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Final Report

**Stratified Management & Operations Audit
of**

Philadelphia Gas Works

for the

**Pennsylvania Public Utility Commission
Bureau of Audits**

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I. Introduction and Report Summary

This chapter represents a summary introduction and results of the stratified management and operations audit of Philadelphia Gas Works (PGW) completed by Schumaker & Company in 2008 for the Pennsylvania Public Utility Commission (PaPUC). It includes a synopsis of the objectives and scope of our work, a functional evaluation summary, and several exhibits, for amplification purposes, that encapsulate the recommendations and estimated benefits associated with these improvement opportunities.

These management and operational reviews, which are required of certain companies pursuant to 66 Pa. C.S. § 516 (a) and (c), come under the PaPUC's general administrative power and authority to supervise and regulate all public utilities in the Commonwealth, 66 Pa. C.S. § 501(b). More specifically, the PaPUC can investigate and examine the condition and management of any public utility, as stated in 66 PA C.S. §331(a). More specifically, the objectives of this management audit include the determination of what improvements, if any, can be accomplished in the utility's management and operations pursuant to Public Utility Code 66 Pa. C.S. §522(b). Specifically, it is intended that the management audit encourage economies, efficiencies, or improvements that benefit PGW and its ratepayers and identify which, if any, cost saving measures can be instituted. The ultimate purpose is to explore economically practical opportunities for giving ratepayers lower rates and/or better service.

The remaining report chapters contain a discussion of our findings, conclusions, and recommendations for each discrete area of review within the scope of the audit. They include:

- ◆ Chapter II – Executive Management & Human Resources
- ◆ Chapter III – Support Services
- ◆ Chapter IV – Corporate Governance
- ◆ Chapter V – Financial Management
- ◆ Chapter VI – Diversity & DEEO
- ◆ Chapter VII – System Reliability Performance and Other Related Operations
- ◆ Chapter VIII – Customer Service
- ◆ Appendix A – Data and Statistics
- ◆ Appendix B – Glossary

These chapters provide the detailed facts and analyses that support, and provide context for, the recommendations we have made. Following the report body are two appendices – one (*Appendix A*) provides supporting financial and operating data and statistics, while the other (*Appendix B*) provides a glossary of terms.

The findings and recommendations contained in this audit report are the findings and recommendations of the consultant only and are not necessarily agreed to by PGW or the PaPUC.



A. Background & Perspective

According to Hoovers:¹ “About 10,000 companies in the United States (U.S.) explore, produce, transmit, and locally distribute natural gas, with combined annual revenue of \$100 billion. Exploration and production are conducted by large, vertically integrated petroleum companies like ConocoPhillips and Chevron, by large independents such as Anadarko and Devon Energy, and by thousands of smaller exploration companies. Transmitting gas from production to consumption areas is handled by about 1,000 pipeline operators. Local distribution is handled by thousands of utilities. Regional energy companies (like KeySpan and Dominion Resources) combine transmission, storage, and distribution operations. The US consumes about 20 trillion cubic feet (TCF) of natural gas annually.” PGW provides local distribution of natural gas.

Regulatory Environment

The current regulatory environment in which the natural gas industry operates is much less stringent and relies more heavily on competitive forces than in the past. The last 20 years have seen dramatic changes throughout the industry, spurred by its ever-changing regulatory environment. However, despite the restructuring and deregulation of some portions of the natural gas supply chain, there still exist significant regulatory oversight of the industry in the transportation and distribution of natural gas. This oversight is necessary to ensure that those market participants that possess monopoly power in the industry do not abuse this power or distort the smooth and efficient functioning of the natural gas markets.

Under the current regulatory environment, only pipelines and local distribution companies (LDCs) are directly regulated with respect to the services they provide. Natural gas producers and marketers are not directly regulated. This is not to say that there are no rules governing their conduct, but instead there is no government agency charged with the direct oversight of their day-to-day business. Production and marketing companies must still operate within the confines of the law; for instance, producers are required to obtain the proper authorization and permitting before beginning to drill, particularly on federally-owned land. However, the prices they charge are a function of competitive markets, and are no longer regulated by the government.

The current regulation of transportation pipelines by the Federal Energy Regulatory Commission (FERC) has designated that interstate pipelines can serve only as transporters of natural gas. FERC obtains its authority and directives in the regulation of the natural gas industry from a number of laws; namely the Natural Gas Act of 1938, the Natural Gas Policy Act of 1978, the Outer Continental Shelf Lands Act, the Natural Gas Wellhead Decontrol Act of 1989, and the Energy Policy Act of 1992. In the past, interstate pipelines acted as both a transporter of natural gas, as well as a seller of the commodity, both of which were rolled up into a bundled product and sold for one price. However,

¹ / http://www.hoovers.com/natural-gas-production-and-distribution/--ID__125--/free-ind-fr-profile-basic.xhtml

since FERC Order 636, interstate pipelines are no longer permitted to act as merchants and sell bundled products. Instead, they can only sell the transportation component, and never take ownership of the natural gas themselves. Pipelines must also now offer access to their transportation infrastructure to all other market players equally, referred to as “open access” to the pipelines. This allows marketers, producers, LDCs, and even end users themselves to contract for transportation of their natural gas, via interstate pipeline, on an equal and unbiased basis. Interstate pipeline companies, on the other hand, are regulated in the rates they charge, the access they offer to their pipelines, and the siting and construction of new pipelines. Similarly, LDCs (such as PGW) are regulated by state utility commissions, which oversee their rates, construction issues, and ensure proper procedures exist for maintaining adequate supply to their customers. As set forth below, PGW is the only company regulated by the Public Utility Commission that is also regulated by a local agency.

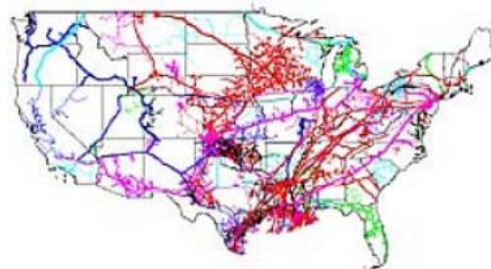
Industry Expectations

Demand for natural gas depends partly on the health of an economy and partly on the price of crude oil, a competitive product. The energy industry has changed significantly in the last ten years. With the advent of deregulation, energy companies, both electric and gas utilities, have been forced to rethink and restructure their business models. The profitability of natural gas companies depends largely on the efficiency of their operations. And with large economies of scale in the production, processing, and distribution of gas, small companies can effectively compete with large ones in exploration, where technical ability is more important than size. Small companies often sell production from their wells to larger companies that have invested substantial capital in processing and pipeline facilities.

The U.S. has about 300,000 production wells. Gas extracted with crude oil from oil wells (called “associated” gas) must be separated at the wellhead. A bit more than 25% of natural gas production in the U.S. comes from oil wells. State excise taxes on extracted gas are sizable and any land leases usually specify an expiration period and a royalty rate to be paid on any gas produced.

The amount of gas exploration activity varies with the price of gas. Large, vertically integrated producers refer to their operations as “upstream” (exploration and production) and “downstream” (marketing, transportation, and storage). Production from gas wells is routed via a system of small pipelines to one of about 600 processing plants in the U.S., where most of the components other than methane are removed. Once processed to a suitable level of purity, natural gas can be moved by pipeline from production to consumption areas.

The U.S. natural gas pipeline network is a highly integrated transmission and distribution grid that can transport natural gas to and from nearly any location in the lower 48 states. There are about 302,000 miles of interstate and intrastate transmission pipelines in the U.S., with more than 1,400 compressor stations that maintain pressure on the natural gas



pipeline network and assure continuous forward movement of supplies. These pipelines can measure anywhere from six to 48 inches in diameter, although certain component pipe sections can consist of pipe as small as 0.5 inches in diameter.

In addition to transmission pipelines, many transmission companies also own and operate natural gas storage facilities, usually underground depleted gas fields or salt caverns. Storage facilities are especially important in the Midwest and Northeast, where demand for natural gas in winter exceeds the daily delivery capacity of existing pipelines. Most transmission companies have long-term contracts with buyers, like LDCs, gas marketers, electricity generators, and industrial users that specify transportation volumes and whether delivery is “firm” or “interruptible” during periods of high volume use, with different price structures.

LDCs buy gas directly from producers or gas marketers and distribute it to local customers generally classified as residential, commercial, or industrial. Large industrial users and electricity generators often bypass the local distributor and deal directly with pipeline companies and marketers. Distributors measure delivery capacity in terms of “peak-day capability,” which is usually expressed as thousand cubic feet (MCF) per day (MCFD), which is a combination of contracted pipeline capacity, underground storage release capacity, and peaking supplies, generally liquefied natural gas (LNG) in storage containers.

With natural gas being used by consumers and businesses to provide heat and hot water, by utilities to power turbines that produce electricity, by industrial users to power furnaces, and as a feedstock to produce other chemicals, the facilities and equipment needed to provide this energy must be built and maintained, meters must be read and bills generated, storms must be addressed, and gas line breaks repaired. New technologies have been developed in the last ten years that have changed the way that a utility can perform some of these functions, but they all still revolve around having an adequately trained workforce to meet the day-to-day needs of the customer. How well the utility is organized and managed to address these basic business requirements is the primary areas of interest of this stratified management audit.

PGW

Philadelphia Gas Works is wholly owned by the City of Philadelphia (City) and, by law, is operated for the sole and exclusive benefit of the City. The Management Agreement Act (a 1972 City ordinance) created the Philadelphia Facilities Management Corporation (PFMC). The PFMC is a non-profit corporation that was established for the specific purpose of managing and operating PGW. The PFMC Board of Directors consists of seven members, all of whom are outside directors who are appointed by the Mayor of Philadelphia to four-year terms. The Philadelphia Gas Commission (PGC) has existed since early in the twentieth century, is recognized under the City Charter, and whose functions are governed by the Management Agreement Act. It consists of five members: the City Controller, two members appointed by the City Council, and two members appointed by the Mayor. The Management

Agreement specifically gives the PGC specific authority to approve the operating budget, review the capital budget and make recommendation to City Council, to regulate specific aspects of PGW operations, and to assume all management oversight not specifically delegated to PFMC. This oversight includes approving PGW's annual operating budget (as of July 2000, responsibility for rates and handling customer complaints was transferred to the Pennsylvania Public Utility Commission), reviewing the capital budget before forwarding to the City Council with a recommendation, receiving semi-annual reports (on salaries, fringe benefits, expenses, and costs of PFMC), and approving senior management and other employees of PGW selected by the PFMC. PGW operates on a fiscal year (FY) basis with years running from September to August.

Built pursuant to an ordinance of March 21, 1835, Philadelphia Gas Works was under its provisions administered by a board of twelve trustees elected by City Council for three-year terms. Upon the consolidation of the City of Philadelphia and Philadelphia County in 1854, the trustees were authorized to purchase and administer all other gas works within Philadelphia County. Under the terms of the Bullitt Bill, the trustees were abolished in 1887. The operation of PGW was transferred to the Bureau of Gas, created in 1854, within the Department of Public Works. In 1897 the City contracted with the United Gas Improvement Company (UGI) for administration of PGW, the Bureau of Gas retaining inspectorial duties over UGI's performance. At the renewal of the contract in 1927, a PGC of three members was appointed to four-year terms (by the Mayor and UGI) to oversee the company's performance. In 1937 the PGW lease was transferred to the Philadelphia Gas Works Company, and the PGC's composition was changed to include two members of City Council, one mayoral and one Company appointee, and the City Controller. With adoption of the City Charter of 1951, the PGC was made a departmental board of the Department of Public Property. When the agreement of 1937 was superseded by one of 1961 with UGI, a new PGC, removed from the Department of Public Property, was created composed of the City Controller and four members, of whom two were appointed by City Council and two by the Mayor for terms of four years.

As Philadelphia's first gas works, built in 1836 at 22nd and Market streets as a private venture, PGW is now the largest municipally-owned gas utility in the nation, maintaining a distribution system of 6,000 miles of gas mains and services and providing service to over 500,000 customers. PGW has approximately 1,700 employees, used for the acquisition, storage, processing, and distribution of gas within the City of Philadelphia.

Business Transformation

Since November 2006 PGW has been undertaking a program called Business Transformation (BT). This is a reasonable concept envisioned to be a strategy to move PGW forward, initially through a two to three year project to address 13 major initiatives. These initiatives identified approximately \$140 million in projected five-year benefits to PGW, necessitating an expenditure of over \$30 million in outside consulting assistance and other costs to achieve. Undertaking efforts in a holistic manner, as suggested by PGW management, are what many effective organizations attempt to do. Although the



total program is still being considered, to date it has only been partially approved, making progress extremely slow. Although Schumaker & Company would expect that many of the recommendations that have been made in this report might be addressed by some aspects of the BT program, our review was focused strictly on reviewing management and business processes in existence at the time of our review without assessing the potential success of the BT effort to address recommendations that we have made. This Business Transformation program is discussed in more detail in *Chapter IV – Corporate Governance*.

The success of the BT program is also predicated on obtaining timely approvals from PFMC, PGC, and City Council in order to proceed, which is a more complicated governance structure than we have seen in any gas distribution company undertaking such a program. Furthermore, this report contains several recommendations regarding PGW corporate governance and its impact on overall oversight and governance processes. It is important that the BT program proceed in a timely manner to address many of the recommendations contained in this report.

B. Objectives and Scope

The objectives of the stratified management and operations audit are generally common to all audits and were established by the PaPUC in its request for proposal (RFP). The objectives of this audit were threefold:

- ◆ To provide the PaPUC, PGW management, and the public with an assessment of the economy, efficiency, and effectiveness of PGW's operations, management methods, organization, practices, and procedures.
- ◆ To identify opportunities for improvement and develop recommendations for improvement or further action.
- ◆ To provide an information base for future regulatory and other inquiries into PGW's management and operations.

In essence, the PaPUC sought to determine what improvements, if any, could be accomplished in the management and operations of PGW. Restated, the purpose was to explore and identify practical opportunities for PGW to achieve improvements for efficient and effective operations, quality services, and cost savings, thus providing PGW ratepayers the lowest possible rates consistent with above-average service delivery. Our assessment included PGW's human, physical, and capital resources, its management decisions, compliance with regulatory requirements, and ability to effectively manage outside constraints and events. Given such breadth of scope, the audit encompassed virtually all of PGW's management and operating functions as well as those City functions supporting PGW management and operations. Each review was in sufficient detail to facilitate identifying recommendations for cost savings and service quality improvements that were supported by benefit

analyses to the extent they were quantifiable. This report provides details of our findings, conclusions, and recommendations for each specified area within the scope of the audit.

The stratified approach and work elements included three phases: 1) an assessment of the condition of major functional areas, 2) a more detailed examination of a number of pre-identified issues, and 3) a focused analysis of issues identified during the diagnostic review. The first stage of the audit consisted of a broad overview of major functional areas and it is referred to as *Phase I – Diagnostic Review*. The second stage of the audit encompassed a detailed review and analysis of six pre-identified issues as set forth in the RFP. This stage is referred to as *Phase II – Pre-Identified Issues Review*. The third stage of the audit would have consisted of a focused analysis of selected issues identified during *Phase I* activities. However, this stage was deemed unnecessary and not utilized. Each of these phases concluded with the development of a report that presented our overall findings, conclusions, and recommendations. The actual field work for *Phase I* and *Phase II* began on October 23, 2007 and continued through December 31, 2007 for most sections, with the System Reliability and Customer Service reviews continuing through June 30, 2008.

During conduct of the review, our consultants allocated considerable time to interviewing PGW and PaPUC personnel, reviewing reports and documentation, analyzing work flow processes, and assessing any changes being planned by PGW management. The consultant team focused on identifying areas for improvement, rather than areas where operations performed well. Although some recommendations were associated with areas that had been identified prior to the review as improvement opportunities, we endeavored to formulate more detailed action steps in our recommendations.

This review was performed in accordance with generally accepted auditing standards (GAAS), as contained in the United States General Accounting Office’s “Standards for Audit of Government Organizations, Programs, Activities, and Functions,” related to issues of management economy, efficiency, and effectiveness as applicable to public utilities (“Yellow Book”), and in accordance with the standards as defined in the RFP and set forth in the National Association of Regulatory Utility Commissioners’ “Consultant Standards and Ethics for Performance of Management Analysis.”

C. Functional Evaluation Summary

Because the bulk of a management audit is focused on opportunities for improvement, it may give the reader the impression that the utility is seriously deficient. This is not necessarily so, because many of the findings may be of a relatively minor nature. Therefore, it is necessary to put each functional area or issue in perspective to provide the PaPUC, PGW, and the public with an objective evaluation. The RFP established a set of evaluative criteria for summarizing the results of this audit. The rating is an evaluation of each area’s or issue’s operating or performance level relative to its optimum as of the time of the audit. The evaluation takes into account PGW’s resources, requirements, constraints, and operating environment. In some areas comparative data is useful and can be used. For the most part,



however, each rating is utility specific; i.e., the rating of PGW cannot be directly compared with that of another utility.

Schumaker & Company's overall assessment of each work plan area is presented in the *Functional Evaluation Summary* shown in *Exhibit I-1* and *Exhibit I-2*, with the specific criteria used as follows:

- ◆ *Optimum* – The area is functioning more than adequately and no recommendations were made.
- ◆ *Minor improvement necessary* – The area is generally functioning adequately, but minor improvements are recommended.
- ◆ *Moderate improvement necessary* – The area is generally functioning adequately, but some substantial opportunities for improvement were recommended.
- ◆ *Significant improvement necessary* – The area is not functioning adequately and many recommendations, requiring considerable effort, need to be implemented to achieve adequate performance.
- ◆ *Major improvement necessary* – The area is not functioning effectively or efficiently and many recommendations need to be implemented to achieve adequate performance. Implementation of these recommendations will have a major effect on cost levels and performance for PGW.

Exhibit I-1
Functional Evaluation Summary
Phase I – Diagnostic Review

Chapter	Function	Evaluative Ratings				
		Optimum	Minor Improvement Necessary	Moderate Improvement Necessary	Significant Improvement Necessary	Major Improvement Necessary
II	Executive Management & Human Resources					
	Executive Management		X			
	External Relations		X			
	Human Resources			X		
III	Support Services					
	Information Technology		X			
	Transportation Management			X		
	Facilities Management		X			
	Procurement Services				X	
	Risk Management		X			
	Legal Services		X			

Exhibit I-2
Functional Evaluation Summary
Phase II – Pre-identified Issues Review

Chapter	Function	Evaluative Ratings				
		Optimum	Minor Improvement Necessary	Moderate Improvement Necessary	Significant Improvement Necessary	Major Improvement Necessary
IV	Corporate Governance			X		
V	Financial Management			X		
VI	Diversity and EEO			X		
VII	System Reliability Performance & Other Related Operations			X		
VIII	Customer Service				X	

D. Summary of Estimated Benefits

The audit produced 93 recommendations, which are contained in this report. A summary of the number of priority items, and estimated benefits, is grouped by phase. Following is a brief explanation of these categories of information.

Priority

To assist PGW management in developing implementation plans, each recommendation has been assigned a priority of “high,” “medium,” or “low” according to the following criteria:

- ◆ *High* – Designated recommendations are high priority because of their importance and urgency. These represent significant benefit potential, major improvements to service, or substantial improvements to methods or procedures.
- ◆ *Medium* – Designated recommendations are of medium priority. In some instances, the implementation of these recommendations is expected to provide moderate improvements in profitability of operations, or management methods and performance. In other instances, implementation may provide significant longer-term benefits which are less predictable.
- ◆ *Low* – Designated recommendations reflect a lower priority. In many instances, they should be studied further or implemented sometime during the next few years. Potential benefits are perceived to be either modest or difficult to measure.



Exhibit I-3 summarizes the priority totals for each phase of the audit.

Exhibit I-3
Summary of Priority Totals

	High	Medium	Low
Phase I	14	28	9
Phase II	22	20	0
Total	36	48	9

Benefits

The audit identified quantifiable cost savings of approximately \$2 million in one-time savings and \$3 million to over \$7.35 million in annual savings. Some of these savings could be considered an actual reduction in costs, where the majority of those savings would occur through better deployment and/or use of existing resources. Nonetheless, all of these opportunities should be pursued by PGW. An overall summary of the one-time and annual costs savings is shown in *Exhibit I-4*.

