

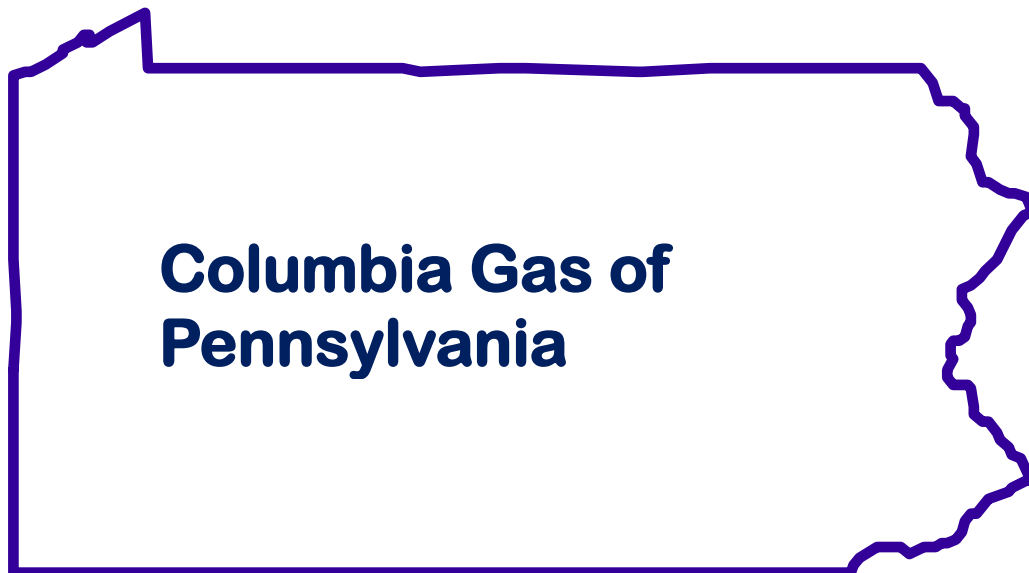
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Identification and support for any peak day methodology used to project future gas demands and studies supporting the validity of the methodology.

Response:

Attached is Columbia Gas of Pennsylvania's 2014 Design Day Forecast (PDF). This document describes CPA's Design Day Forecasting methodology in detail.

***2014 Design Day Forecast, 2014/15 – 2018/19
By Pipeline Scheduling Point (PSP)***



***Forecast Developed by
Commercial Operations***



COLUMBIA GAS OF PENNSYLVANIA
2014 DESIGN DAY FORECAST, 2014/15 - 2018/19

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2014 DESIGN DAY FORECAST, 2014/15 - 2018/19

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COLUMBIA GAS OF PENNSYLVANIA

2014 DESIGN DAY FORECAST, 2014/15 - 2018/19

I. Introduction

The 2014 Design Day Forecast (DDF) for Columbia Gas of Pennsylvania (CPA or Company) as developed by NiSource's Gas Distribution (NGD) Commercial Operations group, represents the official estimate of CPA's Design Day Demand for each of the winters 2014/15 through 2018/19. The DDF is a key-planning tool for CPA in the design of its design day supply/capacity portfolio. It is also critical to day-to-day operations since it serves as the foundation for CPA's daily demand forecasts. As a result, it is imperative that CPA quantify the firm and total demand expected at CPA's Design Day Conditions to ensure continuous, reliable and economic service to its customers over the term of the forecast.

The projected Design Day Demand quantities contained within are based on CPA's Design Day Conditions, which consist of the Design Current Day Temperature, Design Prior Day Temperature, and Design Current Day Wind Speed, that are assumed to occur on a weekday. These conditions including statistical methods used in the development of the conditions are discussed in the Appendix, at the end of this document. The Design Day Conditions are incorporated in the proprietary Demand Forecasting System (DFS) software developed by Commercial Operations to generate CPA's DDF. The resultant forecast provides Design Day Demand estimates by:

- 1) Revenue Class: Residential, Commercial, Industrial, and "Other",
- 2) Priority of Service: Firm and Non-Firm,
- 3) Type of Service: Sales, Choice, and Transportation, and
- 4) Pipeline Scheduling Point (PSP), as designated by CPA's supplying pipelines.

In addition to the forecasts of Design Day Demand, the DDF also provides each month's estimated daily maximum and minimum demands that may be factored into CPA's supply planning and daily operational processes.

II. Executive Summary

The DDF provides a projection of firm and non-firm demand expected to occur at CPA's Design Day Conditions for each of the next five years ending with the 2018-2019 winter. The process behind the development of CPA's 2014 DDF is consistent with that used for CPA's 2013 PDF. The 2014 DDF includes the following two adjustments:

- (1) In recognition of prevailing economic conditions, the forecast of CPA's firm customer demand for the first winter (2014-2015) does not reflect the full impact, in terms of increased customer demand, that would otherwise be expected in response to CPA's November 2014 forecasted firm gas cost based on the analyses of historical price/demand relationships. This occurs in consideration that customers may have less disposable income than historically, that there may be more of a lagged effect by customers than historically experienced in responding to lower prices, and that some conservation measures taken by customers are of a more permanent nature; and
- (2) The forecast of CPA's non-firm customer demand has given considerations to the current projection of existing and expected new customer load developed by NGD's Large Customer Relations group. Commercial Operations has contrasted this forecast against historical takes (prior 6 years) to better discern the expected trend in demand for these customers using the best available information.

Table 1 provides a breakdown of forecast quantities by service priority (firm and non-firm). For supply planning purposes, the demand of transportation customers not served under the Company's Standby Service or Elective Balancing Service (EBS), is considered to be non-firm. All remaining demand is considered to be firm and would include CPA's firm obligation to transportation customers who have contracted for Standby Service or EBS.

Winter	Firm				Non-Firm -5	Total Demand (6)=(4+5)	Additional Firm Obligation		Total Firm Obligation (9)=(4+7+8)
	Sales (1)	Choice (2)	Other (3)	Total (4)=(1 thru 3)			Standby (7)	EBS (8)	
2013/14	451.1	150.6	1.1	602.8	181.0	783.8	5.0	10.2	618.0
2014/15	463.4	150.1	1.1	614.6	179.9	794.5	5.6	10.5	630.7
2015/16	475.0	150.3	1.1	626.4	180.9	807.3	5.6	10.5	642.5
2016/17	483.6	150.1	1.1	634.8	181.4	816.2	5.6	10.5	650.9
2017/18	491.6	149.8	1.1	642.5	181.4	823.9	5.6	10.5	658.6
2018/19	499.0	149.5	1.1	649.6	181.4	831.0	5.6	10.5	665.7
CAG 2014/15 - 2018/19				1.4%	0.2%	1.1%			1.4%

Schedule 1 presents the DDF in more detail, identifying the forecast by customer class, segregated by Pipeline Scheduling Point (PSP) as well as by priority of service.

The growth rates shown in Table 1 are for CPA in total. **Schedule 1** provides the same information by PSP and shows differences in growth across CPA's service territory.

The Choice firm demand estimate is derived from data contained in the Company's 2014 7&5 Gas Estimate, and the quantities above reflect the Design Day Demand for Choice customers. On **Schedule 2**, CPA's firm service obligations to commercial and industrial customers, inclusive of Standby and EBS Obligations, are identified by PSP.

Schedule 3 provides tabular and graphical trends related to firm demand, based on historic "Design Actual" Demands. The Design Actual Demand contained in Column 1 represents Commercial Operations' calculation of what the Design Day Demand would equate to for a given historical winter season (1999/00 through 2013/14) had Design Day Conditions been experienced. The Design Actual Demand serves as the basis for the forecasts of CPA's Design Day Forecast as presented in Column 2, as more fully explained in Section III E. Design Day Forecast. The forecast shows an increase in demand in response to projected low consistent gas prices and increase in number of customers. In the forecast period, the projected price averages below \$5.73: Column 3 reflects the sum of (1) an increase attributable to customer-contracted Standby Service quantities, and (2) an increase attributable to customer-contracted Elective Balancing Service quantities. The Total Firm Obligation (sum of Column 2 and Column 3) is shown in Column 4.

Schedule 4 parallels **Schedule 3**, Columbia's **Total** Design Day Demand with the exception that fewer years of historical data are provided.

III. 2014 DDF Development

Columbia's Design Day Forecast uses two linear regression based models to develop a forecast of Columbia's expected Design Day Demand for each of its eight PSPs. The first linear regression based model is used to determine, Design Actual Demand for each historical winter season. The second regression model is based on an analysis of the Design Actual Demand and determines the Design Day Forecast.

The process is described in sections A through H.

A. Obtaining Actual Total Daily Demand

The first step in the preparation of the DDF is to obtain actual total daily demand that was observed in the months of December through February for the prior heating seasons. Commercial Operations derives the

actual total daily demand by accumulating daily supply data from all sources. Based on twelve months ending December 2013, CPA has 96% of its total deliveries measured on a daily basis. The deliveries that are monthly read are allocated to daily volumes using a base load / heat load allocation process. The total daily volume for every point of delivery (POD) is then summarized to produce the actual total daily demand for each PSP.

B. Obtaining Non-Firm Customer Daily Demand

The second step is the calculation of the daily demand for CPA's industrial and commercial customers receiving services from the company on a non-firm basis. As shown on **Schedule 5**, approximately 78% of total non-firm customer demand is subject to daily measurement. The percentages on **Schedule 5** are based on the actual January 2014 throughput for all such customers. For non-firm customers without daily read capability, CPA estimates their daily consumption using a base load / heat load allocation process. The non-firm quantities are summarized to produce total non-firm deliveries by PSP.

C. 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.

As discussed in the Executive Summary section, CPA has additional firm obligations of 15.2 MDth under its Standby Service contracts and EBS contracts with transportation customers for 2013-14. The forecast period beginning with heating season 2014-15 shows the new contract level of 16.1 MDth. **Schedule 2** provides a breakdown of Standby Service and EBS quantities by revenue class and PSP.

D. Design Actual Demand

A linear regression based model is used to determine, the "Design Actual Demand" for each historical winter season for Firm Demand, Industrial Non-Firm Demand and Commercial Non-Firm Demand. During the process the actual daily demand for the months of December through February for the past two heating seasons are regressed against four potential explanatory variables for all days and Cold Days (days having an average temperature of 30°F or colder). The potential explanatory variables are:

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; weekday, weekends and holidays. The holidays are the period December 24th through January 1st, Martin Luther King Jr. Day, and President's Day.

For each of these explanatory variables Columbia has determined the associated Design Day Conditions, for each PSP, as discussed in the Appendix. The Design Day Type is considered to be a weekday.

