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March 26, 2009

VIA ELECTRONIC FILING

James McNulty
Secretary
PA Public Utility Commission
Commonwealth Keystone Bldg.
2nd Fl., 400 North Street
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Philadelphia Gas Works' Petition For Approval Of Energy Conservation And Demand-Side Management Plan
Docket Nos. R-2008-2073938, P-2009-

Dear Secretary McNulty:

In accordance with the Order entered December 19, 2008 in Docket No. 2008-2073938, enclosed for filing is Philadelphia Gas Works' ("PGW") Petition For Approval of Energy Conservation and Demand-Side Management Plan. An electronic version of the DSM Plan Workbook (described in the Plan as the "Technical Appendix") with Excel formula intact will be made available upon request and will also be available online at PGW's website within 24 hours. As shown by the Certificate of Service, copies of this filing are being served on parties of record in Docket No. R-2008-2073938.

Consistent with the procedure proposed in the Petition, PGW will be contacting the parties soon to set up a collaborative to discuss the filing.

Sincerely,

Kevin J. Moody
For WolfBlock LLP

KJM/lww
Enclosure

HAR:89217.1/PHI211-255739

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of PGW's Petition for Approval of Energy Conservation and Demand-Side Management Plan upon the participants listed below in accordance with the requirements of § 1.54 (relating to service by a participant).

VIA EMAIL & FIRST CLASS MAIL

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Kevin J. Moody

Kevin J. Moody, Esquire

Dated: March 26, 2009

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
v.	:	Docket Nos. R-2008-2073938 P-2008-
PHILADELPHIA GAS WORKS	:	

PHILADELPHIA GAS WORKS' PETITION FOR APPROVAL OF ENERGY CONSERVATION AND DEMAND-SIDE MANAGEMENT PLAN

In compliance with the Pennsylvania Public Utility Commission's ("PUC" or "Commission") order approving the petition of Philadelphia Gas Works ("PGW" or "Company") for emergency/extraordinary rate relief ("Extraordinary Rate Proceeding"),[1] PGW submits its Five-Year Gas Demand-Side Management Plan ("DSM Plan" or "Plan") for review by the Commission and interested stakeholders, and approval by the Commission. The DSM Plan is one of four (4) specific PGW commitments the Company made in the Extraordinary Rate Proceeding to help reduce the Company's future need for rate relief and to mitigate the effect of the extraordinary rate increase on its customers.

The DSM Plan, which compliments PGW's immediate cost-containment program, longer term Business Transformation Initiative program and other efficiency initiatives, is a comprehensive five-year energy conservation and efficiency plan that is projected to save customers over $104 million in present value dollars, and produce a net savings to customers (after present value costs) of $46.2 million.

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1 *PaPUC v. PGW*, R-2008-2073938 (Opinion and Order entered December 19, 2008).

This Petition reflects a dramatic change in PGW's core mission. Traditionally PGW has tried to maximize its sales of natural gas to its customers while providing reliable, safe and responsive service. If PGW's Plan is approved, it will continue to focus on its core customer service goals, while at the same time attempting to sell less natural gas and helping its customers use energy more efficiently while reducing greenhouse gas emissions.

The primary goals of PGW's proposed Plan are to: 1) reduce natural gas usage by, and the carbon footprint of, PGW customers and save them money on their overall energy bills; 2) maximize customer value by increasing the benefits realized from their gas service; 3) contribute to the fulfillment of the goals of the City of Philadelphia (PGW's owner) and the Commonwealth to reduce the use of scarce natural resources and reduce the production of greenhouse gases; and 4) reduce PGW's financial requirements by reducing the amount of natural gas and associated assets PGW needs to purchase in order to provide reliable service to its customers.

The DSM Plan has a portfolio of seven (7) programs: 1) an expansion of PGW's very successful low income weatherization program, the Conservation Works Program ("CWP"), PGW's LIURP program; 2) a weatherization program for non-low income residential customers (modeled after PGW's CWP); 3) a premium efficiency gas appliance and heating equipment incentive program; 4) a commercial and industrial (C&I) equipment efficiency upgrade program; 5) a municipal facilities comprehensive efficiency retrofit program; 6) a high-efficiency construction incentive initiative; and 7) a commercial and industrial retrofit program. When these programs have been in place for the full, five-year proposed Plan term, they will have saved all PGW customers $104 million (in constant dollars) and 1300 billion BTUs of natural gas. Moreover, the programs will have directly assisted 85,000 customers and created between 600 and 1,000 jobs in the Philadelphia area.

A key strategy of the proposed DSM Plan is the coordination with both the City of Philadelphia and PECO Energy (the utility that provides electric service to PGW's customers), wherever and whenever feasible and cost-effective. For example, PGW's Plan proposes that, as part of its residential retrofit initiative, its contractors would offer free direct installation of high-efficiency lighting products in customers' homes, in cooperation with PECO. For larger customers, where electric usage usually is the major part of their energy use, PECO would take the lead in installing energy efficiency measures. This coordinated effort would result in reduced electric usage (in furtherance of PECO's Act 129 requirements) at a very low incremental cost, while furthering PGW's proposed mission to help its customers use all forms of energy more efficiently.

As part of this Petition, PGW also requests approval to establish under Section 1307 of the Public Utility Code (66 Pa. C.S. § 1307) an automatic adjustment clause to recover the costs PGW will incur to implement and administer the new, non-low income, energy efficiency and conservation programs included in the DSM Plan.[2] As set forth below, the costs of the non-low income programs will be recovered only from the customer classes that receive the benefits of the measures installed. In addition to recovering the relatively modest costs of implementation, PGW proposes that its automatic adjustment clause be structured to permit PGW to recover actual lost revenues, but limited however, to those revenues specifically associated with reductions in demand from the DSM projects undertaken pursuant to the Plan. In this way, PGW's finances will not be adversely affected by a successful DSM Plan and the company will be fully incented to maximize the amount of usage reductions and benefits to customers.

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2 This clause will only recover costs other than those associated with expansion of PGW's existing CWP. Costs associated with the expansion of CWP will continue to be collected through PGW's existing Universal Service Charge. PGW is also requesting that the PUC approve this proposed revision of its approved LIURP plan.

PGW believes that its proposed DSM Plan is consistent with the clear policy of the Commonwealth to be on the forefront of energy efficiency and greenhouse gas reduction initiatives, as evidenced, for example, in the passage of Act 129 for electric utilities. Nonetheless, PGW understands that the Commission will need to fully review the proposed DSM Plan. PGW requests however, as an initial approach, that the Commission convene a collaborative to facilitate discussions and suggestions concerning the Plan rather than immediately referring the Plan to the Office of Administrative Law Judge for hearings. The collaborative approach may obviate the need for hearings, or at least limit the scope of any necessary formal litigation process. A contested hearing process before an ALJ should be mandated only if PGW's attempt to obtain a consensus on its DSM Plan has failed. In any event, PGW requests that the PUC order an expedited process by which to consider and rule upon the proposed Plan, in order to permit the Plan to be up and running as soon as possible and delivering benefits to customers.

In support of approval of the relief requested, PGW states as follows:

I. Background

1. By Order entered December 19, 2008, the Commission approved PGW's petition for $60 million in extraordinary/emergency rate relief.

2. In the proceeding, PGW indicated that it had implemented or was going to propose a variety of steps in order to mitigate the effect of the rate increase on customers. They included: (i) an immediate cost-containment program; (ii) a longer term "Business Transformation Initiative-Full" program; and (iii) the filing of a proposed comprehensive conservation and energy efficiency plan.[3]

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[3] *See,* Testimony of Thomas Knudsen, R-2008-2073938, PGW St. 1 at 12:

3. This filing fulfils that commitment by proposing a comprehensive energy conservation and efficiency plan which commits the Company to helping its residential, municipal and commercial customers take cost-effective steps to reduce their natural gas and electricity usage and thereby reduce their natural gas and electricity bills in a material way.[4]

4. The Plan was prepared by John Plunkett of Green Energy Economics Group ("GEEG") and Paul Chernick of Resource Insight, Inc., leading experts in utility demand side management and conservation.[5] These experts have prepared or been part of the approval process for DSM plans for scores of utilities throughout the country and the world. The

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Q. PLEASE SUMMARIZE WHAT DIRECT STEPS PGW HAS TAKEN TO MITIGATE THE CONSEQUENCES ON CUSTOMERS OF THE RATE REQUEST.

A. In making this application, the Company is taking three steps:

* * *

• PGW is preparing to file, soon, a Conservation/Demand Side Management proposal for approval by the PUC. Management recognizes the risk to the bottom line of such an action but has concluded that this risk is one that needs to be taken to begin programs leading to serious conservation efforts among our customers.

[4] The DSM Plan and Technical Appendix (a functioning, self-documented MS Excel Workbook containing the cost-effectiveness analysis, and the rate and bill analysis) is attached as Exhibit 1.

[5] Mr. Plunkett is a co-founder of GEEG and an economist with 28 years of experience in energy utility planning, specializing in energy efficiency as a resource and as an investment strategy for energy service providers. He has played key advisory and negotiating roles on all aspects of electric and gas utility DSM, including residential, industrial, and commercial program design, implementation, oversight, performance incentives, and monitoring and evaluation planning. Mr. Chernick is President of Resource Insight and has: (1) developed or modified estimates of electric avoided costs for numerous electric utilities; (2) testified on DSM potential, economics and program design in over 50 proceedings and participated in several collaborative efforts among utilities, consumer advocates and interested stakeholders concerning gas and electricity efficiency programs; and (3) participated in proceedings and collaboratives concerning recovery of utility energy efficiency program costs and associated revenue losses.

Plan, therefore, contains the "best practices" and the most effective measures and approaches being used today.

5. The broad goals of the Company's Plan are to: (i) reduce customer bills; (ii) maximize customer value; (iii) contribute to the fulfillment of the City's sustainability plan, as well as the goals of the Commonwealth to reduce the use of scarce natural resources and greenhouse gases; and (iv) potentially improve PGW's finances by decreasing cash flow requirements.

6. The guiding principles adopted (as recommended by its expert consultants) by the Company in formulating the Plan were to: i) Field a portfolio of programs that targets cost-effective gas efficiency savings among all PGW's firm heating customers; ii) Maximize delivery efficiency to minimize costs and maximize coverage from the available budget; iii) Stage program implementation to permit orderly and sustainable expansion; iv) Treat customers in greatest economic need and with most cost-effective opportunities first; and iv) Support economic development in the City, both directly and indirectly.

7. The Company's DSM Plan proposes implementation, by one or more contractors retained by PGW, of a portfolio of seven (7) demand-side management programs designed to achieve the goals of the Plan. A summary of those proposed programs is as follows:

a) Enhanced Low-Income Retrofit - A comprehensive retrofit program designed for low income high-use heating customers. This program utilizes implementation contractors to identify and install a wide array of technologies that reduce the home's energy consumption.

b) Comprehensive Residential Heating Retrofit - A comprehensive retrofit program designed for high-use heating customers. This program utilizes the existing federal Home Performance with ENERGY STAR™ program to identify potential technologies that private contractors then use with customers.

c) Premium Gas Appliances and Heating Equipment - This program works to promote the selection of residential-sized efficient gas appliances and heating equipment at the time of purchase and ultimately to transform the market to shift to the high-efficiency options.

d) Commercial and Industrial Equipment Efficiency Upgrades - This program works to promote the selection of commercial and industrial efficient gas heating and process equipment at the time of new installation or scheduled replacement and ultimately to transform the market to shift to the high-efficiency options.

e) Municipal Facilities Comprehensive Efficiency Retrofit - A comprehensive retrofit program designed for municipal facilities. This program utilizes energy-service contractors to identify and install cost-effective energy-saving technologies.

f) High-Efficiency Construction - A comprehensive program designed for new construction, remodeling, and renovation efficiency improvements for residential and commercial buildings. This program seeks to transform the market so that energy-efficient design and construction becomes standard practice.

g) Commercial and Industrial Retrofit - A comprehensive retrofit program designed for commercial and industrial facilities, this program promotes the installation of a wide array of cost-effective energy-saving technologies.

8. The gas DSM plan concentrates on residential retrofits in two ways: first, by extending – immediately upon Commission approval – the existing low-income program to more customers in need ("Enhanced Low-Income Retrofit"); and second, by expanding the program in 2010 to non-low income residential customers ("Comprehensive Residential Heating Retrofit"). Both retrofit programs upgrade the thermal integrity of the building with added insulation and instrumented air sealing, and in some instances also retire old, inefficient gas furnaces and boilers and water heaters and replace them with new, high-efficiency equipment. The enhanced low-income program will provide efficiency retrofit services free of charge, just as it does currently. For the rest of PGW's residential customers, the comprehensive retrofit program will offer discounts and extended

repayment options for the same efficiency measures targeted by the enhanced low-income program.

9. Both residential retrofit programs will also offer free direct installation of a diverse array of high-efficiency lighting products in customers' homes.[6] Planned and executed in cooperation with PECO, these additional measures will produce significant cost-effective electricity savings at costs well below what PECO would have had to spend to realize them with a stand-alone electric DSM program.

10. The "Premium Efficiency Gas Appliances and Heating Equipment" program, to be launched in 2010, is designed to increase the efficiency of gas appliances and heating equipment at the time of purchase by residential and small commercial customers.

11. The "Commercial and Industrial Equipment Efficiency Upgrades" program, to be launched in 2010, is designed to promote the selection of commercial and industrial efficient gas heating and process equipment at the time of installation or scheduled replacement.

12. The "Municipal Facilities Comprehensive Efficiency Retrofit" program, to be launched in 2009, is a program in which PGW will work with the City and PECO to invest in comprehensive efficiency retrofits in City-owned facilities.

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[6] This Petition describes PGW's proposal for the integration of work with PECO. Though PECO has been cooperative and highly interested, there has been no formal agreement between PGW and PECO to implement the program as described. PGW will be directly installing efficiency measures through independent contractors selected by PGW through competitive solicitation, building on PGW's successful experience managing the delivery of its low-income retrofit program. As PGW will be managing the direct installation of these lighting products in customers' homes, PGW will not be required to register as a "Conservation Service Provider" with respect to PECO. The Commission recently made clear that CSPs are entities "that will provide consultation, design, administration, management or advisory services to an EDC regarding that EDC's EE&C plan." *Implementation of Act 129 of 2008 Phase 2 – Registry of Conservation Service Providers*, Docket No. M-2008-2074154, Order entered February 5, 2009, at 9 (emphasis added),10-11.

13. The "High-Efficiency Construction" program, to be launched in 2010, is designed for new construction, remodeling and renovation efficiency improvements for residential and commercial buildings. PGW plans to work with PECO on joint program design and implementation, with PECO playing the lead role in program administration because of the predominance of electric efficiency savings opportunities compared to gas in commercial buildings.

14. The "Commercial and Industrial Retrofit" program, to be launched in 2010, is a business retrofit program investing in gas and electric efficiency improvements. As with the "High-Efficiency Construction" program, PECO will take the lead with PGW playing the supporting role because of the predominance of electric efficiency savings opportunities compared to gas in commercial buildings.

15. A common element of all the programs is the integration with PECO's Electric DSM Programs. Maximizing value from PGW's gas DSM portfolio requires that PGW integrate the design and implementation of its programs with electric DSM programs targeting the same customers in the same markets. Failure to integrate programs would lead to missed opportunities, duplication of effort, needlessly high costs, and customer confusion. For example, improving building thermal performance will save heating gas as well as electricity used for cooling. Especially for residential customers and small commercial customers, it makes the most sense for PGW and PECO to combine forces to offer customers one-stop shopping for efficiency measures addressing electricity and gas usage. Consequently, PGW's DSM Plan carefully integrates gas efficiency opportunities with electric DSM efforts. Any cost sharing between PGW and PECO will be guided by the relative benefits of gas and electricity savings generated by the programs.

II. Implementation

16. The Plan provides for expansion of the Company's existing information management systems to track the cost and performance information. The Plan also applies the same approach to measurement, verification and evaluation that PGW currently uses in administering its low-income retrofit program, including establishing a technical reference manual which will codify and update methods and assumptions for calculating savings from the gas efficiency measures.[7]

17. PGW will be responsible for a variety of activities:

a) Installation. PGW personnel will manage the implementation of energy-efficiency programs. Installation of efficiency measures will be done by independent contractors that PGW will select through competitive solicitation. This model builds on PGW's successful experience managing the delivery of its Conservation Works Program PGW will also retain outside experts to assist it in preparing specifications for implementation contractor solicitation, assessing competing bids, structuring contracts, and establishing performance goals.

b) Program Marketing and Business Development. PGW and its contractors will be responsible for all outreach to customers and to members of the supply chain for gas appliances and equipment such as vendors, wholesalers, and manufacturers. A critical component of successful marketing will be market research. PGW will rely on in-house personnel as well as contractors as necessary to develop and execute marketing strategies to maximize participation.

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[7] The Commission is developing a Technical Reference Manual for use with EDC energy efficiency and conservation programs

PGW will work closely with retrofit program implementation contractors to maximize individual customers' trust and acceptance. PGW will also work with civic and other organizations on coordinated campaigns to maximize participation in targeted areas.

c) Tracking and Reporting. PGW will expand its existing information management systems to track the cost and performance information. These systems are in place already and only need to be expanded and updated to accommodate more participants of more types with varying usage levels.

PGW will also file regular reports on spending, participation, energy savings, and benefits. Templates for these filings will be included in the compliance filing PGW will make upon Commission approval of this plan.

d) Measurement, Verification and Evaluation. PGW will apply the same approach to measurement, verification, and evaluation that it currently employs in the administration of the CWP program. PGW will also verify that measures are actually installed as recommended and analyzed.

18. PGW has conducted extensive evaluation of its low-income program, which is delivered by two implementation contractors. PGW will continue to use the results of independent evaluation to update savings estimates and redirect program activities. PGW will also develop a program evaluation plan for the entire portfolio in its compliance filling.

19. PGW will coordinate these programs with two other entities that will be providing DSM assistance to customers in its service territory: PECO Energy and the City of Philadelphia.

20. Any cost sharing between PGW and PECO will be guided by the relative benefits of gas and electricity savings generated by the programs.

21. PGW will assume lead responsibility for implementing comprehensive retrofits for City residents and in City-owned and/or managed facilities. PGW would play a supporting role in PECO programs designed and implemented to achieve cost-effective efficiency savings in residential and business construction and in comprehensive business retrofits.

III. Costs and Benefits of the Program

22. PGW plans to scale up DSM spending rapidly and substantially, investing a total of $54 million through 2013 to implement these programs (Exhibit 1, Table 6).[8] The Company expects to save about 1300 Billion British Thermal Units (BBTU) annually by the end of 2013 (Exhibit 1, Table 7).

23. The net economic benefits of the Plan are analyzed from two perspectives: the first and primary test is the total resource cost (TRC) perspective,[9] and the second is the utility system perspective. The B/C ratio for the total portfolio is 1.78 (Exhibit 1, Table 1).[10] The net economic benefits resulting from both perspectives are shown on Exhibit 1, pages 19-21, Figures 2-4 and Table 9.

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[8] By 2013, PGW's expected spending and savings increase to about triple the US/Canada average.

[9] Use of the TRC test is consistent with the Commission's program for the EDCs' Act 129 EE&C plans, which requires the use of the TRC test to analyze costs and benefits of the EDC plans, with the results expressed as both a net present value ("NPV") and benefit/cost ("B/C") ratio. *Energy Efficiency and Conservation Program*, Implementation Order entered January 15, 2009, at 2, 14-16.

[10] A B/C ratio of one indicates that the Plan is beneficial to PGW and its ratepayers on a total resource cost basis.

24. Consumption reductions resulting from the gas programs will decrease the amount of natural gas PGW has to procure and deliver to serve its customers. Avoided gas supply costs represent the long-term benefits of PGW's DSM plan over the lifetimes of the efficiency measures installed. The present worth of these avoided supply costs amounts to $97 million, yielding net economic benefits of $47 million, or a benefit/cost ratio of 1.94.

25. Over the next five years, average customer bills are expected to increase by a range of 0.3 to 0.9 percent, compared to what they would have been absent PGW's DSM investment. Rates are projected to average 2.5% higher by 2013. PGW submits that these modest rate increases are an acceptable tradeoff in exchange for the large bill reductions that are expected to accrue over the remaining lifetime of the efficiency measures installed due to implementation of the DSM portfolio. Rates will begin to fall in year six and continue to fall, producing savings for all customers through the life of the measurers installed.

26. The Company's DSM Plan will create jobs directly through the service and installation work needed to implement the program, and indirectly through the increased economic activity that results from substitution of local capital and labor for natural gas delivered from afar, increasing household disposable income and strengthening business profitability throughout Philadelphia. While the projected number of the jobs to be created within the Philadelphia metro area cannot be precise, broadly accepted economic theory supports the projection that the number will be substantial. PGW estimates that its gas DSM portfolio will stimulate the creation of between 600 and 1,000 net additional over the life of the efficiency measures installed over the next five (5) years, depending on which employment impact estimate is used and the price of natural gas.

27. The Company also expects the DSM program portfolio's gas savings to reduce greenhouse gas emissions by 1.18 million tons of carbon dioxide (Exhibit 1, Table 11) and produce reductions in other pollutants.

28. As explained in the DSM Plan, the Plan will provide substantial benefits to PGW's customers, PGW and the Philadelphia metro area. In addition, the Plan is consistent with the recently established comparable requirements for EDC energy efficiency and conservation plans required by Act 129 of 2008. Accordingly, PGW submits that its DSM Plan is just and reasonable and in the public interest, and should be approved.

IV. Recovery of Costs and Lost Revenue

29. The costs of PGW's existing CWP Program are recovered from firm customers through the Company's Universal Service and Energy Conservation Surcharge ("USC"). PGW proposes to continue to recover the costs of the expanded CWP via the USC. For all other costs PGW proposes a new adjustment clause – the Efficiency Cost Recovery Surcharge ("ECRS") – to recover the administrative and other costs of implementing the DSM Plan as set forth in Exhibit 2. The clause is filed pursuant to Section 1307 of the Public Utility Code (66 Pa. C.S. § 1307) and tracks the USC. PGW proposes that only incurred costs be included for recovery.

30. One of the costs of the program (from PGW's standpoint) is the reduction in usage and, in turn, margin, that will result directly from the implementation of the DSM Plan. To identify the lost revenue associated with each program measure, PGW's expert consultant, Paul Chernick, has calculated an amount of usage associated with each individual programmatic element. Using data developed from actual experience, PGW has calculated the amount of reduction in load that will occur from each conservation step. PGW is proposing that it recover the margin associated with this projected amount in its DSMC, until its pro forma revenues can

be reset in a base rate case. PGW believes that this is an extremely conservative approach to calculating and recovering lost revenue.

31. PGW will revise its ECRS each quarter by revising the total costs to be recovered together with a reconciliation of prior costs and including lost revenue associated with the program steps that it has completed at that time.

32. The ECRS will be structured on a class basis so as to assure that each customer class will be responsible only for the DSM costs and lost revenues associated with that class and with the measures installed for that class under this program.

V. Proposed Procedure

33. PGW is proposing an approach for consideration and review of its DSM Plan consistent with the Commission's approach to the EDCs' development of their Act 129 plans. In its Act 129 *Implementation Order*, the Commission directed EDCs to engage in informal discussions with the statutory advocates and interested stockholders during the pre-filing development of their plans. PGW has shared its draft plan with all interested stakeholders and, has received comments (and even extensive data requests) from several interested parties.[11]

34. PGW requests that the Commission proceed in a similar manner with respect to consideration of the Plan:

a) Rather than immediately forward the Petition to the Office of Administrative Law Judge in order to assign an ALJ for evidentiary hearings, PGW proposes that the PUC convene a collaborative to discuss the Plan and improvements to the Plan by interested stakeholders. PGW suggests that this approach may obviate the need for hearings, or at least substantially limit the scope of any hearings necessary to resolve issues.

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[11] PGW's responses to the regulatory filing requirements at 52 Pa. Code ¶ 53.52(a) are set forth in Exhibit 3.

b) If after 60 days the participating parties are not able to reach a consensus on the issues raised by the Petition then the proceeding should be assigned to an ALJ for resolution in the conventional manner.

c) PGW requests that, if any evidentiary hearing process is necessary, the Commission direct the OALJ to expedite the process and to provide a recommended decision on contested issues within three (3) months of the initiation of the hearing process.

VI. Approvals Required For Plan

35. PGW requests approval of its DSM Plan as just, reasonable, prudent, cost-effective and in the public interest in accordance with Chapter 22 of the Public Utility Code and Sections 1301, 1319, 1501 and 1505(b) of the Code, as well as the following specific approvals:

a) Pursuant to 51 Pa. Code § 58.17, inclusion of the Enhanced Low-Income Retrofit program in PGW's LIURP plan;

b) Recovery of the costs of the Enhanced Low-Income Retrofit program through PGW's Universal Service and Energy Conservation Surcharge; and

c) Pursuant to 66 Pa. C.S § 1307, recovery of DSM Plan administrative and implementation costs, other than the costs of the Enhanced Low-Income Retrofit program, and lost revenues, through the Efficiency Cost Recovery Surcharge ("ECRS").

PRAYER FOR RELIEF

WHEREFORE, PGW respectfully requests that the Commission:

a) Convene a collaborative of interested stakeholders and Commission staff to discuss the DSM Plan and suggestions for improvements to the Plan;

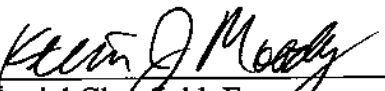
b) Establish a sixty (60) day period for the collaborative to reach agreement on the Plan;

c) Establish an expedited hearing and recommended decision schedule to address issues, if any, unresolved by the collaborative;

d) Approve the DSM Plan, including cost recovery, as modified by the collaborative or otherwise as acceptable to PGW, as just and reasonable and in the public interest; and

e) Take any other action deemed to be in the public interest.

Respectfully submitted,



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Of Counsel
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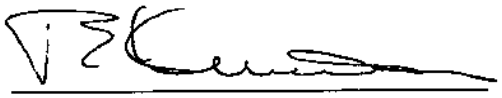
March 26, 2009

VERIFICATION

I, Thomas E. Knudsen, hereby state that: (1) I am the President and CEO for Philadelphia Gas Works; (2) the facts above set forth in the foregoing document are true and correct (or are true and correct to the best of my knowledge, information and belief); and (3) that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).



Thomas E. Knudsen

Dated: 3/25/09

EXHIBIT 1

Philadelphia Gas Works
Five-Year Gas Demand-Side Management Plan

March 26, 2009

To Be Submitted For
Review and Approval By the
Pennsylvania Public Service Commission

Contents

Philadelphia Gas Works
Five-Year Gas Demand-Side Management Plan

I. SUMMARY

Over the next five years, Philadelphia Gas Works (PGW) plans to implement a portfolio of seven demand-side management (DSM) programs designed to reduce customers' natural gas consumption through end-use efficiency investments. These programs provide technical and financial services to residential and business customers to help them upgrade the efficiency with which they use natural gas to heat their homes and buildings. PGW plans to invest a total of $54 million[1] ($50 million present worth in 2009 dollars) through 2013 to implement these programs, and expects to save about 1,300 Billion British Thermal Units (BBTU) annually by the end of 2013.[2]

Consumption reductions resulting from the programs lower the amount of natural gas PGW has to procure and deliver to serve its customers. Avoided gas supply costs represent the long-term benefits of PGW's DSM plan over the lifetimes of the efficiency measures installed. Today's present worth of these avoided gas supply costs amounts to $97 million, yielding present worth net economic benefits of $47 million to the PGW gas system, or a benefit/cost ratio of 1.94.

Over the next five years, average customer bills will increase by a range of 0.3 to 0.9 percent, compared to what they would have been absent PGW's DSM investment. Rates are projected to average 2.5% higher by 2013. PGW deems these modest rate increases to be an acceptable tradeoff in exchange for the large bill reductions that will accrue over the remaining lifetime of the efficiency measures installed due to the DSM portfolio.

These net cost reductions due to lower gas requirements increase household disposable income and strengthen business profitability throughout Philadelphia, stimulating the creation of between 600 and 1,000 jobs, depending on which employment impact estimate is used.

The portfolio's gas savings also reduce greenhouse gas emissions by 1.18 million tons of carbon dioxide.

PGW's gas DSM plan concentrates on residential retrofits, first by extending the existing low-income program to more customers in need, and second by expanding the program to the City's non-low income residents. Both retrofit programs upgrade the thermal

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[1] Sum of nominal dollars (total of mixed-current dollars, not discounted)

[2] The proposed program will be submitted to the Pennsylvania Public Utility Commission for its review and approval. PGW will seek recovery of the costs of the program, including revenue lost as a direct result of the program.

integrity of the building with added insulation and instrumented air sealing, and in some instances also retire old, inefficient gas furnaces and boilers and water heaters and replace them with new, high-efficiency equipment. The enhanced low-income program will provide efficiency retrofit services free of charge, just as it does currently. For the rest of PGW's residential customers, the comprehensive retrofit program will offer discounts and extended repayment options for the same efficiency measures targeted by the enhanced low-income program. By the end of the initial five year period, PGW plans to have treated 85,000 customers, reaching an annual pace of 26,000 per year by 2013. PGW plans to continue the program beyond five years with appropriate regulatory approval.

Both residential retrofit programs will also offer free direct installation of a diverse array of high-efficiency lighting products in customers' homes. Planned and executed in cooperation with PECO, these additional measures will produce significant cost-effective electricity savings at costs well below what PECO would have had to spend to realize them with a stand-alone electric DSM program.

Another high priority for 2009 is PGW's plan to work with the City and PECO to invest in comprehensive efficiency retrofits in City-owned facilities. Also initiated in 2009 is a program to increase the efficiency of gas appliances and heating equipment purchased by residential customers; the plan calls for a companion program for business equipment beginning this year.

For 2010, PGW plans to work with PECO in 2009 on a business retrofit program investing in gas and electric efficiency improvements, with PECO playing the lead role in program administration.

This support role for PGW is dictated by the predominance of electric efficiency savings opportunities compared to gas in commercial buildings. The rationale is the same in the construction and renovation markets, where PGW also plans to work with PECO on joint program design and implementation.

Table 1 summarizes the present value of costs and benefits of the program portfolio.

Table 1

PROGRAM	Total Resource PV Benefits	Total Resource PV Costs	PGW PV Costs	Total Resource PV Net Benefits	Total Resource B/C Ratio
Comprehensive Residential Heating Retrofit	$ 23,623,820	$ 16,263,742	$ 7,255,416	$ 7,360,077	1.45
Enhanced Low-income retrofit	$ 43,496,662	$ 30,810,761	$ 32,889,523	$ 12,685,901	1.41
Premium efficiency gas appliances and heating equipment	$ 26,324,813	$ 5,042,961	$ 5,738,129	$ 21,281,852	5.22
Commercial and Industrial equipment efficiency upgrades	$ 1,402,940	$ 896,353	$ 829,516	$ 506,587	1.57
Municipal facilities comprehensive efficiency retrofit	$ 3,833,613	$ 2,137,676	$ 427,535	$ 1,695,937	1.79
High-efficiency construction	$ 3,472,886	$ 1,940,071	$ 2,264,540	$ 1,532,815	1.79
Commercial and industrial retrofit	$ 2,805,881	$ 1,720,998	$ 864,829	$ 1,084,883	1.63
Total Portfolio	$ 104,960,615	$ 58,812,563	$ 50,269,487	$ 46,148,052	1.78

Table 2 summarizes each program's target market and efficiency technologies, market strategies, and delivery mechanism.

Table 2

PHILADELPHIA GAS WORKS: Five Year Gas Demand-Side Management Plan

PROGRAM	Target Market	Efficiency Technologies Targeted: Gas	Electric	Water	Market Actors Targeted	Financial Strategies	Delivery Mechanism	PGW Role
Comprehensive Residential Heating Retrofit	High-use heating customers (customers ranked in the highest 40% in terms of annual consumption	Instrumented air-sealing; attic/wall insulation; high-efficiency windows; high-efficiency furnace early replacement	High-efficiency lighting;	High-efficiency showerheads and aerators; high-efficiency clothes washers	HPwES-certified contractors; material and equipment suppliers	Financial incentives to buy down projects to a 2-year payback period, with on-bill financing of the customer's contribution	Private contractors	Lead program administrator for residential retrofit in Philadelphia; coordination with PECO
Enhanced Low-income retrofit	CRP and senior citizen customers				ECA, Honeywell, other providers to be selected through competitive solicitation	Free installation	Implementation contractor(s)	
Premium efficiency gas appliances and heating equipment	Buyers, sellers, and installers of gas space and water heating equipment to residential and small business customers	High-efficiency clothes washers, space- and water-heating equipment	Not applicable		Equipment manufacturers, distributors, retailers/vendors, engineers, contractors, customer buyers	Financial incentives covering 80% of the incremental cost of premium-efficiency equipment	Supply chain	Program administrator; coordination with PECO DSM programs
Commercial and industrial equipment efficiency upgrades	Buyers and sellers of commercial/industrial gas heating and non-heating equipment	High-efficiency heating and process equipment						
Municipal facilities comprehensive efficiency retrofit	City-owned and -operated public buildings and facilities	High-efficiency boilers and furnaces for space and water heating; high-efficiency building controls; high-efficiency shell improvements	High-efficiency lighting, HVAC, refrigeration	Low-water toilets; high-efficiency clothes washers	Facility managers, department heads, financial officers	On-bill extended financing for cost-effective gas-saving measures	Private energy-service contractors selected through competitive bids	Assistance with engineering and economic assessment of retrofit efficiency options, coordination with participation in PECO DSM programs
High-efficiency construction	New construction, remodeling, and renovation efficiency improvements for residential and commercial buildings				Property developers, managers, owners, real estate agents, architects, engineers, builders, contractors	Financial incentives covering 80% of the incremental cost of premium-efficiency equipment and efficiency technologies	Supply chain	Support for and coordination with PECO DSM program
Commercial and industrial retrofit	Supplemental measures (e.g., boiler controls), early retirement of inefficient equipment; investments planned in coordination with PECO electric DSM program(s)					Customized incentives calculated based on payback buy down, including electric and other resource savings., possibly with PECO on-bill financing of customer contribution	TBD	

II. OBJECTIVES OF PGW'S GAS DSM PLAN

PGW's DSM plan has three broad goals.