Exhibit I-4
Summary of Benefits

	One-time Savings	Annual Savings
Initiate increased efforts to reduce the level of inventory in Materials Management Department (MMD) storerooms	\$2 million	\$500,000
Initiate efforts to reduce the number of employees in the MMD		\$400,000
Assess the root causes of absenteeism and address the quality of work/life issues in the call center in conjunction with the enforcement of absence policies.		\$300,000-\$450,000
Reevaluate the use of the soft-off program at PGW.		\$1 million-\$2 million
Undertake a major study to improve the gas theft prevention program.		\$800,000-\$4 million
Total	\$2 million	\$3 million-\$7.35 million

In many recommendations, it is not possible or practical at this time to measure “quantitative” benefits. The benefits associated with these recommendations fall primarily into four categories:

- ◆ Reduction in actual costs of operations within a PGW area
- ◆ Increase in a revenue source within a PGW area

- ◆ Change in work flow processes used in the provision of services to PGW customers on a more effective or efficient basis
- ◆ Change in other processes resulting in good business practices being implemented

Particularly in instances where a new management practice or procedure is recommended (where one either did not exist or was not fully implemented), it may be difficult to estimate the actual benefit to be derived. It is believed, however, that the overall benefit will be improved effectiveness and efficiency of the specified PGW area. Additionally, qualitative benefits may occur that cannot be easily quantified. They could include improved effectiveness and efficiency in operations, increased customer satisfaction, additional cost savings, increased revenues, etc. It should also be noted that, because it is not possible in all instances to estimate expected benefits prior to implementation, any implementation plan should include a reliable measurement tool to track benefits after implementation.

Quantifiable benefits (increased revenues or additional cost savings) have been provided where they could be estimated. This quantification is subject to some judgment and would require additional effort beyond the scope of this review to refine the estimates. The actual benefits from these recommendations are, therefore, subject to a degree of uncertainty. For other recommendations the benefits to be derived are of a more qualitative nature or, simply stated, the expectations of prudent management. Those areas where major quantifiable benefits have been identified in the report are described on the following pages.

As PGW will have varying ways to implement recommendations, Schumaker & Company did not estimate the impact of implementing audit recommendations on PGW's expense. However, the short-term impact could be considerable. Additionally, implementation of recommendations often requires a phase-in period before benefits can be achieved.

E. Summary of Recommendations

The actual recommendation statements contained in the audit report are shown by phase and work plan area on the following pages. We have also indicated the recommendation number, page number in the report, priority, estimated time-frame to initiate implementation efforts, and estimated benefits following implementation. The details of each recommendation can be found in the individual chapters where the subject matter is evaluated.



Phase I – Diagnostic Review

Chapter II – Executive Management and Human Resources

	Description	Page	Implementation		
			Priority	Initiation Time Frame	Benefits
II-1	Develop an external relations strategic/business plan.	32	Medium	6-12 Months	Medium
II-2	Expand and document community relations and regulatory relations programs.	32	Low	6-12 Months	Low
II-3	Implement management incentive compensation.	51	High	0-12 Months	High
II-4	Assess root causes of absenteeism and implement appropriate human resources and organizational development strategies to address these causes.	51	High	0-12 Months	High
II-5	Develop a comprehensive return-to-work process, including metrics, for employees with medical restrictions.	51	Medium	6-12 Months	Medium
II-6	Appoint a return-to-work coordinator as part of the Absence Control group in Human Resources.	52	Medium	6-12 Months	Medium
II-7	Implement a comprehensive institutional knowledge loss risk assessment and workforce planning process.	52	High	0-6 Months	High

Chapter III – Support Services

	Description	Page	Implementation		
			Priority	Initiation Time Frame	Benefits
III-1	Formalize a regularly conducted, long-range planning process.	88	High	0-6 Months	High
III-2	Complete existing Information Systems policies and procedures and expand focus to include internal IS guidelines.	89	High	0-6 Months	Medium
III-3	Expand the purpose of the QA organization to become actively involved in all phases of major technology projects.	89	Medium	0-6 Months	Medium
III-4	Use Microsoft Project Server to effectively track activities, milestones, and resources for all major technology projects.	89	Medium	0-6 Months	Medium
III-5	Properly secure the PGW telecommunications and server room.	90	Medium	6-12 Months	Low
III-6	Expand emphasis on achievement of project management and technical certifications..	90	Medium	0-6 Months	Medium

	Description	Page	Implementation		
			Priority	Initiation Time Frame	Benefits
III-7	Establish Service level Agreements (SLAs) with all major IS customers.	90	High	0-6 Months	Medium
III-8	Maintain the desired schedule for disaster-recovery tests, including frequent use of comprehensive tests that are fully documented.	90	High	0-6 Months	Medium
III-9	Incorporate disaster recovery into business-continuity plan process and expand its focus.	91	Medium	0-6 Months	Medium
III-10	Develop a specific human resources plan to ensure that the correct number of experienced replacements will be available to take over for the mechanics who will be retiring in the next few years.	109	High	12+ Months	High
III-11	Use information collected from outside contractors to make decisions on which FO activities can best be performed by outside contractors and what areas of FO need to be improved to be comparable with outside contractors.	109	Medium	12+ Months	Medium
III-12	Initiate a concerted effort to automate the production of the monthly PM schedule, thereby resulting in manpower time savings.	110	High	0-6 Months	High
III-13	Evaluate the beneficial impact that having an auto-parts-knowledgeable person in the storeroom would have on improving the process of parts identification and ordering.	110	Medium	6-12 Months	Medium
III-14	Develop specific programs that are intended to improve the levels of cooperation and communication between the FO Department and the various field operating groups.	110	Medium	6-12 Months	Medium
III-15	Initiate an evaluation of the operations of the Facilities Department to identify procedures and processes that could be improved.	121	Medium	12+ Months	Medium
III-16	Initiate an internal audit of the Facilities Department.	121	Medium	12+ Months	Medium
III-17	Initiate a formal material-demand-requirements forecasting program in the Procurement Department.	138	Medium	12+ Months	Medium
III-18	Change the focus of the Procurement Department from being primarily an administrative group to being a proactive procurement organization that is actively involved in all aspects of the purchasing process.	138	High	12+ Months	High
III-19	Develop a program to perform regular surveys of the operating department clients of the PGW Procurement Department concerning the performance of the largest vendors and any other vendors with which problems have been experienced in the past.	139	Medium	12+ Months	Medium

			Implementation		
	Description	Page	Priority	Initiation Time Frame	Benefits
III-20	Rotate the buyers across the vendors on a regularly scheduled basis, for both security and cross-training reasons.	139	Low	12+ Months	Low
III-21	Develop a program to collect and use metrics that are related to individual buyer performance.	139	Medium	12+ Months	Medium
III-22	Develop a program to collect metrics related to the savings or contributions to PGW's profitability that are achieved through the work of the Procurement Department.	139	High	12+ Months	High
III-23	Explore the available options for creating a purchasing consortium arrangement with the City of Philadelphia Procurement Department.	140	Medium	12+ Months	Medium
III-24	Evaluate the additional functionality that is not being used in the Oracle procurement application and develop a formal plan and schedule for taking advantage of those features, one that would have the most beneficial impact on the operations of the Procurement Department.	140	Medium	12+ Months	Medium
III-25	Identify operations and functions that could be better integrated between the Procurement Department and the Materials Management Department.	140	Low	12+ Months	Low
III-26	Evaluate the electronic commerce capabilities that are available through the Oracle e-procurement application and determine if these capabilities would be cost effective to implement.	141	Medium	12+ Months	Medium
III-27	Evaluate the purchasing authorization levels that are currently in place and identify potential areas that could be streamlined.	141	Low	12+ Months	Low
III-28	Explore the advantages that increased partnering with vendors and designation of strategic suppliers would bring to the procurement process at PGW.	141	Medium	12+ Months	Medium
III-29	Increase the amount at which a sealed bid is required from the current \$10,000 threshold to a more realistic level of \$25,000 or more.	141	Low	12+ Months	Low
III-30	Initiate increased efforts to reduce the level of inventory in the MMD storerooms.	157	High	12+ Months	High \$2 million one-time \$500,000 annually
III-31	Initiate efforts to reduce the number of employees in the MMD.	157	High	12+ Months	High \$400,000 annually
III-32	Initiate a focused effort to increase the level of inventory turnover in the MMD storerooms and in aggregate.	158	High	12+ Months	High

	Description	Page	Implementation		
			Priority	Initiation Time Frame	Benefits
III-33	Perform an analysis to determine the best way to utilize the spare parts classification and take the necessary steps to ensure that it is applied evenly across the storerooms.	158	Medium	12+ Months	Medium
III-34	Develop formal procedures to guide and govern the day-to-day operations of the MMD storerooms.	158	Medium	12+ Months	Medium
III-35	Conduct an evaluation to determine whether the Material Delivery function is cost effective when provided on an in-house basis or if the service could be provided as well and more cost effectively by an external contractor.	159	Low	12+ Months	Medium
III-36	Conduct an evaluation to identify if there are potential advantages to be gained by transferring the gasoline and diesel fuel provision function to a private contractor.	159	Low	12+ Months	Medium
III-37	Conduct an analysis to determine if it would be cost and operationally effective to outsource the vehicle parts procurement and inventory function.	159	Medium	12+ Months	Medium
III-38	Initiate efforts to increase the usage of vendor stocking arrangements.	159	Medium	12+ Months	Medium
III-39	Develop a high-level cross-training program that would provide MMD supervisors with increased training in the requirements and preferences of the field operations groups that are their clients.	159	Low	12+ Months	Medium
III-40	Review the operational advantages to be gained from the implementation of a bar-coding program in the MMD storerooms.	160	Medium	12+ Months	Medium
III-41	Conduct an analysis to determine the economic and operational benefits that would be gained from the consolidation of the MMD storerooms.	160	Medium	12+ Months	Medium
III-42	Evaluate the unused functionality of the Oracle inventory management application and develop a formal plan and schedule for taking advantage of those features that would have the most beneficial impact on the MMD operations.	160	Low	12+ Months	Medium
III-43	Formalize and enhance PGW's ERM program.	179	Medium	6-12 Months	Medium
III-44	Conduct a formal compensation study to evaluate marketplace salaries for attorneys and paralegals.	190	Medium	6-12 Months	Medium

Phase II – Pre-Identified Issues Review

Chapter IV – Corporate Governance

	Description	Page	Priority	Implementation	
				Initiation Time Frame	Benefits
IV-1	Streamline the corporate governance processes of PGW.	203	High	6-12 Months	High
IV-2	Develop an ongoing ethics training program.	204	Medium	6-12 Months	Medium
IV-3	Strengthen the Board Audit Committee function.	204	Medium	6-12 Months	Medium
IV-4	Strengthen PGW's Internal Audit function and enhance internal controls.	204	High	12+ Months	Medium
IV-5	Expedite the pursuit of the Business Transformation Project.	204	High	12+ Months	High

Chapter V – Financial Management

	Description	Page	Priority	Implementation	
				Initiation Time Frame	Benefits
V-1	Institute flexible work rules and hours in financial management functions.	234	Medium	0-6 Months	Low
V-2	Update the payroll system cost analysis.	234	Medium	0-6 Months	Medium
V-3	Improve the timing of the budget preparation and approval process.	234	Medium	0-6 Months	High.
V-4	Modify the IA program structure by addressing all noted deficiencies.	235	High	12+ Months	Medium
V-5	Implement a process to ensure that the IA Director meets quarterly with the Board's Audit Committee.	235	High	0-6 Months	High

Chapter VI – Diversity and EEO

	Description	Page	Priority	Implementation	
				Initiation Time Frame	Benefits
VI-1	Expand PGW's diversity program so as to include increased focus on leveraging diversity as a business advantage.	257	Medium	6-12 Months	Medium
VI-2	Begin filing comprehensive diversity reports to the PaPUC annually.	258	High	0-6 Months	Low

				Implementation	
	Description	Page	Priority	Initiation Time Frame	Benefits
VII-3	Explore the use of spend targets in the Procurement Department's performance objectives.	258	Medium	6-12 Months	Medium

Chapter VII – System Reliability Performance and Other Related Operations

				Implementation	
	Description	Page	Priority	Initiation Time Frame	Benefits
VII-1	Provide at least two controllers on all shifts for the Gas Control Center.	274	High	0-6 Months	High
VII-2	Take steps to plan for the retirements that could have a major impact on the ability to staff the Gas Control Center.	275	High	6 -12 Months	High
VII-3	Place the RFP that solicits gas commodity suppliers on the PGW electronic bulletin board.	275	Medium	0-6 Months	Medium
VII-4	Institute a program to perform vendor credit checks in order to qualify for a NAESB purchasing agreement, and to perform credit evaluations on a regular basis for existing suppliers.	276	Medium	0-6 Months	Medium
VII-5	Evaluate an all-inclusive or enterprise computer system to track the gathering of transactions so that supplier invoices, transportation invoices, and sales of excess supplies are captured.	276	Medium	0-6 Months	Medium
VII-6	Evaluate, year-to-year as well as on a real time basis, PGW's gas supply assets to determine, based on the LNG levels, whether programs for storage capacity can be created to add value and savings as part of the 1307 (f) review.	276	High	0-6 Months	High
VII-7	Enhance the FSD and Distribution business processes through more computerization.	324	High	12+ Months	High
VII-8	Centralize all field force planning, scheduling, performance monitoring and analysis functions.	324	High	6-12 Months	High
VII-9	Consider certain future enhancements to the Advantica program after gaining experience with the current implementation.	324	Medium	12+ Months	Medium
VII-10	Set more aggressive performance targets on gas leak response.	325	Medium	6-12 Months	Medium
VII-11	Build a stronger gas theft of service program.	325	High	12+ Months	High
VII-12	Reassess PGW future field operations staffing levels/needs taking into consideration the organization's pending retirements.	325	High	12+ Months	High

Chapter VIII – Customer Service

	Description	Page	Priority	Implementation	
				Initiation Time Frame	Benefits
VIII-1	Investigate the possibility of streamlining some of the paper work in PGW's Universal Services Programs through some type of computerization or electronic document management program.	375	Medium	12+ Months	Medium
VIII-2	Hire part-time Customer Service Representatives (CSRs) and implement variable staffing levels based on predicted call volume.	376	Medium	12+ Months	Medium
VIII-3	Investigate methods to improve CSR selection and retention.	376	High	6-12 Months	High
VIII-4	Include CSR turnover as a key performance indicator for the call center.	376	High	6-12 Months	Medium
VIII-5	Redesign the call center supervisor jobs to focus more on coaching and development.	377	High	12+ Months	High
VIII-6	Develop a method for measuring actual call center turnover rates.	377	High	0-6 Months	High
VIII-7	Assess the root causes of absenteeism and address the quality of work/life issues in the call center in conjunction with the enforcement of absence policies.	377	High	6-12 Months	High \$300,000 to \$450,000 annual savings
VIII-8	Implement an annual comprehensive customer satisfaction analysis and develop an improvement strategy based on the results.	378	Medium	12+ Months	Medium
VIII-9	Address customer dissatisfaction/satisfaction drivers.	378	Medium	6-12 Months	Medium
VIII-10	Make changes to the configuration of the various customer service district offices.	378	Medium	12+ Months	Medium
VIII-11	Make modest renovations to customer service district offices.	379	Medium	12+ Months	Medium
VIII-12	Provide privacy for LIHEAP applicants.	379	Medium	6-12 Months	Medium
VIII-13	Demonstrate, periodically, to the PaPUC that the Parts and Labor Program is self-supporting.	379	High	12+ Months	High
VIII-14	Work with PFMC and the PGC to develop a plan for addressing the major issues facing the City of Philadelphia regarding PGW.	380	High	12+ Months	High
VIII-15	Create measurements for measuring the effectiveness of refunding customers with credit balances.	382	Medium	6-12 Months	Medium
VIII-16	Reevaluate the use of the soft-off program at PGW.	382	High	12+ Months	High \$1 million to \$2 million annual savings

				Implementation	
	Description	Page	Priority	Initiation Time Frame	Benefits
VIII-17	Undertake a major study to improve the gas theft prevention program.	383	High	12+ Months	High \$800,000 to \$4 million annual savings in theft recovery



II. Executive Management and Human Resources

This chapter includes Executive Management (organizational structure and planning, management and administrative communications and control, and strategic planning), Human Resources, and External Relations work plan areas.

A. Executive Management

This section addresses organizational structure and planning, management and administrative communications and controls, and strategic planning areas for Philadelphia Gas Works (PGW).

Background and Perspective

Organization Structure and Planning

Philadelphia Gas Works is wholly owned by the City of Philadelphia and, by law, is operated for the sole and exclusive benefit of the City. The Management Agreement Act (a 1972 City ordinance) created the Philadelphia Facilities Management Corporation (PFMC). The PFMC is a non-profit corporation that was established for the specific purpose of managing and operating PGW (this includes providing senior management, specifically the President and Chief Executive Officer, and the Chief Financial Officer, and other such personnel to PGW as deemed appropriate by the PFMC). The PFMC consists of seven members (five outside directors, the City's Finance Director, and the Mayor's Chief of Staff) who are appointed by the Mayor of Philadelphia to two-year terms.

The Philadelphia Gas Commission (PGC) is also governed by the Management Agreement Act and consists of five members: the City Controller, two members appointed by the City Council, and two members appointed by the Mayor. The Management Agreement specifically gives the PGC overall responsibility for overseeing the operation of PGW by the PFMC. This oversight includes approving PGW's annual operating budget (as of July 2000, responsibility for rates and handling customer complaints was transferred to the Pennsylvania Public Utilities Commission), reviewing the capital budget before forwarding to the City Council, receiving semi-annual reports (on salaries, fringe benefits, expenses, and costs of PFMC), and approving senior management and other employees of PGW selected by the PFMC.



The most recent significant organizational change came about through PGW's Business Transformation Process (began in February 2007). This is a company-wide effort to overhaul and improve Philadelphia Gas Works' organizational structure and management/business processes, with goals to refine resource allocation, improve company performance throughout the organization, and upgrade management talent. Efforts have been identified and initiated throughout PGW, especially in Field Operations (Asset and Resource Management, and Field Management), Supply Chain (Strategic Sourcing, Fleet Optimization, and Warehousing & Logistics), and Customer Affairs (Collections and Operations). The current organization came from an analysis of best practices and organizational models (performed by outside consultant Accenture in 2006) and was modified by the Executive Group to reflect some specific desired realignments within PGW (e.g., placing Supply Chain inside the Field organization rather than in a separate support organization). These efforts took place from February to September 2007. Lower-level organizational evaluation and changes will continue, through ongoing business cases and the initiatives of Business Transformation, over the next two years.

PGW management has indicated that future organizational review and change will occur (using best practices and organizational model tools that are similar to those now in use) through a continuous improvement process that will continue after the completion of Business Transformation.

Management and Administrative Communications and Control

PGW's committee structure has recently been refocused and redefined to integrate and support the Business Transformation process. A new committee structure, as well as a framework for information flows between committees, is being developed and implemented. In general, Executive Management (Cabinet) committee meetings (comprising the CEO and his direct reports) are held weekly to discuss strategic issues and to make important decisions. Decisions and input flows to and from this committee to other committees are made up of senior and mid-level managers. These committee members address asset management, workforce development, internal controls, organizational development, and other key issues.

PGW employs a number of mechanisms to communicate to its employees, including:

- ◆ *Blue Flame Employee Newsletter* – a major magazine that discusses major initiatives and benefits
- ◆ *Individual e-Mail and the Voicemail System* – specific messages of importance to employees that are promulgated on an as-needed basis
- ◆ *Employee Bulletins* – information on emergencies or unusual situations
- ◆ *Paycheck Attachments* – payroll-related information
- ◆ *Departmental Communications Liaisons (Communications Network)* – broad-based information dissemination (e.g., Business Transformation efforts)
- ◆ *Intranet* – primarily for emergencies
- ◆ *Leadership Site Visits* – deal mainly with specific initiatives



- ◆ Management Team Meetings – meetings that disseminate information down through the manager/supervisor/employee ranks
- ◆ *Departmental Meetings* – communications concerning normal business operations
- ◆ *Ask.AboutX@pgworks.com* – a forum to address e-mail questions

PGW has recently developed an Internal Communications Plan. The goal of this plan is to provide an ongoing means whereby management and employees can exchange relevant and timely information. As part of this plan, PGW has identified 22 communication liaisons across Philadelphia Gas Works to disseminate important information (e.g., Business Transformation) to all employees.

PGW makes use of a number of management reports up and down the organization. These reports cover a wide range of operational issues (gas sendout, status, gas costs, daily control reports), financial metrics, safety issues, human resources and labor issues, numerous customer service measurements, summaries on support operations (fleet, materials, and facilities), and major program efforts, among others.

