columbia Gas of Pennsylvania, Inc. (CPA) plans annual, seasonal, and peak day supplies to serve firm customer requirements. For each of the colder, normal, and warmer weather demand scenarios, a plan identifies monthly and daily sources of gas. For each scenario, the total supply is a mixture of transportation, storage, and any peaking supplies. Forms 2A, 2B and 2C (attached) have been developed from the plan information for the normal weather scenario. Form 3 (attached) summarizes the Company's customer forecast.

CPA's "design" plan is based on the colder weather scenario and customer demand corresponding to 1 in 15 risk design day temperature, 1 in 10 risk late-winter-days temperatures, and 1 in 10 risk winter season degree days. Late winter days are recognized to assure supply adequacy, since contractual storage withdrawal capacity decreases as storage inventory is reduced late in the winter.

CPA's supply/demand balances result from using PLEXOS, a PC-based decision support modeling system provided by Energy Exemplar.

##### **STORAGE INJECTIONS, WITHDRAWALS, AND RATCHETS**

Storage provides a buffer between demand and supply, both on a seasonal and daily basis. CPA constructs its target injection pattern recognizing end of winter balances, flexibility requirements, gas supply prices and applicable storage injection limitations.

CPA constructs its winter storage withdrawal schedule to reflect daily withdrawal capacity decreasing or ratcheting down during the later parts of the winter season. When the inventory remaining in storage falls below 30% of seasonal contract capacity, daily withdrawal capacity is reduced to 80% of contract maximum. Daily withdrawal capacity declines to 65% of this maximum when storage inventory falls below 20% of seasonal capacity, and finally to 50% of maximum when inventory falls below 10%. CPA determines the largest demand it can serve with its available resources after each ratchet, and then determines the corresponding temperature at which this demand would be expected to occur. Finally, CPA determines the 10 percent risk date for that temperature. CPA then maintains sufficient inventory to postpone each occurrence of ratchet until that date. The risk level of 10 percent means that on average, the design temperature would occur after the design date one winter in ten.

CPA's supply plan assumes the availability of 96-97 percent of the seasonal contract capacity during the November through March winter season because of the following:

- (1) CPA enters the winter with roughly 1-2 percent of storage capacity unfilled to allow for storage injections on any warm days in early winter, and
- (2) CPA reserves roughly 2 percent of storage inventory at the end of the traditional winter season for withdrawal on cold April days.

##### **DAILY BALANCING**

CPA must balance flowing supplies delivered to its distribution system daily with varying customer demands. CPA uses the flexibility provided by storage to provide the majority of this daily balancing requirement. On mild days and weekends with reduced demand, CPA may inject excess scheduled flowing supplies into its storage accounts. On cold days, when customer demand exceeds the

scheduled flowing volumes, CPA will withdraw gas from its storage accounts. CPA's storage contracts have both daily injection and withdrawal limits. To the extent the daily balancing opportunities provided by storage are insufficient to meet the potential demand swings of customers, CPA may reduce or "swing" on its supply contracts.

#### **DESIGN DAY SUPPLY BALANCE**

As mentioned previously, CPA maintains minimum firm capacity rights to protect for a 1 in 15 design day to ensure it can reliably satisfy its firm obligations. This includes capacity for PGC customers, Choice customers, Enhanced Balancing Service (EBS) Option 1 and Standby Service. CPA does not consider interruptible gas distribution service customer volumes as reliable Peak Period capacity for its firm demand. Therefore, no interruptible transportation is used for this balance.

#### **LOCAL GAS**

During Order 636 restructuring, Columbia Gas Transmission LLC (TCO) assigned CPA Firm Transportation capacity with Appalachian receipt points. CPA must fill this capacity or lose deliverability to nearby markets. CPA fills the majority of the assigned TCO Appalachian capacity with purchases from marketers and aggregators, with the balance filled by purchases from small producers. CPA may also purchase gas supplies from small local producers with wells located near CPA's facilities that deliver gas directly to CPA.

#### **DEMAND SIDE RESOURCES**

CPA currently operates two conservation programs as outlined in Form 5 (attached). They are the WarmWise Low-Income Usage Reduction Program (LIURP) and WarmWise Audits & Rebates program. Forms 6-9 attached includes program summary information and the cost-benefit analysis of LIURP and WarmWise Audits & Rebates.

CPA will continue implementing its residential energy efficiency programs, and will monitor the need for additional demand side resources through its Integrated Resource Planning Process.

#### **V. CPA SERVICE TERRITORY DESCRIPTION AND MAP**

A description of CPA's service territory and map are attached.

**COLUMBIA OF PENNSYLVANIA, INC.  
Annual Resource Planning Summary Report**

**List of Tables**

<b>FORM-IRP-GAS-1A</b>	<b>ANNUAL ENERGY DEMAND REQUIREMENTS</b>
<b>FORM-IRP-GAS-1B</b>	<b>PEAK DAY ENERGY DEMAND REQUIREMENTS</b>
<b>FORM-IRP-GAS-2A</b>	<b>ANNUAL/PEAK DAY ENERGY RESOURCES</b>
<b>FORM-IRP-GAS-2B</b>	<b>TRANSPORTATION CONTRACTS</b>
<b>FORM-IRP-GAS-2C</b>	<b>STORAGE CONTRACTS</b>
<b>FORM-IRP-GAS-3</b>	<b>NUMBER OF CUSTOMERS</b>
<b>FORM-IRP-GAS-4A</b>	<b>ANNUAL SUPPLY/DEMAND SUMMARY</b>
<b>FORM-IRP-GAS-4B</b>	<b>PEAK DAY SUPPLY/DEMAND SUMMARY</b>
<b>FORM-IRP-GAS-5</b>	<b>PROGRAM DESCRIPTIONS</b>
<b>FORM-IRP-GAS-6</b>	<b>ENERGY USERS</b>
<b>FORM-IRP-GAS-7</b>	<b>CONSERVATION AND LOAD MANAGEMENT PROGRAM SUMMARY</b>
<b>FORM-IRP-GAS-8</b>	<b>CONSERVATION AND LOAD MANAGEMENT PROGRAM COST BENEFIT ANALYSIS INPUTS</b>
<b>FORM-IRP-GAS-9</b>	<b>CONSERVATION AND LOAD MANAGEMENT PROGRAM COST BENEFIT ANALYSIS RESULTS</b>

**DESCRIPTION OF TERRITORY**

**ADAMS COUNTY**

Abbottstown  
Arendtsville  
Aspers  
Bendersville  
Berwick Township  
Biglerville  
Butler Township  
Caledonia  
Cashtown  
Conewago Township\*  
Cumberland Township  
East Berlin  
Fairfield  
Fayetteville  
Franklin Township  
Freedom Township  
Germany Township  
Gettysburg  
Hamilton Township  
Hamiltonban Township  
Hemptom  
Littlestown  
McSherrystown\*  
Menallen Township  
Mt. Joy Township  
Mt. Pleasant Township  
New Oxford  
Oxford Township  
Reading Township  
Strabane Township  
Table Rock  
Two Taverns  
Tyrone Township  
Union Township

**ALLEGHENY COUNTY**

The Company is certified to serve in all cities, boroughs and townships in Allegheny County.

**ARMSTRONG COUNTY**

Distant  
Hovey Township  
Madison Township  
Mahoning Township  
McWilliams  
New Salem  
Oakland  
Oak Ridge  
Parker City  
Perry Township  
Red Bank Township  
South Bethlehem

**BEAVER COUNTY**

The Company is certified in serve in all cities, boroughs and townships in Beaver County.

**BEDFORD COUNTY**

Cumberland Valley Township  
Londonderry Township  
Mann Township  
Southampton Township  
State Line

**BUTLER COUNTY**

Adams Township  
Allegheny Township  
Annandale  
Annisville  
Brady Township  
Bruin  
Center Township  
Cherry Township  
Clay Township  
Concord Township  
Cranberry Township

**BUTLER COUNTY  
(continued)**

Criders Corners  
Deegan  
Eau Claire  
Fairview  
Fairview Township  
Fallowfield Township  
Forestville  
Franklin Township  
Harrisville  
Karns City \*\*  
Marion Township  
Mercer Township  
Muddy Creek Township  
North Washington  
Parker Township  
Slippery Rock Township  
Valencia  
Valencia Township  
Venango Township  
Washington Township  
West Liberty  
Wick  
Worth Township

**CENTRE COUNTY \*\*\***

Bellefonte  
Benner Township  
Boggs Township  
Burnside Township  
College Township  
Ferguson Township  
Harris Township  
Patton Township  
Potter Township  
Snow Shoe Township  
Spring Township  
State College  
Union Township

(C)

\* Territory formerly served under Tariff Gas-Pa. P.U.C. No. 7.

\*\* Limited to industrial service to Permanent Service Identification (PSID) 400473084.

\*\*\* Territory formerly served under Tariff Gas-Pa. P.U.C. No. 6.

(C) Indicates Change

**DESCRIPTION OF TERRITORY (Continued)**

**CHESTER COUNTY**

Coatesville\*

**CLARION COUNTY**

Ashland Township  
 Beaver Township  
 Callensburg  
 Climax  
 Dutch Hill  
 Elk City  
 Elk Township  
 Fairmont City  
 Foxburg  
 Hawthorne  
 Huey  
 Knox  
 Lamartine  
 Lawsonham  
 Leatherwood  
 Licking Township  
 Madison Township  
 Mayport  
 Monroe  
 New Bethlehem  
 Perry township  
 Perryville  
 Porter Township  
 Red Bank Township  
 Richland Township  
 Rimersburg  
 Salem  
 Salem Township  
 Shippenville  
 St. Petersburg  
 Toby Township  
 Turkey City  
 Turnip Hole  
 Wentlings  
 West Freedom  
 West Monterey

**CLEARFIELD COUNTY**

Burnside Township  
 Jordon Township\*\*  
 Union Township

**ELK COUNTY**

Highland Township  
 Nansen  
 Russell city

**FAYETTE COUNTY**

The Company is certified to serve in all cities, boroughs and townships in Fayette County.

**FRANKLIN COUNTY**

Antrim Township  
 Caledonia  
 Greencastle  
 Greene Township  
 Guilford Township  
 Mercersburg  
 Mont Alto  
 Montgomery Township  
 Nunnery  
 Peters Township  
 Quincy  
 Quincy Township  
 Shady Grove  
 Washington Township  
 Waynesboro

**FULTON COUNTY**

Bethel Township  
 Thompson Township  
 Union Township

**GREENE COUNTY**

The Company is certified to serve in all cities, boroughs and townships in Greene County.

**INDIANA COUNTY**

Center Township\*\*\*  
 Cherryhill Township\*\*  
 Clymer  
 White Township\*\*\*

**JEFFERSON COUNTY**

Beaver Township  
 Clover Township  
 Heath Township  
 Iowa  
 Knox Township  
 Pine Creek Township  
 Polk Township  
 Ringgold Township  
 Rose Township  
 Summerville  
 Union Township  
 Warsaw Township  
 Winslow Township

(C)

\* Limited to industrial service to Permanent Service Identification (PSID) 400495160.  
 \*\* Limited to industrial service to Permanent Service Identification (PSID) 500254711 and 500254712.  
 \*\*\* Limited to service to customers located within the industrial park owned by Indiana County Industrial Development Authority and Indiana County Development Corporation.

(C)  
 (C)

(C) Indicates Change

**DESCRIPTION OF TERRITORY (Continued)**

**LAWRENCE COUNTY**

Bessemer  
Big Beaver Township  
Chewton  
Ellport  
Ellwood City  
Energy  
Harlansburg  
Hickory Township  
Joyce  
Little Beaver Township  
Mt. Jackson  
(C) Neshannock Township  
New Castle  
North Beaver Township  
Perry Township  
Princeton  
Scott Township  
Shenango Township  
Slippery Rock Township  
South New Castle  
Taylor Township  
Union Township  
Wampum  
Wayne Township  
Wurtemberg

**McKEAN COUNTY**

Bradford  
Bradford Township  
Custer City  
Dallas City  
Degolia  
Derrick City  
Foster Brook  
Foster Township  
Lafayette Township  
Lewis Run  
Mt. Alton  
Tune

**MERCER COUNTY**

Liberty Township  
North Liberty

**SOMERSET COUNTY**

Addison Township  
Berlin  
Brothers Valley Township  
Elk Lick Township  
Greenville Township  
Meyersdale  
Salisbury  
Somerset  
Somerset Township  
Southampton Township  
Summit Township

**VENANGO COUNTY**

Clintonville  
Clinton Township  
Dotter  
Emlenton  
Freedom  
Irwin Township  
Mariasville  
Nickleville  
Pittsville  
Richland Township  
Rockland Township  
Scrubgrass Township

**WARREN COUNTY**

Conewango Township  
Glade Township  
Mead Township  
Pleasant Township  
Russell  
Sheffield Township  
Starbrick  
Warren

**WASHINGTON COUNTY**

The Company is certified to  
serve in all cities, boroughs  
and townships in Washington  
County.

**WESTMORELAND COUNTY**

Alverton  
Ardara  
Buzsardtown  
Cereal  
Circleville  
Coal Hollow  
Collinsburg  
Cowansburg  
East Huntingdon Township  
Eldora  
Fellsburg  
Fells Chapel  
Foxtone  
Grapeville  
Gratztown  
Hahntown  
Hempfield Township  
Herminie  
Irwin  
Jeannette  
Lowber  
Madison  
Marchland  
Monessen  
Mt. Pleasant  
Mt. Pleasant Township  
North Huntingdon Township  
Penglyn  
Penn  
Penn Township  
Rilton  
Rostrover Township  
Ruffsdale  
Rural (Scottdale)  
Scottdale  
Sewickley Township  
Shafton  
Smithton  
South Huntingdon Township  
Stewartsville  
Straw Pump  
Sutersville  
Tarr  
Unity Township  
West Newton  
Youngwood

(C) Indicates Change

**DESCRIPTION OF TERRITORY (Continued)**

**YORK COUNTY \***

Carroll Township  
Codorus Township\*\*  
Conewago Township  
Dallastown  
Dillsburg  
Dover  
Dover Township  
East Hopewell Township  
East Manchester Township  
East Prospect  
Fawn Township  
Glen Rock  
Hallam  
Hallam Township  
Hanover  
Hopewell Township  
Jackson Township  
Jacobus  
Jefferson  
Loganville  
Lower Chancefore Township  
Lower Windsor Township  
Manchester  
Manchester Township  
Manheim Township  
Mount Wolf  
Newberry Township  
New Freedom  
North Codorus Township  
North York  
Paradise Township  
Penn Township  
Railroad  
Red Lion  
Seven Valleys  
Shrewsburg  
Shrewsburg Township  
Springettsbury Township  
Springfield Township  
Spring Garden Township  
Spring Grove  
Stewartstown

**YORK COUNTY (continued)**

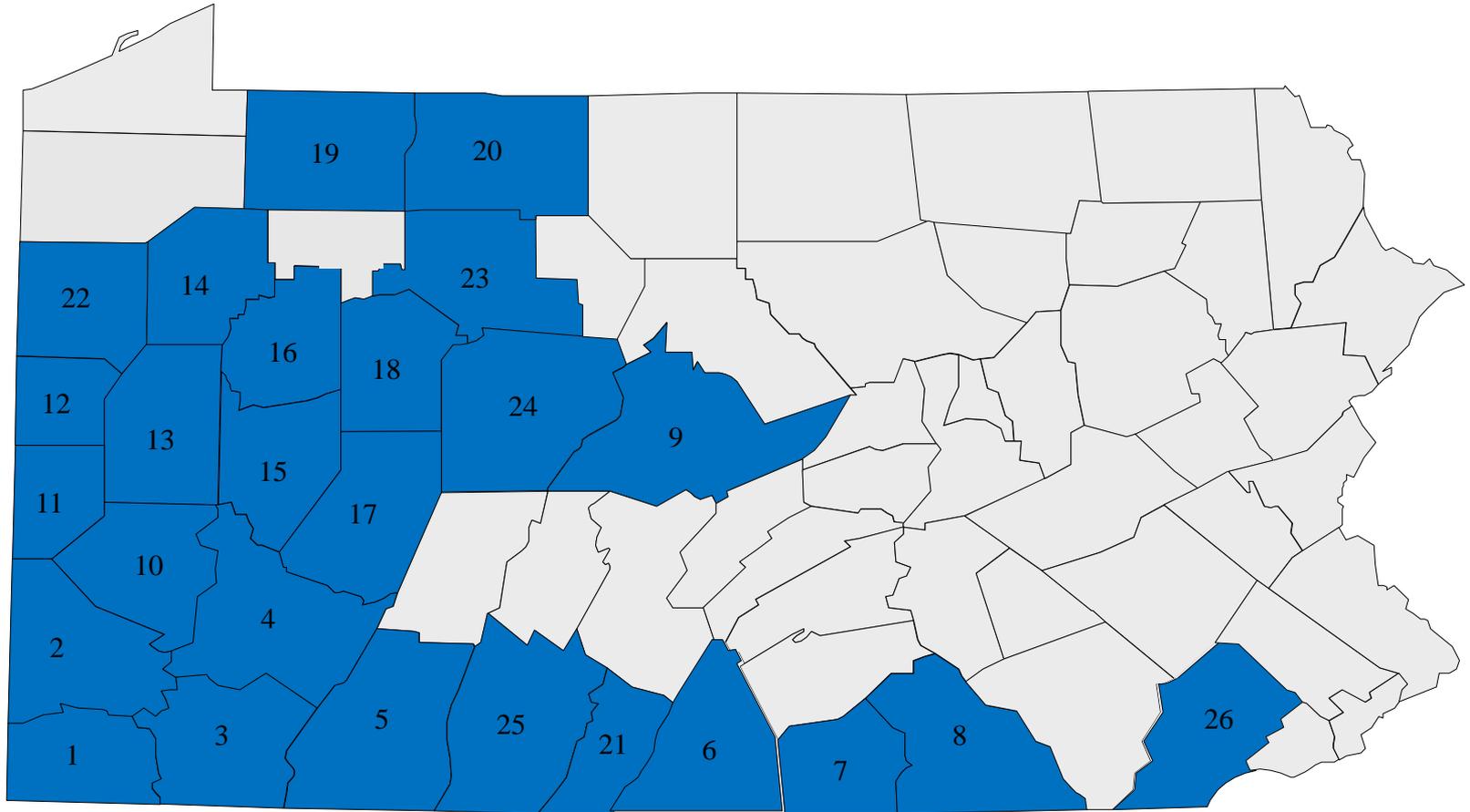
Warrington Township  
Washington Township  
Wellsville  
West Manchester Township  
West Manheim Township  
West York  
Windsor  
Windsor Township  
Wrightsville  
Yoe  
York  
Yorkana  
York Haven  
York New Salem  
York Township

\* Territory formerly served under Tariff Gas – Pa. P.U.C. No. 7 with the exception of Codorus and Manheim Townships and portions of East Manchester, Hallam, Manchester and Penn Townships.

