



# Pennsylvania Natural Gas Trends and Developments

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# Table of Contents

- I. Executive Summary ..... 3
  - Introduction..... 3
  - Overview..... 3
- II. Pennsylvania Natural Gas Infrastructure..... 6
  - Distribution – Aging Infrastructure..... 6
  - Lost and Unaccounted for Natural Gas..... 6
  - Pipelines ..... 8
    - Figure 1 NGDC/Pipeline Relationship ..... 10
  - Electric Generation ..... 11
    - Figure 2 Existing Capacity in Pennsylvania ..... 12
    - Figure 3 Electric Queue in Pennsylvania ..... 13
      - Table 1 PJM Capacity and Generation Mix in % ..... 14
      - Table 2 Fuel Type and Marginal Unit as % of Total Generation ..... 15
    - Figure 4 Natural Gas Deliveries to Pennsylvania Electric Power Generators ..... 16
- III. U.S. Natural Gas Production, Reserves and Prices ..... 17
  - Table 3 Historical U.S. Natural Gas Production, Reserves and Prices..... 18
- IV. Pennsylvania Deliveries, Gas Transported for Competitive Suppliers and PA  
Production of Natural Gas ..... 19
  - Table 4 Pennsylvania Deliveries, Transportation and Production..... 20
  - Figure 5 Pennsylvania Production vs. U.S. Wellhead Price ..... 21
  - Figure 6 2009 Deliveries by Pennsylvania Gas Utilities ..... 22
- V. Natural Gas Distribution Company (NGDC) Statistical Data..... 23
  - Customer Data ..... 23
    - Table 5 2009 Customer Statistical Data ..... 23
- VI. Pennsylvania NGDC Gas Supply and Demand Balance ..... 24
  - Figure 7 Pennsylvania Gas Delivered for Electric Generation ..... 25
    - Table 6 2009 Annual Gas Supply and Demand for Major Gas Utilities ..... 26
  - Figure 8 Pennsylvania Gas Utility Annual Supply 2009..... 27
    - Table 7 2009 Peak Day Gas Supply and Demand Balance for Major Gas Utilities  
..... 28
  - Figure 9 Pennsylvania Peak Day Supply 2009 ..... 29
    - Table 8 2013 Forecast Annual Gas Supply and Demand Balance..... 30

|  |    |
|--|----|
| Figure 10 Pennsylvania Gas Utility Annual Supply Forecast 2013 .....                 | 31 |
| Figure 11 Pennsylvania Peak Day Supply Forecast 2013 .....                           | 32 |
| VII. NGDC Financial Statistics.....  | 33 |
| Table 9 Operating Revenue, Operating Expense and Net Operating Income ....           | 34 |
| Table 10 Administration & General Expense.....                                       | 35 |
| Table 11 Total Gas Costs, AVG Cost of Gas Purchased, Gross Plant in Service<br>..... | 36 |
| Appendix A Units of Measure .....  | 37 |

# I. Executive Summary

## Introduction

Section 59.48 of the Public Utility Code (Code) requires natural gas distribution companies (NGDCs) to file annual financial reports with the Pennsylvania Public Utility Commission (PUC). These Gas Annual Reports detail such items as financial and accounting data including revenues and expenses. Section 59.81 of the Code requires the filing of annual resource planning reports (ARPR) for major gas utilities with the PUC. NGDCs with sales of 8 billion cubic feet (Bcf) per year or more must file these reports, which include the past year's historical data, program changes, and the next three-year forecast of demand requirements. This report has been prepared using information filed by the NGDCs, the U.S. Energy Information Agency (EIA), and other sources.

## Overview

The Bureau of CEEP has prepared the 2011 Pennsylvania Natural Gas Report: Trends and Developments to summarize the financial and supply data for the Pennsylvania NGDCs and to present several topics of interest with regard to the Pennsylvania natural gas industry.

There are approximately 3 million natural gas customers in Pennsylvania.<sup>1</sup> There are 36 regulated natural gas utility companies in Pennsylvania; 10 of these are major distribution companies. Additionally, there are 14 intrastate pipelines, nine interstate pipelines, three landfill gas pipeline projects, 25 propane facilities, and four liquified natural gas (LNG) facilities.<sup>2</sup> Infrastructure needs are being met by expansion

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<sup>1</sup> US EIA Number of Natural Gas Consumers, [http://www.eia.gov/dnav/ng/ng\\_cons\\_num\\_dcu\\_SPA\\_a.htm](http://www.eia.gov/dnav/ng/ng_cons_num_dcu_SPA_a.htm).

<sup>2</sup> Metro, Paul. PUC's Role in Pipeline Safety Part 2, Presentation to S.A.V.E. on Sept. 23, 2010. [http://www.puc.state.pa.us/transport/gassafe/pdf/Presentation\\_SAVE.pdf](http://www.puc.state.pa.us/transport/gassafe/pdf/Presentation_SAVE.pdf)

and replacement efforts of existing pipelines, with new pipelines and compressor stations being constructed.

National storage inventory totaled 3.8 trillion cubic feet at the end of November 2010, which is slightly less than last year's record setting end of November level. Natural gas production throughout the United States increased by 3.5 percent in 2010. Decreases in Gulf of Mexico production were offset by lower 48 state production including a growing amount of horizontal shale drilling. EIA expects a decline of 0.1 percent in production in 2011 because of relatively lower natural gas prices. Petroleum liquids remain at an attractive selling price so that more drilling in shale formations with a higher liquid proportion is favored. EIA predicts the Henry Hub annual average spot price to average \$4.37 per million BTU (MMBtu) for 2010, and average \$4.33 per MMBtu in 2011.<sup>3</sup>

As of January 21, 2011, more than 6,200 Marcellus drilling permits have been issued. Of those permits issued, 2,612 wells have been drilled with 950 wells producing as of September 1, 2010.<sup>4</sup>

Financial statistics taken from the Gas Annual Reports of the NGDCs are presented in time series fashion from 2003 through 2009. Broad category financial data is presented for several categories, such as Revenue, Expenses, Plant in Service, Depreciation, Maintenance, Gas Costs, etc.

Data on the number of customers, reserves, wellhead prices, Pennsylvania production and average consumption figures are provided. The sources of this information are the ARPRs, the Gas Annual Reports, EIA and the Pennsylvania Topographic and Geologic Survey.

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<sup>3</sup> EIA Short Term Energy Outlook, released Dec. 7, 2010.  
<http://www.eia.doe.gov/emeu/steo/pub/contents.html>

<sup>4</sup> PA DEP Weekly Well Permit Workload Report for 1/17/2011-1/21/2011, [www.dep.state.pa.us/dep/deputate/minres/oilgas/new\\_forms/marcellus/marcellus.htm](http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/marcellus.htm) and Thomas B. Murphy, Penn State University Extension Educator presentation, "Impact and Opportunities," Central PA Business Journal Energy Symposium, January 25, 2011.

To summarize the relevant statistics in this report, natural gas delivery to Pennsylvania utility customers has remained steady from 2002 to the present at approximately 600 Bcf per year. Pennsylvania gas production peaked at 272.6 Bcf in 2009 (the most recent data available). Retail and residential sales have increased since 2002 in Pennsylvania. Gas deliveries for Pennsylvania electric generation has increased dramatically from 3.4 percent of total deliveries in 2001 to 28 percent in 2009.<sup>5</sup> Marcellus shale operations continue with broad impacts on the natural gas industry in Pennsylvania.

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<sup>5</sup> EIA, Natural Gas Summary, Dry Production, [http://tonto.eia.doe.gov/dnav/ng/hist/na1160\\_spa\\_2a.htm](http://tonto.eia.doe.gov/dnav/ng/hist/na1160_spa_2a.htm)

## II. Pennsylvania Natural Gas Infrastructure

### Distribution – Aging Infrastructure

Pennsylvania has approximately 47,000 miles of gas mains. Of the total gas mains, 3,600 miles are cast iron and 9,000 miles are unprotected steel pipes. Bare steel and cast iron account for about 5 percent of the distribution pipe and 95 percent of leaks. Most of these date to the World War II era. Replacement costs are estimated at \$13 billion over 20 years.<sup>6</sup>

### Lost and Unaccounted for Natural Gas

Lost and unaccounted (L&U) for natural gas is the difference between the total gas available from all sources and the total gas accounted for from sales, net interchange and company use. Releases occur through leaks from compressor and pump seals, old leaking pipes, and vented emissions from operation practices or accidental breaks.

Several tons of gas is either flared off or released to the atmosphere when pipelines are repaired. Natural gas is a more potent green house gas than carbon dioxide. EIA tracks L&U for Pennsylvania as a balancing item in its disposition statistics. The balancing item reflects the difference between total disposition and total supply. A positive balancing item indicates that disposition exceeds supply and a negative balancing item indicates that supply exceeds disposition. For 2009, the balancing item was a negative 27,538 million cubic feet (MMcf).<sup>7</sup> Gas that is used internally for transportation, lost through line breaks or vented, is unaccounted for. Some unaccounted for gas is from inaccurate metering and accounting errors from

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<sup>6</sup> See footnote 1. Also: Leonard, Kim. "Gas Companies Work to Update Aging System." *Pittsburgh Tribune Review*, March 7, 2008.  
[www.pittsburghlive.com/x/pittsburghtrib/news/cityregion/print\\_556017.html](http://www.pittsburghlive.com/x/pittsburghtrib/news/cityregion/print_556017.html)

<sup>7</sup> EIA Natural Gas Annual Supply & Disposition by State.  
[http://tonto.eia.doe.gov/dnav/ng/ng\\_sum\\_snd\\_dcu\\_SPA\\_a.htm](http://tonto.eia.doe.gov/dnav/ng/ng_sum_snd_dcu_SPA_a.htm), retrieved December 30, 2010.

pressure differences and the extraction of gas liquids. EIA is updating its reporting procedures to refine the balancing item.<sup>8</sup>

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<sup>8</sup> EIA Short-Term Energy Outlook Supplement - Changes in Natural Gas Monthly Consumption Data Collection and the Short-Term Energy Outlook, December 2010.

## Pipelines

Twenty interstate natural gas pipelines exist in the Northeast Region (Connecticut, Delaware, Massachusetts, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Virginia and West Virginia). These interstate pipelines deliver to several intrastate pipelines and more than 50 local distribution companies (LDCs). They also deliver to natural gas fired electric generating facilities and large industrial concerns. The pipelines in Pennsylvania have access to flows from the South and Midwest, from the Rockies via the Rockies Express pipeline, and from Canada.<sup>9</sup>

New pipeline additions in the Northeast include 1.2 Bcfd added since winter 2009-10. Much of the new pipeline is intended to move Marcellus gas to market.<sup>10</sup> As Marcellus shale production increases, pipelines will be needed to carry the gas to the end user. Pipelines are in planning stages to bring the gas to the Philadelphia, New York City and New Jersey areas. Future pipeline growth may even see a change of the traditional pipeline flow into the Northeast with new flows out of the Marcellus shale area to serve Northeast markets. Marcellus shale gas is already beginning to displace flows from the west into Pennsylvania.<sup>11</sup> Imports of Canadian gas have dropped 50 percent in the Northeast since October 2009 to less than 1 Bcfd. Marcellus gas production has increased to around 0.7 Bcfd as of October 2010.<sup>12</sup>

As electric generation by natural gas increases, pipeline operators are beginning to respond to that potential market. As coal-fired electric generation converts to natural gas and/or co-fires with natural gas, demand for pipeline natural gas will increase. Power plants need stable long-term pricing, responsive support and reasonable transport costs.

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<sup>9</sup> Natural Gas Pipelines in the Northeast Region, EIA About U.S. Natural Gas Pipelines, retrieved Oct. 7, 2009.

<sup>10</sup> FERC Winter 2010-2011 Energy Market Assessment, Item No. A:3, Oct. 21, 2010.

<sup>11</sup> Marcellus Gas Already Displacing Traditional Supplies, Says Analyst, NGI's Shale Daily, Oct. 22, 2010. Vol. 1, No. 14.

<sup>12</sup> FERC Winter 2010-2011 Energy Market Assessment Item No: A-3, Oct. 21, 2010.