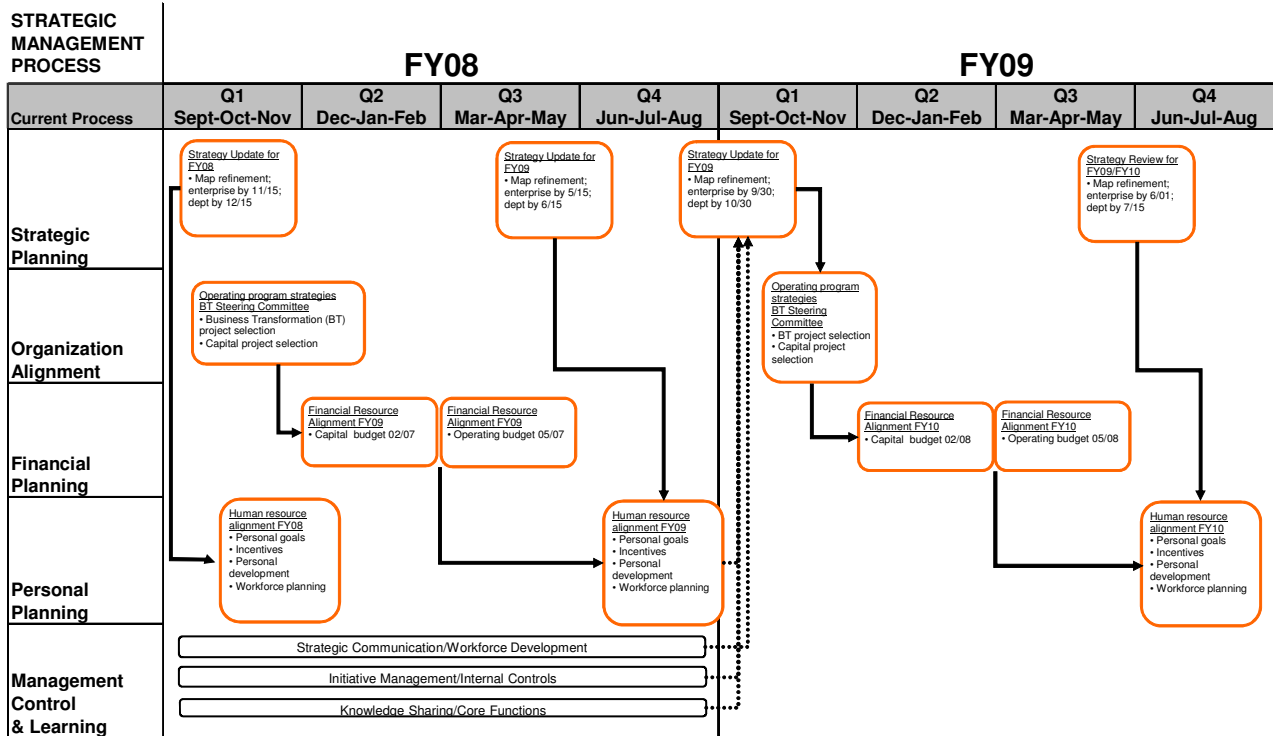
Policies and procedures are coordinated by the Policy and Compliance Department (formed in 2003). Individual departments are responsible for maintaining their own procedures. A coordinator is assigned to each department to lead procedure reviews and updates (i.e., often through departmental teams) with assistance from the Policy and Compliance Department. The Policy and Compliance Department is currently defining review criteria and is setting up processes for reviewing, updating, eliminating, etc. all procedures. Department members are also in the process of getting all procedures on a database and a database list of all 1,270 corporate procedures exists. It is PGW's policy to have each procedure reviewed and updated every two years, or more frequently as other requirements define (e.g., annually for some operating procedures) or when departments initiate an important change (e.g., reorganization, changes to practices, GAP analysis, i.e. an analysis of best practices against current practices, etc.). Schedules will be maintained on Access databases. Documentation guiding these processes include the Corporate Policies and Procedures index (listing of all corporate policies and procedures maintained by the Policy and Compliance Department), the PGW Departmental Procedures Workbook (updated listing of all departmental procedures, bulletins, and manuals), and the procedures "Preparing and Maintaining Procedures" and "Creating, Revising, and Deleting Procedures."

Strategic Planning

Strategic planning at PGW was formerly facilitated by the Strategic Development Department. Recently, these efforts have been halted and the Strategic Planning process has come under the Business Transformation process. Although a formal strategic plan has not been collected into a single document in the past two years, the overall process is similar to previous years.

The current process is shown in *Exhibit II-2*.

Exhibit II-2
Strategic Planning Timeline
as of December 31, 2007



Source: DR 429: Strategic Planning Timeline

Annually, general corporate/enterprise goals are established at the executive level and are confirmed with the PFMC. Scorecards with departmental metrics (performance measures) are developed and refined to support enterprise objectives. Budgets are then developed to support departmental scorecards, with adjustments taking place to reflect priorities based on available funds (affordability). Finally, the budget is linked to specific enterprise objectives. Since 2004, objectives have been based on enterprise objectives coming from the Business Transformation process.

This current process is going through its second iteration and will result in five high-level goals, with 20 subtending objectives (documented in a scorecard). These objectives are then driven down into reporting metrics and departmental objectives. All goals and objectives are tied to specific actions and budgets to aid in accomplishing them. PGW is contemplating tying performance matrices to an incentive compensation system.

Performance matrices (goals) have been established PGW (enterprise) wide and for all departments. Metrics are summarized on spreadsheets and include budget, actual, and variance figures (by month or

quarter). Each metric is further documented on individual sheets (Managing by Metrics – Metric Detail) that contain more detailed information about the metric and list a metric owner (individual).

Findings & Conclusions

Finding II-1 PGW's current organization supports corporate objectives.

An analysis of PGW's organization shows that spans of control from the President and Chief Executive Officer on down through the director/manager level are appropriate. We couldn't identify any cases of excessive layering of management, and groups with like functions were organized together (not dispersed).

Charters are maintained for all departments within PGW. Each charter includes sections describing: primary functions, mission statements, and broad details on how missions will be accomplished.

Finding II-2 PGW's organizational evaluation process is appropriate.

With the assistance of an outside consultant, PGW has recently (February through September, 2007) examined its entire organization through the Business Transformation process. This process made use of examining industry best practices and organizational models, which was coupled with management review to reflect some specific aspects of PGW, to develop the current organization. Management has indicated that the PGW organization will continue to be evaluated on a periodic basis using the same tools.

Finding II-3 PGW's management and administrative controls are adequate and improving.

PGW uses a number of vehicles to communicate with its employees. These modes of communication include newsletters (Blue Flame Employee Newsletter), a monthly publication on news of general interest to employees, e-mail and voicemail systems used on an as-needed basis to disseminate specific messages, employee bulletins and intranet to communicate emergency and unusual situations, and paycheck attachments for specific payroll/benefits information. A communications network has been set up to communicate information on the Business Transformation process through named departmental liaisons. An Internal Communication Plan was recently developed by the Corporate Communications group. This plan was developed as a result of employee surveys, employee engagement in PGW and the local community, additional meeting formats, additional training (including retreats), corporate wellness programs, employee recognition and awards, employee social events, and additional visits by senior management to employee locations, among others. This program is in the process of being further developed and implemented.

As noted earlier, PGW has a wide range of management reports that cover all functional areas. Also, PGW's committee structure, although still in development, covers all strategic areas and serves as an additional conduit for information flow throughout the organization.

Each PGW department is responsible for maintaining its own management and administrative procedures. There is a designated Policy and Compliance Department that is responsible for assisting with and coordinating the development, review, and updating of all procedures. Indexes and workbooks are maintained that track the status of all procedures, and written procedures for preparing, maintaining, creating, revising, and deleting procedures are in place. Criteria are established that define when a procedure must be reviewed and stipulate that procedures must be updated every two years or whenever there is a significant change to the function or department. Periodic reviews are initiated by the Policy and Compliance Department, while functional/organization change reviews are initiated by the responsible department. Coordinators are assigned to each department to lead and hold responsibility for procedural review. All updated policies are reviewed and approved by the review team, with copies of approval forms maintained by the Policy and Compliance Department. All policies list their revisions and effective dates.

Safety information is distributed to employees via an "Employee Right to Know" program. Under this program, formatted material safety data sheets are compiled and made available to workers at all locations in hardcopy and via the PGW intranet.

Finding II-4 PGW's strategic planning process is appropriate.

PGW has recently reviewed its Strategic Planning processes through the Business Transformation process. This revised process is an enhancement of the previous process. PGW's strategic plan includes five high-level goals, 20 associated goals, associated reporting metrics (performance measures), and departmental objectives.

The plan is not contained in a single integrated document, like previous plans, but most elements of the planning process are in place. PGW has documented strategic goals, set subtending goals, and developed performance indicators (metrics) that cascade throughout the organization. Metrics and strategic goals are reviewed on a periodic basis and senior management meets weekly to discuss and decide on strategic issues and corporate directions. The specifics of the current planning process are dependent on the approval of monies to proceed with the 14 business initiatives (business cases are documented) that encompass the Business Transformation process. To whatever level these initiatives are approved for implementation, the plan will be adjusted accordingly.

Although it's standard for the strategic plan to be summarized within a single document that explicitly lays out inter-related goals and performance objectives up and down the organization as well as subtending, supporting business plans for each department (similar to the strategic plans developed prior to the Business Transformation process), we are satisfied that the important elements of strategic



and operational planning are in place and that management gives sufficient attention to the strategic direction of PGW.

Recommendations

None.

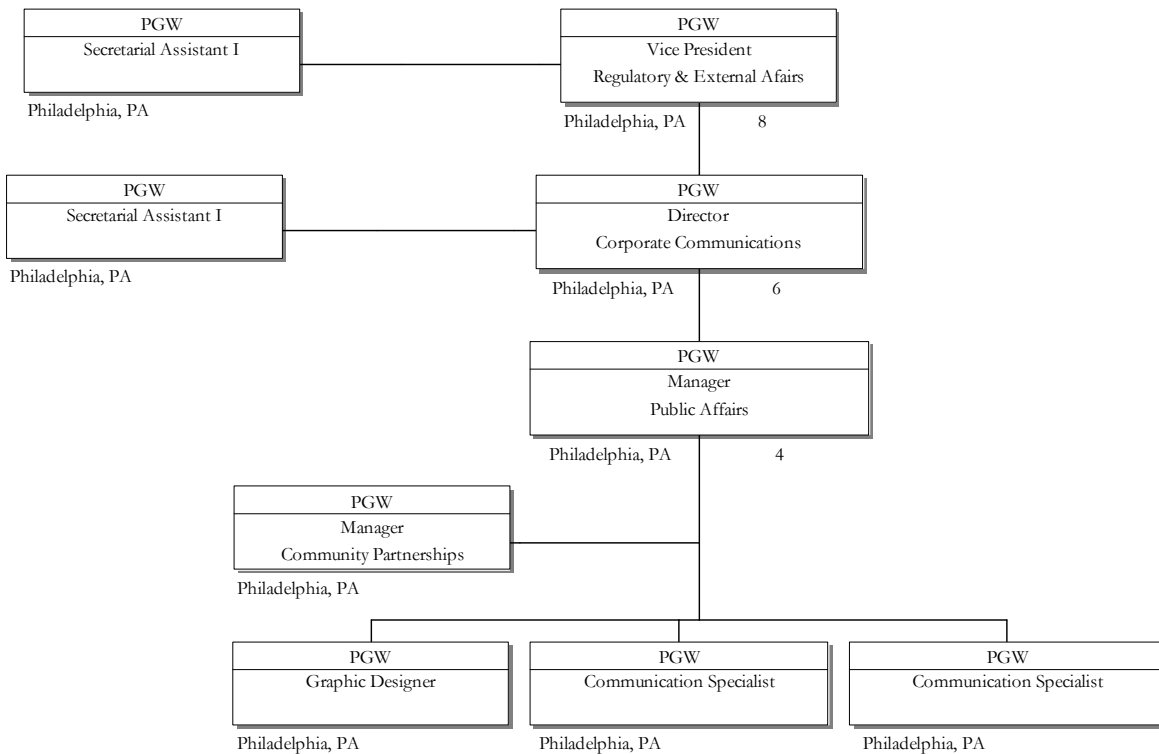
B. External Relations

This section addresses PGW’s external relations activities for the public and regulatory areas.

Background and Perspective

The organization of PGW’s external affairs function is shown in *Exhibit II-3*.

**Exhibit II-3
Regulatory and External Affairs Organization
as of December 31, 2007**



Source: Information Response 1

The Vice President (VP) of Regulatory and External Affairs reports directly to the CEO of PGW. Reporting to the VP Regulatory and External Affairs is the Director of Corporate Communications. Public Affairs, community partnerships, and communication specialists all report to the Director of Corporate Communications.

The Regulatory and External Affairs Department works with all supporting departments within PGW with regard to legislation, regulation, and communication with customers and other publics (e.g., community groups and press). The department's main responsibilities are to maintain communications with state regulators and city and state legislatures, as well as handle all external corporate communications (e.g., media requests and advertising). This organization is also responsible for employee communications and community relations activities. Specifically, the Vice President of Regulatory and External Affairs works directly with the City Council and various community groups, maintains a presence in Harrisburg (with the assistance of two outside consultants) for state and energy issues, and participates in senior management meetings (Cabinet and Core Functions meetings) to help fashion and report on PGW's external relations strategy and activities. The Director of Corporate Communications and City Council is responsible for handling media relations and advertising and for maintaining weekly contact with the Philadelphia City Council, Community Relations, and Internal Communications.

Internal expenses have been immaterial from 2002 through 2005 (\$2,000 to \$14,000), but increased to over \$59,000 in 2006 and over \$46,000 through September, 2007. These costs mainly involve industry meeting expenses, with the jump in the past two years coming from consulting services in Harrisburg. External relations expenditures for the past five years (2003 to 2007) are shown in *Exhibit II-4*.

Exhibit II-4
External Relations Expenditures
2003 to 2007

External Firms	2003	2004	2005	2006	2007
Beach Creative Communications	\$1,228,000	\$1,690,000	\$1,400,000	\$962,000	\$899,000
Production and Printing of Good Gas News					
Monthly Customer Newsletter	\$0	\$94,871	\$150,751	\$120,739	\$123,696
Brown Partners	\$44,250	\$99,153	\$0	\$0	\$0
Education & Community Resources	\$98,333	\$59,666	\$0	\$0	\$0
Trinity Printing	\$111,431	\$41,700	\$0	\$0	\$0
Total	\$1,482,014	\$1,985,390	\$1,550,751	\$1,082,739	\$1,022,696

Source: Information Response 18

External expenses are mainly for paid media on the Parts and Labor Program (for a discussion of this program, see the chapter on System Reliability), conservation, collections, LIHEAP, and pipeline awareness advertising campaigns. PGW has not conducted any recent public opinion polling and has no plans to do so in the future.



In January 2000, PGW filed a report with the PGC explaining its budgeted contributions in support of its Corporate Community Support Program (contributions and sponsorships). The PGC subsequently found that PGW had not shown adequate justification of how these monies were connected to providing safe and reliable service and rejected PGW's FY 2000 Corporate Contributions/Community Support/Sponsorships portion of its budget. (The PGC cited PGW's financial difficulties as a factor in its decision.) Subsequently, PGW has not submitted any budgets that included community contributions or sponsorships.

Major external relations efforts during the past year include the following:

- ◆ *Conservation Awareness Campaign* – broad-based effort to make consumers aware of the importance of and steps to take in conserving energy during the winter heating season
- ◆ *Management Relationship with the Philadelphia City Council* – weekly meetings with City Council members on budget and other important information and to collect feedback on concerns, interests, etc.
- ◆ *Mayoral Candidate Briefings* – information to candidates and staff on PGW and its operations
- ◆ *Creation of Decoupling Mechanism* – lobbying effort with state Public Utility Commission and state legislatures to conduct an investigation of the merits of decoupling
- ◆ *Creation of the Community Advisory Council* – establishing a two-way communication process with a broad array of community organizations
- ◆ *Rate Case* – information, legal, and lobbying efforts in support of recent rate case filings

From a regulatory standpoint, PGW's Regulatory and External Affairs Department primarily interacts with the Pennsylvania Public Utility Commission on rate case and customer service issues, and with the Philadelphia Gas Commission on capital and operating budget approval. There are as of October, 2007 no legislative proposals at the local, state, or federal level that affect PGW's operations. However, PGW, along with other PA gas utilities, is participating before the PaPUC in the development of some form of Distribution Infrastructure Service Charge (DISC).

Findings & Conclusions

Finding II-5 External relations adequately supports PGW's strategy, although improvements can be made.

The external relations function, led by a vice president who reports directly to the CEO, has high-level visibility within the organization. The current VP of Regulatory and External Affairs has considerable experience in law and public advocacy. Likewise, his direct report, the Director of Corporate Communications (responsible for PGW's public relations strategies, policies, and procedures and also PGW's corporate spokesman), has solid experience in media and community relations. Although there

is a one-on-one reporting relationship between these two managers, the vice president is within five years of retirement, and once his position is filled, the organization may be realigned.

Other manager-level positions within this department include Corporate Affairs and Community Partnerships. Corporate Affairs is responsible for planning, producing, and utilizing materials to communicate to employees and outside publics. Community Partnerships is responsible for creating and coordinating a long-term community education program.

External Relations is represented at senior management meetings involving PGW strategy and all of its activities supporting, either directly or indirectly, PGW's goals.

Aside from its one-page charter, External Relations does not have a strategic/business plan that directly ties to the PGW strategic plan.

As noted earlier, the Vice President of Regulatory and External Affairs, who may be retiring in the next three to four years, has a considerable number of state and local contacts. This intellectual capital may be lost unless these contacts are formalized (documented) and a concerted effort to transition these relationships to his replacement is made. In particular, ongoing relationships with Pennsylvania Public Utility Commission (PaPUC) staff and commissioners should be documented and further cultivated.

Finding II-6 PGW's public programs are adequate but could further expand.

As mentioned earlier, PGW has recently (2007) formed the Community Relations function and developed a Community Advisory Council made up of community groups, churches, and the like. Quarterly meetings have been held with these groups, which to date have focused on issues of community education, money management, and customer service. Task forces have been formed for these three areas to make recommendations to PGW senior management.

PGW also has a number of public information programs that are disseminated primarily through print and air media. A newsletter is distributed monthly to customers (Good Gas News) covering a broad range of information (e.g., parts & labor, conservation, collections, LIHEAP, pipeline awareness). During 2007, PGW undertook a Conservation Awareness Program that included radio spots with United Way, advertising on SEPTA buses, and newspaper centerfolds on weatherization. This program also involved workshops and coordinated efforts with other faith- and service-based organizations. News releases are routinely issued to over 30 local print media and nine local television stations.

PGW does provide managers for public speaking and other events on as requested basis, but there is no program to actively promote this type of corporate citizenship. As noted earlier, the Philadelphia Gas Commission (in fiscal year 2000) did not approve monies to be spent on charitable activities, sponsorships, and the like. However, this order was applied to only the FY 2000 budget.



Finding II-7 PGW interfaces adequately with government/regulatory agencies, but contacts and issues should be documented.

PGW maintains contacts with state regulators via personal contacts by the VP of Regulatory and External Affairs and through the efforts of two outside consultants located in Harrisburg. The status of major external relations issues (e.g., rate case, DISC) are reviewed with senior management at the Stakeholders Issues Meeting.

Contacts with local and state legislators and regulators are largely informal. For example, PGW representatives attend weekly City Council and caucus meetings (the latter being held before the City Council meetings). Here, they often conduct brief and informal discussions with individual council members and their staff. No record is kept of these discussions.

Recommendations

Recommendation II-1 Develop an external relations strategic/business plan. (Refer to Finding II-5.)

Develop a written document that lays out all elements of an external relations strategy along with supporting programs and initiatives to support that strategy. Tie each strategy/goal/program into specific PGW strategies/goals. Include cost and expected benefits.

Ensure that this plan (or some other document) includes staff development and succession planning (particularly transferring intellectual capital of the current Vice President of Regulatory and External Affairs).

Recommendation II-2 Expand and document community relations and regulatory relations programs. (Refer to Finding II-6 and Finding II-7.)

Expand and document a contact program for local/state legislator and regulator contact (e.g., a Key Stakeholder Outreach Program). Include contact person/position, personnel assigned, issues discussed, issues raised and solicit feedback on both the effectiveness of PGW external relations and the impressions of PGW (for use in issues/GAP analysis – develop database to assist with analysis). In particular, expand ongoing contacts with PaPUC commissioners and staff.

Revisit (through the strategic planning process) initiating and expanding a corporate citizenship program to include focusing some monies on charitable and sponsorship activities. Develop a formal process (e.g., a written plan that expresses where monies should go and even some expected benefits) and institute a senior management committee that approves where the monies go.

Document and expand the program to proactively get management and employees directly involved in community activities (e.g., participating on community boards, conducting lectures, visiting with community groups, etc.).