\*\* Limited to industrial service to Permanent Service Identification (PSID) 400472432.

(C)

(C) Indicates Change




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1 = Greene	6 = Franklin	11 = Beaver	16 = Clarion	21 = Fulton
2 = Washington	7 = Adams	12 = Lawrence	17 = Indiana	22 = Mercer
3 = Fayette	8 = York	13 = Butler	18 = Jefferson	23 = Elk
4 = Westmoreland	9 = Centre	14 = Venango	19 = Warren	24 = Clearfield
5 = Somerset	10 = Allegheny	15 = Armstrong	20 = McKean	25 = Bedford
				26 = Chester

**FORM-IRP-GAS-1A: ANNUAL GAS REQUIREMENTS**  
**REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.**  
(volumes in Mmcf)

	Index Year Actual Year	Historical Data		Current Year 0 2024	Three Year Forecast			
		-2 2022	-1 2023		1 2025	2 2026	3 2027	
<b>Firm Sales</b>								
Retail Residential	29,119	24,735	28,876	28,876	29,149	29,388		
Retail Commercial	9,190	7,782	8,731	8,693	8,696	8,699		
Retail Industrial	252	308	362	437	452	452		
Electric Power Generation								
Exchanges with Other Utilities	720	(1,240)	393	397	401	406		
Unaccounted for Gas	121	129	121	121	121	121		
Company Use	39,401	31,714	38,483	38,576	38,820	39,067		
Subtotal Firm Sales								
<b>Interruptible Sales</b>								
Retail	0	0	0	0	0	0		
Electric Power Generation	0	0	0	0	0	0		
Company's Own Plant	0	0	0	0	0	0		
Subtotal Interruptible Sales								
<b>SUBTOTAL FIRM AND INTERRUPTIBLE SALES:</b>	39,401	31,714	38,483	38,576	38,820	39,067		
<b>Transportation</b>								
Firm Residential	3,921	3,425	3,842	3,842	3,368	3,142		
Firm Commercial	2,800	2,600	2,822	2,811	2,811	2,813		
Firm Industrial								
Interruptible Residential	11,483	10,047	11,251	11,234	11,237	11,243		
Interruptible Commercial	22,584	22,192	22,325	22,392	22,415	22,416		
Interruptible Industrial	316	594	311	311	311	311		
Electric Power Generation	41,104	38,858	40,550	40,342	40,142	39,924		
Subtotal Transportation	80,505	70,572	79,033	78,918	78,962	78,990		
<b>TOTAL GAS REQUIREMENTS</b>								
Increase (Decrease)		(9,933)	8,461	(115)	44	29		
Percent Change (%)		(12.3)	12.0	(0.1)	0.1	0.0		

**FORM-IRP-GAS-1B: PEAK DAY REQUIREMENTS**  
**REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.**  
(volumes in Mmcf)

	Historical Data		Current Year	Three Year Forecast			
	Index Year Actual Year	-2 2021/22	-1 2022/23	0 2023/24	1 2024/25	2 2025/26	3 2026/27
<b>Firm Sales</b>							
Retail Residential		205.6	291.0	258.6	349.9	356.1	363.5
Retail Commercial		73.4	107.4	96.8	127.2	127.5	127.8
Retail Industrial		0.7	1.0	1.4	1.9	1.9	1.9
Electric Power Generation		0.0	0.0	0.0	0.0	0.0	0.0
Exchanges with Other Utilities		0.0	0.0	0.0	0.0	0.0	0.0
Unaccounted for Gas		1.8	1.5	0.8	1.5	0.8	0.8
Company Use		0.6	1.3	0.7	1.3	0.7	0.7
Other		0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Firm Sales		282.1	402.2	358.3	481.8	487.0	494.7
<b>Interruptible Sales</b>							
Retail		0.0	0.0	0.0	0.0	0.0	0.0
Electric Power Generation		0.0	0.0	0.0	0.0	0.0	0.0
Company's Own Plant		0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Interruptible Sales		0.0	0.0	0.0	0.0	0.0	0.0
<b>SUBTOTAL FIRM AND INTERRUPTIBLE SALES:</b>		282.1	402.2	358.3	481.8	487.0	494.7
<b>Transportation</b>							
Firm Residential		67.9	80.5	66.7	82.9	77.7	72.6
Firm Commercial		29.1	33.2	27.9	36.8	36.8	36.8
Firm Industrial		0.0	0.0	0.0	0.0	0.0	0.0
Interruptible Residential		0.0	0.0	0.0	0.0	0.0	0.0
Interruptible Commercial		59.6	79.7	69.2	92.4	92.5	92.9
Interruptible Industrial		55.5	80.8	67.6	90.3	90.8	91.0
Electric Power Generation		2.7	2.7	2.7	2.7	2.7	2.7
Subtotal Transportation		214.8	276.9	234.1	305.1	300.5	296.0
<b>TOTAL GAS REQUIREMENTS</b>		496.9	679.1	592.4	786.9	787.5	790.7
Increase (Decrease)			182.2	(86.7)	194.5	0.6	3.2
Percent Change (%)			36.67%	-12.77%	32.83%	0.08%	0.41%

Note: Firm volumes shown excludes CPA's firm obligations under its Standby Sales and Elective Balancing Services.

FORM-IRP-GAS-2A: NATURAL GAS SUPPLY  
 TABLE 1: ANNUAL SUPPLY  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

	Index Year Actual Year	Historical Data			Current Year 0 2024	Three Year Forecast		
		-2 2022	-1 2023	1 2025		2 2026	3 2027	
Gas Supply for Sales Service								
Supplier A		715.7	749.3	1,922.2				
Supplier B		992.8	1,133.4	860.7				
Supplier C		2,806.2	5,501.7	688.5				
Supplier D		133.6	452.7	654.1				
Supplier E		5,728.2	7,515.7	0.0				
Supplier F		3,743.1	3,156.4	0.0				
Supplier G		6,777.2	1,930.9	0.0				
Supplier H		3,331.4	1,558.7	0.0				
Spot Purchases		12,176.3	9,594.5	34,197.9	39,058.0	38,863.0	39,297.7	
Storage Withdrawals		23,714.6	19,917.4	19,616.9	20,532.7	20,589.1	20,407.4	
LNG/SNG/Propane Purchases								
Company Production								
Local Purchases		244.0	244.0	245.0	244.3	244.3	244.3	
Exchanges								
Other								
Total Gas Supply for Sales		60,363.3	51,754.7	58,185.2	59,835.0	59,696.5	59,949.4	
Total Transportation Service		41,104.1	38,857.8	40,550.2	40,342.5	40,142.3	39,923.9	
TOTAL SALES, GAS SUPPLY AND TRANSPORTATION SERVICE		101,467.3	90,612.6	98,735.5	100,177.5	99,838.7	99,873.3	
Deductions								
Curtailments								
Underground Storage Injections		20,961.9	20,040.4	19,702.3	21,259.8	20,877.0	20,883.2	
LNG Liquefaction								
Sales to other LDCs								
Off-System Sales								
Total Deductions		20,961.9	20,040.4	19,702.3	21,259.8	20,877.0	20,883.2	
NET GAS SUPPLY		80,505.5	70,572.1	79,033.2	78,917.7	78,961.7	78,990.1	

FORM-IRP-GAS-2A: NATURAL GAS SUPPLY  
 TABLE 2: PEAK DAY SUPPLY  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

	Historical Data		Current Year			Three Year Forecast		
	-2 2021/22	-1 2022/23	0 2023/24	1 2024/25	2 2025/26	3 2026/27		
Index Year Actual Year								
Gas Supply for Sales Service								
Columbia Gas Transmission 1/	31.3	75.8	73.9	72.2	74.8	78.3		
Tennessee	18.4	18.4	18.5	18.5	18.5	18.5		
Texas Eastern	19.6	19.5	19.6	21.5	21.5	21.5		
National Fuel	5.6	5.6	5.6	5.6	5.6	5.6		
Eastern Gas Transmission & Storage	4.5	4.5	5.0	5.0	5.0	5.0		
Equitrans Transmission	34.3	34.3	34.3	34.3	34.3	34.3		
Spot Purchases	0.0	0.0	0.0	0.0	0.0	0.0		
Storage Withdrawals	229.3	244.8	200.8	324.1	326.8	330.9		
LNG/SNG/Propane Purchases	0.0	0.0	0.0	0.0	0.0	0.0		
Company Production	0.0	0.0	0.0	0.0	0.0	0.0		
Local Purchases	0.7	0.7	0.7	0.7	0.7	0.7		
Exchanges with other LDCs	0.0	0.0	0.0	0.0	0.0	0.0		
Other	0.0	0.0	0.0	0.0	0.0	0.0		
Total Gas Supply for Sales	343.6	403.5	358.3	481.8	487.0	494.7		
Total Transportation Service 2/	261.9	277.7	234.1	305.1	300.5	296.0		
TOTAL SALES, GAS SUPPLY AND TRANSPORTATION SERVICE	605.5	681.2	592.4	786.9	787.5	790.7		
Deductions								
Curtailments	0.0	0.0	0.0	0.0	0.0	0.0		
Underground Storage Injections	0.0	0.0	0.0	0.0	0.0	0.0		
LNG Liquefaction	0.0	0.0	0.0	0.0	0.0	0.0		
Sales to other LDCs	0.0	0.0	0.0	0.0	0.0	0.0		
Total Deductions	0.0	0.0	0.0	0.0	0.0	0.0		
NET GAS SUPPLY	605.5	681.2	592.4	786.9	787.5	790.7		

1/ Excludes capacity offered to Choice marketers  
 2/ Total Transportation Service includes "Choice" balancing provided by CPA storage withdrawals.

**FORM-IRP-GAS-2B: NATURAL GAS TRANSPORTATION <sup>1</sup>**  
**REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.**  
(volumes in Mmcf)

Index Year Actual Year	Historical Data				Current Year				Three Year Forecast			
	-2 2022	-1 2023	0 2024	1 2025	2 2026	3 2027	1 2025	2 2026	3 2027	1 2025	2 2026	3 2027
<b>City Gate Transportation Contracts:</b>												
Columbia Gas Transmission Corporation	19,287.3	19,314.9	19,314.9	19,367.9	19,314.9	19,314.9	19,367.9	21,135.2	21,135.2	21,135.2	21,135.2	57.9
Columbia Gas Transmission Corporation	13,725.8	13,745.5	13,745.5	13,783.2	13,745.5	13,745.5	13,783.2	13,745.5	13,745.5	13,745.5	13,745.5	37.7
Equitrans Pipeline Company	6,577.1	6,586.5	6,586.5	6,604.6	6,586.5	6,586.5	6,604.6	6,586.5	6,586.5	6,586.5	6,586.5	18.0
Equitrans Pipeline Company	5,925.3	5,933.8	5,933.8	5,950.1	5,933.8	5,933.8	5,950.1	5,933.8	5,933.8	5,933.8	5,933.8	16.3
Columbia Gas Transmission Corporation	4,647.5	4,654.2	4,654.2	4,667.0	4,654.2	4,654.2	4,667.0	4,654.2	4,654.2	4,654.2	4,654.2	12.8
Texas Eastern Pipeline Co.	4,096.5	4,102.4	4,102.4	4,113.6	4,102.4	4,102.4	4,113.6	4,102.4	4,102.4	4,102.4	4,102.4	11.2
Tennessee Gas Pipeline Co.	4,076.6	4,082.5	4,082.5	4,093.7	4,082.5	4,082.5	4,093.7	4,082.5	4,082.5	4,082.5	4,082.5	11.2
Columbia Gas Transmission Corporation	4,066.2	4,072.0	4,072.0	4,083.2	4,072.0	4,072.0	4,083.2	4,072.0	4,072.0	4,072.0	4,072.0	11.2
Columbia Gas Transmission Corporation	3,485.5	3,490.5	3,490.5	3,500.0	3,490.5	3,490.5	3,500.0	3,490.5	3,490.5	3,490.5	3,490.5	9.6
Tennessee Gas Pipeline Co.	2,649.0	2,652.8	2,652.8	2,660.0	2,652.8	2,652.8	2,660.0	2,652.8	2,652.8	2,652.8	2,652.8	7.3
Texas Eastern Pipeline Co.	2,614.1	2,617.9	2,617.9	2,625.0	2,617.9	2,617.9	2,625.0	2,617.9	2,617.9	2,617.9	2,617.9	7.2
Tennessee Gas Pipeline Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eastern Gas Transmission & Storage	1,742.7	1,745.2	1,745.2	1,750.0	1,745.2	1,745.2	1,750.0	1,745.2	1,745.2	1,745.2	1,745.2	4.8
National Fuel Gas Supply	1,500.2	1,502.3	1,502.3	1,506.4	1,502.3	1,502.3	1,506.4	1,502.3	1,502.3	1,502.3	1,502.3	4.1
Texas Eastern Pipeline Co.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
National Fuel Gas Supply	547.6	548.4	548.4	549.9	548.4	548.4	549.9	548.4	548.4	548.4	548.4	1.5
Texas Eastern Pipeline Co.	418.3	418.9	418.9	420.0	418.9	418.9	420.0	418.9	418.9	418.9	418.9	1.1
Eastern Gas Transmission & Storage	88.9	89.0	89.0	89.3	89.0	89.0	89.3	89.0	89.0	89.0	89.0	0.2
Texas Eastern Pipeline Co.	34.9	34.9	34.9	35.0	34.9	34.9	35.0	34.9	34.9	34.9	34.9	0.1
<b>TOTAL</b>	<b>75,483.4</b>	<b>75,591.7</b>	<b>75,733.1</b>	<b>76,498.8</b>	<b>78,733.1</b>	<b>78,733.1</b>	<b>76,498.8</b>	<b>78,110.1</b>	<b>78,110.1</b>	<b>78,110.1</b>	<b>78,110.1</b>	<b>214.0</b>
<b>Upstream Transportation Contracts:</b>												
Tennessee Gas Pipeline	1,500.2	1,502.3	1,502.3	1,506.4	1,502.3	1,502.3	1,506.4	1,502.3	1,502.3	1,502.3	1,502.3	4.1
Texas Eastern Pipeline Co.	1,074.2	1,075.8	1,075.8	1,078.7	1,075.8	1,075.8	1,078.7	1,075.8	1,075.8	1,075.8	1,075.8	2.9
<b>TOTAL</b>	<b>2,574.4</b>	<b>2,578.1</b>	<b>2,578.1</b>	<b>2,585.1</b>	<b>2,578.1</b>	<b>2,578.1</b>	<b>2,585.1</b>	<b>2,578.1</b>	<b>2,578.1</b>	<b>2,578.1</b>	<b>2,578.1</b>	<b>7.1</b>
<b>Storage-Related Transportation Contracts:</b>												
Columbia Gas Transmission Corp.	103,349.7	103,497.9	103,497.9	103,876.3	103,497.9	103,497.9	103,876.3	103,497.9	103,497.9	103,497.9	103,497.9	378.4
Equitrans Pipeline Company	2,758.4	2,762.4	2,762.4	2,780.7	2,762.4	2,762.4	2,780.7	2,762.4	2,762.4	2,762.4	2,762.4	18.3
Eastern Gas Transmission & Storage	2,162.9	2,166.0	2,166.0	2,180.4	2,166.0	2,166.0	2,180.4	2,166.0	2,166.0	2,166.0	2,166.0	14.3
Eastern Gas Transmission & Storage	865.2	866.4	866.4	872.1	866.4	866.4	872.1	866.4	866.4	866.4	866.4	5.7
Eastern Gas Transmission & Storage	692.1	693.1	693.1	697.7	693.1	693.1	697.7	693.1	693.1	693.1	693.1	4.6
Eastern Gas Transmission & Storage	432.6	433.2	433.2	436.1	433.2	433.2	436.1	433.2	433.2	433.2	433.2	2.9
National Fuel	350.2	350.7	350.7	353.1	350.7	350.7	353.1	350.7	350.7	350.7	350.7	2.3
<b>TOTAL</b>	<b>110,611.1</b>	<b>110,769.8</b>	<b>110,769.8</b>	<b>111,196.4</b>	<b>110,769.8</b>	<b>110,769.8</b>	<b>111,196.4</b>	<b>110,769.8</b>	<b>110,769.8</b>	<b>110,769.8</b>	<b>110,769.8</b>	<b>426.6</b>

<sup>1</sup> Rank contracts in order of magnitude for the current year, noting the transportation provider and termination date for each contract reported.  
Reporting should proceed along rank ordering until 75% of total is accounted for, or until ten contracts have been listed, whichever occurs first.