- Reduce customer bills
- Maximize customer value
- Contribute to the fulfillment of the City's sustainability plan.
- Reduce PGW cash flow requirements

In pursuit of these goals, PGW has designed and will implement the planned DSM portfolio according to the following principles:

- Field a portfolio of programs that targets cost-effective gas efficiency savings among all PGW's firm heating customers
- Maximize delivery efficiency to minimize costs and maximize coverage from the available budget
- Stage program implementation to permit orderly and sustainable expansion
- Treat customers in greatest economic need and with most cost-effective opportunities first
- Support economic development in the City, both directly through more intensive employment of local resources to save natural gas, and indirectly through the economic stimulus generated by increasing the amount of money City households and businesses have available to spend

III.PGW's PROPOSED GAS DSM BUDGETS

PGW's five-year DSM portfolio budget totals $54.0 million (nominal dollars). The next section presents annual program-by-program spending (in constant dollars). The subsequent section compares PGW's DSM spending and savings with those of other gas utilities.

A. Five-Year DSM Program Budgets

PGW plans to increase annual DSM spending from approximately $2 million in 2008 to approximately $5.7 million in calendar year 2009, depending on the date of Commission approval. Annual spending will continue to rise each year, consistent with PGW's plan to phase in and ramp up programs over time. As shown in Table 3, annual spending reaches $14.8 million by 2013.

Table 3

Program Budgets (Constant 2009 Dollars)

PORTFOLIO	2009	2010	2011	2012	2013
Customer Incentives	$ 5,043,525	$ 7,670,200	$ 9,676,132	$ 11,081,131	$ 11,943,566
Program administration	$ 713,284	$ 1,307,380	$ 2,056,426	$ 2,537,045	$ 2,823,900
Total	$ 5,756,809	$ 8,977,580	$ 11,732,558	$ 13,618,175	$ 14,767,465
COMPREHENSIVE RESIDENTIAL HEATING RETROFIT[3]					
Customer Incentives	$ -	$ 591,892	$ 1,479,229	$ 2,366,767	$ 2,366,767
Program administration	$ -	$ 205,671	$ 514,177	$ 822,682	$ 822,682
Total	$ -	$ 797,362	$ 1,993,406	$ 3,189,449	$ 3,189,449
ENHANCED LOW-INCOME RETROFIT					
Customer Incentives	$ 5,043,525	$ 6,433,068	$ 6,433,068	$ 6,433,068	$ 6,433,068
Program administration	$ 713,284	$ 909,801	$ 909,801	$ 909,801	$ 909,801
Total	$ 5,756,809	$ 7,342,869	$ 7,342,869	$ 7,342,869	$ 7,342,869
PREMIUM EFFICIENCY GAS APPLIANCES AND HEATING EQUIPMENT					
Customer Incentives	$ -	$ 472,954	$ 1,418,861	$ 1,418,861	$ 1,418,861
Program administration	$ -	$ 118,238	$ 354,715	$ 354,715	$ 354,715
Total	$ -	$ 591,192	$ 1,773,576	$ 1,773,576	$ 1,773,576
COMMERCIAL AND INDUSTRIAL EQUIPMENT EFFICIENCY UPGRADES					
Customer Incentives	$ -	$ 36,125	$ 72,249	$ 180,624	$ 361,247
Program administration	$ -	$ 12,042	$ 24,083	$ 60,208	$ 120,416
Total	$ -	$ 48,166	$ 96,333	$ 240,832	$ 481,663
MUNICIPAL FACILITIES COMPREHENSIVE EFFICIENCY RETROFIT					
Customer Incentives	$ -	$ -	$ -	$ -	$ -
Program administration	$ -	$ 16,299	$ 162,991	$ 162,991	$ 162,991
Total	$ -	$ 16,299	$ 162,991	$ 162,991	$ 162,991
HIGH-EFFICIENCY CONSTRUCTION					
Customer Incentives	$ -	$ 104,251	$ 208,503	$ 521,257	$ 1,042,514
Program administration	$ -	$ 26,063	$ 52,126	$ 130,314	$ 260,629
Total	$ -	$ 130,314	$ 260,629	$ 651,571	$ 1,303,143
COMMERCIAL AND INDUSTRIAL RETROFIT					
Customer Incentives	$ -	$ 32,111	$ 64,222	$ 160,554	$ 321,109
Program administration	$ -	$ 19,267	$ 38,533	$ 96,333	$ 192,665
Total	$ -	$ 51,377	$ 102,755	$ 256,887	$ 513,774

[3] In addition to the gas-saving measures, the residential retrofit programs include spending for direct installation of CFLs.

B. PGW's Spending and Savings Compared with Other Gas Utility DSM Portfolios

PGW's ambitious DSM investment portfolio follows in the footsteps of leading gas DSM program administrators around the U.S. and Canada. Figure 1 shows on a U.S. map where gas DSM programs are either active or planned.

Figure 1

STATES WITH ACTIVE AND PLANNED NATURAL GAS ENERGY EFFICIENCY PORTFOLIOS 2007 PROGRAM
61 ACTIVE AND 11 PLANNED IN 32 STATES AND CANADA

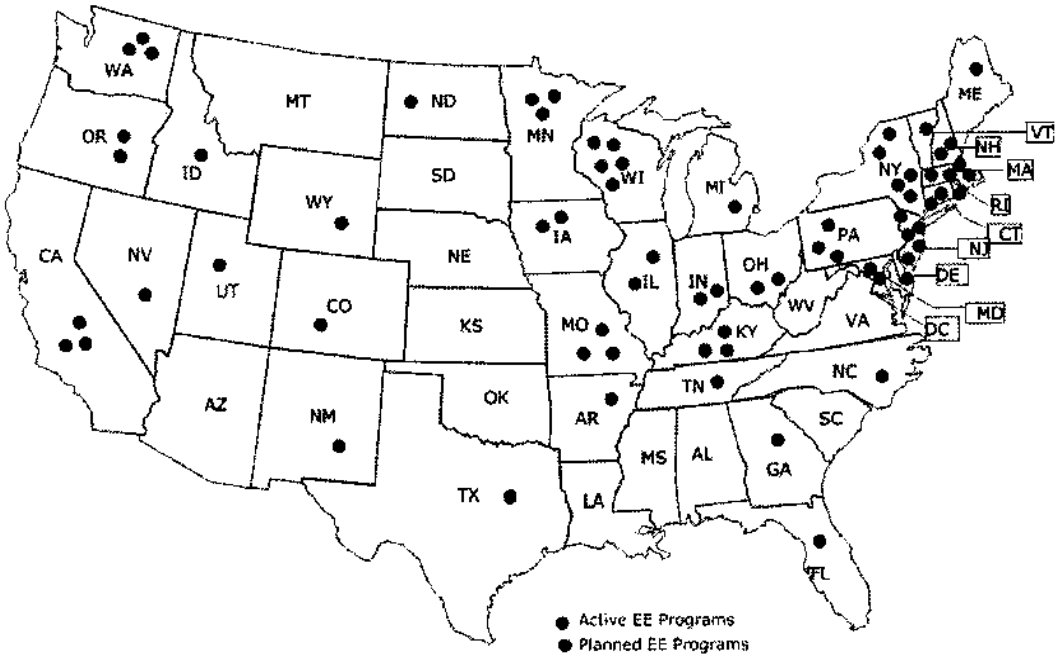


Table 4 presents utility gas DSM spending and savings by PGW and several industry leaders. Initially, PGW's spending and savings are about average for the other utilities surveyed – spending about $0.01 per therm saved, with savings averaging about 0.24% of sales. By the fifth year, however, PGW's spending and savings increase to about triple the US/Canada average.

Actual and Planned Expenditures and Savings
For Leading Gas Efficiency Program Administrators
(Nominal $)

	Residential					Non-Residential					Total						
	Cost (Nominal $M)	Savings (Million Therms)	Sales (Million Therms)	Savings % of Sales	Spending per Annual Therm Saved	Cost (Nominal $M)	Savings (Million Therms)	Sales (Million Therms)	Savings % of Sales	Spending per Annual Therm Saved	Cost (Nominal $M)	Savings (Million Therms)	Sales (Million Therms)	Savings % of Sales	Spending per Annual Therm Saved	Spending per Lifetime Therm Saved	Spending per Therm Sold
PGW PROJECTIONS																	
Philadelphia Gas Works																	
2009	$ 5.47	0.79	29	2.71%	$6.94	$ -	0.00	22	0.00%	$0.00	$ 5.47	0.79	51	1.54%	$6.94	$0.71	$ 0.107
2010	$ 8.39	1.62	29	5.58%	$5.19	$ 0.25	0.08	22	0.35%	$3.27	$ 8.64	1.69	51	3.33%	$5.10	$0.52	$ 0.170
2011	$ 10.83	2.73	29	9.47%	$3.97	$ 0.65	0.28	22	1.29%	$2.30	$ 11.47	3.01	51	5.95%	$3.81	$0.39	$ 0.227
2012	$ 12.10	3.07	29	10.70%	$3.94	$ 1.39	0.46	22	2.14%	$3.00	$ 13.49	3.53	50	7.02%	$3.82	$0.39	$ 0.268
2013	$ 12.34	3.07	29	10.76%	$4.02	$ 2.66	0.77	22	3.56%	$3.47	$ 15.00	3.84	50	7.66%	$3.91	$0.40	$ 0.299
ACTUAL																	
NSTAR (MA)																	
2004	$ 3.06	0.29	231	0.13%	$10.38	$ 1.02	0.44	239	0.18%	$2.32	$ 4.08	0.73	470	0.16%	$5.55	$0.57	$ 0.0087
2006	$ 2.98	0.28	193	0.14%	$10.75	$ 0.96	0.61	225	0.27%	$1.58	$ 3.94	0.89	418	0.21%	$4.45	$0.45	$ 0.0094
2007	$ 3.18	0.26	218	0.12%	$12.14	$ 1.04	0.51	249	0.21%	$2.02	$ 4.22	0.78	467	0.17%	$5.43	$0.55	$ 0.0090
Southern California Gas (CA)																	
2006	$ 12.98	2.82	2,480	0.11%	$4.61	$ 13.22	8.81	3790	0.23%	$1.50	$ 26.20	11.62	6,270	0.19%	$2.25	$0.23	$ 0.0042
2007	$ 41.15	3.54	2,460	0.14%	$11.63	$ 24.74	23.28	3880	0.60%	$1.06	$ 65.89	26.81	6,340	0.42%	$2.46	$0.25	$ 0.0104
Enbridge (Canada & US)																	
2007		18.65	1,581	1.18%			14.63	2571	0.57%		$ 22.00	33.28	4,152	0.80%	$0.66	$0.07	$ 0.0053
Union Gas (CA)																	
2007	$ 4.09	4.70	1,031	0.46%	$0.87	$ 5.80	26.93	3869	0.70%	$0.22	$ 16.13	31.63	4,900	0.65%	$0.51	$0.05	$ 0.0033
Northern Utilities (NH)																	
2004	$ 0.29	0.01	17	0.07%	$25.65	$ 0.62	0.06	50	0.12%	$ 10.71	$ 0.91	0.07	67	0.10%	$ 13.13	$ 0.66	$ 0.0135
2005	$ 0.23	0.05	16	0.28%	$4.86	$ 0.41	0.03	49	0.06%	$ 14.62	$ 0.64	0.08	65	0.11%	$ 8.52	$ 0.43	$ 0.0098
2006	$ 0.20	0.05	14	0.34%	$4.22	$ 0.41	0.11	47	0.23%	$ 3.74	$ 0.61	0.16	61	0.26%	$ 3.89	$ 0.19	$ 0.0100
2007	$ 0.28	0.03	16	0.20%	$8.60	$ 0.43	0.10	55	0.17%	$ 4.55	$ 0.71	0.13	72	0.18%	$ 5.57	$ 0.28	$ 0.0099
EnergyNorth Natural Gas, Inc. (NH)																	
2004	$ 0.58	0.23	54	0.42%	$2.56	$ 0.35	0.18	69	0.27%	$10.71	$ 0.93	0.41	123	0.33%	$ 2.26	$ 0.66	$ 0.0076
2005	$ 0.98	0.30	61	0.49%	$3.23	$ 0.60	0.25	77	0.33%	$14.62	$ 1.58	0.56	139	0.40%	$ 2.84	$ 0.43	$ 0.0114
2006	$ 0.84	0.24	53	0.46%	$3.46	$ 0.90	0.34	72	0.47%	$3.74	$ 1.74	0.58	125	0.47%	$ 3.00	$ 0.19	$ 0.0140
2007	$ 1.01	0.23	48	0.48%	$4.45	$ 0.82	0.42	77	0.55%	$4.55	$ 1.83	0.65	125	0.52%	$ 2.83	$ 0.28	$ 0.0147
Vermont Gas Systems, Inc. (VT)																	
2003											$ 1.14	0.81	84	0.97%	$ 1.40	$0.14	$ 0.0136
2004											$ 1.12	0.57	86	0.66%	$ 1.97	$0.20	$ 0.0130
2005											$ 1.23	0.74	83	0.89%	$ 1.66	$0.17	$ 0.0148
2006											$ 1.28	0.59	80	0.73%	$ 2.18	$0.22	$ 0.0160
2007											$ 1.51	0.79	88	0.89%	$ 1.92	$0.20	$ 0.0171
PLANNED																	
Terasen (Canada)																	
2008	$ 7.46	0.93	771	0.12%	$7.99	$ 8.33	1.69	1074	0.16%	$4.92	$ 15.79	2.63	1,844	0.14%	$6.01	$0.61	$ 0.0086
2009	$ 7.59	1.18	771	0.15%	$6.42	$ 10.04	2.49	1074	0.23%	$4.03	$ 17.63	3.67	1,844	0.20%	$4.80	$0.49	$ 0.0096
2010	$ 6.65	0.95	771	0.12%	$6.98	$ 12.84	3.47	1074	0.32%	$3.70	$ 19.49	4.42	1,844	0.24%	$4.41	$0.45	$ 0.0106
Southern California Gas (CA)																	
2008											$ 62.00	23.30	6,340	0.37%	$2.66	$0.27	$ 0.0098
2009											$ 73.20	27.20	6,340	0.43%	$2.69	$0.27	$ 0.0115
2010											$ 76.80	28.30	6,340	0.45%	$2.71	$0.28	$ 0.0121
2011											$ 82.20	29.90	6,340	0.47%	$2.75	$0.28	$ 0.0130
2012											$ 89.60	32.30	6,340	0.51%	$2.77	$0.28	$ 0.0141
2013											$ 100.30	35.80	6,340	0.56%	$2.80	$0.29	$ 0.0158
Keyspan Long Island (NY)																	
2009	$ 1.78	0.22	407	0.05%	$8.01												
2010	$ 2.29	0.30	407	0.07%	$7.71												
2011	$ 3.46	0.37	407	0.09%	$9.47												
Keyspan New York (NY)																	
2009	$ 1.99	0.19	1,003	0.02%	$10.30												
2010	$ 3.40	0.35	1,003	0.04%	$9.64												
2011	$ 5.76	0.66	1,003	0.07%	$8.79												
AVERAGE OF ACTUAL AND PROJECTED EXPENDITURES AND SAVINGS																	
	$ 4.88	1.53	626	0.24%	$7.95	$ 4.85	4.69	1030	0.31%	$5.21	$ 23.96	10.32	2,337	0.43%	$3.59	$0.33	$ 0.0111

Table 4

IV. PGW DSM PORTFOLIO MANAGEMENT

This section addresses three crucial aspects of PGW's management of its gas DSM programs:

- Program administration
- Program integration with PECO's electric DSM programs
- Staged program implementation

A. Program Administration

Program administration refers to the set of functions associated with planning, directing, managing, documenting, and verifying the installation of high-efficiency gas measures through the various DSM programs.

1. Implementation Management

PGW is responsible for achieving the performance goals of its DSM investment portfolio, according to the guiding principles for achieving the core objectives of the plan. The scope of PGW's implementation management responsibilities encompasses

- customer recruitment and intake
- opportunity assessment
- measure installation,
- financial incentive processing
- inspection and verification, and
- data management.

2. Staffing and Sourcing

PGW personnel will manage the implementation of energy-efficiency programs. Installation of efficiency measures will be done by independent contractors that PGW will select through competitive solicitation. This model builds on PGW's successful experience managing the delivery of its low-income retrofit program to approximately 2,500 customers per year. PGW will also retain outside experts to assist it in preparing specifications for implementation contractor solicitation, assessing competing bids, structuring contracts, and establishing performance goals.

3. Program Marketing and Business Development

PGW will be responsible for all outreach to customers and to members of the supply chain for gas appliances and equipment such as vendors, wholesalers, and manufacturers. A critical component of successful marketing will be market research. PGW will rely on in-house personnel as well as contractors as necessary develop and execute marketing strategies to maximize participation. PGW will work closely with retrofit program implementation contractors to maximize individual customers' trust and acceptance. PGW will also work with civic and other organizations on coordinated campaigns to maximize participation in targeted areas.

4. Tracking and Reporting

PGW will expand its existing information management systems to track the cost and performance information. These systems are in place already and only need to be expanded and updated to accommodate more participants of more types with varying

PGW will file regular reports on spending, participation, energy savings, and benefits. Templates for these filings will be included in the compliance filing PGW will make upon Commission approval of this plan.

5. Measurement, Verification and Evaluation

PGW will apply the same approach to measurement, verification, and evaluation that it currently employs in the administration of the low-income program.

PGW will establish a technical reference manual codifying and updating methods and assumptions for calculating savings from the full array of prescriptive gas efficiency measures. Specialized retrofit projects, especially for commercial and industrial projects, will be characterized on a customized basis in terms of their lifetime costs and performance. PGW will use these characterizations to calculate and track the economic benefits and costs of both prescriptive and customized efficiency projects.

PGW will also verify that measures are actually installed as recommended and analyzed.

PGW has conducted extensive evaluation on its low-income program, which is delivered by two implementation contractors, DMC/Honeywell and the Energy Coordination Agency of Philadelphia. PGW will continue to use the results of independent evaluation to update savings estimates and redirect program activities. PGW will also develop a program evaluation plan for the entire portfolio in its compliance filling.

B. Integration with PECO's Electric DSM Programs

Maximizing value from PGW's gas DSM portfolio requires that PGW integrate the design and implementation of its programs with electric DSM programs targeting the same customers in the same markets. Failure to integrate programs would lead to missed opportunities, duplication of effort, needlessly high costs, and customer confusion. For example, improving building thermal performance will save heating gas as well as electricity used for cooling. Especially for residential customers and small commercial customers, it makes the most sense for PGW and PECO to combine forces to offer customers one-stop shopping for efficiency measures addressing electricity and gas. Consequently, PGW's DSM program plan carefully integrates gas efficiency opportunities with electric DSM efforts. Any cost sharing between PGW and PECO will be guided by the relative benefits of gas and electricity savings generated by the programs.

PGW will assume lead responsibility for implementing comprehensive retrofits for City residents and in City-owned and/or managed facilities. PGW would play a supporting role in PECO programs designed and implemented to achieve cost-effective efficiency savings in residential and business construction and in comprehensive business retrofits. PGW would also coordinate its residential appliance and heating and business equipment efficiency programs with PECO's electric DSM programs aimed at the same markets.

1. Electric efficiency measures to be integrated into PGW programs

Residential retrofit

PGW plans on integrating two types of electric efficiency measures into its Comprehensive Residential Heating Retrofit and Enhanced Low-Income Retrofit Programs.

PGW will provide direct installation of full range of latest high-efficiency lighting products available in each participating home. The average American household has 30 or more lighting fixtures. PGW installers will be trained to install as many compact fluorescent lamps as the customer will accept. The installer will leave behind at least one "multi-pack" of replacement lamps to ensure that customers have ready access to replacement lamps, pending roll-out of a retail efficiency products program by PECO.

Lighting direct installation will lead to substantial economic and environmental benefits. Table 5 provides a breakdown of gas and electricity benefits for the comprehensive residential retrofit program.

Table 5

Comprehensive Residential Heating Retrofit: Gas Savings Compared to Electric Savings		
	Gas	Electric
Present Value of Benefits ($2009)	$ 20,246,917	$ 3,376,903
Present Value of Costs ($2009)	$ (7,255,416)	$ (1,548,428)
Present Value of Net Benefits ($2009)	$ 12,991,501	$ 1,828,475
Benefit-Cost Ratio	2.79	2.18
Cumulative Annual Energy Saved in 5th Year (Net of Free riders)	2.6 Million Therms	11.8 GWh

Electric energy saved measured at generation.

Also considered will be early retirement and high-efficiency replacement of existing inefficient clothes washers, refrigerators, and room air-conditioners. Early retirement will be conducted on a case-by-case basis, subject to prescriptive cost-effectiveness analysis to indicate field conditions (e.g., existing equipment age) under which early replacement is cost-effective.

Residential appliances and heating equipment

In addition to incentives for high-efficiency gas appliances and equipment, PGW will work with PECO to provide supplemental incentives for new purchases of

- high-efficiency furnaces with ECMs (electrically-commutated motors)
- high-efficiency clothes washers

Prescriptive cost-effectiveness analysis will be performed in advance to establish cost-effectiveness of the measures.

Municipal facilities retrofit

PGW will work with PECO to devise customized financial incentives to provide immediate positive cashflow for comprehensive packages of the following technologies:

- Lighting retrofit (Super T8, T5, LED fixtures; controls; lighting system redesign)
- HVAC retrofit (early retirement; unitary to central conversions; proper sizing of equipment to match load; distribution controls)

- Refrigeration (early retirement, supplemental controls)

PGW will work with the City to structure short-term financing for the balance of capital investment required (gas measures plus electric efficiency investment costs not covered by PECO incentives)

All efficiency measures (gas and electric) will be subjected to individualized cost-effectiveness analysis to direct investment toward economically optimal packages.

2. Gas efficiency measures to be integrated into PECO programs

In three markets, electricity savings potential is as large as or larger than gas efficiency potential. These are high-efficiency construction (residential and commercial), and commercial and industrial retrofit. In these markets, PGW plans to play a supporting role in program administration led by PECO. In these cases, gas efficiency measures must be incorporated into overall project design and assessment. For example, the cost-effectiveness of high-performance windows in a new building depends on the value gas heating and electric air conditioning savings. PGW plans to work closely with PECO on devising financial incentives that address both gas and electric efficiency measures as a package in construction, renovation, and retrofit of commercial and industrial properties, and in new residential construction.

3. PGW programs to be coordinated with PECO programs

PGW plans on coordinating the design and implementation of programs promoting high-efficiency appliances and heating equipment with PECO. While not as closely linked as in other markets, PGW and PECO programs should at least have consistent efficiency performance thresholds that do not favor one energy source over the other. This coordination will take place for programs promoting residential appliance and heating equipment efficiency upgrades, and for commercial and industrial equipment efficiency upgrades.

C. Program Staging

As shown in Table 3, PGW plans to scale up DSM spending rapidly and substantially. Fortunately, the bulk of the expansion in terms of money and savings is scaling up and fine-tuning PGW's successful low-income retrofit program. 2009 will therefore focus on scaling up the low-income program. 2009 will also involve designing and launching the comprehensive retrofit program, and designing and carrying out comprehensive efficiency retrofits in City facilities. The other DSM programs will be designed in cooperation with PECO for 2010 launch. All programs scale up to their maximum

participation rates in 2013. Table 6 shows the relative pace of implementation in each year.

Table 6

PHILADELPHIA GAS WORKS
Five Year Gas Demand-Side Management Plan
PROGRAM INPUTS

PROGRAM	Maximum Annual Customer Participation	Staging % of Maximum Customer Participation in Year				
		2009	2010	2011	2012	2013
Comprehensive Residential Heating Retrofit	7,020	0%	20%	50%	80%	80%
Enhanced Low-income retrofit	3,834	78%	100%	100%	100%	100%
Premium efficiency gas appliances and heating equipment	13,581	0%	33%	100%	100%	100%
Commercial and industrial equipment efficiency upgrades	519		10%	20%	50%	100%
Municipal facilities comprehensive efficiency retrofit	62		10%	100%	100%	100%
High-efficiency construction	1,700		10%	20%	50%	100%
Commercial and industrial retrofit	519		10%	20%	50%	100%

V. ENERGY, ECONOMIC, AND ENVIRONMENTAL IMPACTS OF PGW'S DSM PLAN

This section provides more detail on PGW's estimates of natural gas savings from its planned DSM portfolio, and their monetary, employment, and pollution impacts.

A. Energy Savings

Table 7 shows the annual gas and electricity savings PGW projects from its DSM portfolio.

Table 7

PHILADELPHIA GAS WORKS
GAS DSM PORTFOLIO
GAS AND ELECTRICITY SAVINGS BY YEAR

Program Year:		1	2	3	4	5
Year:	Total	2009	2010	2011	2012	2013
Gas						
Incremental annual BBtu Gas Saved (Net)		79	169	301	353	384
Cumulative annual BBtu Saved (Net)		79	248	549	902	1,286
Electricity						
Incremental annual MWh Saved (Net at meter)		1,896	3,304	4,632	5,960	5,960
Cumulative annual MWh Saved (Net, at meter)		1,896	5,200	9,832	15,793	21,753
Incremental annual Summer kW Saved (Net at meter)		130	226	317	408	408
Cumulative annual Summer kW Saved (Net, at meter)		130	356	673	1,082	1,490

Gas savings are significant. As shown earlier in Table 4, the annual incremental savings increase by a factor of two between 2009 and 2013. Electricity savings from lighting direct installation as part of the residential retrofit programs are small but extremely valuable, as shown below.

B. Cost Savings

The benefits of PGW's gas DSM program are the avoided costs of gas and other resource savings. This section presents the monetary values PGW applied to these resource savings to estimate gas DSM benefits. It also assesses program cost-effectiveness from the perspective of the economy at large and from the vantage point of gas ratepayers. This section presents PGW's estimates of the rate and bill impacts from the plan over time.

1. Avoided supply costs

Table 8 presents the unit values of resources PGW estimated for gas, electricity, and water savings by year. PGW estimated the value of three gas-saving load profiles: space heating, water heating, and base use.

Table 8

All Avoided Costs Are in Constant 2009 Dollars

Period:	Electric Avoided Costs including losses		Natural Gas Avoided Costs			Other Resource Avoided Costs
	All-Year Energy	Summer Generation Capacity	NG Base	NG Space Heat	NG DHW	Water
Units:	$/kWh	$/kW-yr	$/MMBtu	$/MMBtu	$/MMBtu	$/gal
2009	0.0774	82.03	7.85	9.39	8.23	$ 0.0010
2010	0.0784	83.59	8.17	9.79	8.57	$ 0.0010
2011	0.0771	61.89	8.03	9.62	8.42	$ 0.0010
2012	0.0741	49.15	7.85	9.43	8.25	$ 0.0010
2013	0.0723	65.56	7.70	9.25	8.08	$ 0.0010
2014	0.0723	65.56	7.59	9.11	7.97	$ 0.0010
2015	0.0723	65.56	7.54	9.05	7.92	$ 0.0010
2016	0.0723	65.56	7.51	9.03	7.89	$ 0.0010
2017	0.0723	65.56	7.50	9.01	7.88	$ 0.0010
2018	0.0723	65.56	7.49	9.01	7.87	$ 0.0010
2019	0.0723	65.56	7.49	9.01	7.87	$ 0.0010
2020	0.0723	65.56	7.51	9.02	7.89	$ 0.0010
2021	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2022	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2023	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2024	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2025	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2026	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2027	0.0723	65.56	7.53	9.05	7.91	$ 0.0010
2028	0.0723	65.56	7.53	9.05	7.91	$ 0.0010

Assumptions and calculations behind these estimates are presented in section VII.E, below.

2. Net economic benefits of PGW's DSM Plan

PGW analyzed the benefits and costs of its proposed DSM programs from two perspectives. The first and primary test of cost-effectiveness is the total resource cost (TRC) perspective. It measures the gain in economic welfare from making the investment by comparing the present worth of resource benefits with the present worth of resource costs of the DSM plan. Total resource benefits are the avoided gas, electric, and

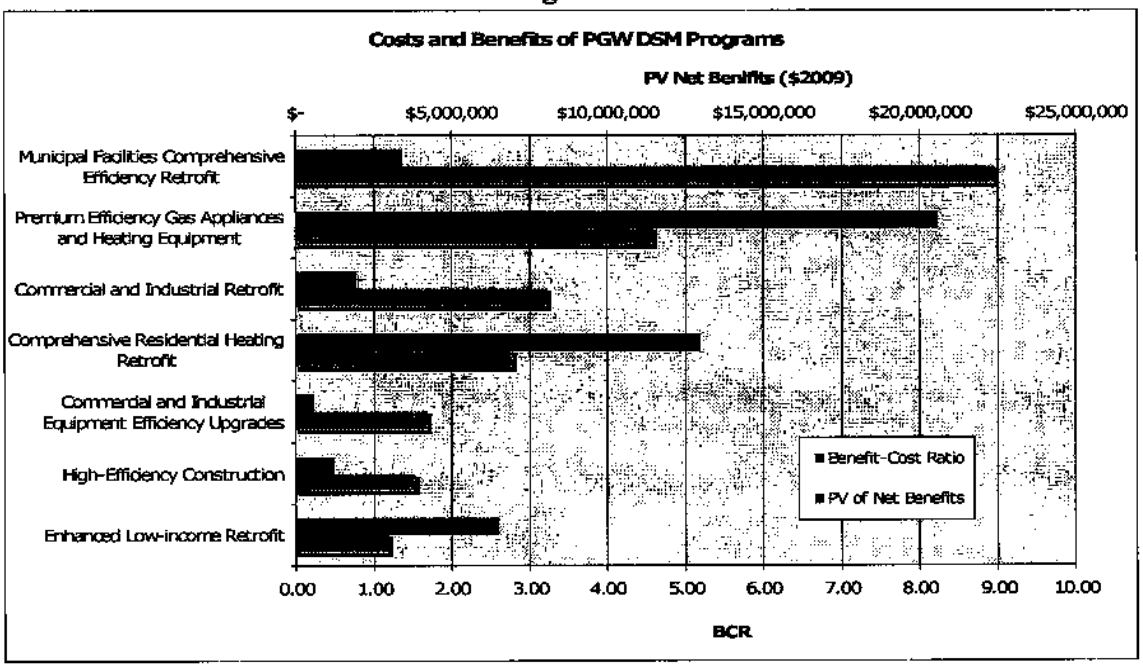
water costs. Total resource costs consist of PGW's expenditures on program measures and on "non-measure," i.e., administration costs. They also include the customers' direct contribution to the efficiency investments, that is, the portion of efficiency measure costs not covered by PGW program expenditures.

PGW also analyzed benefits and costs from the perspective of the utility system. This calculation ignores the costs not borne or avoided by PGW, i.e., the costs participants pay themselves. While not a true indicator of economic merit, it does provide a reasonable indication of the extent to which the investment represents a good use of ratepayer funds. We provide results for the gas system alone and for the electricity system from electric efficiency measures. The electric system analysis does not reflect any PECO contribution toward the administrative costs of the residential programs, which PGW has not yet negotiated with PECO. Nor does the analysis reflect any total resource benefits or costs of other electric efficiency measures besides lighting in the residential retrofit programs, or any electric efficiency measures in the commercial and industrial programs PGW plans to implement jointly with PECO.

Two measures of cost-effectiveness are presented. The net benefits are the difference between benefits and costs. This is the most indicative of economic merit, since it calculates the magnitude of the welfare gain. Maximizing net benefits from the portfolio maximizes customer value. The benefit/cost ratio (BCR) is also presented as a rough indicator of relative value. Maximizing the BCR does not necessarily lead to maximum customer value; doing so would automatically leave behind cost-effective savings, i.e., gas savings that cost less than the supply they avoid.