We recognize the value of informal contacts and discussion, but documenting topics and issues (even if it's just in the form of notes to file or confidential) will enable better focus and follow up on PGW strategic external affairs issues (as well as provide a better basis for analysis). This practice will further support any documented external relations plan.

C. Human Resources

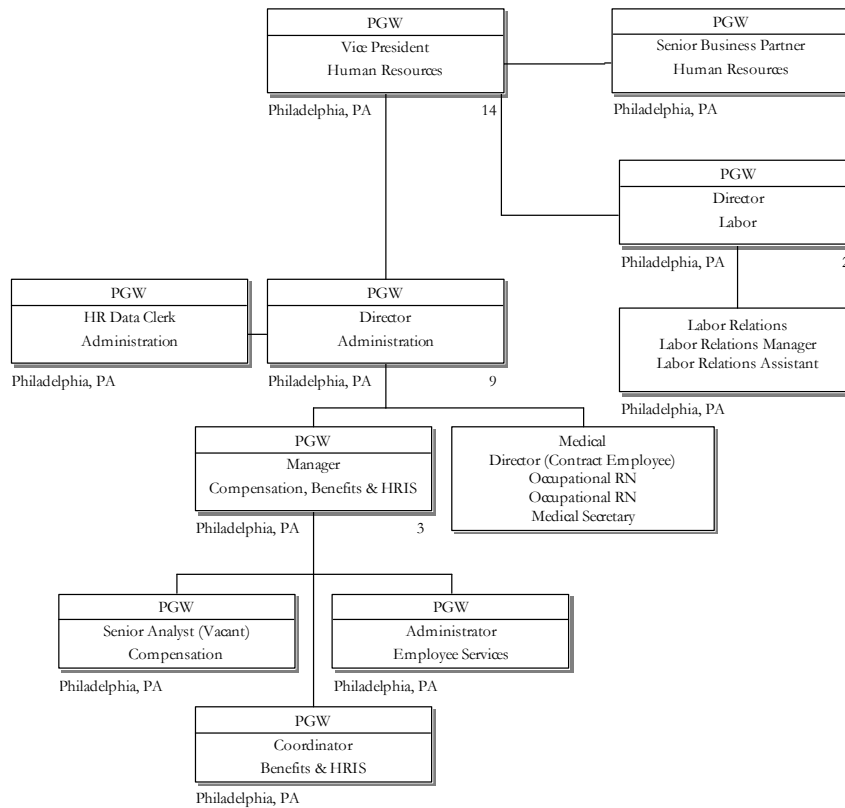
Background & Perspective

Organization and Staffing

Philadelphia Gas Works (PGW) divides its Human Resources (HR) function into two separate organizations, each led by a vice president. One unit is titled Human Resources and the other is Organizational Development (OD). *Exhibit II-5* depicts the Human Resources organization. This unit is responsible for labor relations, compensation, benefits, HRIS, Medical, and Transactions and recordkeeping.



Exhibit II-5
Human Resources Organization
as of December 31, 2007



Source: Information Response 609

In September 2007, Human Resources (HR) received authorization to create a new Absence Management unit. Absenteeism costs PGW at least \$4 million a year in direct payroll costs. This estimate does not account for the indirect costs, such as overtime, loss productivity, etc. Managing absenteeism has become a significant burden for Philadelphia Gas Works and this new organization is the cornerstone of a major effort to control costs and assure workforce availability.

To assume corporate responsibility for managing absenteeism and applying absence controls consistently, Human Resources has proposed the creation of a new HR unit. This new unit will consist of an Attendance Investigation Manager (Projected Grade 6), an Absence Control Investigator (Projected Grade 4), and an HR Systems Administrator, as follows:

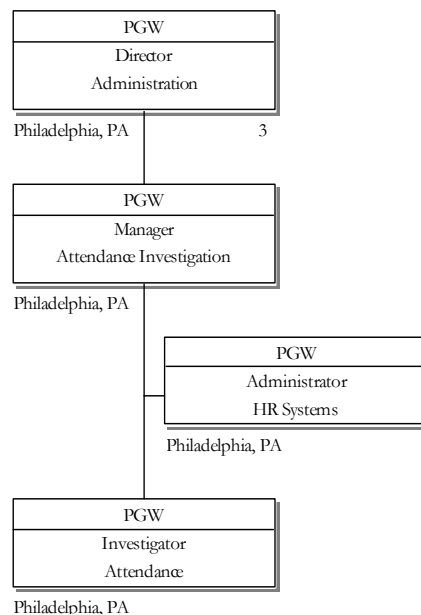
- ◆ The Attendance Investigation Manager will be responsible for managing PGW's absence control programs, overseeing FMLA determinations and compliance, daily reporting to departments, process monitoring, and enforcing PGW's attendance tracking system and policy compliance. This position will provide detailed analysis for attendance reconciliation to

determine abuses, variances and employee utilization trends to drive a reduction in absenteeism.

- ◆ The Attendance Investigator will investigate and verify employee absences, compile critical attendance accounting reports/spreadsheets, generate recommendations for corrective actions and write-ups for absences, and coordinate all disciplinary actions with labor relations and departmental managers. This employee will also assist with special projects, as necessary.
- ◆ The HR Systems Administrator will handle all FMLA-required and absence-related correspondence (notices, approvals, denials, requests for medical information, etc.). This position would also be responsible for maintaining data and generating reports and information contained within HR's various databases and systems. This employee will assist in developing and maintaining the operating budget for the department and in reviewing in detail PGW's \$39 million of health care invoices. This position will also maintain Labor Relations' cost-tracking system and union-business tracking systems.

This new organization is shown in *Exhibit II-6*.

Exhibit II-6
Proposed Absence Management Organization
as of December 31, 2007

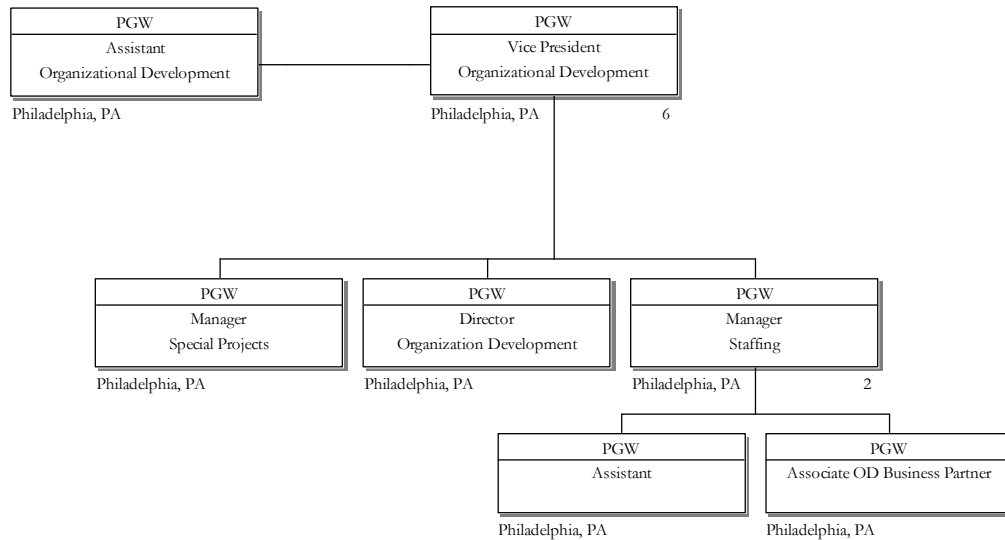


Source: Information Response 491

The Organizational Development unit is headed by a vice president and six staff members. This group is responsible for performance management, staffing, succession planning, the executive leadership development program, employee relations, EEO compliance, affirmative action and diversity initiatives, and staff training and development. The organization chart is provided in *Exhibit II-7*.



Exhibit II-7
Organizational Development Organization
as of December 31, 2007



Source: Information Response 609

HR Technology

ADP HRIS

PGW uses ADP's Human Resource Information System (HRIS). ADP's Enterprise HR is a fully integrated, web-based system that is designed to help large organizations more effectively manage employee information. Currently, PGW uses three modules in the ADP HRIS.

1. *Employee Information:* The Employee Information module is used to record an employee's name and address. It retrieves, validates, and updates all information related to an employee.
2. *Employee Benefits:* The Benefit Program Participation module is used to assign an employee to a particular benefit plan in which s/he will participate. This assignment is usually done when an employee is first hired and when the employee's benefit plan is altered because of a lifestyle change.
3. *Employee Disciplinary Information:* The Disciplinary Action module is used to enter disciplinary actions that are imposed on an employee. Such actions might include a suspension, termination, or demotion. The module is also used to track union grievances.

For Staffing, Compliance (EEO/AAP), Performance Management, and Employee Training activities, different programs are used. For the Compliance module, PGW uses the Berkshire AAP program. For

Staffing, Performance Management, and Employee Training modules, the company has designed either Excel or Access spreadsheets to manage the various processes.

In addition, PGW is giving consideration to implementing the Employee Self Service module. With this module, employees have secure Internet access to a variety of tools that will enable them to take control of their personal and financial matters. This module allows employees to view (and in some cases, update):

- ◆ *Profile Information:* address, dependents, emergency contacts, and more
- ◆ *Payroll and Tax Information:* details of employee compensation statements, W-2s, W-4 withholding allowances, voluntary deductions, and direct deposit accounts
- ◆ *Benefits Information:* annual benefit elections, dependent relationships, accrued leave balances, and company holidays (This option is available if one's ADP benefits services solution includes benefits integration.)
- ◆ *Career Information:* resume details, skills, training, licenses, and certificates; employees can also search and apply for internal job postings and enroll in training.

Time and Attendance

PGW HR is also implementing a new time and attendance system. PGW has selected EmpCenter Workforce Management software and is the process of finalizing the requirements documentation. EmpCenter is a workforce management software system that automates the most common and complex interactions employees have with their employer. EmpCenter collects and manages time and attendance information; calculates and stores accrued time balances; distributes hours worked among jobs, customers or departments; and provides managers and supervisors with an easy-to-use dashboard for approving timesheets and requests.

There are several drivers for this project, including:

- ◆ Replacing an obsolete, DOS-based time-entry system (Dragon system)
- ◆ Eliminating a mainframe-based labor distribution system (as part of PGW's mainframe shutdown project)
- ◆ Retiring a standalone attendance tracking system
- ◆ Implementing an integrated solution to reduce the complexity of time-tracking, absence management, and labor distribution

Timekeeping at PGW is currently done through the DOS-based Dragon system. Each department in PGW maintains its own local copy of the employee file and each is responsible for data entry of employee time/attendance. Through this application, the employee's weekly time is entered for payroll purposes (management employees are advanced 40 hours per week vs. union employees' hourly



payment). The employee's sick, vacation, holiday, and miscellaneous time is also entered here. Employee personnel records are created and maintained within this system.

The attendance tracking system is a web-based system that is not linked to PGW's payroll system. It is used to:

- ◆ Track sick leave, vacation, and all other time off
- ◆ Record on a daily basis an employee's absence, the reason, and the hours
- ◆ Record an employee's catastrophic sick-leave bank use and balance in accordance with company policy
- ◆ Record and track uncertified absences in accordance with company policy

Currently, leave scheduling is administered individually by each department at PGW. There is no corporate system in place. Departments use Microsoft Outlook, Access databases, paper time sheets, individual employee calendars, paper "sick slips," and a host of manual processes to keep track of requests for leave.

Finally, the process that distributes labor hours to the appropriate general ledger accounts runs on the mainframe.

The new system will integrate these functions in a single application.

Online Posting and Applications

The Organizational Development Department has implemented *Careers Online*. This application will allow for web-based job postings and applications. It consists of an internal website to be used by the OD Department to post and manage job openings. A public website allows external applicants to apply for jobs at PGW.

Findings & Conclusions

Finding II-8 PGW Human Resources has effectively controlled benefit costs while continuing to provide excellent employee benefits.

Since 2001, the average employer's cost of health benefits has increased 78%, while at PGW such costs have increased by 25%. In 2007 alone, when the national average for health premiums rose 6.1%, PGW's cost increased by about 4%.

Prior to 2005, PGW paid the full cost of the premiums for Independence Blue Cross/Pennsylvania Blue Shield Personal Choice Option One, with eyeglass rider for Keystone Health Plan East. In 2005, PGW negotiated a plan with the union. Today, employees are provided Keystone 10 (an HMO) as a base plan

with the option of buying up to Personal Choice. PGW also negotiated a 2.9% discount with Blue Cross/Pennsylvania Blue Shield.

Had PGW continued with the plan as it was in 2000, the projected health care cost to the company for fiscal year (FY) 2008 was estimated to have been \$59,043,266. PGW now estimates its health benefits cost for this fiscal year to be \$38,100,000.

During the period spanning FY2003 to FY2007, PGW reports health benefit cost savings of nearly \$67 million over projected costs. Cost savings are provided in *Exhibit II-8*.

Exhibit II-8
PGW Projected versus Actual Health Benefits Costs
FY2003 to FY2007

Fiscal Year	PGW Cost as Projected in 2002	PGW Actual Cost	Savings
FY2003	\$37,603,815	\$31,400,000	\$6,203,815
FY2004	\$42,643,015	\$34,491,000	\$8,152,015
FY2005	\$47,620,298	\$33,571,000	\$14,049,298
FY2006	\$52,529,058	\$35,076,000	\$17,453,058
FY2007	\$57,615,962	\$36,500,000	\$21,115,962
Total			\$66,974,148

Source: Information Response 309

Significant changes to healthcare benefits at PGW included switching from traditional coverage to HMOs and PPOs and requiring employee contributions and co-pays.

Philadelphia Gas Works was also able to reduce prescription benefit costs by \$650,000 in 2007. It was able to accomplish this reduction by renegotiating its contract with the carrier while preserving the benefit for its employees. Employees now pay co-pays and must order maintenance drugs through a mail-order pharmacy.

Finding II-9 **PGW has developed effective labor relations that allows the company to improve performance while continuing to protect employee rights and interests.**

In 2000, at the time of the last Pennsylvania Public Utility Commission (PaPUC) management audit of PGW, Philadelphia Gas Works had a backlog of over 400 grievances. It had not been successful in arbitration for a decade and the labor/management relationship was entirely adversarial.



Clearly, things have changed dramatically. In 2007, only 66 second-step grievances had been filed as of October 2007. PGW has implemented an arbitration mediation program and has been highly successful in cases that reach arbitration. In fact, PGW has won seven of the last eight arbitrations.

PGW and its union (Gas Workers Employees Union, Local 686 – Utility Workers Union of America (UWUA)) have worked successfully with Northwestern University to implement interest-based negotiations. Both the union leadership and management have participated in training.

Today, PGW describes its labor/management relationship as “*the best in the history of PGW.*” The 2005 contract included many important changes that have greatly improved PGW’s ability to operate more efficiently. Among these changes was an agreement on enforceable performance standards for virtually all union-represented employees. Beginning in May 2007, employees not meeting the standards are put on performance improvement plans (PIPs). Employees who do not satisfy the requirements of a PIP are removed from their positions.

In addition, PGW and the union agreed to increase the probationary period for new employees from six months to one year. They also agreed to abolish the regenerating absence allowance that allowed employees to get nearly a week of absence pay allowance for each year of service. This bank was replenished each year. Today, employees receive 10 days of sick leave each January 1st and can bank up to 200 days of unused sick leave. This change has led to a 30% reduction in sick leave usage.

The cooperative climate is supported by the implementation of the Labor Council. This group of key managers and union leadership meets monthly to discuss labor issues, including grievances and discipline. In addition, all new supervisors and managers participate in labor relations training.

Schumaker & Company interviewed union leadership to confirm PGW’s view of the relationship. In interview and subsequent written follow up, the Local President confirmed that “The relationship between UWUA Local 686 and PGW has continued to improve under the current management. PGW’s upper management sees the union as a partner in the recent successes the utility has achieved, and solicits the union’s viewpoint before making critical decisions regarding labor relations and/or the unionized workforce. Our joint efforts have resulted in labor peace, a collective bargaining agreement that protects basic benefits while providing PGW relief with regard to attendance and productivity standards, so that morale has improved and PGW continues to become a more efficient entity. The relationship between the union and lower-level management has also improved, although it is still problematic in certain areas. We believe that the efforts of PGW’s top managers are having a positive effect on the decision-making of supervisors and lower management overall.”

Finding II-10 PGW Organization Development has made substantial progress in implementing effective performance management and employee development.

Beginning in 2005, the performance of all PGW employees is formally evaluated. Employees whose performance falls below expectations are placed on a performance improvement plan (PIP). The Vice

President of Organizational Development described PGW's philosophy as "If you are not performing, we will help; if you are not in the right job, we will try to find the right job for you; if there is no right job in the organization, we will move you out."

As discussed in *Finding II-9*, the negotiated performance standards for all employees are a significant accomplishment for Philadelphia Gas Works. Implementing a formal evaluation process for unionized employees is a significant accomplishment for an old-line utility. Organizational Development is working to take the performance management process one step further by implementing a personal development plan for every non union employee.

Managers have a formal appraisal process and set goals for each year using a balanced scorecard approach. PGW requires a mid-year feedback session to review progress on goals. Managers who score below 2.75 (on a 5.0 point scale) are placed on a performance improvement plan. Beginning this year, managers who score between 2.75 and 2.99 are required to have a development plan.

PGW has developed a set of shared values and core competencies that guide the development of senior leadership. Each vice president and above is required to have a 360-degree feedback review and a formal development plan. In the coming year, this process is to be extended to director-level managers as well.

PGW is offering a significant level of supervisor and management development to support PIP and development plan completion. Outside coaching and training resources are used as well

Finding II-11 PGW has not made effective use of incentive compensation.

As we described in *Finding II-10*, PGW has a well designed and implemented performance management process. Unfortunately, it has very little ability to tie pay to performance and to create strong incentives for attracting and retaining top executive talent.

Non-union employees' pay increases do vary somewhat based on their performance evaluation scores. Increases can range from 0% to 4% depending on the particular employee's evaluation and where the employee is in their compa-ratio.

In September 2005, PGW provided a one-time incentive compensation payment to 55 top managers in lieu of a base wage increase. Because the incentive compensation payments did not raise a manager's base salary, they would not be compounded by future base salary increases. As a result, a manager must continue to perform at a high level in order to maintain a particular level of compensation.

PGW set the maximum incentive payment based on each Management Team member's pay grade as shown in *Exhibit II-9*. The actual amount of the incentive payment was primarily based upon the individual manager's performance in the prior fiscal year, as documented in the employee's performance evaluation.



Exhibit II-9
2005 Maximum Incentive Compensation

Grade	Minimum Salary	Maximum Payment %
e4	\$154,400	20%
e3	\$131,200	18%
e2	\$108,800	16%
e1	\$92,000	12%
8	\$79,120	10%
7	\$71,400	10%
6	\$59,840	10%

Source: Information Response 793

In some circumstances, a manager may have received a base wage adjustment because he or she had been promoted, had assumed new duties, or was paid below the minimum salary established for their position. In these situations, the manager's incentive payment was reduced accordingly. These adjustments are provided in *Exhibit II-10*.

Exhibit II-10
Incentive Compensation Adjustments Based on Performance Ratings

	Rating				
	5	4	3	2	1
Base salary increase					
< 5%	100%	100%	75%	0%	0%
5.1% - 10%	100%	75%	50%	0%	0%
10.1% - 15%	100%	50%	25%	0%	0%
> 15%	100%	25%	0%	0%	0%

Source: Information Response 793

This 2005 incentive program was presented to the PFMC Board in the summer of 2005. The Management Incentive Program was subsequently approved by PFMC in August 2005. It was the only incentive compensation provided in the last five years to any PGW employee. The Board did not approve incentive compensation in any subsequent year.

Finding II-12 PGW Human Resources has strengthened its policies and enforcement to control absences but has not made an equal effort to address the root causes of absenteeism.

PGW has made substantial progress in controlling unscheduled employee absences. We described the changes in the union contract that reduce the amount of time an employee may accumulate in a sick leave bank. We have noted that sick leave usage declined by 30% between 2000 and 2006.

In the *Background & Perspective* section of this chapter, we discussed PGW's new absence control staff and the new software that will be used to track employee leaves. This staff will include investigators who will document abuse of the employee leave programs. In addition, in May 2007, PGW implemented a new absence policy that clearly delineates company and employee responsibilities. Key provisions of this policy include:

- ◆ Requiring employees to give advance notice of absences when possible or to notify their supervisor when an unexpected absence occurs
- ◆ Requiring employees to provide medical certification for sick leave absences of three or more days for non union employees
- ◆ Imposing progressive discipline for violations of the absence policy; union covered employees are required to submit a note for all absences with the exception of their first two absences of the calendar year provided that the absences are of a duration of one day or less.