FORM-IRP-GAS-2B: NATURAL GAS TRANSPORTATION  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

	Contract Expiration Date
<u>City Gate Transportation Contracts:</u>	
Columbia Gas Transmission Corporation	03/31/26
Columbia Gas Transmission Corporation	03/31/27
Equitrans Pipeline Company	03/31/25
Equitrans Pipeline Company	03/31/25
Columbia Gas Transmission Corporation	10/31/26
Texas Eastern Pipeline Co.	10/31/24
Tennessee Gas Pipeline Co.	10/31/24
Columbia Gas Transmission Corporation	10/31/27
Columbia Gas Transmission Corporation	10/31/26
Tennessee Gas Pipeline Co.	10/31/27
Texas Eastern Pipeline Co.	10/31/28
Tennessee Gas Pipeline Co.	02/01/24
Eastern Gas Transmission & Storage	03/31/30
National Fuel Gas Supply	10/31/22
Texas Eastern Pipeline Co.	11/30/24
National Fuel Gas Supply	03/31/31
Texas Eastern Pipeline Co.	12/31/27
Dominion Transmission	03/31/30
Texas Eastern Pipeline Co.	10/31/24
<u>Upstream Transportation Contracts:</u>	
Tennessee Gas Pipeline	10/31/24
Texas Eastern Pipeline Co.	10/31/24
<u>Storage-Related Transportation Contracts:</u>	
Columbia Gas Transmission Corp.	03/31/25
Equitrans Pipeline Company	03/31/25
Dominion Transmission	03/31/30
Dominion Transmission	03/31/28
Dominion Transmission	03/31/29
Dominion Transmission	03/31/28
National Fuel Gas Supply	03/31/31

FORM-IRP-GAS-2C: NATURAL GAS STORAGE <sup>1</sup>  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

Index Year Actual Year	Historical Data						Three Year Forecast					
	-2 2022		-1 2023		0 2024		1 2025		2 2026		3 2027	
	Annual	Peak	Annual	Peak	Annual	Peak	Annual	Peak	Annual	Peak	Annual	Peak
Columbia Gas Transmission Corporation	24,198.9	377.9	24,233.6	378.4	23,422.1	378.4	23,422.1	378.4	23,422.1	378.4	23,422.1	378.4
Equitrans Pipeline Company	1,909.9	18.3	1,912.6	18.3	1,912.6	18.3	1,912.6	18.3	1,912.6	18.3	1,912.6	18.3
Eastern Gas Transmission & Storage	898.8	8.6	900.0	8.6	900.0	8.6	900.0	8.6	900.0	8.6	900.0	8.6
Eastern Gas Transmission & Storage	888.1	14.3	889.4	14.3	889.4	14.3	889.4	14.3	889.4	14.3	889.4	14.3
Eastern Gas Transmission & Storage	229.2	4.6	229.5	4.6	229.5	4.6	229.5	4.6	229.5	4.6	229.5	4.6
National Fuel	255.1	2.3	255.5	2.3	255.5	2.3	255.5	2.3	255.5	2.3	255.5	2.3
<b>TOTAL</b>	<b>28,379.9</b>	<b>426.0</b>	<b>28,420.6</b>	<b>426.6</b>	<b>27,609.1</b>	<b>426.6</b>	<b>27,609.1</b>	<b>426.6</b>	<b>27,609.1</b>	<b>426.6</b>	<b>27,609.1</b>	<b>426.6</b>

1 Rank contracts in order of magnitude for the current year, noting the transportation provider and termination date for each contract reported. Reporting should proceed along rank ordering until 75% of total is accounted for, or until ten contracts have been listed, whichever occurs first.

	Contract Expiration Date
Columbia Gas Transmission Corporation	03/31/25
Equitrans Pipeline Company	03/31/25
Eastern Gas Transmission & Storage	03/31/28
Eastern Gas Transmission & Storage	03/31/30
Eastern Gas Transmission & Storage	03/31/29
National Fuel	03/31/31

**FORM-IRP-GAS-3: NUMBER OF CUSTOMERS (YEAR END)**  
**REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.**

Index Year Actual Year	Historical Data			Current Year 0 2024	Three Year Forecast		
	-2 2022	-1 2023			1 2025	2 2026	3 2027
Firm Sales							
Retail Residential	360,154	360,490		364,605	368,213	372,132	376,136
Retail Commercial	26,571	26,110		26,271	26,281	26,296	26,307
Retail Industrial	84	82		80	80	80	80
Other	0	0		0	0	0	0
Subtotal Sales Service	386,809	386,682		390,956	394,574	398,508	402,523
Electric Power Generation	2	2		1	1	1	1
Transportation Service	58,340	59,919		56,219	53,569	50,919	48,270
<b>CUSTOMER TOTAL</b>	<b>445,151</b>	<b>446,603</b>		<b>447,176</b>	<b>448,144</b>	<b>449,428</b>	<b>450,794</b>
Increase (Decrease)	2,463	1,452		573	968	1,284	1,366
Percent Change (%)	0.006	0.003		0.001	0.002	0.003	0.003

Note: In 2021, CAP customers were included in Retail Residential, instead of Transportation as there was no CAP supplier. The forecast assumes that CAP customers will be included in Sales for the years 2023-2026.

FORM-IRP-GAS-4A: ANNUAL SUPPLY AND REQUIREMENTS SUMMARY  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

Index Year Actual Year	Historical Data		Current Year 0 2024	Three Year Forecast		
	-2 2022	-1 2023		1 2025	2 2026	3 2027
Gas Supply:						
Supply Contracts	27,225.1	22,119.8	38,482.9	38,575.2	38,819.4	39,066.3
Spot Purchases	12,176.3	9,594.5	38,482.9	38,575.2	38,819.4	39,066.3
Subtotal Gas Supply	39,401.4	31,714.3	40,550.2	40,342.5	40,142.3	39,923.9
Transportation	41,104.1	38,857.8	79,033.2	78,917.7	78,961.7	78,990.1
TOTAL GAS SUPPLY	80,505.5	70,572.1				
Requirements:						
Firm Requirements	39,401.4	31,714.3	38,482.9	38,575.2	38,819.4	39,066.3
Interruptible Requirements	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Firm & Interruptible	39,401.4	31,714.3	38,482.9	38,575.2	38,819.4	39,066.3
Transportation	41,104.1	38,857.8	40,550.2	40,342.5	40,142.3	39,923.9
Load Reductions						
TOTAL GAS REQUIREMENTS	80,505.5	70,572.1	79,033.2	78,917.7	78,961.7	78,990.1
Surplus (Deficiency)	0.0	0.0	0.0	0.0	0.0	0.0

FORM-IRP-GAS-4B PEAK DAY SUPPLY AND REQUIREMENTS SUMMARY  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

Index Year Actual Year	Historical Data			Current Year 0 2024	Three Year Forecast		
	-2 2022	-1 2023			1 2025	2 2026	3 2027
Gas Supply:							
Supply Contracts	343.6	403.5	358.3	481.8	487.0	494.7	
Spot Purchases	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal Gas Supply	343.6	403.5	358.3	481.8	487.0	494.7	
Transportation	261.9	277.7	234.1	305.1	300.5	296.0	
<b>TOTAL GAS SUPPLY</b>	<b>605.5</b>	<b>681.2</b>	<b>592.4</b>	<b>786.9</b>	<b>787.5</b>	<b>790.7</b>	
Requirements:							
Firm Requirements	343.6	403.5	358.3	481.8	487.0	494.7	
Interruptible Requirements	0.0	0.0	0.0	0.0	0.0	0.0	
Subtotal Firm & Interruptible	343.6	403.5	358.3	481.8	487.0	494.7	
Transportation	261.9	277.7	234.1	305.1	300.5	296.0	
Load Reductions	0.0	0.0	0.0	0.0	0.0	0.0	
<b>TOTAL GAS REQUIREMENTS</b>	<b>605.5</b>	<b>681.2</b>	<b>592.4</b>	<b>786.9</b>	<b>787.5</b>	<b>790.7</b>	
Surplus (Deficiency)	0.0	0.0	0.0	0.0	0.0	0.0	

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **WarmWise Low Income Usage Reduction Program (WWLIURP)**  
 Existing [ X ]                      Proposed [ ]

Contact Person: Deborah Davis  
 724-416-6316

Objective: To reduce the uncollectible accounts and the collection and termination expenses by enabling low-income customers to reduce their energy usage.

Details of Activity and Implementation Schedule:

Eligible customers are targeted for involvement in the program. For each participating household, Columbia will perform a detailed energy survey, an in-the-home customer education session, and comprehensive weatherization treatments (e.g., insulation and air leakage measures).

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction Mcf</u>	<u>Electric Mwh</u>	<u>Energy Savings</u>			<u>Other Results</u>
			<u>Gas Mcf</u>	<u>Oil Gallons</u>		
2023 <sup>(1)</sup>	110	0	12,814	0		372 Homes Weatherized
2024 <sup>(2)</sup>	104	0	13,813	0		401 Homes Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs. <sup>(3)</sup></u>	<u>Categorized Program Expenses</u>		
		<u>Outside Services</u>	<u>Admin.</u>	<u>Total</u>
2023 <sup>(1)</sup>	14,880	\$5,310,989	\$460,699	\$5,771,688
2024 <sup>(2)</sup>	16,040	\$5,515,658	\$500,000	\$6,015,658

- (1) Peak and energy savings are calculated based upon the weather efficiency measures taken at the weatherized homes.
- (2) Budgeted
- (3) Personnel hours were estimated by multiplying the number of homes by 40, the average number of hours spent per house.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **Emergency Repair Fund Program**

Existing [ X ]                      Proposed [ ]

Contact Person: Deborah Davis  
724-416-6316

Objective: To reduce the energy burden of low-income customers by providing a furnace repair and replacement program.

Details of Activity and Implementation Schedule:

This fund is utilized to assist low-income property owners to maintain gas service and reduce usage due to inefficient equipment.

Actual and/or Anticipated Results:

<u>Year</u>	Peak Load Reduction <sup>(3)</sup> <u>Mcf</u>	Energy Savings <sup>(3)</sup>			<u>Other Results</u>
		<u>Electric Mwh</u>	<u>Gas Mcf</u>	<u>Oil Gallons</u>	
2023 <sup>(1)</sup>	---				295 Services Provided
2024 <sup>(2)</sup>	---				290 Services Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs.</u>	Categorized Program Expenses		
		<u>Outside Services</u>	<u>Admin</u>	<u>Total</u>
2023 <sup>(1)</sup>	1180	\$878,790	\$114,243	\$993,032
2024 <sup>(2)</sup>	1160	\$870,000	\$130,000	\$1,000,000

(1) Actual

(2) Budgeted

(3) No savings estimates have been developed.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **Customer Assistance Program**

Existing [ X ]                      Proposed [ ]

Contact Person: Deborah Davis  
724-416-6316

Objective: To reduce the growth in uncollectible account balances and the collection and termination expenses associated with accounts in arrears by providing low-income customers with affordable payment plans and conservation education.

Details of Activity and Implementation Schedule:

Eligible customers are those at or below 150% of poverty (income of \$37,650 for a family of four); a failed budget plus customer; and payment troubled. For each participant, an affordable payment will be established based on the base budget, household size and household income.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction<sup>(3)</sup> Mcf</u>	<u>Energy Savings<sup>(3)</sup></u>			<u>Other Results</u>
		<u>Electric Mwh</u>	<u>Gas Mcf</u>	<u>Oil Gallons</u>	
2023 <sup>(1)</sup>	---		---		29,890 Customers
2024 <sup>(2)</sup>	---		---		32,000 Customers

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs.</u>	<u>Outside Services</u>	<u>Admin.</u>	<u>Shortfall<sup>(4)</sup></u>	<u>Pre-Program Arrearages <sup>(5)</sup></u>	<u>Total</u>
2023 <sup>(1)</sup>	N/A	\$602,827	\$65,790	\$26,244,118	\$453,082	\$27,365,817
2024 <sup>(2)</sup>	N/A	\$800,000	\$68,000	\$28,000,000	\$2,000,000	\$30,868,000

(1) Actuals reflect results at December 31, 2023.

(2) Budgeted

(3) No savings estimates have been developed.

(4) "Shortfall" is the difference between the CAP customers' discounted bills and what the bills would have been if they were billed under standard residential rates. This amount is being recovered under Columbia's Rider USP.

(5) Pre-program arrearages are the amounts written off each month with a full CAP Payment.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **WarmWise Audits and Rebates (WWA&R)**

Existing [ x ]                      Proposed [ ]

Contact Person: Deb Davis  
724-416-6316

Objective: To provide home energy-audits and an energy efficiency plan with financial incentives for customer who may not qualify for other consumption reduction programs.

Details of Activity and Implementation Schedule:

Income eligible customers are targeted for involvement in the program. Columbia will perform a BPI audit, an in-the-home customer education session, and financial incentives for the installation of recommended measures.

Actual and/or Anticipated Results:

<u>Year</u>	Peak Load Reduction <sup>(1)</sup> <u>Mcf</u>	Electric <u>Mwh</u>	Energy Savings		<u>Other Results</u>
			Gas <u>MCF<sup>(1)</sup></u>	Oil <u>Gallons</u>	
2023	59		6852		225Participants
2024	50		6608		217 Participants Projected

Monetary and Personnel Resources:

<u>Year</u>	Personnel Est. Hrs. <sup>(3)</sup>	Categorized Program Expenses		
		<u>Outside Services<sup>(4)</sup></u>	<u>Admin.</u>	<u>Total</u>
2023	1,125	\$800,956	\$121,576	\$922,532
2024	1097	\$850,000	\$150,000	\$1,000,000

- (1) These results are based off 12 months data (2023)
- (2) Personnel hours were estimated by multiplying the number of home completed by 5 hours, the average time to serve a customer in the home.
- (3) Outside services includes customer audit costs and rebates for audit recommended installed measures and external administrative costs.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **Online Energy Audit and Kit Program**

Existing [ x ]                      Proposed [ ]

Contact Person: Christine Rausch  
614-448-6832

Objective: The Program is designed to provide residential customers with information on how to improve the efficiency of their homes along with free, targeted energy savings kits. The program also provides a way for customers to engage with Columbia Gas and learn about other EE programs.

Details of Activity and Implementation Schedule:

Implementation was August 1, 2023. The program provides for a way for customers to undergo an online audit of their home, which will result in a customized set of recommendations. The customer will then be eligible to receive up to two targeted energy saving kits, shipped to their home at no cost. The first kit is for customers who utilize natural gas for water heating, and the second kit is for customers who utilize natural gas to heat their homes.

Actual and/or Anticipated Results:

<u>Year</u>	Peak Load Reduction <u>Mcf</u>	Electric <u>Mwh</u>	Energy Savings		<u>Other Results</u>
			Gas <u>MCF</u>	Oil <u>Gallons</u>	
2023 <sup>(1)</sup>	67	0	7787.79	-	3,794 Kits Delivered
2024 <sup>(2)</sup>	42	0	5602.08	-	2,520 Kits Delivered

Monetary and Personnel Resources:

<u>Year</u>	Personnel Est. Hrs. <sup>(3)</sup>	Categorized Program Expenses		
		<u>Outside Services</u>	<u>Admin.</u>	<u>Total</u>
2023 <sup>(1)</sup>	948.5	\$115,609	\$97,776	213,385
2024 <sup>(2)</sup>	630	\$116,720	\$126,000	242,720

(4) These results are based off 5 months of data (2023).

(5) Estimated Program results for 2024 based on Rider EE filing December 2022

(6) Personnel hours were estimated by multiplying the number of homes by .25, the average number of hours spent per kit fulfillment.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **Residential Prescriptive Program (Energy Efficiency Rebates)**

Existing [ x ]                      Proposed [   ]

Contact Person: Christine Rausch  
614-448-6832

Objective: The program is designed to overcome market barriers to energy efficient space and water heating equipment in the residential sector through rebates and customer awareness. The objective of the program is to avoid lost opportunities by encouraging consumers to install the most efficient gas heating technologies available when replacing older, less efficient equipment. The program also aims to strengthen Columbia’s relationship with HVAC contractors, suppliers and other trade allies.

Details of Activity and Implementation Schedule:

Implementation was August 1, 2023. The program offers rebates to qualifying residential-sized space and water heating equipment and controls. For most measures, customers will have a contractor install the measure and receive a rebate to offset some of the incremental costs of the higher efficiency equipment. Customers will be encouraged to process rebates through an online portal but may also submit a paper application through the mail.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction</u> <u>Mcf</u>	<u>Electric</u> <u>Mwh</u>	<u>Energy Savings</u>		<u>Other</u> <u>Results</u>
			<u>Gas</u> <u>Mcf</u>	<u>Oil</u> <u>Gallons</u>	
2023 <sup>(1)</sup>	62	23.4	7162	-	697 Rebates
2024 <sup>(2)</sup>	159	94.6	20,339	-	2,320 Rebates Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel</u> <u>Est. Hrs.</u> <sup>(3)</sup>	<u>Categorized Program Expenses</u>		
		<u>Outside</u> <u>Services</u> <sup>(4)</sup>	<u>Admin.</u>	<u>Total</u>
2023 <sup>(1)</sup>	349	213,669	72,410	286,079
2024 <sup>(2)</sup>	1,160	\$716,000	73,000	\$789,000

- (1) These results are based off 5 months of data (2023).
- (2) Estimated Program results for 2024 based on Rider EE filing December 2022
- (3) Personnel hours were estimated by multiplying the number of homes by .5, the average number of hours spent per rebate application.
- (4) Includes Rebates paid to customers.