Selection of the Design Actual Demand model will consist of explanatory variables having 95% significance and the best statistical results of the regressions. Three statistical tests are developed, R-Square, Durbin-Watson, and Root Mean Square Error (RMSE). An accepted model will have a high R-Square, a Durbin-Watson near 2.000 and a low RMSE.

Schedule 6 summarizes the regression results and provides the coefficient of determination, R^2 for each PSP. Please see Section II in the Appendix, for details on how the regressions are made and what criteria are used in determining the regression coefficients.

Using PSP 25E-25 (Lancaster) (Schedule 6, Page 1) as an example, the Daily Firm Demand model includes all four explanatory variables. As shown in **Table 2** the 2013/14 Design Actual Demand for firm customers is 156,979 DTh and the equation is:

Daily Firm Demand in DTh = Intercept + (Temperature Coefficient * Current Day Temperature)
+ Prior Day Temperature Coefficient * Prior Day Temperature,
+ Wind Speed Coefficient * Wind Speed,
+ Day Type coefficient.

Table 2 Columbia Gas of Pennsylvania 2014 Design Day Forecast Use of the Regression Coefficients to Determine Design Actual Demand Example: System Firm Demand for PSP 25E-25 (Lancaster)					
Explanatory Variable (1)	Regression Coefficient		Design Value of the Explanatory Variable		Product Dth (6) = (2) * (4)
	Value (2)	Units (3)	Value (4)	Units (5)	
Intercept	151,033.84	DTh	1	--	151,034
Temperature	(2,064.42)	DTh/Deg	1	Deg	(2,064)
Prior Day Temp.	(491.66)	DTh/Deg	9	Deg	(4,425)
Wind Speed	956.44	DTh/ MPH	13	Mph	12,434
Day Type:					
Holiday	(2,577.64)	DTh	0	--	0
Weekend	(2,577.64)	DTh	0	--	0
2013/14 Design Actual					156,979
Additional Obligations					
Standby Service	1,709.00	DTh	1	--	1,709
EBS	3,595.00	DTh	1	--	3,595
Subtotal					5,304
2013/14 PSP 25-25 (Lancaster) Design Actual Firm Obligation					162,283

Since this PSP has Standby Service and EBS agreements, these obligations need to be added to arrive at the Total Firm Obligation. During the 2013/14 heating season, PSP 25E-25 (Lancaster) had Standby and Elective Balancing obligations of 5,304 DTh. Table 2 shows the use of the coefficients to determine the PSP 25E-25 (Lancaster) 2013/14 Design Actual Firm Demand (the weekday firm daily demand that would be expected under Design Day Conditions) plus the Standby Service and EBS obligations. With this addition, PSP 25E-25 (Lancaster) had a Total Firm Obligation of 162,283 DTh at a Design Current Day Temperature of 1 degree, Design Prior Day Temperature of 9 degrees and Design Current Day Wind Speed of 13 MPH.

Schedule 6 shows for each PSP the 2013/14 Design Actual Demands, regression components, forecasted 2014/15 Design Day Demand, the 2014/15 Standby Service and EBS obligations.

E. 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 Design Actual Demands of three 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 Day Demand is most likely to occur, and
3. Actual gas costs.

For the purpose of forecasting Firm Design Day Demand, the gas cost is the forecasted November price based on the 2014 3&9 Financial Plan. For projecting non-firm Design Day Demand, the 4/18/2014, January NYMEX Gas Monthly Price at Henry Hub (NGI Bidweek Prices) is utilized. **Schedule 7** shows, as an example, the sensitivity of CPA's firm demand in the combined PSPs 25-26 (Bedford) and 25-35 (Pittsburgh) to the explanatory variables. These two PSPs were combined for firm analyses since two supplying pipelines have an effect on deliveries in either PSP. During the selection process of the firm model, a variety of explanatory variable combinations and their resultant statistics were developed utilizing a number of historical winter periods. The model selected was based on statistical results. Specifically, the model is considered when an R^2 above 0.85 is achieved, the Significance model test results in 95% confidence, and the explanatory variable coefficients have the "expected" sign. The expected sign for customer count and degree-day is positive and the expected sign for an additional dollar in price is negative. If testing of the initial three explanatory variables generates a R^2 below 0.85, other models are evaluated in the attempt to find an acceptable model. If an acceptable model is not found the forecast reflects the average of the three most recent Design Actual Demands.

F. Adjustments to Forecast

As addressed in Section II (Executive Summary), additional analyses and adjustments were required to account for the following factors:

1. The Firm Design Day Demand reflect an adjustment for prevailing economic conditions. The expected Firm Design Day Demand for 2014/15, was reduced by using the average of the 2013/14 Design Actual Demand and the 2015/16 Design Day Forecast. This adjustment serves to reduce the demand that would otherwise be expected with the low gas prices expected in winter 2014/15.
2. The forecast of CPA's non-firm customer demand has included the most recent five year projection developed by NGD Large Customer Relations group. Commercial Operations has contrasted this forecast against historical usage (prior 6 years) to better discern the expected trend in demand for these customers using the best available information. Three PSPs reflect a decrease adjustment and two PSPs are expecting Increase demand due attributable to new load.

Schedule 8 shows each PSP's Firm Design Actual Demand, forecasted Firm Design Day Demand, and adjustments to the forecast described in Section F.

Schedule 9 relates to the non-firm analysis and parallels the process discussed above for firm demand with two exceptions. First, as previously mentioned, the gas cost considered in forecasting non-firm demand is the January NYMEX price. Second, specific model criteria are not considered.

Schedule 10 shows the non-firm demand and adjustments as described in Section F.

G. Design Day Demand by Revenue Class

The Firm and Non-Firm Design Actual Demands are used in the allocation process to determine Design Day Demand by revenue class. This is a multiple step process as explained below.

Four steps are performed to allocate firm customer demand. In **Step 1**, the annual and monthly forecasts reflected in CPA's Gas Estimate are used to calculate Company Use, and Unaccounted For Gas. For the Design Day Forecast, Company Use quantities are calculated to be one-twentieth of the January requirement from the 2014 7&5 Gas Estimate. The Design Day Demand of Unaccounted For Gas is calculated to be 1/365th of the annual Unaccounted For Gas load from the 2014 7&5 Gas Estimate. Like residential demand, Company Use, and Unaccounted For Gas are entirely firm; i.e., they contain no non-firm component. Since Company Use, and Unaccounted For Gas do not have a historical pattern, CPA projects this demand to remain constant.

In **Step 2**, 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 2013 through February 2014) against the gas-day average temperature.

In **Step 3**, the remainder of Firm Demand (Firm Demand less Industrial Firm Demand less Company Use, and Unaccounted For Gas) is allocated to Residential and Firm Commercial based on the forecasted demands from the Gas Estimate, inclusive of Choice.

In **Step 4**, the Firm Demand is then further categorized between Sales and Choice. This split is derived from the inputs used in the development of CPA's 2014 7&5 Gas Estimate and adjusted for the Choice eligibility of smaller transportation customers.

H. Results

The 2013/14 Design Actual Demands and five-year Design Day Forecast by revenue class and priority of service are summarized on **Schedule 1**. The forecast includes non-firm demand since it is vital for planning and operations to know potential total (firm and non-firm) demand under Design Day Conditions.

Schedule 11 provides a breakdown of customer demand for the first forecast year of the DDF by rate schedule. The allocation of the forecasted commercial and industrial Design Day Demand to the various firm rate schedules is based on the actual total demand for the month of January 2014, as accounted for by rate schedule. Non-Firm rate schedules allocation is based on the most recent peak day experienced. Both the Standby Service obligation and the EBS are reflected on this schedule.

IV. Historical Demands and Supplies

Schedule 12 shows the historic actual peak day demand and associated supply sources for the three consecutive winter days of greatest demand for each of the past four winter seasons. The demands shown represent total throughput, meaning the demand of all customers served by Columbia. The breakdown by revenue class is an estimate since actual daily-metered volumes are not available for all customers, and is based on an analysis of billing data. The total demand represents the actual demand of all customers predicated upon the total, measured supply quantities from all sources delivered to CPA for both sales and transportation customers. Also shown are the actual average temperatures, date, and day of week.

V. Monthly Maximum and Minimum Design Conditions and Demands

A. Monthly Maximum Conditions and Corresponding Demand

To serve CPA's planning needs, Monthly Maximum Conditions and associated Forecast Demand are included in the DDF. Monthly Maximum Conditions and Forecast Demand are shown on **Schedule 13**. For a description of how the monthly maximum design conditions and demand are determined, please refer to Section III of the Appendix at the end of this document.

B. Monthly Minimum Demand

The Monthly Minimum Demands, shown on **Schedule 14** are based on the analysis of daily demand that has occurred over the most recent five years for each month. The selection of five years of history is driven by the need to obtain as many observations of actual demand as possible for analysis, in determining Monthly Minimum Demand, recognizing use of more history may provide a result that is not reflective of current customer demand. The Monthly Minimum Demand is calculated to be the demand having a 10% probability of occurrence.