We are impressed with PGW's efforts to provide reasonable employee leave time, to manage employee use of leave benefits, to implement improved tracking, and to reduce company costs. We also note that while much has been done to reduce unnecessary time off, the average number of days of absence only leveled off and actually increased for non-union employees. This rise is due primarily to the increase in FMLA usage. *Exhibit II-11* provides the average number of days of absence per employee for the last five years.



Exhibit II-11
Average Number of Days Absent
2003 to 2007

Year	PGW Average Days of Absence per Employee	Non-union Employees	Union Employees
2003	7.6	N/A	N/A
2004	9.2	N/A	N/A
2005	11.0	N/A	N/A
2006	11.2	7.1	12.8
2007	11.2	7.4	12.4

Source: Information Response 797

Certainly every employer with 50 or more employees is challenged by the expanding use of FMLA. The law provides 12 weeks of unpaid leave for very broadly defined reasons. The most important steps a company can take are, as PGW has done, implementing a clear policy, effectively managing the certification of leaves, and having accurate tracking of usage.

Nonetheless, with all of these measures in place and absences still increasing, we believe PGW must do more to address the root causes of absences. The focus and perhaps even the philosophy of Philadelphia Gas Works has been enforcement. The new Absence Management function has been described as “policing” and “primarily focused on controlling abuse.”

While any absence that is in violation of PGW’s policy may be viewed as abuse, it is often the case that the drivers behind such absences are related to child care issues, personal problems, poor working conditions, ineffective supervisory practices, and a host of other similar issues. To better understand the issues, PGW intends to conduct an employee survey in areas where absenteeism is high. PGW is also considering a work/family support program to help employees manage these issues. PGW is also looking at supervisory skill issues. These projects deserve high priority and Philadelphia Gas Works must balance its need to control abuse with a reasonable effort to support employees and, where possible, address the root causes of absenteeism.

Finding II-13 PGW has not made sufficient effort to fully utilize employees with medical restrictions.

PGW has done a great deal to better manage medical absences and the return-to-work process. The Medical Department makes a thorough review of all cases to assure that an employee is able to return to work (fitness for duty) and that medical restrictions are appropriate and not violated when an employee does return to the job.

PGW has an Employee Utilization Committee that has been in existence for over ten years. This committee has evolved from a committee that existed to review and grant medical disability retirements to one that is now more focused on return to work. The mission of the Employee Utilization Committee is ensuring that disabled employees are treated with fairness, dignity, respect, and compassion while continuing to maintain a high level of productivity through reassignments, reasonable accommodations, disability separations, and other appropriate personnel actions. Among the goals of this group are:

- ◆ To facilitate a return-to-work philosophy in a position to which the employee can perform the essential functions
- ◆ A commitment to early case finding and maximizing reasonable accommodation, including transitional duty and reassignment, in a safe and supportive work environment

Unfortunately, the availability of transitional-duty or light-duty work to accommodate employees with temporary medical restrictions appears to be limited. The availability of light-duty assignments is determined by each department. Departments determine the need for light duty and make the decision to send an employee home when no light duty is available.

PGW does not have a formal policy on return to work and the Medical Department plays a limited role in return to work. Historically it is the responsibility of the departments to track the job assignments of employees with medical restrictions. The role of the Medical Department is to forward restrictions to the appropriate department and then to subsequently return the employee to full duty based on documentation from the employee's healthcare provider. At Schumaker & Company's request PGW was able to determine that in 2007 the following occurred:

- ◆ Twenty (20) employees returned to duty in a regular job with accommodations.
- ◆ Sixteen (16) employees returned to duty in a different classification.
- ◆ Fifteen (15) employees were not returned to duty because of lack of work that was within medical restrictions.
- ◆ Four (4) employees filed for unemployment after being denied light-duty assignments.

PGW reports that there are fewer opportunities for light-duty assignments than in the past. Currently, PGW does not accommodate all employees with non-occupational illness or injury related work restrictions with light-duty assignments. In fact, Schumaker & Company was given conflicting accounts of the level of accommodation being made. In one interview, we were told that there were no light-duty assignments being made. The Vice President of Organization development assured Schumaker and Company otherwise.

All of this points to a general lack of clear accountability, no clear policy or practice to place employees with medical restrictions, and a loss of productive labor for the company.



Philadelphia Gas Works does have a General Ledger account to track pay for employees who are working out of classification in a light-duty capacity. This was described to Schumaker & Company as a fund to pay employee wages when working out of classification so they are not charged to the home department of the employee. This method of compensation was considered an incentive for departments to take on light-duty employees. This practice appears to have been generally abandoned at PGW and there now appears to be pressure on supervisors to hold down head counts. This pressure appears to be a disincentive to accommodating employees who cannot perform their regular jobs.

PGW has developed a new job classification (general utility driver) that allow for some flexibility in placing employees with medical restrictions.

In other cases, PGW is not utilizing restricted-duty employees. There are no light-duty assignments in the Field Services Division. We were told that helping customers complete LIHEAP applications at district offices had historically been considered light-duty work. For reasons not entirely clear, that work is now performed by temporary employees. PGW argues that this ensures that the assignment can be completed and that the use of light duty employees could be problematic once they are cleared for full duty. In addition, PGW cites training issues such as use of a personal computer (PC).

Again, Schumaker & Company is perplexed by these comments as we visited three district offices and saw none of the temp employees using a PC. Training of temporary employees is no different than the training required for PGW employees and they are just as likely to leave before the end of the LIHEAP application period as an employee with medical restrictions. The difference is cost. PGW appears content to pay employees to stay home and at the same time pay for temporary employees to do relatively simple work. In FY2007, PGW spent \$96,803.66 on temporary services for this program.

For many companies, union work rules limit the ability to place an employee with medical restrictions outside of his or her regular classification. This limitation is not the case at PGW. When asked by Schumaker & Company if it supported transitional duty, the union responded, "UWUA Local 686 has long supported the temporary assignment of particular tasks to an employee who is restricted from performing in his/her regular job due to a medical condition. The union continues to support allowing employees to work outside of their regular job classification due to medical limitations, so long as such assignments are temporary, related to the employee's medical restrictions, and do not constitute an entire job."

Finding II-14 **PGW faces potentially significant levels of retirement and associated loss of institutional knowledge in the coming years and has not developed a plan to address this risk to company performance.**

Close to 80% of utility workers are more than 40 years old. More than a quarter of the present utility workforce will retire in the next 10 years. Engineers are retiring at a significant rate and are becoming harder to replace. There has been a 50% drop in the number of graduating engineers in the past five years. Experts agree that the need for technical workers will far outpace the supply in coming years.

Utilities are beginning to awaken to the coming workforce shortages. For some utilities, a real crisis could emerge within the next five years. Yet only a few utilities have made a serious effort to analyze the problem and to develop a workforce plan that will avert the threat to company viability.

PGW predicts retirements based on historical levels. When asked for retirement projections for the next three years, PGW management reported it expects 11 non-union employees and 30 union employees to retire each year. This projection is based on average retirement history for the past five years.

Unfortunately, this figure completely ignores retirement eligibility figures and other factors that affect retirement decisions. Several key factors could dramatically accelerate the retirement levels at PGW.

- ◆ Aging workforce with high seniority: Approximately 20 PGW employees make a request for retirement benefit calculations per month. A larger percentage of PGW employees will be eligible to retire in the coming few years. For example, in distribution, 46 of 58 managers have 15 or more years of seniority at PGW. In fact, 35 of the 58 (60%) have 25 or more years of seniority. Union employees in distribution have high seniority as well. Of the 396 represented employees in distribution, 251 (63%) have 15 or more years of seniority. Similar numbers are found in field services.
- ◆ Normal retirement, including:
 - Sec. 1.01 Entitlement to Benefits. Each participant retiring at his/her normal retirement date shall be entitled to receive a benefit commencing as of his/her normal retirement date equal to his/her accrued benefit in the normal form, as determined in accordance with Section 3.01 of this plan.
 - Sec. 1.02 Form and Duration of Benefit Payments. A participant whose benefit first becomes payable pursuant to Section 4.01 may receive payments in the normal form or, if elected pursuant to Section 10.02, in the form of a joint and survivor annuity. Such joint and survivor annuity payments shall be the actuarial equivalent of the participant's accrued benefit in the normal form.
 - Sec. 1.03 Effect of approved domestic relations order (ADROs). All benefits provided under Section 4 are subject to the provisions of any ADRO in effect with respect to the participant at the participant's benefit commencement date, and are subject to diminution thereby.
 - Sec. 1.04 Impact of Accumulated Sick Leave. A participant who attains his/her normal retirement date as a result of the inclusion of accumulated sick leave in the year of credited service calculation shall be deemed to have retired, for purposes of Section 4.01, upon his/her separation from service.
- ◆ Early retirement, special early retirement, and thirty-and-out retirement, including:



- Sec. 2.01 Entitlement to Benefits. Each participant retiring at his/her early retirement date, special early retirement date or thirty-and-out retirement date shall be entitled to receive a benefit commencing as of such date. Such benefit shall be based on his/her accrued benefit in the normal form, as adjusted in accordance with the provisions of this section.
- Sec. 2.02 Form and Duration of Benefit Payments. A participant whose benefit first becomes payable pursuant to Section 5.01 may receive payments in the normal form or, if elected pursuant to Section 10.02, in the form of a joint and survivor annuity. Such joint and survivor annuity payments shall be the actuarial equivalent of the participant's accrued benefit in the normal form.
- Sec. 2.03 Early Retirement Benefit. A participant may elect in writing to receive, in lieu of the benefit starting as of his/her normal retirement date, a benefit starting as of the first day of any month after his/her early retirement date and prior to normal retirement date. The following conditions shall apply to benefit payments commencing prior to normal retirement date:
 - a) The form and duration of benefit payments shall be determined as provided in Section 5.02 above; and
 - b) The amount of the benefit shall be a percentage of the participant's accrued benefit calculated to the date of actual retirement (including months), based upon the participant's attained age in accordance within the following schedule:

Attained Age at Retirement	Percentage of Accrued Benefit
64	97%
63	94%
62	91%
61	88%
60	85%
59	80%
58	75%
57	70%
56	65%
55	60%

- Sec. 2.04 Special Early Retirement Benefit Commencement. A participant may elect in writing to receive, in lieu of the benefit starting as of his/her normal retirement date, a benefit starting as of the first day of any month after his/her special early retirement date and prior to normal retirement date. The following conditions shall apply to benefit payments commencing prior to normal retirement date:
 - a) The form and duration of benefit payments shall be determined as provided in Section 5.02 above; and

- b) The amount of the benefit shall be a percentage of the participant's accrued benefit, calculated to the date of actual retirement (including months), based upon the participant's attained age as of his/her date of actual retirement.

Attained Age at Retirement	Percentage of Accrued Benefit
64	100%
63	100%
62	100%
61	97%
60	94%
59	89%
58	84%
57	79%
56	74%
55	69%

– Sec. 2.05 Thirty-and-Out Retirement Program

- a) A participant who has attained at least thirty (30) years of credited service may elect, in writing, in the form and manner prescribed by the plan administrator, to retire under the thirty-and-out retirement program, on a date to be determined as follows:
1. Except as provided in subsections (2) or (3) below, a participant shall retire on the first working day following the date that is thirty (30) days after the date of application.
 2. Notwithstanding subsection (1) above, the company and the participant may mutually agree on a retirement date other than that determined in subsection (1) above, provided that such date is no more than 90 days after the date determined in subsection (1).
 3. Further, notwithstanding subsections (1) and (2) above, the company may require that the participant retire on a date set by the company as determined in (c) below.
- b) The retirement income under the thirty-and-out retirement program shall be payable from the date of retirement, and shall be an annual amount equal to one hundred percent (100%) of the participant's normal retirement benefit, without, however, any reduction for age.



- c) The company may in its discretion require that a participant who applies and is eligible for the thirty-and-out retirement program, and who is not otherwise eligible to retire, defer retirement for a transition period of no more than six (6) months beyond the date determined in (a)(1) above and remain employed for purposes of training replacement employees and completing projects for the company. Upon the expiration of such transition period, the participant shall retire as provided under this thirty-and-out retirement program.
- Sec. 2.06 Effect of ADRO. All benefits provided under this Section 5 are subject to the provisions of any ADRO in effect with respect to the participant at the participant's benefit commencement date, and are subject to diminution thereby.
- Impact of Accumulated Sick Leave. A participant who attains his/her early retirement date, special early retirement date or thirty-and-out retirement date as a result of the inclusion of accumulated sick leave in the year of credited service calculation shall be deemed to have retired, for purposes of Section 5.01, upon his/her separation from service.
- ◆ Incentive to retire sooner than later: Defined benefit pension plans with generous health care benefits, such as those offered by PGW, are known to encourage early retirement (prior to age 65). At PGW, the coming 2010 contract negotiations are likely to create a surge of retirements as employees who fear a reduction in benefits in the next contract seek to lock in their current generous benefits.

While PGW has done succession planning for the senior team and most of the management team, it has not done any workforce planning to predict retirements and institutional knowledge loss risk. No plan has been developed to replace retiring workers.

The company has created a program for retirees to continue working for the company in a limited capacity. This does not appear to be a component of an overall strategy nor is it being implemented in any significant way.

An aging workforce poses certain risks independent of retirement. Aging workers may be more likely to experience workplace injuries and may be less productive in physically demanding jobs. Retiring workers will take with them valuable institutional knowledge and, without replacement, will limit PGW's ability to meet the needs of its customers. Capacity, productivity, and knowledge loss risks must be managed as other risks to the enterprise would be. A robust assessment of risk and a robust response plan are critical success factors.

Recommendations

Recommendation II-3 Implement management incentive compensation. (Refer to Finding II-11.)

To remain competitive, PGW must have the incentives to attract and retain top talent. While we would not expect a municipal utility to have the generous incentive compensation of private sector companies, it should have a program in place and be able to offer incentives based on company performance every year.

Recommendation II-4 Assess root causes of absenteeism and implement appropriate human resources and organizational development strategies to address these causes. (Refer to Finding II-12.)

While we do not question the priority of gaining control of absence abuse, we believe that PGW must provide resources to address the root causes of absenteeism. The Organizational Development group certainly is aware of the need, but it lacks sufficient resources to adequately address the problem. PGW should provide additional resources for the employee survey, employee involvement, supervisory training, and other contributing factors. Philadelphia Gas Works should also continue to examine and, where appropriate, offer work/family benefits to support employees who are working to meet both company and family responsibilities.

Recommendation II-5 Develop a comprehensive return-to-work process, including metrics, for employees with medical restrictions. (Refer to Finding II-13.)

Schumaker & Company believes that an early return to work is the ultimate win/win for employers and employees. The ill or injured worker benefits from a restoration of his or her source of income and from staying active and productive, both of which are important to the healing/recovery process. The company benefits by having highly trained and experienced employees on the job who are making a productive contribution to the bottom line while, at the same time, reducing the costs of absences and medical indemnities.

As was noted, PGW has an effective absence management program. A key component of this program is the dynamic and effective Employee Utilization Committee. Unfortunately, many employees with medical restrictions cannot be accommodated with light-duty assignments. The problem appears to be limited support from supervisors and a reliance on a jobs-based approach—meaning PGW attempts to find a job that the employee can perform.

Schumaker & Company believes a task-based approach is more effective. With this approach, PGW would develop a bank of tasks that have been analyzed for physical demands and value-added work. In many cases, the task bank would contain work that PGW is otherwise having trouble getting done.



In a task-based approach, an employee's restrictions are matched to appropriate tasks and are performed during the hours an employee is able to work. Employees are given a detailed work plan that may include multiple tasks. This plan is modified as the employee progresses toward full recovery or maximum medical improvement. The plan also contains a statement of the employee's responsibilities and PGW's return-to-work policies.

Success of the program should be assessed through the use of a scorecard that looks at costs, durations, accommodation rates, and other appropriate indicators of the effort's success.

Recommendation II-6 Appoint a return-to-work coordinator as part of the Absence Control group in Human Resources. (Refer to Finding II-13.)

While controlling abuse is important, returning employees to productive service seems equally important and deserves resources as well. This person would develop the return-to-work program, would work with medical on case management issues, and would work with supervisors on placing restricted-duty employees.

Recommendation II-7 Implement a comprehensive institutional knowledge loss risk assessment and workforce planning process. (Refer to Finding II-14.)

Schumaker & Company believes that without a comprehensive workforce plan, PGW, like most utilities, faces a significant threat to organizational viability. PGW needs to undertake a comprehensive assessment of the institutional knowledge risk loss, capacity risk loss, and future workforce characteristics and needs of the company. With these assessments complete, PGW should develop and implement a plan for knowledge management, job design, recruitment, and other strategies to address the loss of long-term PGW employees.

III. Support Services

This chapter provides discussions regarding the following Philadelphia Gas Works (PGW) support services .

- ◆ Information technology (IT) and systems
- ◆ Transportation and fleet management
- ◆ Facilities and property management
- ◆ Procurement services and materials management (purchasing, vendor selection, contract administration, and inventory management)
- ◆ Risk management
- ◆ Legal services

A. Information Technology

This section provides a discussion of PGW information technology services.

Background & Perspective

Charter and Mission

The charter of PGW's Information Services (IS) Department is:

Through its people, Information Services provides solutions that enable PGW and its many stakeholders to conduct their business in an efficient and effective manner.

The mission statement of PGW's IS Department is:

Information Services is committed to creating value with leading Information Management Services which improve decision-making and support the delivery of efficient and effective services for PGW and its many stakeholders.

How PGW's IS Department attempts to achieve its mission include:

- ◆ Striving to understand the needs of its clients through communication, collaboration, and joint problem-solving
- ◆ Striving to isolate the complexity of technology from its clients by understanding the human side of technology and deploying usable solutions



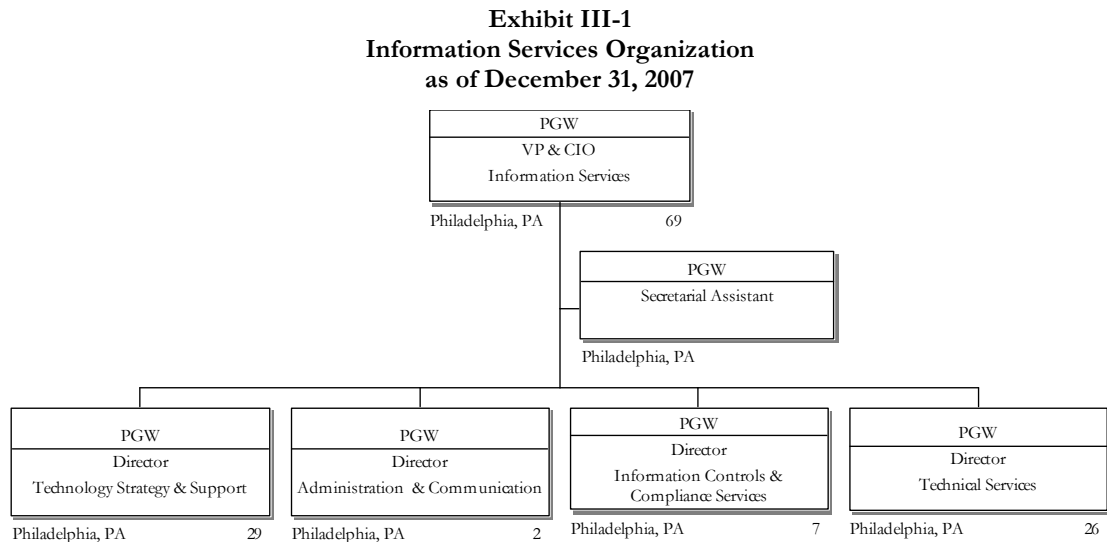
- ◆ Attempting to anticipate the needs of the client community by maintaining an open and regular dialogue with all levels of the organization
- ◆ Working with clients to understand their challenges and to design, develop, deploy, and maintain solutions to eliminate them
- ◆ Striving to be unbiased when considering options for solving complex business problems
- ◆ Improving the technological literacy of the organization through knowledge sharing, education, and training
- ◆ Defining, building, and managing a reliable, secure, and robust infrastructure to support the various solutions required by the business
- ◆ Striving to be cost-effective in the delivery of products and services
- ◆ Utilizing strategic sourcing to achieve agility in the delivery of products and services
- ◆ Aggressively managing complex projects to achieve on-time and on-budget delivery
- ◆ Maintaining the skill set of its employees to address ever-changing business requirements
- ◆ Monitoring and assessing new technology to determine its applicability to the organization
- ◆ Routinely monitoring the environment to assure that its security risk profile is maintained at an acceptable level
- ◆ Providing for the recovery of all or parts of the environment in the event of outages or lost services
- ◆ Maintaining relationships with numerous vendors to assure that contracted products and services are delivered as desired and in accordance with contract requirements

Since the late 1990s, PGW has had five Chief Information Officers (CIOs), the latest taking her position in August 2007. PGW management indicates that information technology has evolved at PGW over the course of these years. In the late 1990s, the CIO focused on putting personal computers (PCs) on desktops. Then, the next CIO focused on formalizing policies and procedures, developing a roadmap, and establishing one-year plans. The prior CIO revamped systems and contracts to provide PGW with greater efficiencies. Finally, the current CIO hopes to help PGW employees understand how to better use those PCs, to update IS policies and procedures, and to rewrite the IS strategy. The CIO also believes that IS' biggest challenges include how to:

- ◆ Get PGW employees to understand how to effectively use technology
- ◆ More effectively provide communications within the IS organization and to its users
- ◆ Provide cross-training to IS employees
- ◆ Break down the “silo” mentality that sometimes exists within the PGW organization

Overall Organization & Staffing

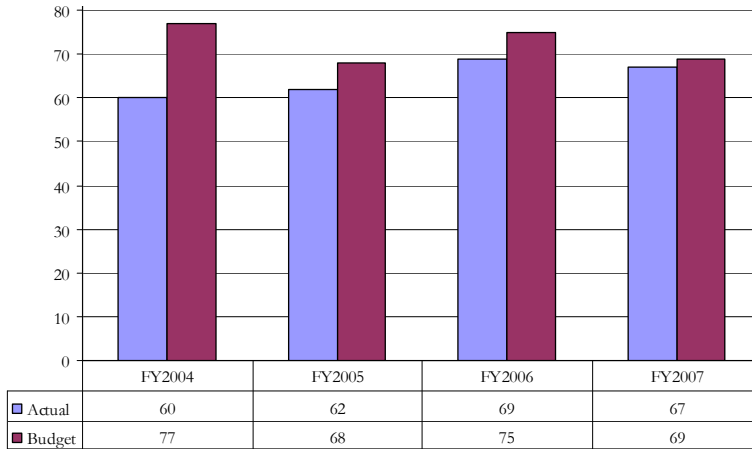
The PGW Information Services (IS) organization, as shown in *Exhibit III-1*, is composed of four major functional areas, each headed by a director. The CIO has weekly one-on-one meetings with each director.