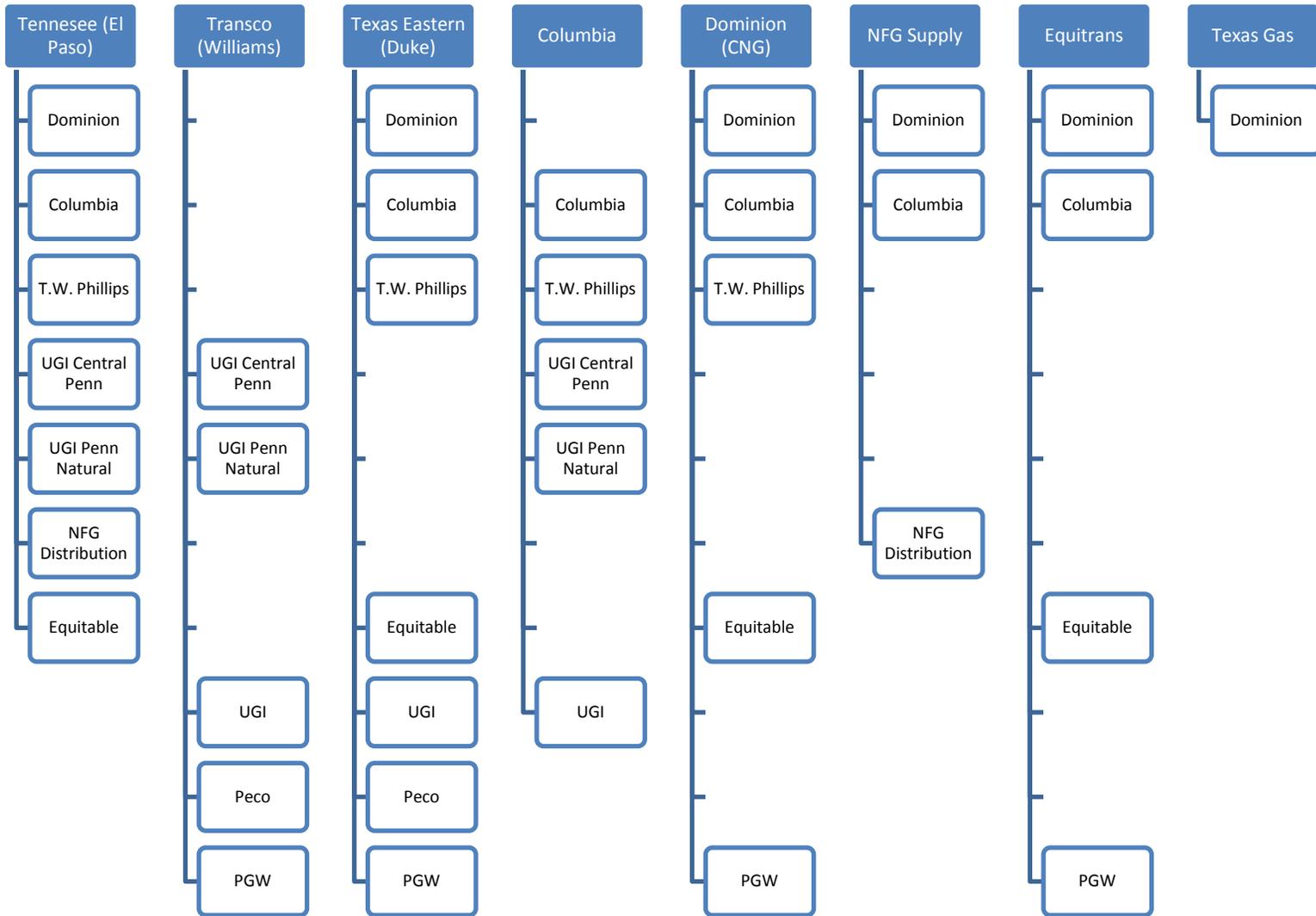
Compressor stations are pumping facilities that move natural gas. They are usually 50 to 100 miles apart along the length of a pipeline with the average compressor station moving about 700 million cubic feet per day.<sup>13</sup> Compressor station construction will be needed as the Marcellus shale resource increases production and to serve any additional natural gas electric generating stations. Pipeline operators are in the process of replacing gas-fired compressors with electric powered compressors due to air quality issues. Electric supply to these compressor stations will be critical especially in extreme weather events.

The NGDC/Pipeline Relationship diagram follows. Figure 1 details where the NGDCs serving Pennsylvania obtain their gas supplies. The diagram was developed from the Interstate Natural Gas Infrastructure Map Book and the 2009 Gas Annual Reports. The NGDC/pipeline relationships can vary and the most current information can be obtained from each pipeline's website.

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<sup>13</sup> EIA, Natural Gas Compressor Stations on the Interstate Pipeline Network: Developments Since 1996, EIA Office of Oil and Gas, November 2007.

**Figure 1 NGDC/Pipeline Relationship**



## Electric Generation

By the end of 2009, Pennsylvania had 10,546 megawatts (MWs) of natural gas fired electric generation. These facilities constitute 25 percent of Pennsylvania's generating capacity. The PJM queues at the end of 2009 of new generation included 12,736 MWs of proposed new natural gas fired capacity. Typically about 25 percent of the queue actually gets built. Figure 2 illustrates the 2009 generating capacity in Pennsylvania by fuel type. Figure 3 presents the 2009 queue data for PJM. Both figures are derived from PJM's 2009 Regional Transmission Expansion Plan.

Figure 2 Existing Capacity in Pennsylvania

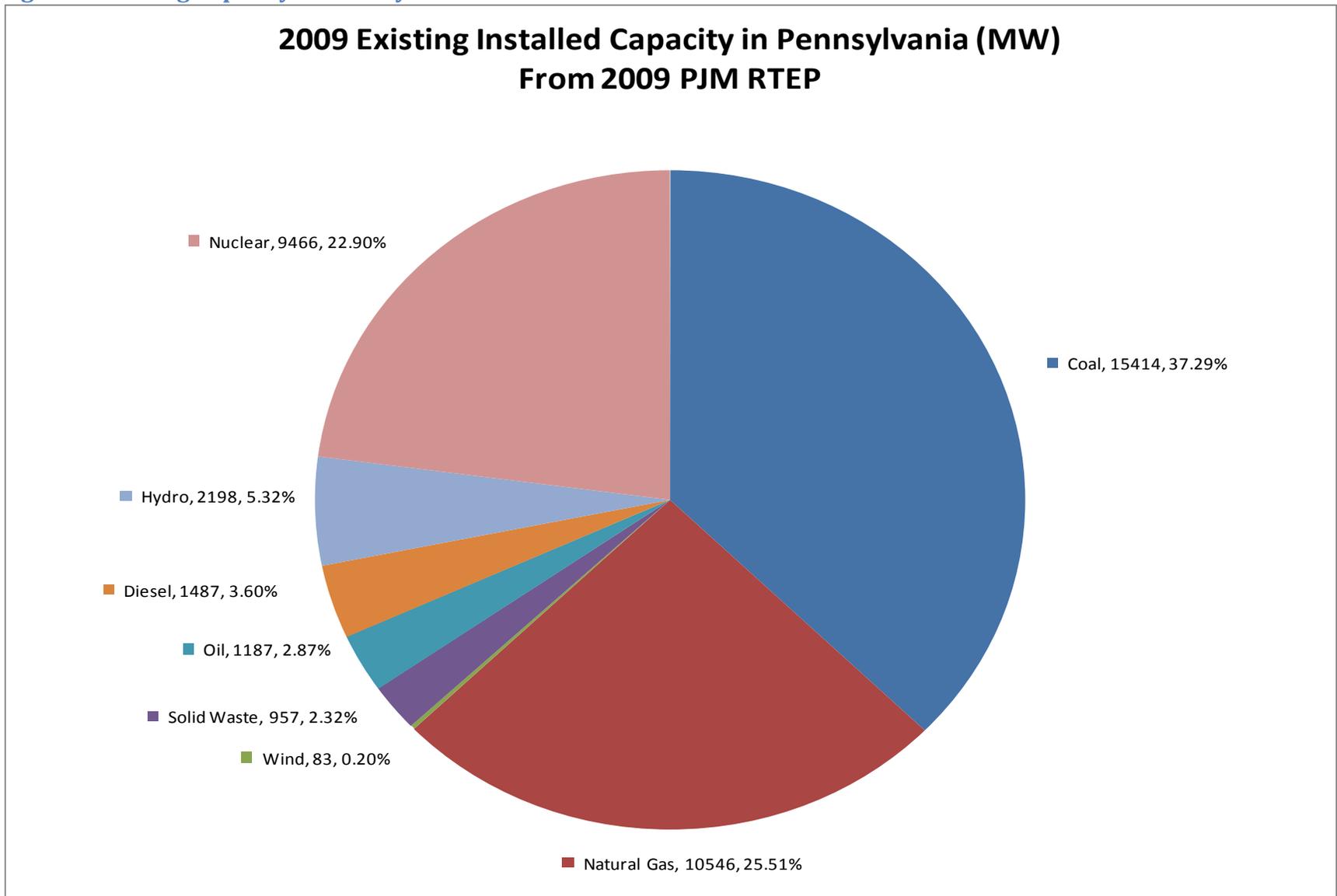
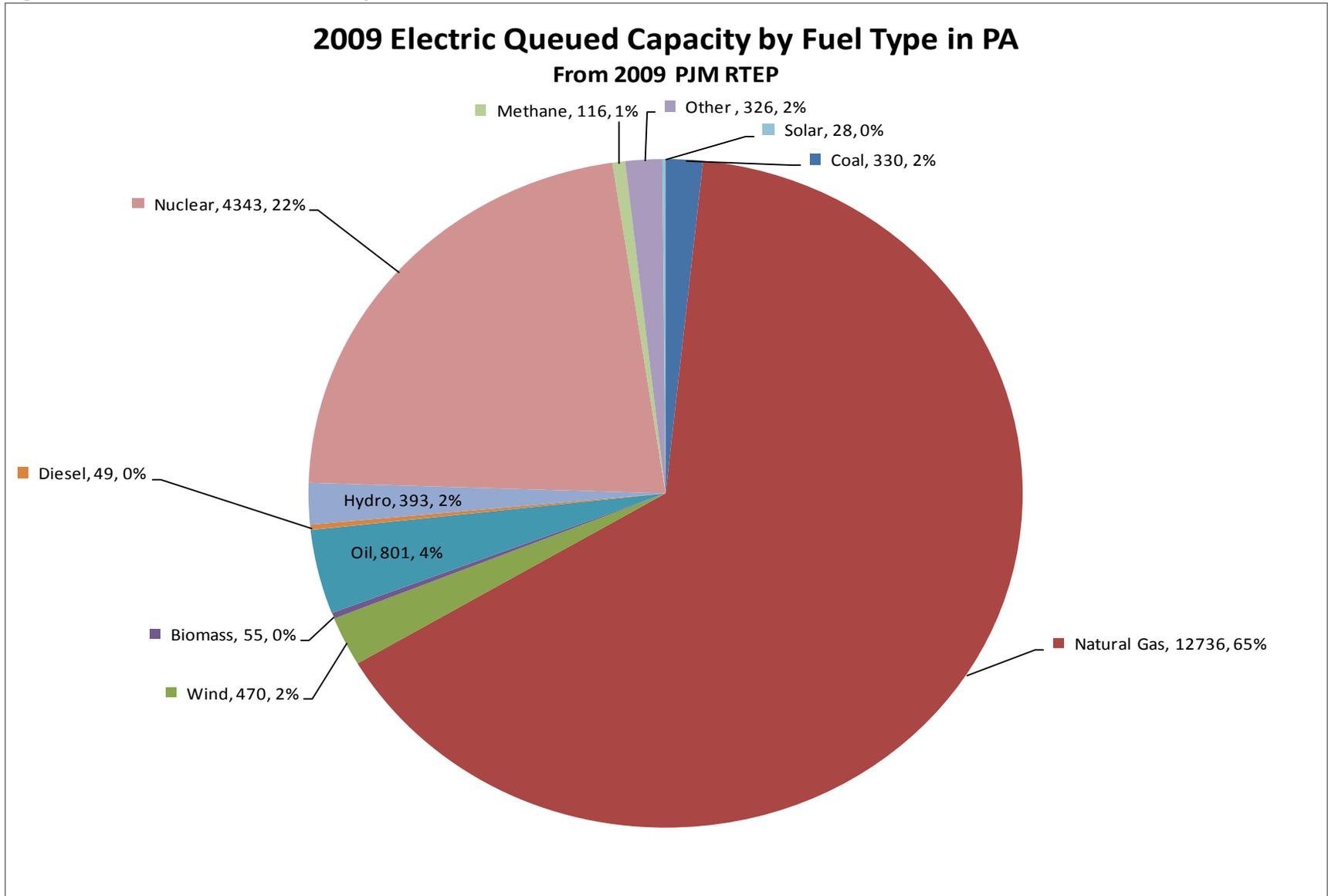


Figure 3 Electric Queue in Pennsylvania



By the end of September 2010, PJM's total capacity was 166,732 MW. The PJM capacity and generation supply mix for the entire PJM area, which includes Pennsylvania is summarized as follows<sup>14</sup>:

*Table 1 PJM Capacity and Generation Mix in %*

|                    | <b>September 2010<br/>Capacity<br/>MW</b> | <b>September<br/>2010 Capacity<br/>Percent</b> | <b>January –<br/>September<br/>2010<br/>Generation<br/>GWh</b> | <b>January –<br/>September 2010<br/>Generation<br/>Percent</b> |
|--------------------|---|--|--|--|
| <b>Coal</b>        | 68,347                                    | 41.0%  | 279,395  | 49.9%  |
| <b>Nuclear</b>     | 30,604                                    | 18.4%  | 192,379  | 34.3%  |
| <b>Gas</b>         | 47,924                                    | 28.7%  | 64,024   | 11.2%  |
| <b>Hydro</b>       | 7,924                                     | 4.8%   | 11,193   | 2.0%   |
| <b>Oil</b>         | 10,742                                    | 6.4%   | 2,943  | 0.5%   |
| <b>Solid Waste</b> | 680                                       | 0.4  | 4,684  | 0.6%   |
| <b>Wind</b>        | 512                                       | 0.3%   | 5,599  | 1.0%   |

Although natural gas provided only 11.2 percent of the January through September 2010 generation in PJM, the marginal price or Locational Marginal Price (LMP) was set by natural gas generators in 26 percent of the time January through September 2010. The marginal unit is the generator that can supply the next available MWs of power. In 2009, natural gas set the marginal price 22 percent of the time. A summary of fuel type and marginal unit is presented below<sup>15</sup>.

<sup>14</sup> 2010 Q3 State of the Market Report for PJM, 2010 Monitoring Analytics LLC.

<sup>15</sup> 2009 State of the Market Report for PJM, 2010 Monitoring Analytics LLC.