**FORM-IRP-GAS-6 ENERGY USERS**

Company: Columbia Gas of Pennsylvania, Inc.

<u>Energy Users</u>	<u>Number of Customers (Year-end)</u>	<u>Annual Energy Consumption * (MCF)</u>	<u>Conservation Impact Reduction or MCF savings</u>	
			<u>Target</u>	<u>Actual</u>
Residential (Heating)	360,490	25,591,388	30,375	23,562
Residential (Other)	0	0		
Small Com. & Ind.	26,110	8,032,467		
Large Com. & Ind.	82	309,580		
Street Lighting	0	0		
Railroads	0	0		
Resale	0	0		
Interruptible	0	0		
Interdepartmental	0	0		
Other-Electric Power	0	0		
Other - Transportation	59,919	38,943,216	15,932	11,054
Other - Misc	<u>0</u>	<u>0</u>		
<b>TOTALS</b>	<b><u>446,601</u></b>	<b><u>72,876,651</u></b>	<b><u>46,307</u></b>	<b><u>34,616</u></b>

\* Previous calendar year (2023).

\*\* Approximately 9.3% of WWLIURP customers are transportation (CHOICE) customers.  
And 45% of all other programs are CHOICE

FORM-IRP-GAS-7 PROGRAM SUMMARY

Company: Columbia Gas of Pennsylvania, Inc.

Program Name 2023 (1)	Peak Load Reduction (MCF)	Energy Use Change (MCF)	Personnel Est. Hrs.	Categorized Program Expenses		
				Outside Services	Admin.	Total
WarmWise Low Income Usage Reduction Program (WWLIURP)	110	12,814	14,880	5,310,989	460,699	5,771,688
Emergency Repair Program	NA	NA	1,180	878,790	114,243	993,033
Customer Assistance Program	NA	NA	NA	602,827	65,790	668,617
WarmWise Audits & Rebates (WWA&R)	59	6,852	1,125	800,956	121,576	922,532
On Line Energy Audit & Kit Program	67	7,788	948	115,609	97,776	213,385
Residential Prescriptive Program (Energy Efficiency Rebates)	62	7,162	349	213,669	72,410	286,079
Totals	<u>298</u>	<u>34,616</u>	<u>18,482</u>	<u>\$7,922,840</u>	<u>\$932,494</u>	<u>\$8,855,334</u>

(1) Budgeted

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: WarmWise Low Income Usage Reduction Program (WWLIURP)

t	N YEAR	ENERGY SAVINGS (E) MCF	AVERAGE ENERGY COST (2) (ACE) \$ PER MCF	AVOIDED ENERGY COST (3) (MCE) \$ PER MCF	PARTICIPANT DEMAND SAVINGS (4) (D) MCF	UTILITY CAPACITY SAVINGS (G) MCF	AVERAGE DEMAND COSTS (ACD) \$/MCF	AVOIDED DEMAND COSTS (MCD) \$/MCF	PARTICIPANT COSTS (PC) \$	TAX CREDITS (TC) \$
1	2024	13,813	17,04	1.89	25935162	104	N/A	137.75	0	N/A
2	2025	13,813	17.95	2.80	25935162	104	N/A	139.12	0	N/A
3	2026	13,813	18.36	3.21	25935162	104	N/A	139.12	0	N/A
4	2027	13,813	18.48	3.33	25935162	104	N/A	139.12	0	N/A
5	2028	13,813	18.56	3.41	25935162	104	N/A	142.20	0	N/A
6	2029	13,813	18.63	3.48	25935162	104	N/A	145.39	0	N/A
7	2030	13,813	18.71	3.56	25935162	104	N/A	148.68	0	N/A
8	2031	13,813	18.79	3.64	25935162	104	N/A	152.11	0	N/A
9	2032	13,813	18.88	3.73	25935162	104	N/A	155.62	0	N/A
10	2033	13,813	18.97	3.82	25935162	104	N/A	159.22	0	N/A
11	2034	13,813	19.05	3.90	25935162	104	N/A	162.86	0	N/A
12	2035	13,813	19.14	3.99	25935162	104	N/A	166.54	0	N/A
13	2036	13,813	19.23	4.08	25935162	104	N/A	170.12	0	N/A
14	2037	13,813	19.31	4.16	25935162	104	N/A	173.73	0	N/A
15	2038	13,813	19.40	4.25	25935162	104	N/A	177.43	0	N/A
16	2039	13,813	19.49	4.34	25935162	104	N/A	181.18	0	N/A
17	2040	13,813	19.58	4.43	25935162	104	N/A	185.07	0	N/A
18	2041	13,813	19.68	4.53	25935162	104	N/A	189.08	0	N/A
19	2042	13,813	19.78	4.63	25935162	104	N/A	193.18	0	N/A
20	2043	13,813	19.88	4.73	25935162	104	N/A	197.35	0	N/A
21	2044	13,813	19.98	4.83	25935162	104	N/A	201.63	0	N/A
22	2045	13,813	20.09	4.94	25935162	104	N/A	206.01	0	N/A
23	2046	13,813	20.19	5.04	25935162	104	N/A	210.47	0	N/A
24	2047	13,813	20.30	5.15	25935162	104	N/A	215.07	0	N/A
25	2048	13,813	20.42	5.27	25935162	104	N/A	219.81	0	N/A

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.

(2) Average energy cost is based on CPA's residential rate.

(3) Estimates are calculated from the SENDOUT model.

(4) Estimates are calculated from the LOADCALC model.

N/A is not applicable.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: WarmWise Low Income Usage Reduction Program (WWLIURP)

t	N YEAR	INCENTIVE COST (I) \$	UTILITY COSTS (UC) \$	DISCOUNT RATES		UTILITY (2) (d) %	ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
				PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %					
1	2024	0	6,012,658	10.15	3.83	10.15	2.0%	38,289,010	0.00112375	N/A
2	2025	0	0	10.15	3.43	10.15	2.1%	38,535,696	0.00112375	N/A
3	2026	0	0	10.15	3.28	10.15	2.2%	38,777,719	0.00112375	N/A
4	2027	0	0	10.15	3.21	10.15	2.2%	39,024,115	0.00112375	N/A
5	2028	0	0	10.15	3.18	10.15	2.2%	39,272,650	0.00112375	N/A
6	2029	0	0	10.15	3.19	10.15	2.2%	39,515,381	0.00112375	N/A
7	2030	0	0	10.15	3.19	10.15	2.3%	39,750,289	0.00112375	N/A
8	2031	0	0	10.15	3.19	10.15	2.3%	39,981,495	0.00112375	N/A
9	2032	0	0	10.15	3.19	10.15	2.3%	40,221,552	0.00112375	N/A
10	2033	0	0	10.15	3.19	10.15	2.3%	40,483,674	0.00112375	N/A
11	2034	0	0	10.15	3.19	10.15	2.3%	40,509,749	0.00112375	N/A
12	2035	0	0	10.15	3.19	10.15	2.3%	40,535,841	0.00112375	N/A
13	2036	0	0	10.15	3.19	10.15	2.1%	40,561,950	0.00112375	N/A
14	2037	0	0	10.15	3.19	10.15	2.1%	40,588,075	0.00112375	N/A
15	2038	0	0	10.15	3.19	10.15	2.1%	40,614,217	0.00112375	N/A
16	2039	0	0	10.15	3.19	10.15	2.1%	40,640,376	0.00112375	N/A
17	2040	0	0	10.15	3.19	10.15	2.1%	40,666,552	0.00112375	N/A
18	2041	0	0	10.15	3.19	10.15	2.2%	40,692,745	0.00112375	N/A
19	2042	0	0	10.15	3.19	10.15	2.2%	40,718,955	0.00112375	N/A
20	2043	0	0	10.15	3.19	10.15	2.2%	40,745,181	0.00112375	N/A
21	2044	0	0	10.15	3.19	10.15	2.2%	40,771,425	0.00112375	N/A
22	2045	0	0	10.15	3.19	10.15	2.2%	40,797,685	0.00112375	N/A
23	2046	0	0	10.15	3.19	10.15	2.2%	40,823,962	0.00112375	N/A
24	2047	0	0	10.15	3.19	10.15	2.2%	40,850,256	0.00112375	N/A
25	2048	0	0	10.15	3.19	10.15	2.2%	40,876,567	0.00112375	N/A
								1,004,245,119		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**COST-BENEFIT ANALYSIS INPUTS**

Company Name:  
**FORM-IRP-GAS-8**

**PROGRAM: WarmWise Audits & Rebates (WWA&R)**

t	YEAR	N	ENERGY SAVINGS (E) MCF	AVERAGE ENERGY COST (2) (ACE) \$ PER MCF	AVOIDED ENERGY COST (3) (MCE) \$ PER MCF	PARTICIPANT DEMAND SAVINGS (D) MCF	UTILITY CAPACITY SAVINGS (G) MCF	AVERAGE DEMAND COSTS (ACD) \$/MCF	AVOIDED DEMAND COSTS (MCD) \$/MCF	PARTICIPANT COSTS (PC) \$	TAX CREDITS (TC) \$
1	2024		6,808	17.04	1.89	126222222222	59	N/A	137.75	0	N/A
2	2025		6,608	17.95	2.80	126222222222	59	N/A	139.12	0	N/A
3	2026		6,608	18.36	3.21	126222222222	59	N/A	139.12	0	N/A
4	2027		6,608	18.48	3.33	126222222222	59	N/A	139.12	0	N/A
5	2028		6,608	18.56	3.41	126222222222	59	N/A	142.20	0	N/A
6	2029		6,608	18.63	3.48	126222222222	59	N/A	145.39	0	N/A
7	2030		6,608	18.71	3.56	126222222222	59	N/A	148.68	0	N/A
8	2031		6,608	18.79	3.64	126222222222	59	N/A	152.11	0	N/A
9	2032		6,608	18.88	3.73	126222222222	59	N/A	155.62	0	N/A
10	2033		6,608	18.97	3.82	126222222222	59	N/A	159.22	0	N/A
11	2034		6,608	19.05	3.90	126222222222	59	N/A	162.86	0	N/A
12	2035		6,608	19.14	3.99	126222222222	59	N/A	166.54	0	N/A
13	2036		6,608	19.23	4.08	126222222222	59	N/A	170.12	0	N/A
14	2037		6,608	19.31	4.16	126222222222	59	N/A	173.73	0	N/A
15	2038		6,608	19.40	4.25	126222222222	59	N/A	177.43	0	N/A
16	2039		6,608	19.49	4.34	126222222222	59	N/A	181.18	0	N/A
17	2040		6,608	19.58	4.43	126222222222	59	N/A	185.07	0	N/A
18	2041		6,608	19.68	4.53	126222222222	59	N/A	189.08	0	N/A
19	2042		6,608	19.78	4.63	126222222222	59	N/A	193.18	0	N/A
20	2043		6,608	19.88	4.73	126222222222	59	N/A	197.35	0	N/A
21	2044		6,608	19.98	4.83	126222222222	59	N/A	201.63	0	N/A
22	2045		6,608	20.09	4.94	126222222222	59	N/A	206.01	0	N/A
23	2046		6,608	20.19	5.04	126222222222	59	N/A	210.47	0	N/A
24	2047		6,608	20.30	5.15	126222222222	59	N/A	215.07	0	N/A
25	2048		6,608	20.42	5.27	126222222222	59	N/A	219.81	0	N/A

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.  
(2) Average energy cost is based on CPA's residential rate.  
(3) Estimates are calculated from the SENDOUT model.  
(4) Estimates are calculated from the LOADCALC model.  
N/A is not applicable.

Company Name: **COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**FORM-IRP-GAS-8**  
**COST-BENEFIT ANALYSIS INPUTS**

PROGRAM: WarmWise Audits & Rebates (WWA&R)

t	N YEAR	INCENTIVE COST (l) \$	UTILITY COSTS (UC) \$	DISCOUNT RATES		UTILITY (2) %	ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
				PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %					
1	2024	0	1,000,000	10.15	3.83	10.15	2.0%	38,296,215	0.000624733	N/A
2	2025	0	0	10.15	3.43	10.15	2.1%	38,542,901	0.000624733	N/A
3	2026	0	0	10.15	3.28	10.15	2.2%	38,784,924	0.000624733	N/A
4	2027	0	0	10.15	3.21	10.15	2.2%	39,031,320	0.000624733	N/A
5	2028	0	0	10.15	3.18	10.15	2.2%	39,279,855	0.000624733	N/A
6	2029	0	0	10.15	3.19	10.15	2.2%	39,522,586	0.000624733	N/A
7	2030	0	0	10.15	3.19	10.15	2.3%	39,757,494	0.000624733	N/A
8	2031	0	0	10.15	3.19	10.15	2.3%	39,988,700	0.000624733	N/A
9	2032	0	0	10.15	3.19	10.15	2.3%	40,228,757	0.000624733	N/A
10	2033	0	0	10.15	3.19	10.15	2.3%	40,490,879	0.000624733	N/A
11	2034	0	0	10.15	3.19	10.15	2.3%	40,516,954	0.000624733	N/A
12	2035	0	0	10.15	3.19	10.15	2.3%	40,543,046	0.000624733	N/A
13	2036	0	0	10.15	3.19	10.15	2.1%	40,569,155	0.000624733	N/A
14	2037	0	0	10.15	3.19	10.15	2.1%	40,595,280	0.000624733	N/A
15	2038	0	0	10.15	3.19	10.15	2.1%	40,621,422	0.000624733	N/A
16	2039	0	0	10.15	3.19	10.15	2.1%	40,647,581	0.000624733	N/A
17	2040	0	0	10.15	3.19	10.15	2.1%	40,673,757	0.000624733	N/A
18	2041	0	0	10.15	3.19	10.15	2.2%	40,699,950	0.000624733	N/A
19	2042	0	0	10.15	3.19	10.15	2.2%	40,726,160	0.000624733	N/A
20	2043	0	0	10.15	3.19	10.15	2.2%	40,752,386	0.000624733	N/A
21	2044	0	0	10.15	3.19	10.15	2.2%	40,778,630	0.000624733	N/A
22	2045	0	0	10.15	3.19	10.15	2.2%	40,804,890	0.000624733	N/A
23	2046	0	0	10.15	3.19	10.15	2.2%	40,831,167	0.000624733	N/A
24	2047	0	0	10.15	3.19	10.15	2.2%	40,857,461	0.000624733	N/A
25	2048	0	0	10.15	3.19	10.15	2.2%	40,883,772	0.000624733	N/A
								1,004,425,244		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: Online Energy Audit and Kit Program

t	N YEAR	ENERGY SAVINGS (E)		AVERAGE ENERGY COST (2)		AVOIDED ENERGY COST (3)		PARTICIPANT DEMAND SAVINGS (4)		UTILITY CAPACITY SAVINGS (G)		AVERAGE DEMAND COSTS (ACD)		AVOIDED DEMAND COSTS (MCD)		PARTICIPANT COSTS (PC)		TAX CREDITS (TC)	
		MCF	(E)	\$ PER MCF	(ACE)	\$ PER MCF	(MCE)	\$ PER MCF	(D)	MCF	(G)	MCF	(ACD)	\$/MCF	(MCD)	\$/MCF	(PC)	\$	(TC)
1	2024	7,788		17.04		1.89		0.016666		42		N/A		137.75		0		N/A	
2	2025	5,602		17.95		2.80		0.016666		42		N/A		139.12		0		N/A	
3	2026	5,602		18.36		3.21		0.016666		42		N/A		139.12		0		N/A	
4	2027	5,602		18.48		3.33		0.016666		42		N/A		139.12		0		N/A	
5	2028	5,602		18.56		3.41		0.016666		42		N/A		142.20		0		N/A	
6	2029	5,602		18.63		3.48		0.016666		42		N/A		145.39		0		N/A	
7	2030	5,602		18.71		3.56		0.016666		42		N/A		148.68		0		N/A	
8	2031	5,602		18.79		3.64		0.016666		42		N/A		152.11		0		N/A	
9	2032	5,602		18.88		3.73		0.016666		42		N/A		155.62		0		N/A	
10	2033	5,602		18.97		3.82		0.016666		42		N/A		159.22		0		N/A	
11	2034	5,602		19.05		3.90		0.016666		42		N/A		162.86		0		N/A	
12	2035	5,602		19.14		3.99		0.016666		42		N/A		166.54		0		N/A	
13	2036	5,602		19.23		4.08		0.016666		42		N/A		170.12		0		N/A	
14	2037	5,602		19.31		4.16		0.016666		42		N/A		173.73		0		N/A	
15	2038	5,602		19.40		4.25		0.016666		42		N/A		177.43		0		N/A	
16	2039	5,602		19.49		4.34		0.016666		42		N/A		181.18		0		N/A	
17	2040	5,602		19.58		4.43		0.016666		42		N/A		185.07		0		N/A	
18	2041	5,602		19.68		4.53		0.016666		42		N/A		189.08		0		N/A	
19	2042	5,602		19.78		4.63		0.016666		42		N/A		193.18		0		N/A	
20	2043	5,602		19.88		4.73		0.016666		42		N/A		197.35		0		N/A	
21	2044	5,602		19.98		4.83		0.016666		42		N/A		201.63		0		N/A	
22	2045	5,602		20.09		4.94		0.016666		42		N/A		206.01		0		N/A	
23	2046	5,602		20.19		5.04		0.016666		42		N/A		210.47		0		N/A	
24	2047	5,602		20.30		5.15		0.016666		42		N/A		215.07		0		N/A	
25	2048	5,602		20.42		5.27		0.016666		42		N/A		219.81		0		N/A	

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.