Source: Information Response 1

The staffing levels of the IS organization over the last four fiscal years (FY2004 to FY2007) have generally been increasing (except for a slight decline in FY2007), as shown in *Exhibit III-2*. Although generally increasing, actual staffing levels have consistently been under budget.

**Exhibit III-2
IS Staffing Levels
FY2004 to FY2007**



Source: Information Response 98

This group's primary responsibilities include:

- ◆ Applications development
- ◆ Relationship/project management
- ◆ Architecture
- ◆ Database administration
- ◆ Technical writing

The Director of Technology Strategy & Support also has oversight responsibility for PGW's mainframe operations, which have been outsourced since May 1, 2004. PGW expected to realize nearly \$491,420 annually (for four years) in cost savings over performing these activities internally by PGW employees. The IS organization will be able to further eliminate the annual cost when the mainframe is eliminated, which is expected to occur in the middle of 2008.

Applications Development

This group of roughly 12 developers is headed by the Manager of Business Solutions. In addition, it typically includes three to four outside contractors. The developers are a mix of entry level developers (two to three developers), those with two to three years experience (three developers), and senior developers (two developers), plus COBOL developers. Those starting out as COBOL developers (four of the 12 developers) are also moving to client/server mode using PGW's Microsoft Visual Studio .NET standard. Key recent projects include:

- ◆ Automated Information Management System (AIMS2) (mobile dispatch and work management system for the PGW Distribution Department)
- ◆ Workforce time and labor management consolidation (one of the last systems to be operated on PGW's mainframe; its implementation will allow IS to eliminate mainframe operations)
- ◆ Consumer affairs data warehouse
- ◆ Field service data warehouse
- ◆ Geocoding (standardization to addresses)
- ◆ Landlord cooperation program with the City of Philadelphia
- ◆ Write-offs' reactivation
- ◆ Hosted website
- ◆ Performance appraisals and goals system
- ◆ Q·nomy (customer queuing system)
- ◆ Oracle Financials' reporting (Phase I reporting completed; Phase II cash receipts in progress)
- ◆ Replacement of HPux with Linux
- ◆ Appworks job scheduler

- ◆ Microsoft Project Server implementation
- ◆ Interactive voice response (IVR) upgrade (more self-service, including processing of payments)
- ◆ Eptome document management (Pennsylvania Public Utility Commission [PaPUC] complaints already done; PGW is looking at other capabilities)

Vendor support for the Billing Collection & Customer Service (BCCS) system has been extended to 2010; therefore, BCCS upgrades (likely to be \$20 million to \$30 million) are not expected to take place until after major business transformation (BT) initiatives have been substantially completed. (Refer to *Chapter II – Executive Management, External Relations, & Human Resources* for information regarding BT initiatives.)

Relationship/Project Management

Six Business Technology Consultants (BTCs) report directly to the Director of Technology & Strategy Support. This group of BTCs is essentially acting like a project management office (PMO) for technology projects. Each BTC is assigned to one or more vice presidents (VPs) to maintain relationships and to manage projects. Activities include:

- ◆ Attending staff meetings
- ◆ Managing or monitoring ongoing projects
- ◆ Developing IT requirements
- ◆ Interacting with other BTCs

PGW has a fairly extensive project management methodology, which is segmented for small, medium, and large (S/M/L) projects. In FY2007, all BTCs attended project management training at Villanova University. For FY2008, each has a goal of becoming certified as a Project Management Professional (PMP) by the Project Management Institute, although as of April 2008, none had achieved PMP certification. The Director meets weekly with each BTC on a one-on-one basis. Bi-weekly, the BTCs meet with architects and developers.

Architecture

This “group,” which began in mid 2007, is composed of one Senior Developer. Most work in 2007 was development related primarily to AIMS2. Refer to *Chapter VII – System Reliability Performance and Other Related Operations* for a detailed discussion of this project. The focus on AIMS2 in 2007 prevented the Senior Developer from accomplishing much architecture work. Upcoming activities starting in 2008 are expected to include:

- ◆ Inventory web services and an assessment of how to reuse them in the future
- ◆ Refreshing architecture study (by March 2008)
- ◆ Providing training, such as service-oriented architecture Source of Authority (SOA) training



Database Administration

This group consists solely of two database administrators (DBAs) with considerable IS experience. Approximately 80% of the work is related to Oracle because most PGW systems use Oracle, with the remainder of the work SQL oriented. Supplementing these two employees is a contractor DBA who is a senior-level DBA. Activities typically undertaken by this group include:

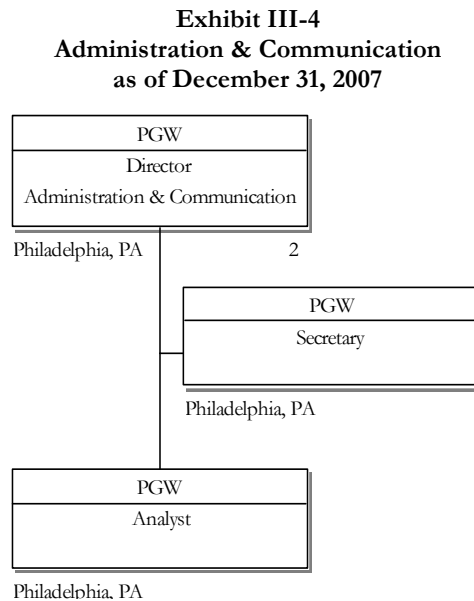
- ◆ Monitoring databases
- ◆ Support of seven development environments
- ◆ Building/repairing databases
- ◆ Patches and upgrades
- ◆ After-hours on-call service

Technical Writing

This group, which was established in 2007, includes one Technical Writer, one outside contractor, and one to two interns (for six months each). Its primary purpose was to formalize standard IS documentation, including user requirements.

Administration & Communication

Exhibit III-4 displays the IS Administration & Communication organization.



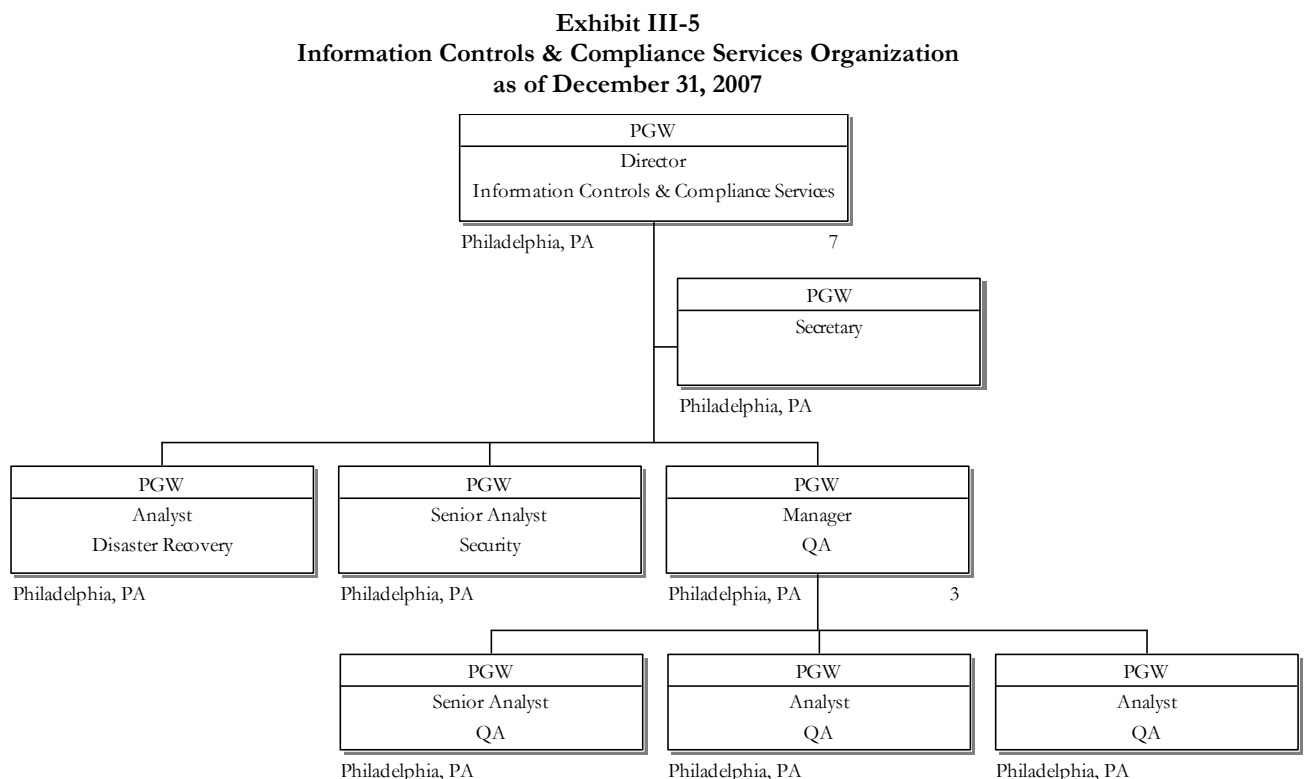
Source: Interview 69 and Information Response 1

This group's primary responsibilities to support the IS organization include:

- ◆ Operations and capital budgets
- ◆ Human Resources (HR) liaison (hiring and beyond)
- ◆ Legal liaison (contracts, etc.)
- ◆ Procurement (processing payments)
- ◆ Building services/moving of cubicles
- ◆ Payroll attendance

Information Controls & Compliance Services

Exhibit III-5 displays the Information Controls & Compliance Services organization, which is responsible for assuring a safe, secure, and reliable computing environment.



Source: Interview 70 and Information Response 1

The three major functions of the Information Controls & Compliance Services Organization are disaster recovery, security, and quality assurance. This organization is generally seen by PGW management as responsible for planning and testing, while the Technical Services organization is viewed as responsible for implementation.

Refer to *Finding III-12* for a detailed discussion of PGW's response to Chapter 101 requirements.

Disaster Recovery

One Disaster Recovery Analyst has been helping the Director of Information Controls & Compliance Services for approximately the past 1 ½ years in documenting PGW's disaster recovery plans, with future plans to bring them online. Critical to PGW's disaster recovery site is the use of SunGard as a backup site. In the event of a disaster, PGW targets having all the following critical systems (approximately 1.4 terabytes) returned to operation within 48 hours:

- ◆ Network, including file/print (F/P) servers, firewalls, and mobile capabilities
- ◆ Core applications, including job scheduler, BCCS, AIMS, Oracle Financials, and e-mail (Exchange/Outlook)
- ◆ Home and shared directories

The first eight hours typically entail configuration of SunGard equipment at PGW's warm site in Philadelphia, PA (approximately two miles away from PGW headquarters) or at its alternative site in New Jersey (approximately 100 miles away). (A warm site is a location where an organization can relocate to after a disruption. This locale is already stocked with computer hardware that is similar to that of the original site, but it does not contain backed-up copies of data and information. Data must be restored onto the equipment at a warm site before activities can re-commence.) The next 40 hours are spent by PGW employees in recovering these systems, mostly rolling tapes. By contract with SunGard, PGW can and plans to conduct six disaster recovery tests (40-hour test windows) in a four-year period. (For results of the latest test, see *Finding III-13*.) With PGW's SunGard contract comes the availability for 65 users, thereby allowing IS to get business units (BUs) involved.

In a disaster situation, only emergency work will be undertaken by PGW operations employees. These employees have access to forms on yellow cardboard stock, so they can do their jobs manually without computers. An Emergency Operations Center (EOC) with a portable cabinet, telephones, and 12 laptops can be established anywhere, although PGW typically uses a nearby location. A formal notification list (using the NotiFind software package) with messaging via telephones, Blackberries, e-mails, etc. has been established for gathering people to the EOC when necessary. NotiFind software contains contact information for all employees so that emergency information alerts can be sent to everyone.

In 2003, PGW also implemented and began using the Living Disaster Recovery Planning System (LDRPS), Strohl's business continuity planning software package. Tabletop exercises as well as actual drills for emergency preparedness are done at least annually.

Security

In January 2007, the Senior Security Analyst left PGW. As a result, much of this work was put on hold until that position was filled in early 2008. When asked about the lack of such an analyst for approximately 12 months, the Director stated that he was not concerned because PGW's Network

Analysts do a great job of keeping intruders from inappropriately accessing PGW's system and applications. Also, on an annual basis, PGW has an outside organization perform a penetration study and vulnerability assessment. These studies focus on both internal (malicious insider) and external security issues.

Since mid-2006, the Director has published quarterly risk meter reports, which identify, prioritize, and assess key risks. These reports include categories of risk (low, guarded, elevated, high, and severe), targets, and assessments by each category. In November 2007, for example, the report indicated eight "low" items, four "guarded" items, and one "high" item. The Director would create these reports more frequently, likely monthly, but had not been able to do so in 2007. That is because the Senior Security Analyst position had not yet been filled. In addition to creating these monthly risk meter reports, other activities that the Senior Security Analyst is charged with include:

- ◆ Monitoring Cisco changes
- ◆ More fully using security tools
- ◆ Investigating endpoint security issues (data leakage, malicious insider, etc.)
- ◆ Performing real-time security monitoring and policy enforcement

For all new employee orientation sessions, the Director provides a 15-minute discussion of security issues. He also expressed plans to do lunch/learn sessions as well as develop a Security 101 class for all PGW employees.

A review of PGW's cyber-security plan by Schumaker & Company consultants found it to be adequate. In addition, in a recent internal audit (IA) report, one of the findings was that "PGW has made significant improvements to IT security subsequent to the PricewaterhouseCoopers' series of audits in 2003 and 2004."

Quality Assurance (QA)

The QA group consists of the QA Manager, one Senior QA Analyst, and two QA Analysts. One of the larger projects that was underway at the end of calendar year 2007 was QA testing of AIMS2. This group is attempting to move away from being simply a QA testing organization toward becoming a full-fledged QA organization. One of the activities it wishes to begin undertaking is active involvement in requirements gathering (IEEE 8.30 standards) on all major projects, including developing a matrix mapping of requirements.

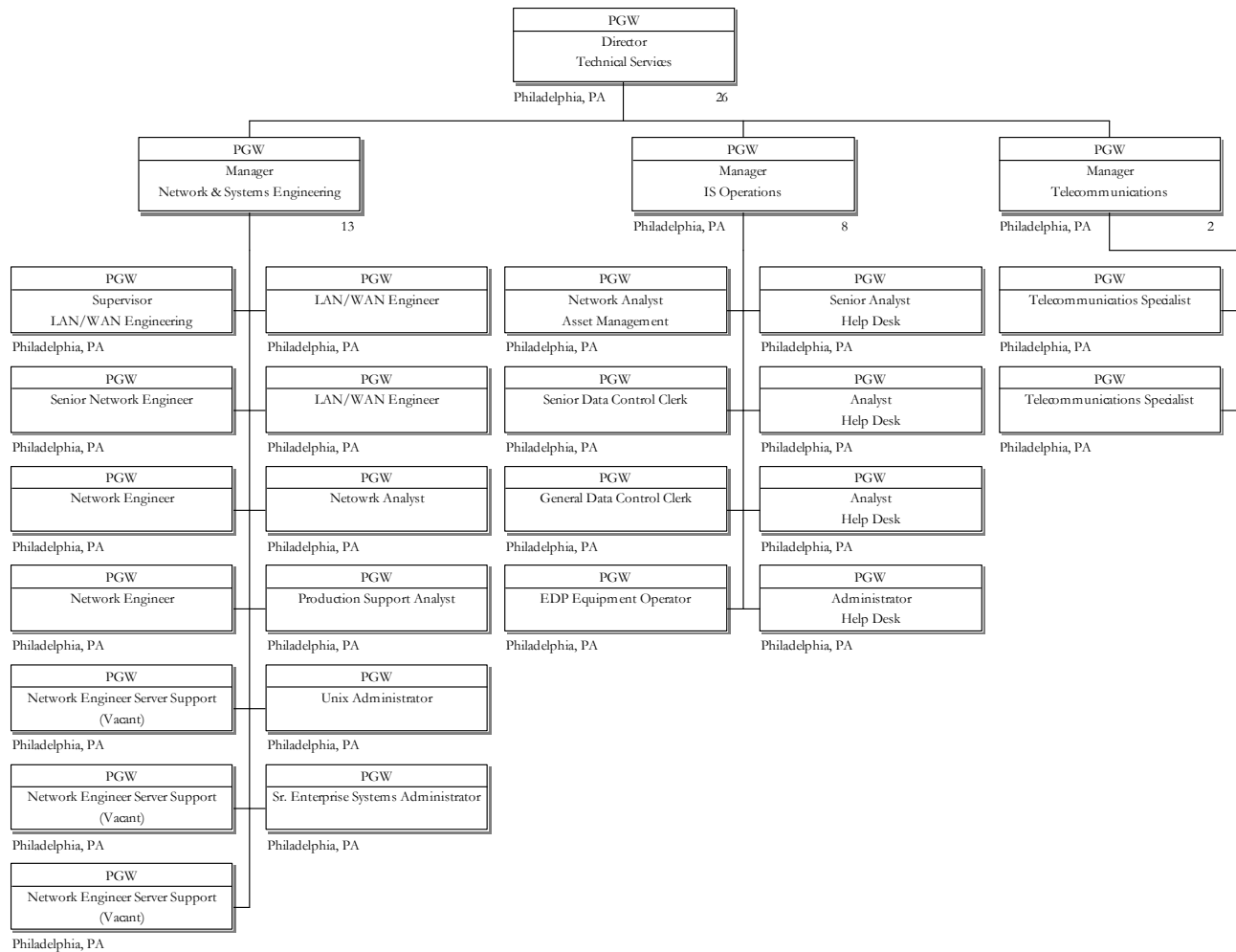
To get QA more involved in activities other than QA testing, the Director would like to issue a request for proposal (RFP) to have QA testing done by outside contractors, although test plans and scripts would be done internally by QA staff. Performing QA testing for the AIMS2 project took much of the QA staff's time, thereby preventing this group from performing other QA functions.



Technical Services

Exhibit III-6 displays the Technical Services organization, which is responsible for providing a robust and reliable infrastructure to support computing, networking, and telecommunications. This group serves over 1,700 local and remote users in a wired and wireless environment both locally and remotely.

Exhibit III-6
Technical Services Organization
as of December 31, 2007



Excludes nine in the consultant, contractor, or intern categories

Source: Interview 71 and Information Response 1

This group's primary responsibilities include:

- ◆ Telecommunications, including telephones and mobile telephones
- ◆ IS Operations help desk (five days/week from 7:00 a.m. to 5:30 p.m. using Remedy software)

with emergency voicemail capability) and desktop support (outsourced to outside firm)

- ◆ Network Services' local area network (LAN)/wide area network (WAN) support, including laptops in field trucks that use Fast 8211 capability at the beginning of each day to download transactions then automatically transfer that information to Verizon code division multiple access (CDMA) as trucks leave PGW's lot. Currently, the PGW Materials Management organization supports copiers, with IS providing network support and Imagistics/OCÉ providing supplies.