SCHEDULES

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15- 2018/19

Commercial and Industrial Design Day Firm Obligation

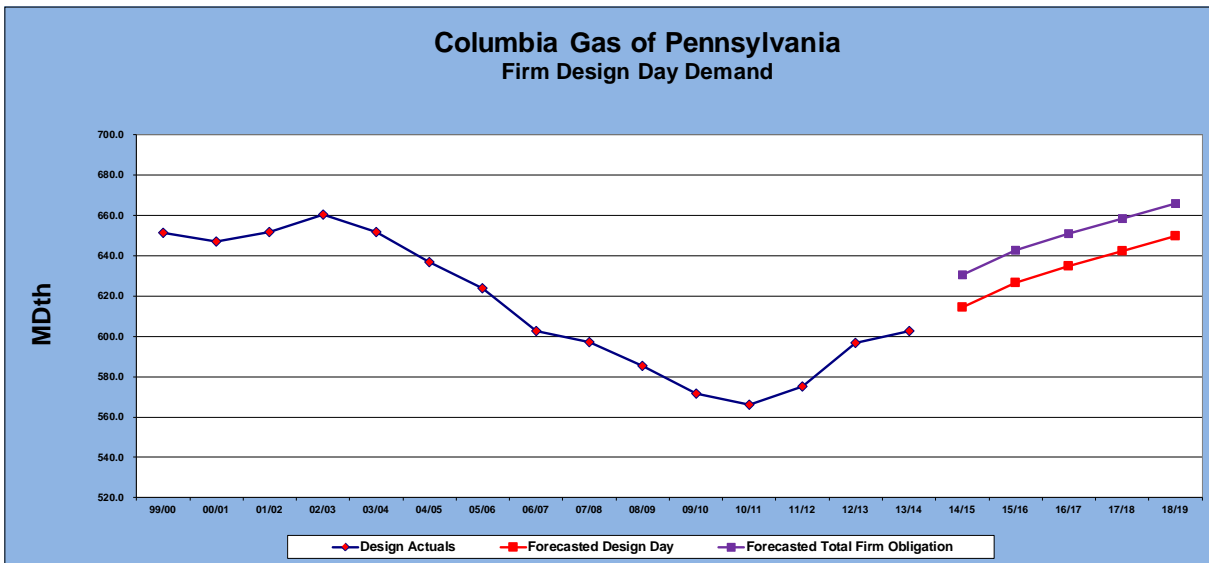
Quantities In MDTh

	Commercial					Industrial				
	Sales	Choice	Standby	EBS	Firm Obligation	Sales	Choice	Standby	EBS	Firm Obligation
Total										
2013/14	131.3	26.0	5.0	3.0	165.3	0.7	0.0	0.0	7.2	7.9
2014/15	136.4	26.2	5.6	4.1	172.3	0.7	0.0	0.0	6.4	7.1
2015/16	139.1	26.8	5.6	4.1	175.6	0.7	0.0	0.0	6.4	7.1
2016/17	142.6	27.0	5.6	4.1	179.3	0.7	0.0	0.0	6.4	7.1
2017/18	145.3	27.0	5.6	4.1	182.0	0.7	0.0	0.0	6.4	7.1
2018/19	148.0	27.0	5.6	4.1	184.7	0.7	0.0	0.0	6.4	7.1
PSP 25E-25										
2013/14	32.3	8.7	1.7	1.2	43.9	0.3	0.0	0.0	2.4	2.7
2014/15	32.8	8.7	2.0	1.2	44.7	0.3	0.0	0.0	3.1	3.4
2015/16	32.6	9.0	2.0	1.2	44.8	0.3	0.0	0.0	3.1	3.4
2016/17	32.9	9.0	2.0	1.2	45.1	0.3	0.0	0.0	3.1	3.4
2017/18	33.1	9.0	2.0	1.2	45.3	0.3	0.0	0.0	3.1	3.4
2018/19	33.3	9.0	2.0	1.2	45.5	0.3	0.0	0.0	3.1	3.4
PSP 25-26										
2013/14	3.9	1.0	0.4	0.1	5.4	0.0	0.0	0.0	0.7	0.7
2014/15	4.1	1.0	0.5	0.1	5.7	0.0	0.0	0.0	0.1	0.1
2015/16	4.2	1.0	0.5	0.1	5.8	0.0	0.0	0.0	0.1	0.1
2016/17	4.4	1.0	0.5	0.1	6.0	0.0	0.0	0.0	0.1	0.1
2017/18	4.5	1.0	0.5	0.1	6.1	0.0	0.0	0.0	0.1	0.1
2018/19	4.6	1.0	0.5	0.1	6.2	0.0	0.0	0.0	0.1	0.1
PSP 25E-29										
2013/14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014/15	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.3	0.3
2015/16	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.3	0.3
2016/17	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.3	0.3
2017/18	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.3	0.3
2018/19	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.3	0.3
PSP 25-35										
2013/14	75.4	11.2	2.4	1.5	90.5	0.3	0.0	0.0	3.4	3.7
2014/15	79.5	11.3	2.6	1.4	94.8	0.3	0.0	0.0	2.0	2.3
2015/16	82.3	11.6	2.6	1.4	97.9	0.3	0.0	0.0	2.0	2.3
2016/17	85.0	11.7	2.6	1.4	100.7	0.3	0.0	0.0	2.0	2.3
2017/18	87.2	11.7	2.6	1.4	102.9	0.3	0.0	0.0	2.0	2.3
2018/19	89.3	11.7	2.6	1.4	105.0	0.3	0.0	0.0	2.0	2.3
PSP 25-36										
2013/14	3.9	3.9	0.2	0.1	8.1	0.0	0.0	0.0	0.3	0.3
2014/15	4.0	4.0	0.2	0.2	8.4	0.0	0.0	0.0	0.6	0.6
2015/16	3.9	4.0	0.2	0.2	8.3	0.0	0.0	0.0	0.6	0.6
2016/17	4.0	4.1	0.2	0.2	8.5	0.0	0.0	0.0	0.6	0.6
2017/18	4.1	4.1	0.2	0.2	8.6	0.0	0.0	0.0	0.6	0.6
2018/19	4.2	4.1	0.2	0.2	8.7	0.0	0.0	0.0	0.6	0.6
PSP 25-38										
2013/14	2.4	0.2	0.2	0.0	2.8	0.0	0.0	0.0	0.3	0.3
2014/15	2.5	0.2	0.2	0.0	2.9	0.0	0.0	0.0	0.2	0.2
2015/16	2.7	0.2	0.2	0.0	3.1	0.0	0.0	0.0	0.2	0.2
2016/17	2.7	0.2	0.2	0.0	3.1	0.0	0.0	0.0	0.2	0.2
2017/18	2.7	0.2	0.2	0.0	3.1	0.0	0.0	0.0	0.2	0.2
2018/19	2.8	0.2	0.2	0.0	3.2	0.0	0.0	0.0	0.2	0.2
PSP 25-39										
2013/14	13.2	0.9	0.1	0.1	14.3	0.1	0.0	0.0	0.1	0.2
2014/15	13.3	0.9	0.1	1.0	15.3	0.1	0.0	0.0	0.1	0.2
2015/16	13.2	0.9	0.1	1.0	15.2	0.1	0.0	0.0	0.1	0.2
2016/17	13.4	0.9	0.1	1.0	15.4	0.1	0.0	0.0	0.1	0.2
2017/18	13.5	0.9	0.1	1.0	15.5	0.1	0.0	0.0	0.1	0.2
2018/19	13.6	0.9	0.1	1.0	15.6	0.1	0.0	0.0	0.1	0.2
PSP 25-40										
2013/14	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2014/15	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2015/16	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2016/17	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2017/18	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
2018/19	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

**Design Actual, Forecasted Firm Design Day Demand, and Forecasted Total Firm Obligation
Quantities in MDTh**

Year	1/ Design Actuals (1)	2/ Forecasted Design Day (2)	3/ Adjustments To Design Day (3)	Forecasted Total Firm Obligation (4) = (2) + (3)
99/00	651.5			
00/01	646.9			
01/02	651.7			
02/03	660.5			
03/04	651.7			
04/05	637.0			
05/06	623.8			
06/07	602.6			
07/08	597.3			
08/09	585.5			
09/10	571.7			
10/11	566.1			
11/12	575.1			
12/13	596.6			
13/14	602.8			
14/15		614.6	16.1	630.7
15/16		626.4	16.1	642.5
16/17		634.8	16.1	650.9
17/18		642.5	16.1	658.6
18/19		649.6	16.1	665.7



1/ Applicable heating season's regression equation applied to "Design Conditions" produces the annual "Design Actual" Demand.

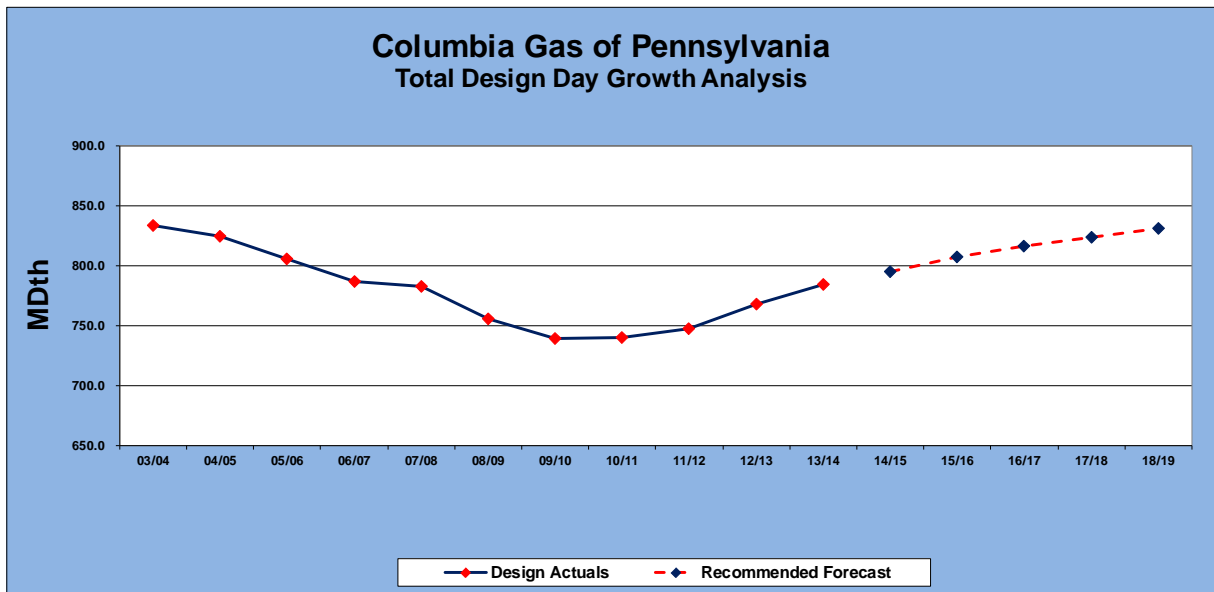
2/ The result from forecast regression analysis.