(2) Average energy cost is based on CPA's residential rate.

(3) Estimates are calculated from the SENDOUT model.

(4) Estimates are calculated from the LOADCALC model.

N/A is not applicable.

Company Name: **COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**FORM-IRP-GAS-8**  
**COST-BENEFIT ANALYSIS INPUTS**

PROGRAM: Online Energy Audit and Kit Program

t	N YEAR	INCENTIVE COST (I) \$	UTILITY COSTS (UC) \$	DISCOUNT RATES				ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
				PARTICIPANT (d) %	NON-PARTICIPANT (d) %	UTILITY (2) (d) %					
1	2024	0	242,720	10.15	10.15	3.83	10.15	2.0%	38,297,221	0.006997	N/A
2	2025	0	0	10.15	10.15	3.43	10.15	2.1%	38,543,907	0.006997	N/A
3	2026	0	0	10.15	10.15	3.28	10.15	2.2%	38,785,930	0.006997	N/A
4	2027	0	0	10.15	10.15	3.21	10.15	2.2%	39,032,326	0.006997	N/A
5	2028	0	0	10.15	10.15	3.18	10.15	2.2%	39,280,861	0.006997	N/A
6	2029	0	0	10.15	10.15	3.19	10.15	2.2%	39,523,592	0.006997	N/A
7	2030	0	0	10.15	10.15	3.19	10.15	2.3%	39,758,500	0.006997	N/A
8	2031	0	0	10.15	10.15	3.19	10.15	2.3%	39,989,706	0.006997	N/A
9	2032	0	0	10.15	10.15	3.19	10.15	2.3%	40,229,763	0.006997	N/A
10	2033	0	0	10.15	10.15	3.19	10.15	2.3%	40,491,885	0.006997	N/A
11	2034	0	0	10.15	10.15	3.19	10.15	2.3%	40,517,960	0.006997	N/A
12	2035	0	0	10.15	10.15	3.19	10.15	2.3%	40,544,052	0.006997	N/A
13	2036	0	0	10.15	10.15	3.19	10.15	2.1%	40,570,161	0.006997	N/A
14	2037	0	0	10.15	10.15	3.19	10.15	2.1%	40,596,286	0.006997	N/A
15	2038	0	0	10.15	10.15	3.19	10.15	2.1%	40,622,428	0.006997	N/A
16	2039	0	0	10.15	10.15	3.19	10.15	2.1%	40,648,587	0.006997	N/A
17	2040	0	0	10.15	10.15	3.19	10.15	2.1%	40,674,763	0.006997	N/A
18	2041	0	0	10.15	10.15	3.19	10.15	2.2%	40,700,956	0.006997	N/A
19	2042	0	0	10.15	10.15	3.19	10.15	2.2%	40,727,166	0.006997	N/A
20	2043	0	0	10.15	10.15	3.19	10.15	2.2%	40,753,392	0.006997	N/A
21	2044	0	0	10.15	10.15	3.19	10.15	2.2%	40,779,636	0.006997	N/A
22	2045	0	0	10.15	10.15	3.19	10.15	2.2%	40,805,896	0.006997	N/A
23	2046	0	0	10.15	10.15	3.19	10.15	2.2%	40,832,173	0.006997	N/A
24	2047	0	0	10.15	10.15	3.19	10.15	2.2%	40,858,467	0.006997	N/A
25	2048	0	0	10.15	10.15	3.19	10.15	2.2%	40,884,778	0.006997	N/A
									1,004,450,394		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: Residential Prescriptive Program (Energy Efficiency Rebates)

t	YEAR	ENERGY SAVINGS (E) MCF	AVERAGE ENERGY COST (2) (ACE) \$ PER MCF	AVOIDED ENERGY COST (3) (MCE) \$ PER MCF	PARTICIPANT DEMAND SAVINGS (4) (D) MCF	UTILITY CAPACITY SAVINGS (G) MCF	AVERAGE DEMAND COSTS (ACD) \$/MCF	AVOIDED DEMAND COSTS (MCD) \$/MCF	PARTICIPANT COSTS (PC) \$	TAX CREDITS (TC) \$
1	2024	20,339	17.04	1.89	0.068534483	131	N/A	137.75	0	N/A
2	2025	20,339	17.95	2.80	0.068534483	131	N/A	139.12	0	N/A
3	2026	20,339	18.36	3.21	0.068534483	131	N/A	139.12	0	N/A
4	2027	20,339	18.48	3.33	0.068534483	131	N/A	139.12	0	N/A
5	2028	20,339	18.56	3.41	0.068534483	131	N/A	142.20	0	N/A
6	2029	20,339	18.63	3.48	0.068534483	131	N/A	145.39	0	N/A
7	2030	20,339	18.71	3.56	0.068534483	131	N/A	148.68	0	N/A
8	2031	20,339	18.79	3.64	0.068534483	131	N/A	152.11	0	N/A
9	2032	20,339	18.88	3.73	0.068534483	131	N/A	155.62	0	N/A
10	2033	20,339	18.97	3.82	0.068534483	131	N/A	159.22	0	N/A
11	2034	20,339	19.05	3.90	0.068534483	131	N/A	162.86	0	N/A
12	2035	20,339	19.14	3.99	0.068534483	131	N/A	166.54	0	N/A
13	2036	20,339	19.23	4.08	0.068534483	131	N/A	170.12	0	N/A
14	2037	20,339	19.31	4.16	0.068534483	131	N/A	173.73	0	N/A
15	2038	20,339	19.40	4.25	0.068534483	131	N/A	177.43	0	N/A
16	2039	20,339	19.49	4.34	0.068534483	131	N/A	181.18	0	N/A
17	2040	20,339	19.58	4.43	0.068534483	131	N/A	185.07	0	N/A
18	2041	20,339	19.68	4.53	0.068534483	131	N/A	189.08	0	N/A
19	2042	20,339	19.78	4.63	0.068534483	131	N/A	193.18	0	N/A
20	2043	20,339	19.88	4.73	0.068534483	131	N/A	197.35	0	N/A
21	2044	20,339	19.98	4.83	0.068534483	131	N/A	201.63	0	N/A
22	2045	20,339	20.09	4.94	0.068534483	131	N/A	206.01	0	N/A
23	2046	20,339	20.19	5.04	0.068534483	131	N/A	210.47	0	N/A
24	2047	20,339	20.30	5.15	0.068534483	131	N/A	215.07	0	N/A
25	2048	20,339	20.42	5.27	0.068534483	131	N/A	219.81	0	N/A

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.

(2) Average energy cost is based on CPA's residential rate.

(3) Estimates are calculated from the SENDOUT model.

(4) Estimates are calculated from the LOADCALC model.

N/A is not applicable.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: Residential Prescriptive Program (Energy Efficiency Rebates)

t	N YEAR	INCENTIVE COST (I) \$	UTILITY COSTS (UC) \$	DISCOUNT RATES		UTILITY (2) (d) %	ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
				PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %					
1	2024	0	789,000	10.15	3.83	10.15	2.0%	38,282,484	0.000644169	N/A
2	2025	0	0	10.15	3.43	10.15	2.1%	38,529,170	0.000644169	N/A
3	2026	0	0	10.15	3.28	10.15	2.2%	38,771,193	0.000644169	N/A
4	2027	0	0	10.15	3.21	10.15	2.2%	39,017,589	0.000644169	N/A
5	2028	0	0	10.15	3.18	10.15	2.2%	39,266,124	0.000644169	N/A
6	2029	0	0	10.15	3.19	10.15	2.2%	39,508,855	0.000644169	N/A
7	2030	0	0	10.15	3.19	10.15	2.3%	39,743,763	0.000644169	N/A
8	2031	0	0	10.15	3.19	10.15	2.3%	39,974,969	0.000644169	N/A
9	2032	0	0	10.15	3.19	10.15	2.3%	40,215,026	0.000644169	N/A
10	2033	0	0	10.15	3.19	10.15	2.3%	40,477,148	0.000644169	N/A
11	2034	0	0	10.15	3.19	10.15	2.3%	40,503,223	0.000644169	N/A
12	2035	0	0	10.15	3.19	10.15	2.3%	40,529,315	0.000644169	N/A
13	2036	0	0	10.15	3.19	10.15	2.1%	40,555,424	0.000644169	N/A
14	2037	0	0	10.15	3.19	10.15	2.1%	40,581,549	0.000644169	N/A
15	2038	0	0	10.15	3.19	10.15	2.1%	40,607,691	0.000644169	N/A
16	2039	0	0	10.15	3.19	10.15	2.1%	40,633,850	0.000644169	N/A
17	2040	0	0	10.15	3.19	10.15	2.1%	40,660,026	0.000644169	N/A
18	2041	0	0	10.15	3.19	10.15	2.2%	40,686,219	0.000644169	N/A
19	2042	0	0	10.15	3.19	10.15	2.2%	40,712,429	0.000644169	N/A
20	2043	0	0	10.15	3.19	10.15	2.2%	40,738,655	0.000644169	N/A
21	2044	0	0	10.15	3.19	10.15	2.2%	40,764,899	0.000644169	N/A
22	2045	0	0	10.15	3.19	10.15	2.2%	40,791,159	0.000644169	N/A
23	2046	0	0	10.15	3.19	10.15	2.2%	40,817,436	0.000644169	N/A
24	2047	0	0	10.15	3.19	10.15	2.2%	40,843,730	0.000644169	N/A
25	2048	0	0	10.15	3.19	10.15	2.2%	40,870,041	0.000644169	N/A
								1,004,081,969		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

Company Name:  
FORM-IRP-GAS-9

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS RESULTS

PROGRAM: WarmWise Low Income Usage Reduction Program (WWLIURP)

PERIOD OF ANALYSIS	TOTAL UTILITY BENEFITS (Bu)	TOTAL UTILITY COSTS (Cu)	REVENUE REDUCTION COST (Cr)	PARTICIPANT REVENUE REQUIREMENT (Rp)	TOTAL PARTICIPANT BENEFITS (Bp)	TOTAL PARTICIPANT COSTS (Cp)
BEGINNING YEAR						
ENDING YEAR						
2024	585,477	5,458,609	2,317,320	7,998	2,317,320	0

DISCOUNTED PAYBACK PERIOD YRS	PARTICIPANT (NPVp)	NON-PART (NPVnp)	UTILITY (NPVu)	PARTICIPANT (BCRp)	NON-PART (BCRnp)	UTILITY (BCRu)	RATE IMPACT NON-PART (RIMnp)
	\$	\$	\$				\$ PER MCF
25	2,317,320	(7,182,454)	(4,873,132)	Infinity	0.0753	0.1073	0.0072

**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**COST-BENEFIT ANALYSIS RESULTS**

Company Name:  
**FORM-IRP-GAS-9**

**PROGRAM: WarmWise Audits & Rebates (WWA&R)**

PERIOD OF ANALYSIS	ENDING YEAR	TOTAL UTILITY BENEFITS	TOTAL UTILITY COSTS	REVENUE REDUCTION COST	PARTICIPANT REVENUE REQUIREMENT	TOTAL PARTICIPANT BENEFITS	TOTAL PARTICIPANT COSTS
		(Bu) \$	(Cu) \$	(Cr) \$	(Rp) \$	(Bp) \$	(Cp) \$
2024	2048	293,067	907,853	1,108,583	1,077	1,108,583	1,000,000

DISCOUNTED PAYBACK PERIOD YRS	NET PRESENT VALUE		BENEFIT-COST RATIO		RATE IMPACT NON-PART (RIMnp) \$ PER MCF
	PARTICIPANT (NPVp) \$	NON-PART (NPVnp) \$	PARTICIPANT (BCRp)	NON-PART (BCRnp)	
25	108,583	(1,722,292)	Infinity	0.1453	0.0017
		(614,786)	Infinity	0.1453	0.3228



Company Name:  
FORM-IRP-GAS-9

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS RESULTS

PROGRAM: Residential Prescriptive Program (Energy Efficiency Rebates)

PERIOD OF ANALYSIS		TOTAL UTILITY BENEFITS (Bu)	TOTAL UTILITY COSTS (Cu)	REVENUE REDUCTION COST (Cr)	PARTICIPANT REVENUE REQUIREMENT (Rp)	TOTAL PARTICIPANT BENEFITS (Bp)	TOTAL PARTICIPANT COSTS (Cp)
BEGINNING YEAR	ENDING YEAR	\$	\$	\$	\$	\$	\$
2024	2048	830,413	716,296	3,412,146	2,124	3,412,146	789,000

DISCOUNTED PAYBACK PERIOD YRS	NET PRESENT VALUE		BENEFIT-COST RATIO		RATE IMPACT NON-PART (RIMnp) \$ PER MCF
	PARTICIPANT (NPVp) \$	NON-PART (NPVnp) \$	PARTICIPANT (BCRp)	NON-PART (BCRnp)	
25	2,623,146	(3,295,904)	Infinity	0.2011	0.0033

**BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Columbia Gas of Pennsylvania, Inc.  
121 Champion Way, Suite 100  
Canonsburg, PA 15317**

**ANNUAL RESOURCE PLANNING REPORT  
Forms 3-9**

**Filed: June 2024**

**Information Submitted in Compliance with and Pursuant to Title 52  
Pennsylvania Code Sections 59.81-59.84**

COLUMBIA GAS OF PENNSYLVANIA, INC.

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1	59.81	General
2	59.81	Form IRP-Gas 3 Historical, Current, and Forecast Number of Customers
3	59.81	Form IRP-Gas 4A and 4B Annual and Peak Day Energy Supply and Demand
4	59.82	Form IRP-Gas 5 Energy Conservation Report-Program Description
5	59.82	Form IRP-Gas 6 Energy Users
6	59.82	Form IRP-Gas 7 Conservation and Load Management Program Summary
7	59.82	Form IRP-Gas 8 Conservation and Load Management Program Cost Benefit Analysis Inputs
8	59.82	Form IRP-Gas 9 Conservation and Load Management Program Cost Benefit Analysis Results
9	59.81	2024 Annual Resource Planning Summary Report

Section 59.81: General

Pursuant to Section 59.81(a), each major jurisdictional gas utility must file an annual resource planning report (ARPR) on or before June 1, 1996 and June 1 of each succeeding year, except Form 1A/2A which filing date is March 1. One (1) original copy of the report must be submitted to:

Secretary  
Pennsylvania Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

One courtesy copy should also be submitted to:

Pennsylvania Public Utility Commission  
Bureau of Technical Utility Services  
P.O. Box 3265  
Harrisburg, PA 17105-3265

Also, submit one (1) copy to the following:

Office of Consumer Advocate  
555 Walnut Street  
Forum Place, 5th Floor  
Harrisburg, PA 17101-1923

Office of Small Business Advocate  
555 Walnut Street  
Forum Place, 1<sup>st</sup> Floor  
Harrisburg, PA 17101

Bureau of Investigation and Enforcement  
P.O. Box 3265  
Harrisburg, PA 17101-3265

Be sure to indicate the name and telephone number of at least one individual at the company who is familiar with the filing and will be available to answer any questions the Commission staff may have. You may also wish to list those individuals who are directly involved in the preparation of the various documents components.

Information contained in annual resource planning reports must be utility-specific. The report should follow an outline similar to that which is contained herein, with narrative accompanying the required data. Forms may be modified to accommodate wide columns of numbers and enhance readability, but the general format should be used to maintain consistency.

This information is not generally considered confidential. Utilities are obligated to provide complete information. However, we will treat as confidential those portions of the report designated by the utility as proprietary. If a utility's proprietary claim is challenged, the Commission will direct the utility to file a petition for protective order pursuant to 52 PA Code 5.423.

All questions concerning the reporting requirements for Forms IRP Gas 1A through 9 should be addressed to Pennsylvania Public Utility Commission Bureau of Conservation, Economics and Energy Planning.

Response:

An original copy of Forms 3 through 9 is being submitted along with a general discussion of the methodologies, data sources, and assumptions.

General questions concerning the ARPR should be directed to Nicole M. Paloney, Director of Rates and Regulatory Affairs at (614) 531-3511. The following individuals will be available to answer specific questions concerning each section:

Form 3 – Michael Girata – Manager, Demand Forecasting (614) 653-3139.

Form 4 – Tina Monnig – Manager of Planning (614) 302-4065

Forms 5-9 – Deborah Davis – Manager, Universal Services (724-416-6316)

Section 59.81:      **Form IRP-Gas 3 - Historical, Current, and Forecast Number of Customers**

Provide the number of year-end customers displayed by component parts.

Response:            Please see the attached form.

FORM-IRP-GAS-3: NUMBER OF CUSTOMERS (YEAR END)  
REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.

Index Year Actual Year	Historical Data		Current Year	Three Year Forecast		
	-2 2022	-1 2023	0 2024	1 2025	2 2026	3 2027
Firm Sales						
Retail Residential	360,154	360,490	364,605	368,213	372,132	376,136
Retail Commercial	26,571	26,110	26,271	26,281	26,296	26,307
Retail Industrial	84	82	80	80	80	80
Other	0	0	0	0	0	0
Subtotal Sales Service	386,809	386,682	390,956	394,574	398,508	402,523
Electric Power Generation	2	2	1	1	1	1
Transportation Service	58,340	59,919	56,219	53,569	50,919	48,270
CUSTOMER TOTAL	445,151	446,603	447,176	448,144	449,428	450,794
Increase (Decrease)	2,463	1,452	573	968	1,284	1,366
Percent Change (%)	0.006	0.003	0.001	0.002	0.003	0.003

Note: In 2021, CAP customers were included in Retail Residential, instead of Transportation as there was no CAP supplier. The forecast assumes that CAP customers will be included in Sales for the years 2023-2026.