Backup power to the telecommunications/server area is an uninterruptible power supply (UPS) with up to 30 minutes of supply. Also available, if power were to be stopped for a longer period of time, are diesel and liquefied natural gas (LNG) generators. For disaster recovery purposes, PGW uses a SunGard "warm" site (as discussed in more detailed in the *Disaster Recovery* section of this chapter). IS takes tapes off site to a nearby location, approximately 11 miles away from PGW's IS computer room.

All servers are IBM servers, primarily bought through the Commonwealth of Pennsylvania's master contracting mechanism. (As a local government entity in Pennsylvania, PGW is allowed to buy goods and services using state master contracts, if desired. In that way, it can take advantage of lower costs available to the state.) Also recently, for development purposes, the Director was able to procure two refurbished server racks with servers for approximately \$100,000. These racks would have normally cost about \$400,000 total, or \$200,000 each. PGW typically replaces its servers using a five-year cycle.

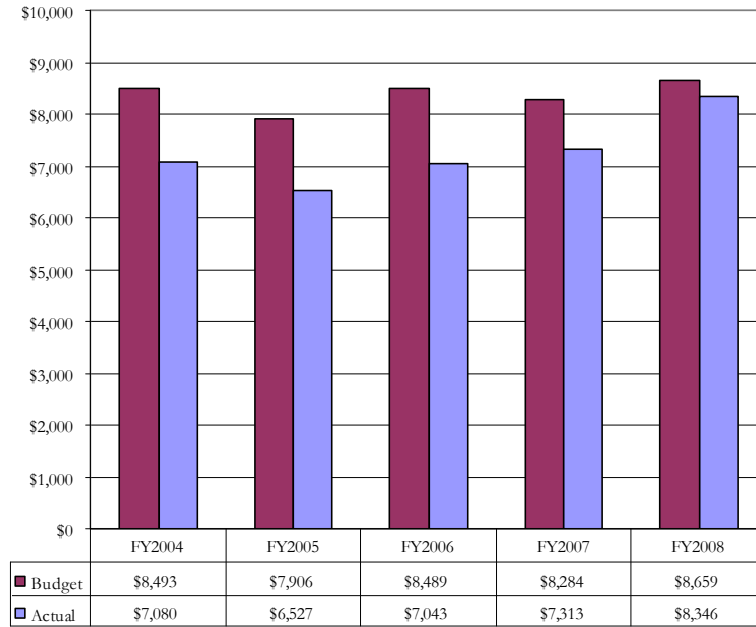
PGW is on a 4 1/2- to 6-year cycle for replacing workstations and laptops. Replacement efforts use state contracts that provide discounts of up to 50%. Following Microsoft Office XP's release in late 2001, PGW standardized running the XP version, however, the IS Department expects to upgrade to Office 2003 in 2008. (A later version of Microsoft Office, specifically Microsoft Office 2007, became available in early 2007; however, many organizations are waiting to migrate to Office 2007 until it has been released and used for some time and until any support issues have been resolved.) PGW employees can have only one personal computer—either a desktop or a laptop but not both. Desktops and laptops are locked down with no administrator rights for individual users, thereby preventing them from installing software package without IS' knowledge. Also, checkpoint security is used. In addition, an employee may only log into one computer at a time. If he or she leaves his or her computer logged in and wants to log in to another location, he or she must either log off the first computer or call into the help desk to have the first computer logged off.

Expenditures

Exhibit III-7 shows actual IS operating expenses decreasing from FY2004 to FY2005 then increasing generally in the following three fiscal years (FY2006 through FY2008). (FY2008 was estimated in April 2008 for the full-year period.) Actual expenses in total each year have been under budget.



Exhibit III-7
IS Operating Expenses
FY2004 to FY2008
(\$Thousands)



FY2008 actual/estimate (as of April 2008)
 Source: Information Responses 99 and 781

As shown in *Exhibit III-8*, the IS organization has been consistently under budget in most categories of operating expenses for all years FY2004 to FY2008.

Exhibit III-8
Actual to Budget IS Operating Expenses
FY2004 to FY2008
(\$Thousands)

	Actual					Budget					Difference				
	FY2004	FY2005	FY2006	FY2007	FY2008	FY2004	FY2005	FY2006	FY2007	FY2008	FY2004	FY2005	FY2006	FY2007	FY2008
Labor	\$2,589	\$2,907	\$3,495	\$3,418	\$3,861	\$3,540	\$3,479	\$4,107	\$3,495	\$3,958	(\$951)	(\$572)	(\$612)	(\$77)	(\$97)
Expense of Employees	\$24	\$94	\$188	\$240	\$203	\$119	\$217	\$217	\$188	\$210	(\$95)	(\$123)	(\$29)	\$52	(\$7)
General Material	\$94	\$88	\$98	\$102	\$125	\$268	\$125	\$125	\$98	\$125	(\$174)	(\$37)	(\$27)	\$4	\$0
Dues & Subscriptions	\$3	\$2	\$2	\$2	\$6	\$11	\$7	\$7	\$2	\$6	(\$8)	(\$5)	(\$5)	\$0	\$0
Purchased Services	\$2,136	\$1,808	\$1,907	\$2,101	\$2,177	\$2,041	\$1,926	\$2,049	\$1,907	\$2,336	\$95	(\$118)	(\$142)	\$194	(\$159)
Equipment Rentals & Leasing	\$68	\$73	\$81	\$35	\$45	\$120	\$104	\$104	\$81	\$45	(\$52)	(\$31)	(\$23)	(\$46)	\$0
Maintenance Software	\$1,748	\$1,306	\$1,118	\$1,218	\$1,673	\$1,728	\$1,515	\$1,515	\$1,118	\$1,723	\$20	(\$209)	(\$397)	\$100	(\$50)
Maintenance Office Equipment	\$418	\$249	\$154	\$197	\$256	\$666	\$533	\$365	\$154	\$256	(\$248)	(\$284)	(\$211)	\$43	\$0
Operating Expenses	\$7,080	\$6,527	\$7,043	\$7,313	\$8,346	\$8,493	\$7,906	\$8,489	\$7,043	\$8,659	(\$1,413)	(\$1,379)	(\$1,446)	\$270	(\$313)

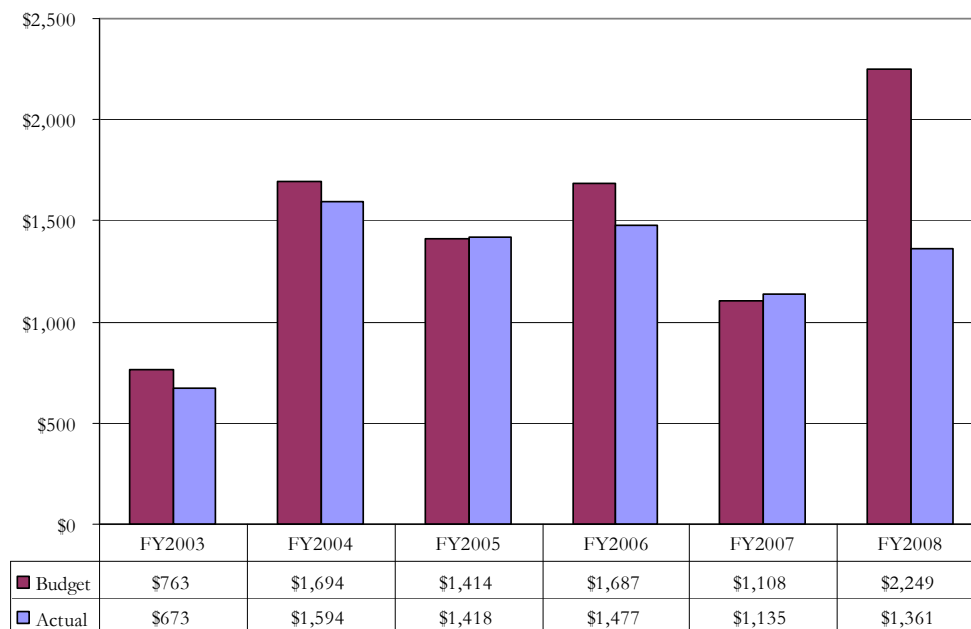
FY2008 actual/estimate (as of April 2008)
 Source: Information Responses 99 and 781

Discussions with IS management indicate that several reasons have allowed the IS organization to be consistently under budget. They include:

- ◆ Use of freeware based on IS' free-is-good (FIG) philosophy
- ◆ Renegotiation of contracts, such as PGW's cell telephone contract in which unit costs per month went from \$42 to \$26
- ◆ Decreased use of contractors
- ◆ Outsourcing of selected functions, such as mainframe operations, desktop support, and bill printing
- ◆ Increased virtualization of servers

Exhibit III-9 shows FY2003 to FY2007 capital expenditures, in which actual IS capital expenditures have generally been decreasing since FY2004, although FY2008 is slightly up from FY2007.

Exhibit III-9
IS Capital Expenditures
FY2003 to FY2008
(\$Thousands)



FY2008 actual/estimate (as of April 2008)
Source: Information Responses 99 and 781

IS experienced a large increase in expenditures (budget and actual) from FY2003 to FY2004, which was largely due to an increased number of projects involving data replication; software upgrades/replacements; server/network hardware additions; additional storage devices; data archiving software; audit software; replacement of desktops, laptops, and peripherals. IS also experienced a large increase in budgeted expenditures from FY2007 to FY2008, which was largely due to replacement of storage devices; disaster recovery and business continuity planning; an attendance tracking system, and



business process automation software, although the actual amounts spent in FY2008 for the attendance tracking system and business process automation software were forecasted to be below budget. From 2003 to FY2008, actual capital expenditures have generally been under or close to budget.

Also, for example, the actual amounts to be spent in FY2008 for the attendance tracking system and business process automation software were forecasted to be substantially below budget.

The attendance tracking system is one of several systems that are being replaced by a new time and labor management system. Its budget was created assuming PGW would purchase software and install/run it from the PGW data center. Instead, the new time and labor management system will be hosted by the vendor, greatly reducing PGW's capital investment. The business process automation project received conditional approval. Its business case was written assuming that more than one business process would be automated. Candidate projects would be considered on a case-by-case basis following a review of its business case. To get approved, a project must result in the reduction of at least one full-time (FTE) employee. As of FY2008 PGW departments have not submitted any projects for approval.

IS Performance Metrics

PGW has a base set of enterprise metrics that PGW management uses to monitor PGW's performance. The metrics are tracked monthly and posted to PGW's Intranet. (In early 2008, PGW began posting a few key customer affairs, field operations, and finance metrics on its public Internet site). Included among these approximately 52 metrics are two "share knowledge" metrics owned by the IS organization. They include:

- ◆ Number (#) of hits on a share drive (down is good as # indicates increased use of dashboards versus files or databases on share drive)
- ◆ # of orphaned databases (separate databases not integrated with other systems) (20% down target; 10% down last year)

In support of PGW's enterprise metrics are nearly 40 IS metrics, as illustrated in *Exhibit III-10*.

Exhibit III-10
FY2008 IS Performance Metrics
Page 1 of 2

Description	Target
Financial	
Build Cash Reserves	
Green \$ Return from Business Transformation	\$1 million
Seek Highest Return and Lowest Cost	
Operating Budget Variance	(2%)
Capital Budget Variance	(2%)
% of On-Budget Delivery Projects	80%
Cost Savings (Real & Avoided) as % Budget	3%
Project Estimates Variance Rate – \$	20%
Project Estimates Variance Rate – Hours	25%
Payback Period (PBP) Average	36 Months
Internal Process	
Done Right the First Time	
% of First-Call Resolution	95%
On Time the First Time	
% of On-Time Delivery Rate	80%
Deliver Services Effectively	
% of Available Hours Charged Back	90%
Average Hold Rate	20 min.
Open Help Desk Tickets Stratified by Days (10, 20, 30, 40, 40+)	10 Tickets (Open 0–10 Days) No Tickets (Other Day Categories)
Average Hours to Complete a Help Desk Request	24
Average YTD Sick Days Per Employee (Calendar Year)	5
Average Days to Grant System Access Rights	2
% of Availability (Infrastructure/Operations/Customer/Financial)	99.9% (Each)
Back-up Success Rate by Server	98%
Number of Unplanned Outages	1
Support Software Patch Levels %	90%
Number of Help Desk FAQs Added	10
Number of Help Desk Snippets Added	5
% of Policies that Are Current	100%
Coverage/Completeness of Policies and Procedures	100%

Source: Information Response 784



Exhibit III-10
FY2008 IS Performance Metrics
Page 2 of 2

Description	Target
Learning & Growth	
Develop Employees	
Development Plan Success Rate	95%
Average Training Hours per Employee	8
% of Employees Actively Training	5%
Achieve Outstanding Job Fit	
Average Time to Select a Candidate	60 days
Average # of Applicants per Job	10
Average # of Interviews per Job	5
Average % of Goals Met per Employee	90%
Manage Performance to Goals	
% of Department Goals Met	80%
Communicate Around the Organization	
Rate of Understanding	TBD
Share Knowledge	
Number of Orphaned Databases	637 (20% Down)
Hit Rate on Data Shares	Down

Source: Information Response 784

These performance metrics were established starting in January 2008.

Previously, the IS organization used approximately 90 metrics in its departmental scorecard, plus numerous other ones for individual IS groups. A large number of metrics is typically unwieldy to manage and prevents management from focusing on key targets. The reduction by more than 50% in the number of metrics monitored by IS should help management concentrate on achieving these targets. For example, in November 2007 under the old targets, IS was approximately 68.5% on target and 31.5% off target for its 90 metrics. Schumaker & Company would expect the on-target percentage to improve.

At least once every month, at the CIO's weekly leadership meetings (with roughly 20 employees in attendance), metrics are discussed, especially those with "off-target" status. Attending these meetings are IS directors and managers, BTCs, and an attorney in the Legal organization who routinely supports the IS organization.

Major Processes and Associated Systems

One of PGW's key processes is its application development methodology. The purpose of this methodology, which is divided into seven phases or milestones, is to provide a template for the successful design and implementation of new applications or enhancements to existing applications. It is to be followed when developing any medium (\$50,000 to \$250,000) or large (over \$250,000) project. The seven major phases are:

- ◆ Initiation
- ◆ Analysis
- ◆ Design
- ◆ Build/purchase
- ◆ Test
- ◆ Implement
- ◆ Completion

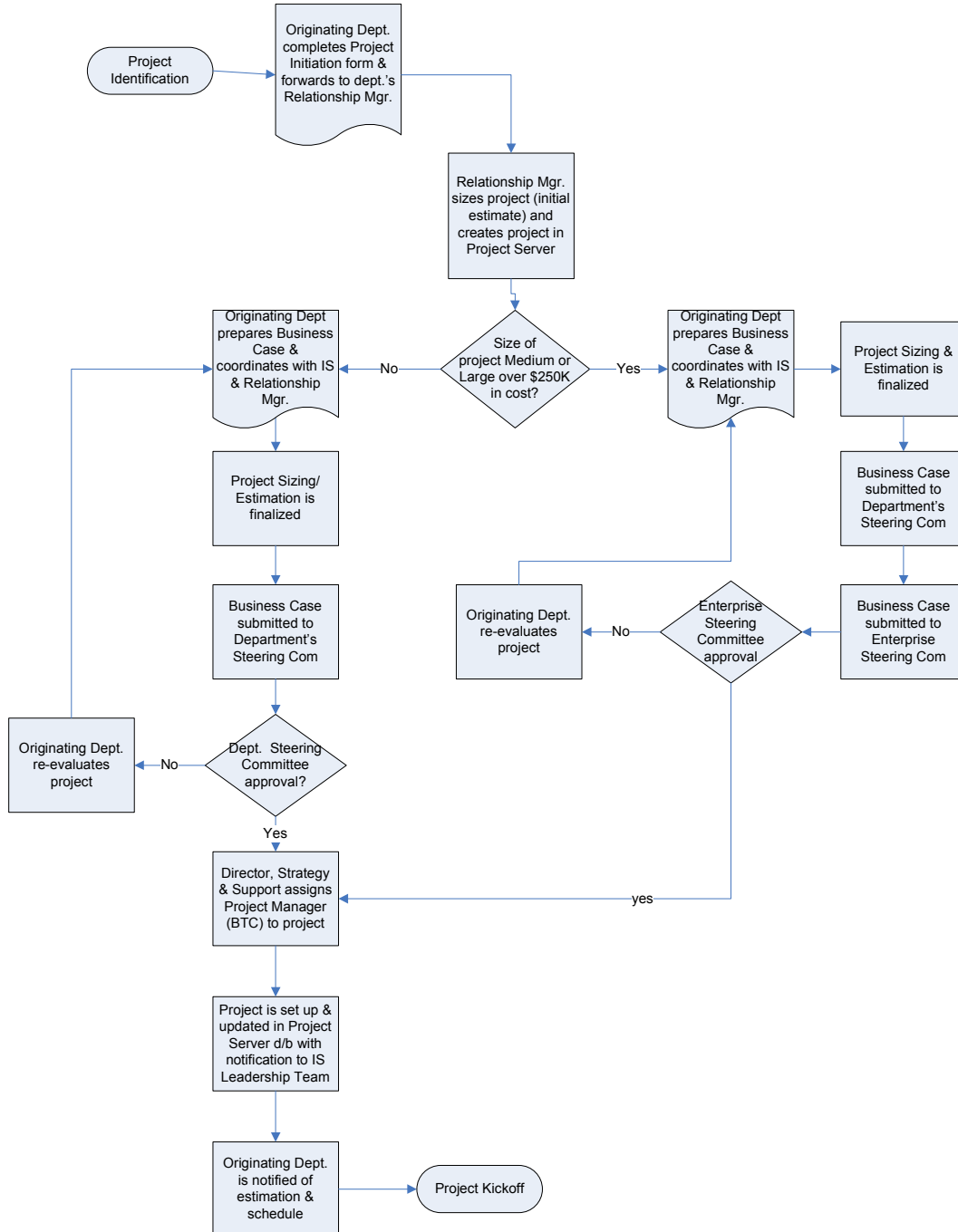
The Customer Contact Center (C3) is the single point center for break/fix requests and small enhancements/changes. Notification e-mail messages also go directly to BTCs. If any of these requests are capital budget items, they must also go to the Business Transformation Steering Committee (BTSC) for approval. (Prior to 2007, requests went to the Enterprise Steering Committee (ESC), which was disbanded when the BTSC was formed).

Authorization is required to begin work on a project (other than break/fix requests and small enhancements/changes) and to assign IS resources. For large projects (over \$250,000), this authorization must come from the Enterprise Steering Committee (ESC). For smaller projects, this authorization must come from the VP & CIO (or her designee). In either case, a project initiation form describing the business need or opportunity is required.



Exhibit III-11 illustrates the project initiation workflow.

**Exhibit III-11
Project Initiation Workflow
as of December 31, 2007**



Source: Information Response 109

Exhibit III-12 displays PGW's project sizing guidelines.

**Exhibit III-12
Project Sizing Guidelines
as of December 31, 2007**

	Small	Medium	Large
Cost			
Total dollars including external labor. Capital and expenditure costs -- includes internal labor. Internal cost factor is estimated to be PGW's productive rate as of the end of the last fiscal year. The actual cost for external resources will be used whenever possible. These are estimates only to facilitate planning.			
Total Dollars	< \$50,000	\$50,000 - \$250,000	> \$250,000
Time (Hours)			
Hours of Effort	< 200 Hours	200 – 900 Hours	> 900 Hours
Business Impact: Evaluation of a project or project candidate's effect, positive or negative, on our business as a whole.			
Risk Assessment: Considerations include scope of project, complexity of technical and business requirements, project duration, and how project may impact organizational structure.	Low	Medium	High
Strategic Alignment: Considerations include how your internal goals for the project are strategically aligned with the corporate goals in terms of customers, competitors, regulatory agencies, and	Low	Medium	High
Safety & Reliability: Considerations include disruption of services, ability to respond to emergencies, age of environment, and regulatory.	Low	Medium	High

Source: Information Response 109

The primary factors in determining the size of a project for documentation purposes are the total cost and total hours. If total cost and total hours fall in the "large project" category, then the project is considered a large project. Conversely, if total cost and total hours fall in the "small project" category, then the project is considered a small project. If the two primary factors have different sizes, the business impact factors (risk, strategic alignment, and safety and reliability) are used to assist in determining the size category. Each large project has a sponsor, a user project lead, an IS project lead, a BTC, and other user participants, with the overall project manager typically assigned from the BU.