Figure 2 graphically depicts the net benefits of each program. The maroon bar is the magnitude of net benefits for each program, reading off the top horizontal scale. The blue bar is the program's benefit/cost ratio, read off the bottom horizontal scale.

Figure 2



Figures 3 and 4 depict benefits and costs of the residential and nonresidential programs, respectively. In each figure, the stacked vertical bars represent the sum of each sector's measure and non-measures costs, reading off the left-hand vertical scale. The blue area indicates the cumulative value of these investments over the lifetime of the measures installed, reading off the right-hand vertical scale.

Figure 3

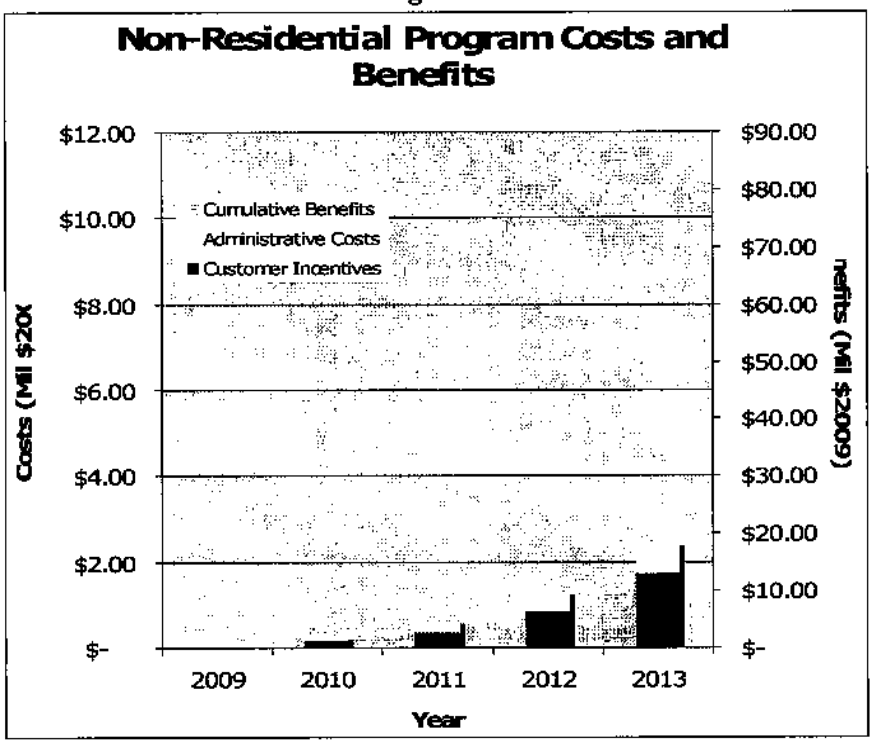


Figure 4

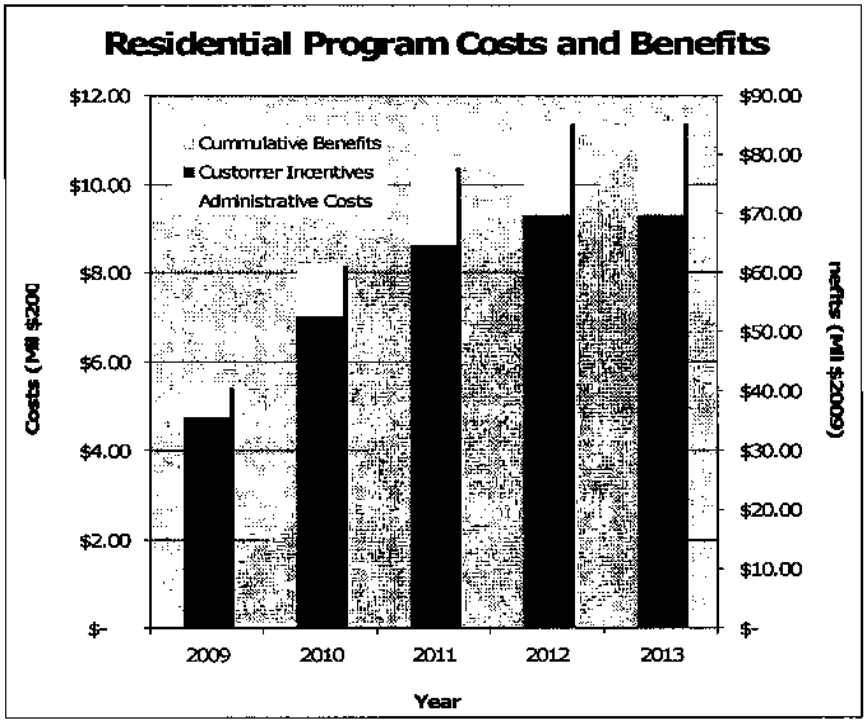

Residential Program Costs and Benefits
Cummulative Benefits
Customer Incentives
Administrative Costs
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$-
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-
2009
2010
2011
2012
2013
Year
Costs (Mil $200
nefits (Mil $200

Table 9 projects and compares the present value benefits and costs of each program under four cost-effectiveness perspectives.

Table 9

(DSM PROGRAM PLAN
(COST-EFFECTIVENESS ANALYSIS

Program ID [1]	Total Resource: Present Value Benefit [2]	Total Resource: Present Value Cost [3]	Total Resource: PV of Net Benefits [4]	Total Resource: Benefit-Cost Ratio [5]	Total Resource: Levelized Cost $/MMBTU	Electric Energy System: Present Value Benefit [6]	Electric Energy System: Present Value Cost [7]	Electric Energy System: PV of Net Benefits [8]	Electric Energy System: Benefit-Cost Ratio [9]	Gas Energy System: Present Value Benefit [10]	Gas Energy System: Present Value Cost [11]	Gas Energy System: PV of Net Benefits [12]	Gas Energy System: Benefit-Cost Ratio [13]	Gas Energy System: Levelized Cost $/MCF	Electric & Gas Energy System: Present Value Benefit [14]	Electric & Gas Energy System: Present Value Cost [15]	Electric & Gas Energy System: PV of Net Benefits [16]	Electric & Gas Energy System: Benefit-Cost Ratio [17]
Portfolio Total	$104,960,615	$58,812,563	$46,148,052	1.78	5.27	$7,461,189	$3,307,632	$4,153,557	2.26	$97,499,426	$50,269,487	$47,229,939	1.94	4.50	$104,960,615	$53,577,119	$51,383,496	1.96
Non-Measure Costs		$8,162,566					$0				$8,162,566					$8,162,566		
Total Measure Costs	$104,960,615	$50,649,997	$54,310,618	2.07	4.54	$7,461,189	$3,307,632	$4,153,557	2.26	$97,499,426	$42,106,921	$55,392,505	2.32	3.77	$104,960,615	$45,414,553	$59,546,062	2.31
Program																		
Comprehensive Residential Heating Retrofit																		
Program Total	$23,623,820	$16,263,742	$7,360,077	1.45	7.32	$3,376,903	$1,548,428	$1,828,475	2.18	$20,246,917	$7,255,416	$12,991,501	2.79	3.26	$23,623,820	$8,803,844	$14,819,976	2.68
Non-Measure Costs		$1,999,389					$0				$1,999,389					$1,999,389		
Total Measure Costs	$23,623,820	$14,264,353	$9,359,467	1.66	6.42	$3,376,903	$1,548,428	$1,828,475	2.18	$20,246,917	$5,256,026	$14,990,891	3.85	2.36	$23,623,820	$8,804,454	$16,819,365	3.47
Enhanced Low-Income Retrofit																		
Program Total	$43,496,662	$30,810,761	$12,685,901	1.41	7.16	$4,084,286	$1,759,204	$2,325,082	2.32	$39,412,376	$32,889,523	$6,522,853	1.20	7.64	$43,496,662	$34,648,727	$8,847,935	1.26
Non-Measure Costs		$3,872,931					$0				$3,872,931					$3,872,931		
Total Measure Costs	$43,496,662	$26,937,830	$16,558,832	1.61	6.26	$4,084,286	$1,759,204	$2,325,082	2.32	$39,412,376	$29,016,592	$10,395,785	1.36	6.74	$43,496,662	$30,775,796	$12,720,867	1.41
Premium Efficiency Gas Appliances and Heating Equipment																		
Program Total	$26,324,813	$5,042,961	$21,281,852	5.22	1.53	-	-	-	-	$26,324,813	$5,738,129	$20,586,684	4.59	1.74	$26,324,813	$5,738,129	$20,586,684	4.59
Non-Measure Costs		$1,008,592					$0				$1,008,592					$1,008,592		
Total Measure Costs	$26,324,813	$4,034,369	$22,290,444	6.53	1.22	-	-	-	-	$26,324,813	$4,729,537	$21,595,276	5.57	1.43	$26,324,813	$4,729,537	$21,595,276	5.57
Commercial and Industrial Equipment Efficiency Upgrades																		
Program Total	$1,402,940	$896,353	$506,587	1.57	5.08	-	-	-	-	$1,402,940	$829,516	$573,424	1.69	4.70	$1,402,940	$829,516	$573,424	1.69
Non-Measure Costs		$179,271					$0				$179,271					$179,271		
Total Measure Costs	$1,402,940	$717,083	$685,858	1.96	4.05	-	-	-	-	$1,402,940	$650,245	$752,695	2.16	3.68	$1,402,940	$650,245	$752,695	2.16
Municipal Facilities Comprehensive Efficiency Retrofit																		
Program Total	$3,833,613	$2,137,676	$1,695,937	1.79	5.08	-	-	-	-	$3,833,613	$427,535	$3,406,078	8.97	1.02	$3,833,613	$427,535	$3,406,078	8.97
Non-Measure Costs		$427,535					$0				$427,535					$427,535		
Total Measure Costs	$3,833,613	$1,710,141	$2,123,472	2.24	4.06	-	-	-	-	$3,833,613	-	$3,833,613	-	-	$3,833,613	-	$3,833,613	-
High-Efficiency Construction																		
Program Total	$3,472,886	$1,940,071	$1,532,815	1.79	5.08	-	-	-	-	$3,472,886	$2,264,540	$1,208,347	1.53	5.93	$3,472,886	$2,264,540	$1,208,347	1.53
Non-Measure Costs		$388,014					$0				$388,014					$388,014		
Total Measure Costs	$3,472,886	$1,552,057	$1,920,829	2.24	4.06	-	-	-	-	$3,472,886	$1,876,526	$1,596,361	1.85	4.91	$3,472,886	$1,876,526	$1,596,361	1.85
Commercial and Industrial Retrofit																		
Program Total	$2,805,881	$1,720,998	$1,084,883	1.63	4.88	-	-	-	-	$2,805,881	$864,829	$1,941,052	3.24	2.45	$2,805,881	$864,829	$1,941,052	3.24
Non-Measure Costs		$286,833					$0				$286,833					$286,833		
Total Measure Costs	$2,805,881	$1,434,165	$1,371,716	1.96	4.06	-	-	-	-	$2,805,881	$577,996	$2,227,885	4.85	1.64	$2,805,881	$577,996	$2,227,885	4.85

3. DSM portfolio bill and rate impacts

The net benefits of PGW DSM investment are realized over the entire life expectancy of the efficiency measures installed, which averages 15-20 years. The costs are incurred during the next five years. Recovering the portfolio costs over a smaller sales base puts upward pressure on bills and rates in the early years; after that, the benefits of the gas savings continue for the next 15 years in the form of lower bills.

PGW analyzed the near-term impact on rates and bills from its gas DSM plan. Average bills for all customers combined (participants and nonparticipants) will rise by as much as 0.9% in 2010, and then dropping to 0.3% in 2013. Not shown in the 5-year rate/bill analysis are the substantial bill reductions realized after 2013. Rates will be 2.5% higher in 2013 than they would have been absent the DSM portfolio investment. These modest near-term rate and bill impacts are acceptable considering the magnitude of the ensuing bill reductions over the remaining lifetime of the investment.

Table 10 presents the year by year results of PGW's bill and rate impact analysis.

Table 10

Philadelphia Gas Works Gas DSM Plan Five-Year Rate and Bill Analysis	2009-10	2010-11	2011-12	2012-13	2013-14
Total Gas Revenues (@96% Collection)	974,491	986,468	998,016	993,480	1,006,692
Interruptible Revenues	(21,653)	(21,701)	(22,426)	(24,297)	(26,390)
Non-Firm GTS Revenues	(9,298)	(9,477)	(9,612)	(9,766)	(9,916)
Pre-DSM					
Firm Gas Revenues	943,540	955,290	965,978	959,416	970,386
Number of Firm Customers	487,656	483,894	480,602	477,324	474,052
Average Monthly Bill (Adusted for 96% Collection)	168	171	174	174	178
Firm Sales Volume (Mcf)	53,707	53,750	53,900	53,926	54,447
Average Rate (Adjusted for 96% Collection)	1.83	1.85	1.87	1.85	1.86
Post-DSM					
DSM Benefit (Adjusted for 96% Collection)	(2,263)	(4,163)	(7,234)	(10,649)	(11,857)
DSM Spending (Adjusted for 96% Collection)	10,782	10,110	12,305	13,919	4,801
Firm Gas Revenues	952,059	961,237	971,049	962,687	963,330
Number of Firm Customers	487,656	483,894	480,602	477,324	474,052
Average Monthly Bill (Adusted for 96% Collection)	169	172	175	175	176
Average Bill Impact	**0.9%**	**0.6%**	**0.5%**	**0.3%**	**-0.7%**
DSM Savings (Mcf)	(192)	(449)	(785)	(1,158)	(1,286)
Firm Sales Volume (Mcf)	53,515	53,301	53,115	52,768	53,161
Average Rate (Adjusted for 96% Collection)	1.85	1.88	1.90	1.90	1.89
Average Rate Impact	**1.3%**	**1.5%**	**2.0%**	**2.5%**	**1.7%**
Collection Rate	96%				

C. Job creation

Investing in cost-effective energy-efficiency creates jobs in two ways, one direct, and the other indirect. Direct job creation results from the substitution of local capital and labor for natural gas delivered from afar. Several times more jobs are created by the indirect or income effect from cost-effective energy-efficiency investment. The net economic benefits from efficiency investment reduce household and business gas bills and raise household disposable incomes and business profitability. Customers will tend to spend most of this additional money and save the rest. This additional spending creates a "multiplier" effect through the cycle of re-spending of the initial cost savings, which stimulates aggregate demand for goods and services. Satisfying increased demand for goods and services requires more labor. While some of the jobs created leak into the

broader U.S. and global economy, a good portion (possibly higher than 80%) of jobs created due to EE stay within the Commonwealth.[4]

The number of jobs created from investments in EE directly relates to the total resource value of the energy that these measures save Studies of employment impacts of DSM use energy savings as a surrogate for total resource value. A recent meta-study of U.S. data found that estimates for the number of jobs created range from 9 to 125 for every one trillion Btu (TBtu) saved. Most studies estimate that between 30 and 60 net jobs are created by saving one TBtu (Laitner and McKinney 2008). In New York, New Jersey, and Pennsylvania, the American Council for an Energy Efficient Economy (ACEEE) projected that 164,320 jobs, or 59 for every TBtu saved, could be attributed to EE in 1997 through 2010 (Nadel et al 1997).

PGW estimates that its gas DSM portfolio will generate between 579 and 965 net additional jobs over the lifetime of the efficiency measures installed over the next five years. This range is based on assuming that each TBTU of gas savings creates between 30 and 50 full-time equivalent jobs in Pennsylvania.

D. Greenhouse Gas Reductions

Table 11 provides the estimated reduction in carbon dioxide from each of the programs over the next five years.

[4] How many of theses jobs would be created within the Philadelphia metro area is a matter of speculation. The number is bound to be substantial. The direct labor requirements for installing the efficiency measures are almost entirely local. The efficiency technologies have significant but unknown local value added. The indirect employment effects depend on how much of the extra spending money generated by gas cost savings gets spent within the local economy. Such issues would require additional research and analysis to quantify the range of likely local job creation.

Table 11

PHILADELPHIA GAS WORKS
GAS DSM PLAN
GREENHOUSE GAS EMISSION REDUCTIONS

Cumulative Annual CO2 (Short Tons)	Emissions Reductions from Gas Savings					
	2009	2010	2011	2012	2013	Lifetime Reductions
Comprehensive Residential Heating Retrofit	-	1,205	4,216	9,034	13,852	207,784
Enhanced Low-income Retrofit	4,177	9,506	14,834	20,163	25,491	382,367
Premium Efficiency Gas Appliances and Heating Equipment	-	2,039	8,158	14,276	20,395	305,920
Commercial and Industrial Equipment Efficiency Upgrades	-	62	187	500	1,124	16,862
Municipal Facilities Comprehensive Efficiency Retrofit	-	85	930	1,775	2,620	39,307
High-Efficiency Construction	-	135	406	1,081	2,433	36,495
Commercial and Industrial Retrofit	-	125	375	999	2,248	33,723
Portfolio Total	4,177	13,157	29,105	47,828	68,164	1,022,459

Cumulative Annual CO2 (Short Tons)	Emissions Reductions from Electricity Savings					
	2009	2010	2011	2012	2013	Lifetime Reductions
Comprehensive Residential Heating Retrofit	-	945	3,308	7,088	10,868	76,074
Enhanced Low-income Retrofit	2,023	4,604	7,185	9,766	12,347	86,430
Premium Efficiency Gas Appliances and Heating Equipment	-	-	-	-	-	-
Commercial and Industrial Equipment Efficiency Upgrades	-	-	-	-	-	-
Municipal Facilities Comprehensive Efficiency Retrofit	-	-	-	-	-	-
High-Efficiency Construction	-	-	-	-	-	-
Commercial and Industrial Retrofit	-	-	-	-	-	-
Portfolio Total	2,023	5,549	10,493	16,854	23,215	162,504

Cumulative Annual CO2 (Short Tons)	Emissions Reductions from Gas and Electricity Savings					
	2009	2010	2011	2012	2013	Lifetime Reductions
Comprehensive Residential Heating Retrofit	-	2,150	7,524	16,122	24,720	283,859
Enhanced Low-income Retrofit	6,201	14,110	22,020	29,929	37,838	468,797
Premium Efficiency Gas Appliances and Heating Equipment	-	2,039	8,158	14,276	20,395	305,920
Commercial and Industrial Equipment Efficiency Upgrades	-	62	187	500	1,124	16,862
Municipal Facilities Comprehensive Efficiency Retrofit	-	85	930	1,775	2,620	39,307
High-Efficiency Construction	-	135	406	1,081	2,433	36,495
Commercial and Industrial Retrofit	-	125	375	999	2,248	33,723
Portfolio Total	6,201	18,706	39,598	64,682	91,379	1,184,963

VI. PGW GAS DSM PROGRAM DESCRIPTIONS

Following are narrative descriptions of each of the seven DSM programs PGW plans to implement over the next five years. Each program description summarizes the target market, market actors, efficiency technologies, and participation and savings goals.

A. Comprehensive Residential Heating Retrofit (Home Performance with ENERGY STAR™)

A comprehensive retrofit program designed for high-use heating customers, this program utilizes the existing federal Home Performance with ENERGY STAR™ program to identify potential technologies that private contractors then use with customers.

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	-	23	57	91	91
Budget ($000):	$-	$676	$1,724	$2,813	$2,869

	Total	Annual
Eligible Customers:	351,006	17,550

1. Target Market:

This program targets the 40% of residential customers with the highest annual energy consumption.

2. Market Actors and Technologies:

Home Performance with ENERGY STAR™ certified contractors work with high-use residential customers to reduce the energy consumption of the house. Measures in the program include blower-door guided air-sealing, attic/wall insulation, duct sealing, furnace early replacements, setback thermostats, high-efficiency windows, low-flow showerheads and faucet aerators, high-efficiency water heaters, and high-efficiency clothes washers.

3. Financial Strategies:

To ensure maximum participation, incentives are provided so that each project will have a 2-year simple payback. Extended on-bill payment is arranged for the customer's contribution toward project costs.

4. Delivery and Oversight:

Working with PECO, PGW markets, trains, and supervises contractors and provides random inspections to verify that work was done and savings are being achieved.

B. Enhanced Low-income Retrofit

A comprehensive retrofit program designed for low income high-use heating customers. This program utilizes implementation contractors to identify and install a wide array of technologies that reduce the home's energy consumption. Note 2009 expenditures are high given late start in 2009

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	79	101	101	101	101
Budget ($000):	$5,469	$7,115	$7,257	$7,402	$7,550

	Total	Annual
Eligible Customers:	79,885	5,326

1. Target Market:

This program targets high-use low-income customers that participate in PGW's Customer Responsibility Program (CRP).

2. Market Actors and Technologies:

Contractors selected by PGW work with high-use low income customers to reduce the energy consumption of the house. Current contractors include non-profit Energy Coordinating Agency of Philadelphia (ECA) and for-profit Honeywell. Other providers are to be selected through competitive selection. Measures in the program include blower-door guided air-sealing, attic/wall insulation, duct sealing, furnace early replacements, setback thermostats, high-efficiency windows, low-flow showerheads and faucet aerators, high-efficiency water heaters, and high-efficiency clothes washers.

3. Financial Strategies:

All efficiency measures are installed at no cost to the customer.

4. Delivery and Oversight:

Working with PECO, PGW selects and supervises implementation contractors and provides random inspections to verify that work was done and savings are being achieved.

C. Premium Gas Appliances and Heating Equipment

This program works to promote the selection of residential-sized efficient gas appliances and heating equipment at the time of purchase and ultimately to transform the market to shift to the high-efficiency options.

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	-	38	115	115	115
Budget ($000):	$-	$603	$1,845	$1,882	$1,920

	Total	Annual
Eligible Customers:	452,704	22,635

1. Target Market:

This program targets residential and small commercial customers making purchases of gas appliances and heating equipment.

2. Market Actors and Technologies:

PGW will work with equipment manufacturers, distributors, and retailers/vendors to make the high-efficiency equipment available for purchase. Engineers and contractors will be encouraged to recommend or specify the choice of high-efficiency equipment to customers making purchases of gas appliances and heating equipment. Measures in the program include high-efficiency furnaces, high-efficiency water heaters, and high-efficiency clothes washers.

3. Financial Strategies:

Financial incentives covering 80% of the incremental cost of premium-efficiency equipment will be offered to customers to help offset the barriers that the higher cost of the more efficient equipment often pose.

4. Delivery and Oversight:

As the program administrator PGW will provide retailer support and broad-based marketing as well as set up the system for providing rebates to customers purchasing the high-efficiency equipment.

D. Commercial and Industrial Equipment Efficiency Upgrades

This program works to promote the selection of commercial and industrial efficient gas heating and process equipment at the time of new installation or scheduled replacement and ultimately to transform the market to shift to the high-efficiency options.

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	-	1	2	6	12
Budget ($000):	$-	$49	$100	$256	$521

	Total	Annual
Eligible Customers:	19,461	973

1. Target Market:

This program targets commercial and industrial customers planning on the installation or replacement of gas heating or process equipment.

2. Market Actors and Technologies:

PGW will work with equipment manufacturers, distributors, and retailers/vendors to make the high-efficiency equipment available for purchase. Engineers and contractors will be encouraged to recommend or specify the choice of high-efficiency equipment to customers installing gas heating and process equipment. Measures in the program include high-efficiency furnaces, space heating boilers, water heaters, process boilers, pool heaters, cooking equipment and commercial clothes washers.

3. Financial Strategies:

Financial incentives covering 80% of the incremental cost of premium-efficiency equipment will be offered to customers to help offset the barriers that the higher cost of the more efficient equipment often pose.

4. Delivery and Oversight:

As the program administrator PGW will provide retailer support and broad-based marketing as well as set up the system for providing rebates to customers purchasing the high-efficiency equipment.

E. Municipal Facilities Comprehensive Efficiency Retrofit

A comprehensive retrofit program designed for municipal facilities. This program utilizes energy-service contractors to identify and install cost-effective energy-saving technologies.

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	-	2	16	16	16
Budget ($000):	$-	$17	$170	$173	$176

	Total	Annual
Eligible Customers:	380	76

1. Target Market:

This program targets municipal facilities.

2. Market Actors and Technologies:

Facility managers, department heads, and financial officers will be asked to allow private energy-service contractors to conduct audits of their facilities and identify cost-effective energy-saving retrofit opportunities. Potential measures in the program include high-efficiency furnaces, space heating boilers, water heaters, HVAC controls, and shell improvements.

3. Financial Strategies:

On-bill extended payment will be offered for cost-effective gas-saving measures.

4. Delivery and Oversight:

Working with PECO, PGW will select energy-service contractors through competitive bid and provides random inspections to verify that work was done and savings are being achieved. PGW will also provide assistance with engineering and economic assessment of retrofit efficiency options and coordination with participation in PECO DSM programs. PGW will administer the on-bill financing.

F. High-efficiency Construction

A comprehensive program designed for new construction, remodeling, and renovation efficiency improvements for residential and commercial buildings. This program seeks to transform the market so that energy-efficient design and construction becomes standard practice.

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	-	3	5	13	26
Budget ($000):	$-	$133	$271	$691	$1,411

	Annual
Eligible Customers:	4,532

1. Target Market:

This program targets residential and commercial customers engaged in new construction, remodeling, and renovation of their buildings.

2. Market Actors and Technologies:

This program seeks to affect the energy-efficiency decisions by the parties involved with new construction, remodeling, and renovation, such as property developers, property managers, home or building owners, real estate agents, architects, engineers, builders, and contractors. Potential measures in the program include high-efficiency furnaces, space heating boilers, water heaters, HVAC controls, insulation and window upgrades.

3. Financial Strategies:

Financial incentives covering 80% of the incremental cost of high-efficiency equipment will be offered to customers to help offset the barriers that the higher cost of the more efficient equipment often pose. This also includes the costs for comprehensive design assistance from architects and engineers.

4. Delivery and Oversight:

Working with PECO, PGW will provide support for and financial assistance to those involved with new construction, remodeling, and renovation projects. PGW will also provide assistance with engineering and economic assessment of the proposed efficiency options and coordination with participation in PECO DSM programs.

G. Commercial and Industrial Retrofit

A comprehensive retrofit program designed for commercial and industrial facilities, this program promotes the installation of a wide array of cost-effective energy-saving technologies.

	2009	2010	2011	2012	2013
Gas Savings (MMcf):	-	2	5	12	24
Budget ($000):	$-	$52	$107	$273	$556

	Total	Annual
Eligible Customers:	19,461	1,297

1. Target Market:

This program targets commercial and industrial facilities.

2. Market Actors and Technologies:

This program will seek to convince Facility managers, department heads, and financial officers to conduct audits of their facilities and identify cost-effective energy-saving retrofit opportunities. Potential measures in the program include high-efficiency furnaces, space heating boilers, water heaters, HVAC and process controls, shell improvements, pool heaters, cooking equipment, process boilers, and process optimization.

3. Financial Strategies:

Customized incentives will be offered based on payback buydown and customer cash flow, including electric and other resource savings. Extended on-bill payment terms will be offered for the customer's contribution towards cost-effective gas-saving measures.

4. Delivery and Oversight:

Working with PECO, PGW will provide support for program implementation and provide random inspections to verify that work was done and savings are being achieved. PGW will also provide assistance with engineering and economic assessment of retrofit efficiency options and coordination with participation in PECO DSM programs. PGW may administer an extended repayment option for the program.

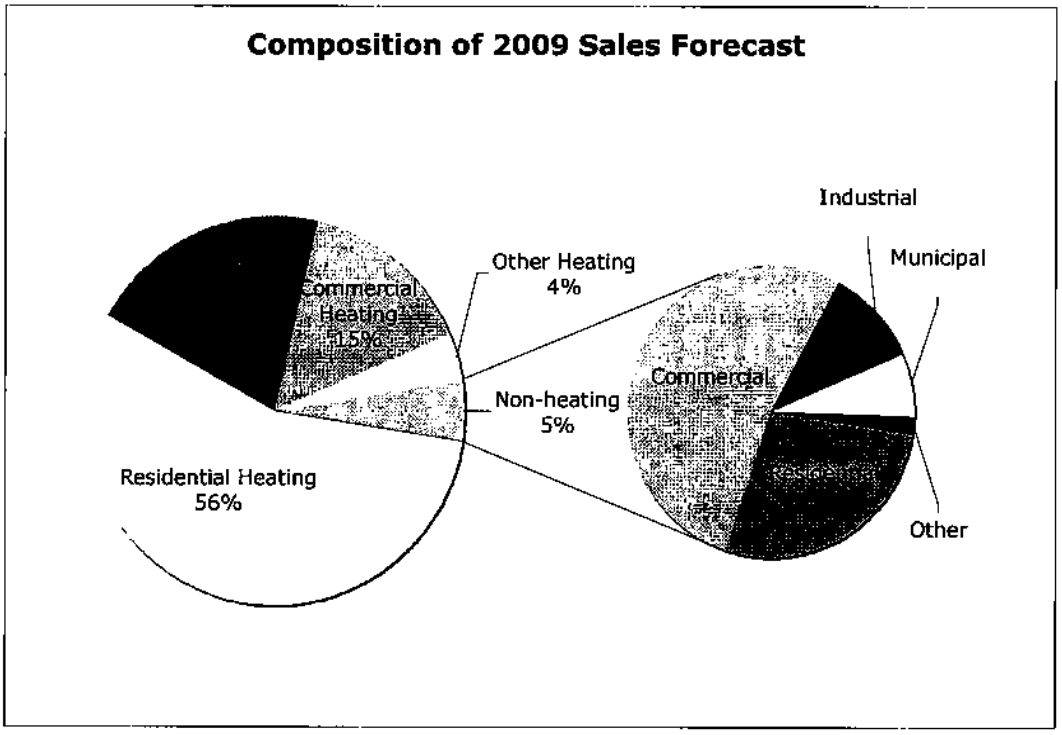
VII. ASSUMPTIONS AND CALCULATIONS

This section provides additional information on the assumptions and calculations PGW used to estimate energy, economic, and environmental impacts. A working electronic version of the cost-effectiveness calculator used to prepare these results is provided as a separate technical appendix.

A. Customers and sales

PGW estimated the number of eligible customers in each market addressed by its DSM portfolios. Figure 5 summarizes the contributions of various customer groups to total gas energy requirements.

Figure 5



The PGW DSM programs are all directed at firm heating customers. Table 12 provides the sales and customer forecast for various heating customers in 2009.

Table 12
PHILADELPHIA GAS WORKS

	Forecast Budget 2009				
	Number of Customer Billings for February		Gas Sales		Gas Sales per Customer
Non-heating					
Residential	35,107		699,037		20
CRP	1,115		47,419		43
Commercial	5,158		1,339,896		260
Industrial	211		278,908		1,322
Municipal	106		177,030		1,670
NGV Firm	1		327		327
Total Firm Non-heating	**41,698**		**2,542,617**		61
Heating					
Residential	351,006	77.5%	28,409,135	58.5%	81
CRP	79,885	17.6%	10,472,516	21.6%	131
Housing Authority - GS	2,047	0.5%	222,184	0.5%	109
Commercial	18,582	4.1%	7,703,575	15.9%	415
Industrial	499	0.1%	477,416	1.0%	957
Municipal	380	0.1%	656,349	1.4%	1,727
Housing Authority - PHA	804	0.2%	636,815	1.3%	792
Total Firm Heating	**453,203**	100.0%	**48,577,990**	100.0%	107
Total Firm	**494,901**		**51,120,607**		**103**
Heating share of total firm	92%		95%		
Source	SR 12		SR11		

B. Program inputs

PGW estimated program costs and savings based on a variety of sources. The two residential retrofit programs comprise the large majority of spending and savings. These estimates are grounded in PGW's experience with its low-income program. Based on evaluated results, PGW projected per-customer savings and costs assuming continued improvement in past performance, especially as the program is targeted to high-use customers in both the low-income and non-low income programs.

Savings for other programs are relatively rough compared to the residential retrofit programs. Costs and savings assumptions for efficiency measures in other markets are based on experience and plans of other utilities. PGW's estimated administration costs are based on judgment. The compliance filing PGW plans to make upon Commission acceptance of the plan will contain updated estimates for these elements.

Table 13 presents detailed assumptions on customer acceptance rates and program costs and savings inputs.