3/ The adjustment reflects contracted Standby Service and contracted Elective Balancing Service.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

**Design Actual and Projected Total Design Day Demand
Quantities In MDTh**

Year	1/ Design Actuals (1)	2/ Recommended Forecast (2)
03/04	833.0	
04/05	824.2	
05/06	805.6	
06/07	786.4	
07/08	782.9	
08/09	755.9	
09/10	739.5	
10/11	739.8	
11/12	747.2	
12/13	768.1	
13/14	783.8	
14/15		794.5
15/16		807.3
16/17		816.2
17/18		823.9
18/19		831.0



1/ Applicable heating season's regression equation applied to "Design Conditions" produces the annual "Design Actual" Demand.
 2/ The result from forecast regression analysis.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

**Measuring Report For Non-Firm Customers
Based on January 2014 Demand
Quantities in DTh**

Measurement Type	#PCID ⁽¹⁾	#PSID ⁽²⁾	January Demand	%
COMMERCIAL:				
Daily ⁽³⁾	108	115	480,849	45
Monthly	2,215	2,414	580,086	55
Commercial Total	2,323	2,529	1,060,936	100
INDUSTRIAL:				
Daily ⁽³⁾	125	134	1,786,969	96
Monthly	90	111	70,995	4
Industrial Total	215	245	1,857,964	100
TOTALS:				
Daily ⁽³⁾	233	249	2,267,818	78
Monthly	2,305	2,525	651,082	22
Grand Total	2,538	2,774	2,918,899	100

- (1) PCID is an identification for a customer.
- (2) PSID is an identification of a meter associated with a customer.
- (3) Daily measurement includes chart read and electronically measured meters.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

**PSP 25E-25 (Lancaster) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh**

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			156,978	27,321	31,673
		Regression Coefficients			
Variable 1 :	Intercept	1	151,033.84	27,449.33	31,659.38
	Current Temperature		(2,064.42)	(128.22)	(383.86)
Variable 2 :	Prior Day Temperature	9	(491.66)	---	(47.39)
Variable 3 :	Wind Speed	13	956.44	---	63.40
Variable 4 :	Day Type				
	<i>Holiday</i>		(2,577.64)	(7,086.29)	(1,398.02)
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>	(2,577.64)	(5,775.12)	(1,147.79)	
2014/15 Growth Factor			0.9996	1.0076	1.0305
2014/15 Design Demand			156,919	27,529	32,638
	Standby Service		1,977	---	---
	Elective Balancing Service		4,294	---	---
Total R-Square			0.9783	0.5905	0.9491
Durbin-Watson			2.0637	1.9258	2.1011
Root MSE			3,628	3,188	808
Regression #			9863	10130	10133
Regression Type			2 Winters	2 Winters	2 Winters
Number of Observations			180	144	144

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

Columbia Gas of Pennsylvania - PSP 25E-29
2014 Design Day Forecast, 2014/15 - 2018/19

PSP 25E-29 (Downtown) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			0	10,317	0
		Regression Coefficients			
Variable 1 :	Intercept	1	---	10,359.80	---
	Current Temperature		---	(42.64)	---
Variable 2 :	Prior Day Temperature	9	---	---	---
Variable 3 :	Wind Speed	13	---	---	---
Variable 4 :	Day Type				
	<i>Holiday</i>		---	(1,642.08)	---
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>		---	(1,642.08)	---
2014/15 Growth Factor			---	0.9784	---
2014/15 Design Demand			---	10,094	---
	Standby Service		---	---	---
	Elective Balancing Service		540.00	---	---
R-Square			---	0.3504	---
Durbin-Watson			---	2.4361	---
Root MSE			---	1,385	---
Regression #			---	10172	---
Regression Type			---	2 Winters	---
Number of Observations			---	147	---

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

Columbia Gas of Pennsylvania - PSP 25-26 & PSP 25-35
2014 Design Day Forecast, 2014/15 - 2018/19

PSP 25-26 (Bedford) & PSP 25-35 (Pittsburgh) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			350,775	33,644	44,830
		Regression Coefficients			
Variable 1 :	Intercept		309,552.26	33,486.26	41,308.60
	Current Temperature	-7	(4,148.92)	(77.92)	(520.19)
Variable 2 :	Prior Day Temperature	5	(1,072.79)	(77.49)	(24.00)
Variable 3 :	Wind Speed	10	1,754.42	---	---
Variable 4 :	Day Type				
	<i>Holiday</i>		---	(5,207.66)	(481.76)
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>		---	(3,176.86)	(481.76)
2014/15 Growth Factor			1.0333	1.0076	0.9807
2014/15 Design Demand			362,469	33,900	43,964
	Standby Service		3,122	---	---
	Elective Balancing Service		3,589	---	---
R-Square			0.9589	0.7215	0.9919
Durbin-Watson			2.0464	2.1982	1.9697
Root MSE			8,347	1,963	552
Regression #			9880	10174	10180
Regression Type			1 Winter	1 Winter	1 Winter
Number of Observations			52	57	57

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

Columbia Gas of Pennsylvania - PSP 25-36
2014 Design Day Forecast, 2014/15 - 2018/19

PSP 25-36 (Olean) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			30,079	157	14,390
		Regression Coefficients			
	Intercept		24,696.38	142.16	12,476.93
Variable 1 :	Current Temperature	-15	(271.97)	(0.98)	(127.53)
Variable 2 :	Prior Day Temperature	-2	(102.96)	---	---
Variable 3 :	Wind Speed	11	99.78	---	---
Variable 4 :	Day Type				
	<i>Holiday</i>		(817.81)	(25.22)	(502.76)
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>		(539.73)	(25.22)	(502.76)
2014/15 Growth Factor			1.0003	1.0064	0.9309
2014/15 Design Demand			30,088	158	13,396
	Standby Service		221	---	---
	Elective Balancing Service		808	---	---
R-Square			0.9205	0.0641	0.7699
Durbin-Watson			1.8632	2.4360	1.5361
Root MSE			1,394	67	851
Regression #			9922	10188	10190
Regression Type			2 Winters	2 Winters	1 Winter
Number of Observations			180	145	57

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

Columbia Gas of Pennsylvania - PSP 25-38
2014 Design Day Forecast, 2014/15 - 2018/19

PSP 25-38 (Rimersburg) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			9,889	2,225	797
		Regression Coefficients			
	Intercept		8,392.89	2,135.48	685.76
Variable 1 :	Current Temperature	-11	(103.31)	(8.16)	(10.25)
Variable 2 :	Prior Day Temperature	2	(25.80)	---	(0.84)
Variable 3 :	Wind Speed	11	37.40	---	---
Variable 4 :	Day Type				
	<i>Holiday</i>		(227.10)	(470.10)	---
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>		---	---	---
2014/15 Growth Factor			1.0497	1.0067	0.6361
2014/15 Design Demand			10,380	2,240	507
	Standby Service		175	---	---
	Elective Balancing Service		163	---	---
R-Square			0.9228	0.5279	0.9742
Durbin-Watson			2.0619	2.1884	2.2139
Root MSE			454	138	19
Regression #			9892	10197	10198
Regression Type			2 Winters	1 Winter	1 Winter
Number of Observations			179	28	54

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

**Columbia Gas of Pennsylvania - PSP 25-39
2014 Design Day Forecast, 2014/15 - 2018/19**

**PSP 25-39 (New Castle) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh**

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			53,919	11,922	3,220
		Regression Coefficients			
	Intercept		48,021.81	11,692.83	2,957.23
Variable 1 :	Current Temperature	-7	(643.92)	(32.76)	(38.30)
Variable 2 :	Prior Day Temperature	5	(79.54)	---	(0.97)
Variable 3 :	Wind Speed	11	162.52	---	---
Variable 4 :	Day Type				
	<i>Holiday</i>		(1,675.67)	(2,561.92)	(23.41)
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>		---	---	---
2014/15 Growth Factor			0.9941	1.0076	0.9441
2014/15 Design Demand			53,599	12,013	3,040
	Standby Service		96	---	---
	Elective Balancing Service		1,053	---	---
R-Square			0.9170	0.5196	0.9931
Durbin-Watson			2.0021	2.3262	2.2594
Root MSE			1,647	1,025	35
Regression #			9911	10200	10202
Regression Type			2 Winters	1 Winter	1 Winter
Number of Observations			97	57	56

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

Columbia Gas of Pennsylvania - PSP 25-40
2014 Design Day Forecast, 2014/15 - 2018/19

PSP 25-40 (PAWV Misc.) Design Actual and Forecast Design Demand
Coefficients of the Design Actual Regressions
Quantities In DTh

		Design Conditions	System Firm	Industrial Interruptible	Commercial Interruptible
2013/14 Design Actual			1,160	0	459
		Regression Coefficients			
	Intercept		1,042.14	---	416.81
Variable 1 :	Current Temperature	-7	(16.78)	---	(6.16)
Variable 2 :	Prior Day Temperature	5	---	---	(0.26)
Variable 3 :	Wind Speed	8	---	---	---
Variable 4 :	Day Type				
	<i>Holiday</i>		---	---	(4.08)
	<i>Weekday</i>		---	---	---
	<i>Weekend</i>		---	---	(4.08)
2014/15 Growth Factor			1.0009	---	0.9150
2014/15 Design Demand			1,161	---	420
	Standby Service		---	---	---
	Elective Balancing Service		16.00	---	---
R-Square			0.9402	---	0.9808
Durbin-Watson			1.7107	---	1.7002
Root MSE			58	0	10
Regression #			9912	---	10205
Regression Type			1 Winter	---	2 Winters
Number of Observations			90	---	148

Note: If a variable did not meet a 95% significance level, it is not included in the design model.

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19

Forecasted PSP 26 & 35 Firm Design Day Demand
Based on Historical Design Actuals and Experienced December Through January
Degree-Days, Number of Firm Customers, and CPA's Historical and Projected Rate
Quantities in Dth

Winter	Firm 1/ Design Actual	Dec - Jan Degree Days	Number of Firm Customers	Nov Projected Rate	Nov Lag PGC Rate
99/00	401,161	1,658	239,431	\$4.5910	
00/01	395,679	2,015	240,966	\$6.9360	\$4.5910
01/02	389,522	1,350	237,261	\$3.3540	\$6.9360
02/03	413,683	1,986	250,602	\$6.8190	\$3.3540
03/04	403,210	1,942	249,555	\$7.1540	\$6.8190
04/05	392,273	1,657	250,273	\$7.9130	\$7.1540
05/06	378,430	1,583	247,665	\$13.2450	\$7.9130
06/07	364,304	1,407	248,777	\$8.6677	\$13.2450
07/08	363,035	1,600	251,259	\$10.2490	\$8.6677
08/09	351,139	1,907	248,355	\$13.1362	\$10.2490
09/10	333,475	1,851	241,751	\$7.0535	\$13.1362
10/11	327,503	2,078	240,568	\$7.7960	\$7.0535
11/12	334,353	1,432	242,029	\$5.5240	\$7.7960
12/13	344,002	1,463	241,150	\$5.1084	\$5.5240
13/14	350,775	1,856	244,599	\$5.1300	\$5.1084
Forecast Winters					
	14/15	15/16	16/17	17/18	18/19
Design Estimate:	369,251	374,162	381,974	389,087	395,775

Forecasted Explanatory Variables

Dec. and Jan. Degree Days	1,774	1,774	1,774	1,774	1,774
Estimated # of Customers	245,798	247,074	248,376	249,626	250,880
Estimated PGC Rate ^{2/}	\$5.8072	\$5.6521	\$5.6201	\$5.7235	\$5.8198
Nov Lag PGC Rate ^{2/}	\$5.1300	\$5.8072	\$5.6521	\$5.6201	\$5.7235

Coefficients

Intercept	-991,676
1 Customer	5.606
\$1 in the Lag PGC	-3,311.384

^{1/} Design Actuals exclude Standby Service and EBS obligation. Design Actuals reflects latest Design Conditions.