Section 59.81

**Form IRP-Gas 4A and 4B - Annual and Peak Day Energy Supply and Demand Requirements**

For gas supply, total "Supply Contracts" and "Spot Purchases" and subtract "Deductions" to obtain "Net Gas Supply."

For requirements, total "Firm Requirement" and "Interruptible Requirements" and subtract "Load Deductions" to obtain "Net Gas Requirements."

Subtract "Net Gas Requirements" from "Net Gas Supply" to obtain "Surplus or Deficiency."

Response:

Please see attached forms.

FORM-IRP-GAS-4A: ANNUAL SUPPLY AND REQUIREMENTS SUMMARY  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

	Historical Data		Current Year			Three Year Forecast		
	-2 2022	-1 2023	0 2024	1 2025	2 2026	3 2027		
Gas Supply:								
Supply Contracts	27,225.1	22,119.8	38,482.9	38,575.2	38,819.4	39,066.3		
Spot Purchases	12,176.3	9,594.5						
Subtotal Gas Supply	39,401.4	31,714.3	38,482.9	38,575.2	38,819.4	39,066.3		
Transportation	41,104.1	38,857.8	40,550.2	40,342.5	40,142.3	39,923.9		
<b>TOTAL GAS SUPPLY</b>	<b>80,505.5</b>	<b>70,572.1</b>	<b>79,033.2</b>	<b>78,917.7</b>	<b>78,961.7</b>	<b>78,990.1</b>		
Requirements:								
Firm Requirements	39,401.4	31,714.3	38,482.9	38,575.2	38,819.4	39,066.3		
Interruptible Requirements	0.0	0.0	0.0	0.0	0.0	0.0		
Subtotal Firm & Interruptible	39,401.4	31,714.3	38,482.9	38,575.2	38,819.4	39,066.3		
Transportation	41,104.1	38,857.8	40,550.2	40,342.5	40,142.3	39,923.9		
Load Reductions								
<b>TOTAL GAS REQUIREMENTS</b>	<b>80,505.5</b>	<b>70,572.1</b>	<b>79,033.2</b>	<b>78,917.7</b>	<b>78,961.7</b>	<b>78,990.1</b>		
Surplus (Deficiency)	0.0	0.0	0.0	0.0	0.0	0.0		

FORM-IRP-GAS-4B PEAK DAY SUPPLY AND REQUIREMENTS SUMMARY  
 REPORTING UTILITY: COLUMBIA GAS OF PENNSYLVANIA, INC.  
 (volumes in Mmcf)

Index Year Actual Year	Historical Data		Current Year	Three Year Forecast		
	-2 2022	-1 2023	0 2024	1 2025	2 2026	3 2027
Gas Supply:						
Supply Contracts	343.6	403.5	358.3	481.8	487.0	494.7
Spot Purchases	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Gas Supply	343.6	403.5	358.3	481.8	487.0	494.7
Transportation	261.9	277.7	234.1	305.1	300.5	296.0
<b>TOTAL GAS SUPPLY</b>	<b>605.5</b>	<b>681.2</b>	<b>592.4</b>	<b>786.9</b>	<b>787.5</b>	<b>790.7</b>
Requirements:						
Firm Requirements	343.6	403.5	358.3	481.8	487.0	494.7
Interruptible Requirements	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Firm & Interruptible	343.6	403.5	358.3	481.8	487.0	494.7
Transportation	261.9	277.7	234.1	305.1	300.5	296.0
Load Reductions	0.0	0.0	0.0	0.0	0.0	0.0
<b>TOTAL GAS REQUIREMENTS</b>	<b>605.5</b>	<b>681.2</b>	<b>592.4</b>	<b>786.9</b>	<b>787.5</b>	<b>790.7</b>
Surplus (Deficiency)	0.0	0.0	0.0	0.0	0.0	0.0

Section 59.82

**Energy Conservation Report**

- A. The ARPR must include a detailed description of all conservation and load management programs implemented by the utility during the past calendar year and all programs proposed to be implemented this (current) year. Complete Forms IRP-Gas-5 through IRP-Gas-9 as follows:

**Form IRP-Gas 5 - Program Description**

1. One Form IRP-GAS-5 must be provided for each program.
2. Provide a descriptive name of the program, the participating customer class and the program status (existing or proposed).
3. Provide the name of an appropriate contact person and telephone number.
4. Succinctly describe the objective(s) of the program.
5. Provide details of program activities and a schedule for implementation.
6. Provide actual or anticipated results in terms of peak day reduction, load shifted, energy saved or other results, where applicable.
7. Provide a breakdown of all monetary and personnel resources. Additional program expense categories may be used.

Response:

Please see the following forms.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **WarmWise Low Income Usage Reduction Program (WWLIURP)**  
 Existing [ X ]                      Proposed [ ]

Contact Person: Deborah Davis  
 724-416-6316

Objective: To reduce the uncollectible accounts and the collection and termination expenses by enabling low-income customers to reduce their energy usage.

Details of Activity and Implementation Schedule:

Eligible customers are targeted for involvement in the program. For each participating household, Columbia will perform a detailed energy survey, an in-the-home customer education session, and comprehensive weatherization treatments (e.g., insulation and air leakage measures).

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction Mcf</u>	<u>Electric Mwh</u>	<u>Energy Savings</u>			<u>Other Results</u>
			<u>Gas Mcf</u>	<u>Oil Gallons</u>		
2023 <sup>(1)</sup>	110	0	12,814	0		372 Homes Weatherized
2024 <sup>(2)</sup>	104	0	13,813	0		401 Homes Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs. <sup>(3)</sup></u>	<u>Categorized Program Expenses</u>		
		<u>Outside Services</u>	<u>Admin.</u>	<u>Total</u>
2023 <sup>(1)</sup>	14,880	\$5,310,989	\$460,699	\$5,771,688
2024 <sup>(2)</sup>	16,040	\$5,515,658	\$500,000	\$6,015,658

- (1) Peak and energy savings are calculated based upon the weather efficiency measures taken at the weatherized homes.
- (2) Budgeted
- (3) Personnel hours were estimated by multiplying the number of homes by 40, the average number of hours spent per house.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **Emergency Repair Fund Program**

Existing [ X ]                      Proposed [ ]

Contact Person: Deborah Davis  
724-416-6316

Objective: To reduce the energy burden of low-income customers by providing a furnace repair and replacement program.

Details of Activity and Implementation Schedule:

This fund is utilized to assist low-income property owners to maintain gas service and reduce usage due to inefficient equipment.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction<sup>(3)</sup> Mcf</u>	<u>Energy Savings<sup>(3)</sup></u>			<u>Other Results</u>
		<u>Electric Mwh</u>	<u>Gas Mcf</u>	<u>Oil Gallons</u>	
2023 <sup>(1)</sup>	---				295 Services Provided
2024 <sup>(2)</sup>	---				290 Services Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs.</u>	<u>Categorized Program Expenses</u>		
		<u>Outside Services</u>	<u>Admin</u>	<u>Total</u>
2023 <sup>(1)</sup>	1180	\$878,790	\$114,243	\$993,032
2024 <sup>(2)</sup>	1160	\$870,000	\$130,000	\$1,000,000

(1) Actual

(2) Budgeted

(3) No savings estimates have been developed.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **Customer Assistance Program**

Existing [ X ]                      Proposed [ ]

Contact Person: Deborah Davis  
724-416-6316

Objective: To reduce the growth in uncollectible account balances and the collection and termination expenses associated with accounts in arrears by providing low-income customers with affordable payment plans and conservation education.

Details of Activity and Implementation Schedule:

Eligible customers are those at or below 150% of poverty (income of \$37,650 for a family of four); a failed budget plus customer; and payment troubled. For each participant, an affordable payment will be established based on the base budget, household size and household income.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction<sup>(3)</sup> Mcf</u>	<u>Energy Savings<sup>(3)</sup></u>			<u>Other Results</u>
		<u>Electric Mwh</u>	<u>Gas Mcf</u>	<u>Oil Gallons</u>	
2023 <sup>(1)</sup>	---		---		29,890 Customers
2024 <sup>(2)</sup>	---		---		32,000 Customers

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs.</u>	<u>Outside Services</u>	<u>Admin.</u>	<u>Shortfall<sup>(4)</sup></u>	<u>Pre-Program Arrearages <sup>(5)</sup></u>	<u>Total</u>
2023 <sup>(1)</sup>	N/A	\$602,827	\$65,790	\$26,244,118	\$453,082	\$27,365,817
2024 <sup>(2)</sup>	N/A	\$800,000	\$68,000	\$28,000,000	\$2,000,000	\$30,868,000

- (1) Actuals reflect results at December 31, 2023.
- (2) Budgeted
- (3) No savings estimates have been developed.
- (4) "Shortfall" is the difference between the CAP customers' discounted bills and what the bills would have been if they were billed under standard residential rates. This amount is being recovered under Columbia's Rider USP.
- (5) Pre-program arrearages are the amounts written off each month with a full CAP Payment.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: **WarmWise Audits and Rebates (WWA&R)**

Existing [ x ]                      Proposed [ ]

Contact Person: Deb Davis  
724-416-6316

Objective: To provide home energy-audits and an energy efficiency plan with financial incentives for customer who may not qualify for other consumption reduction programs.

Details of Activity and Implementation Schedule:

Income eligible customers are targeted for involvement in the program. Columbia will perform a BPI audit, an in-the-home customer education session, and financial incentives for the installation of recommended measures.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction (1) Mcf</u>	<u>Electric Mwh</u>	<u>Energy Savings</u>		<u>Other Results</u>
			<u>Gas MCF(1)</u>	<u>Oil Gallons</u>	
2023	59		6852		225Participants
2024	50		6608		217 Participants Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs. (3)</u>	<u>Categorized Program Expenses</u>		
		<u>Outside Services(4)</u>	<u>Admin.</u>	<u>Total</u>
2023	1,125	\$800,956	\$121,576	\$922,532
2024	1097	\$850,000	\$150,000	\$1,000,000

- (1) These results are based off 12 months data (2023)
- (2) Personnel hours were estimated by multiplying the number of home completed by 5 hours, the average time to serve a customer in the home.
- (3) Outside services includes customer audit costs and rebates for audit recommended installed measures and external administrative costs.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: Online Energy Audit and Kit Program

Existing [ x ]                      Proposed [ ]

Contact Person: Christine Rausch  
614-448-6832

Objective: The Program is designed to provide residential customers with information on how to improve the efficiency of their homes along with free, targeted energy savings kits. The program also provides a way for customers to engage with Columbia Gas and learn about other EE programs.

Details of Activity and Implementation Schedule:

Implementation was August 1, 2023. The program provides for a way for customers to undergo an online audit of their home, which will result in a customized set of recommendations. The customer will then be eligible to receive up to two targeted energy saving kits, shipped to their home at no cost. The first kit is for customers who utilize natural gas for water heating, and the second kit is for customers who utilize natural gas to heat their homes.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction Mcf</u>	<u>Electric Mwh</u>	<u>Energy Savings</u>		<u>Other Results</u>
			<u>Gas MCF</u>	<u>Oil Gallons</u>	
2023 <sup>(1)</sup>	67	0	7787.79	-	3,794 Kits Delivered
2024 <sup>(2)</sup>	42	0	5602.08	-	2,520 Kits Delivered

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs. <sup>(3)</sup></u>	<u>Categorized Program Expenses</u>		
		<u>Outside Services</u>	<u>Admin.</u>	<u>Total</u>
2023 <sup>(1)</sup>	948.5	\$115,609	\$97,776	213,385
2024 <sup>(2)</sup>	630	\$116,720	\$126,000	242,720

- (4) These results are based off 5 months of data (2023).
- (5) Estimated Program results for 2024 based on Rider EE filing December 2022
- (6) Personnel hours were estimated by multiplying the number of homes by .25, the average number of hours spent per kit fulfillment.

## FORM-IRP-GAS-5 PROGRAM DESCRIPTION

Company: Columbia Gas of Pennsylvania, Inc.

Program: Residential Prescriptive Program (Energy Efficiency Rebates)

Existing [x]                      Proposed [ ]

Contact Person: Christine Rausch  
614-448-6832

Objective: The program is designed to overcome market barriers to energy efficient space and water heating equipment in the residential sector through rebates and customer awareness. The objective of the program is to avoid lost opportunities by encouraging consumers to install the most efficient gas heating technologies available when replacing older, less efficient equipment. The program also aims to strengthen Columbia’s relationship with HVAC contractors, suppliers and other trade allies.

Details of Activity and Implementation Schedule:

Implementation was August 1, 2023. The program offers rebates to qualifying residential-sized space and water heating equipment and controls. For most measures, customers will have a contractor install the measure and receive a rebate to offset some of the incremental costs of the higher efficiency equipment. Customers will be encouraged to process rebates through an online portal but may also submit a paper application through the mail.

Actual and/or Anticipated Results:

<u>Year</u>	<u>Peak Load Reduction Mcf</u>	<u>Electric Mwh</u>	<u>Energy Savings</u>		<u>Other Results</u>
			<u>Gas Mcf</u>	<u>Oil Gallons</u>	
2023 <sup>(1)</sup>	62	23.4	7162	-	697 Rebates
2024 <sup>(2)</sup>	159	94.6	20,339	-	2,320 Rebates Projected

Monetary and Personnel Resources:

<u>Year</u>	<u>Personnel Est. Hrs. <sup>(3)</sup></u>	<u>Categorized Program Expenses</u>		
		<u>Outside Services <sup>(4)</sup></u>	<u>Admin.</u>	<u>Total</u>
2023 <sup>(1)</sup>	349	213,669	72,410	286,079
2024 <sup>(2)</sup>	1,160	\$716,000	73,000	\$789,000

- (1) These results are based off 5 months of data (2023).
- (2) Estimated Program results for 2024 based on Rider EE filing December 2022
- (3) Personnel hours were estimated by multiplying the number of homes by .5, the average number of hours spent per rebate application.
- (4) Includes Rebates paid to customers.

Section 59.82      **Form-IRP-Gas-6 - Energy Users**

The utility shall provide the number of year-end users displayed by component parts.

Response:      Please see the attached form.

## FORM-IRP-GAS-6 ENERGY USERS

Company: Columbia Gas of Pennsylvania, Inc.

<u>Energy Users</u>	<u>Number of Customers (Year-end)</u>	<u>Annual Energy Consumption * (MCF)</u>	<u>Conservation Impact Reduction or MCF savings</u>	
			<u>Target</u>	<u>Actual</u>
Residential (Heating)	360,490	25,591,388	30,375	23,562
Residential (Other)	0	0		
Small Com. & Ind.	26,110	8,032,467		
Large Com. & Ind.	82	309,580		
Street Lighting	0	0		
Railroads	0	0		
Resale	0	0		
Interruptible	0	0		
Interdepartmental	0	0		
Other-Electric Power	0	0		
Other - Transportation	59,919	38,943,216	15,932	11,054
Other - Misc	<u>0</u>	<u>0</u>		
<b>TOTALS</b>	<b><u>446,601</u></b>	<b><u>72,876,651</u></b>	<b><u>46,307</u></b>	<b><u>34,616</u></b>

\* Previous calendar year (2023).

\*\* Approximately 9.3% of WWLIURP customers are transportation (CHOICE) customers.  
And 45% of all other programs are CHOICE

Section 59.82

**Form-IRP-Gas-7 - Conservation and Load Management Program Summary**

1. Use this form to provide a summary of the information provided in Form IRP-Gas-5.
2. Provide annual totals for program for results and monetary and personnel resources.
3. For programs with annual expenditures of more than \$100,000 or more than 0.1% of total annual revenue, a cost benefit analysis must be performed. The current methodology, prescribed by the Bureau of Conservation, Economics and Energy Planning pursuant to Section 59.82(E), is essentially the same as that contained in the former Section 69.122, with minor modifications. This methodology shall be used until further notice. The following discussion provides instructions for completing Form IRP-GAS-8 (analysis inputs) and Form IRP-GAS-9 (analysis results), including the necessary definitions and equations.

Response: Please see the following form.

FORM-IRP-GAS-7 PROGRAM SUMMARY

Company: Columbia Gas of Pennsylvania, Inc.

Program Name 2023(1)	Peak Load Reduction (MCF)	Energy Use Change (MCF)	Personnel Est. Hrs.	Categorized Program Expenses		
				Outside Services	Admin.	Total
WarmWise Low Income Usage Reduction Program (WWLIURP)	110	12,814	14,880	5,310,989	460,699	5,771,688
Emergency Repair Program	NA	NA	1,180	878,790	114,243	993,033
Customer Assistance Program	NA	NA	NA	602,827	65,790	668,617
WarmWise Audits & Rebates (WWA&R)	59	6,852	1,125	800,956	121,576	922,532
On Line Energy Audit & Kit Program	67	7,788	948	115,609	97,776	213,385
Residential Prescriptive Program (Energy Efficiency Rebates)	62	7,162	349	213,669	72,410	286,079
Totals	<u>298</u>	<u>34,616</u>	<u>18,482</u>	<u>\$7,922,840</u>	<u>\$932,494</u>	<u>\$8,855,334</u>

(1) Budgeted

Section 59.82

**Form IRP-GAS-8 - Conservation and Load Management Program Cost Benefit Analysis Inputs**

1. Variable **E** represents the program participants' annual energy savings occurring in year **t**, in MCF.
2. Variable **CE** represents the program participants' cumulative energy savings, in MCF.
3. Variable **ES** represents the amount of energy use that has been shifted from peak to off-peak in MCF.
4. Variable **D** represents the program participants' demand reduction occurring in year **t**, in MCF.
5. Variable **G** represents the equivalent supply reduction, including all identifiable and quantifiable reductions in the utility's demand requirement, occurring in year **t**, in MCF.
6. Variable **PC** represents the direct cost to the participants of the action or measure, including the initial capital cost, sales tax, operation and maintenance costs, and removal costs less salvage.
7. Variable **I** represents the cost of any monetary incentive paid directly to the participants to offset explicitly quantified participant costs.
8. Variable **UC** represents all other utility program costs, excluding direct incentives.
9. Variable **d** represents the appropriate discount rate.
10. Variable **ACE** represents the average cost of energy for participants in year **t**. The average cost should reflect actual rates currently in effect, including seasonal-differentiated rates where appropriate, and reasonable escalation factors.
11. Variable **ACD** represents the average cost of demand avoided by participants in year **t**. This variable should be developed by using

actual rates currently in effect and escalating those costs into the future. Seasonal-differentiated rates should be used, if appropriate.