Table 13

Five Year Gas Demand-Side Management Plan

PROGRAM INPUTS

5 years

PROGRAM	Total Eligible Customers	Annual Pace	Annual Customers Eligible	Applicability/ Feasibility	Acceptance Rate	Per-Customer Gas Savings	Per-Customer Gas Usage (MCF)	Installed or Incremental Cost per MCF/yr	Financial Incentive %	Financial Incentive $/MCF/yr	PGW Administration Costs as % of Incremental or Installed cost	PGW Administration Costs $/MCF/yr	Total Resource Cost per MCF/yr	PGW cost per MCF/yr
Comprehensive Residential Heating Retrofit	351,006	5%	17,550	80%	50%	20%	81	$ 60.33	33%	$ 20.11	15%	$ 9.05	$ 69.38	$ 29.16
Enhanced Low-Income retrofit	79,885	7%	5,326	90%	80%	20%	131	$ 60.33	100%	$ 60.33	15%	$ 9.05	$ 69.38	$ 69.38
Premium efficiency gas appliances and heating equipment	452,704	5%	22,635	90%	67%	8%	106	$ 12.29	100%	$ 12.29	25%	$ 3.07	$ 15.36	$ 15.36
Commercial and industrial equipment efficiency upgrades	19,461	5%	973	80%	67%	5%	454	$ 40.88	75%	$ 30.66	25%	$ 10.22	$ 51.10	$ 40.88
Municipal facilities comprehensive efficiency retrofit	380	20%	76	90%	90%	15%	1,727	$ 40.88	0%	$ -	25%	$ 10.22	$ 51.10	$ 10.22
High-efficiency construction	22,660	1%	4,532	50%	75%	20%	75	$ 40.88	100%	$ 40.88	25%	$ 10.22	$ 51.10	$ 51.10
Commercial and Industrial retrofit	19,461	7%	1,297	60%	67%	10%	454	$ 40.88	33%	$ 13.63	20%	$ 8.18	$ 49.05	$ 21.80

C. Measure inputs

Table 14 provides additional information used to characterize the efficiency measures analyzed.

Table 14

Portfolio			Natural Gas Savings		Electricity Savings						tion and Maintenance		Utility Customer Incentives	
			Usage		Energy	Capacity	Coincidence Factors				Equipment Components/Ma			
Measure Name	Measure Life (years)	Incremental Installed Cost or Full Cost for Retrofit (2009$)	1 = NG Base 2 = NG Space Heat 3 = NG DHW 4 = NG User Defined 5 = NG User Defined	Natural Gas Saved (MMBtu/yr)	Annual kWh Saved	Maximum Load Reduction (kW)	Summer Generation Capacity (% of Maximum)	Winter Gener. Capacity (% of Maximum)	Transm. Capacity (% of Maximum)	Distribution Capacity (% of Maximum)	Component 1 Life (years)	Component 1 Replacement Cost (2009$)	Electric Utility Customer Incentive (2009$)	Gas Utility Customer Incentive (2009$)
[0]	[2]	[4]	[5]	[6]	[7]	[12]	[13]	[14]	[15]	[16]	[29]	[30]	[37]	[38]
Comprehensive Residential Heating Retrofit	15	$977	2	16.19										$326
CFL direct install	6.5	$9.59			63	0.054	8%	30%	8%	8%	0.86	$0.50	$9.59	
Enhanced Low-Income Retrofit	15	$1,582	2	26.22										$1,582
CFL direct install	6.48	$9.59			63	0.054	8%	30%	8%	8%	0.86	$0.50	$9.59	
Premium Efficiency Gas Appliances and Heating Equipment	15	$104	3	8.50										$104
Commercial and Industrial Equipment Efficiency Upgrades	15	$928	3	22.71										$696
Municipal Facilities Comprehensive Efficiency Retrofit	15	$10,591	2	259.09										$0
High-Efficiency Construction	15	$613	2	15.01										$613
Commercial and Industrial Retrofit	15	$1,856	3	45.41										$619

D. Penetration

Table 15 indicates the annual number of measures installed in each program in each year. Note that the CFL direct install numbers refers to the number of CFL lamps.

Table 15

Year	2009	2010	2011	2012	2013
In Program Penetration					
Comprehensive Residential Heating Retrofit	0	1,404	3,510	5,616	5,616
CFL direct install	0	14,040	35,101	56,161	56,161
Enhanced Low-income Retrofit	3,006	3,834	3,834	3,834	3,834
CFL direct install	30,062	38,345	38,345	38,345	38,345
Premium Efficiency Gas Appliances and Heating Equipment	0	4,527	13,581	13,581	13,581
Commercial and Industrial Equipment Efficiency Upgrades	0	52	104	259	519
Municipal Facilities Comprehensive Efficiency Retrofit	0	6	62	62	62
High-Efficiency Construction	0	170	340	850	1,700
Commercial and Industrial Retrofit	0	52	104	259	519

E. Energy savings

Table 16 provides a year-by-year breakdown of electricity and gas savings by program.

Table 16

Program Year:	1	2	3	4	5
Year:	2009	2010	2011	2012	2013
Comprehensive Residential Heating Retrofit Program Total					
Incremental annual MWh Saved (Net at meter)	0	886	2214	3542	3542
Incremental annual MWh Saved (In prog, at meter)	0	886	2214	3542	3542
Cumulative annual MWh Saved (Net, at meter)	0	886	3099	6641	10183
Cumulative annual MWh Saved (Net, at gen.)	0	1027	3595	7704	11813
Incremental annual Summer kW Saved (Net at meter)	0	61	152	243	243
Incremental annual Summer kW Saved (In prog, at	0	61	152	243	243
Cumulative annual Summer kW Saved (Net, at meter)	0	61	212	455	698
Cumulative annual Summer kW Saved (Net, at gen.)	0	70	246	528	809
Incremental annual BBtu Gas Saved (Net)	0	23	57	91	91
Incremental annual BBtu Saved (In prog)	0	23	57	91	91
Cumulative annual BBtu Saved (Net)	0	23	80	170	261
Lifetime BBtu Saved (Net)	0	341	852	1364	1364
PV of Lifetime MMBtu Saved (Net)	0	215875	509611	769936	727027
Enhanced Low-income Retrofit Program Total					
Incremental annual MWh Saved (Net at meter)	1896	2418	2418	2418	2418
Incremental annual MWh Saved (In prog, at meter)	1896	2418	2418	2418	2418
Cumulative annual MWh Saved (Net, at meter)	1896	4314	6733	9151	11570
Cumulative annual MWh Saved (Net, at gen.)	2199	5005	7810	10615	13421
Incremental annual Summer kW Saved (Net at meter)	130	166	166	166	166
Incremental annual Summer kW Saved (In prog, at	130	166	166	166	166
Cumulative annual Summer kW Saved (Net, at meter)	130	296	461	627	792
Cumulative annual Summer kW Saved (Net, at gen.)	151	343	535	727	919
Incremental annual BBtu Gas Saved (Net)	79	101	101	101	101
Incremental annual BBtu Saved (In prog)	79	101	101	101	101
Cumulative annual BBtu Saved (Net)	79	179	280	380	481
Lifetime BBtu Saved (Net)	1182	1508	1508	1508	1508
PV of Lifetime MMBtu Saved (Net)	792860	954941	901722	851469	804016
Premium Efficiency Gas Appliances and Heating Equipment Program Total					
Incremental annual BBtu Gas Saved (Net)	0	38	115	115	115
Incremental annual BBtu Saved (In prog)	0	38	115	115	115
Cumulative annual BBtu Saved (Net)	0	38	154	269	385
Lifetime BBtu Saved (Net)	0	577	1732	1732	1732
PV of Lifetime MMBtu Saved (Net)	0	365506	1035409	977705	923217
Commercial and Industrial Equipment Efficiency Upgrades Program Total					
Incremental annual BBtu Gas Saved (Net)	0	1	2	6	12
Incremental annual BBtu Saved (In prog)	0	1	2	6	12
Cumulative annual BBtu Saved (Net)	0	1	4	9	21
Lifetime BBtu Saved (Net)	0	18	35	88	177
PV of Lifetime MMBtu Saved (Net)	0	11192	21137	49897	94233
Municipal Facilities Comprehensive Efficiency Retrofit Program Total					
Incremental annual BBtu Gas Saved (Net)	0	2	16	16	16
Incremental annual BBtu Saved (In prog)	0	2	16	16	16
Cumulative annual BBtu Saved (Net)	0	2	18	33	49
Lifetime BBtu Saved (Net)	0	24	239	239	239
PV of Lifetime MMBtu Saved (Net	0	15149	143051	135079	127551
High-Efficiency Construction Program Total					
Incremental annual BBtu Gas Saved (Net)	0	3	5	13	26
Incremental annual BBtu Saved (In prog)	0	3	5	13	26
Cumulative annual BBtu Saved (Net)	0	3	8	20	46
Lifetime BBtu Saved (Net)	0	38	77	191	383
PV of Lifetime MMBtu Saved (Net)	0	24224	45749	107998	203958
Commercial and Industrial Retrofit Program Total					
Incremental annual BBtu Gas Saved (Net)	0	2	5	12	24
Incremental annual BBtu Saved (In prog)	0	2	5	12	24
Cumulative annual BBtu Saved (Net)	0	2	7	19	42
Lifetime BBtu Saved (Net)	0	35	71	177	353
PV of Lifetime MMBtu Saved (Net)	0	22384	42274	99795	188466

F. Avoided costs

The economic evaluation of an energy-efficiency measure requires an estimate of the measure's benefits. The major benefit of gas energy-efficiency programs is the reduction of gas use and associated costs to customers. Those avoided costs may be passed on to customers by the utility, third-party suppliers, or both, but they are all eventually paid by customers.

Electric avoided costs are often computed for a number of cost drivers, such as summer and winter contribution to system peak load, and seasonal energy use for on- and off-peak periods. In the cost-benefit computation, analysts estimate the effect of a proposed measure or program on each of the cost drivers. The benefit of the energy-efficiency proposal is then estimated by multiplying the energy savings for each cost driver by the per-unit avoided cost for that driver, and adding up the benefits for all the drivers. This approach works well for evaluation of electric energy-efficiency programs, simplifying the costs of serving loads for 8,760 hours to a few cost drivers, which can be estimated for the wide variety of electric end uses (*e.g.*, residential and commercial space heating, space cooling, ventilation, water heating, refrigeration, indoor and outdoor lighting, clothes drying, cooking, computers and other plug loads, as well as a range of industrial loads).

Like most detailed analyses of avoided gas costs, this study's calculation of avoided costs is structured differently than that usually used to estimate electric avoided costs. Planning and procurement for natural gas is primarily concerned with daily loads, rather than annual loads, so there are fewer load shapes. There are also fewer end uses for gas than electricity, since very little gas is used for lighting, refrigeration, or residential air conditioning, and no gas is used for computers or ventilation. Hence, it is feasible to compute avoided costs for the load shapes of the few gas end uses. In the cost-benefit analysis, the benefit of each energy-efficiency measure can be estimated as the measure's annual savings times a single load-specific avoided cost.

This load-shape approach to defining avoided costs allows for distinctions between the costs of different end uses that impose different costs, even for similar seasonal usage levels. An end use that does not vary with weather, such as cooking or clothes drying, may use the same amount of gas in the winter as a heating boiler, but the gas to serve the boiler will be more expensive. The boiler will predictably use more gas on very cold days, when gas is most expensive, and less on mild days, when gas is relatively cheap. Serving the boiler requires the reservation of enough pipeline capacity to meet load on typical cold days, and the construction of local transmission-and-distribution capacity and supplemental gas supplied to meet load on extraordinarily cold days. The boiler will use more gas on cold days, when regional gas demand is high and prices are high. The development of avoided cost by load shape allows for the reflection of these differences between loads even within a season or a month.

This estimate of avoided gas costs comprises the following three parts:

- Commodity: The market prices of gas delivered to a utility's citygate in a normal year
- Peaking capacity: The costs of local capacity to cover the difference between normal and design-peak conditions
- Local transmission and distribution (T&D): The utility's cost of building, operating and maintaining the high-pressure transmission and lower-pressure distribution system in its service area

1. Commodity Cost

We forecast the monthly delivered gas price to the PGW citygate for gas delivered evenly over the month, as the sum of

- The NYMEX forward price for gas delivered to Henry hub for September 2009 through August 2020, plus
- The NYMEX forwards for the price basis from Henry Hub to Transco Zone 6, which includes the PGW citygate, through December 2012. After 2012, we escalate the basis at the same rate as the Henry Hub forward price.

Beyond 2020, we escalate the delivered gas price at an assumed inflation rate of 2%. From these forwards, we computed annual commodity costs for the following three load shapes:

- Baseload, including industrial processes, cooking, and clothes drying, modeled as using the same amount of gas every day.
- Space heating, modeled as using gas each day in proportion to daily heating degree days (HDD).
- Water heating, modeled as a mix of baseload and space-heating load. This approximation reflects the observation that gas usage by water-heating customers rises in the winter months, probably as a combination of higher standby losses and warmer water temperatures for baths, showers and washing.

While gas utilities do not purchase a large portion of their supply in the daily spot market, the short-term market in which utilities can procure gas to meet higher-than-expected load, or sell off gas when their supplies exceed their needs determines the value of the gas. Every dekatherm of gas that a PGW consumer does not use is one more dekatherm that is available to someone in the spot market who is willing to pay the spot price for that gas. Depending on the gas-supply situation and contracts of the utility (or gas supplier), the utility may avoid buying gas from the spot market, or sell more gas into the spot market, or reduce its use of some longer-term contract.

In the longer term, annual and multi-year contracts should average near the spot prices for the same time periods. Estimating the effect of specific load reductions on the supply portfolio and costs of any particular utility or gas supplier is complicated, since the

calculation would have to model purchases, sales and usage of a variety of gas supplies, pipeline capacity, storage resources, and supplementary resources. This approach would also require non-public data from competitive gas suppliers. The spot-market price is a reasonable estimate of the resource benefit from reduced commodity use.

2. Baseload Commodity

For baseload end uses, where use of gas does not vary with weather or the season, the analysis weights the forecast monthly gas price by the number of days in the month.

3. Space-Heating Commodity

The cost of commodity for space heating varies from the cost of baseload in two ways. First, the amount of gas used varies among months, and is concentrated in the higher-cost winter months. Second, within each month, space heating uses more gas on the colder days, when gas tends to be more expensive than the average for the month.
For the first factor, the monthly percentage the study assumed that the monthly use of gas for space heating is proportional to the monthly sum of daily heating degree days (HDDs). Heating degree days are the difference between the day's average temperature and a base temperature, at which space-heating use is assumed to be zero. That base temperature, or balance point, is lower than the temperature maintained by the thermostat, since the building is warmed by sun shining in the windows and by interior gains (waste heat) from lights, appliances, equipment, and people.

We used the monthly average HDDs with a base of 65° F for 1978–2007 published by NOAA.[5]

The second factor, the effect of the intra-month correlation of price and load, reflects the fact that heating loads use more gas on colder days within each month, and that prices tend to be higher on cold days.[6] This correction was computed as the typical ratio of the heating-load-weighted market price to the average daily price for the month. Since the NYMEX prices are for gas delivered evenly over the month, multiplying that ratio by the NYMEX-based price forecast results in an estimate of the price of gas for heating load in the month.

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[5] "2007 Local Climatological Data: Annual Summary With Comparative Data, Philadelphia, Pennsylvania (KPHL)," National Oceanographic and Atmospheric Administration, ISSN 0198-4535.

[6] The utility or a gas supplier can meet load in those high-load high-priced days with spot purchases, by reserving storage and associated transportation to the citygate, or by reserving additional pipeline capacity directly to the citygate. All these approaches impose costs that would not be needed for a load that was constant across the days of the month.

Of course, gas prices vary due to factors other than the current day's temperature in Philadelphia, including the following:

- Wind and sunshine on that day, since heating load will be higher on a cloudy, windy 40°F day than a sunny calm day with the same air temperature.
- Weather in other parts of North America. A cold snap in California will drive up wellhead prices in Texas and Alberta, and hence prices for deliveries to Pennsylvania. Cold temperatures in New England or New York not only raise wellhead prices, but also market prices for delivery to New York citygates. Conversely, mild weather elsewhere can moderate prices in Philadelphia, even when it is cold in Philadelphia.
- Weather on other days. High gas demand in earlier days of the same month, or in earlier months, will tend to deplete storage and push prices higher. Forecasts of cold weather in coming days and weeks will tend to push up price before the cold front hits, as users scramble to put gas into storage.
- Gas in storage, which depends on the weather, other gas demands over the previous year or so, market participants' guesses regarding price tends, and other factors.
- Demand for gas for electric generation, which varies during the month with oil prices and outages of coal and nuclear plants and between years as load grows and supplies change.
- Gas production capacity, which changes within winter months primarily due to freeze-ups of gas wells in producing areas, but changes significantly between years due to depletion and new additions (and sometimes hurricanes).

For this study, the intra-month price ratio was computed for each calendar month using data for each of the last two gas years, 2006/07 and 2007/08. The analysis computes the ratio of load-weighted to average monthly price for each month.

Equation 1. Intra-Month Heating Price Ratio.

$$\text{intra - month heating price ratio} = \frac{\left[\frac{\sum_{month} HD_{day} \times P_{day}}{\sum_{month} HD_{day}}\right]}{\left[\frac{\sum_{month} P_{day}}{\#\text{ days in the month}}\right]}$$

where HD_{day} = heating degree-days for the day

P_{day} = delivered price for the day

The ratios tend to be highest in the winter and close to 1.00 in the shoulder months.

The heating commodity cost for each year is the sum across months of the following product:

NYMEX monthly forward × monthly HDD % × intra-month price ratio

The annual heating commodity cost is significantly greater than the annual baseload commodity cost. The annual residential heating avoided cost, averaged over the period 2006–2025, is 12% greater than average annual baseload price. These differences can largely be explained by the fact that most of the heating usage is in the high-priced months of January, February, and December.

4. Water-Heating Commodity

Based on previous experience, the analysis assumed that water-heating load is similar in shape to 75% baseload and 25% space-heating load. The heating-like shape is probably attributable to a combination of higher standby losses and longer, hotter showers and baths in cold weather.

5. Commodity-Cost Summary

The attached spreadsheet shows avoided commodity costs for the three load shapes. The relationships among the prices for the various load shapes are as expected. The heating cost is higher than the water-heating cost, which is higher than the baseload cost. The average costs of utility gas supplies, which serve large amounts of heating load, tend to be much higher than the flat year-round gas supplies reflected in the baseload commodity costs. The average avoided commodity cost will similarly be more expensive than the avoided commodity cost for a flat year-round gas supply.

6. Peaking Capacity Cost

In addition to buying and delivering the gas required in a normal year, a gas utility must be prepared to meet much higher loads on an extremely cold (design-peak) day.[7] The prices for gas in a normal year do not include the costs of reserving capacity and supplies to meet design-day conditions. Those design loads are normally met by local storage (liquefied natural gas) and/or peaking off-system storage and associated transportation. Based on an estimated cost of capacity of $100/yr/Dth-day for NYSERDA's Seneca storage project, and $90/yr/Dth-day for propane capacity ("Natural Gas Energy Efficiency Resource Development Potential in New York," Mosenthal, et al, NYSERDA, October 31, 2006), we used a value of $100/ yr/Dth-day.

Since baseload has no increment of sendout on the design peak over average conditions, it would not have any peaking capacity charges.

While actual gas-system supply planning is quite complex, the problem was simplified by assuming that peaking capacity is required for the difference between sendout on a design

[7] Energy supplies must also be sufficient to meet colder-than-normal weather for days or weeks at a time.

peak day and on the average of the peak day in the two years. PGW's design day is 65 degree days, which was actually experienced on January 17, 1982. The maximum HDDs were 50 in 2007/08 and 48 in 2006/07, for an average of 49 HDD in the two years from which our commodity-cost shapes were adjusted.

7. Avoided T&D Cost

As peak loads grow, local distribution companies need to expand their internal transmission and distribution systems by adding parallel mains, looping, and increasing operating pressures, and increasing the size of new and replacement lines. The expenditures vary across each utility's service area and over time. Typically relatively small increments of load require expensive upgrades, while other load areas have excess capacity for many years resulting in no expansion costs.
Marginal or avoided T&D costs are therefore generally estimated by comparing growth-related costs to peak load growth over a period of several years. Based on estimates from upstate New York utilities, discounted 50% to reflect the expected decline in PGW total load, we used an avoided T&D cost of $50/Dth-day.

G. Program cost-effectiveness analysis

The analysis used a discount rate of 5.9%. This is the same discount rate used in present worth calculations in PGW's most recent evaluation of its low-income retrofit program.

The following tables present more detailed information on annual program benefits and costs by year. Table 18 shows each program's incremental contribution to lifetime benefits and costs by year; Table 18 provides the running total of cumulative net benefits by program by year.

Table 17
NPV of Incremental Lifetime Costs and Benefits (2009$)

Program Year:	1	2	3	4	5
Year:	2009	2010	2011	2012	2013
Total Resource Test					
Portfolio Total					
Benefits	8,097,896	15,623,496	25,066,135	27,892,028	28,281,061
Costs	5,674,468	9,411,355	13,259,665	15,597,362	16,145,181
Net Benefits	2,423,428	6,212,141	11,806,470	12,294,666	12,135,880
BCR	1.43	1.66	1.89	1.79	1.75
Comprehensive Residential Heating Retrofit Program					
Benefits	0	2,325,369	5,442,580	8,169,622	7,686,248
Costs	0	1,591,223	3,785,013	5,764,365	5,488,963
Net Benefits	0	734,146	1,657,567	2,405,257	2,197,285
BCR	n/a	1.46	1.44	1.42	1.40
Enhanced Low-income Retrofit Program					
Benefits	8,097,896	9,718,151	9,102,760	8,542,103	8,035,754
Costs	5,674,468	6,885,178	6,552,168	6,237,716	5,940,789
Net Benefits	2,423,428	2,832,973	2,550,592	2,304,386	2,094,965
BCR	1.43	1.41	1.39	1.37	1.35
Premium Efficiency Gas Appliances and Heating Equipment Program					
Benefits	0	2,946,424	8,285,678	7,777,823	7,314,688
Costs	0	564,834	1,619,836	1,549,330	1,482,754
Net Benefits	0	2,381,590	6,665,843	6,228,493	5,832,134
BCR	n/a	5.22	5.12	5.02	4.93
Commercial and Industrial Equipment Efficiency Upgrades Program					
Benefits	0	90,223	169,144	396,942	746,632
Costs	0	57,524	109,978	262,977	503,353
Net Benefits	0	32,699	59,166	133,965	243,279
BCR	n/a	1.57	1.54	1.51	1.48
Municipal Facilities Comprehensive Efficiency Retrofit Program					
Benefits	0	139,623	1,309,043	1,229,027	1,155,920
Costs	0	77,862	744,313	711,915	681,323
Net Benefits	0	61,761	564,730	517,111	474,597
BCR	n/a	1.79	1.76	1.73	1.70
High-Efficiency Construction Program					
Benefits	0	223,262	418,641	982,628	1,848,356
Costs	0	124,504	238,036	569,188	1,089,459
Net Benefits	0	98,757	180,605	413,439	758,897
BCR	n/a	1.79	1.76	1.73	1.70
Commercial and Industrial Retrofit Program					
Benefits	0	180,445	338,288	793,684	1,493,263
Costs	0	110,230	210,322	501,871	958,539
Net Benefits	0	70,215	127,966	292,013	534,724
BCR	n/a	1.64	1.61	1.58	1.56

Table 18
NPV of Cumulative Costs and Benefits (2009$)

Program Year:	1	2	3	4	5
Year:	2009	2010	2011	2012	2013
Total Resource Test					
Portfolio Total					
Benefits	8,097,896	23,721,392	48,787,526	76,679,554	104,960,615
Costs	5,674,468	15,012,963	28,049,804	43,246,194	58,812,563
Net Benefits	2,423,428	8,708,429	20,737,723	33,433,360	46,148,052
BCR	1.43	1.58	1.74	1.77	1.78
Comprehensive Residential Heating Retrofit Program					
Benefits	0	2,325,369	7,767,949	15,937,572	23,623,820
Costs	0	1,579,761	5,309,061	10,943,404	16,263,742
Net Benefits	0	745,608	2,458,889	4,994,168	7,360,077
BCR	n/a	1.47	1.46	1.46	1.45
Enhanced Low-income Retrofit Program					
Benefits	8,097,896	17,816,046	26,918,806	35,460,909	43,496,662
Costs	5,674,468	12,508,942	18,962,528	25,056,453	30,810,761
Net Benefits	2,423,428	5,307,104	7,956,278	10,404,455	12,685,901
BCR	1.43	1.42	1.42	1.42	1.41
Premium Efficiency Gas Appliances and Heating Equipment Program					
Benefits	0	2,946,424	11,232,103	19,009,926	26,324,813
Costs	0	558,245	2,139,645	3,632,913	5,042,961
Net Benefits	0	2,388,179	9,092,457	15,377,012	21,281,852
BCR	n/a	5.28	5.25	5.23	5.22
Commercial and Industrial Equipment Efficiency Upgrades Program					
Benefits	0	90,223	259,367	656,309	1,402,940
Costs	0	56,852	164,221	417,682	896,353
Net Benefits	0	33,370	95,146	238,627	506,587
BCR	n/a	1.59	1.58	1.57	1.57
Municipal Facilities Comprehensive Efficiency Retrofit Program					
Benefits	0	139,623	1,448,666	2,677,692	3,833,613
Costs	0	76,954	803,605	1,489,760	2,137,676
Net Benefits	0	62,669	645,060	1,187,932	1,695,937
BCR	n/a	1.81	1.80	1.80	1.79
High-Efficiency Construction Program					
Benefits	0	223,262	641,903	1,624,530	3,472,886
Costs	0	123,052	355,440	904,033	1,940,071
Net Benefits	0	100,210	286,463	720,498	1,532,815
BCR	n/a	1.81	1.81	1.80	1.79
Commercial and Industrial Retrofit Program					
Benefits	0	180,445	518,733	1,312,617	2,805,881
Costs	0	109,157	315,304	801,949	1,720,998
Net Benefits	0	71,288	203,430	510,668	1,084,883
BCR	n/a	1.65	1.65	1.64	1.63

H. Job creation

Table 19 presents the range of employment-impact projects for the proposed PGW programs, using a range of jobs created per trillion BTU saved.

Table 19

	JOB CREATION IMPACTS OF GAS EFFICIENCY PORTFOLIO		
	30 Jobs/TBtu	40 Jobs/TBtu	50 Jobs/TBtu
RESIDENTIAL PROGRAMS			
2009	35	47	59
2010	73	97	121
2011	123	164	205
2012	138	184	230
2013	138	184	230
TOTAL	**507**	**676**	**845**
NON-RESIDENTIAL PROGRAMS			
2009	0	0	0
2010	3	5	6
2011	13	17	21
2012	21	28	35
2013	35	46	58
TOTAL	**72**	**95**	**119**
TOTAL PORTFOLIO			
2009	35	47	59
2010	76	102	127
2011	135	181	226
2012	159	212	265
2013	173	230	288
TOTAL	**579**	**772**	**965**

These values were derived based on an extensive review of research on job creation resulting from efficiency and renewable investment. That research is summarized below. Table 21 provides the list of studies reviewed.

What happens to the labor market and job creation when spending on energy efficiency (EE) increases? There are certainly jobs gained in implementing and administering the energy efficiency field. But there are also jobs that would have been created on the energy supply side that never came into existence due to energy efficiency. More importantly, the money that customers save on their energy bill has to go somewhere. To start, we will examine the dynamics of energy efficiency's effects on job creation. Then

we will look at some of the estimates that previous studies have provided for net jobs created due to energy efficiency.

The net effect of jobs lost in the energy supply sector and gained in the energy efficiency sector directly due to EE are slightly positive. National Grid's experience in Rhode Island from 1990 to 2005 found that "the jobs gained by increased spending on efficiency are offset by the jobs lost owing to lower spending on supply" (Goodman 2006). While this is good, it does not show the true benefits that come from EE.

The big gains in job creation come from the induced effects of re-spending savings on energy bills. Some studies estimate that the effects account for more than 90% of net job creation (Geller et. al. 1992). An examination of California's energy efficiency drive from 1976 to 2006 found that for every new job foregone in oil, gas, and electric power, 50 new jobs were created in California (Roland-Host 2008).

When customers save money on their energy bills, that money goes somewhere else. Most of it is re-spent in other areas of the economy, with the largest absolute rises in construction, retail trade, and the services industry (Geller et. al. 1992). The stimulation of aggregate demand from re-spending in turn increases aggregate output, a macro-economic "multiplier" effect.

In Michigan, Laitner and Kushler find a large difference in the labor-intensity of sectors with large job gains versus sectors where jobs are lost. They calculate that retail trade creates 19.1 jobs per million dollars of spending, while natural gas distribution creates 2.9 jobs (2007). Since energy supply chains are not that labor intensive, the shift of spending in these sectors to other sectors of the economy increases the multiplier effect on job creation:

> When consumers shift one dollar of demand from electricity to groceries, for example, one dollar is removed from a relatively simple, capital intensive supply chain dominated by electric power generation and carbon fuel delivery. When the dollar goes to groceries, it animates much more job intensive expenditure chains including retailers, wholesalers, food processors, transport, and farming. Moreover, a larger proportion of these supply chains (and particularly services that are the dominant part of expenditure) resides within the state, capturing more job creation from Californians for California. Moreover, the state reduced its energy import dependence, while directing a greater percent of its consumption to in-state economic activities. (Roland-Host 2008).

As Roland-Host points out, large chunk of the re-spending finds its way towards industries that require extensive local infrastructure and jobs, such as construction and retail. Because of this, leakage of labor from the area where EE originates is low. On a state level, Laitner and Kushler estimate that 80% of jobs created due to EE stay in Michigan, and they admit that this number could probably be higher (2007). Not only does EE contribute to a larger and more diverse economy and labor market, most of the benefits are localized.

There have been numerous studies over the past 30 years that examine the impacts of energy efficiency on job creation. If we focus on studies that look within the U.S., we find wide variances in time horizon, efficiency potential, and net job creation. Table 20 summarizes the findings of 48 such studies. Every state and region is unique, but we can develop a framework for comparing studies based on two key statistics.

Table 20. Summary of Past Energy Efficiency Studies

Key Indicator	Low	High	Average
Period of Analysis (Years)	5	26	12
Efficiency Potential (Savings over Reference Case)	6%	33%	23%
Benefit-Cost Ratio of Policy Scenario	1.1	4.8	1.95
Net Jobs Gained per TBtu of Efficiency Gains	9	95	49
Net Impact on GDP (as Percent Change in Ref. Case)	-0.01%	0.60%	0.15%

Source: ACEEE - *Positive Returns: State Energy Efficiency Analyses Can Inform U.S. Energy Policy Assessments*. June 2008.

The number of net jobs gained per trillion BTus (TBtu) of efficiency gains gives us a basic rule of thumb for calculating how many jobs a given portfolio of EE programs might create. But how do we know that the portfolio of programs is comparable to these in past studies? The benefit-cost ratio gives an indication, which is independent of the size of spending, for comparing similar portfolios.

The following graph shows each study's net jobs/TBtu against their benefit-cost ratio. Most of the studies fall in the range 20 to 60 jobs/TBtu and a benefit-cost Ratio of 1.5 to 2.5. This cluster of estimates gives a good jumping off point for figuring out an appropriate number of jobs/TBtu to use.

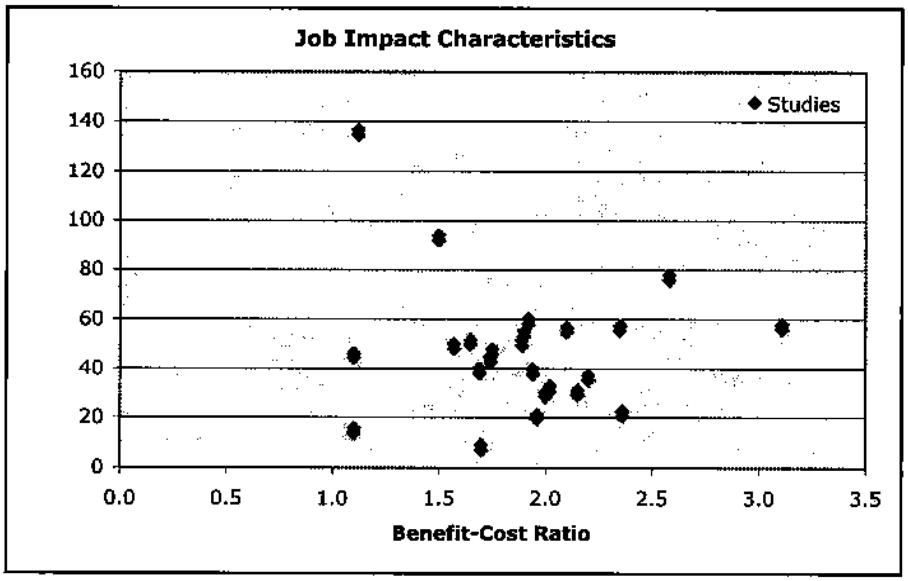

Table 21 gives a detailed breakdown of the findings from 25 studies. The most relevant numbers for Philadelphia come from the 1997 study of the Mid-Atlantic (which includes

New York, New Jersey, and Pennsylvania). This study estimated approximately 57 net jobs/TBtu with a portfolio that has a benefit-cost ratio of 2.36, putting it solidly within the cluster of studies previously identified. Putting it another way, "the rise in employment, driven largely by the spending of energy bill savings, is equivalent to the number of jobs supported by the expansion or relocation of 1,095 small manufacturing plants in Mid-Atlantic region" (Nadel et al 1997).