^{2/} Rate reflects CPA's estimated November PGC rate from the 2014 3&9 Financial Plan.

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.890142825
R Square	0.792354248
Adjusted R Square	0.746210748
Standard Error	14318.18285
Observations	12

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	7040680851	3.52E+09	17.17152452	0.000847137
Residual	9	1845093241	205010360		
Total	11	8885774092			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-991676.4385	261929.7986	-3.786039	0.004308812	-1584202.809	-399150.0685
1 Customer	5.605882755	1.059918143	5.2889771	0.000501111	3.208181335	8.003584175
\$1 in the Lag PGC	-3311.383592	1443.822907	-2.2934832	0.047503197	-6577.537923	-45.22926139

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19

Design Actual Firm Demand Growth by PSP
Quantities in DTh

	PSP 25E-25	PSP 25-26	PSP 25E-29	PSP 25-35	PSP 25-36	PSP 25-38	PSP 25-39	PSP 25-40	Sum
Historical Design Actuals ^{1/}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
99/00	151,404	20,479	0	380,682	31,569	12,524	51,671	3,151	651,481
00/01	153,480	21,011	0	374,668	32,290	12,128	50,637	2,699	646,913
01/02	154,956	20,684	0	368,838	32,646	11,345	53,613	9,581	651,664
02/03	153,406	21,967	0	391,716	32,027	11,541	48,994	844	660,495
03/04	155,198	21,410	0	381,800	30,710	11,227	50,579	732	651,656
04/05	157,229	20,830	0	371,443	29,783	10,350	46,579	744	636,959
05/06	157,939	20,095	0	358,335	29,173	10,129	47,241	856	623,767
06/07	156,045	19,345	0	344,959	30,841	9,984	40,515	945	602,633
07/08	155,918	19,277	0	343,758	29,045	9,481	38,730	1,103	597,312
08/09	156,723	18,645	0	332,494	29,692	9,815	37,020	1,074	585,463
09/10	154,772	17,708	0	315,767	27,174	8,527	46,351	1,433	571,732
10/11	154,271	17,390	0	310,113	27,126	8,501	47,358	1,319	566,078
11/12	154,057	17,754	0	316,599	29,166	8,549	47,559	1,395	575,079
12/13	159,544	18,267	0	325,735	31,839	9,744	50,171	1,306	596,606
13/14	156,978	18,626	0	332,149	30,079	9,889	53,919	1,160	602,800
3 Year Average (11/12 thru 13/14)	156,860	18,216	0	324,828	30,361	9,394	50,550	1,287	591,495

PSP Forecast Firm Design Demand

	3 yr Avg ^{2/}								
14/15 Regressed	156,860	19,570	0	349,681	29,903	10,818	53,183	1,158	621,173
14/15 Smooth ^{4/}	156,919	19,229	0	343,240	30,088	10,380	53,599	1,161	614,616
15/16	156,860	19,831	0	354,331	30,096	10,870	53,278	1,162	626,428
16/17	156,860	20,245	0	361,729	30,291	10,980	53,550	1,168	634,823
17/18	156,860	20,622	0	368,465	30,481	11,077	53,786	1,173	642,464
18/19	156,860	20,976	0	374,799	30,669	11,165	53,995	1,177	649,641

2013 DDF Non-Firm Design Day Demand

13/14	157,777	18,591	0	331,859	32,107	10,249	51,215	1,369	603,167
14/15	155,970	18,926	0	338,166	32,374	10,758	52,259	1,430	609,883
15/16	155,970	19,343	0	345,628	32,593	10,861	52,270	1,417	618,082
16/17	155,970	19,851	0	354,696	32,867	10,973	52,257	1,413	628,027
17/18	155,970	20,368	0	363,926	33,138	11,099	52,299	1,404	638,204

Multiple R	3 yr Avg ^{2/}		0.91	0.91	0.92	0.88	0.91
Significance F			0.0038	0.0039	0.0001	0.0026	0.0118
Years Observed			11	7	13	13	8
Variables		Customer Nov Price	Customer	Customer	Customer	Customer Nov Price	Customer
Variable Direction	Bad	Nov Lag Price Good	Nov Lag Price Good	Good	Nov Lag Price Good	Nov Lag Price Good	Nov Lag Price Good

2014 DDF Change From 2013 DDF (Before Standby and EBS)

13/14	(799)	35	0	290	(2,028)	(360)	2,704	(209)	(367)
14/15	949	303	0	5,074	(2,286)	(378)	1,340	(269)	4,733
15/16	890	488	0	8,703	(2,497)	9	1,008	(255)	8,346
16/17	890	394	0	7,033	(2,576)	7	1,293	(245)	6,796
17/18	890	254	0	4,539	(2,657)	(22)	1,487	(231)	4,260

⁽¹⁾ The Design Actual is an estimate of what the peak day demand would equate to if current design conditions had occurred during the applicable winter.

⁽²⁾ Forecast regression did not result in an acceptable model a three year average of the most recent Design Actuals is reflected as the forecast for the PSP.

⁽³⁾ Allocation between PSP 26 and PSP 35 based on day of coldest temperature in PSP 35 since Year 2000 (1/16/2009).

⁽⁴⁾ To compensate for economic conditions, first projected winter Design Day Demands were adjusted to reflect an average between the Design Actual and second projected winter forecast design.

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19

Forecasted PSP 26 & 35 Non-Firm Design Demand
Based on Historical Design Actuals and Experienced December Through January
Degree-Days, Number of Non-Firm Customers, and Jan. NYMEX Rate
Quantities in Dth

Winter	Non-Firm 1/ Design Actual	Dec - Jan Degree Days	Number of Non-Firm Customers	NYMEX Jan Rate
03/04	81,078	1,942	814	\$6.150
04/05	83,862	1,657	773	\$6.210
05/06	80,769	1,583	805	\$11.450
06/07	82,557	1,407	863	\$5.840
07/08	81,806	1,600	849	\$7.160
08/09	73,870	1,907	978	\$6.150
09/10	74,466	1,851	1,140	\$5.820
10/11	77,202	2,078	1,219	\$4.220
11/12	78,598	1,432	1,327	\$3.080
12/13	73,818	1,463	1,341	\$3.354
13/14	78,474	1,856	1,404	\$4.419

Forecast Winters

	14/15	15/16	16/17	17/18	18/19
Design Estimate:	78,027	78,027	78,027	78,027	78,027

Forecasted Explanatory Variables

Dec. and Jan. Degree Days	1,774	1,774	1,774	1,774	1,774
Estimated # of Customers	1,404	1,404	1,404	1,404	1,404
Estimated NYMEX Rate 2/	\$4.9680	\$4.5240	\$4.5300	\$4.5300	\$4.5300

Coefficients

Intercept	56,418.4894
1 Degree Days	3.1696
1 Customer	11.3860

1/ Design Actuals based on current Design Conditions.

2/ Rate reflects the NYMEX Gas Monthly Price at Henry Hub (NGI Bidweek Prices). Forecast based on 4/18/2014.

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.691425368
R Square	0.47806904
Adjusted R Square	0.130115066
Standard Error	2124.28425
Observations	6

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	12400068.18	6200034.1	1.373943327	0.377067923
Residual	3	13537750.72	4512583.6		
Total	5	25937818.9			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	56418.48937	13643.28786	4.1352561	0.02566462	12999.45832	99837.52041
1 Degree Days	3.169627469	4.167161738	0.7606202	0.502203091	-10.09214101	16.43139594
1 Customer	11.38604505	6.869944019	1.6573709	0.196023547	-10.47718291	33.24927301

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19

Non-Firm Design Actual ⁽¹⁾ and Forecasted Non-Firm Design Day Demand
Quantities in DTh

	PSP 25E-25	PSP 25-26	PSP 25E-29	PSP 25-35	PSP 25-36	PSP 25-38	PSP 25-39	PSP 25-40	Sum
Historical Design Actuals ^{1/}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
03/04	65,115	8,538	10,310	72,539	8,574	540	15,437	291	181,343
04/05	65,049	5,029	12,158	78,833	9,422	832	15,383	492	187,197
05/06	64,006	5,058	10,767	75,711	10,100	405	15,321	480	181,848
06/07	64,460	4,943	11,455	77,613	9,185	740	14,917	502	183,815
07/08	66,635	4,903	11,534	76,903	9,043	1,001	15,055	483	185,558
08/09	63,819	4,665	9,825	69,204	6,451	964	15,031	434	170,394
09/10	61,066	3,947	9,675	70,519	6,752	919	14,535	373	167,786
10/11	62,220	4,092	9,992	73,110	7,605	960	15,314	423	173,716
11/12	57,410	4,166	11,200	74,432	8,530	1,022	15,039	359	172,157
12/13	58,506	3,912	10,702	69,906	12,134	1,101	14,782	460	171,503
13/14	58,994	4,159	10,317	74,315	14,547	3,022	15,142	459	180,955
PSP Forecast Firm Design Demand									
14/15	60,374	4,135	10,094	73,892	9,788	2,312	15,070	420	176,085
15/16	60,374	4,135	10,278	73,892	9,788	2,312	15,070	420	176,269
16/17	60,374	4,135	10,276	73,892	9,788	2,312	15,070	420	176,267
17/18	60,374	4,135	10,276	73,892	9,788	2,312	15,070	420	176,267
18/19	60,374	4,135	10,276	73,892	9,788	2,312	15,070	420	176,267
Adjustments to Forecast									
Economic Adjustment ⁽²⁾									
14/15	(207)	0	0	(163)	3,766	437	(17)	0	3,816
15/16	(207)	0	0	(187)	4,580	437	(17)	0	4,606
16/17	(207)	0	0	(187)	5,080	459	(17)	0	5,128
17/18	(207)	0	0	(187)	5,080	459	(17)	0	5,128
18/19	(207)	0	0	(187)	5,080	459	(17)	0	5,128
Adjusted Non-Firm Forecast									
14/15	60,167	4,135	10,094	73,729	13,554	2,749	15,053	420	179,901
15/16	60,167	4,135	10,278	73,705	14,368	2,749	15,053	420	180,875
16/17	60,167	4,135	10,276	73,705	14,868	2,771	15,053	420	181,395
17/18	60,167	4,135	10,276	73,705	14,868	2,771	15,053	420	181,395
18/19	60,167	4,135	10,276	73,705	14,868	2,771	15,053	420	181,395

⁽¹⁾ The Design Actual is an estimate of what the peak day demand would equate to if current design conditions had occurred during the applicable winter.