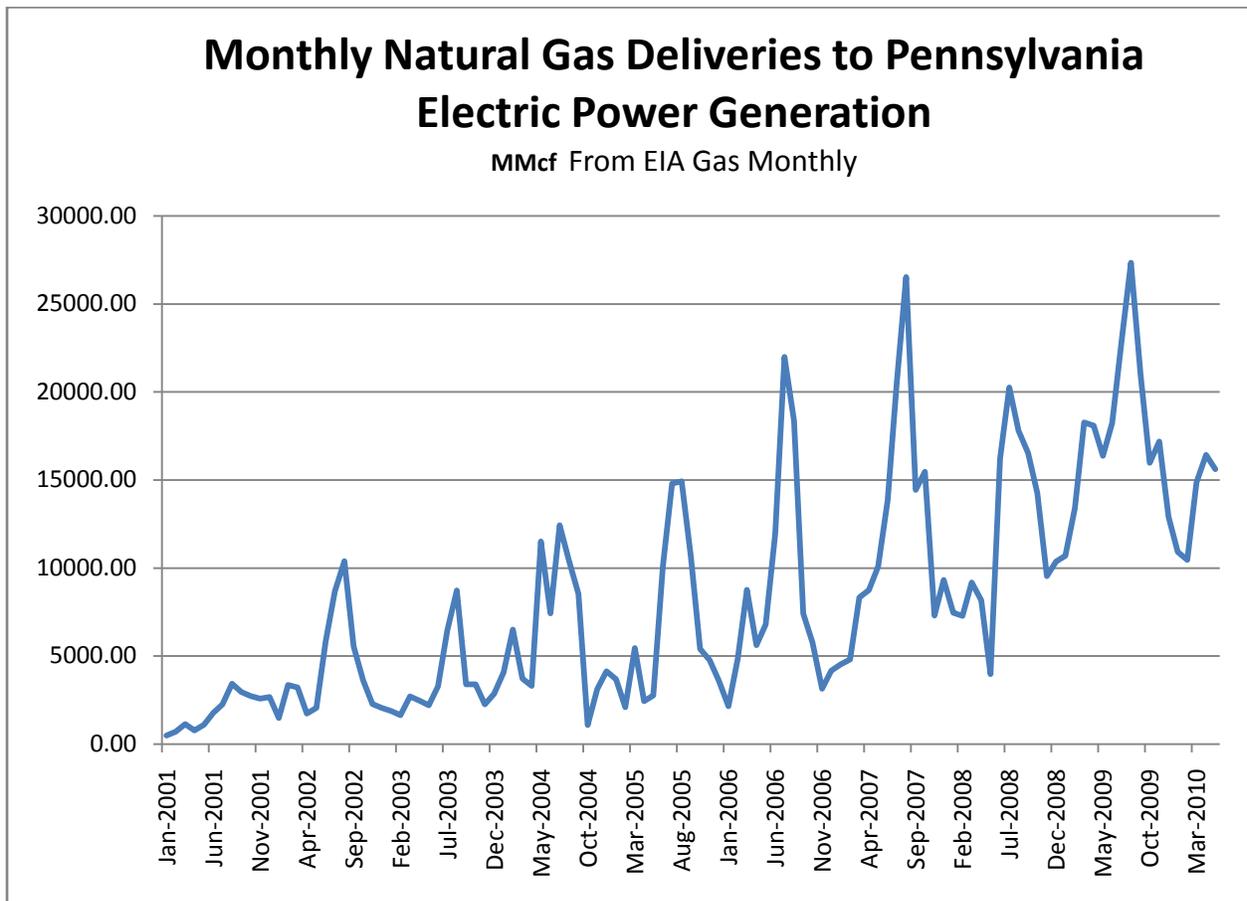
*Table 2 Fuel Type and Marginal Unit as % of Total Generation*

| <b>Fuel Type</b>    | <b>January thru<br/>September<br/>2010<br/>Percentage<br/>of Marginal<br/>Resources</b> | <b>Calendar Year<br/>2009<br/>Percentage of<br/>Marginal<br/>Resources</b> |
|---------------------|---|--|
| <b>Coal</b>         | 66%   | 74%  |
| <b>Natural Gas</b>  | 26%   | 22%  |
| <b>Petroleum</b>    | 4%  | 3%   |
| <b>Nuclear</b>      | 0%  | 0%   |
| <b>Wind</b>         | 2%  | 0%   |
| <b>Landfill Gas</b> | 1%  | 1%   |
| <b>Misc</b>         | 1%  | 0%   |

When the natural gas facility sets the LMP, the other generators, including lower cost coal and nuclear plants, are paid the higher price.

Figure 4 details the natural gas deliveries to Pennsylvania electric power generators. We can see the cyclical nature of the deliveries as natural gas is used for summer peak generation and the overall increase in deliveries since 2001.

Figure 4 Natural Gas Deliveries to Pennsylvania Electric Power Generators



### III. U.S. Natural Gas Production, Reserves and Prices

The following table shows United States natural gas production, reserves and prices for the period 1975 through 2009. EIA forecasts natural gas production to increase by 3.5 percent in 2010, but with a slight decline of 0.1 percent in 2011. Production in the Gulf of Mexico (GOM) is expected to decline by 14.3 percent in 2011 due to lower natural gas prices. This decline in production will mostly be offset by non-GOM production. Shale gases with a liquid component will be particularly attractive because of favorable liquid petroleum prices.<sup>16</sup>

Dry proven U.S. gas reserves decreased by 18 percent from 1976 to 2000. Since then, higher prices, increased exploration and technology applications for drilling in shale formations have increased reserves by 54 percent over the period 2000 to 2009. Proven reserves for 2009 (as of Dec. 31, 2009) are 26 percent higher than the 1976 reserves. Proven Pennsylvania reserves as of Dec. 31, 2009, were 6,985 BCF. Total Pennsylvania storage capacity for 2009 was 776,964 MCF.<sup>17</sup>

Gas prices have been moderate for 2010. Prices have increased since 2009 due to higher demand for summer cooling and increased industrial demand, but supplies have increased. Production has grown to more than 59 Bcfd from 48 Bcfd in 2005. Shale gas may help to moderate long-term gas prices.<sup>18</sup>

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<sup>16</sup> EIA Short Term Energy Outlook, released Dec. 7, 2010.

<sup>17</sup> EIA Natural Gas Navigator, retrieved 12/30/2010.

<sup>18</sup> FERC, Winter 2010-2011 Energy Market Assessment, Oct. 21, 2010.

*Table 3 Historical U.S. Natural Gas Production, Reserves and Prices*

| <b>U.S. Natural Gas Production, Reserves and Prices: 1976 – 2009</b> |                             |                                |                                  |
|--|-----------------------------|--------------------------------|----------------------------------|
| from EIA Natural Gas Navigator                                       |                             |                                |                                  |
| <b>Year</b>  | <b>Dry Production (BCF)</b> | <b>Wellhead Price (\$/MCF)</b> | <b>Dry Proved Reserves (BCF)</b> |
| <b>1976</b>  | 19,098                      | \$0.58                         | 216,026                          |
| <b>1977</b>  | 19,163                      | \$0.79                         | 207,413                          |
| <b>1978</b>  | 19,122                      | \$0.91                         | 208,033                          |
| <b>1979</b>  | 19,663                      | \$1.18                         | 200,997                          |
| <b>1980</b>  | 19,403                      | \$1.59                         | 199,021                          |
| <b>1981</b>  | 19,181                      | \$1.98                         | 201,730                          |
| <b>1982</b>  | 17,820                      | \$2.46                         | 201,512                          |
| <b>1983</b>  | 16,094                      | \$2.59                         | 200,247                          |
| <b>1984</b>  | 17,466                      | \$2.66                         | 197,463                          |
| <b>1985</b>  | 16,454                      | \$2.51                         | 193,369                          |
| <b>1986</b>  | 16,059                      | \$1.94                         | 191,586                          |
| <b>1987</b>  | 16,621                      | \$1.67                         | 187,211                          |
| <b>1988</b>  | 17,103                      | \$1.69                         | 168,024                          |
| <b>1989</b>  | 17,311                      | \$1.69                         | 167,116                          |
| <b>1990</b>  | 17,810                      | \$1.71                         | 169,346                          |
| <b>1991</b>  | 17,698                      | \$1.64                         | 167,062                          |
| <b>1992</b>  | 17,840                      | \$1.74                         | 165,015                          |
| <b>1993</b>  | 18,095                      | \$2.04                         | 162,415                          |
| <b>1994</b>  | 18,821                      | \$1.85                         | 163,837                          |
| <b>1995</b>  | 18,599                      | \$1.55                         | 165,146                          |
| <b>1996</b>  | 18,854                      | \$2.17                         | 166,474                          |
| <b>1997</b>  | 18,902                      | \$2.32                         | 167,223                          |
| <b>1998</b>  | 19,024                      | \$1.96                         | 164,041                          |
| <b>1999</b>  | 18,832                      | \$2.19                         | 167,406                          |
| <b>2000</b>  | 19,182                      | \$3.68                         | 177,427                          |
| <b>2001</b>  | 19,616                      | \$4.00                         | 183,460                          |
| <b>2002</b>  | 18,928                      | \$2.95                         | 186,946                          |
| <b>2003</b>  | 19,099                      | \$4.88                         | 189,044                          |
| <b>2004</b>  | 18,591                      | \$5.46                         | 192,513                          |
| <b>2005</b>  | 18,051                      | \$7.33                         | 204,385                          |
| <b>2006</b>  | 18,504                      | \$6.39                         | 211,085                          |
| <b>2007</b>  | 19,266                      | \$6.25                         | 237,726                          |
| <b>2008</b>  | 20,159                      | \$7.97                         | 244,656                          |
| <b>2009</b>  | 20,580                      | \$3.67                         | 272,509                          |

## IV. Pennsylvania Deliveries, Gas Transported for Competitive Suppliers and PA Production of Natural Gas

This section presents Pennsylvania specific data. The data includes sales by NGDCs, deliveries by NGDCs for competitive suppliers and Pennsylvania production of natural gas.

Two graphs are provided, one which shows production of natural gas within Pennsylvania in conjunction with the U.S. average wellhead price of natural gas. The other graph shows Pennsylvania deliveries of natural gas for competitive suppliers, often called transportation gas.

Pennsylvania has 57,356 producing gas wells as of 2009.<sup>19</sup> This is an increase of 30 percent from 2004. The increase in active drilling is due to the activity in the Marcellus shale area of Pennsylvania. The US Geological Survey estimated the Marcellus shale reserves at between 822 and 3,667 BCF of undiscovered gas. The lower number is denoted as the F95 number, and the USGS asserts that there is a 95 percent chance of at least that amount. The higher number or F5 is defined similarly.

Marcellus shale wells typically yield from 1 million Mcf to as high as 10 million or 15 million Mcf per day. Shale wells have a high initial yield that declines quickly – falling by 50 percent by Year 2 and 80 percent by Year 8.<sup>20</sup> As shale drillers gain experience, the time to drill a shale gas well has decreased from weeks to days. Breakeven costs for shale drilling generally have fallen to less than \$4/MMBtu. Costs are even lower when the gas is wet, containing natural gas liquids like propane, ethane and butane as is the case in Southwestern Pennsylvania.<sup>21</sup> Marcellus shale drilling has one of the lower breakeven prices of \$3.14/Mcf for dry gas and \$2.86/Mcf for wet gas.<sup>22</sup>

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<sup>19</sup> EIA, Natural Gas Navigator, retrieved December 30, 2010.

<sup>20</sup> Forcing Gas Out of Rock with Water, Marianne Lavelle, National Geographic News, Oct. 17, 2010.

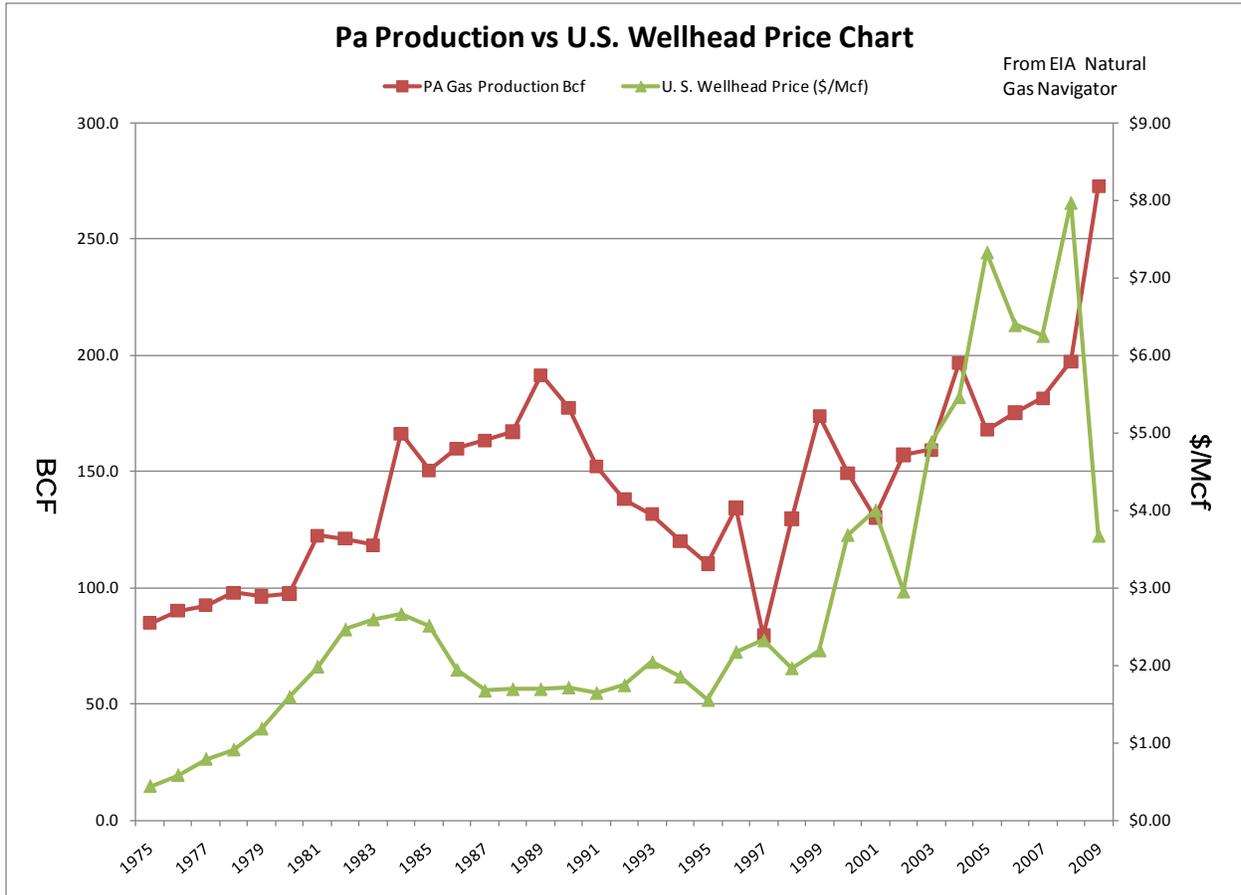
<sup>21</sup> FERC Winter 2010-2011 Energy Market Assessment, Oct. 21, 2010.