12. Variable **CE** represents the marginal cost of energy avoided by the utility in year **t**. Transmission and distribution losses should be reflected in either **MCE** or **E**. If costs are substantially affected by season, appropriate time periods should be used to more closely reflect marginal energy costs.
13. Variable **MCD** represents the marginal cost of supply avoided by the utility in year **t**. If costs are substantially affected by season, appropriate time periods should be used to more closely reflect marginal capacity costs.
14. Variable **S** represents system sales, in thousand cubic feet reflecting the effects of the program over the period of analysis.
15. The period of analysis, **N**, may be less than 30 years, but should be of sufficient length to reflect all program costs and benefits.

Response:

Please see the following form.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: WarmWise Low Income Usage Reduction Program (WWLIURP)

t	N	YEAR	ENERGY	AVERAGE	AVOIDED	PARTICIPANT	UTILITY	AVERAGE	AVOIDED	PARTICIPANT	TAX
			SAVINGS (E)	ENERGY COST (ACE)	ENERGY COST (MCE)	DEMAND SAVINGS (D)	CAPACITY SAVINGS (G)	DEMAND COSTS (ACD)	DEMAND COSTS (MCD)	DEMAND COSTS (PC)	CREDITS (TC)
			MCF	\$ PER MCF	\$ PER MCF	MCF	MCF	\$/MCF	\$/MCF	\$	\$
1		2024	13,813	17.04	1.89	25935162	104	N/A	137.75	0	N/A
2		2025	13,813	17.95	2.80	25935162	104	N/A	139.12	0	N/A
3		2026	13,813	18.36	3.21	25935162	104	N/A	139.12	0	N/A
4		2027	13,813	18.48	3.33	25935162	104	N/A	139.12	0	N/A
5		2028	13,813	18.56	3.41	25935162	104	N/A	142.20	0	N/A
6		2029	13,813	18.63	3.48	25935162	104	N/A	145.39	0	N/A
7		2030	13,813	18.71	3.56	25935162	104	N/A	148.68	0	N/A
8		2031	13,813	18.79	3.64	25935162	104	N/A	152.11	0	N/A
9		2032	13,813	18.88	3.73	25935162	104	N/A	155.62	0	N/A
10		2033	13,813	18.97	3.82	25935162	104	N/A	159.22	0	N/A
11		2034	13,813	19.05	3.90	25935162	104	N/A	162.86	0	N/A
12		2035	13,813	19.14	3.99	25935162	104	N/A	166.54	0	N/A
13		2036	13,813	19.23	4.08	25935162	104	N/A	170.12	0	N/A
14		2037	13,813	19.31	4.16	25935162	104	N/A	173.73	0	N/A
15		2038	13,813	19.40	4.25	25935162	104	N/A	177.43	0	N/A
16		2039	13,813	19.49	4.34	25935162	104	N/A	181.18	0	N/A
17		2040	13,813	19.58	4.43	25935162	104	N/A	185.07	0	N/A
18		2041	13,813	19.68	4.53	25935162	104	N/A	189.08	0	N/A
19		2042	13,813	19.78	4.63	25935162	104	N/A	193.18	0	N/A
20		2043	13,813	19.88	4.73	25935162	104	N/A	197.35	0	N/A
21		2044	13,813	19.98	4.83	25935162	104	N/A	201.63	0	N/A
22		2045	13,813	20.09	4.94	25935162	104	N/A	206.01	0	N/A
23		2046	13,813	20.19	5.04	25935162	104	N/A	210.47	0	N/A
24		2047	13,813	20.30	5.15	25935162	104	N/A	215.07	0	N/A
25		2048	13,813	20.42	5.27	25935162	104	N/A	219.81	0	N/A

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.  
(2) Average energy cost is based on CPA's residential rate.  
(3) Estimates are calculated from the SENDOUT model.  
(4) Estimates are calculated from the LOADCALC model.  
N/A is not applicable.

Company Name:  
**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**FORM-IRP-GAS-8**  
**COST-BENEFIT ANALYSIS INPUTS**

PROGRAM: WarmWise Low Income Usage Reduction Program (WWLIURP)

t	N YEAR	INCENTIVE COST (I) \$	UTILITY COSTS (UC) \$	DISCOUNT RATES		UTILITY (2) (d) %	ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
				PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %					
1	2024	0	6,012,658	10.15	3.83	10.15	2.0%	38,289,010	0.00112375	N/A
2	2025	0	0	10.15	3.43	10.15	2.1%	38,535,696	0.00112375	N/A
3	2026	0	0	10.15	3.28	10.15	2.2%	38,777,719	0.00112375	N/A
4	2027	0	0	10.15	3.21	10.15	2.2%	39,024,115	0.00112375	N/A
5	2028	0	0	10.15	3.18	10.15	2.2%	39,272,650	0.00112375	N/A
6	2029	0	0	10.15	3.19	10.15	2.2%	39,515,381	0.00112375	N/A
7	2030	0	0	10.15	3.19	10.15	2.3%	39,750,289	0.00112375	N/A
8	2031	0	0	10.15	3.19	10.15	2.3%	39,981,495	0.00112375	N/A
9	2032	0	0	10.15	3.19	10.15	2.3%	40,221,552	0.00112375	N/A
10	2033	0	0	10.15	3.19	10.15	2.3%	40,483,674	0.00112375	N/A
11	2034	0	0	10.15	3.19	10.15	2.3%	40,509,749	0.00112375	N/A
12	2035	0	0	10.15	3.19	10.15	2.3%	40,535,841	0.00112375	N/A
13	2036	0	0	10.15	3.19	10.15	2.1%	40,561,950	0.00112375	N/A
14	2037	0	0	10.15	3.19	10.15	2.1%	40,588,075	0.00112375	N/A
15	2038	0	0	10.15	3.19	10.15	2.1%	40,614,217	0.00112375	N/A
16	2039	0	0	10.15	3.19	10.15	2.1%	40,640,376	0.00112375	N/A
17	2040	0	0	10.15	3.19	10.15	2.1%	40,666,552	0.00112375	N/A
18	2041	0	0	10.15	3.19	10.15	2.2%	40,692,745	0.00112375	N/A
19	2042	0	0	10.15	3.19	10.15	2.2%	40,718,955	0.00112375	N/A
20	2043	0	0	10.15	3.19	10.15	2.2%	40,745,181	0.00112375	N/A
21	2044	0	0	10.15	3.19	10.15	2.2%	40,771,425	0.00112375	N/A
22	2045	0	0	10.15	3.19	10.15	2.2%	40,797,685	0.00112375	N/A
23	2046	0	0	10.15	3.19	10.15	2.2%	40,823,962	0.00112375	N/A
24	2047	0	0	10.15	3.19	10.15	2.2%	40,850,256	0.00112375	N/A
25	2048	0	0	10.15	3.19	10.15	2.2%	40,876,567	0.00112375	N/A
								1,004,245,119		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**COST-BENEFIT ANALYSIS INPUTS**

Company Name:  
**FORM-IRP-GAS-8**

**PROGRAM: WarmWise Audits & Rebates (WWA&R)**

t	N YEAR	ENERGY SAVINGS (E) MCF	AVERAGE ENERGY COST (2) (ACE) \$ PER MCF	AVOIDED ENERGY COST (3) (MCE) \$ PER MCF	PARTICIPANT DEMAND SAVINGS (4) (D) MCF	UTILITY CAPACITY SAVINGS (G) MCF	AVERAGE DEMAND COSTS (ACD) \$/MCF	AVOIDED DEMAND COSTS (MCD) \$/MCF	PARTICIPANT COSTS (PC) \$	TAX CREDITS (TC) \$
1	2024	6,808	17.04	1.89	1262222222222	59	N/A	137.75	0	N/A
2	2025	6,608	17.95	2.80	1262222222222	59	N/A	139.12	0	N/A
3	2026	6,608	18.36	3.21	1262222222222	59	N/A	139.12	0	N/A
4	2027	6,608	18.48	3.33	1262222222222	59	N/A	139.12	0	N/A
5	2028	6,608	18.56	3.41	1262222222222	59	N/A	142.20	0	N/A
6	2029	6,608	18.63	3.48	1262222222222	59	N/A	145.39	0	N/A
7	2030	6,608	18.71	3.56	1262222222222	59	N/A	148.68	0	N/A
8	2031	6,608	18.79	3.64	1262222222222	59	N/A	152.11	0	N/A
9	2032	6,608	18.88	3.73	1262222222222	59	N/A	155.62	0	N/A
10	2033	6,608	18.97	3.82	1262222222222	59	N/A	159.22	0	N/A
11	2034	6,608	19.05	3.90	1262222222222	59	N/A	162.86	0	N/A
12	2035	6,608	19.14	3.99	1262222222222	59	N/A	166.54	0	N/A
13	2036	6,608	19.23	4.08	1262222222222	59	N/A	170.12	0	N/A
14	2037	6,608	19.31	4.16	1262222222222	59	N/A	173.73	0	N/A
15	2038	6,608	19.40	4.25	1262222222222	59	N/A	177.43	0	N/A
16	2039	6,608	19.49	4.34	1262222222222	59	N/A	181.18	0	N/A
17	2040	6,608	19.58	4.43	1262222222222	59	N/A	185.07	0	N/A
18	2041	6,608	19.68	4.53	1262222222222	59	N/A	189.08	0	N/A
19	2042	6,608	19.78	4.63	1262222222222	59	N/A	193.18	0	N/A
20	2043	6,608	19.88	4.73	1262222222222	59	N/A	197.35	0	N/A
21	2044	6,608	19.98	4.83	1262222222222	59	N/A	201.63	0	N/A
22	2045	6,608	20.09	4.94	1262222222222	59	N/A	206.01	0	N/A
23	2046	6,608	20.19	5.04	1262222222222	59	N/A	210.47	0	N/A
24	2047	6,608	20.30	5.15	1262222222222	59	N/A	215.07	0	N/A
25	2048	6,608	20.42	5.27	1262222222222	59	N/A	219.81	0	N/A

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.  
(2) Average energy cost is based on CPA's residential rate.  
(3) Estimates are calculated from the SENDOUT model.  
(4) Estimates are calculated from the LOADCALC model.  
N/A is not applicable.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: WarmWise Audits & Rebates (WWA&R)

t	N YEAR	INCENTIVE COST (I) \$	UTILITY COSTS (UC) \$	DISCOUNT RATES			ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
				PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %	UTILITY (2) (d) %				
1	2024	0	1,000,000	10.15	3.83	10.15	2.0%	38,296,215	0.000624733	N/A
2	2025	0	0	10.15	3.43	10.15	2.1%	38,542,901	0.000624733	N/A
3	2026	0	0	10.15	3.28	10.15	2.2%	38,784,924	0.000624733	N/A
4	2027	0	0	10.15	3.21	10.15	2.2%	39,031,320	0.000624733	N/A
5	2028	0	0	10.15	3.18	10.15	2.2%	39,279,855	0.000624733	N/A
6	2029	0	0	10.15	3.19	10.15	2.2%	39,522,586	0.000624733	N/A
7	2030	0	0	10.15	3.19	10.15	2.3%	39,757,494	0.000624733	N/A
8	2031	0	0	10.15	3.19	10.15	2.3%	39,988,700	0.000624733	N/A
9	2032	0	0	10.15	3.19	10.15	2.3%	40,228,757	0.000624733	N/A
10	2033	0	0	10.15	3.19	10.15	2.3%	40,490,879	0.000624733	N/A
11	2034	0	0	10.15	3.19	10.15	2.3%	40,516,954	0.000624733	N/A
12	2035	0	0	10.15	3.19	10.15	2.3%	40,543,046	0.000624733	N/A
13	2036	0	0	10.15	3.19	10.15	2.1%	40,569,155	0.000624733	N/A
14	2037	0	0	10.15	3.19	10.15	2.1%	40,595,280	0.000624733	N/A
15	2038	0	0	10.15	3.19	10.15	2.1%	40,621,422	0.000624733	N/A
16	2039	0	0	10.15	3.19	10.15	2.1%	40,647,581	0.000624733	N/A
17	2040	0	0	10.15	3.19	10.15	2.1%	40,673,757	0.000624733	N/A
18	2041	0	0	10.15	3.19	10.15	2.2%	40,699,950	0.000624733	N/A
19	2042	0	0	10.15	3.19	10.15	2.2%	40,726,160	0.000624733	N/A
20	2043	0	0	10.15	3.19	10.15	2.2%	40,752,386	0.000624733	N/A
21	2044	0	0	10.15	3.19	10.15	2.2%	40,778,630	0.000624733	N/A
22	2045	0	0	10.15	3.19	10.15	2.2%	40,804,890	0.000624733	N/A
23	2046	0	0	10.15	3.19	10.15	2.2%	40,831,167	0.000624733	N/A
24	2047	0	0	10.15	3.19	10.15	2.2%	40,857,461	0.000624733	N/A
25	2048	0	0	10.15	3.19	10.15	2.2%	40,883,772	0.000624733	N/A
								1,004,425,244		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**COST-BENEFIT ANALYSIS INPUTS**

Company Name:  
**FORM-IRP-GAS-8**

**PROGRAM: Online Energy Audit and Kit Program**

t	YEAR	ENERGY SAVINGS (E)		AVERAGE ENERGY COST (2)		AVOIDED ENERGY COST (3)		PARTICIPANT DEMAND SAVINGS (4)		UTILITY CAPACITY SAVINGS (G)		AVERAGE DEMAND COSTS (ACD)		AVOIDED DEMAND COSTS (MCD)		PARTICIPANT COSTS (PC)		TAX CREDITS (TC)	
		MCF	\$ PER MCF	ENERGY COST (ACE)	\$ PER MCF	ENERGY COST (MCE)	\$ PER MCF	SAVINGS (D)	MCF	(G)	MCF	SAVINGS (ACD)	\$/MCF	SAVINGS (MCD)	\$/MCF	PC	TC	\$	
1	2024	7,788	17.04	1.89	0.016666	42	N/A	137.75	0	N/A	0	N/A							
2	2025	5,602	17.95	2.80	0.016666	42	N/A	139.12	0	N/A	0	N/A							
3	2026	5,602	18.36	3.21	0.016666	42	N/A	139.12	0	N/A	0	N/A							
4	2027	5,602	18.48	3.33	0.016666	42	N/A	139.12	0	N/A	0	N/A							
5	2028	5,602	18.56	3.41	0.016666	42	N/A	142.20	0	N/A	0	N/A							
6	2029	5,602	18.63	3.48	0.016666	42	N/A	145.39	0	N/A	0	N/A							
7	2030	5,602	18.71	3.56	0.016666	42	N/A	148.68	0	N/A	0	N/A							
8	2031	5,602	18.79	3.64	0.016666	42	N/A	152.11	0	N/A	0	N/A							
9	2032	5,602	18.88	3.73	0.016666	42	N/A	155.62	0	N/A	0	N/A							
10	2033	5,602	18.97	3.82	0.016666	42	N/A	159.22	0	N/A	0	N/A							
11	2034	5,602	19.05	3.90	0.016666	42	N/A	162.86	0	N/A	0	N/A							
12	2035	5,602	19.14	3.99	0.016666	42	N/A	166.54	0	N/A	0	N/A							
13	2036	5,602	19.23	4.08	0.016666	42	N/A	170.12	0	N/A	0	N/A							
14	2037	5,602	19.31	4.16	0.016666	42	N/A	173.73	0	N/A	0	N/A							
15	2038	5,602	19.40	4.25	0.016666	42	N/A	177.43	0	N/A	0	N/A							
16	2039	5,602	19.49	4.34	0.016666	42	N/A	181.18	0	N/A	0	N/A							
17	2040	5,602	19.58	4.43	0.016666	42	N/A	185.07	0	N/A	0	N/A							
18	2041	5,602	19.68	4.53	0.016666	42	N/A	189.08	0	N/A	0	N/A							
19	2042	5,602	19.78	4.63	0.016666	42	N/A	193.18	0	N/A	0	N/A							
20	2043	5,602	19.88	4.73	0.016666	42	N/A	197.35	0	N/A	0	N/A							
21	2044	5,602	19.98	4.83	0.016666	42	N/A	201.63	0	N/A	0	N/A							
22	2045	5,602	20.09	4.94	0.016666	42	N/A	206.01	0	N/A	0	N/A							
23	2046	5,602	20.19	5.04	0.016666	42	N/A	210.47	0	N/A	0	N/A							
24	2047	5,602	20.30	5.15	0.016666	42	N/A	215.07	0	N/A	0	N/A							
25	2048	5,602	20.42	5.27	0.016666	42	N/A	219.81	0	N/A	0	N/A							

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.