⁽²⁾ Economic Adjustment projections from LCR and incorporates anticipated changes in demand attributable to: new customers, exiting customers, or significant changes in load of existing customers compared to historical levels.

Columbia Gas Of Pennsylvania

2014 Design Day Forecast, 2014/15 - 2018/19

2014/15 Design Day Requirements by Rate Schedule

Quantities In MDTh

	Total Demand			Firm Demand			Non-Firm Demand			Additional Firm Obligation ⁽¹⁾	Total Firm Obligation
	Tariff	GTS	Throughput	Tariff	GTS	Throughput	Tariff	GTS	Throughput		
Residential											
RSS	326.3	0.0	326.3	326.3	0.0	326.3	0.0	0.0	0.0	0.0	326.3
RDGSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CAP	0.0	28.0	28.0	0.0	28.0	28.0	0.0	0.0	0.0	0.0	28.0
RDS	0.0	95.9	95.9	0.0	95.9	95.9	0.0	0.0	0.0	0.0	95.9
RDGDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residential Total	326.3	123.9	450.2	326.3	123.9	450.2	0.0	0.0	0.0	0.0	450.2
Commercial											
SGSS	126.0	0.0	126.0	126.0	0.0	126.0	0.0	0.0	0.0	0.0	126.0
LGSS	9.7	0.0	9.7	9.7	0.0	9.7	0.0	0.0	0.0	0.0	9.7
NSS	0.7	0.0	0.7	0.7	0.0	0.7	0.0	0.0	0.0	0.0	0.7
SDSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MLSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SGDS	0.0	43.5	43.5	0.0	10.6	10.6	0.0	32.9	32.9	0.0	10.6
LDS	0.0	24.8	24.8	0.0	0.0	0.0	0.0	24.8	24.8	0.0	0.0
MLDS	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0
SCD	0.0	15.6	15.6	0.0	15.6	15.6	0.0	0.0	0.0	0.0	15.6
NCS	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0
SDS	0.0	35.3	35.3	0.0	0.0	0.0	0.0	35.3	35.3	5.6	5.6
EBS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	4.1
Total Commercial	136.4	120.2	256.6	136.4	26.2	162.6	0.0	94.0	94.0	9.7	172.3
Industrial											
SGSS	0.5	0.0	0.5	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.5
LGSS	0.2	0.0	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.2
NSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SDSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MLSS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SGDS	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0
LDS	0.0	50.4	50.4	0.0	0.0	0.0	0.0	50.4	50.4	0.0	0.0
MLDS	0.0	23.6	23.6	0.0	0.0	0.0	0.0	23.6	23.6	0.0	0.0
SCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NCS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SDS	0.0	11.3	11.3	0.0	0.0	0.0	0.0	11.3	11.3	0.0	0.0
EBS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	6.4
Total Industrial	0.7	85.9	86.6	0.7	0.0	0.7	0.0	85.9	85.9	6.4	7.1
Other	1.1	0.0	1.1	1.1	0.0	1.1	0.0	0.0	0.0	0.0	1.1
2014/15 Design Day	464.5	330.0	794.5	464.5	150.1	614.6	0.0	179.9	179.9	16.1	630.7

(1) Standby and Elective Balancing Service Quantities

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19

Historical Maximum Coincident Three Day Peak
Quantities In DTh

		Winter Season						
		2012/13 ¹			2013/14 ¹			
Day of Week	Date	Peak Day			Peak Day			
		Tue	Wed	Thur	Mon	Tue	Wed	
	Avg Temp	Jan. 22	Jan. 23	Jan. 24	Jan. 06	Jan. 07	Jan. 08	
		9° F	14° F	16° F	4° F	5° F	21° F	
		Requirements ²						
Residential		352,959	324,157	319,525	380,263	407,121	301,857	
Commercial		198,540	182,338	179,732	213,898	229,005	169,795	
Industrial		79,725	78,072	76,770	85,461	95,993	88,433	
Other		0	0	0	0	0	0	
Total Retail:		631,224	584,567	576,027	679,622	732,119	560,085	
Wholesale:		0	0	0	0	0	0	
Company Use:		400	400	400	450	450	450	
Unaccounted For:		819	819	819	658	658	658	
Total Requirements:		632,443	585,786	577,246	680,730	733,227	561,193	
		Supply ³						
Columbia Gas Transmission Corp.		548,229	507,072	501,447	560,881	616,411	462,135	
Dominion		7,875	7,012	6,861	14,576	13,128	11,910	
Equitrans		9,682	9,667	9,923	18,981	18,868	15,343	
National Fuel Gas Supply Corp.		5,135	4,911	4,905	5,492	5,945	4,384	
Tennessee Gas Pipeline		21,728	21,653	20,695	26,313	24,576	19,954	
Texas Eastern Transmission		35,110	30,872	33,170	49,341	48,958	42,624	
Direct Local		4,684	4,599	245	5,146	5,341	4,843	
Blackhawk Storage		0	0	0	0	0	0	
Total Supply:		632,443	585,786	577,246	680,730	733,227	561,193	
		Winter Season						
		2010/11 ¹			2011/12 ¹			
Day of Week	Date			Peak Day	Peak Day			
		Fri	Sat	Sun	Tue	Fri	Sat	Sun
	Avg Temp	Jan. 21	Jan. 22	Jan. 23	Jan. 3	Jan. 13	Jan. 14	Jan. 15
		11° F	15° F	10° F	15° F	21° F	21° F	20° F
		Requirements ²						
Residential		320,893	300,465	326,154	297,393	274,298	261,286	264,495
Commercial		172,585	161,642	175,317	167,283	154,293	146,974	148,778
Industrial		74,829	63,862	73,085	80,583	69,894	60,565	67,959
Other		0	0	0	0	0	0	0
Total Retail:		568,307	525,969	574,556	545,259	498,485	468,825	481,232
Wholesale:		0	0	0	0	0	0	0
Company Use:		300	300	300	300	300	300	300
Unaccounted For:		1,600	1,600	1,600	1,627	1,627	1,627	1,627
Total Requirements:		570,207	527,869	576,456	547,186	500,412	470,752	483,159
		Supply ³						
Columbia Gas Transmission Corp.		483,221	442,541	488,248	459,163	419,318	389,056	404,875
Dominion		6,706	7,124	7,053	10,454	10,386	10,674	10,430
Equitrans		16,676	17,097	16,963	15,644	15,821	15,095	15,034
National Fuel Gas Supply Corp.		4,653	4,348	5,189	4,518	3,558	3,919	4,098
Tennessee Gas Pipeline		20,763	20,004	20,009	20,271	18,440	18,621	16,949
Texas Eastern Transmission		33,948	32,610	34,795	32,205	28,056	28,816	27,067
Direct Local		4,240	4,145	4,199	4,931	4,833	4,571	4,706
Blackhawk Storage		0	0	0	0	0	0	0
Total Supply:		570,207	527,869	576,456	547,186	500,412	470,752	483,159

¹ Daily throughput based on the time of analysis and does not reflect any subsequent prior period adjustments.

² Total actual throughput; breakdown by category/class is an estimate.

³ Actual supplies via identified sources.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

**Design and Monthly Maximum Conditions With Corresponding Demand
Contract Year 2014-2015
Quantities In MDT**

Design Peak	Months												
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Design Assumes Occurrence On Weekday													
Maximum													
Design Conditions													
Temperatures °F													
Current Day ⁽¹⁾	-5	19	7	0	4	15	29	41	52	60	57	46	34
Prior Day ⁽²⁾	6	25	14	9	13	21	34	46	57			50	38
Wind Speed (Mph) ⁽²⁾	11	9	9	10	11	11	11						
Design Demand													
Firm ⁽³⁾	614.6	374.3	505.0	569.0	535.2	423.6	276.7	134.4	39.9	33.5	32.9	57.3	211.8
Non-Firm	179.9	145.0	162.6	172.8	166.9	164.9	124.9	100.5	83.3	67.9	80.1	88.0	105.8
Total	794.5	519.3	667.6	741.8	702.1	588.5	401.6	234.9	123.2	101.4	113.0	145.3	317.6
Day Type Adjustments													
Holiday													
Firm ⁽³⁾	(5.3)	0.0	(5.3)	(5.3)	(5.3)	0.0	0.0	0.0	(2.5)	(3.1)	(1.5)	0.0	(8.3)
Non-Firm	(19.4)	(28.6)	(19.4)	(19.4)	(19.4)	(22.4)	(27.3)	(20.2)	(12.7)	(19.0)	(16.3)	(18.3)	(16.7)
Total	(24.7)	(28.6)	(24.7)	(24.7)	(24.7)	(22.4)	(27.3)	(20.2)	(15.2)	(22.1)	(17.8)	(18.3)	(25.0)
Weekend													
Firm ⁽³⁾	(3.1)	0.0	(3.1)	(3.1)	(3.1)	0.0	0.0	0.0	(2.5)	(3.1)	(1.5)	0.0	(8.3)
Non-Firm	(12.8)	0.0	(12.8)	(12.8)	(12.8)	(22.4)	(21.7)	(19.3)	(12.7)	(19.0)	(16.3)	(18.3)	(16.7)
Total	(15.9)	0.0	(15.9)	(15.9)	(15.9)	(22.4)	(21.7)	(19.3)	(15.2)	(22.1)	(17.8)	(18.3)	(25.0)
Standby	5.6												
EBS	10.5												

- █ ⁽¹⁾ Design Current Day Temperature is based on a 1-in-15 Gumbel Distribution risk level. The Design Monthly Maximum Temperatures is based on a 1-in-10 Normal Distribution risk level.
- █ ⁽²⁾ Design Prior Day Temperature not applicable during July and August; Design Wind Speed not applicable May through October
- █ ⁽³⁾ Excludes Standby and EBS quantities.

Max Day Regressions Based on the Following:

December through February use the design equation applied to the month's design conditions. All other months' days for regression analyses are based on the most recent three year occurrence of days within the month when average daily temperatures are at or below the historical month average daily temperature that occurred during 1949 through 2008. Each months' regression equation is applied to the month's design conditions. Below each month's historical average daily temperature is provided.