<sup>22</sup> Marcellus Gas Already Displacing Traditional Supplies, Says Analyst, NGI's Shale Daily, Oct. 22, 2010. Vol.1, No. 14.

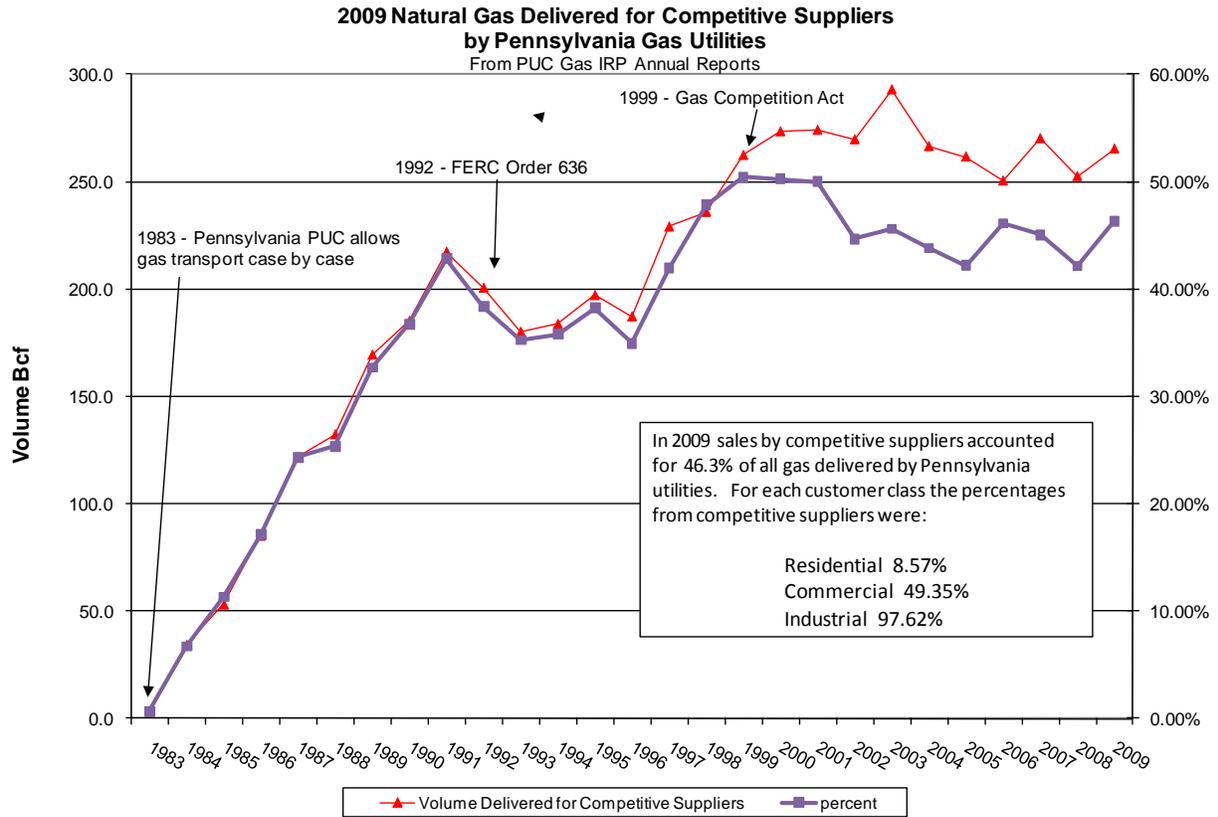
*Table 4 Pennsylvania Deliveries, Transportation and Production*

| Pennsylvania Deliveries, Transportation, and Production Volume (BCF) |                            |   |                       |
|--|----------------------------|---|-----------------------|
| From EIA Natural Gas Navigator                                       |                            |   |                       |
| Year   | Gas Delivered to Consumers | Delivered for the Account of Others (Transport) | PA Gas Dry Production |
| 1989   |                            | 191.3   | 191.5                 |
| 1990   |                            | 207.6   | 177.3                 |
| 1991   |                            | 212.8   | 152.1                 |
| 1992   |                            | 216.4   | 138.1                 |
| 1993   |                            | 214.3   | 131.6                 |
| 1994   |                            | 224.5   | 120.0                 |
| 1995   |                            | 255.1   | 110.4                 |
| 1996   |                            | 244.6   | 134.4                 |
| 1997   | 664.8                      | 261.2   | 79.3                  |
| 1998   | 609.8                      | 273.4   | 129.6                 |
| 1999   | 648.2                      | 293.5   | 173.8                 |
| 2000   | 659.0                      | 292.0   | 149.4                 |
| 2001   | 595.6                      | 254.2   | 130.2                 |
| 2002   | 632.0                      | 270.6   | 157.2                 |
| 2003   | 651.6                      | 264.3   | 159.2                 |
| 2004   | 661.9                      | 258.2   | 196.6                 |
| 2005   | 655.7                      | 246.8   | 167.8                 |
| 2006   | 625.6                      | 247.3   | 175.2                 |
| 2007   | 711.6                      | 259.1   | 181.4                 |
| 2008   | 705.0                      | 260.6   | 197.3                 |
| 2009   | 755.7                      | 253.9   | 272.6                 |

Figure 5 Pennsylvania Production vs. U.S. Wellhead Price



**Figure 6 2009 Deliveries by Pennsylvania Gas Utilities**



## V. Natural Gas Distribution Company (NGDC) Statistical Data

### Customer Data

The following information is derived from data contained in the Gas Annual Reports and the Annual Resource Planning Reports for major gas utilities with greater than 8 BCF of annual sales. 2009 data is included in Table 5.

*Table 5 2009 Customer Statistical Data*

| 2009 CUSTOMER STATISTICAL DATA |                                 |                                |                                |                                |                                |                                |                     |                             |
|--------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------|-----------------------------|
| Company                        | Number of Residential Customers | Average Use Per Customer (mcf) | Number of Commercial Customers | Average Use Per Customer (mcf) | Number of Industrial Customers | Average Use Per Customer (mcf) | Transport Customers | Average Use Transport (mcf) |
| Columbia                       | 307,468                         | 86                             | 29,082                         | 366                            | 328                            | 2,929                          | 76,278              | 95                          |
| UGI Central Penn               | 65,916                          | 87                             | 8,953                          | 343                            | 163                            | 2,662                          | 1,075               | 12,153                      |
| Equitable                      | 225,942                         | 91                             | 14,039                         | 281                            | 35                             | 1,118                          | 19,307              | 1,435                       |
| NFG                            | 195,663                         | 95                             | 13,923                         | 279                            | 260                            | 1,026                          | 2,026               | 8,218                       |
| PECO                           | 444,923                         | 85                             | 40,972                         | 471                            | 2                              | 22,699                         | 778                 | 35,154                      |
| UGI Penn Natural               | 144,336                         | 105                            | 15,338                         | 435                            | 105                            | 2,848                          | 557                 | 34,947                      |
| PGW                            | 481,497                         | 75                             | 25,649                         | 361                            | 689                            | 1,057                          | 2,211               | 10,354                      |
| Dominion                       | 236,089                         | 91                             | 20,442                         | 302                            | 36                             | 4,870                          | 101,541             | 354                         |
| T.W. Phillips                  | 58,229                          | 85                             | 4,410                          | 501                            | 7                              | 113,766                        | 50                  | 272,995                     |
| UGI                            | 295,992                         | 71                             | 28,214                         | 369                            | 841                            | 1,299                          | 11,793              | 4,284                       |
| <b>Total</b>                   | <b>2,456,055</b>                |                                | <b>201,022</b>                 |                                | <b>2,466</b>                   |                                | <b>215,616</b>      |                             |

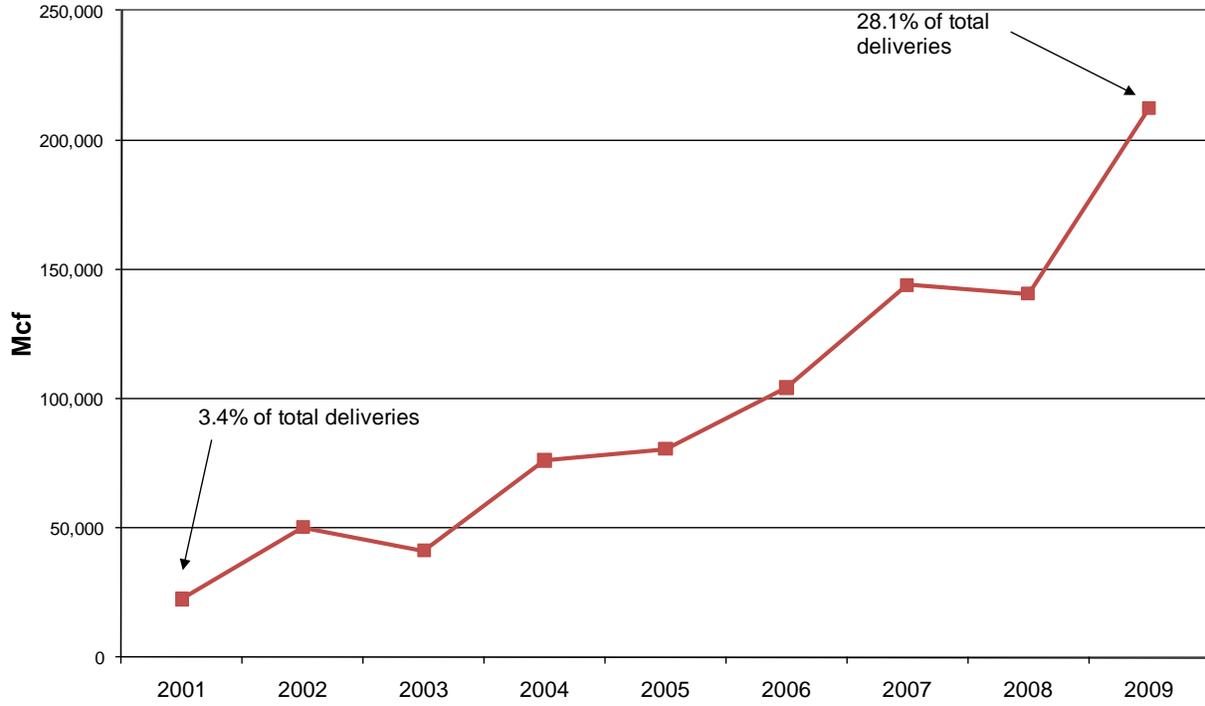
## **VI. Pennsylvania NGDC Gas Supply and Demand Balance**

The following section provides natural gas supply and demand data for Pennsylvania's Natural Gas Distribution Companies. The data is presented for 2009 for annual and peak day. Data is derived from PUC Annual Resource Planning Reports.

Note: Some large users bypass the local distribution companies, buy gas at the wellhead or from suppliers, and receive the gas directly from the pipelines. Gas-fired electric generation stations are usually bypass customers, and their gas consumption is not included in the PUC reports. The following chart shows the increase in the use of natural gas for electric generation from 2001 to 2009. Table 6 and Figure 8 have gas supply and demand data for 2009. Table 7 and Figure 9 have 2009 Peak Day Gas supply and demand information. The NGDCs provide a multi-year forecast with each annual report. The most recent reports contain a forecast extending out to 2013. The data for 2013 can be found in Table 8 and Figure 10, which show the forecast for Annual Supply and Demand for 2013. Figure 11 shows the Peak Day Supply forecast for 2013.