(2) Average energy cost is based on CPA's residential rate.

(3) Estimates are calculated from the SENDOUT model.

(4) Estimates are calculated from the LOADCALC model. N/A is not applicable.

Company Name:  
FORM-IRP-GAS-8

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS INPUTS

PROGRAM: Online Energy Audit and Kit Program

t	N YEAR	INCENTIVE COST		UTILITY COSTS (UC) \$	DISCOUNT RATES		UTILITY (2) (d) %	ESCALATION RATE (3) (e) %	SYSTEM SALES OR DEMAND (4) (S) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$	
		(i) \$	(j) \$		PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %						
1	2024	0	0	242,720	10.15	3.83	10.15	2.0%	38,297,221	0.006997	N/A	
2	2025	0	0	0	10.15	3.43	10.15	2.1%	38,543,907	0.006997	N/A	
3	2026	0	0	0	10.15	3.28	10.15	2.2%	38,785,930	0.006997	N/A	
4	2027	0	0	0	10.15	3.21	10.15	2.2%	39,032,326	0.006997	N/A	
5	2028	0	0	0	10.15	3.18	10.15	2.2%	39,280,861	0.006997	N/A	
6	2029	0	0	0	10.15	3.19	10.15	2.2%	39,523,592	0.006997	N/A	
7	2030	0	0	0	10.15	3.19	10.15	2.3%	39,758,500	0.006997	N/A	
8	2031	0	0	0	10.15	3.19	10.15	2.3%	39,989,706	0.006997	N/A	
9	2032	0	0	0	10.15	3.19	10.15	2.3%	40,229,763	0.006997	N/A	
10	2033	0	0	0	10.15	3.19	10.15	2.3%	40,491,885	0.006997	N/A	
11	2034	0	0	0	10.15	3.19	10.15	2.3%	40,517,960	0.006997	N/A	
12	2035	0	0	0	10.15	3.19	10.15	2.3%	40,544,052	0.006997	N/A	
13	2036	0	0	0	10.15	3.19	10.15	2.1%	40,570,161	0.006997	N/A	
14	2037	0	0	0	10.15	3.19	10.15	2.1%	40,596,286	0.006997	N/A	
15	2038	0	0	0	10.15	3.19	10.15	2.1%	40,622,428	0.006997	N/A	
16	2039	0	0	0	10.15	3.19	10.15	2.1%	40,648,587	0.006997	N/A	
17	2040	0	0	0	10.15	3.19	10.15	2.1%	40,674,763	0.006997	N/A	
18	2041	0	0	0	10.15	3.19	10.15	2.2%	40,700,956	0.006997	N/A	
19	2042	0	0	0	10.15	3.19	10.15	2.2%	40,727,166	0.006997	N/A	
20	2043	0	0	0	10.15	3.19	10.15	2.2%	40,753,392	0.006997	N/A	
21	2044	0	0	0	10.15	3.19	10.15	2.2%	40,779,636	0.006997	N/A	
22	2045	0	0	0	10.15	3.19	10.15	2.2%	40,805,896	0.006997	N/A	
23	2046	0	0	0	10.15	3.19	10.15	2.2%	40,832,173	0.006997	N/A	
24	2047	0	0	0	10.15	3.19	10.15	2.2%	40,858,467	0.006997	N/A	
25	2048	0	0	0	10.15	3.19	10.15	2.2%	40,884,778	0.006997	N/A	
											1,004,450,394	

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

Company Name: **COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**FORM-IRP-GAS-8**  
**COST-BENEFIT ANALYSIS INPUTS**

PROGRAM: Residential Prescriptive Program (Energy Efficiency Rebates)

t	N	YEAR	ENERGY SAVINGS (E)		AVERAGE ENERGY COST (2)		AVOIDED ENERGY COST (3)		PARTICIPANT DEMAND SAVINGS (4)		UTILITY CAPACITY SAVINGS (G)	AVERAGE DEMAND COSTS (ACD)		AVOIDED DEMAND COSTS (MCD)		PARTICIPANT COSTS (PC)	TAX CREDITS (TC)
			MCF	MCF	\$ PER MCF	\$ PER MCF	\$ PER MCF	MCF	\$/MCF	\$/MCF		\$/MCF	\$	\$			
1		2024	20,339	17,04	17.04	1.89	0.068534483	131	N/A	137.75	0	N/A	0	N/A			
2		2025	20,339	17.95	17.95	2.80	0.068534483	131	N/A	139.12	0	N/A	0	N/A			
3		2026	20,339	18.36	18.36	3.21	0.068534483	131	N/A	139.12	0	N/A	0	N/A			
4		2027	20,339	18.48	18.48	3.33	0.068534483	131	N/A	139.12	0	N/A	0	N/A			
5		2028	20,339	18.56	18.56	3.41	0.068534483	131	N/A	142.20	0	N/A	0	N/A			
6		2029	20,339	18.63	18.63	3.48	0.068534483	131	N/A	145.39	0	N/A	0	N/A			
7		2030	20,339	18.71	18.71	3.56	0.068534483	131	N/A	148.68	0	N/A	0	N/A			
8		2031	20,339	18.79	18.79	3.64	0.068534483	131	N/A	152.11	0	N/A	0	N/A			
9		2032	20,339	18.88	18.88	3.73	0.068534483	131	N/A	155.62	0	N/A	0	N/A			
10		2033	20,339	18.97	18.97	3.82	0.068534483	131	N/A	159.22	0	N/A	0	N/A			
11		2034	20,339	19.05	19.05	3.90	0.068534483	131	N/A	162.86	0	N/A	0	N/A			
12		2035	20,339	19.14	19.14	3.99	0.068534483	131	N/A	166.54	0	N/A	0	N/A			
13		2036	20,339	19.23	19.23	4.08	0.068534483	131	N/A	170.12	0	N/A	0	N/A			
14		2037	20,339	19.31	19.31	4.16	0.068534483	131	N/A	173.73	0	N/A	0	N/A			
15		2038	20,339	19.40	19.40	4.25	0.068534483	131	N/A	177.43	0	N/A	0	N/A			
16		2039	20,339	19.49	19.49	4.34	0.068534483	131	N/A	181.18	0	N/A	0	N/A			
17		2040	20,339	19.58	19.58	4.43	0.068534483	131	N/A	185.07	0	N/A	0	N/A			
18		2041	20,339	19.68	19.68	4.53	0.068534483	131	N/A	189.08	0	N/A	0	N/A			
19		2042	20,339	19.78	19.78	4.63	0.068534483	131	N/A	193.18	0	N/A	0	N/A			
20		2043	20,339	19.88	19.88	4.73	0.068534483	131	N/A	197.35	0	N/A	0	N/A			
21		2044	20,339	19.98	19.98	4.83	0.068534483	131	N/A	201.63	0	N/A	0	N/A			
22		2045	20,339	20.09	20.09	4.94	0.068534483	131	N/A	206.01	0	N/A	0	N/A			
23		2046	20,339	20.19	20.19	5.04	0.068534483	131	N/A	210.47	0	N/A	0	N/A			
24		2047	20,339	20.30	20.30	5.15	0.068534483	131	N/A	215.07	0	N/A	0	N/A			
25		2048	20,339	20.42	20.42	5.27	0.068534483	131	N/A	219.81	0	N/A	0	N/A			

(1) The energy savings (E) include annual savings realized by Choice customers and traditional sales customers.  
(2) Average energy cost is based on CPA's residential rate.  
(3) Estimates are calculated from the SENDOUT model.  
(4) Estimates are calculated from the LOADCALC model.  
N/A is not applicable.

Company Name:  
FORM-IRP-GAS-8

**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**COST-BENEFIT ANALYSIS INPUTS**

PROGRAM: Residential Prescriptive Program (Energy Efficiency Rebates)

t	YEAR	INCENTIVE COST		UTILITY COSTS (UC) \$	DISCOUNT RATES		UTILITY (2) %	ESCALATION RATE (3) %	SYSTEM SALES OR DEMAND (4) MCF	SALES OR DEMAND RATIO (f) %	UNCOLLECTIBLE ACCOUNT REDUCTION (UA) \$
		(l) \$	(i) \$		PARTICIPANT (d) %	NON-PARTICIPANT (1) (d) %					
1	2024	0	0	789,000	10.15	3.83	10.15	2.0%	38,282,484	0.000644169	N/A
2	2025	0	0	0	10.15	3.43	10.15	2.1%	38,529,170	0.000644169	N/A
3	2026	0	0	0	10.15	3.28	10.15	2.2%	38,771,193	0.000644169	N/A
4	2027	0	0	0	10.15	3.21	10.15	2.2%	39,017,589	0.000644169	N/A
5	2028	0	0	0	10.15	3.18	10.15	2.2%	39,266,124	0.000644169	N/A
6	2029	0	0	0	10.15	3.19	10.15	2.2%	39,508,855	0.000644169	N/A
7	2030	0	0	0	10.15	3.19	10.15	2.3%	39,743,763	0.000644169	N/A
8	2031	0	0	0	10.15	3.19	10.15	2.3%	39,974,969	0.000644169	N/A
9	2032	0	0	0	10.15	3.19	10.15	2.3%	40,215,026	0.000644169	N/A
10	2033	0	0	0	10.15	3.19	10.15	2.3%	40,477,148	0.000644169	N/A
11	2034	0	0	0	10.15	3.19	10.15	2.3%	40,503,223	0.000644169	N/A
12	2035	0	0	0	10.15	3.19	10.15	2.3%	40,529,315	0.000644169	N/A
13	2036	0	0	0	10.15	3.19	10.15	2.1%	40,555,424	0.000644169	N/A
14	2037	0	0	0	10.15	3.19	10.15	2.1%	40,581,549	0.000644169	N/A
15	2038	0	0	0	10.15	3.19	10.15	2.1%	40,607,691	0.000644169	N/A
16	2039	0	0	0	10.15	3.19	10.15	2.1%	40,633,850	0.000644169	N/A
17	2040	0	0	0	10.15	3.19	10.15	2.1%	40,660,026	0.000644169	N/A
18	2041	0	0	0	10.15	3.19	10.15	2.2%	40,686,219	0.000644169	N/A
19	2042	0	0	0	10.15	3.19	10.15	2.2%	40,712,429	0.000644169	N/A
20	2043	0	0	0	10.15	3.19	10.15	2.2%	40,738,655	0.000644169	N/A
21	2044	0	0	0	10.15	3.19	10.15	2.2%	40,764,899	0.000644169	N/A
22	2045	0	0	0	10.15	3.19	10.15	2.2%	40,791,159	0.000644169	N/A
23	2046	0	0	0	10.15	3.19	10.15	2.2%	40,817,436	0.000644169	N/A
24	2047	0	0	0	10.15	3.19	10.15	2.2%	40,843,730	0.000644169	N/A
25	2048	0	0	0	10.15	3.19	10.15	2.2%	40,870,041	0.000644169	N/A
									1,004,081,969		

(1) The Non-Participant discount rate is based on the Global Insight forecast for 10-year U.S. Treasury bills.  
(2) The Participant and Utility discount rates are Columbia Gas of Pennsylvania's requested return on rate base.  
(3) The escalation rate is the GDP price deflator, based on the Global Insight U.S. economic outlook for February 2022.  
(4) System Sales do not include transportation volumes.

Section 59.82

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

The results of the cost benefit analysis are presented in terms of benefit-cost ratios and net present values from four perspectives: participant, non-participant, all ratepayers and utility. It is noted that the difference between utility benefits,  $B_{up}$ , under the participant test and utility benefits,  $B_{un}$ , under the utility revenue requirement test is the discount rate,  $d$ . The discount rates should reflect the time value of money from the viewpoint being evaluated. For the participant and non-participant tests, market interest rates could be used. A utility's expected cost of capital could be used as the discount factor in determining a utility's net present value of program costs and benefits.

Provide all assumptions used in the evaluation methodology, such as energy and demand savings and costs, marginal costs, tax rates, escalation factors and rates of participation. Identify and discuss unquantified and qualitative variables, such as fuel displacement, environmental impacts, reliability benefits, customer inconvenience and benefits to the local economy.

Response:

The appropriate form is attached.

Company Name: **COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**FORM-IRP-GAS-9** COST-BENEFIT ANALYSIS RESULTS

PROGRAM: WarmWise Low Income Usage Reduction Program (WWLIURP)

PERIOD OF ANALYSIS	ENDING YEAR	TOTAL UTILITY BENEFITS (Bu) \$	TOTAL UTILITY COSTS (Cu) \$	REVENUE REDUCTION COST (Cr) \$	PARTICIPANT REVENUE REQUIREMENT (Rp) \$	TOTAL PARTICIPANT BENEFITS (Bp) \$	TOTAL PARTICIPANT COSTS (Cp) \$
2024	2048	585,477	5,458,609	2,317,320	7,998	2,317,320	0

DISCOUNTED PAYBACK PERIOD YRS	NET PRESENT VALUE		BENEFIT-COST RATIO		RATE IMPACT NON-PART (RIMnp) \$ PER MCF
	PARTICIPANT (NPVp) \$	NON-PART (NPVnp) \$	PARTICIPANT (BCRp)	NON-PART (BCRnp)	
25	2,317,320	(7,182,454)	Infinity	0.0753	0.0072
		(4,873,132)		0.1073	

Company Name:  
FORM-IRP-GAS-9

COLUMBIA GAS OF PENNSYLVANIA, INC.  
COST-BENEFIT ANALYSIS RESULTS

PROGRAM: WarmWise Audits & Rebates (WWA&R)

PERIOD OF ANALYSIS	TOTAL UTILITY BENEFITS (Bu)	TOTAL UTILITY COSTS (Cu)	REVENUE REDUCTION COST (Cr)	PARTICIPANT REVENUE REQUIREMENT (Rp)	TOTAL PARTICIPANT BENEFITS (Bp)	TOTAL PARTICIPANT COSTS (Cp)
BEGINNING YEAR						
ENDING YEAR						
2024	293,067	907,853	1,108,583	1,077	1,108,583	1,000,000

DISCOUNTED PAYBACK PERIOD YRS	NET PRESENT VALUE		BENEFIT-COST RATIO		RATE IMPACT NON-PART (RIMnp) \$ PER MCF
	PARTICIPANT (NPVp)	NON-PART (NPVnp)	PARTICIPANT (BCRp)	NON-PART (BCRnp)	
25	108,583	(1,722,292)	Infinity	0.1453	0.0017
		(614,786)		0.3228	

Company Name:  
FORM-IRP-GAS-9

**COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**COST-BENEFIT ANALYSIS RESULTS**

PROGRAM: Online Energy Audit and Kit Program

PERIOD OF ANALYSIS	TOTAL UTILITY BENEFITS (Bu) \$	TOTAL UTILITY COSTS (Cu) \$	REVENUE REDUCTION COST (Cr) \$	PARTICIPANT REVENUE REQUIREMENT (Rp) \$	TOTAL PARTICIPANT BENEFITS (Bp) \$	TOTAL PARTICIPANT COSTS (Cp) \$
BEGINNING YEAR						
2024	237,196	220,354	939,812	6,458	939,812	242,720
2048						

DISCOUNTED PAYBACK PERIOD YRS	PARTICIPANT (NPVp) \$	NET PRESENT VALUE	UTILITY (NPVu) \$	PARTICIPANT (BCRp) \$	BENEFIT-COST RATIO	NON-PART (BCRnp)	UTILITY (BCRu)	RATE IMPACT NON-PART (RIMnp) \$ PER MCF
25	697,092	(916,512)	16,842	Infinity	0.2044	1.0764	0.0009	

Company Name: **COLUMBIA GAS OF PENNSYLVANIA, INC.**  
**FORM-IRP-GAS-9**  
**COST-BENEFIT ANALYSIS RESULTS**

PROGRAM: Residential Prescriptive Program (Energy Efficiency Rebates)

PERIOD OF ANALYSIS	TOTAL UTILITY BENEFITS (Bu) \$	TOTAL UTILITY COSTS (Cu) \$	REVENUE REDUCTION COST (Cr) \$	PARTICIPANT REVENUE REQUIREMENT (Rp) \$	TOTAL PARTICIPANT BENEFITS (Bp) \$	TOTAL PARTICIPANT COSTS (Cp) \$
BEGINNING YEAR						
2024	830,413	716,296	3,412,146	2,124	3,412,146	789,000
ENDING YEAR						

DISCOUNTED PAYBACK PERIOD YRS	PARTICIPANT (NPVp) \$	NET PRESENT VALUE	UTILITY (NPVu) \$	PARTICIPANT (BCRp) \$	NON-PART (BCRnp) \$	BENEFIT-COST RATIO	UTILITY (BCRu)	RATE IMPACT NON-PART (RIMnp) \$ PER MCF
25	2,623,146	(3,295,904)	114,117	Infinity	0.2011	1.1593	0.0033	

Section 59.81(C)      **Public Information and Distribution**

- A. Provide a summary of the resource planning report which is suitable for distribution to the public. The summary should be separately bound. Suggested items for inclusion in the summary are: a general description of the utility's overall approach to integrated resource planning; a brief description of the methods used in developing the load forecasts; a brief description of the utility's service territory, including a territorial map, and a general description of the utility's plans for meeting customers' needs over the three year period.
- B. The summary must include a 3-year implementation plan that specifies all activities scheduled for the acquisition and development of the resources delineated in the report, which are expected to take place during the next three years.
- C. Copies of the summary must be maintained by the utility open to public inspection during normal business hours. Copies of the summary should also be available for distribution to the general public, upon request.

Response:      Columbia Gas of Pennsylvania's 2024 Annual Resource Planning Summary Report is provided as a companion document.