Nov	Regression based on 3 years of November at temperatures below 44°F
Dec	Based on the sum of design market regressions (December thru February)
Jan	Based on the sum of design market regressions (December thru February)
Feb	Based on the sum of design market regressions (December thru February)
Mar	Regression based on 3 years of March at temperatures below 40°F.
Apr	Regression based on 3 years of April at temperatures below 52°F.
May	Regression based on 3 years of May at temperatures below 61°F.
Jun	Regression based on 3 years of June at temperatures below 74°F.
Jul	Regression based on 3 years of July at temperatures below 74°F.
Aug	Regression based on 3 years of August at temperatures below 74°F.
Sep	Regression based on 3 years of September at temperatures below 66°F.
Oct	Regression based on 3 years of October at temperatures below 54°F.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

**Monthly Minimum Demand
Contract Year 2014-2015
Quantities In MDTh**

	Months											
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun ⁽³⁾	Jul	Aug	Sep ⁽⁴⁾	Oct
All Days												
Demand												
Firm ⁽¹⁾	88.8	157.0	198.0	198.3	88.8	38.1	18.9	18.9	23.4	25.6	25.6	27.2
Non-Firm	78.2	90.6	98.6	103.0	80.0	70.3	63.2	63.2	53.2	54.4	55.1	68.0
Total ⁽²⁾	167.0	247.6	296.6	301.3	168.9	108.4	82.1	82.1	76.7	80.0	80.7	95.2
Over the Past Five Years												
Days Experienced With Lower Demand	18	20	16	10	20	3	8	18	18	18	18	8
Weekdays												
Demand												
Firm ⁽¹⁾	96.5	161.6	201.3	194.7	86.7	36.1	19.2	19.2	24.5	26.2	26.2	28.0
Non-Firm	83.1	95.5	104.3	106.0	83.6	74.2	69.1	69.1	60.1	63.4	62.7	72.4
Total ⁽²⁾	179.6	257.1	305.6	300.6	170.3	110.3	88.3	88.3	84.7	89.6	88.9	100.4
Weekends												
Demand												
Firm ⁽¹⁾	70.3	146.2	189.5	206.7	93.2	43.2	17.8	17.8	21.7	24.8	24.8	25.5
Non-Firm	68.1	81.5	87.4	96.0	72.3	62.8	51.4	51.4	47.2	46.1	45.7	57.2
Total ⁽²⁾	138.4	227.7	276.9	302.7	165.5	106.0	69.2	69.2	69.0	70.8	70.5	82.7

Notes

- (1) The Minimum Total Demand is calculated to be the demand having a 10% probability based on the actual daily demand experienced over the past five years (January through June based on the period 2010 through 2014, July through December based on the period 2010 through 2014).
- (2) The Minimum Total Demand is calculated to be the demand having a 10% probability based on the actual daily demand experienced over the past five years (January through June based on the period 2010 through 2014, July through December based on the period 2009 through 2013).
- (3) June's minimum demand calculated to be 84.7 MDth, which is higher than shown for May. When this occurs May's values are used for June's minimum demand.
- (4) September's minimum firm demand calculated to be 22.4 MDth, which is less than shown for August. When this occurs August's firm values are used for September's minimum firm demand.

APPENDIX

APPENDIX

DEVELOPMENT OF DESIGN CONDITIONS AND STATISTICAL ANALYSIS METHODS USED

I. Design Day Conditions

CPA's Design Day Conditions include Design Current Day Temperature, Design Prior Day Temperature, Design Current Day Wind Speed, and with assumed occurrence on a weekday.

The Design Day Conditions for CPA are premised upon all available historical weather data ending with the winter 2007/08. The weights associated with the weather stations to generate the PSP Design Day Conditions are premised on December 2008 through February 2009 firm throughput. Exhibit A shows the Design Current Day Temperatures, Design Prior Day Temperatures, Design Current Day Wind Speed, the associated historical period, and the weights of the National Weather Service locations used to arrive at the Design Day Conditions for each PSP. The weather stations used for this determination are those located at Hagerstown, Maryland; Morgantown, West Virginia; Harrisburg, Pittsburgh; and Bradford, Pennsylvania. These weather stations are used because of their proximity to CPA's customers.

CPA's Design Current Day Temperature is that temperature having a 1 in 15 percent risk level. That is, the probability is 1 in 15, or 6.7 percent that any given winter will have one or more days with an average daily temperature equal to or colder than the Design Current Day Temperature. CPA uses the Gumbel, or double exponential, distribution to calculate the probabilities. This skewed distribution fits the coldest day temperature data better than a normal bell-shaped distribution.

CPA has developed temperature probability distributions for eight PSPs in Pennsylvania. The PSPs correspond to geographically defined locations in Columbia Gas Transmission LLC's (TCO) FERC approved Tariff. The development of a Design Current Day Temperature for a PSP is a two-step process. First, for each weather station within the PSP, all available history is used to develop an associated design temperature. Next, the design temperatures for each weather station are weighted based on the firm demand associated with each weather station. CPA's system wide Design Current Day Temperature is minus 5 degrees Fahrenheit. The same method is used to develop Design Prior Day Temperature and Design Current Day Wind Speed by PSP and for CPA in total.

CPA's Design Prior Day Temperature is the sum of the Design Current Day Temperature plus the mean difference of Prior Day Temperature minus Current Day Temperature for all "Cold Days". A Cold Day is defined as a day as cold as or colder than the Design Current Day Temperature, plus 5 degrees Fahrenheit. For example, the Pittsburgh weather station has a Design Current Day Temperature of minus 7 degrees Fahrenheit, so Cold Days for Pittsburgh, by definition, have temperatures minus 2 degrees Fahrenheit or colder. The resultant average difference (Cold Days and their respective Prior Days) from

this analysis is then added to the Design Current Day Temperature. The Pittsburgh, Design Prior Day Temperature is 5 degrees Fahrenheit. **Exhibit B** shows the historical temperature differences and calculation of Design Prior Day Temperature for the Pittsburgh weather station. Each station's Design Prior Day Temperature and their station weighting are shown on **Exhibit A**.

Consistent with the Prior Day Design Temperature methodology, the approach of using an average of Cold Days is used to establish CPA's Design Current Day Wind Speed. However, because Wind Speed data has only been available since 1991/92, a Cold Day is defined as Design Current Day Temperature plus 15 degrees Fahrenheit for Wind Speed design. Using Cold Days defined as 15 degrees plus Design Current Day Temperature provides more observations per station. Again, the design is developed at the weather station level, and then weighted for the PSP and total company design. **Exhibit C** shows the data considered for determining the Design Current Day Wind Speed (the calculated average wind speed on cold days) for the Pittsburgh weather station. The Design Current Day Wind Speed for each weather station is shown on **Exhibit A**.

Exhibit D shows the latest date within a winter season beyond which there is only a 10% probability of occurrence of a temperature equal to or colder than Design Current Day Temperature. To determine this "Latest Date of Design Current Day Temperature", only the latest actual day of Design Current Day Temperature or colder occurring per winter heating season is considered in the distribution (red bars). Since there are few days in this analysis, a t-distribution was used to calculate the January 25th date.

II. Regression Analysis and Criteria Considered

The statistic R^2 is "the estimated proportion of the variance of Y (the demand) that can be attributed to its linear regression on X (the collection of explanatory variables)". (Snedecor and Cochran, Statistical Methods, Seventh Edition, page 181.)

Note that R^2 for the Firm Demand component typically exceeds R^2 for the Industrial Demand component. The higher R^2 for Firm Demand indicates that the explanatory variables included in the model account for a high proportion of the day to day variation in demand. The lower R^2 for the industrial models indicates that variables not included in the models affect demand. For example, day-to-day production / operations, pricing of alternative fuels or customers' ability to use previously banked gas supplies may affect industrial demand.

In some PSPs the models have missing coefficients. A missing coefficient indicates that the associated variable does not affect demand with 95 percent confidence. In order to affect demand with 95 percent confidence, an explanatory variable must have an estimated regression coefficient, which is large compared to its standard error. In statistical terms, the probability of obtaining such a large estimated coefficient is less than 5 percent if the true coefficient is zero.

The day type variable includes both holiday and weekend demand impacts relative to weekdays. If weekend is found to be a valid explanatory variable, then holiday will have at least the same value as a weekend, or may be greater (absolute value).

III. Development of Monthly Maximum Conditions and Corresponding Demand

The Monthly Maximum Conditions are obtained using all available weather station temperature history which is then weighted to determine the company level design (see Section III “Design Day Conditions”). Selection of the Monthly Maximum Current Day Temperature is predicated on the actual average daily temperatures for a given month fitted to a normal distribution (vs. Gumbel distribution for Design Day Demand). The Monthly Maximum Current Day Temperature is that temperature having a 10% risk level. That is, there is a 10 percent probability of a daily average temperature equal to or colder than the Monthly Maximum Current Day Temperature. As with Design Day Demand, Monthly Design Conditions are based on weather station weighting (see Section III). The Monthly Maximum Prior Day Temperature was developed using the same methodology for developing the Design Prior Day Temperature. Design Prior Day Temperature is reflected in the months of September through June. Regression analysis has found that prior day temperature is not significant during the months of July and August.

For the months of November through April, Monthly Design Current Day Wind Speed reflects the average Wind Speed. Note, for each month, that Monthly Design Current Day Wind Speed is not reflected for any of the summer months (May through October). This is because the regression analysis has found wind to have significance only during the colder months of the year, in which wind speed has a direct effect on the heating load.

Regression analyses of daily firm and total demand were performed for each month using the past three years of history. Selection of the days to be analyzed for each month depended on the actual average temperature. Only days that had an average temperature within the range specified for each month were selected. The resulting regression coefficients were then applied to the Monthly Maximum Conditions to obtain the Monthly Maximum Demand.).