**Figure 7 Pennsylvania Gas Delivered for Electric Generation**

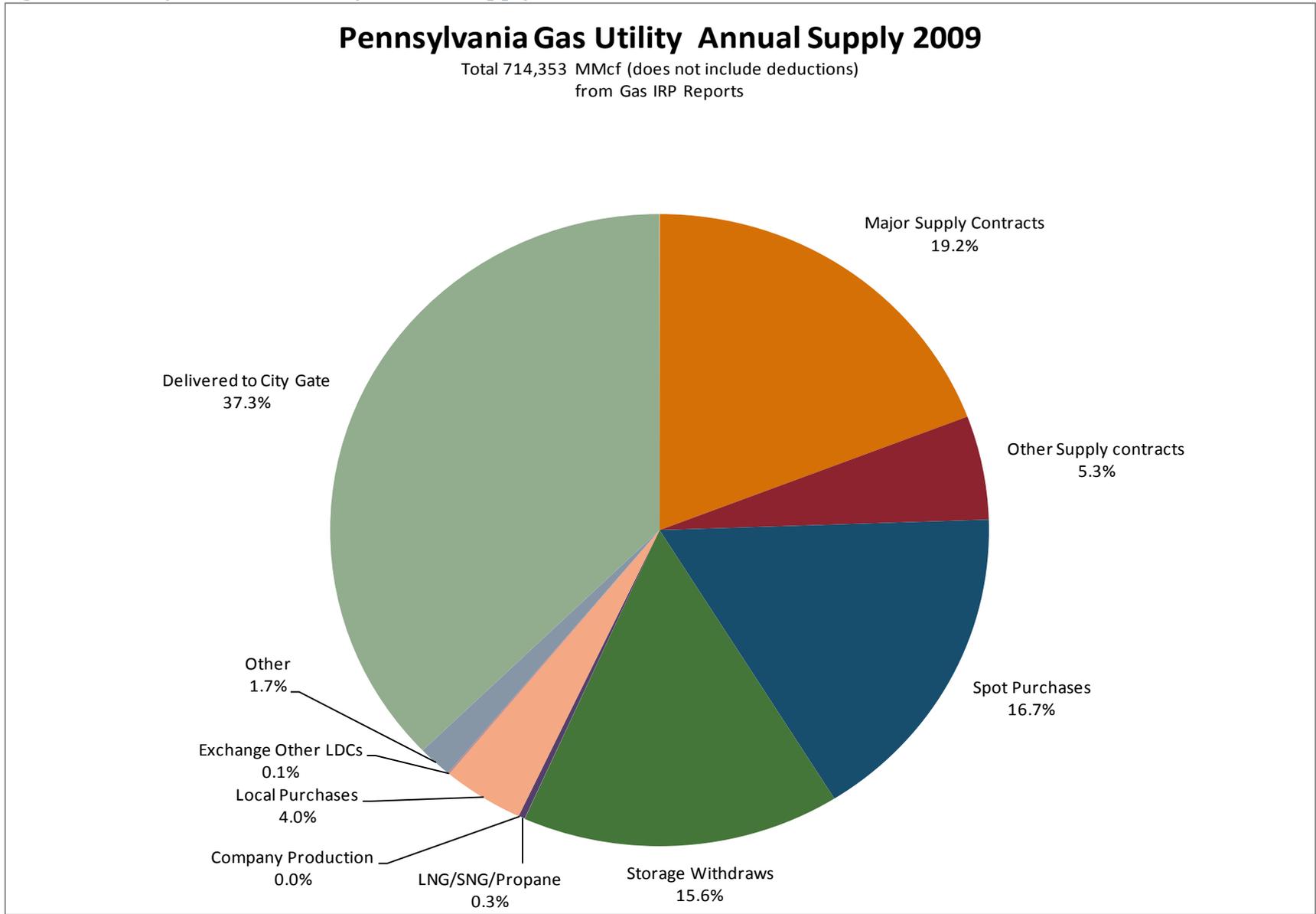
**Gas Delivered for Pennsylvania Electric Generation**  
From EIA [http://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dc\\_u\\_SPA\\_a.htm](http://www.eia.gov/dnav/ng/ng_cons_sum_dc_u_SPA_a.htm)



**Table 6 2009 Annual Gas Supply and Demand for Major Gas Utilities**

| 2009 Annual Gas Supply and Demand Balance      |               |                  |               |               |                |               |               |               |                  |                |                |
|--|---------------|------------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------|----------------|----------------|
| (from Annual Resource Planning Reports - MMcf) |               |                  |               |               |                |               |               |               |                  |                |                |
| Demand   | Columbia      | Dominion Peoples | Equitable     | NFG           | PECO           | PGW           | TW Phillips   | UGI CPG       | UGI Penn Natural | UGI            | Total          |
| <i>Firm</i>                                    |               |                  |               |               |                |               |               |               |                  |                |                |
| Retail Residential                             | 26,098        | 21,495           | 21,874        | 18,659        | 37,768         | 37,670        | 4,963         | 5,726         | 15,170           | 21,060         | 210,483        |
| Retail Commercial                              | 10,226        | 6,180            | 3,895         | 3,883         | 18,785         | 9,726         | 2,168         | 3,085         | 6,668            | 10,343         | 74,959         |
| Retail Industrial                              | 293           | 175              | 72            | 267           | 23             | 630           | 796           | 434           | 283              | 897            | 3,870          |
| Electric Power                                 | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0              | 0              |
| Exchange Other LDCs                            | 0             | 1,261            | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0              | 1,261          |
| Unaccounted for Gas                            | 124           | 4,063            | 2,578         | -518          | 2,195          | 1,308         | 1,079         | -419          | 485              | 446            | 11,341         |
| Company Use                                    | 45            | 1,846            | 63            | 6             | 50             | 738           | 182           | 48            | 63               | 163            | 3,204          |
| Other  | 0             | 7                | 0             | 176           | 10             | 0             | 0             | 0             | 0                | 0              | 193            |
| <b>Subtotal - Firm</b>                         | <b>36,786</b> | <b>35,027</b>    | <b>28,482</b> | <b>22,473</b> | <b>58,831</b>  | <b>50,072</b> | <b>9,188</b>  | <b>8,874</b>  | <b>22,669</b>    | <b>32,909</b>  | <b>305,311</b> |
| <i>Interruptible</i>                           |               |                  |               |               |                |               |               |               |                  |                |                |
| Retail   | 0             | 0                | 0             | 0             | 528            | 1,156         | 0             | 0             | 16               | 91             | 1,791          |
| Electric Power                                 | 0             | 0                | 0             | 0             | 0              | 14            | 0             | 0             | 0                | 0              | 14             |
| Company's Own Plant                            | 0             | 0                | 0             | 0             | 0              | 65            | 0             | 0             | 0                | 0              | 65             |
| Unaccounted for Gas                            | 0             | 0                | 0             | 0             | 0              | 45            | 0             | 0             | 0                | 0              | 45             |
| <b>Subtotal - Interr'p</b>                     | <b>0</b>      | <b>0</b>         | <b>0</b>      | <b>0</b>      | <b>528</b>     | <b>1,280</b>  | <b>0</b>      | <b>0</b>      | <b>16</b>        | <b>91</b>      | <b>1,915</b>   |
| <b>Firm &amp; Interruptible</b>                | <b>36,786</b> | <b>35,027</b>    | <b>28,482</b> | <b>22,473</b> | <b>59,359</b>  | <b>51,352</b> | <b>9,188</b>  | <b>8,874</b>  | <b>22,685</b>    | <b>33,000</b>  | <b>307,226</b> |
| <i>Transportation</i>                          |               |                  |               |               |                |               |               |               |                  |                |                |
| Firm Residential                               | 6,322         | 9,343            | 3,468         | 234           | 32             | 13            | 0             | 0             | 0                | 321            | 19,733         |
| Firm Commercial                                | 1,053         | 10,710           | 3,648         | 5,113         | 4,616          | 1,863         | 752           | 4,353         | 3,667            | 7,543          | 43,318         |
| Firm Industrial                                | 0             | 16,315           | 606           | 11,433        | 3,087          | 217           | 11,635        | 8,711         | 15,009           | 12,701         | 79,714         |
| Interruptible Residential                      | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0              | 0              |
| Interruptible Commercial                       | 8,481         | 0                | 8,668         | 0             | 739            | 6,375         | 0             | 0             | 422              | 5,034          | 29,719         |
| Interruptible Industrial                       | 18,129        | 0                | 10,598        | 0             | 18,231         | 4,839         | 0             | 0             | 1,825            | 25,100         | 78,722         |
| Electric Power                                 | 232           | 0                | 0             | 0             | 3,645          | 9,632         | 364           | 0             | 214              | 0              | 14,087         |
| <b>Subtotal - Trans.</b>                       | <b>34,217</b> | <b>36,368</b>    | <b>26,988</b> | <b>16,780</b> | <b>30,350</b>  | <b>22,939</b> | <b>12,751</b> | <b>13,064</b> | <b>21,137</b>    | <b>50,699</b>  | <b>265,293</b> |
| <b>Total Requirements</b>                      | <b>71,003</b> | <b>71,395</b>    | <b>55,470</b> | <b>39,253</b> | <b>89,709</b>  | <b>74,291</b> | <b>21,939</b> | <b>21,938</b> | <b>43,822</b>    | <b>83,699</b>  | <b>572,519</b> |
| <i>Supply for sales</i>                        |               |                  |               |               |                |               |               |               |                  |                |                |
| Major Supply Contracts                         | 14,953        | 0                | 0             | 17,310        | 35,445         | 0             | 0             | 12,226        | 24,460           | 32,494         | 136,888        |
| Other Supply contracts                         | 0             | 19,877           | 1,807         | 0             | 0              | 0             | 0             | 483           | 6,313            | 9,359          | 37,839         |
| Spot Purchases                                 | 19,200        | 0                | 16,888        | 0             | 20,576         | 53,592        | 8,718         | 0             | 0                | 0              | 118,974        |
| Storage Withdraws                              | 27,098        | 4,253            | 10,736        | 9,094         | 18,242         | 12,688        | 3,910         | 2,545         | 11,544           | 11,331         | 111,441        |
| LNG/SNG/Propane                                | 0             | 0                | 0             | 0             | 616            | 1,545         | 0             | 0             | 0                | 113            | 2,274          |
| Company Production                             | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0              | 0              |
| Local Purchases                                | 245           | 13,131           | 6,584         | 1,265         | 0              | 0             | 6,837         | 330           | 0                | 0              | 28,392         |
| Exchange Other LDCs                            | 0             | 534              | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0              | 534            |
| Other  | 0             | 0                | 9,348         | 2,557         | 0              | 0             | 0             | 0             | 0                | 0              | 11,905         |
| <b>Subtotal</b>                                | <b>61,496</b> | <b>37,795</b>    | <b>45,363</b> | <b>30,226</b> | <b>74,879</b>  | <b>67,825</b> | <b>19,465</b> | <b>15,584</b> | <b>42,317</b>    | <b>53,297</b>  | <b>448,247</b> |
| <i>Transportation Gas</i>                      |               |                  |               |               |                |               |               |               |                  |                |                |
| Delivered to City Gate                         | 34,217        | 37,899           | 29,274        | 16,780        | 27,346         | 22,940        | 12,751        | 13,064        | 21,137           | 50,698         | 266,106        |
| <b>Total sales and trans.</b>                  | <b>95,713</b> | <b>75,694</b>    | <b>74,637</b> | <b>47,006</b> | <b>102,225</b> | <b>90,765</b> | <b>32,216</b> | <b>28,648</b> | <b>63,454</b>    | <b>103,995</b> | <b>714,353</b> |
| <i>Deductions</i>                              |               |                  |               |               |                |               |               |               |                  |                |                |
| Curtailments                                   | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0              | 0              |
| Storage Injections                             | 24,710        | 4,299            | 7,900         | 7,576         | 15,024         | 15,832        | 4,039         | 3,067         | 11,729           | 11,643         | 105,819        |
| LNG Liquefactions                              | 0             | 0                | 0             | 0             | 496            | 643           | 0             | 0             | 0                | 0              | 1,139          |
| Sales to Other LDCs                            | 0             | 0                | 0             | 0             | 0              | 0             | 33            | 0             | 0                | 0              | 33             |
| Off-System Sales                               | 0             | 0                | 9,348         | 177           | 0              | 0             | 0             | 3,642         | 7,903            | 8,653          | 29,723         |
| <b>Total Deductions</b>                        | <b>24,710</b> | <b>4,299</b>     | <b>17,248</b> | <b>7,753</b>  | <b>15,520</b>  | <b>16,475</b> | <b>4,072</b>  | <b>6,709</b>  | <b>19,632</b>    | <b>20,296</b>  | <b>136,714</b> |
| <b>Net Supply</b>                              | <b>71,003</b> | <b>71,695</b>    | <b>57,370</b> | <b>39,253</b> | <b>86,705</b>  | <b>74,290</b> | <b>28,145</b> | <b>21,939</b> | <b>43,822</b>    | <b>83,698</b>  | <b>577,920</b> |

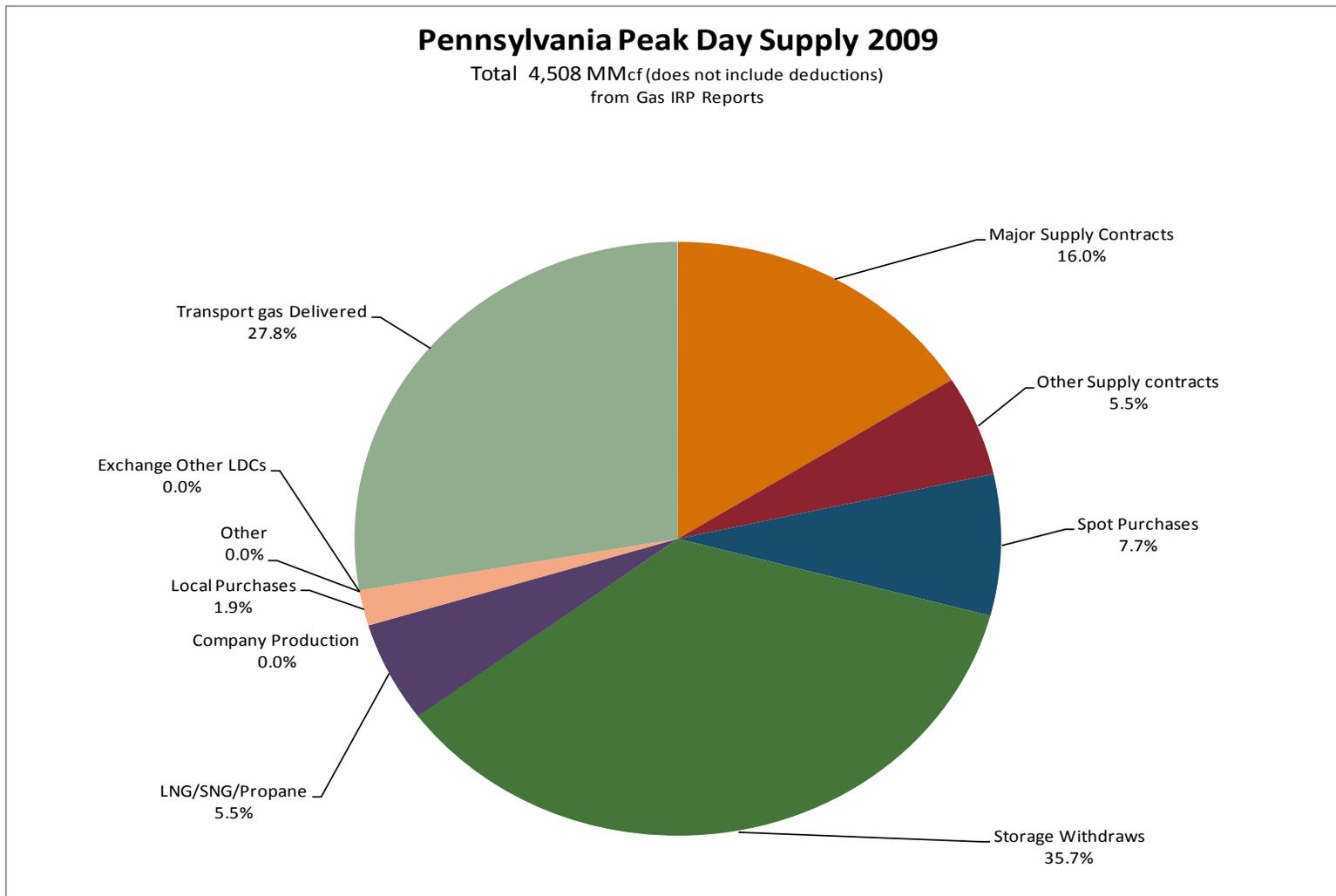
Figure 8 Pennsylvania Gas Utility Annual Supply 2009