Table 21. Summary Impacts by Region and Year of Analysis

Region	Year	Energy Saved (TBtu)	Benefit-Cost Ratio	Net Jobs	Net Jobs/TBtu
Florida	2007	1,567	1.70	14,264	9
Texas	2007	1,031	2.20	38,291	37
Midwest	1995	4,300	1.75	205,200	48
Michigan	2007	335	2.36	7,506	22
MidAtlantic	1997	2,868	2.35	164,320	57
Texas	1998	976	1.10	45,000	46
Arizona	1997	185	1.92	11,076	60
Colorado	2007	80	1.89	4,100	51
Maryland	1996	278	1.90	15,300	55
Missouri	1995	2	1.57	100	50
Mississippi	2000	49	1.50	4,600	94
Nevada	1997	131	2.02	4,300	33
U.S.	2005	13,737	1.10	215,308	16
Washington	1994	365	1.65	18,800	52
U.S.	2001	37,600	1.96	800,000	21
Wyoming	1997	87	2.15	2,700	31
Colorado	1996	212	1.94	8,400	40
Alabama	1994	266	1.69	10,590	40
Western States	1997	1,303	1.74	57,651	44
Maine	2008	68	2.00	2,070	30
Minnesota	1993	49	2.58	3,810	78
Southwestern States	2002	1,010	3.11	58,400	58
Southeastern States	1996	6,600	1.12	900,000	136
Connecticut	2004	11	2.10	622	57
Study Totals		73,109	1.72	2,592,408	35

Source: ACEEE - *Positive Returns: State Energy Efficiency Analyses Can Inform U.S. Energy Policy Assessments*. June 2008.

Energy efficiency's impact on job creation stems mostly from the benefits of decreased energy bills. A customer who would have spent money on energy, instead divert that capital to a diverse range of economic sectors. Most of the sectors that benefit form this re-spending are much more job-intensive than the energy supply sector. Furthermore, the multiplying effect from stimulating aggregate demand adds even more jobs to the economy. For Pennsylvania, reasonable assumptions of 59 jobs per TBTu of efficiency gains have been estimated. The benefits are clear in California, where energy efficiency "reduced its (California's) energy import dependence and directed a greater percentage of

its consumption to instate, employment-intensive goods and services, whose supply chains also largely reside within the state … and facilitate(ed) the economy's transition to a low carbon future" (Roland-Host 2008).

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VIII. TECHNICAL APPENDIX

A functioning, self-documented MS Excel workbook containing the cost-effectiveness analysis and the rate and bill analysis is available for easy review.

TECHNICAL APPENDIX

DSM Cost-Effectiveness Calculator

A cost-effectiveness analysis tool for assessing electric and/or gas demand-side management programs.

Created by Green Energy Economics Group, Inc.

Last revision to tool:	3/24/2009
by:	Francis Wyatt

Notes for use of this tool:

1. All of the sheets except this one and the "Utility Costs" sheet are either protected or hidden to prevent unintended changes to formulas or formatting.
2. The input cells are yellow, are not protected and may be changed at anytime.
3. To unprotect any sheet, choose Tools/Protection/Unprotect Sheet from the menu bar.
4. A password will not be required to unprotect these sheets.
5. To unhide a sheet, choose Format/Sheet/Unhide from the menu bar and then choose the sheet that you wish to unhide.
6. Refer to cell notes (comments) for guidance with inputs.
7. See below for an index of sheets in this workbook

Program Identification Inputs:

Sector Name:	Portfolio
Company Name:	Philadelphia Gas Works
Customer Sector:	
First Year of Program:	2009
Duration of Program (years)	5

Sheet Assumptions:

Prepared By:	J. Plunkett
Scenario Name:	Delayed start
Version #:	2.0
Scenario Date:	2/6/09

Program ID	Program Name
A	Comprehensive Residential Heating Retrofit
B	Enhanced Low-income Retrofit
C	Premium Efficiency Gas Appliances and Heating Equipment
D	Commercial and Industrial Equipment Efficiency Upgrades
E	Municipal Facilities Comprehensive Efficiency Retrofit
F	High-Efficiency Construction
G	Commercial and Industrial Retrofit
H	Program H
I	Program I
J	Program J

Index to Workbook Sheets	Sheet Function
Title Page	Program screening tool information, Program identification, and Index
Program matrix	Attributes of seven proposed PGW gas DSM programs
Utility Costs	Inputs and summary of electric and utility program costs
Benefit-Cost Analysis	Summary of program cost-effectiveness (Total Resource, Electric & Gas System)
Program Inputs	Assumptions on program costs, financial incentives, acceptance rates
Customers and Sales	Gas utility number of customers and gas sales
Measure Inputs	Characterizations and screening for measures installed (costs, savings, life)
Penetrations	Penetrations of efficient measures without, with and in the program
Avoided Costs	Avoided costs, line losses, discount rate, base year for discounting
Energy Saved	Energy saved by measure and year, calculated from inputs in other sheets
Cumulative Net Benefit	Summary of program cost-effectiveness, cumulative by year (Total Resource, Electric & Gas System)
Annual Net Benefit	Summary of program cost-effectiveness, annual by year (Total Resource, Electric & Gas System)
Total Resource Benefits	Present worth total resource benefits by measure and year
Total Resource Costs	Present worth total resource costs by measure and year
Total Resource Levelized Costs	Total resource levelized costs per unit gas saved by measure and year
Gas Benefits	Present worth gas utility benefits by measure and year
Gas Costs	Present worth gas utility costs by measure and year
Gas Levelized Costs	Gas system levelized costs per unit gas saved by measure and year
Elec Benefits	Present worth electric utility benefits by measure and year
Elec Costs	Present worth electric utility costs by measure and year

PHILADELPHIA GAS WORKS
Five Year Gas Demand-Side Management Plan
Program Cost-Effectiveness Summary

PROGRAM	Total Resource PV Benefits	Total Resource PV Costs	PGW PV Costs	Total Resource PV Net Benefits	Total Resource B/C Ratio
Comprehensive Residential Heating Retrofit	$ 23,623,820	$ 16,263,742	$ 7,255,416	$ 7,360,077	1.45
Enhanced Low-Income retrofit	$ 43,496,662	$ 30,810,761	$ 32,889,523	$ 12,685,901	1.41
Premium efficiency gas appliances and heating equipment	$ 26,324,813	$ 5,042,961	$ 5,738,129	$ 21,281,852	5.22
Commercial and industrial equipment efficiency upgrades	$ 1,402,940	$ 896,353	$ 829,516	$ 506,587	1.57
Municipal facilities comprehensive efficiency retrofit	$ 3,833,613	$ 2,137,676	$ 427,535	$ 1,695,937	1.79
High-efficiency construction	$ 3,472,886	$ 1,940,071	$ 2,264,540	$ 1,532,815	1.79
Commercial and industrial retrofit	$ 2,805,881	$ 1,720,998	$ 864,829	$ 1,084,883	1.63
Total Portfolio	$ 104,960,615	$ 58,812,563	$ 50,269,487	$ 46,148,052	1.78

PHILADELPHIA GAS WORKS
Five Year Gas Demand-Side Management Plan
PROGRAM SUMMARIES

PROGRAM	Target Market	Efficiency Technologies Targeted			Market Actors Targeted	Financial Strategies	Delivery Mechanism	PGW Role
		Gas	Electric	Water				
Comprehensive Residential Heating Retrofit	High-use heating customers (customers ranked in the highest 40% in terms of annual consumption	Instrumented air-sealing; attic/wall insulation; high-efficiency windows; high-efficiency furnace early replacement	High-efficiency lighting;	High-efficiency showerheads and aerators; high-efficiency clothes washers	HPwES-certified contractors; material and equipment suppliers	Financial incentives to buy down projects to a 2-year payback period, with on-bill financing of the customer's contribution	Private contractdors	Lead program administrator for residential retrofit in Philadelphia; coordination with PECO
Enhanced Low-Income retrofit	CRP and senior citizen customers				ECA, Honeywell, other providers to be selected through competitive solicitation	Free installation	Implementation contractdor(s)	
Premium efficiency gas appliances and heating equipment	Buyers, sellers, and installers of gas space and water heating equipment to residential and small business customers	High-efficiency clothes washers, space- and water-heating equipment	Not applicable		Equipment manufacturers, distributors, retailers/vendors, engineers, contracdtors, customer buyers	Financial incentives covering 80% of the incremental cost of premium-efficiency equipment	Supply chain	Program administrator; coordination with PECO DSM programs
Commercial and Industrial equipment efficiency upgrades	Buyers and sellers of commercial/industrial gas heating and nonheating equipment	High-efficiency heating and process equipment						
Municipal facilities comprehensive efficiency retrofit	City-owned and -operated public buildings and facilities	High-efficiency boilers and furnaces for space and water heating; high-efficiency building controls; high-efficiency shell improvements	High-efficiency lighting, HVAC, refrigeration	Low-water toilets; high-efficiency clothes washers	Facility managers, department heads, financial officers	On-bill extended financing for cost-effective gas-saving measures	Private energy-service contracdtors selected through competitive bids	Assistance with engineering and economic assessment of retrofit efficiency options, coordination with participation in PECO DSM programs
High-efficiency construction	New construction, remodelling, and renovation efficiency improvements for residential and commerical buildings				Property developers, managers, owners, real estate agents, architects, engineers, builders, contractors	Financial incentives covering 50% of the incremental cost of premium-efficiency equipment and efficiency technologies	Supply chain	Support for and coordination with PECO DSM program
Commercial and Industrial retrofit	Supplemental measures (e.g., boiler controls), early retirement of inefficient equipment; investments planned in coordination with PECO electric DSM program(s)					Customized incentives calculated based on payback buydown, including electric and other resource savings., possibly with PECO on-bill financing of customer contribution	TBD	

PHILADELPHIA GAS WORKS
Five Year Gas Demand-Side Management Plan
Program Cost-Effectiveness Summary

PROGRAM	Total Resource PV Benefits	Total Resource PV Costs	PGW PV Costs	Total Resource PV Net Benefits	Total Resource B/C Ratio
Comprehensive Residential Heating Retrofit	$ 23,623,820	$ 16,263,742	$ 7,255,416	$ 7,360,077	1.45
Enhanced Low-Income retrofit	$ 43,496,662	$ 30,810,761	$ 32,889,523	$ 12,686,901	1.41
Premium efficiency gas appliances and heating equipment	$ 26,324,813	$ 5,042,961	$ 5,738,129	$ 21,281,852	5.22
Commercial and industrial equipment efficiency upgrades	$ 1,402,940	$ 896,353	$ 829,516	$ 506,587	1.57
Municipal facilities comprehensive efficiency retrofit	$ 3,833,613	$ 2,137,676	$ 427,535	$ 1,695,937	1.79
High-efficiency construction	$ 3,472,886	$ 1,940,071	$ 2,264,540	$ 1,532,815	1.79
Commercial and Industrial retrofit	$ 2,805,881	$ 1,720,998	$ 864,829	$ 1,084,983	1.63
Total Portfolio	$ 104,960,615	$ 58,812,563	$ 50,269,487	$ 46,148,052	1.78

Gas Utility Budgets (Real Dollars)

Portfolio

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ 4,755,227	$ 7,167,828	$ 8,971,791	$ 10,174,820	$ 11,037,255	$ -
Program administration	$ 713,284	$ 1,307,380	$ 2,056,426	$ 2,537,045	$ 2,823,900	$ -
Total	$ 5,468,511	$ 8,475,208	$ 11,028,217	$ 12,711,865	$ 13,861,155	$ -
Non-Incentive Utility Costs	$ 713,284	$ 1,307,380	$ 2,056,426	$ 2,537,045	$ 2,823,900	$ -

Comprehensive Residential Heating Retrofit

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ -	$ 457,046	$ 1,142,614	$ 1,828,183	$ 1,828,183	$ -
Program administration	$ -	$ 205,671	$ 514,177	$ 822,682	$ 822,682	$ -
Total	$ -	$ 662,716	$ 1,656,791	$ 2,650,866	$ 2,650,866	$ -
Non-Incentive Utility Costs	$ -	$ 205,671	$ 514,177	$ 822,682	$ 822,682	$ -

Enhanced Low-income Retrofit

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ 4,755,227	$ 6,065,341	$ 6,065,341	$ 6,065,341	$ 6,065,341	$ -
Program administration	$ 713,284	$ 909,801	$ 909,801	$ 909,801	$ 909,801	$ -
Total	$ 5,468,511	$ 6,975,142	$ 6,975,142	$ 6,975,142	$ 6,975,142	$ -
Non-Incentive Utility Costs	$ 713,284	$ 909,801	$ 909,801	$ 909,801	$ 909,801	$ -

Premium Efficiency Gas Appliances and Heating Equipment

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ -	$ 472,954	$ 1,418,861	$ 1,418,861	$ 1,418,861	$ -
Program administration	$ -	$ 118,238	$ 354,715	$ 354,715	$ 354,715	$ -
Total	$ -	$ 591,192	$ 1,773,576	$ 1,773,576	$ 1,773,576	$ -
Non-Incentive Utility Costs	$ -	$ 118,238	$ 354,715	$ 354,715	$ 354,715	$ -

Commercial and Industrial Equipment Efficiency Upgrades

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ -	$ 36,125	$ 72,249	$ 180,624	$ 361,247	$ -
Program administration	$ -	$ 12,042	$ 24,083	$ 60,208	$ 120,416	$ -
Total	$ -	$ 48,166	$ 96,333	$ 240,832	$ 481,663	$ -
Non-Incentive Utility Costs	$ -	$ 12,042	$ 24,083	$ 60,208	$ 120,416	$ -

Municipal Facilities Comprehensive Efficiency Retrofit

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ -	$ -	$ -	$ -	$ -	$ -
Program administration	$ -	$ 16,299	$ 162,991	$ 162,991	$ 162,991	$ -
Total	$ -	$ 16,299	$ 162,991	$ 162,991	$ 162,991	$ -
Non-Incentive Utility Costs	$ -	$ 16,299	$ 162,991	$ 162,991	$ 162,991	$ -

High-Efficiency Construction

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ -	$ 104,251	$ 208,503	$ 521,257	$ 1,042,514	$ -
Program administration	$ -	$ 26,063	$ 52,126	$ 130,314	$ 260,629	$ -
Total	$ -	$ 130,314	$ 260,629	$ 651,571	$ 1,303,143	$ -
Non-Incentive Utility Costs	$ -	$ 26,063	$ 52,126	$ 130,314	$ 260,629	$ -

Commercial and Industrial Retrofit

Item	2009	2010	2011	2012	2013	2014
Customer Incentives	$ -	$ 32,111	$ 64,222	$ 160,554	$ 321,109	$ -
Program administration	$ -	$ 19,267	$ 38,533	$ 96,333	$ 192,665	$ -
Total	$ -	$ 51,377	$ 102,755	$ 256,887	$ 513,774	$ -
Non-Incentive Utility Costs	$ -	$ 19,267	$ 38,533	$ 96,333	$ 192,665	$ -

Outputs represent the cumulative NPV of the measures over their measure life, for measures installed during the study life

(PHILADELPHIA GAS WORKS
(DSM PROGRAM PLAN
(COST-EFFECTIVENESS ANALYSIS

	Total Resource					Electric Energy System				Gas Energy System					Electric & Gas Energy System			
	Present Value		PV of Net	Benefit-Cost	Levelized Cost	Present Value		PV of Net	Benefit-Cost	Present Value		PV of Net	Benefit-Cost	Levelized Cost	Present Value		PV of Net	Benefit-Cost
	Benefit [2]	Cost [3]	Benefits [4]	Ratio [5]	$/MMBTU	Benefit [6]	Cost [7]	Benefits [8]	Ratio [9]	Benefit [10]	Cost [11]	Benefits [12]	Ratio [13]	$/MCF	Benefit [14]	Cost [15]	Benefits [16]	Ratio [17]
Portfolio Total	$104,960,615	$58,812,563	$46,148,052	1.78	5.27	$7,461,189	$3,307,632	$4,153,557	2.26	$97,499,426	$50,269,487	$47,229,939	1.94	4.50	$104,960,615	$53,577,119	$51,383,496	1.96
Non-Measure Costs		$8,162,566					$0				$8,162,566					$8,162,566		
Total Measure Costs	$104,960,615	$50,649,997	$54,310,618	2.07	4.54	$7,461,189	$3,307,632	$4,153,557	2.26	$97,499,426	$42,106,921	$55,392,505	2.32	3.77	$104,960,615	$45,414,553	$59,546,062	2.31
Program																		
Comprehensive Residential Heating Retrofit																		
Program Total	$23,623,820	$16,263,742	$7,360,077	1.45	7.32	$3,376,903	$1,548,428	$1,828,475	2.18	$20,246,917	$7,255,416	$12,991,501	2.79	3.26	$23,623,820	$8,803,844	$14,819,976	2.68
Non-Measure Costs		$1,999,389					$0				$1,999,389					$1,999,389		
Total Measure Costs	$23,623,820	$14,264,353	$9,359,467	1.66	6.42	$3,376,903	$1,548,428	$1,828,475	2.18	$20,246,917	$5,256,026	$14,990,891	3.85	2.36	$23,623,820	$6,804,454	$16,819,365	3.47
Enhanced Low-Income Retrofit																		
Program Total	$43,496,662	$30,810,761	$12,685,901	1.41	7.16	$4,084,286	$1,759,204	$2,325,082	2.32	$39,412,376	$32,889,523	$6,522,853	1.20	7.64	$43,496,662	$34,648,727	$8,847,935	1.26
Non-Measure Costs		$3,872,931					$0				$3,872,931					$3,872,931		
Total Measure Costs	$43,496,662	$26,937,830	$16,558,832	1.61	6.26	$4,084,286	$1,759,204	$2,325,082	2.32	$39,412,376	$29,016,592	$10,395,785	1.36	6.74	$43,496,662	$30,775,796	$12,720,867	1.41
Premium Efficiency Gas Appliances and Heating Equipment																		
Program Total	$26,324,813	$5,042,961	$21,281,852	5.22	1.53	-	-	-	-	$26,324,813	$5,738,129	$20,586,684	4.59	1.74	$26,324,813	$5,738,129	$20,586,684	4.59
Non-Measure Costs		$1,008,592					$0				$1,008,592					$1,008,592		
Total Measure Costs	$26,324,813	$4,034,369	$22,290,444	6.53	1.22	-	-	-	-	$26,324,813	$4,729,537	$21,595,276	5.57	1.43	$26,324,813	$4,729,537	$21,595,276	5.57
Commercial and Industrial Equipment Efficiency Upgrades																		
Program Total	$1,402,940	$896,353	$506,587	1.57	5.08	-	-	-	-	$1,402,940	$829,516	$573,424	1.69	4.70	$1,402,940	$829,516	$573,424	1.69
Non-Measure Costs		$179,271					$0				$179,271					$179,271		
Total Measure Costs	$1,402,940	$717,083	$685,856	1.96	4.06	-	-	-	-	$1,402,940	$650,245	$752,695	2.16	3.68	$1,402,940	$650,245	$752,695	2.16
Municipal Facilities Comprehensive Efficiency Retrofit																		
Program Total	$3,833,613	$2,137,676	$1,695,937	1.79	5.08	-	-	-	-	$3,833,613	$427,535	$3,406,078	8.97	1.02	$3,833,613	$427,535	$3,406,078	8.97
Non-Measure Costs		$427,535					$0				$427,535					$427,535		
Total Measure Costs	$3,833,613	$1,710,141	$2,123,472	2.24	4.06	-	-	-	-	$3,833,613	-	$3,833,613	-	-	$3,833,613	-	$3,833,613	-
High-Efficiency Construction																		
Program Total	$3,472,886	$1,940,071	$1,532,815	1.79	5.08	-	-	-	-	$3,472,886	$2,264,540	$1,208,347	1.53	5.93	$3,472,886	$2,264,540	$1,208,347	1.53
Non-Measure Costs		$388,014					$0				$388,014					$388,014		
Total Measure Costs	$3,472,886	$1,552,057	$1,920,829	2.24	4.06	-	-	-	-	$3,472,886	$1,876,526	$1,596,361	1.85	4.91	$3,472,886	$1,876,526	$1,596,361	1.85
Commercial and Industrial Retrofit																		
Program Total	$2,805,881	$1,720,998	$1,084,883	1.63	4.88	-	-	-	-	$2,805,881	$864,829	$1,941,052	3.24	2.45	$2,805,881	$864,829	$1,941,052	3.24
Non-Measure Costs		$286,833					$0				$286,833					$286,833		
Total Measure Costs	$2,805,881	$1,434,165	$1,371,716	1.96	4.06	-	-	-	-	$2,805,881	$577,996	$2,227,885	4.85	1.64	$2,805,881	$577,996	$2,227,885	4.85

Philadelphia Gas Works
Gas DSM Plan
Five-Year Rate and Bill Analysis

	2009-10	2010-11	2011-12	2012-13	2013-14
Total Gas Revenues (@96% Collection)	974,491	986,468	998,016	993,480	1,006,692
Interruptible Revenues	(21,653)	(21,701)	(22,426)	(24,297)	(26,390)
Non-Firm GTS Revenues	(9,298)	(9,477)	(9,612)	(9,766)	(9,916)
Pre-DSM					
Firm Gas Revenues	943,540	955,290	965,978	959,416	970,386
Number of Firm Customers	487,656	483,894	480,602	477,324	474,052
Average Monthly Bill (Adusted for 96% Collection)	168	171	174	174	178
Firm Sales Volume (Mcf)	53,707	53,750	53,900	53,926	54,447
Average Rate (Adjusted for 96% Collection)	1.83	1.85	1.87	1.85	1.86
Post-DSM					
DSM Benefit (Adjusted for 96% Collection)	(2,263)	(4,163)	(7,234)	(10,649)	(11,857)
DSM Spending (Adjusted for 96% Collection)	10,782	10,110	12,305	13,919	4,801
Firm Gas Revenues	952,059	961,237	971,049	962,687	963,330
Number of Firm Customers	487,656	483,894	480,602	477,324	474,052
Average Monthly Bill (Adusted for 96% Collection)	169	172	175	175	176
Average Bill Impact	**0.9%**	**0.6%**	**0.5%**	**0.3%**	**-0.7%**
DSM Savings (Mcf)	(192)	(449)	(785)	(1,158)	(1,286)
Firm Sales Volume (Mcf)	53,515	53,301	53,115	52,768	53,161
Average Rate (Adjusted for 96% Collection)	1.85	1.88	1.90	1.90	1.89
Average Rate Impact	**1.3%**	**1.5%**	**2.0%**	**2.5%**	**1.7%**

Collection Rate 96%

PHILADELPHIA GAS WORKS
Five Year Gas Demand-Side Management Plan
PROGRAM INPUTS

5 years

PROGRAM	Total Eligible Customers	Annual Pace	Annual Customers Eligible	Applicability/ Feasibility	Acceptance Rate	Maximum Annual Customer Participation	Staging % of Maximum Customer Participation in Year					Per-Customer Gas Savings	Per-Customer Gas Usage (MCF)	Installed or Incremental Cost per MCF/yr	Per-customer Financial		PGW Administration Costs		Total Resource Cost per MCF/yr	PGW cost per MCF/yr
							2009	2010	2011	2012	2013				%	$/MCF/yr	as % of incremental or installed cost	$/MCF/yr		
Comprehensive Residential Heating Retrofit	351,006	5%	17,550	80%	50%	7,020	0%	20%	50%	80%	80%	20%	81	$ 60.33	33%	$ 20.11	15%	$ 9.05	$ 69.38	$ 29.16
Enhanced Low-Income retrofit	79,885	7%	5,326	90%	80%	3,834	78%	100%	100%	100%	100%	20%	131	$ 60.33	100%	$ 60.33	15%	$ 9.05	$ 69.38	$ 69.38
Premium efficiency gas appliances and heating equipment	452,704	5%	22,635	90%	67%	13,581	0%	33%	100%	100%	100%	8%	106	$ 12.29	100%	$ 12.29	26%	$ 3.07	$ 15.36	$ 15.36
Commercial and Industrial equipment efficiency upgrades	19,461	5%	973	80%	67%	519		10%	20%	50%	100%	5%	454	$ 40.88	75%	$ 30.66	25%	$ 10.22	$ 51.10	$ 40.88
Municipal facilities comprehensive efficiency retrofit	380	20%	76	90%	90%	62		10%	100%	100%	100%	15%	1,727	$ 40.88	0%	$ -	25%	$ 10.22	$ 51.10	$ 10.22
High-efficiency construction	22,660	1%	4,532	50%	76%	1,700		10%	20%	50%	100%	20%	75	$ 40.88	100%	$ 40.88	25%	$ 10.22	$ 51.10	$ 51.10
Commercial and Industrial retrofit	19,461	7%	1,297	60%	67%	519		10%	20%	50%	100%	10%	454	$ 40.88	33%	$ 13.63	20%	$ 8.18	$ 49.05	$ 21.80

PHILADELPHIA GAS WORKS

	Forecast Budget 2009				
	Number of Customer Billings for February		Gas Sales		Gas Sales per Customer
Non-heating					
Residential	35,107		699,037		20
CRP	1,115		47,419		43
Commercial	5,158		1,339,896		260
Industrial	211		278,908		1,322
Municipal	106		177,030		1,670
NGV Firm	1		327		327
Total Firm Non-heating	**41,698**		**2,542,617**		61
Heating					
Residential	351,006	77.5%	28,409,135	58.5%	81
CRP	79,885	17.6%	10,472,516	21.6%	131
Housing Authority - GS	2,047	0.5%	222,184	0.5%	109
Commercial	18,582	4.1%	7,703,575	15.9%	415
Industrial	499	0.1%	477,416	1.0%	957
Municipal	380	0.1%	656,349	1.4%	1,727
Housing Authority - PHA	804	0.2%	636,815	1.3%	792
Total Firm Heating	**453,203**	100.0%	**48,577,990**	100.0%	107
Total Firm	**494,901**		**51,120,607**		**103**
Heating share of total firm	92%		95%		

Source SR 12 SR11

MEASURE INPUTS (Program Year 1)

26-Mar-09

Portfolio

			Natural Gas Savings		Electricity Savings						Operation and Maintenance		Utility Customer Incentives	
			Usage		Energy	Capacity	Coincidence Factors				Equipment Components/Mat			
Measure Name	Measure Life (years)	Incremental Installed Cost or Full Cost for Retrofit (2009$)	1 = NG Base 2 = NG Space Heat 3 = NG DHW 4 = NG User Defined 5 = NG User Defined	Natural Gas Saved (MMBtu/yr)	Annual kWh Saved	Maximum Load Reduction (kW)	Summer Generation Capacity (% of Maximum)	Winter Gener. Capacity (% of Maximum)	Transm. Capacity (% of Maximum)	Distribution Capacity (% of Maximum)	Component 1 Life (years)	Component 1 Replacement Cost (2009$)	Electric Utility Customer Incentive (2009$)	Gas Utility Customer Incentive (2009$)
[0]	[2]	[4]	[5]	[6]	[7]	[12]	[13]	[14]	[15]	[16]	[29]	[30]	[37]	[38]
Comprehensive Residential Heating Retrofit	15	$977	2	16.19										$326
CFL direct install	6.5	$9.59			63	0.054	8%	30%	8%	8%	0.86	$0.50	$9.59	
Enhanced Low-income Retrofit	15	$1,582	2	26.22										$1,582
CFL direct install	6.48	$9.59			63	0.054	8%	30%	8%	8%	0.86	$0.50	$9.59	
Premium Efficiency Gas Appliances and Heating Equipment	15	$104	3	8.50										$104
Commercial and Industrial Equipment Efficiency Upgrades	15	$928	3	22.71										$696
Municipal Facilities Comprehensive Efficiency Retrofit	15	$10,591	2	259.09										$0
High-Efficiency Construction	15	$613	2	15.01										$613
Commercial and Industrial Retrofit	15	$1,856	3	45.41										$619

Year	2009	2010	2011	2012	2013	2014
In Program Penetration						
Comprehensive Residential Heating Retrofit	0	1,404	3,510	5,616	5,616	0
CFL direct Install	0	14,040	35,101	56,161	56,161	0
Enhanced Low-income Retrofit	3,006	3,834	3,834	3,834	3,834	0
CFL direct install	30,062	38,345	38,345	38,345	38,345	0
Premium Efficiency Gas Appliances and Heating Equipm	0	4,527	13,581	13,581	13,581	0
Commercial and Industrial Equipment Efficiency Upgrade	0	52	104	259	519	0
Municipal Facilities Comprehensive Efficiency Retrofit	0	6	62	62	62	0
High-Efficiency Construction	0	170	340	850	1,700	0
Commercial and Industrial Retrofit	0	52	104	259	519	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	3,006	10,045	21,535	24,462	25,831	

Annual Avoided Costs & Fuel Prices

FINANCIAL ASSUMPTIONS

Nominal Discount Rate (NDR):	8.02%
Inflation Rate (Long Term Future):	2.00%
Real Discount Rate (RDR):	5.90%
ı-resource benefits? (0 = no, 1 = yes):	1
3ase Year for Discounting (BASEYR):	2009
Length of Evaluation Period in Years:	50
:ffects Included in Benefits and Costs:	15
Energy Units:	kWh
Demand Units:	kW-yr
Fossil Fuel Units:	MMBtu

LINE LOSS FACTORS

All-Year Energy	Summer Generation Capacity	Winter Gener. Capacity	Transm. Capacity	Distribution Capacity
16.00%	16.00%	16.00%	16.00%	16.00%

All Avoided Costs Are in Constant 2009 Dollars

Period:	Electric Avoided Costs including losses					Natural Gas Avoided Costs			Other Resource Avoided Costs
	All-Year Energy	Summer Generation Capacity	Winter Gener. Capacity	Transm. Capacity	Distribution Capacity	NG Base	NG Space Heat	NG DHW	Water
Units:	$/kWh	$/kW-yr	$/kW-yr	$/kW-yr	$/kW-yr	$/MMBtu	$/MMBtu	$/MMBtu	$/gal
2009	0.0774	82.03				7.85	9.39	8.23	$ 0.0010
2010	0.0784	83.59				8.17	9.79	8.57	$ 0.0010
2011	0.0771	61.89				8.03	9.62	8.42	$ 0.0010
2012	0.0741	49.15				7.85	9.43	8.25	$ 0.0010
2013	0.0723	65.56				7.70	9.25	8.08	$ 0.0010
2014	0.0723	65.56				7.59	9.11	7.97	$ 0.0010
2015	0.0723	65.56				7.54	9.05	7.92	$ 0.0010
2016	0.0723	65.56				7.51	9.03	7.89	$ 0.0010
2017	0.0723	65.56				7.50	9.01	7.88	$ 0.0010
2018	0.0723	65.56				7.49	9.01	7.87	$ 0.0010
2019	0.0723	65.56				7.49	9.01	7.87	$ 0.0010
2020	0.0723	65.56				7.51	9.02	7.89	$ 0.0010
2021	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2022	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2023	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2024	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2025	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2026	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2027	0.0723	65.56				7.53	9.05	7.91	$ 0.0010
2028	0.0723	65.56				7.53	9.05	7.91	$ 0.0010

Year:	Total	2009	2010	2011	2012	2013	2014
Portfolio							
Incremental annual MWh Saved (Net at meter)		1,896	3,304	4,632	5,960	5,960	0
Incremental annual MWh Saved (In prog, at meter)		1,896	3,304	4,632	5,960	5,960	0
Cumulative annual MWh Saved (Net, at meter)		1,896	5,200	9,832	15,793	21,753	21,753
Cumulative annual MWh Saved (Net, at gen.)		2,199	6,032	11,405	18,319	25,234	25,234
Incremental annual Summer kW Saved (Net at meter)		130	226	317	408	408	0
Incremental annual Summer kW Saved (In prog, at meter)		130	226	317	408	408	0
Cumulative annual Summer kW Saved (Net, at meter)		130	356	673	1,082	1,490	1,490
Cumulative annual Summer kW Saved (Net, at gen.)		151	413	781	1,255	1,728	1,728
Incremental annual BBtu Gas Saved (Net)		79	169	301	353	384	0
Incremental annual BBtu Saved (In prog)		79	169	301	353	384	0
Cumulative annual BBtu Saved (Net)		79	248	549	902	1,286	1,286
Lifetime BBtu Saved (Net)	**19,292**	1,182	2,541	4,514	5,299	5,755	0
PV of Lifetime MMBtu Saved (Net)	**11,161,432**	792,860	1,609,273	2,698,952	2,991,878	3,068,468	0
Comprehensive Residential Heating Retrofit Program Total							
Incremental annual MWh Saved (Net at meter)		0	886	2214	3542	3542	0
Incremental annual MWh Saved (In prog, at meter)		0	886	2214	3542	3542	0
Cumulative annual MWh Saved (Net, at meter)		0	886	3099	6641	10183	10183
Cumulative annual MWh Saved (Net, at gen.)		0	1027	3595	7704	11813	11813
Incremental annual Summer kW Saved (Net at meter)		0	61	152	243	243	0
Incremental annual Summer kW Saved (In prog, at meter)		0	61	152	243	243	0
Cumulative annual Summer kW Saved (Net, at meter)		0	61	212	455	698	698
Cumulative annual Summer kW Saved (Net, at gen.)		0	70	246	528	809	809
Incremental annual BBtu Gas Saved (Net)		0	23	57	91	91	0
Incremental annual BBtu Saved (In prog)		0	23	57	91	91	0
Cumulative annual BBtu Saved (Net)		0	23	80	170	261	261
Lifetime BBtu Saved (Net)	**3,920**	0	341	852	1364	1364	0
PV of Lifetime MMBtu Saved (Net)	**2,222,448**	0	215875	509611	769936	727027	0
Enhanced Low-income Retrofit Program Total							
Incremental annual MWh Saved (Net at meter)		1896	2418	2418	2418	2418	0
Incremental annual MWh Saved (In prog, at meter)		1896	2418	2418	2418	2418	0
Cumulative annual MWh Saved (Net, at meter)		1896	4314	6733	9151	11570	11570
Cumulative annual MWh Saved (Net, at gen.)		2199	5005	7810	10615	13421	13421
Incremental annual Summer kW Saved (Net at meter)		130	166	166	166	166	0
Incremental annual Summer kW Saved (In prog, at meter)		130	166	166	166	166	0
Cumulative annual Summer kW Saved (Net, at meter)		130	296	461	627	792	792