IV. Winter Historical Information

Exhibit E reflects the winter historical information for the winters used in the regression analysis. For instance, this past winter, peak day occurred on Tuesday, January 7, 2014. The temperature was 5°F, total December through January degree days at 59°F was 4,107 and there were 37 days in which the gas day average temperature was colder than 31°F. Over a 65-year history, this past winter was 14% colder than normal.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

Design Day Conditions

PSP	Pipeline Area	Location	2009 Station Weighting	Weather Station Design Conditions ⁽¹⁾			
				Historical Period	Current Day Temp ⁽²⁾	Prior Day Temp	Wind Speed
25E-25	Lancaster	Harrisburg, PA	95.3481	1925-2008	1	9	13
		Hagerstown, MD	4.6519	1925-2008	-1	7	13
		Total	100.0000		1	9	13
25-26	Bedford	Morgantown, WV	100.0000	1949-2008	-7	5	8
25E-29	Downingtown	Harrisburg, PA	100.0000	1925-2008	1	9	13
25-35	Pittsburgh	Pittsburgh, PA	82.9855	1925-2008	-7	5	11
		Morgantown, WV	17.0145	1949-2008	-7	5	8
		Total	100.0000		-7	5	10
25-36	Olean	Pittsburgh, PA	2.8259	1925-2008	-7	5	11
		Bradford, PA	97.1741	1941-2008	-15	-2	11
		Total	100.0000		-15	-2	11
25-38	Rimersburg	Pittsburgh, PA	50.1558	1925-2008	-7	5	11
		Bradford, PA	49.8442	1941-2008	-15	-2	11
		Total	100.0000		-11	2	11
25-39	New Castle	Pittsburgh, PA	100.0000	1925-2008	-7	5	11
25-40	PAWV Misc.	Pittsburgh, PA	3.4720	1925-2008	-7	5	11
		Morgantown, WV	96.5280	1949-2008	-7	5	8
		Total	100.0000		-7	5	8
CPA Total		Harrisburg	24.6195	1925-2008	1	9	13
		Pittsburgh	52.1039	1925-2008	-7	5	11
		Hagerstown	1.2012	1925-2008	-1	7	13
		Bradford	6.1968	1941-2008	-15	-2	11
		Morgantown	15.8787	1949-2008	-7	5	8
		Total Co	100.0000		-5	6	11

(1) Using all available temperature data through March 2008 and weather station weights based on actual firm customer demand from December 2008 through February 2009.

(2) Temperature having a 1 in 15 probability of occurrence.

Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19

Exhibit B

Airport: PIT Weather Station: PITTSBURGH, PA.
Determination of Weather Station Design Prior Day Temperature
Based on the 83 Heating Seasons 1925/1926 Through 2007/2008
For Variable: MID_MID_AVG_TMP with a Risk of 1 in 15

Cold Day ⁽¹⁾ Date ⁽²⁾	Average Cold Day Temp. In °F	Average Prior Day Temp. In °F	Difference Between Prior Day and Cold Day Temp.
01/23/1936	-9	11	20
01/24/1936	-2	-9	-7
01/27/1936	-2	7	9
01/19/1940	-3	7	10
01/24/1963	-9	16	25
01/08/1970	-2	8	10
01/17/1977	-9	1	10
01/10/1982	-4	12	16
01/17/1982	-10	9	19
12/25/1983	-5	1	6
01/21/1984	-4	3	7
01/20/1985	-8	14	22
01/21/1985	-5	-8	-3
01/18/1994	-4	23	27
01/19/1994	-12	-4	8
Average:	-6	6	12
Design Day Temperature °F:		-7	
Range Temperature °F:		5	
Maximum Cold Day Temperature ⁽¹⁾ °F: (-7+5)		-2	
Design Prior Day Temperature ⁽³⁾ °F: (-7+12)		5	

⁽¹⁾ For the purpose of determining the design Prior Day Temperature the Cold Day Temperature equals Design Day Temperature plus five degrees (-7° + 5° = -2°).

⁽²⁾ Days on which the observed average temperature was equal to or colder than -2°.

⁽³⁾ The Design Prior Day Temperature is derived from the calculated average difference in temperatures on "Cold Days" and the preceding, or prior, day that is then added to the Design Current Day Temperature.

**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19**

Exhibit C

**Airport: PIT Weather Station: PITTSBURGH, PA.
Determination of Weather Station Design Wind Speed
Based on the 17 Heating Seasons 1991/1992 Through 2007/2008
For Variable: MID_MID_WIND_SPEED with a Risk of 1 in 15**

Note: History on Wind Speed Begins October 1991

Cold Day ⁽¹⁾ Date⁽²⁾	Average Cold Day Temp. In °F	Average Wind Speed in MPH
01/19/1992	8	9
02/18/1993	8	13
01/15/1994	-1	16
01/16/1994	1	10
01/18/1994	-4	16
01/19/1994	-12	10
01/20/1994	1	4
01/21/1994	5	9
02/05/1995	6	22
02/06/1995	6	18
02/12/1995	4	13
02/03/1996	5	10
02/04/1996	1	9
02/05/1996	8	12
01/17/1997	3	17
01/18/1997	4	12
01/05/1999	4	6
01/23/2003	8	14
01/27/2003	7	6
01/10/2004	8	6
01/31/2004	7	8
01/18/2005	8	7
01/23/2005	7	16
02/04/2007	7	16
02/05/2007	2	12
02/06/2007	4	7
Average Cold Day Wind Speed ⁽³⁾		11
Design Day Temperature °F:		-7
Range Temperature °F:		15
Maximum Wind Speed Cold Day Temperature		8

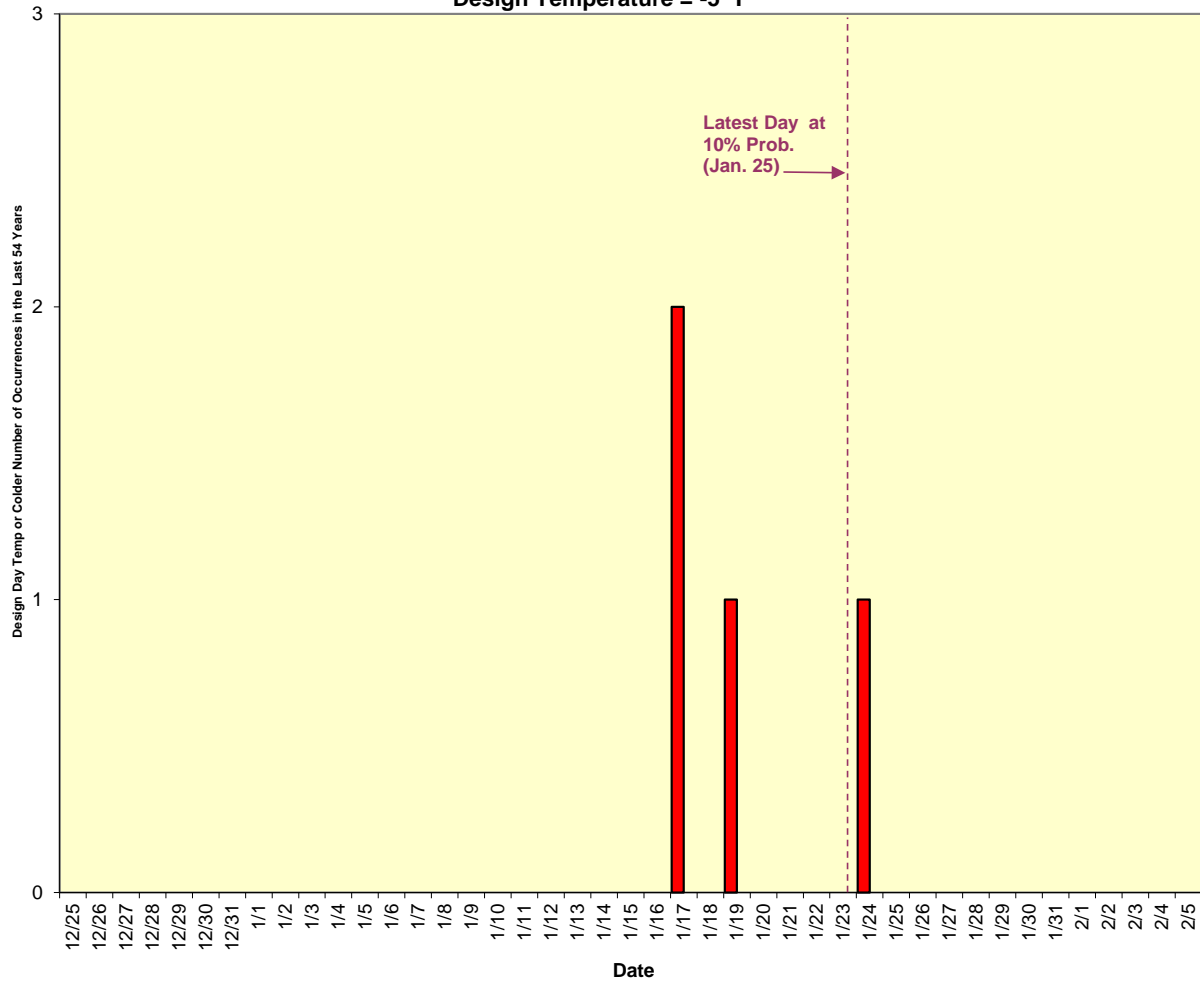
⁽¹⁾ For the purpose of determining the Design Current Day Wind Speed the Cold Day Temperature equals Design Day Temperature plus fifteen degrees (-7° +15° = 8°).

⁽²⁾ Days on which the observed average temperature was equal to or colder than 8°.

⁽³⁾ Design Day Average Wind Speed equals average wind speed on "Cold Days" or 11 mph.

COLUMBIA GAS OF PENNSYLVANIA
2014 Design Day Forecast, 2014/15 - 2018/19

90% Probability Date of Design Temperature Occurrence
Design Temperature = -5° F



**Columbia Gas of Pennsylvania
2014 Design Day Forecast, 2014/15 - 2018/19
Winter Historical Information**

Year	Winter	% From 65 Yr Avg	Peak	Peak Day of Week	Dec - Jan
	DDs @ 59				Days <31°F
99/00	3,109	-13	1/21, 10°F	Friday	28
00/01	3,956	10	12/22, 8°F	Friday	42
01/02	2,865	-20	3/4, 17°F	Monday	18
02/03	4,018	12	1/23, 12°F	Thursday	40
03/04	3,642	1	1/30, 9°F	Friday	40
04/05	3,519	-2	1/17, 11°F	Monday	27
05/06	3,428	-4	2/18, 12°F	Saturday	25
06/07	3,369	-6	2/5, 5°F	Monday	20
07/08	3,602	0	1/20, 11°F	Sunday	23
08/09	3,712	3	1/16, 2°F	Friday	35
09/10	3,487	-3	1/2, 14°F	Saturday	32
10/11	3,871	8	1/23, 10°F	Sunday	52
11/12	2,751	-23	1/3, 15°F	Tuesday	15
12/13	3,555	-1	1/22, 9°F	Tuesday	24
13/14	4,107	14	1/7, 5°F	Tuesday	37

Design Temp: -5°F (1 in 15 Risk)

DD Avg. 1949/50 - 2013/14: 3,589

2013/14 Winter 14% colder than 65 year average

2013/14 Winter ranks as the 7th coldest in 65 years