**Table 7 2009 Peak Day Gas Supply and Demand Balance for Major Gas Utilities**

| 2009 Peak Day Gas Supply and Demand Balance    |            |                  |            |            |            |            |             |            |                  |            |              |
|--|------------|------------------|------------|------------|------------|------------|-------------|------------|------------------|------------|--------------|
| (from Annual Resource Planning Reports - MMcf) |            |                  |            |            |            |            |             |            |                  |            |              |
| Demand   | Columbia   | Dominion Peoples | Equitable  | NFG        | PECO       | PGW        | TW Phillips | UGI CPG    | UGI Penn Natural | UGI        | Total        |
| <i>Firm</i>                                    |            |                  |            |            |            |            |             |            |                  |            |              |
| Retail Residential                             | 286        | 216              | 283        | 176        | 400        | 376        | 74          | 47         | 150              | 227        | 2,236        |
| Retail Commercial                              | 120        | 63               | 44         | 39         | 197        | 97         | 35          | 43         | 65               | 102        | 805          |
| Retail Industrial                              | 1          | 1                | 0          | 2          | 1          | 6          | 4           | 0          | 2                | 11         | 28           |
| Electric Power                                 | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| Exchange Other LDCs                            | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| Unaccounted for Gas                            | 1          | 32               | 34         | 0          | 17         | 13         | 8           | 0          | 0                | 19         | 124          |
| Company Use                                    | 0          | 15               | 2          | 0          | 1          | 7          | 1           | 0          | 0                | 1          | 27           |
| Other  | 0          | 0                | 0          | 0          | 3          | 0          | 0           | 0          | 0                | 0          | 3            |
| <b>Subtotal - Firm</b>                         | <b>409</b> | <b>327</b>       | <b>363</b> | <b>217</b> | <b>619</b> | <b>500</b> | <b>122</b>  | <b>91</b>  | <b>217</b>       | <b>360</b> | <b>3,225</b> |
| <i>Interruptible</i>                           |            |                  |            |            |            |            |             |            |                  |            |              |
| Retail   | 0          | 0                | 0          | 0          | 0          | 10         | 0           | 0          | 0                | 0          | 10           |
| Electric Power                                 | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| Company's Own Plant                            | 0          | 0                | 0          | 0          | 0          | 2          | 0           | 0          | 0                | 0          | 2            |
| <b>Subtotal - Interr'p</b>                     | <b>0</b>   | <b>0</b>         | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>12</b>  | <b>0</b>    | <b>0</b>   | <b>0</b>         | <b>0</b>   | <b>12</b>    |
| <b>Firm &amp; Interruptible</b>                | <b>409</b> | <b>327</b>       | <b>363</b> | <b>217</b> | <b>619</b> | <b>512</b> | <b>122</b>  | <b>91</b>  | <b>217</b>       | <b>360</b> | <b>3,237</b> |
| <i>Transportation</i>                          |            |                  |            |            |            |            |             |            |                  |            |              |
| Firm Residential                               | 63         | 103              |            | 2          |            | 0          | 0           | 0          | 0                | 3          | 171          |
| Firm Commercial                                | 12         | 94               |            | 42         |            | 15         | 2           | 0          | 13               | 51         | 229          |
| Firm Industrial                                | 0          | 68               | 40         | 57         | 38         | 1          | 43          | 22         | 71               | 64         | 404          |
| Interruptible Residential                      | 0          | 0                |            | 0          |            | 0          | 0           | 47         | 0                | 0          | 47           |
| Interruptible Commercial                       | 65         | 0                |            | 0          |            | 34         | 0           | 0          | 4                | 12         | 115          |
| Interruptible Industrial                       | 74         | 0                | 66         | 0          | 15         | 13         | 0           | 0          | 10               | 35         | 213          |
| Electric Power                                 | 3          | 0                | 0          | 0          | 7          | 43         | 0           | 0          | 0                | 0          | 53           |
| <b>Subtotal - Trans.</b>                       | <b>217</b> | <b>265</b>       | <b>106</b> | <b>101</b> | <b>60</b>  | <b>106</b> | <b>45</b>   | <b>69</b>  | <b>99</b>        | <b>165</b> | <b>1,233</b> |
| <b>Total Requirements</b>                      | <b>625</b> | <b>592</b>       | <b>469</b> | <b>318</b> | <b>679</b> | <b>618</b> | <b>167</b>  | <b>160</b> | <b>316</b>       | <b>525</b> | <b>4,469</b> |
| <i>Supply for sales</i>                        |            |                  |            |            |            |            |             |            |                  |            |              |
| Major Supply Contracts                         | 143        | 0                | 81         | 82         | 226        | 0          | 0           | 26         | 66               | 100        | 723          |
| Other Supply contracts                         | 19         | 85               | 25         | 3          | 0          | 0          | 0           | 32         | 11               | 71         | 246          |
| Spot Purchases                                 | 0          | 0                | 51         | 0          | 2          | 208        | 11          | 0          | 33               | 41         | 346          |
| Storage Withdraws                              | 247        | 175              | 177        | 131        | 271        | 176        | 116         | 40         | 127              | 148        | 1,607        |
| LNG/SNG/Propane                                | 0          | 0                | 0          | 0          | 120        | 125        | 0           | 0          | 1                | 0          | 246          |
| Company Production                             | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| Local Purchases                                | 1          | 44               | 18         | 2          | 0          | 0          | 21          | 1          | 0                | 0          | 87           |
| Exchange Other LDCs                            | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| Other  | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| <b>Subtotal</b>                                | <b>409</b> | <b>304</b>       | <b>352</b> | <b>217</b> | <b>619</b> | <b>512</b> | <b>148</b>  | <b>99</b>  | <b>238</b>       | <b>360</b> | <b>3,259</b> |
| <i>Transportation Gas</i>                      |            |                  |            |            |            |            |             |            |                  |            |              |
| Delivered to City Gate                         | 217        | 288              | 118        | 101        | 60         | 106        | 45          | 61         | 84               | 172        | 1,252        |
| <b>Total sales and trans.</b>                  | <b>626</b> | <b>592</b>       | <b>470</b> | <b>318</b> | <b>679</b> | <b>618</b> | <b>193</b>  | <b>160</b> | <b>322</b>       | <b>532</b> | <b>4,510</b> |
| <i>Deductions</i>                              |            |                  |            |            |            |            |             |            |                  |            |              |
| Curtailments                                   | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| Storage Injections                             | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 0                | 0          | 0            |
| LNG Liquefactions                              | 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            |
| Off-System Sales                               | 0          | 0                | 0          | 0          | 0          | 0          | 0           | 0          | 6                | 5          | 11           |
| <b>Total Deductions</b>                        | <b>0</b>   | <b>0</b>         | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>    | <b>0</b>   | <b>6</b>         | <b>5</b>   | <b>11</b>    |
| <b>Net Supply</b>                              | <b>626</b> | <b>592</b>       | <b>470</b> | <b>318</b> | <b>679</b> | <b>618</b> | <b>193</b>  | <b>160</b> | <b>316</b>       | <b>527</b> | <b>4,499</b> |

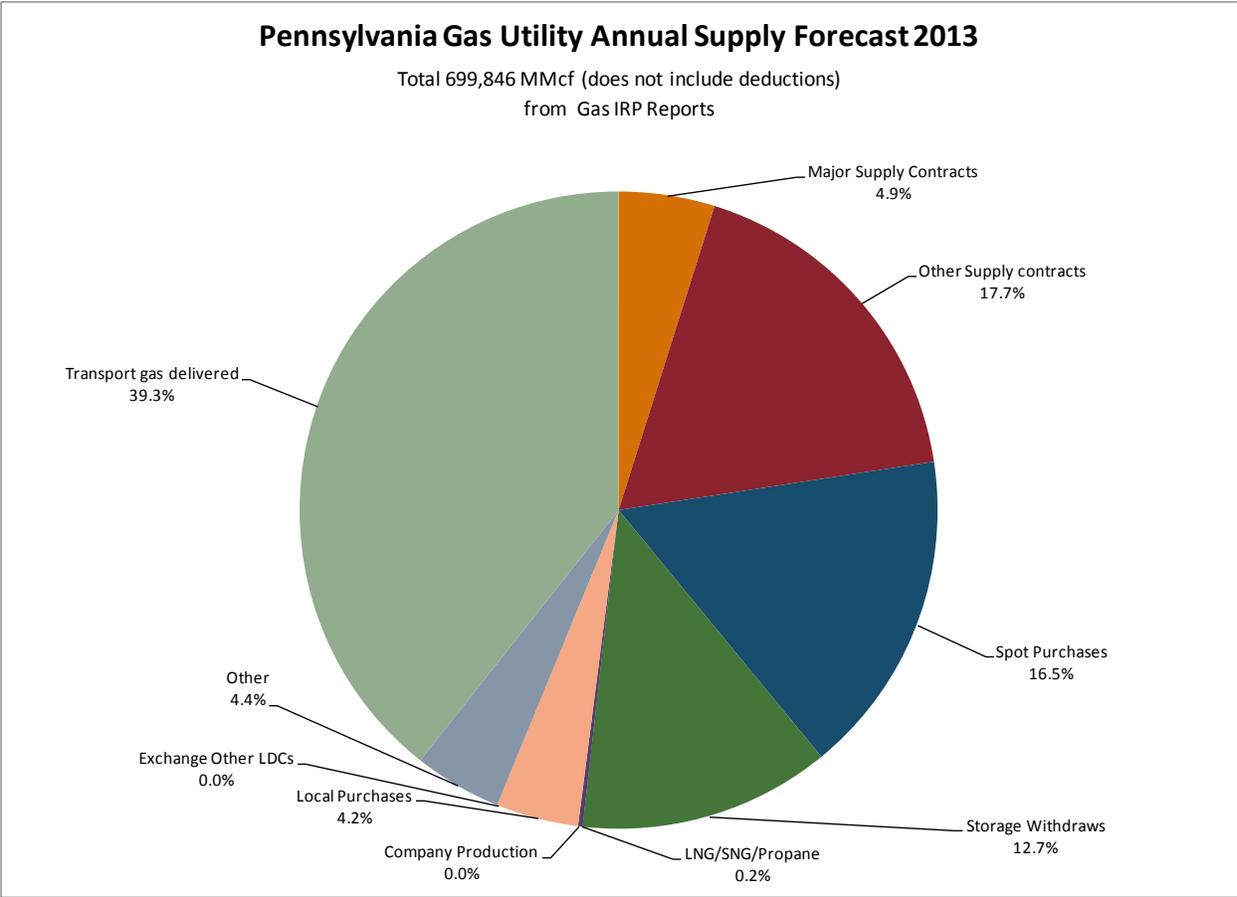
Figure 9 Pennsylvania Peak Day Supply 2009