Year:	Total	2009	2010	2011	2012	2013	2014
Cumulative annual Summer kW Saved (Net, at gen.)		151	343	535	727	919	919
Incremental annual BBtu Gas Saved (Net)		79	101	101	101	101	0
Incremental annual BBtu Saved (In prog)		79	101	101	101	101	0
Cumulative annual BBtu Saved (Net)		79	179	280	380	481	481
Lifetime BBtu Saved (Net)	7,214	1182	1508	1508	1508	1508	0
PV of Lifetime MMBtu Saved (Net)	4,305,009	792860	954941	901722	851469	804016	0
Premium Efficiency Gas Appliances and Heating Equipment							
Incremental annual BBtu Gas Saved (Net)		0	38	115	115	115	0
Incremental annual BBtu Saved (In prog)		0	38	115	115	115	0
Cumulative annual BBtu Saved (Net)		0	38	154	269	385	385
Lifetime BBtu Saved (Net)	5,772	0	577	1732	1732	1732	0
PV of Lifetime MMBtu Saved (Net)	3,301,838	0	365506	1035409	977705	923217	0
Commercial and Industrial Equipment Efficiency Upgrades							
Incremental annual BBtu Saved (In prog)		0	1	2	6	12	0
Cumulative annual BBtu Saved (Net)		0	1	4	9	21	21
Lifetime BBtu Saved (Net)	318	0	18	35	88	177	0
PV of Lifetime MMBtu Saved (Net)	176,459	0	11192	21137	49897	94233	0
Municipal Facilities Comprehensive Efficiency Retrofit Prog							
Incremental annual BBtu Gas Saved (Net)		0	2	16	16	16	0
Incremental annual BBtu Saved (In prog)		0	2	16	16	16	0
Cumulative annual BBtu Saved (Net)		0	2	18	33	49	49
Lifetime BBtu Saved (Net)	742	0	24	239	239	239	0
PV of Lifetime MMBtu Saved (Net)	420,830	0	15149	143051	135079	127551	0
High-Efficiency Construction Program Total							
Incremental annual BBtu Gas Saved (Net)		0	3	5	13	26	0
Incremental annual BBtu Saved (In prog)		0	3	5	13	26	0
Cumulative annual BBtu Saved (Net)		0	3	8	20	46	46
Lifetime BBtu Saved (Net)	689	0	38	77	191	383	0
PV of Lifetime MMBtu Saved (Net)	381,929	0	24224	45749	107998	203958	0
Commercial and Industrial Retrofit Program Total							
Incremental annual BBtu Gas Saved (Net)		0	2	5	12	24	0
Incremental annual BBtu Saved (In prog)		0	2	5	12	24	0
Cumulative annual BBtu Saved (Net)		0	2	7	19	42	42
Lifetime BBtu Saved (Net)	636	0	35	71	177	353	0
PV of Lifetime MMBtu Saved (Net)	352,919	0	22384	42274	99795	188466	0

			Year: Total	2009	2010	2011	2012	2013	2014
			Year:	2009	2010	2011	2012	2013	2014
Gas									
9. Incremental Annual Billion Btu Gas Saved (Net of freeriders)									
1	A	Comprehensive Residential Heating Retrofit		0	23	57	91	91	0
2	A	CFL direct install		0	0	0	0	0	0
3				0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit		79	101	101	101	101	0
5	B	CFL direct install		0	0	0	0	0	0
6				0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment		0	38	115	115	115	0
8				0	0	0	0	0	0
9				0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades		0	1	2	6	12	0
11				0	0	0	0	0	0
12				0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit		0	2	16	16	16	0
14				0	0	0	0	0	0
15				0	0	0	0	0	0
16	F	High-Efficiency Construction		0	3	5	13	26	0
17				0	0	0	0	0	0
18				0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit		0	2	5	12	24	0
20				0	0	0	0	0	0
21				0	0	0	0	0	0
Program Total				79	169	301	353	384	0
10. Incremental Annual Billion Btu Gas Saved (In program, including freeriders)									
1	A	Comprehensive Residential Heating Retrofit		0	23	57	91	91	0
2	A	CFL direct install		0	0	0	0	0	0
3				0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit		79	101	101	101	101	0
5	B	CFL direct install		0	0	0	0	0	0
6				0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment		0	38	115	115	115	0
8				0	0	0	0	0	0

			Year:	Total	2009	2010	2011	2012	2013	2014
9					0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades			0	1	2	6	12	0
11					0	0	0	0	0	0
12					0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit			0	2	16	16	16	0
14					0	0	0	0	0	0
15					0	0	0	0	0	0
16	F	High-Efficiency Construction			0	3	5	13	26	0
17					0	0	0	0	0	0
18					0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit			0	2	5	12	24	0
20					0	0	0	0	0	0
21					0	0	0	0	0	0
Program Total					79	169	301	353	384	0

11. Cumulative Annual Billion Btu Gas Saved (Net of freeriders)										
1	A	Comprehensive Residential Heating Retrofit			0	23	80	170	261	261
2	A	CFL direct install			0	0	0	0	0	0
3					0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit			79	179	280	380	481	481
5	B	CFL direct install			0	0	0	0	0	0
6					0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment			0	38	154	269	385	385
8					0	0	0	0	0	0
9					0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades			0	1	4	9	21	21
11					0	0	0	0	0	0
12					0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit			0	2	18	33	49	49
14					0	0	0	0	0	0
15					0	0	0	0	0	0
16	F	High-Efficiency Construction			0	3	8	20	46	46
17					0	0	0	0	0	0
18					0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit			0	2	7	19	42	42
20					0	0	0	0	0	0

		Year:	Total	2009	2010	2011	2012	2013	2014
21				0	0	0	0	0	0
Program Total				79	248	549	902	1286	1286
12. Lifetime Billion Btu Gas Saved (Net of freeriders)									
1	A	Comprehensive Residential Heating Retrofit	**3,920**	0	341	852	1,364	1,364	0
2	A	CFL direct install	**0**	0	0	0	0	0	0
3			**0**	0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit	**7,214**	1,182	1,508	1,508	1,508	1,508	0
5	B	CFL direct install	**0**	0	0	0	0	0	0
6			**0**	0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heatin	**5,772**	0	577	1,732	1,732	1,732	0
8			**0**	0	0	0	0	0	0
9			**0**	0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficienc	**318**	0	18	35	88	177	0
11			**0**	0	0	0	0	0	0
12			**0**	0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency F	**742**	0	24	239	239	239	0
14			**0**	0	0	0	0	0	0
15			**0**	0	0	0	0	0	0
16	F	High-Efficiency Construction	**689**	0	38	77	191	383	0
17			**0**	0	0	0	0	0	0
18			**0**	0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit	**636**	0	35	71	177	353	0
20			**0**	0	0	0	0	0	0
21			**0**	0	0	0	0	0	0
Program Total			19,292	1182	2541	4514	5299	5755	0

PHILADELPHIA GAS WORKS
GAS DSM PORTFOLIO
GAS AND ELECTRICITY SAVINGS BY YEAR

Program Year:	1	2	3	4	5
Year:	2009	2010	2011	2012	2013
Gas					
Incremental annual BBtu Gas Saved (Net)	79	169	301	353	384
Cumulative annual BBtu Saved (Net)	79	248	549	902	1,286
Electricity					
Incremental annual MWh Saved (Net at meter)	1,896	3,304	4,632	5,960	5,960
Cumulative annual MWh Saved (Net, at meter)	1,896	5,200	9,832	15,793	21,753
Incremental annual Summer kW Saved (Net at meter)	130	226	317	408	408
Cumulative annual Summer kW Saved (Net, at meter)	130	356	673	1,082	1,490

NPV of Cumulative Costs and Benefits

(2009$)

Program Year:	1	2	3	4	5	Post Prog
Year:	2009	2010	2011	2012	2013	2014
Total Resource Test						
Portfolio Total						
Benefits	8,097,896	23,721,392	48,787,526	76,679,554	104,960,615	104,960,615
Costs	5,674,468	15,012,963	28,049,804	43,246,194	58,812,563	58,812,563
Net Benefits	2,423,428	8,708,429	20,737,723	33,433,360	46,148,052	46,148,052
BCR	1.43	1.58	1.74	1.77	1.78	1.78
Comprehensive Residential Heating Retrofit Program						
Benefits	0	2,325,369	7,767,949	15,937,572	23,623,820	23,623,820
Costs	0	1,579,761	5,309,061	10,943,404	16,263,742	16,263,742
Net Benefits	0	745,608	2,458,889	4,994,168	7,360,077	7,360,077
BCR	#DIV/0!	1.47	1.46	1.46	1.45	1.45
Enhanced Low-income Retrofit Program						
Benefits	8,097,896	17,816,046	28,918,806	35,460,909	43,496,662	43,496,662
Costs	5,674,468	12,508,942	18,962,528	25,056,453	30,810,761	30,810,761
Net Benefits	2,423,428	5,307,104	7,956,278	10,404,456	12,685,901	12,685,901
BCR	1.43	1.42	1.42	1.42	1.41	1.41
Premium Efficiency Gas Appliances and Heating Equipment Program						
Benefits	0	2,946,424	11,232,103	19,009,926	26,324,813	26,324,813
Costs	0	558,245	2,139,645	3,632,913	5,042,961	5,042,961
Net Benefits	0	2,388,179	9,092,457	15,377,012	21,281,852	21,281,852
BCR	#DIV/0!	5.28	5.25	5.23	5.22	5.22
Commercial and Industrial Equipment Efficiency Upgrades Program						
Benefits	0	90,223	259,357	656,309	1,402,940	1,402,940
Costs	0	56,852	164,221	417,682	896,353	896,353
Net Benefits	0	33,370	95,146	238,627	506,587	506,587
BCR	#DIV/0!	1.59	1.58	1.57	1.57	1.57
Municipal Facilities Comprehensive Efficiency Retrofit Program						
Benefits	0	139,623	1,448,666	2,677,692	3,833,613	3,833,613
Costs	0	76,954	803,605	1,489,760	2,137,676	2,137,676
Net Benefits	0	62,669	645,060	1,187,932	1,695,937	1,695,937
BCR	#DIV/0!	1.81	1.80	1.80	1.79	1.79
High-Efficiency Construction Program						
Benefits	0	223,262	641,903	1,624,530	3,472,886	3,472,886
Costs	0	123,052	355,440	904,033	1,940,071	1,940,071
Net Benefits	0	100,210	286,463	720,496	1,532,815	1,532,815
BCR	#DIV/0!	1.81	1.81	1.80	1.79	1.79
Commercial and Industrial Retrofit Program						
Benefits	0	180,445	518,733	1,312,617	2,805,881	2,805,881
Costs	0	109,157	315,304	801,949	1,720,998	1,720,998
Net Benefits	0	71,288	203,430	510,668	1,084,883	1,084,883
BCR	#DIV/0!	1.65	1.65	1.64	1.63	1.63

Energy System Test

Electric						
Benefits	771,668	2,024,483	3,654,902	5,614,146	7,461,189	7,461,189
Costs	288,298	790,670	1,495,012	2,401,322	3,307,632	3,307,632
Net Benefits	483,371	1,233,813	2,159,890	3,212,824	4,153,557	4,153,557
BCR	2.68	2.56	2.44	2.34	2.26	2.26
Gas						
Benefits	7,326,228	21,696,909	45,132,625	71,065,408	97,499,426	97,499,426
Costs	5,468,511	13,870,858	24,676,251	36,987,145	50,269,487	50,269,487
Net Benefits	1,857,716	7,826,050	20,456,374	34,078,263	47,229,939	47,229,939
BCR	1.34	1.56	1.83	1.92	1.94	1.94
Electric & Gas						
Benefits	8,097,896	23,721,392	48,787,526	76,679,554	104,960,615	104,960,615
Costs	5,756,809	14,661,529	26,171,263	39,388,466	53,577,119	53,577,119
Net Benefits	2,341,087	9,059,863	22,616,264	37,291,088	51,383,496	51,383,496
BCR	1.41	1.62	1.86	1.95	1.96	1.96

NPV of Incremental Lifetime Costs and Benefits

(2009$)

Program Year:	1	2	3	4	5	Post Prog
Year:	2009	2010	2011	2012	2013	2014
Total Resource Test						
Portfolio Total						
Benefits	8,097,896	15,623,496	25,066,135	27,892,028	28,281,061	0
Costs	5,674,468	9,411,355	13,259,865	15,597,362	16,145,181	0
Net Benefits	2,423,428	6,212,141	11,806,270	12,294,666	12,135,880	0
BCR	1.43	1.66	1.89	1.79	1.75	#DIV/0!
Comprehensive Residential Heating Retrofit Program						
Benefits	0	2,325,369	5,442,580	8,169,822	7,686,248	0
Costs	0	1,591,223	3,785,013	5,764,365	5,488,963	0
Net Benefits	0	734,146	1,657,567	2,405,257	2,197,285	0
BCR	#DIV/0!	1.46	1.44	1.42	1.40	#DIV/0!
Enhanced Low-income Retrofit Program						
Benefits	8,097,896	9,718,151	9,102,760	8,542,103	8,035,754	0
Costs	5,674,468	6,885,178	6,552,168	6,237,716	5,940,789	0
Net Benefits	2,423,428	2,832,973	2,550,592	2,304,386	2,094,965	0
BCR	1.43	1.41	1.39	1.37	1.35	#DIV/0!
Premium Efficiency Gas Appliances and Heating Equipment Program						
Benefits	0	2,946,424	8,285,678	7,777,823	7,314,888	0
Costs	0	564,834	1,619,836	1,549,330	1,482,754	0
Net Benefits	0	2,381,590	6,665,843	6,228,493	5,832,134	0
BCR	#DIV/0!	5.22	5.12	5.02	4.93	#DIV/0!
Commercial and Industrial Equipment Efficiency Upgrades Program						
Benefits	0	90,223	169,144	396,942	746,632	0
Costs	0	57,524	109,978	262,977	503,353	0
Net Benefits	0	32,699	59,166	133,965	243,279	0
BCR	#DIV/0!	1.57	1.54	1.51	1.48	#DIV/0!
Municipal Facilities Comprehensive Efficiency Retrofit Program						
Benefits	0	139,623	1,309,043	1,229,027	1,155,920	0
Costs	0	77,862	744,313	711,915	681,323	0
Net Benefits	0	61,761	564,730	517,111	474,597	0
BCR	#DIV/0!	1.79	1.76	1.73	1.70	#DIV/0!
High-Efficiency Construction Program						
Benefits	0	223,262	418,641	982,628	1,848,356	0
Costs	0	124,504	238,036	569,188	1,089,459	0
Net Benefits	0	98,757	180,605	413,439	758,897	0
BCR	#DIV/0!	1.79	1.76	1.73	1.70	#DIV/0!
Commercial and Industrial Retrofit Program						
Benefits	0	180,445	338,288	793,884	1,493,263	0
Costs	0	110,230	210,322	501,871	958,539	0
Net Benefits	0	70,215	127,966	292,013	534,724	0
BCR	#DIV/0!	1.64	1.61	1.58	1.56	#DIV/0!

Energy System Test

Electric						
Benefits	771,668	1,252,815	1,630,419	1,959,244	1,847,043	0
Costs	288,298	502,373	704,341	908,310	906,310	0
Net Benefits	483,371	750,442	926,077	1,052,934	940,732	0
BCR	2.68	2.49	2.31	2.16	2.04	#DIV/0!
Gas						
Benefits	7,326,228	14,370,681	23,435,716	25,932,783	26,434,018	0
Costs	5,468,511	8,475,208	11,028,217	12,711,865	13,861,155	0
Net Benefits	1,857,716	5,895,473	12,407,499	13,220,918	12,572,863	0
BCR	1.34	1.70	2.13	2.04	1.91	#DIV/0!
Electric & Gas						
Benefits	8,097,896	15,623,496	25,066,135	27,892,028	28,281,061	0
Costs	5,756,809	8,977,580	11,732,558	13,618,175	14,767,465	0
Net Benefits	2,341,087	6,645,915	13,333,577	14,273,852	13,513,596	0
BCR	1.41	1.74	2.14	2.05	1.92	#DIV/0!

Total Resource Benefits (PRESENT WORTH)

26-Mar-09
09:53:52

Portfolio	Total	2009	2010	2011	2012	2013	2014
Sector Total Benefits	104,960,615	8,097,896	15,623,496	25,066,135	27,892,028	28,281,061	0
Cumulative		8,097,896	23,721,392	48,787,526	76,679,554	104,960,615	104,960,615
Comprehensive Residential Heating Retrofit Program Total	23,623,820	0	2,325,369	5,442,580	8,169,622	7,686,248	0
Cumulative		0	2,325,369	7,767,949	15,937,572	23,623,820	23,623,820
Enhanced Low-income Retrofit Program Total	43,496,662	8,097,896	9,718,151	9,102,760	8,542,103	8,035,754	0
Cumulative		8,097,896	17,816,046	26,918,806	35,460,909	43,496,662	43,496,662
Premium Efficiency Gas Appliances and Heating Equipment Program Total	26,324,813	0	2,946,424	8,285,678	7,777,823	7,314,888	0
Cumulative		0	2,946,424	11,232,103	19,009,926	26,324,813	26,324,813
Commercial and Industrial Equipment Efficiency Upgrades Program Total	1,402,940	0	90,223	169,144	396,942	746,632	0
Cumulative		0	90,223	259,367	656,309	1,402,940	1,402,940
Municipal Facilities Comprehensive Efficiency Retrofit Program Total	3,833,613	0	139,623	1,309,043	1,229,027	1,155,920	0
Cumulative		0	139,623	1,448,666	2,677,692	3,833,613	3,833,613
High-Efficiency Construction Program Total	3,472,886	0	223,262	418,641	982,628	1,848,356	0
Cumulative		0	223,262	641,903	1,624,530	3,472,886	3,472,886
Commercial and Industrial Retrofit Program Total	2,805,881	0	180,445	338,288	793,884	1,493,263	0
Cumulative		0	180,445	518,733	1,312,617	2,805,881	2,805,881

Measures

			Total	2009	2010	2011	2012	2013	2014
1	A	Comprehensive Residential Heating Retrofit	20,246,917	0	1,989,589	4,663,380	7,005,323	6,588,625	0
2	A	CFL direct install	3,376,903	0	335,779	779,200	1,164,300	1,097,623	0
3			0	0	0	0	0	0	0
4	B	Enhanced Low-Income Retrofit	39,412,376	7,326,228	8,601,115	8,251,541	7,747,158	7,286,334	0
5	B	CFL direct install	4,084,286	771,668	917,035	851,218	794,945	749,420	0
6			0	0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment	26,324,813	0	2,946,424	8,285,678	7,777,823	7,314,888	0
8			0	0	0	0	0	0	0
9			0	0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades	1,402,940	0	90,223	169,144	396,942	746,632	0
11			0	0	0	0	0	0	0
12			0	0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit	3,833,613	0	139,623	1,309,043	1,229,027	1,155,920	0
14			0	0	0	0	0	0	0
15			0	0	0	0	0	0	0
16	F	High-Efficiency Construction	3,472,886	0	223,262	418,641	982,628	1,848,356	0
17			0	0	0	0	0	0	0
18			0	0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit	2,805,881	0	180,445	338,288	793,884	1,493,263	0
20			0	0	0	0	0	0	0
21			0	0	0	0	0	0	0
		Program Total:	**104,960,615**	**8,097,896**	**15,623,496**	**25,066,135**	**27,892,028**	**28,281,061**	**0**
		15 **Year Program Total**							
		Cumulative Total:		**8,097,896**	**23,721,392**	**48,787,526**	**76,679,554**	**104,960,615**	**104,960,615**

Total Resource Measure Costs (PRESENT WORTH), not including non-measure admin costs

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Portfolio	Total	2009	2010	2011	2012	2013	2014
Sector Total Costs	50,649,997	4,961,184	8,103,975	11,203,239	13,060,317	13,321,282	0
Cumulative		4,961,184	13,065,159	24,268,398	37,328,715	50,649,997	50,649,997
0 Levelized Cost ($/MMBTU)	**4.538**	**6.257**	**5.036**	**4.151**	**4.365**	**4.341**	**#DIV/0!**
Comprehensive Residential Heating Retrofit Program Total	14,264,353	0	1,385,552	3,270,837	4,941,683	4,666,281	0
Cumulative		0	1,385,552	4,656,389	9,598,072	14,264,353	14,264,353
1 Levelized Cost ($/MMBTU)	**6.418**	**#DIV/0!**	**6.418**	**6.418**	**6.418**	**6.418**	**#DIV/0!**
Enhanced Low-income Retrofit Program Total	26,937,830	4,961,184	5,975,377	5,642,366	5,327,915	5,030,988	0
Cumulative		4,961,184	10,936,561	16,578,927	21,906,842	26,937,830	26,937,830
2 Levelized Cost ($/MMBTU)	**6.257**	**6.257**	**6.257**	**6.257**	**6.257**	**6.257**	**#DIV/0!**
Premium Efficiency Gas Appliances and Heating Equipment Program Total	4,034,369	0	446,596	1,265,120	1,194,615	1,128,038	0
Cumulative		0	446,596	1,711,716	2,906,331	4,034,369	4,034,369
3 Levelized Cost ($/MMBTU)	**1.222**	**#DIV/0!**	**1.222**	**1.222**	**1.222**	**1.222**	**#DIV/0!**
Commercial and Industrial Equipment Efficiency Upgrades Program Total	717,083	0	45,482	85,895	202,769	382,937	0
Cumulative		0	45,482	131,376	334,145	717,083	717,083
4 Levelized Cost ($/MMBTU)	**4.064**	**#DIV/0!**	**4.064**	**4.064**	**4.064**	**4.064**	**#DIV/0!**
Municipal Facilities Comprehensive Efficiency Retrofit Program Total	1,710,141	0	61,563	581,321	548,924	518,332	0
Cumulative		0	61,563	642,884	1,191,808	1,710,141	1,710,141
5 Levelized Cost ($/MMBTU)	**4.064**	**#DIV/0!**	**4.064**	**4.064**	**4.064**	**4.064**	**#DIV/0!**
High-Efficiency Construction Program Total	1,552,057	0	98,441	185,911	438,874	828,831	0
Cumulative		0	98,441	284,352	723,226	1,552,057	1,552,057
6 Levelized Cost ($/MMBTU)	**4.064**	**#DIV/0!**	**4.064**	**4.064**	**4.064**	**4.064**	**#DIV/0!**
Commercial and Industrial Retrofit Program Total	1,434,165	0	90,964	171,789	405,538	765,874	0
Cumulative		0	90,964	262,753	668,291	1,434,165	1,434,165
7 Levelized Cost ($/MMBTU)	**4.064**	**#DIV/0!**	**4.064**	**4.064**	**4.064**	**4.064**	**#DIV/0!**

Total Resource Measure Costs (PRESENT WORTH), not including non-measure admin costs

			Total	2009	2010	2011	2012	2013	2014
1	A	Comprehensive Residential Heating Retrofit	13,329,263	0	1,294,723	3,056,420	4,617,734	4,360,386	0
2	A	CFL direct install	935,090	0	90,829	214,417	323,949	305,895	0
3			0	0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit	25,819,543	4,755,227	5,727,317	5,408,131	5,106,734	4,822,133	0
5	B	CFL direct install	1,118,287	205,957	248,060	234,235	221,181	208,855	0
6			0	0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment	4,034,369	0	446,596	1,265,120	1,194,615	1,128,038	0
8			0	0	0	0	0	0	0
9			0	0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades	717,083	0	45,482	85,895	202,769	382,937	0
11			0	0	0	0	0	0	0
12			0	0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit	1,710,141	0	61,563	581,321	548,924	518,332	0
14			0	0	0	0	0	0	0
15			0	0	0	0	0	0	0
16	F	High-Efficiency Construction	1,552,057	0	98,441	185,911	438,874	828,831	0
17			0	0	0	0	0	0	0
18			0	0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit	1,434,165	0	90,964	171,789	405,538	765,874	0
20			0	0	0	0	0	0	0
21			0	0	0	0	0	0	0
		Program Total:	**50,649,997**	**4,961,184**	**8,103,975**	**11,203,239**	**13,060,317**	**13,321,282**	**0**
		15 Year Program Total							
		Cumulative Total:		**4,961,184**	**13,065,159**	**24,268,398**	**37,328,715**	**50,649,997**	**50,649,997**

Total Resource Costs (PRESENT WORTH), including non-measure program admin costs

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	Total	2009	2010	2011	2012	2013	2014
Portfolio							
Sector Total Costs	58,812,563	5,674,468	9,338,494	13,036,841	15,196,391	15,566,369	0
Cumulative		5,674,468	15,012,963	28,049,804	43,246,194	58,812,563	58,812,563
0 Levelized Cost ($/MMBTU)	**5.269**	**7.157**	**5.803**	**4.830**	**5.079**	**5.073**	**#DIV/0!**
Comprehensive Residential Heating Retrofit Program Total	16,263,742	0	1,579,761	3,729,300	5,634,343	5,320,339	0
Cumulative		0	1,579,761	5,309,061	10,943,404	16,263,742	16,263,742
1 Levelized Cost ($/MMBTU)	**7.318**	**#DIV/0!**	**7.318**	**7.318**	**7.318**	**7.318**	**#DIV/0!**
Enhanced Low-Income Retrofit Program Total	30,810,761	5,674,468	6,834,474	6,453,586	6,093,925	5,754,308	0
Cumulative		5,674,468	12,508,942	18,962,528	25,056,453	30,810,761	30,810,761
2 Levelized Cost ($/MMBTU)	**7.157**	**7.157**	**7.157**	**7.157**	**7.157**	**7.157**	**#DIV/0!**
Premium Efficiency Gas Appliances and Heating Equipment Program Total	5,042,961	0	558,245	1,581,400	1,493,268	1,410,048	0
Cumulative		0	558,245	2,139,645	3,632,913	5,042,961	5,042,961
3 Levelized Cost ($/MMBTU)	**1.527**	**#DIV/0!**	**1.527**	**1.527**	**1.527**	**1.527**	**#DIV/0!**
Commercial and Industrial Equipment Efficiency Upgrades Program Total	896,353	0	56,852	107,368	253,461	478,671	0
Cumulative		0	56,852	164,221	417,682	896,353	896,353
4 Levelized Cost ($/MMBTU)	**5.080**	**#DIV/0!**	**5.080**	**5.080**	**5.080**	**5.080**	**#DIV/0!**
Municipal Facilities Comprehensive Efficiency Retrofit Program Total	2,137,676	0	76,954	726,652	686,155	647,915	0
Cumulative		0	76,954	803,605	1,489,760	2,137,676	2,137,676
5 Levelized Cost ($/MMBTU)	**5.080**	**#DIV/0!**	**5.080**	**5.080**	**5.080**	**5.080**	**#DIV/0!**
High-Efficiency Construction Program Total	1,940,071	0	123,052	232,388	548,593	1,036,039	0
Cumulative		0	123,052	355,440	904,033	1,940,071	1,940,071
6 Levelized Cost ($/MMBTU)	**5.080**	**#DIV/0!**	**5.080**	**5.080**	**5.080**	**5.080**	**#DIV/0!**
Commercial and Industrial Retrofit Program Total	1,720,998	0	109,157	206,147	486,645	919,049	0
Cumulative		0	109,157	315,304	801,949	1,720,998	1,720,998
7 Levelized Cost ($/MMBTU)	**4.876**	**#DIV/0!**	**4.876**	**4.876**	**4.876**	**4.876**	**#DIV/0!**

Total Resource Costs (PRESENT WORTH), including non-measure program admin costs

			Total	2009	2010	2011	2012	2013	2014
1	A	Comprehensive Residential Heating Retrofit	13,329,263	0	1,294,723	3,056,420	4,617,734	4,360,386	0
2	A	CFL direct install	935,090	0	90,829	214,417	323,949	305,895	0
3			0	0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit	25,819,543	4,755,227	5,727,317	5,408,131	5,106,734	4,822,133	0
5	B	CFL direct install	1,118,287	205,957	248,060	234,235	221,181	208,855	0
6			0	0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment	4,034,369	0	446,596	1,265,120	1,194,615	1,128,038	0
8			0	0	0	0	0	0	0
9			0	0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades	717,083	0	45,482	85,895	202,769	382,937	0
11			0	0	0	0	0	0	0
12			0	0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit	1,710,141	0	61,563	581,321	548,924	518,332	0
14			0	0	0	0	0	0	0
15			0	0	0	0	0	0	0
16	F	High-Efficiency Construction	1,552,057	0	98,441	185,911	438,874	828,831	0
17			0	0	0	0	0	0	0
18			0	0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit	1,434,165	0	90,964	171,789	405,538	765,874	0
20			0	0	0	0	0	0	0
21			0	0	0	0	0	0	0
		Program Total:	**50,649,997**	**4,961,184**	**8,103,975**	**11,203,239**	**13,060,317**	**13,321,282**	**0**
			15 Year Program Total						
		Cumulative Total:		**4,961,184**	**13,065,159**	**24,268,398**	**37,328,715**	**50,649,997**	**50,649,997**

Gas Utility Benefits (PRESENT WORTH)

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Portfolio	Total	2009	2010	2011	2012	2013	2014
Sector Total Benefits	97,499,426	7,326,228	14,370,681	23,435,716	25,932,783	26,434,018	0
Cumulative		7,326,228	21,696,909	45,132,625	71,065,408	97,499,426	97,499,426
Comprehensive Residential Heating Retrofit Program Total	20,246,917	0	1,989,589	4,663,380	7,005,323	6,588,625	0
Cumulative		0	1,989,589	6,652,969	13,658,292	20,246,917	20,246,917
Enhanced Low-income Retrofit Program Total	39,412,376	7,326,228	8,801,115	8,251,541	7,747,158	7,286,334	0
Cumulative		7,326,228	16,127,343	24,378,884	32,126,042	39,412,376	39,412,376
Premium Efficiency Gas Appliances and Heating Equipment Program Total	26,324,813	0	2,946,424	8,285,678	7,777,823	7,314,888	0
Cumulative		0	2,946,424	11,232,103	19,009,926	26,324,813	26,324,813
Commercial and Industrial Equipment Efficiency Upgrades Program Total	1,402,940	0	90,223	169,144	396,942	746,632	0
Cumulative		0	90,223	259,367	656,309	1,402,940	1,402,940
Municipal Facilities Comprehensive Efficiency Retrofit Program Total	3,833,613	0	139,623	1,309,043	1,229,027	1,155,920	0
Cumulative		0	139,623	1,448,666	2,677,692	3,833,613	3,833,613
High-Efficiency Construction Program Total	3,472,886	0	223,262	418,641	982,628	1,848,356	0
Cumulative		0	223,262	641,903	1,624,530	3,472,886	3,472,886
Commercial and Industrial Retrofit Program Total	2,805,881	0	180,445	338,288	793,884	1,493,263	0
Cumulative		0	180,445	518,733	1,312,617	2,805,881	2,805,881