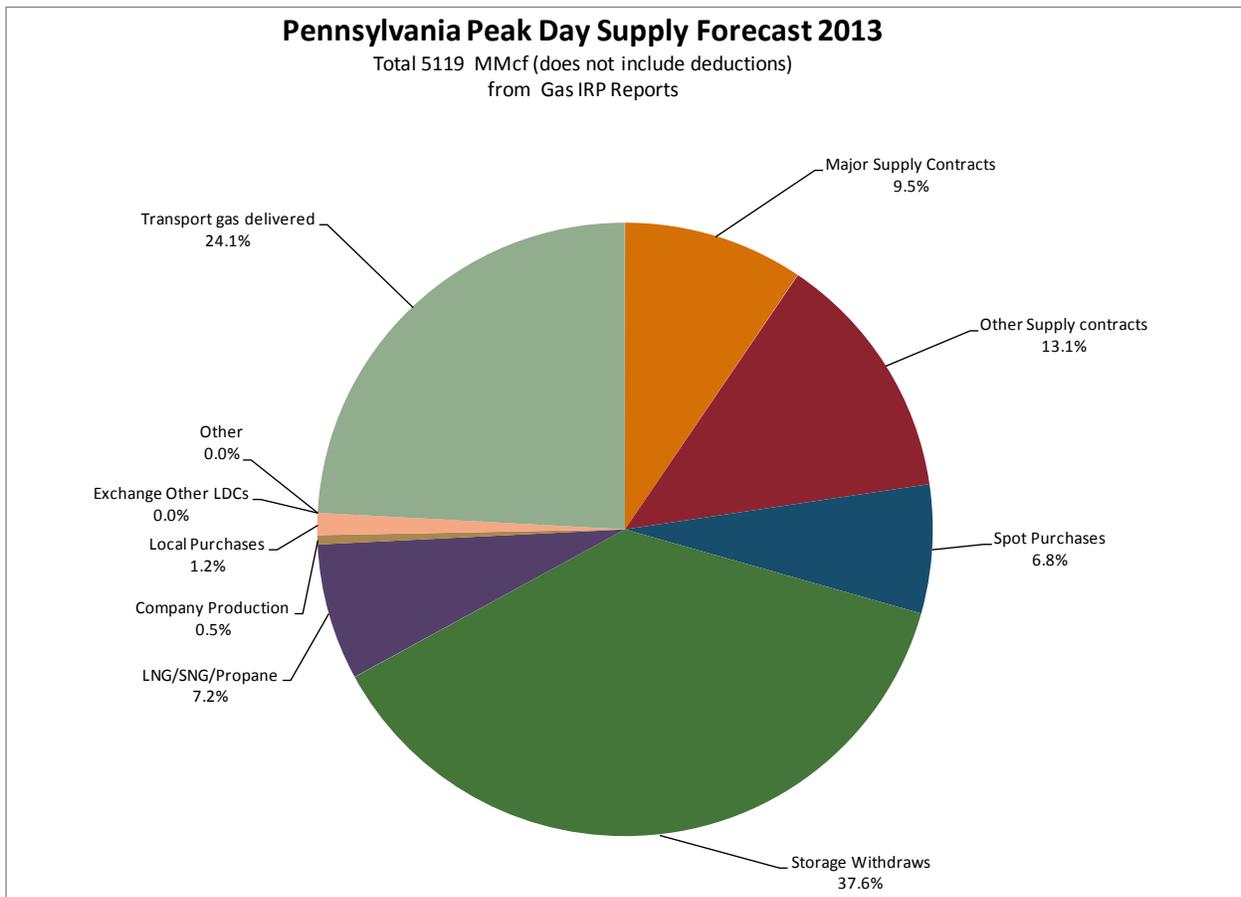
**Table 8 2013 Forecast Annual Gas Supply and Demand Balance**

| 2013 Forecast Annual Gas Supply and Demand Balance      |               |                  |               |               |                |               |               |               |                  |               |                |
|---|---------------|------------------|---------------|---------------|----------------|---------------|---------------|---------------|------------------|---------------|----------------|
| (from Annual Resource Planning Reports for 2009 - MMcf) |               |                  |               |               |                |               |               |               |                  |               |                |
| Demand  | Columbia      | Dominion Peoples | Equitable     | NFG           | PECO           | PGW           | TW Phillips   | UGI CPG       | UGI Penn Natural | UGI           | Total          |
| <i>Firm</i>   |               |                  |               |               |                |               |               |               |                  |               |                |
| Retail Residential                                      | 24,789        | 22157            | 21,874        | 18,044        | 38,327         | 39,561        | 4,842         | 5,231         | 14,116           | 21,881        | 210,822        |
| Retail Commercial                                       | 10,139        | 6,098            | 3,895         | 3,710         | 19,581         | 9,734         | 2,107         | 2,995         | 5,798            | 11,376        | 75,433         |
| Retail Industrial                                       | 350           | 146              | 72            | 152           | 56             | 647           | 1,078         | 341           | 209              | 967           | 4,018          |
| Electric Power  | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0             | 0              |
| Exchange Other LDCs                                     | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0             | 0              |
| Unaccounted for Gas                                     | 740           | 3,655            | 2,578         | 119           | 2,305          | 2,121         | 915           | 627           | 204              | 350           | 13,614         |
| Company Use   | 40            | 1,601            | 63            | 9             | 50             | 595           | 175           | 50            | 63               | 137           | 2,783          |
| Other   | 0             | 0                | 0             | 0             | 10             | 0             | 0             | 0             | 0                | 0             | 10             |
| <b>Subtotal – Firm</b>                                  | <b>36,058</b> | <b>33,657</b>    | <b>28,482</b> | <b>22,034</b> | <b>60,329</b>  | <b>52,658</b> | <b>9,117</b>  | <b>9,244</b>  | <b>20,390</b>    | <b>34,711</b> | <b>306,680</b> |
| <i>Interruptible</i>                                    |               |                  |               |               |                |               |               |               |                  |               |                |
| Retail  | 0             | 0                | 0             | 0             | 604            | 505           | 0             | 0             | 0                | 0             | 1,109          |
| Electric Power  | 0             | 0                | 0             | 0             | 0              | 6             | 0             | 0             | 0                | 0             | 6              |
| Company's Own Plant                                     | 0             | 0                | 0             | 0             | 0              | 104           | 0             | 0             | 0                | 0             | 104            |
| Unaccounted for Gas                                     | 0             | 0                | 0             | 0             | 0              | 19            | 0             | 0             | 0                | 0             | 19             |
| <b>Subtotal - Interr'p</b>                              | <b>0</b>      | <b>0</b>         | <b>0</b>      | <b>0</b>      | <b>604</b>     | <b>633</b>    | <b>0</b>      | <b>0</b>      | <b>0</b>         | <b>0</b>      | <b>1,237</b>   |
| <b>Firm &amp; Interruptible</b>                         | <b>36,058</b> | <b>33,657</b>    | <b>28,482</b> | <b>22,034</b> | <b>60,933</b>  | <b>53,292</b> | <b>9,117</b>  | <b>9,244</b>  | <b>20,390</b>    | <b>34,711</b> | <b>307,918</b> |
| <i>Transportation</i>                                   |               |                  |               |               |                |               |               |               |                  |               |                |
| Firm Residential  | 6,162         | 8,825            | 3,468         | 691           |                | 0             | 0             | 0             | 35               | 503           | 19,684         |
| Firm Commercial   | 1,133         | 10,996           | 3,648         | 5,675         |                | 3,171         | 1,174         | 3,226         | 4,385            | 7,070         | 40,478         |
| Firm Industrial   | 0             | 16,427           | 606           | 11,344        | 6,875          | 353           | 11,575        | 9,460         | 14,169           | 13,600        | 84,409         |
| Interruptible Residential                               | 0             | 0                | 0             | 0             |                | 0             | 0             | 0             | 0                | 0             | 0              |
| Interruptible Commercial                                | 8,302         | 0                | 8,668         | 0             |                | 7,185         | 0             | 0             | 131              | 5,005         | 29,291         |
| Interruptible Industrial                                | 19,166        | 0                | 10,598        | 0             | 20,626         | 4,921         | 0             | 0             | 1,015            | 26,203        | 82,529         |
| Electric Power  | 1,200         | 0                | 0             | 0             | 3,500          | 8,062         | 325           | 0             | 692              | 0             | 13,779         |
| <b>Subtotal - Trans.</b>                                | <b>35,963</b> | <b>36,248</b>    | <b>26,988</b> | <b>17,710</b> | <b>31,001</b>  | <b>23,692</b> | <b>13,074</b> | <b>12,686</b> | <b>20,427</b>    | <b>52,381</b> | <b>270,170</b> |
| <b>Total Requirements</b>                               | <b>72,021</b> | <b>69,905</b>    | <b>55,470</b> | <b>39,744</b> | <b>91,934</b>  | <b>76,984</b> | <b>22,191</b> | <b>21,930</b> | <b>40,817</b>    | <b>87,092</b> | <b>578,088</b> |
| <i>Supply for sales</i>                                 |               |                  |               |               |                |               |               |               |                  |               |                |
| Major Supply Contracts                                  | 0             | 0                | 0             | 0             | 33,974         | 0             | 0             | 0             | 0                | 0             | 33,974         |
| Other Supply contracts                                  | 0             | 17,581           | 18,172        | 0             | 23,621         | 0             |               | 8,914         | 21,232           | 34,488        | 124,008        |
| Spot Purchases  | 35,172        | 0                | 2,628         | 0             | 18,242         | 57,256        | 2,119         | 0             | 0                | 0             | 115,417        |
| Storage Withdraws                                       | 20,752        | 6,020            | 11,497        | 7,792         | 616            | 16,953        | 2,719         | 3,926         | 9,408            | 9,408         | 89,091         |
| LNG/SNG/Propane   | 0             | 0                | 0             | 0             | 0              | 1,533         | 0             | 0             | 0                | 117           | 1,650          |
| Company Production                                      | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0             | 0              |
| Local Purchases   | 245           | 13,962           | 8,137         | 279           | 0              | 0             | 6,335         | 330           | 0                | 0             | 29,288         |
| Exchange Other LDCs                                     | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0             | 0              |
| Other   | 0             | 0                | 9,348         | 21,755        | 0              | 0             | 0             | 0             | 0                | 0             | 31,103         |
| <b>Subtotal</b>   | <b>56,169</b> | <b>37,563</b>    | <b>49,782</b> | <b>29,826</b> | <b>76,453</b>  | <b>75,742</b> | <b>11,173</b> | <b>13,170</b> | <b>30,640</b>    | <b>44,013</b> | <b>424,531</b> |
| <i>Transportation Gas</i>                               |               |                  |               |               |                |               |               |               |                  |               |                |
| Delivered to City Gate                                  | 35,963        | 38,790           | 30,404        | 17,710        | 31,001         | 22,879        | 13,074        | 12,686        | 20,427           | 52,381        | 275,315        |
| <b>Total sales and trans.</b>                           | <b>92,132</b> | <b>76,353</b>    | <b>80,186</b> | <b>47,536</b> | <b>107,454</b> | <b>98,621</b> | <b>24,247</b> | <b>25,856</b> | <b>51,067</b>    | <b>96,394</b> | <b>699,846</b> |
| <i>Deductions</i>                                       |               |                  |               |               |                |               |               |               |                  |               |                |
| Curtailments  | 0             | 0                | 0             | 0             | 0              | 0             | 0             | 0             | 0                | 0             | 0              |
| Storage Injections                                      | 20,111        | 6,468            | 11,497        | 7,469         | 15,024         | 16,636        | 2,719         | 3,926         | 10,251           | 9,303         | 103,404        |
| LNG Liquefactions                                       | 0             | 0                | 0             | 0             | 496            | 1,423         | 0             | 0             | 0                | 0             | 1,919          |
| Sales to Other LDCs                                     | 0             | 0                | 0             | 0             | 0              | 0             | 37            | 0             | 0                | 0             | 37             |
| Off-System Sales  | 0             | 0                | 9,348         | 0             | 0              | 3,578         | 0             | 0             | 0                | 0             | 12,926         |
| <b>Total Deductions</b>                                 | <b>20,111</b> | <b>6,468</b>     | <b>20,845</b> | <b>7,469</b>  | <b>15,520</b>  | <b>21,637</b> | <b>2,756</b>  | <b>3,926</b>  | <b>10,251</b>    | <b>9,303</b>  | <b>118,286</b> |
| <b>Net Supply</b>                                       | <b>72,021</b> | <b>69,905</b>    | <b>59,341</b> | <b>39,744</b> | <b>91,934</b>  | <b>76,984</b> | <b>21,491</b> | <b>21,930</b> | <b>40,618</b>    | <b>87,091</b> | <b>581,059</b> |

Figure 10 Pennsylvania Gas Utility Annual Supply Forecast 2013



**Figure 11 Pennsylvania Peak Day Supply Forecast 2013**



## **VII. NGDC Financial Statistics**

This section presents selected NGDC financial data taken from the Gas Annual Report of the major NGDCs for a seven-year period from 2003 through 2009.

The data includes operating revenues and expenses, net operating income, gross plant in service, administrative and general expense, maintenance expense, depreciation expense and total gas cost, and average cost of gas purchased by the NGDC.

Note: UGI Central Penn was purchased from PPL Gas Utilities in 2007. North Penn Gas Company and PFG Gas Inc. were merged into PPL Gas Utilities effective Dec. 31, 2004. UGI Penn Natural was purchased from PG Energy in 2006.