Measures

			Total	2009	2010	2011	2012	2013	2014
1	A	Comprehensive Residential Heating Retrofit	20,246,917	0	1,989,589	4,663,380	7,005,323	6,588,625	0
2	A	CFL direct install	0	0	0	0	0	0	0
3			0	0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit	39,412,376	7,326,228	8,801,115	8,251,541	7,747,158	7,286,334	0
5	B	CFL direct install	0	0	0	0	0	0	0
6			0	0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment	26,324,813	0	2,946,424	8,285,678	7,777,823	7,314,888	0
8			0	0	0	0	0	0	0
9			0	0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades	1,402,940	0	90,223	169,144	396,942	746,632	0
11			0	0	0	0	0	0	0
12			0	0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit	3,833,613	0	139,623	1,309,043	1,229,027	1,155,920	0
14			0	0	0	0	0	0	0
15			0	0	0	0	0	0	0
16	F	High-Efficiency Construction	3,472,886	0	223,262	418,641	982,628	1,848,356	0
17			0	0	0	0	0	0	0
18			0	0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit	2,805,881	0	180,445	338,288	793,884	1,493,263	0
20			0	0	0	0	0	0	0
21			0	0	0	0	0	0	0
		Program Total:	**97,499,426**	**7,326,228**	**14,370,681**	**23,435,716**	**25,932,783**	**26,434,018**	**0**
		Cumulative Total:	**97,499,426**	**104,825,654**	**119,196,335**	**142,632,051**	**168,564,834**	**194,998,852**	**194,998,852**

Gas Measure Costs (PRESENT WORTH), not including non-measure program admin costs

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Portfolio	Total	2009	2010	2011	2012	2013	2014
Sector Total Costs	42,106,921	4,755,227	7,167,828	8,971,791	10,174,820	11,037,255	0
Cumulative		4,755,227	11,923,055	20,894,845	31,069,666	42,106,921	42,106,921
0 Levelized Cost ($/MMBTU)	**3.773**	**5.998**	**4.454**	**3.324**	**3.401**	**3.597**	**#DIV/0!**
Comprehensive Residential Heating Retrofit Program Total	5,256,026	0	457,046	1,142,614	1,828,183	1,828,183	0
Cumulative		0	457,046	1,599,660	3,427,843	5,256,026	5,256,026
1 Levelized Cost ($/MMBTU)	**2.365**	**#DIV/0!**	**2.117**	**2.242**	**2.374**	**2.515**	**#DIV/0!**
Enhanced Low-income Retrofit Program Total	29,016,592	4,755,227	6,065,341	6,065,341	6,065,341	6,065,341	0
Cumulative		4,755,227	10,820,568	16,885,909	22,951,251	29,016,592	29,016,592
2 Levelized Cost ($/MMBTU)	**6.740**	**5.998**	**6.352**	**6.726**	**7.123**	**7.544**	**#DIV/0!**
Premium Efficiency Gas Appliances and Heating Equipment Program Total	4,729,537	0	472,954	1,418,861	1,418,861	1,418,861	0
Cumulative		0	472,954	1,891,815	3,310,676	4,729,537	4,729,537
3 Levelized Cost ($/MMBTU)	**1.432**	**#DIV/0!**	**1.294**	**1.370**	**1.451**	**1.537**	**#DIV/0!**
Commercial and Industrial Equipment Efficiency Upgrades Program Total	650,245	0	36,125	72,249	180,624	361,247	0
Cumulative		0	36,125	108,374	288,998	650,245	650,245
4 Levelized Cost ($/MMBTU)	**3.685**	**#DIV/0!**	**3.228**	**3.418**	**3.620**	**3.834**	**#DIV/0!**
Municipal Facilities Comprehensive Efficiency Retrofit Program Total	0	0	0	0	0	0	0
Cumulative		0	0	0	0	0	0
5 Levelized Cost ($/MMBTU)	**0.000**	**#DIV/0!**	**0.000**	**0.000**	**0.000**	**0.000**	**#DIV/0!**
High-Efficiency Construction Program Total	1,876,526	0	104,251	208,503	521,257	1,042,514	0
Cumulative		0	104,251	312,754	834,011	1,876,526	1,876,526
6 Levelized Cost ($/MMBTU)	**4.913**	**#DIV/0!**	**4.304**	**4.558**	**4.827**	**5.111**	**#DIV/0!**
Commercial and Industrial Retrofit Program Total	577,996	0	32,111	64,222	160,554	321,109	0
Cumulative		0	32,111	96,333	256,887	577,996	577,996
7 Levelized Cost ($/MMBTU)	**1.638**	**#DIV/0!**	**1.435**	**1.519**	**1.609**	**1.704**	**#DIV/0!**

Gas Measure Costs (PRESENT WORTH), not including non-measure program admin costs

			Total	2009	2010	2011	2012	2013	2014
1	A	Comprehensive Residential Heating Retrofit	5,256,026	0	457,046	1,142,614	1,828,183	1,828,183	0
2	A	CFL direct install	0	0	0	0	0	0	0
3			0	0	0	0	0	0	0
4	B	Enhanced Low-income Retrofit	29,016,592	4,755,227	6,065,341	6,065,341	6,065,341	6,065,341	0
5	B	CFL direct install	0	0	0	0	0	0	0
6			0	0	0	0	0	0	0
7	C	Premium Efficiency Gas Appliances and Heating Equipment	4,729,537	0	472,954	1,418,861	1,418,861	1,418,861	0
8			0	0	0	0	0	0	0
9			0	0	0	0	0	0	0
10	D	Commercial and Industrial Equipment Efficiency Upgrades	650,245	0	36,125	72,249	180,624	361,247	0
11			0	0	0	0	0	0	0
12			0	0	0	0	0	0	0
13	E	Municipal Facilities Comprehensive Efficiency Retrofit	0	0	0	0	0	0	0
14			0	0	0	0	0	0	0
15			0	0	0	0	0	0	0
16	F	High-Efficiency Construction	1,876,526	0	104,251	208,503	521,257	1,042,514	0
17			0	0	0	0	0	0	0
18			0	0	0	0	0	0	0
19	G	Commercial and Industrial Retrofit	577,996	0	32,111	64,222	160,554	321,109	0
20			0	0	0	0	0	0	0
21			0	0	0	0	0	0	0
		Program Total:	**42,106,921**	**4,755,227**	**7,167,828**	**8,971,791**	**10,174,820**	**11,037,255**	**0**
		15 Year Program Total							
		Cumulative Total:		**4,755,227**	**11,923,055**	**20,894,845**	**31,069,666**	**42,106,921**	**42,106,921**

Gas Utility Costs (PRESENT WORTH), including non-measure program admin costs

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Portfolio	Total	2009	2010	2011	2012	2013	2014
Sector Total Costs	50,269,487	5,468,511	8,402,347	10,805,393	12,310,894	13,262,343	0
Cumulative		5,468,511	13,870,858	24,676,251	36,987,145	50,269,487	50,269,487
0 Levelized Cost ($/MMBTU)	**4.504**	**6.897**	**5.221**	**4.004**	**4.115**	**4.329**	**#DIV/0!**
Comprehensive Residential Heating Retrofit Program Total	7,255,416	0	651,254	1,601,077	2,520,843	2,482,241	0
Cumulative		0	651,254	2,252,332	4,773,175	7,255,416	7,255,416
1 Levelized Cost ($/MMBTU)	**3.265**	**#DIV/0!**	**3.017**	**3.142**	**3.274**	**3.414**	**#DIV/0!**
Enhanced Low-Income Retrofit Program Total	32,889,523	5,468,511	6,924,439	6,876,561	6,831,351	6,788,661	0
Cumulative		5,468,511	12,392,950	19,269,511	26,100,862	32,889,523	32,889,523
2 Levelized Cost ($/MMBTU)	**7.640**	**6.897**	**7.251**	**7.626**	**8.023**	**8.443**	**#DIV/0!**
Premium Efficiency Gas Appliances and Heating Equipment Program Tota	5,738,129	0	584,603	1,735,141	1,717,515	1,700,871	0
Cumulative		0	584,603	2,319,744	4,037,258	5,738,129	5,738,129
3 Levelized Cost ($/MMBTU)	**1.738**	**#DIV/0!**	**1.599**	**1.676**	**1.757**	**1.842**	**#DIV/0!**
Commercial and Industrial Equipment Efficiency Upgrades Program Total	829,516	0	47,495	93,723	231,316	456,982	0
Cumulative		0	47,495	141,218	372,534	829,516	829,516
4 Levelized Cost ($/MMBTU)	**4.701**	**#DIV/0!**	**4.244**	**4.434**	**4.636**	**4.849**	**#DIV/0!**
Municipal Facilities Comprehensive Efficiency Retrofit Program Total	427,535	0	15,391	145,330	137,231	129,583	0
Cumulative		0	15,391	160,721	297,952	427,535	427,535
5 Levelized Cost ($/MMBTU)	**1.016**	**#DIV/0!**	**1.016**	**1.016**	**1.016**	**1.016**	**#DIV/0!**
High-Efficiency Construction Program Total	2,264,540	0	128,862	254,980	630,976	1,249,722	0
Cumulative		0	128,862	383,842	1,014,818	2,264,540	2,264,540
6 Levelized Cost ($/MMBTU)	**5.929**	**#DIV/0!**	**5.320**	**5.573**	**5.842**	**6.127**	**#DIV/0!**
Commercial and Industrial Retrofit Program Total	864,829	0	50,304	98,580	241,662	474,284	0
Cumulative		0	50,304	148,883	390,545	864,829	864,829
7 Levelized Cost ($/MMBTU)	**2.451**	**#DIV/0!**	**2.247**	**2.332**	**2.422**	**2.517**	**#DIV/0!**

Electric Benefits (PRESENT WORTH)

26-Mar-09
09:53:52

Portfolio	Total	2009	2010	2011	2012	2013
Sector Total Benefits	7,461,189	771,668	1,252,815	1,630,419	1,959,244	1,847,043
Cumulative		771,668	2,024,483	3,654,902	5,614,146	7,461,189
Comprehensive Residential Hea	3,376,903	0	335,779	779,200	1,164,300	1,097,623
Cumulative		0	335,779	1,114,980	2,279,280	3,376,903
Enhanced Low-income Retrofit	4,084,286	771,668	917,035	851,218	794,945	749,420
Cumulative		771,668	1,688,703	2,539,922	3,334,866	4,084,286
Premium Efficiency Gas Appliar	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Commercial and Industrial Equi	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Municipal Facilities Comprehen	0	0	0	0	0	0
Cumulative		0	0	0	0	0
High-Efficiency Construction Pr	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Commercial and Industrial Retr	0	0	0	0	0	0
Cumulative		0	0	0	0	0

Electric Costs (PRESENT WORTH)

26-Mar-09
09:53:52

Portfolio	Total	2009	2010	2011	2012	2013
Sector Total Costs	3,307,632	288,298	502,373	704,341	906,310	906,310
Cumulative		288,298	790,670	1,495,012	2,401,322	3,307,632
Comprehensive Residential Heating	1,548,428	0	134,646	336,615	538,584	538,584
Cumulative		0	134,646	471,261	1,009,844	1,548,428
Enhanced Low-income Retrofit Pro	1,759,204	288,298	367,727	367,727	367,727	367,727
Cumulative		288,298	656,024	1,023,751	1,391,478	1,759,204
Premium Efficiency Gas Appliances	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Commercial and Industrial Equipm	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Municipal Facilities Comprehensive	0	0	0	0	0	0
Cumulative		0	0	0	0	0
High-Efficiency Construction Progr	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Commercial and Industrial Retrofit	0	0	0	0	0	0
Cumulative		0	0	0	0	0
Program H Program Total	0	0	0	0	0	0
Cumulative		0	0	0	0	0

			Total	2009	2010	2011	2012	2013
1	A	Comprehensive Re	0	0	0	0	0	0
2	A	CFL direct install	1,548,428	0	134,646	336,615	538,584	538,584
3			0	0	0	0	0	0
4	B	Enhanced Low-inco	0	0	0	0	0	0
5	B	CFL direct install	1,759,204	288,298	367,727	367,727	367,727	367,727
6			0	0	0	0	0	0
7	C	Premium Efficiency	0	0	0	0	0	0
8			0	0	0	0	0	0
9			0	0	0	0	0	0
10	D	Commercial and In	0	0	0	0	0	0
11			0	0	0	0	0	0
12			0	0	0	0	0	0
13	E	Municipal Facilities	0	0	0	0	0	0
14			0	0	0	0	0	0
15			0	0	0	0	0	0
16	F	High-Efficiency Co	0	0	0	0	0	0
17			0	0	0	0	0	0
18			0	0	0	0	0	0
19	G	Commercial and In	0	0	0	0	0	0
20			0	0	0	0	0	0
21			0	0	0	0	0	0
		Program Total	3,307,632	288,298	502,373	704,341	906,310	906,310
		15 Year Program Total						
		Cumulative Total		288,298	790,670	1,495,012	2,401,322	3,307,632

PHILADELPHIA GAS WORKS
GAS DSM PLAN
GREENHOUSE GAS EMISSION REDUCTIONS

Cumulative Annual CO_2 (Short Tons)	Emissions Reductions from Gas Savings					
	2009	2010	2011	2012	2013	Lifetime Reductions
Comprehensive Residential Heating Retrofit	-	1,205	4,216	9,034	13,852	207,784
Enhanced Low-income Retrofit	4,177	9,506	14,834	20,163	25,491	382,367
Premium Efficiency Gas Appliances and Heating Equipment	-	2,039	8,158	14,276	20,395	305,920
Commercial and Industrial Equipment Efficiency Upgrades	-	62	187	500	1,124	16,862
Municipal Facilities Comprehensive Efficiency Retrofit	-	85	930	1,775	2,620	39,307
High-Efficiency Construction	-	135	406	1,081	2,433	36,495
Commercial and Industrial Retrofit	-	125	375	999	2,248	33,723
Portfolio Total	4,177	13,157	29,105	47,828	68,164	1,022,459

Cumulative Annual CO_2 (Short Tons)	Emissions Reductions from Electricity Savings					
	2009	2010	2011	2012	2013	Lifetime Reductions
Comprehensive Residential Heating Retrofit	-	945	3,308	7,088	10,868	76,074
Enhanced Low-income Retrofit	2,023	4,604	7,185	9,766	12,347	86,430
Premium Efficiency Gas Appliances and Heating Equipment	-	-	-	-	-	-
Commercial and Industrial Equipment Efficiency Upgrades	-	-	-	-	-	-
Municipal Facilities Comprehensive Efficiency Retrofit	-	-	-	-	-	-
High-Efficiency Construction	-	-	-	-	-	-
Commercial and Industrial Retrofit	-	-	-	-	-	-
Portfolio Total	2,023	5,549	10,493	16,854	23,215	162,504

Cumulative Annual CO_2 (Short Tons)	Emissions Reductions from Gas and Electricity Savings					
	2009	2010	2011	2012	2013	Lifetime Reductions
Comprehensive Residential Heating Retrofit	-	2,150	7,524	16,122	24,720	283,859
Enhanced Low-income Retrofit	6,201	14,110	22,020	29,929	37,838	468,797
Premium Efficiency Gas Appliances and Heating Equipment	-	2,039	8,158	14,276	20,395	305,920
Commercial and Industrial Equipment Efficiency Upgrades	-	62	187	500	1,124	16,862
Municipal Facilities Comprehensive Efficiency Retrofit	-	85	930	1,775	2,620	39,307
High-Efficiency Construction	-	135	406	1,081	2,433	36,495
Commercial and Industrial Retrofit	-	125	375	999	2,248	33,723
Portfolio Total	6,201	18,706	39,598	64,682	91,379	1,184,963

	JOB CREATION IMPACTS OF GAS EFFICIENCY PORTFOLIO		
	30 Jobs/TBtu	40 Jobs/TBtu	50 Jobs/TBtu
RESIDENTIAL PROGRAMS			
2009	35	47	59
2010	73	97	121
2011	123	164	205
2012	138	184	230
2013	138	184	230
TOTAL	**507**	**676**	**845**
NON-RESIDENTIAL PROGRAMS			
2009	0	0	0
2010	3	5	6
2011	13	17	21
2012	21	28	35
2013	35	46	58
TOTAL	**72**	**95**	**119**
TOTAL PORTFOLIO			
2009	35	47	59
2010	76	102	127
2011	135	181	226
2012	159	212	265
2013	173	230	288
TOTAL	**579**	**772**	**965**

Annual Benefits (Not Discounted)

	2009	2010	2011	2012	2013	2014
NG Base	0	0	0	0	0	0
NG Space Heat	740,304	2,018,124	3,699,655	5,703,573	7,746,729	7,631,562
NG DHW	0	360,221	1,386,091	2,455,190	3,625,397	3,574,608
Total Gas Benefits	740,304	2,378,345	5,085,746	8,158,763	11,372,125	11,206,169
Comprehensive Residential Heating Retrofit	0	222,406	765,121	1,607,529	2,417,058	2,381,125
Enhanced Low-income retrofit	740,304	1,755,153	2,692,190	3,587,757	4,447,897	4,381,772
Premium efficiency gas appliances and heatin	0	329,914	1,296,748	2,221,919	3,110,984	3,067,402
Commercial and industrial equipment efficienc	0	10,102	29,781	77,757	171,471	169,069
Municipal facilities comprehensive efficiency re	0	15,608	168,752	315,871	457,240	450,442
High-efficiency construction	0	24,957	73,593	192,415	424,534	418,223
Commercial and industrial retrofit	0	20,205	59,562	155,514	342,942	338,137
Total Gas Benefits	740,304	2,378,345	5,085,746	8,158,763	11,372,125	11,206,169

Total Gas Portfolio

Calendar Year	2009	2010	2011	2012	2013	2014
Utility Spending (Nominal $)	$5,468,511	$8,644,712	$11,473,757	$13,489,933	$15,003,760	$0
Annual Sales Reduction (BBtu)	79	248	549	902	1,286	1,286
Annual Benefits (Nominal $)	$ 740,304	$ 2,425,911	$ 5,291,210	$ 8,658,144	$ 12,309,554	$ 12,372,516

Total Gas Portfolio

Fiscal Year	2009-10	2010-11	2011-12	2012-13	2013-14
Utility Spending (Nominal $)	$11,231,653	$10,530,742	$12,817,874	$14,499,151	$5,001,253
Annual Sales Reduction (BBtu)	192	449	785	1,158	1,286
Annual Benefits (Nominal $)	$ 2,357,578	$ 4,336,110	$ 7,535,833	$ 11,092,417	$ 12,351,529

PHILADELPHIA GAS WORKS
STATEMENT OF INCOME
(Dollars In Thousands)

	ACTUAL 2005-06	ACTUAL 2006-07	ESTIMATE 2007-08	BUDGET 2008-09	FORECAST 2009-10	FORECAST 2010-11	FORECAST 2011-12	FORECAST 2012-13	FORECAST 2013-14
OPERATING REVENUES									
Non-Heating	$ 112,585	$ 91,131	$ 78,007	$ 77,750	$ 68,053	$ 65,714	$ 64,039	$ 62,844	$ 62,776
Gas Transport Service	6,459	12,949	19,785	25,190	26,950	29,136	30,890	31,778	33,079
Heating	793,726	732,084	736,610	861,619	819,558	831,390	843,078	838,887	850,670
Proposed Base Rate	-	-	-	44,532	60,000	60,000	60,000	60,000	60,000
Weather Normalization Adjustment	13,406	6,438	12,750	-	-	-	-	-	-
Unbilled Adjustment	3,785	(2,497)	(513)	757	(70)	228	209	(27)	167
Total Gas Revenues	929,961	840,105	846,639	1,009,848	974,491	986,468	998,016	993,480	1,006,692
Appliance Repair & Other Revenues	10,482	9,396	9,142	9,029	9,210	9,394	9,582	9,773	9,969
Other Operating Revenues	13,525	9,848	9,838	11,434	11,207	11,342	11,475	11,425	11,575
Total Other Operating Revenues	24,007	19,246	18,980	20,463	20,417	20,736	21,057	21,198	21,544
Total Operating Revenues	953,968	859,351	865,619	1,030,311	994,908	1,007,204	1,019,073	1,014,678	1,028,236
OPERATING EXPENSES									
Natural Gas	625,076	539,296	521,439	615,830	564,523	575,886	587,923	584,686	600,039
Other Raw Material	17	4	5	5	5	5	5	5	5
Sub-Total Fuel	625,093	539,300	521,444	615,835	564,528	575,891	587,928	584,691	600,044
CONTRIBUTION MARGINS	**328,875**	**320,051**	**344,175**	**414,476**	**430,380**	**431,313**	**431,145**	**429,987**	**428,192**
Gas Processing	15,234	16,240	14,355	15,518	16,849	17,395	17,749	18,311	18,464
Field Services	35,867	36,100	35,840	36,375	38,144	38,706	39,587	40,513	41,630
Distribution	15,179	17,119	17,253	17,982	18,529	19,001	19,582	20,248	21,027
Collection	9,952	8,157	8,783	9,450	9,727	9,971	10,270	10,626	11,038
Customer Service	11,083	11,783	12,427	13,510	13,828	14,155	14,513	14,953	15,452
Account Management	7,337	7,064	7,379	7,548	7,730	7,935	8,168	8,480	8,850
Bad Debt Expense	40,132	40,000	37,034	39,769	38,982	39,450	39,912	39,740	40,261
Marketing	2,467	2,418	2,872	4,064	4,030	4,096	3,912	3,980	4,050
Administrative & General	39,897	38,846	43,036	47,891	48,366	48,675	49,644	50,624	51,623
Health Insurance	35,076	36,111	34,464	36,712	41,474	45,391	49,676	54,365	59,497
Capitalized Fringe Benefits	(9,797)	(10,449)	(10,465)	(10,592)	(10,373)	(10,620)	(11,452)	(12,136)	(12,895)
Capitalized Administrative Charges	(6,779)	(7,689)	(7,213)	(7,473)	(7,994)	(8,051)	(7,709)	(7,489)	(7,498)
Amortization of Restructuring Costs/Environmental	1,087	-	-	-	-	-	357	480	480
Pensions	17,563	15,217	14,351	14,588	14,558	14,325	14,096	13,871	13,651
Taxes	6,124	6,730	5,669	6,878	7,079	7,185	7,232	7,310	7,377
Other Post Employment Benefits	-	26,421	25,802	25,558	24,615	23,489	22,163	20,616	18,828
BT Costs/(Benefits)	-	-	1,530	(1,550)	(19,870)	(20,740)	(16,170)	(11,900)	(10,000)
Cost / Labor Savings	-	-	(1,104)	(2,565)	(1,606)	(2,389)	(3,482)	(4,617)	(5,798)
Sub-Total Other Oper.& Maintenance	220,222	244,068	241,813	255,663	244,068	247,754	256,048	267,975	276,039
Depreciation	35,389	37,166	37,979	39,408	41,198	42,945	44,611	45,896	47,081
Cost of Removal	2,566	2,542	3,000	3,000	3,000	3,000	3,000	3,000	3,000
To Clearing Accounts	(3,230)	(3,328)	(3,700)	(5,159)	(5,199)	(5,257)	(5,303)	(5,461)	(5,585)
	34,725	36,380	37,279	37,249	38,999	40,688	42,308	43,435	44,496
Sub-Total Other Oper. & Maint. & Depreciation	254,947	280,448	279,092	292,912	283,067	288,442	300,356	311,410	320,535
TOTAL OPERATING EXPENSES	880,040	819,748	800,536	908,747	847,595	864,333	888,284	896,101	920,579
OPERATING INCOME	73,928	39,603	65,083	121,564	147,313	142,871	130,789	118,577	107,657
Other Income	8,518	13,073	17,535	11,457	13,741	15,963	14,870	13,483	11,679
INCOME BEFORE INTEREST	82,446	52,676	82,618	133,021	161,054	158,834	145,659	132,060	119,336
INTEREST									
Long-Term Debt	51,799	52,146	57,091	60,422	69,423	70,311	67,495	65,154	62,649
Other	9,537	11,411	7,703	7,542	7,611	7,677	7,571	7,487	7,456
Swap Termination Payment & Issuance Costs	-	-	-	25,000	-	-	-	-	-
AFUDC	(981)	(408)	(560)	(873)	(872)	(983)	(916)	(784)	(784)
Loss From Extinguishment of Debt	5,332	5,631	5,457	5,102	4,768	4,424	4,179	3,963	3,629
Total Interest	65,687	68,780	69,691	97,193	80,930	81,429	78,329	75,820	72,950
NET INCOME	16,759	(16,104)	12,927	35,828	80,124	77,405	67,330	56,240	46,386
City Payment									
Net Earnings	16,759	(16,104)	12,927	35,828	80,124	77,405	67,330	56,240	46,386
					1.05	1.04	1.03	1.02	1.01

PHILADELPHIA GAS WORKS
CASHFLOW STATEMENT
(Dollars in Thousands)

	ACTUAL 2005-06	ACTUAL 2006-07	ESTIMATE 2007-08	BUDGET 2008-09	FORECAST 2009-10	FORECAST 2010-11	FORECAST 2011-12	FORECAST 2012-13	FORECAST 2013-14
SOURCES									
Net Income	$ 16,759	$ (16,104)	$ 12,927	$ 35,828	$ 80,124	$ 77,405	$ 67,330	$ 56,240	$ 46,386
Depreciation & Amortization	46,172	44,427	44,618	45,626	47,261	48,736	50,050	51,035	51,855
Earnings on Restricted Funds	3,386	(6,650)	(10,652)	10,225	1,013	(245)	1,881	1,140	1,236
Elimination of Accrued Interest on Refunded Debt	-	728	-	-	-	-	-	-	-
Increased/(Decreased) Other Assets/Liabilities	3,202	27,963	(1,454)	(3,928)	334	(9,086)	(12,818)	(2,587)	(2,015)
Available From Operations	69,519	50,364	45,439	87,751	128,732	116,810	106,443	105,828	97,462
Funds Required for Capital	60,295	65,000	70,000	70,000	50,000	60,000	55,000	30,000	12,170
Grant Income	18,000	18,000	18,000	18,000	18,000	-	-	-	-
Capital Leasing Funds Debt Service	-	-	-	-	-	-	-	-	-
Capitalized Interest Debt Service	5,807	-	-	-	-	-	-	-	-
Release of Sinking Fund Asset	3,229	6,624	-	4,000	-	-	-	-	-
Temporary Financing	5,100	-	16,400	-	-	-	-	-	-
TOTAL SOURCES	161,950	139,988	149,839	179,751	196,732	176,810	161,443	135,828	109,632
USES									
Net Construction Expenditures	61,313	70,018	66,141	72,745	72,671	81,923	76,320	65,293	65,362
Funded Debt Reduction:									
Revenue Bonds	29,906	36,675	40,400	43,125	44,800	39,333	36,302	46,257	47,671
PMA Lease/Subordinate Debt	1,310	1,370	1,430	1,500	1,565	1,640	1,715	1,805	1,890
Capital Lease	-	-	-	-	-	-	-	-	-
Debt Reduction Fund	-	-	-	-	10,000	41,000	24,000	(3,000)	(28,000)
Temporary Financing Repayment	-	3,400	-	26,000	42,000	-	-	-	-
City Loan Repayment/Status	-	2,000	43,000	-	-	-	-	-	-
Distribution of Earnings	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Additions To (Reductions of)									
Non-Cash Working Capital	59,945	(36,476)	(17,651)	18,071	8,097	(5,921)	5,335	7,249	4,803
Cash Needs	170,474	94,987	151,320	179,441	197,133	175,975	161,672	135,604	109,726
Cash Surplus (Shortfall)	(8,524)	45,001	(1,481)	310	(401)	835	(229)	224	(94)
TOTAL USES	161,950	139,988	149,839	179,751	196,732	176,810	161,443	135,828	109,632
Cash - Beginning of Period	15,221	6,697	51,698	50,217	50,527	50,126	50,961	50,732	50,956
Cash - Surplus (Shortfall)	(8,524)	45,001	(1,481)	310	(401)	835	(229)	224	(94)
ENDING CASH	6,697	51,698	50,217	50,527	50,126	50,961	50,732	50,956	50,862
Outstanding Commercial Paper	55,000	51,600	68,000	42,000	-	-	-	-	-
City Loan Outstanding	45,000	43,000	-	-	-	-	-	-	-
Internally Generated Funds	-	-	-	-	22,671	21,923	21,320	35,293	53,192

PHILADELPHIA GAS WORKS
DEBT SERVICE COVERAGE
(Dollars in Thousands)

	ACTUAL 2005-06	ACTUAL 2006-07	ESTIMATE 2007-08	BUDGET 2008-09	FORECAST 2009-10	FORECAST 2010-11	FORECAST 2011-12	FORECAST 2012-13	FORECAST 2013-14
FUNDS PROVIDED									
Total Gas Revenues	$ 929,961	$ 840,105	$ 846,639	$ 1,009,848	$ 974,491	$ 986,468	$ 998,016	$ 993,480	$ 1,006,692
Other Operating Revenues	24,007	19,246	18,980	20,463	20,417	20,736	21,057	21,198	21,544
Total Operating Revenues	953,968	859,351	865,619	1,030,311	994,908	1,007,204	1,019,073	1,014,678	1,028,236
Other Income Incr. / (Decr.) Restricted Funds	11,989	6,423	6,883	21,682	14,754	15,718	16,751	14,623	12,915
City Grant	18,000	18,000	18,000	18,000	18,000	-	-	-	-
AFUDC (Interest)	981	408	560	873	872	983	916	784	784
TOTAL FUNDS PROVIDED	984,918	884,182	891,062	1,070,866	1,028,534	1,023,905	1,036,740	1,030,085	1,041,935
FUNDS APPLIED									
Fuel Costs	625,093	539,300	521,444	615,835	564,528	575,891	587,928	584,691	600,044
Other Operating Costs	254,947	280,448	279,092	292,912	283,067	288,442	300,356	311,410	320,535
Total Operating Expenses	880,040	819,748	800,536	908,747	847,595	864,333	888,284	896,101	920,579
Less: Non-Cash Expenses	38,197	66,246	66,959	68,106	68,998	69,661	70,047	69,814	69,248
TOTAL FUNDS APPLIED	841,843	753,502	733,577	840,641	778,597	794,672	818,237	826,287	851,331
Funds Available to Cover Debt Service	143,075	130,680	157,485	230,225	249,937	229,233	218,503	203,798	190,604
1975 Ordinance Bonds Debt Service	41,949	35,359	34,225	32,313	30,101	30,691	32,110	30,521	28,953
Debt Service Coverage 1975 Bonds	**3.41**	**3.70**	**4.60**	**7.12**	**8.30**	**7.47**	**6.80**	**6.68**	**6.58**
Net Available after Prior Debt Service	101,126	95,321	123,260	197,912	219,836	198,542	186,393	173,277	161,651
Other Capital Leases	-	-	-	-	-	-	-	-	-
Net Available after Prior Capital Leases	101,126	95,321	123,260	197,912	219,836	198,542	186,393	173,277	161,651
1998 Ordinance Bonds Debt Service	32,838	47,611	60,147	69,604	81,549	86,445	82,663	81,164	81,711
New Proposed Bond Debt Service	-	-	-	-	-	-	-	-	-
Total New Debt Service	32,838	47,611	60,147	69,604	81,549	86,445	82,663	81,164	81,711
Debt Service Coverage 1998 Bonds	**3.08**	**2.00**	**2.05**	**2.84**	**2.70**	**2.30**	**2.25**	**2.13**	**1.98**
Net Available after 1998 Debt Service	68,288	47,710	63,113	128,308	138,287	112,097	103,730	92,113	79,940
1998 Ordinance Subordinate Bond Debt Ser	1,986	1,987	1,986	1,990	1,986	1,988	1,984	1,990	1,985
Debt Service Coverage Subordinate Bonds	**34.38**	**24.01**	**31.78**	**64.48**	**69.63**	**56.39**	**52.28**	**46.29**	**40.27**
Net Available To Service Aggregrate Debt Serv	**116,152**	**115,885**	**146,259**	**196,701**	**225,540**	**223,994**	**211,046**	**196,895**	**183,444**
Aggregrate Debt Service	**76,773**	**84,957**	**96,358**	**103,907**	**113,836**	**119,124**	**116,757**	**113,675**	**112,649**
Fixed Coverage Charge	**1.54**	**1.36**	**1.52**	**1.89**	**1.98**	**1.88**	**1.81**	**1.73**	**1.63**
Fixed Coverage Charge Including $18.0 City Fee	**1.25**	**1.13**	**1.28**	**1.61**	**1.71**	**1.63**	**1.57**	**1.50**	**1.40**