*Table 9 Operating Revenue, Operating Expense and Net Operating Income*

| <b>OPERATING REVENUE (\$ Million)</b>    |              |              |              |              |              |              |              |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| LDC                                      | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         |
| Columbia                                 | 527.3        | 551.4        | 652.1        | 575.4        | 650.5        | 781.9        | 544.9        |
| Equitable                                | 396.2        | 420.5        | 471.2        | 445.3        | 458.9        | 628.9        | 507.5        |
| NFG                                      | 317.9        | 333.2        | 376.3        | 363.7        | 351.8        | 388.8        | 325.1        |
| PECO                                     | 646.1        | 747.7        | 816.8        | 795.5        | 838.8        | 821.7        | 759.6        |
| Dominion                                 | 435.7        | 462.5        | 551.5        | 505.3        | 469.9        | 534.8        | 432.3        |
| UGI Penn Natural                         | 279.0        | 262.5        | 312.7        | 302.6        | 326.6        | 348.4        | 337.0        |
| PGW                                      | NA           | 812.1        | 907.2        | 845.8        | 871.9        | 886.0        | 823.1        |
| UGI Central Penn                         | 139.2        | 156.8        | 163.5        | 189.4        | 187.0        | 193.0        | 169.0        |
| T.W. Phillips                            | 103.8        | 109.3        | 135.5        | 133.9        | 134.6        | 151.9        | 109.2        |
| UGI                                      | 465.4        | 500.5        | 586.7        | 580.6        | 618.4        | 626.3        | 556.1        |
|  |              |              |              |              |              |              |              |
| <b>Total</b>                             | <b>3,311</b> | <b>4,357</b> | <b>4,974</b> | <b>4,738</b> | <b>4,908</b> | <b>5,362</b> | <b>4,564</b> |
| <b>OPERATING EXPENSE (\$ Million)</b>    |              |              |              |              |              |              |              |
| LDC                                      | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         |
| Columbia                                 | 481.7        | 506.4        | 613.5        | 546.0        | 619.0        | 741.7        | 492.8        |
| Equitable                                | 327.9        | 357.0        | 407.6        | 421.7        | 448.5        | 595.3        | 412.8        |
| NFG                                      | NA           | NA           | 360.1        | 347.4        | 324.4        | 359.8        | 294.5        |
| PECO                                     | 578.5        | 692.7        | 700.8        | 614.9        | 782.2        | 779.5        | 671.6        |
| Dominion                                 | 358.6        | 396.5        | 485.0        | 462.0        | 407.0        | 478.1        | 385.7        |
| UGI Penn Natural                         | 236.0        | 214.5        | 273.9        | 274.7        | 299.1        | 327.8        | 312.9        |
| PGW                                      | NA           | 714.0        | 868.7        | 777.0        | 823.5        | 824.2        | 748.6        |
| UGI Central Penn                         | 123.0        | 146.7        | 149.7        | 183.0        | 175.6        | 178.3        | 154.3        |
| T.W. Phillips                            | 92.4         | 99.0         | 125.6        | 124.4        | 123.2        | 142.3        | 101.5        |
| UGI                                      | 408.0        | 448.5        | 528.4        | 528.3        | 552.5        | 566.0        | 492.7        |
|  |              |              |              |              |              |              |              |
| <b>Total</b>                             | <b>2,606</b> | <b>3,575</b> | <b>4,513</b> | <b>4,279</b> | <b>4,555</b> | <b>4,993</b> | <b>4,067</b> |
| <b>NET OPERATING INCOME (\$ Million)</b> |              |              |              |              |              |              |              |
| LDC                                      | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         |
| Columbia                                 | 45.6         | 45.0         | 38.6         | 29.4         | 31.5         | 40.2         | 52.1         |
| Equitable                                | 68.3         | 63.5         | 63.6         | 23.6         | 10.4         | 33.6         | 94.7         |
| NFG                                      | NA           | NA           | 16.2         | 16.3         | 27.4         | 29.0         | 30.5         |
| PECO                                     | 67.6         | 55.0         | 116          | 180.6        | 56.6         | 42.2         | 88.0         |
| Dominion                                 | 77.1         | 66.0         | 66.5         | 43.3         | 62.9         | 56.7         | 46.6         |
| UGI Penn Natural                         | 43.0         | 48.0         | 38.8         | 27.9         | 27.5         | 20.6         | 24.1         |
| PGW                                      | NA           | 98.1         | 38.5         | 118.8        | 48.4         | 61.8         | 74.5         |
| UGI Central Penn                         | 16.2         | 10.1         | 13.8         | 6.4          | 11.4         | 14.7         | 14.7         |
| T.W. Phillips                            | 11.4         | 10.3         | 9.9          | 9.5          | 11.4         | 9.6          | 7.7          |
| UGI                                      | 57.4         | 52.0         | 58.3         | 52.3         | 65.9         | 60.3         | 63.4         |
|  |              |              |              |              |              |              |              |
| <b>Total</b>                             | <b>387</b>   | <b>448</b>   | <b>460</b>   | <b>508</b>   | <b>353</b>   | <b>369</b>   | <b>496</b>   |

*Table 10 Administration & General Expense*

| <b>ADMINISTRATION &amp; GENERAL EXPENSE (\$ Million)</b> |            |            |            |            |            |            |            |
|--|------------|------------|------------|------------|------------|------------|------------|
| LDC  | 2003       | 2004       | 2005       | 2006       | 2007       | 2008       | 2009       |
| Columbia   | 35.7       | 38.0       | 47.8       | 45.5       | 49.6       | 39.9       | 45.3       |
| Equitable  | 29.2       | 47.3       | 45.2       | 38.4       | 62.7       | 37.1       | 32.1       |
| NFG  | 18.2       | 28.6       | 26.5       | 26.5       | 26.3       | 26.7       | 26.5       |
| PECO   | 37.0       | 40.0       | 34.8       | 35.8       | 33.0       | 30.4       | 31.9       |
| Dominion   | 18.9       | 17.1       | 16.8       | 15.4       | 8.0        | 14.9       | 9.7        |
| UGI Penn Natural   | 11.5       | 11.6       | 13.7       | 13.9       | 16.8       | 20.1       | 21.8       |
| PGW  | NA         | 78.5       | 74.8       | 77.9       | 101.6      | 101.9      | 103.4      |
| UGI Central Penn   | 15.3       | 17.4       | 19.8       | 22.0       | 23.4       | 16.7       | 15.0       |
| T.W. Phillips  | 7.5        | 7.3        | 7.3        | 9.1        | 9.6        | 9.9        | 10.2       |
| UGI  | 32.7       | 37.7       | 37.3       | 40.3       | 36.6       | 35.6       | 37.4       |
|  |            |            |            |            |            |            |            |
| <b>Total</b>   | <b>206</b> | <b>324</b> | <b>324</b> | <b>325</b> | <b>368</b> | <b>333</b> | <b>333</b> |
| <b>MAINTENANCE EXPENSE (\$ Million)</b>                  |            |            |            |            |            |            |            |
| LDC  | 2003       | 2004       | 2005       | 2006       | 2007       | 2008       | 2009       |
| Columbia   | 7.72       | 9.0        | 9.3        | 11.0       | 12.3       | 13.8       | 14.1       |
| Equitable  | 12.9       | 11.5       | 13.3       | 11.7       | 11.6       | 11.4       | 12.5       |
| NFG  | NA         | 3.57       | 3.80       | 3.69       | 4.1        | 4.2        | 4.1        |
| PECO   | 14.9       | 13.2       | 16.5       | 17.9       | 21.2       | 22.5       | 22.8       |
| Dominion   | 16.7       | 16.6       | 19.1       | 20.5       | 20.1       | 21.6       | 24.1       |
| UGI Penn Natural   | 4.4        | 4.4        | 4.6        | 4.4        | 4.8        | 6.4        | 7.1        |
| PGW  | NA         | NA         | 22.1       | 18.7       | 20.1       | 21.0       | 25.6       |
| UGI Central Penn   | 2.8        | 2.8        | 2.4        | 2.2        | 3.6        | 7.7        | 4.7        |
| T.W. Phillips  | 2.5        | 4.2        | 4.6        | 4.7        | 5.8        | 6.5        | 5.8        |
| UGI  | 12.9       | 10.9       | 10.0       | 10.1       | 9.8        | 10.6       | 11.8       |
|  |            |            |            |            |            |            |            |
| <b>Total</b>   | <b>75</b>  | <b>76</b>  | <b>106</b> | <b>105</b> | <b>113</b> | <b>128</b> | <b>133</b> |
| <b>DEPRECIATION EXPENSE (\$ Million)</b>                 |            |            |            |            |            |            |            |
| LDC  | 2003       | 2004       | 2005       | 2006       | 2007       | 2008       | 2009       |
| Columbia   | 14.1       | 14.2       | 15.4       | 15.8       | 16.9       | 18.2       | 21.0       |
| Equitable  | 18.2       | 14.8       | 15.9       | 16.7       | 17.5       | 18.6       | 18.8       |
| NFG  | NA         | 11.1       | 11.2       | 11.3       | 11.6       | 11.2       | 11.1       |
| PECO   | 32.5       | 33.7       | 34.8       | 29.6       | 29.0       | 30.8       | 31.5       |
| Dominion   | 17.5       | 17.8       | 18.7       | 19.7       | 19.7       | 20.4       | 20.4       |
| UGI Penn Natural   | 11.6       | 11.0       | 12.3       | 13.3       | 15.0       | 15.2       | 16.3       |
| PGW  | NA         | 34.5       | 34.7       | 35.6       | 38.1       | 38.8       | 37.2       |
| UGI Central Penn   | 6.4        | 6.7        | 6.9        | 7.0        | 8.3        | 8.5        | 7.5        |
| T.W. Phillips  | 5.6        | 6.0        | 6.0        | 6.2        | 5.8        | 6.1        | 6.1        |
| UGI  | 17.8       | 19.3       | 20.3       | 21.3       | 20.8       | 21.0       | 22.1       |
|  |            |            |            |            |            |            |            |
| <b>Total</b>   | <b>124</b> | <b>169</b> | <b>176</b> | <b>177</b> | <b>183</b> | <b>189</b> | <b>192</b> |

*Table 11 Total Gas Costs, AVG Cost of Gas Purchased, Gross Plant in Service*

| <b>TOTAL GAS COSTS (\$ Million)</b>           |              |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| LDC   | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         |
| Columbia                                      | 373.5        | 357.5        | 436.2        | 427.3        | 436.9        | 621.4        | 250.2        |
| Equitable                                     | 204.8        | 207.4        | 249.8        | 255.4        | 255.6        | 436.5        | 234.5        |
| NFG   | 178.6        | 179.8        | 219.6        | 236.2        | 188.4        | 229.1        | 174.3        |
| PECO  | 499.3        | 502.5        | 617.3        | 618.2        | 569.3        | 647.5        | 384.4        |
| Dominion                                      | 249.1        | 268.0        | 369.7        | 325.5        | 281.2        | 354.4        | 263.8        |
| UGI Penn Natural                              | 184.9        | 188.3        | 239.3        | 221.7        | 230.0        | 245.9        | 232.0        |
| PGW   | NA           | NA           | 659.9        | 531.2        | 540.9        | 587.2        | 392.6        |
| UGI Central Penn                              | NA           | 89.0         | 107.3        | 130.0        | 122.8        | 124.8        | 78.9         |
| T.W. Phillips                                 | 65.0         | 73.2         | 95.8         | 84.3         | 85.2         | 112.2        | 63.8         |
| UGI   | 288.8        | 322.5        | 450.2        | 410.2        | 428.4        | 428.1        | 390.7        |
|   |              |              |              |              |              |              |              |
| <b>Total</b>                                  | <b>2,044</b> | <b>2,188</b> | <b>3,445</b> | <b>3,240</b> | <b>3,139</b> | <b>3,787</b> | <b>2,465</b> |
| <b>AVERAGE COST OF GAS PURCHASED (\$/MCF)</b> |              |              |              |              |              |              |              |
| LDC   | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         |
| Columbia                                      | 7.13         | 7.01         | 9.86         | 8.93         | 8.99         | 11.32        | 6.00         |
| Equitable                                     | 5.78         | 6.35         | 8.08         | 7.45         | 8.04         | 9.02         | 6.34         |
| NFG   | 5.50         | 6.76         | 8.68         | 10.83        | 7.97         | 7.97         | 7.76         |
| PECO  | 7.47         | 8.67         | 10.30        | 11.47        | 9.85         | 11.04        | 6.79         |
| Dominion                                      | 6.11         | 6.98         | 8.89         | 10.70        | 7.92         | 8.65         | 7.30         |
| UGI Penn Natural                              | 6.36         | 7.12         | 9.33         | 9.23         | 7.77         | 8.44         | 9.60         |
| PGW   | NA           | NA           | 9.9          | 10.3         | 9.3          | 11.0         | 7.44         |
| UGI Central Penn                              | NA           | 6.77         | 8.10         | 12.21        | 8.85         | 9.64         | 8.23         |
| T.W. Phillips                                 | 5.57         | 6.55         | 8.95         | 8.29         | 8.14         | 9.41         | 7.00         |
| UGI   | 7.71         | 8.64         | 11.75        | 12.72        | 11.79        | 12.01        | 11.46        |
|   |              |              |              |              |              |              |              |
| <b>Overall Ave.</b>                           | <b>6.45</b>  | <b>7.21</b>  | <b>9.38</b>  | <b>10.21</b> | <b>8.86</b>  | <b>9.85</b>  | <b>7.79</b>  |
| <b>UTILITY PLANT IN SERVICE (\$ Million)</b>  |              |              |              |              |              |              |              |
| LDC   | 2003         | 2004         | 2005         | 2006         | 2007         | 2008         | 2009         |
| Columbia                                      | 658.1        | 673.7        | 710.4        | 748.6        | 788.6        | 851.1        | 925.1        |
| Equitable                                     | 692.4        | 704.8        | 722.2        | 746.8        | 815.3        | 874.2        | 911.7        |
| NFG   | NA           | NA           | 415.8        | 428.7        | 441.0        | 454.6        | 465.7        |
| PECO  | 1381.3       | 1435.9       | 1452.3       | 1510.1       | 1556.5       | 1595.5       | 1646.8       |
| Dominion                                      | 767.6        | 803.4        | 846.1        | 885.8        | 887.0        | 917.1        | 946.5        |
| UGI Penn Natural                              | 464.0        | 485.1        | 503.7        | 515.2        | 531.9        | 552.9        | 564.4        |
| PGW   | NA           | 1315.9       | 1362.0       | 1389.8       | 1421.1       | 1454.9       | 1502.0       |
| UGI Central Penn                              | 229.3        | 244.2        | 259.4        | 280.0        | 294.6        | 312.6        | 332.3        |
| T.W. Phillips                                 | 217.1        | 224.6        | 230.6        | 204.6        | 213.7        | 224.4        | 229.4        |
| UGI   | 906.6        | 943.5        | 977.4        | 1027.0       | 1068.5       | 1113.2       | 1153.5       |
|   |              |              |              |              |              |              |              |
| <b>Total</b>                                  | <b>5,316</b> | <b>6,831</b> | <b>7,480</b> | <b>7,737</b> | <b>8,018</b> | <b>8,351</b> | <b>8,677</b> |

## Appendix A Units of Measure

Natural gas is measured in two ways, by heat content or volume.

The basic heat unit is the British thermal unit (Btu). A Btu is about the amount of heat produced by a wooden kitchen match.

Volume is measured in cubic feet.

One cubic foot of gas contains about a thousand BTUs.

Most companies bill residential customers in hundred cubic feet (Ccf).

10 Ccf = 1Mcf = 1,000,000 BTUs.

One Mcf is a thousand cubic feet, which contains about a million BTUs (mmBTU).

One MMcf is a million cubic feet.

One Bcf is a billion cubic feet. Bcf is commonly used to describe a volume of gas.

One Bcfd is a billion cubic feet per day. Bcfd is commonly used to describe a volumetric flowrate of gas.

One ton of gas = 2,000 lbs. Emissions of vented gas are reported to Pennsylvania Department of Environmental Protection in tons.



**Pennsylvania Public Utility Commission**  
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