Philadelphia Gas Works

AVERAGE NUMBER OF CUSTOMERS

	Budget Filing Sep-Aug 6 & 6 2008-2009	Budget Filing Sep-Aug 6 & 6 2009-2010	Budget Filing Sep-Aug 6 & 6 2010-2011	Budget Filing Sep-Aug 6 & 6 2011-2012	Budget Filing Sep-Aug 6 & 6 2012-2013	Budget Filing Sep-Aug 6 & 6 2013-2014
NON-HEATING						
RESIDENTIAL	34,960	31,373	27,792	24,219	20,653	17,094
CRP	1,114	1,113	1,113	1,113	1,113	1,113
COMMERCIAL	5,155	5,101	5,068	5,055	5,057	5,069
INDUSTRIAL	211	201	191	182	173	163
MUNICIPAL	108	103	101	98	97	97
HOUSING AUTHORITY	-	-	-	-	-	-
NGV Firm	1	1	1	1	1	1
INTERRUPTIBLE						
BPS-SMALL	77	67	60	53	49	45
LBS-L DIRECT	-	-	-	-	-	-
LBS-XL DIRECT	2	2	1	2	3	4
TRI-GEN	-	-	-	-	-	-
BPS-LARGE	74	60	55	53	53	54
LBS-L INDIRECT	2	3	4	4	3	3
LBS-S INDIRECT	10	8	4	2	2	3
LBS-XL INDIRECT	1	1	-	-	-	-
CO-GEN INDIRECT	2	2	2	2	2	2
GRAYSFERRY	-	-	-	-	-	-
GTS SALES	-	-	-	-	-	-
BPS A/C	4	3	2	2	2	1
NGV	-	-	-	-	-	-
SALES FOR RESALE	-	-	-	-	-	-
TOTAL INTERRUPTIBLE	172	145	127	118	113	111
TOTAL FIRM NON-HTG	41,546	37,892	34,267	30,668	27,094	23,537
TOTAL NON-HEATING	41,717	38,037	34,394	30,786	27,207	23,648
HEATING						
RESIDENTIAL	346,604	345,417	344,775	344,595	344,417	344,244
CRP	79,803	79,803	79,803	79,803	79,803	79,803
HOUSING AUTHORITY - GS	2,047	2,047	2,047	2,047	2,047	2,047
COMMERCIAL	18,586	18,715	18,908	19,153	19,431	19,739
INDUSTRIAL	500	487	475	462	447	433
MUNICIPAL	379	369	365	366	368	370
HOUSING AUTHORITY - PHA	801	758	730	702	681	665
TOTAL HEATING	448,721	447,596	447,103	447,128	447,195	447,302
TOTAL FIRM HTG & NON-HTG	490,268	485,488	481,369	477,796	474,289	470,838
TOTAL GAS SALES CUSTOMERS	490,438	485,633	481,496	477,914	474,402	470,950
GTS TRANSPORT	288	327	352	368	380	388
FT-RES	-	-	-	-	-	-
FT-COM	1,195	1,573	1,865	2,094	2,275	2,417
FT-IND	248	87	108	130	156	179
FT-MUN	595	426	437	444	450	453
FT-PHA	6	83	115	138	154	165
TOTAL FIRM TRANSPORT	2,044	2,168	2,525	2,806	3,035	3,214
TOTAL SALES & TRANSPORT	492,769	488,128	484,373	481,088	477,816	474,551

Philadelphia Gas Works

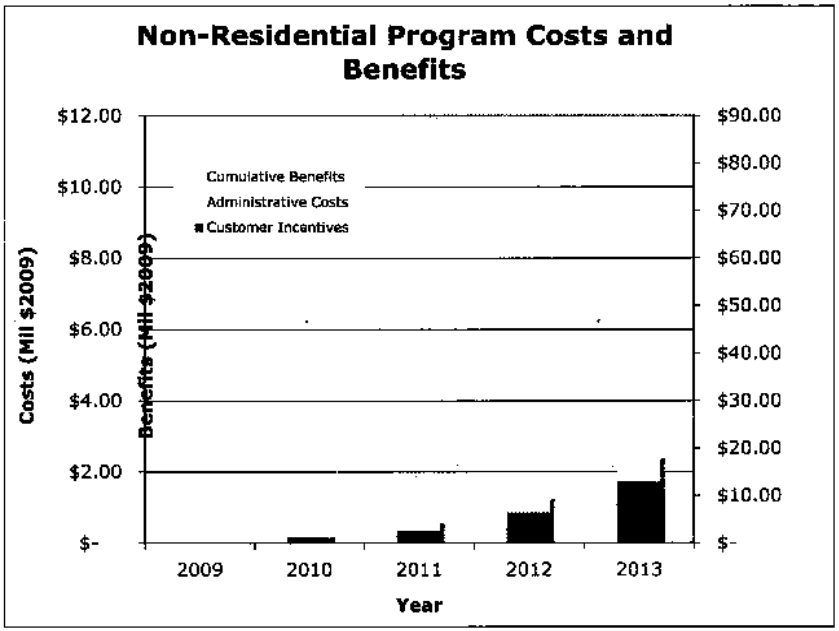
GAS SALES

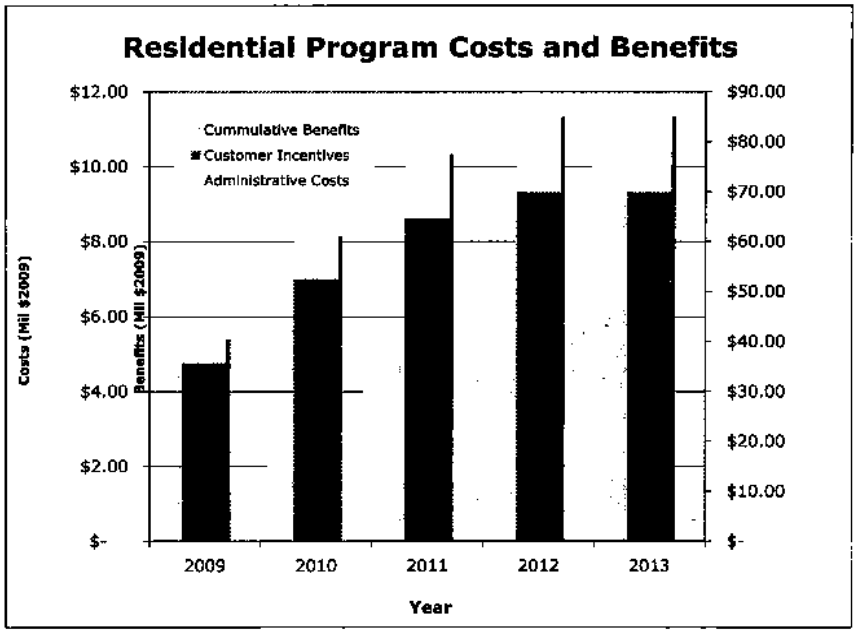
	Budget Filing Sep-Aug 6 & 6 2008-2009	Budget Filing Sep-Aug 6 & 6 2009-2010	Budget Filing Sep-Aug 6 & 6 2010-2011	Budget Filing Sep-Aug 6 & 6 2011-2012	Budget Filing Sep-Aug 6 & 6 2012-2013	Budget Filing Sep-Aug 6 & 6 2013-2014
NON-HEATING						
RESIDENTIAL	699,037	626,639	554,816	483,187	411,548	340,125
CRP	47,419	47,413	47,413	47,420	47,413	47,413
COMMERCIAL	1,339,896	1,276,699	1,223,497	1,178,679	1,140,214	1,105,381
INDUSTRIAL	278,908	263,328	251,672	241,762	230,531	224,272
MUNICIPAL	177,030	169,185	160,954	153,226	145,771	142,783
HOUSING AUTHORITY	-	-	-	-	-	-
NGV Firm	327	327	327	327	327	327
INTERRUPTIBLE						
BPS-SMALL	122,902	108,130	96,815	88,144	81,378	76,203
LBS-L DIRECT	-	-	-	-	-	-
LBS-XL DIRECT	23,880	23,880	18,248	39,494	186,509	303,743
TRI-GEN	-	-	-	-	-	-
BPS-LARGE	956,417	872,404	866,060	899,857	956,517	1,029,193
LBS-L INDIRECT	45,364	171,516	303,811	364,099	314,225	245,369
LBS-S INDIRECT	223,891	145,634	83,292	36,848	41,602	80,293
LBS-XL INDIRECT	10,134	1,828	-	-	-	-
CO-GEN INDIRECT	11,514	8,685	8,262	7,165	6,262	5,557
GRAYSFERRY	-	-	-	-	-	-
GTS SALES	-	-	-	-	-	-
BPS A/C	2,547	2,128	1,710	1,711	1,298	580
NGV	-	-	-	-	-	-
SALES FOR RESALE	-	-	-	-	-	-
TOTAL INTERRUPTIBLE	1,396,648	1,335,203	1,378,198	1,437,319	1,587,792	1,740,939
TOTAL FIRM NON-HTG	2,542,617	2,383,589	2,238,679	2,104,601	1,975,801	1,860,301
TOTAL NON-HEATING	3,939,265	3,718,792	3,616,877	3,541,920	3,563,593	3,601,240
HEATING						
RESIDENTIAL	28,409,135	28,362,576	28,245,986	28,228,039	28,099,958	28,025,945
CRP	10,472,516	10,472,516	10,472,516	10,475,749	10,472,516	10,472,516
HOUSING AUTHORITY - GS	222,184	222,184	222,184	222,267	222,184	222,184
COMMERCIAL	7,703,575	7,694,642	7,759,913	7,875,324	8,024,214	8,195,371
INDUSTRIAL	477,416	464,304	450,548	441,433	430,097	422,040
MUNICIPAL	656,349	637,788	627,564	625,694	624,430	623,660
HOUSING AUTHORITY - PHA	637,815	594,304	583,241	540,524	523,129	510,204
TOTAL HEATING	48,578,990	48,448,312	48,341,951	48,409,030	48,396,527	48,471,919
TOTAL FIRM HTG & NON-HTG	51,121,607	50,831,902	50,580,629	50,513,631	50,372,328	50,332,220
TOTAL GAS SALES	52,518,255	52,167,105	51,958,828	51,950,950	51,960,120	52,073,159
GTS TRANSPORT	17,635,260	17,868,921	18,058,788	18,212,375	18,344,906	18,450,782
FT-RES	-	-	-	-	-	
FT-COM	1,566,994	1,866,550	2,082,820	2,242,941	2,357,553	2,716,363
FT-IND	319,459	355,883	389,563	415,678	448,123	516,215
FT-MUN	563,522	589,796	608,076	619,341	629,067	735,033
FT-PHA	22,996	63,050	88,687	107,926	121,090	147,656
TOTAL FIRM TRANSPORT	2,472,971	2,875,279	3,169,347	3,385,886	3,553,834	4,115,268
TOTAL SALES & FIRM TRANSPORT	54,991,226	55,042,384	55,128,174	55,336,835	55,513,954	56,188,426
TOTAL SALES & TRANSPORT	72,626,486	72,911,305	73,186,962	73,549,211	73,858,860	74,639,208

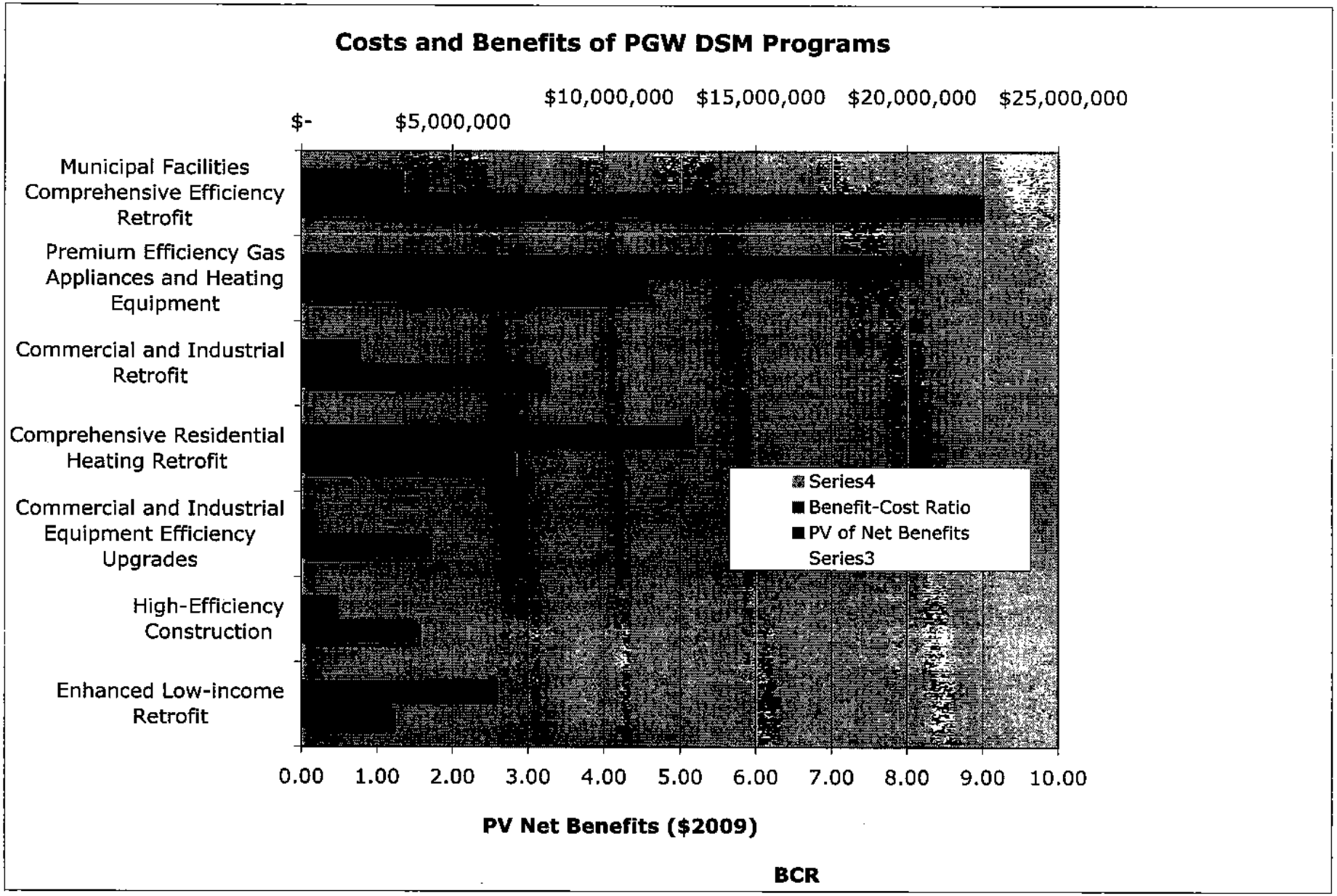
Philadelphia Gas Works

GAS REVENUES

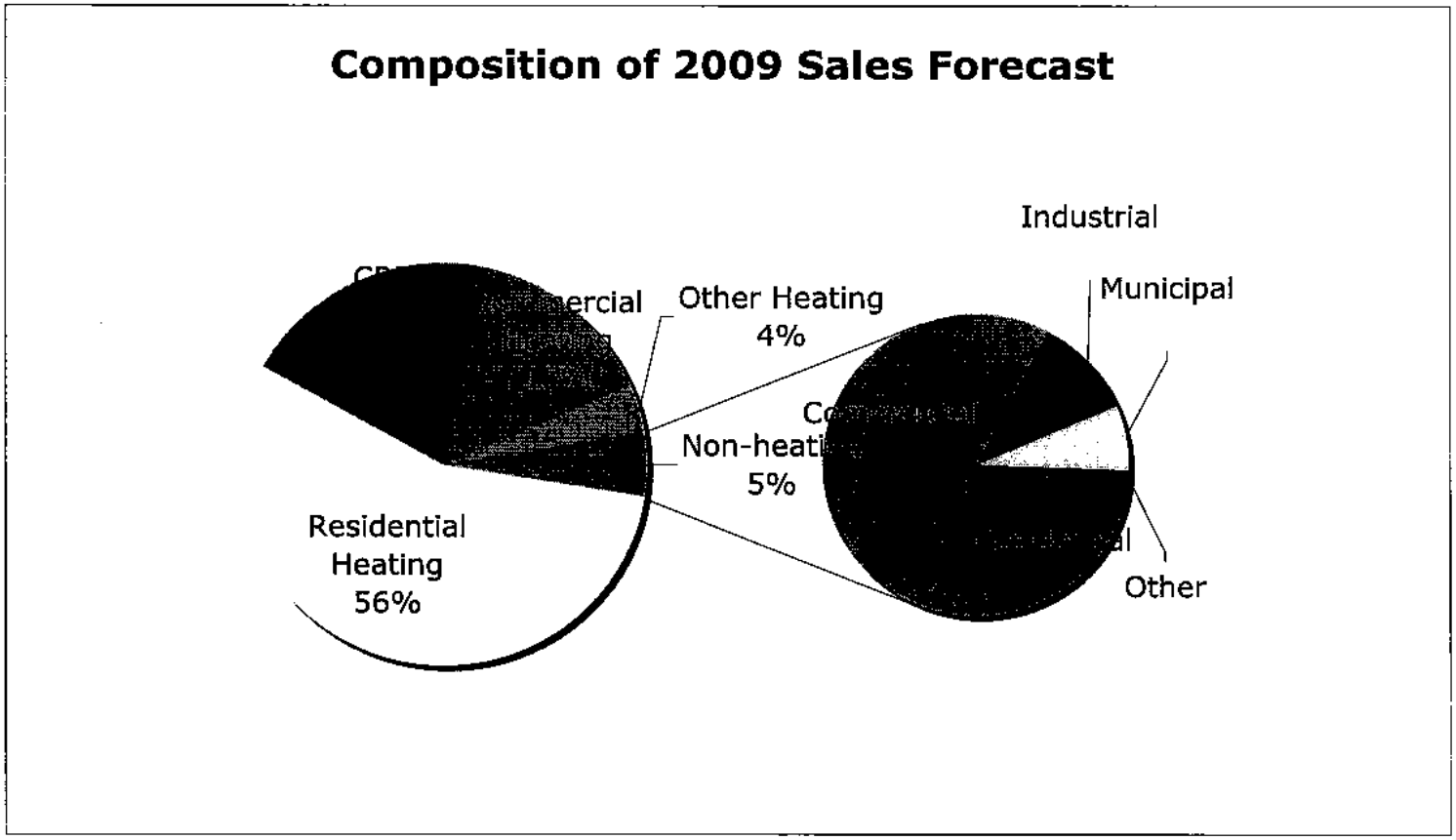
	Budget Filing Sep-Aug 6 & 6 2008-2009	Budget Filing Sep-Aug 6 & 6 2009-2010	Budget Filing Sep-Aug 6 & 6 2010-2011	Budget Filing Sep-Aug 6 & 6 2011-2012	Budget Filing Sep-Aug 6 & 6 2012-2013	Budget Filing Sep-Aug 6 & 6 2013-2014
NON-HEATING						
RESIDENTIAL	19,613,097	17,078,722	14,722,750	12,726,015	10,722,166	8,823,466
CRP	567,911	566,459	561,699	559,874	557,896	556,688
COMMERCIAL	28,635,910	26,316,141	24,346,218	23,227,710	22,146,883	21,336,008
INDUSTRIAL	5,857,215	5,319,860	4,896,277	4,648,940	4,359,531	4,203,595
MUNICIPAL	3,462,539	3,165,187	2,892,226	2,720,755	2,543,023	2,469,752
HOUSING AUTHORITY	-	-	-	-	-	-
NGV Firm	5,997	5,756	5,512	5,437	5,334	5,283
INTERRUPTIBLE						
BPS-SMALL	2,691,549	2,156,057	1,893,311	1,715,932	1,573,238	1,470,092
LBS-L DIRECT	-	-	-	-	-	-
LBS-XL DIRECT	320,165	300,313	224,190	477,998	2,262,361	3,683,239
TRI-GEN	-	-	-	-	-	-
BPS-LARGE	18,268,192	14,954,813	14,513,546	15,001,370	15,821,692	16,985,058
LBS-L INDIRECT	591,979	2,187,521	3,873,378	4,643,034	4,013,131	3,143,137
LBS-S INDIRECT	3,106,462	1,883,237	1,075,795	474,983	536,170	1,033,621
LBS-XL INDIRECT	140,936	25,245	-	-	-	-
CO-GEN INDIRECT	151,306	119,042	99,016	85,714	74,894	67,142
GRAYSFERRY	-	-	-	-	-	-
GTS SALES	-	-	-	-	-	-
BPS A/C	34,961	27,054	21,394	26,544	15,898	7,375
NGV	-	-	-	-	-	-
SALES FOR RESALE	-	-	-	-	-	-
TOTAL INTERRUPTIBLE	25,305,549	21,653,283	21,700,630	22,425,575	24,297,385	26,389,664
TOTAL FIRM NON-HTG	58,142,669	52,452,145	47,424,682	43,888,731	40,334,833	37,394,792
TOTAL NON-HEATING	83,448,217	74,105,429 71,141,212	69,125,313	66,314,305	64,632,218	63,784,456
HEATING						
RESIDENTIAL	638,069,527	614,088,929	593,018,445	588,539,696	578,989,423	575,141,804
CRP	113,972,567	113,017,168	111,692,039	111,286,363	110,672,556	110,361,729
HOUSING AUTHORITY - GS	4,817,146	4,625,322	4,461,804	4,416,069	4,344,511	4,311,352
COMMERCIAL	162,678,086	155,875,977	151,445,149	152,003,606	152,314,178	154,306,255
INDUSTRIAL	10,129,836	9,453,653	8,840,272	8,564,517	8,206,733	7,985,503
MUNICIPAL	12,853,176	11,922,289	11,266,475	11,101,546	10,881,109	10,775,106
HOUSING AUTHORITY - PHA	13,303,015	11,884,918	10,848,020	10,295,134	9,798,215	9,479,562
TOTAL HEATING	955,823,353	920,868,256	891,572,004	886,186,931	875,206,725	872,361,311
TOTAL FIRM HTG & NON-HTG	1,013,966,022	973,320,401	938,996,686	930,075,662	915,541,558	909,756,103
TOTAL GAS REVENUES	1,039,271,570	994,973,685	960,697,316	952,501,236	939,838,943	936,145,767
GTS TRANSPORT	9,062,974	9,297,718	9,477,386	9,612,009	9,766,427	9,915,839
FT-RES	-	-	-	-	-	-
FT-COM	11,718,129	13,362,124	14,545,284	15,513,402	16,102,033	16,581,483
FT-IND	2,374,229	2,534,008	2,709,449	2,868,126	3,046,443	3,179,006
FT-MUN	4,205,790	4,199,048	4,216,108	4,247,911	4,255,430	4,250,727
FT-PHA	148,900	384,569	525,230	629,408	694,737	737,580
TOTAL FIRM TRANSPORT	18,447,049	20,479,749	21,996,071	23,258,847	24,098,643	24,748,796
TOTAL REVENUE & FIRM TRANSPORT	1,057,718,619	1,015,453,434	982,693,387	975,760,083	963,937,586	960,894,563
TOTAL REVENUE & TRANSPORT	1,066,781,593	1,024,751,152	992,170,773	985,372,092	973,704,013	970,810,402


Non-Residential Program Costs and Benefits
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$-
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-
Cumulative Benefits
Administrative Costs
Customer Incentives
Costs (Mil $2009)
Benefits (Mil $2009)
2009
2010
2011
2012
2013
Year


Residential Program Costs and Benefits
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$-
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-
Cummulative Benefits
Customer Incentives
Administrative Costs
Costs (Mil $2009)
Benefits (Mil $2009)
2009
2010
2011
2012
2013
Year


Costs and Benefits of PGW DSM Programs
$-
$5,000,000
$10,000,000
$15,000,000
$20,000,000
$25,000,000
Municipal Facilities Comprehensive Efficiency Retrofit
Premium Efficiency Gas Appliances and Heating Equipment
Commercial and Industrial Retrofit
Comprehensive Residential Heating Retrofit
Commercial and Industrial Equipment Efficiency Upgrades
High-Efficiency Construction
Enhanced Low-income Retrofit
Series4
Benefit-Cost Ratio
PV of Net Benefits
Series3
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
PV Net Benefits ($2009)
BCR

Heating	Residential Heating	28,409,135
	CRP Heating	10,472,516
	Commercial Heating	7,703,575
	Other Heating	1,992,764
NonHEating	Residential	699,037
	Commercial	1,339,896
	Industrial	278,908
	Municipal	177,030
	Other	47,746



Comprehensive Residential Heating Retrofit: Gas Savings Compared to Electric Savings		
	Gas	Electric
Present Value of Benefits ($2009)	$20,246,917	$ 3,376,903
Present Value of Costs ($2009)	$ (7,255,416)	$ (1,548,428)
Present Value of Net Benefits ($2009)	$12,991,501	$ 1,828,475
Benefit-Cost Ratio	2.79	2.18
Cumulative Annual Energy Saved in 5th Year (Net of Freeriders)	2.6 Million Therms	11.8 GWh

Electric energy saved measured at generation.

EXHIBIT 2

PHILADELPHIA GAS WORKS

GAS SERVICE TARIFF

Issued by: Thomas Knudsen
President and CEO

PHILADELPHIA GAS WORKS
800 West Montgomery Avenue
Philadelphia, PA 19122

List of Changes Made by this Tariff Supplement

EFFICIENCY COST RECOVERY SURCHARGE (PAGE No. 80)

Implementation of the Efficiency Cost Recovery Surcharge.

EFFICIENCY COST RECOVERY SURCHARGE

The cost of the energy efficiency programs (i.e. the demand side management programs) for the firm customer rate classes listed below will be recovered by an Efficiency Cost Recovery Surcharge applicable to all volumes of Gas delivered.

1) The Surcharge will recover the following costs: 1) the residual direct program costs and the administrative costs of the energy efficiency program; and, 2) the program related revenue loss.

2) Computation of the Efficiency Cost Recovery Surcharge factors will be in accordance with the automatic adjustment procedures utilized under Section 1307(f) of the Public Utility Code and will be filed and approved in conjunction with the Company's annual Section 1307(f)-GCR filing.

3) Once the surcharge is in place, it will be automatically adjusted effective March 1, June 1, September 1, and December 1 of each year in accordance with Section 1307(f) quarterly adjustment procedures. No interest will be included in such surcharge computations. The basic component of the surcharge will be determined by dividing the total energy efficiency program costs approved for annual recovery by the estimated applicable throughput in Mcfs. The costs related to customers other than low income residential customers are tracked and recovered separately from each of the following firm customer rate classes served by the energy efficiency program:

   a) Residential and Public Housing Customers on Rate GS;
   b) Commercial and Municipal Customers on Rate GS;
   c) Industrial Customers on Rate GS;
   d) Municipal Customers on Rate MS; and
   e) The Philadelphia Housing Authority on Rate PHA.

   The surcharge shall be a cents per Ccf charge calculated to the nearest one-thousandth of a cent (0.00001) which shall be added to the distribution rates for billing purposes for all customers in each of the above rate classes. The rate shall be calculated separately for each rate class.

   The energy efficiency program costs related to low income customers shall be incorporated into the Conservation Works Program and recovered through the Universal Service and Energy Conservation Surcharge.

4) The Efficiency Cost Recovery Surcharge shall take effect upon the effective date of this Tariff.

EXHIBIT 3

PHILADELPHIA GAS WORKS
Proposed Changes to Gas Service Tariff No. 2
Docket Nos. R-2008-2073938, P-2009-_____

52 Pa. Code Section 53.52(a)

§ 53.52. Applicability; public utilities other than canal, turnpike, tunnel, bridge and wharf companies.

(a) Whenever a public utility, other than a canal, turnpike, tunnel, bridge or wharf company files a tariff, revision or supplement effecting changes in the terms and conditions of service rendered or to be rendered, it shall submit to the Commission, with the tariff, revision or supplement, statements showing all of the following:

(1) The specific reasons for each change.

Over the next five years, Philadelphia Gas Works (PGW) plans to implement a portfolio of demand side management (DSM) programs designed to reduce customers' natural gas consumption through end-use efficiency investments. These programs provide technical and financial services to residential, municipal and business customers to help them upgrade the efficiency with which they use natural gas to heat their homes and buildings.

PGW's DSM plan has four broad goals.

- Reduce customer bills
- Maximize customer value
- Contribute to the fulfillment of the City's sustainability plan
- Reduce PGW cash flow requirements.

In pursuit of these goals, PGW has designed and will implement the planned DSM portfolio according to the following principles:

- Field a portfolio of programs that targets cost-effective gas efficiency savings among all PGW's firm heating customers
- Maximize delivery efficiency to minimize costs and maximize coverage from the available budget
- Stage program implementation to permit orderly and sustainable expansion
- Treat customers in greatest economic need and with most cost-effective opportunities first
- Support economic development in the City, both directly through more intensive employment of local resources to save natural gas, and indirectly through the economic stimulus generated by increasing the amount of money City households and businesses have available to spend.

PGW proposes to revise its gas service tariff (Gas Service Tariff No. 2 - Tariff Supplement No. 32 included with this filing) to establish an automatic adjustment clause under Section 1307 of the Public Utility code (66 Pa.C.S.A. § 1307) to recover costs that PGW will incur to implement and administer all of the new energy efficiency and demand response programs, except program costs associated with low income

customers that are incorporated into the Conservation Works Program (CWP) and recovered through the Universal Service and Energy Conservation Surcharge (USC)..

(2) The total number of customers served by the utility.

PGW serves approximately 492,000 customers.

(3) A calculation of the number of customers, by tariff subdivision, whose bills will be affected by the change.

The DSM program costs related to following firm customer rate classes are proposed to be tracked and recovered separately from each of the following:

Rate Class	Approximate No. of Customers
Residential Customers on Rate GS	464,000
Commercial Customers on Rate GS	25,000
Industrial Customers on Rate GS	800
Municipal Customers on Rate MS	1 (900 accounts)
The Philadelphia Housing Authority on Rate PHA	1 (800 accounts)

The program costs related to low income customers shall be incorporated into the CWP and recovered through the Universal Service and Energy Conservation Surcharge. The CWP costs are recovered from firm ratepayers which total approximately 492,000 customers.

(4) The effect of the change on the utility's customers.

PGW's gas DSM plan initially concentrates on residential retrofits, first by extending the existing low-income program to more customers in need, and second by expanding the program to the City's non-low income residents. Both retrofit programs upgrade the thermal integrity of the building with added insulation and instrumented air sealing, and in some instances also retire old, inefficient gas furnaces and boilers and water heaters and replace them with new, high-efficiency equipment. The enhanced low-income program will provide efficiency retrofit services free of charge, just as it does currently. For the rest of PGW's residential customers, the comprehensive retrofit program will offer discounts and extended repayment options for the same efficiency measures targeted by the enhanced low-income program. By the end of the initial five year period, PGW plans to have treated 35,000 customers. Shortly after the residential programs begin, PGW plans to work on comprehensive efficiency retrofits in City-owned facilities and a business retrofit program investing in gas and electric efficiency improvements.

The proposed cost recovery mechanism will impose a reconcilable charge to recover the costs of the non-low income programs and recovery the low income program costs as part of the CWP via the USC. Over the long term, the demand side management program will reduce total customer billings.

(5) The direct or indirect effect of the proposed change on the utility's revenue and expenses.

The DSM program costs are proposed to be tracked and recovered separately from individual firm ratepayer customer classes. Additionally, the program costs related to low income customers shall be incorporated into the CWP and recovered through the USC. Over the long term, the DSM program will result in a total net decrease to customer bills.

(6) The effect of the change on the service rendered by the utility.

Service changes are not anticipated other than offering energy efficiency measures to a greater array of PGW customers which will reduce energy consumption and customer bills.

(7) A list of factors considered by the utility in its determination to make the change. The list shall include a comprehensive statement about why these factors were chosen and the relative importance of each. This subsection does not apply to a portion of a tariff change seeking a general rate increase as defined in 66 Pa.C.S. § 1308 (relating to voluntary changes in rates).

PGW decided to offer a portfolio of DSM programs in order to assist PGW customers with the implementation of energy efficiency measures that will reduce their energy consumption, thereby reducing their bills. All firm ratepayers will benefit because the DSM program will focus on reducing Customer Assistance Program (CAP) costs by reducing the energy consumption of low income customers with high natural gas usage. Additionally, all firm customers who participate in the program and implement energy efficiency measures will experience a reduction in their gas consumption and their bills. Furthermore, the gas savings are expected to reduce greenhouse gas emissions by 1.25 million tons of carbon dioxide.

(8) Studies undertaken by the utility in order to draft its proposed change. This paragraph does not apply to a portion of a tariff change seeking a general rate increase as defined in 66 Pa.C.S. § 1308.

None.

(9) Customer polls taken and other documents which indicate customer acceptance and desire for the proposed change. If the poll or other documents reveal discernible public opposition, an explanation of why the change is in the public interest shall be provided.

None.

(10) Plans the utility has for introducing or implementing the changes with respect to its ratepayers.

PGW's outreach will be to customers and to members of the supply chain for gas appliances and equipment such as vendors, wholesalers, and manufacturers. A critical component of successful marketing will be market research. PGW will rely on in-house personnel (as well as contractors as necessary) to develop and execute marketing strategies to maximize participation. PGW will work closely with retrofit program

implementation contractors to maximize individual customers' trust and acceptance. PGW will also work with civic and other organizations on coordinated campaigns to maximize participation in targeted areas.

(11) FCC, FERC or Commission orders or rulings applicable to the filing.

The Commission has emphasized the need for promotion of energy efficiency, conservation and demand side response in its Investigation of Conservation, Energy Efficiency Activities, and Demand Side Response by Energy Utilities and Ratemaking Mechanisms to Promote Such Efforts (Docket No. M-00061984 (Order entered September 28, 2006)) and the Public Utility Code provides for the recovery of costs related to conservation and load management programs (66 Pa.C.S. § 1319).