Project documentation is required for each of the seven phases, as displayed in *Exhibit III-13*.

Exhibit III-13
IS Project Documentation Requirements
 as of December 31, 2007

Initiation	Plan/Analyze	Design	Develop	Test	Implement/Close
<input type="checkbox"/> Project Initiation Request Form <input type="checkbox"/> Business Case <input type="checkbox"/> Business Needs <input type="checkbox"/> Benefit/Savings <input type="checkbox"/> Project Charter <input type="checkbox"/> Scope <input type="checkbox"/> Objectives <input type="checkbox"/> Deliverables <input type="checkbox"/> Assumptions <input type="checkbox"/> Constraints <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Team Roles/Responsibilities Matrix <input type="checkbox"/> RFP Process <input type="checkbox"/> Scoring Matrix	<input type="checkbox"/> Project Plan <input type="checkbox"/> Scope <input type="checkbox"/> Cost Estimate <input type="checkbox"/> Schedule <input type="checkbox"/> Project Org. <input type="checkbox"/> Communication Plan <input type="checkbox"/> Risk Mgt. <input type="checkbox"/> Resource Mgt. <input type="checkbox"/> Change Mgt. <input type="checkbox"/> Issues Mgt. <input type="checkbox"/> Requirements <input type="checkbox"/> Specifications <input type="checkbox"/> Documentation <input type="checkbox"/> Joint Application Development Sessions <input type="checkbox"/> Use Cases <input type="checkbox"/> Requirements Matrix <input type="checkbox"/> Training Approach <input type="checkbox"/> Implementation Approach <input type="checkbox"/> Documentation Plan	<input type="checkbox"/> Design Document <input type="checkbox"/> Detailed Design (business logic, DB, outputs, GUI, hardware, software, network) <input type="checkbox"/> Security/Controls <input type="checkbox"/> Test Plan <input type="checkbox"/> Test Scenarios <input type="checkbox"/> Scripts <input type="checkbox"/> Technical Spec. <input type="checkbox"/> Platform <input type="checkbox"/> Processing <input type="checkbox"/> Screens <input type="checkbox"/> Reports <input type="checkbox"/> Database <input type="checkbox"/> Programs <input type="checkbox"/> Interfaces <input type="checkbox"/> Security Controls	<input type="checkbox"/> Build/Construct Environment <input type="checkbox"/> Unit Test <input type="checkbox"/> Internal Integration/Component Test <input type="checkbox"/> User Manual <input type="checkbox"/> Migration Plan (Technical Specifications) <input type="checkbox"/> Training Plan <input type="checkbox"/> Code/System Product <input type="checkbox"/> Test Doc/Plan (final) <input type="checkbox"/> Update Tech Specifications	<input type="checkbox"/> Test Plan <input type="checkbox"/> System Test <input type="checkbox"/> Network Test <input type="checkbox"/> Hardware Test <input type="checkbox"/> Stress Test <input type="checkbox"/> External Business Integration Test <input type="checkbox"/> Parallel Test <input type="checkbox"/> Update User Manual <input type="checkbox"/> Update Implementation Plan <input type="checkbox"/> Test Results	<input type="checkbox"/> Finalize Implementation Schedule <input type="checkbox"/> End User Training <input type="checkbox"/> Training Manual <input type="checkbox"/> Production Support <input type="checkbox"/> Maintenance and Support Plan <input type="checkbox"/> Service Level Agreement <input type="checkbox"/> Close Out Issues List <input type="checkbox"/> Deployment <input type="checkbox"/> Delivery of Project Documentation (Archival/Retention) <input type="checkbox"/> Customer Satisfaction Survey <input type="checkbox"/> Final Project Report <input type="checkbox"/> Lessons Learned <input type="checkbox"/> Close Project <input type="checkbox"/> Recognition
REVIEW/APPROVAL POINTS					
<input type="checkbox"/> Project Approval	<input type="checkbox"/> Kick Off Meeting <input type="checkbox"/> Approval of Project Plan, Budget, Schedule	<input type="checkbox"/> Design Review/Approval (Business Dept)	<input type="checkbox"/> Code Review <input type="checkbox"/> Unit Test Acceptance	<input type="checkbox"/> User Acceptance <input type="checkbox"/> DBA Authority to Move	<input type="checkbox"/> Formal Acceptance or Authority to Implement (Sign off)

Source: Information Response 109

The tasks for each of the phases is discussed in summary form in the *Blueprint for Operations Excellence* of the IS organization.

Along with its application development methodology, the IS organization also has other accompanying processes, such as the following:

- ◆ *Change Management*: Its purpose is to provide a standard and repeatable method for processing change requests (scope changes) made to projects once the design and programming have begun.
- ◆ *Implementation Management*: Its purpose is to provide a standard and repeatable method for moving programs from the QA function to the production environment.
- ◆ *Production Control*: Its purpose is to establish a standard for the delivery and introduction of new, modified, and enhanced technology products into the production environment.

- ◆ *Quality Assurance:* Its purpose is to provide a standard and repeatable method for moving programs from development through QA processes into the production environment via the implementation management process.
- ◆ *Release Management:* Its purpose is to provide a standard and repeatable method for managing software releases.
- ◆ *Resource Management:* Its purpose is to provide adequate resource availability for all projects through full-time PGW IS employees or selective sourcing.
- ◆ *Security Management:* Its purpose is to provide a uniform security control process for granting and restricting access based on the various needs of PGW departments' employees, vendors, and contractors.

Most of these processes (excluding the release management process) are described in summary form in IS' *Blueprint of Operational Excellence* documentation, but detailed guidelines do not exist.

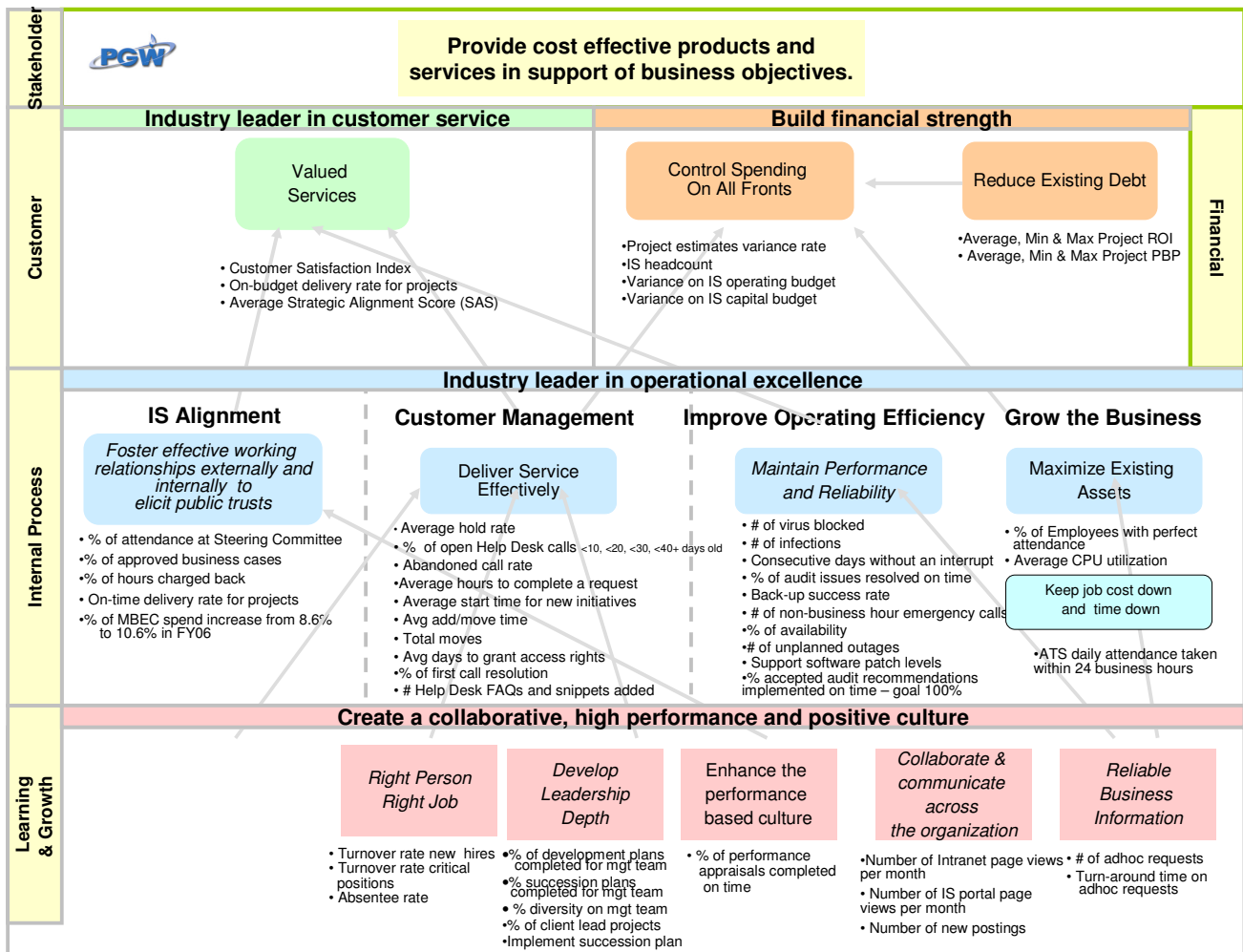
Findings & Conclusions

Finding III-1 The IS organization has not routinely performed long-range IS planning.

An up-to-date, detailed IS strategic plan did not exist in October 2007 when field work for this audit began. In response to Schumaker & Company's request for written long-range systems plans for the prior five years as well as current year plan and projections for the next five years, PGW responded with a well thought-out but three-year-old (2004) plan. This latest IS strategy was developed in 2004 when the prior CIO joined the PGW organization. Now, approximately three years later, the current CIO is working to develop a new IS strategy. In November 2007, the CIO held a meeting to discuss the upcoming IS strategy, which is primarily being driven by approximately 70 projects related to BT initiatives. She plans to do annual reviews, with updates expected every two to three years. The closest PGW has to an IS strategic plan at this time are its *Enterprise Project List* and *Resource Map* spreadsheets. The *IS Strategy Map* of the *Blueprint of Operational Excellence*, as shown in *Exhibit III-14*, is a broader picture, which is updated annually.



Exhibit III-14
IS Strategy Map
Last Updated December 31, 2006



Source: Information Response 93

PGW used to have an ESC of VPs who made decisions regarding the approval of IT projects based on business case proposals. When the BT concept was launched at PGW (see *Chapter II – Executive Management, External Relations, & Human Resources*), the ESC was disbanded and replaced with the BTSC. On November 26, 2007, IS management spent all day with BT Coordinators to discuss a candidate list of projects that was previously developed by IS and business units.

Although IS management seems to have a good understanding of where they would like to take the IS organization, the lack of routinely developing a written IS plan makes it extremely difficult for them to convey that direction to IS and other PGW employees.

Finding III-2 The existing draft IS policies and procedures focus on enterprise-wide policies and procedures to the exclusion of internal IS policies and procedures.

The *Blueprint for Operations Excellence* documentation, as previously discussed, is excellent summary-level IS documentation, but it does not provide detailed IS documentation of policies, procedures, and practices. On PGW's intranet are IS enterprise-wide policy documents, which are available to all PGW employees. Policies include items such as Internet use and e-mail retention. Currently, PGW employees sign forms that they acknowledge these policy documents. In late 2007, Schumaker & Company requested to see these IS guidelines, which included the following items (some of which had been drafted but not finalized):

- ◆ Network security policies
 - Internet usage (drafted not finalized)
 - Firewall security (drafted not finalized)
 - VPN (drafted not finalized)
 - Anti-virus (drafted not finalized)
 - E-mail usage (drafted not finalized)
 - Web server (drafted not finalized)
 - Personal computer installation on PGW enterprise network (drafted not finalized)
 - Authentication (passwords) (drafted not finalized)
 - Remote (dial-up) access (drafted not finalized)
- ◆ Online privacy policies (drafted not finalized)
- ◆ Operational policies
 - Operations management
 - Application design/development
 - Change control
 - Incident response
- ◆ Physical security policies
 - Data center access (drafted not finalized)
- ◆ Other IT policies
 - Data protection
 - Screensaver
 - F/P server
 - Desktop/server-based critical applications
 - Internet use
 - Policy exception
 - Windows 2000 server build
 - HPUX server build



With its newly created group of technical writers, the IS organization is attempting to create orientation materials, including detailed procedures on how to run individual IS departments and their associated processes. Although begun, most procedures have not been completed.

Finding III-3 Historically the QA function has focused primarily on testing activities.

The QA group, within the Information Controls & Compliance Services organization, has to date been focused primarily on QA testing rather than being a full-fledged QA organization. It has only occasionally been involved in performing quality assurance activities in all seven phases of the PGW application development methodology; it has primarily been involved in QA testing. Of eight major activities noted by PGW management as being performed in 2007, six involved testing-related activities, one involved creation of a monthly AIMS2 labor hours report, and one involved participation in the company job fair and recruitment of QA resources. One of the activities it expressed an interest in being more involved was requirements gathering (IEEE 8.30-1998 standards) on all major projects, including developing a matrix mapping of requirements. Even though PGW anticipated expansion beyond primarily testing activities, the group is primarily testing oriented and could be utilized in performing other systems development life cycle (SDLC) activities.

Finding III-4 PGW is effectively taking advantage of leading network infrastructure technologies.

Unlike many IS organizations that are only now considering the use of virtualization, PGW began using virtualization approximately four years ago. Activities already taken at PGW include:

- ◆ Approximately 3 ½ years ago, in 2004, IS moved 50 different development servers to two servers.
- ◆ Approximately 2 ½ years ago, in 2005, IS moved 60 different production servers to two servers.

In total, in 2007, PGW had approximately 210 servers, including many small servers, in a clustered Windows environment. The Technical Services organization is moving many of these to two-processor blade servers.

Use of virtual machine (VM) configurations allows for multiplexing of the underlying physical machine between different virtual machines, each running its own operating system. The main advantages of system VMs are:

- ◆ Multiple operating system (OS) environments can co-exist on the same computer, in strong isolation from each other.
- ◆ VMs can provide an instruction set architecture (ISA) that is somewhat different from that of the real machine.

Multiple VMs, each running their own operating system (called a guest operating system), are frequently used in server consolidation, where different services that used to run on individual machines to avoid interference are instead run in separate VMs on the same physical machine. This use is frequently called quality-of-service isolation (QoS isolation). The desire to run multiple operating systems was the original motivation for virtual machines, as it allowed timesharing of a single computer between several single-tasking OSs. The guest OSs do not all have to be the same, making it possible to run different OSs on the same computer (e.g., Microsoft Windows and Linux, or older versions of an OS to support software that has not yet been ported to the latest version.) The use of virtual machines to support different guest OSs is becoming popular in embedded systems; a typical use is to support a real-time operating system at the same time as a high-level OS such as Linux or Windows. Another use is to sandbox an OS that is not trusted, possibly because it is a system under development. Virtual machines have other advantages for OS development, including better debugging access and faster reboots.

PGW is also investigating virtualization of desktops, which involves separating the physical location where a personal computer (PC) resides from where the user is accessing the PC, typically either at home, at the office, or in a data center. The IS organization previously used separate images for different models, but in 2007, it started using Novacoast universal imaging in layers.

Fibre channel, which is fast at four gigabytes, is used for connecting servers rather than iSCSI, which is cheaper but slower at one gigabyte. Storage area network (SAN) is an architecture to attach remote computer storage devices (such as disk arrays, tape libraries, and optical jukeboxes) to servers in such a way that, to the operating system, those devices appear to be locally attached. Approximately 60 SAN units are in place at PGW.

The use of these state-of-the-art technologies has benefited PGW. For example, one of the results of their use is reliability. In the past five years, servers have not gone down during day hours; only one emergency shutdown was experienced at night. Also, the computer room where all of these servers are currently housed requires substantially smaller square footage than in prior years, making any move from the existing IS facility to another (being considered as part of PGW's BT activities) more cost-effective.

Some of the technologies currently implemented at PGW include:

- ◆ *Identity Vault* – validates all PGW employee logins; updates occur daily from HR/ADP. If for an existing employee, then they happen immediately; however, for new employees, logins are created but not provisioned for BCCS and Unix until the PMO gives BCCS access. If someone other than the employee changes the login password, then a pass phrase is required; if someone leaves, a single check denies further access.
- ◆ City Net frame relay network to get to remote sites; however, PGW is looking to replace it with faster Verizon frame relay connections (with ISDN backup), including:
 - 100 megabit Passyunk and Richmond sites
 - 10 megabit support centers



- 1 gigabit 800 building
- ◆ *Zenworks* – asset management, except for printers, scanners, and laptops locked into docking stations on trucks (only IS has keys) that typically use other mechanisms.
- ◆ *Avaya private branch exchange (PBX)* – PBX telephones; however, PGW is looking at VoIP, so it can make faster calls. There will likely be two pilots at both Passyunk and Richmond plants in the next 12 months.
- ◆ *Cisco firewalls* – set of devices configured to permit, deny, encrypt, or proxy computer traffic among different security domains based on a set of rules or other criteria.
- ◆ *Surf Control* – Internet security access, but PGW is considering possibly moving to another package.
- ◆ Some Citrix in place, but Terminal Services is used more, with Natilla for remote BCCS, mobile data terminals (MDTs), Office, and e-mail (not Office Web Access or OWA).
- ◆ *Iron Port* – spam control usage, although PGW is now looking at outsourcing its spam filtering, so that spam does not even make it to PGW’s firewall.
- ◆ *Computer Associates Message Manager* – archival of email messages.

Many of these tools have been deployed by the IS organization.

Finding III-5 The plans and schedules for the mainframe elimination project were not being appropriately being kept up-to-date.

The mainframe shutdown project has three major components. Part 1 involved replacing the mainframe-based application used in the district offices to manage foot traffic. That project ended in November 2007. Part 2 involves retiring and replacing the remaining non-labor related mainframe applications. That project was underway at December 31, 2007 (when Schumaker & Company’s field work was completed) and is scheduled to end in September 2008. The necessary data extracts were done and an archive viewer was developed and was expected to be in use by the middle of 2008. PGW has retired almost all non-labor customer information control system (CICS) transactions. Part 3 of the project is the final piece and that involves implementation of the new time and labor management system, which is scheduled to go into production in November 2008. Each part of the shutdown has its own project plan.

In response to Schumaker & Company’s 2007 requests for any long-range plans to migrate current mainframe applications to a client/server environment, a Microsoft Project schedule for elimination of PGW’s mainframe was provided. That schedule, which was provided in the middle of October 2007, indicated that implementation was to occur by the end of calendar year 2007, however, verbal discussions with IS and Finance management in late 2007 indicated that a more likely timeframe was the middle or late 2008. Although a Business Technology Consultant at PGW is responsible for

maintaining the project plan, which is usually updated weekly, Schumaker & Company apparently did not receive up-to-date plans when initially requested.

Schumaker & Company understands that project dates often must change. The changing dates are not what concern us; the inadequate use of formal project management monitoring does. In May 2008, Schumaker & Company learned that PGW is implementing Microsoft Project Server to track the progress of projects. This tool should allow the IS organization to more easily track the mainframe elimination project and other major projects.

Finding III-6 The PGW telecommunications and server room is not properly secured.

The help desk and new employee-training workstation area was recently moved into the secure telecommunications and server area; however, no security has yet been established between these areas. Although security badges prevent unauthorized access to the entire area, once someone comes into the secure area, only other employees watching movement of individuals prevents access to the rooms in which telecommunications and servers reside. Initially, PGW management indicated that security would be put in place; however, subsequent discussions with PGW management found that IS had no plans to address this situation.

Finding III-7 PGW has recently developed IS job families to allow job progression through technical as well as management positions, which should help to retain technical IS employees.

IS has gone to job families to allow growth not only through management but also through technical routes. The ability for employees to have a career path that does not require a move to management has often proven helpful in retaining employees who wish to remain technically oriented. Having employees leave a technology organization because they are being forced into management positions, when they do not wish to be, is problematic for any IS organization. Use of job families that support progression within technical positions typically results in reduced turnover, which in turn results in reduced training costs. Such use also aids in the retention of institutional and technical knowledge within the PGW organization, thereby typically improving productivity.

Finding III-8 The IS organization has begun placing emphasis on staff's achievement and maintenance of project management and technical certifications.

The IS organization supports its employees' growth through professional development activities. It recently began to require that each IS employee have a development plan with goals, including at least one development goal. The IS organization uses in-house training as well as offsite local training, and just recently implemented use of offsite remote training. It uses On Track software to track training. The IS organization also uses lunch-and-learn sessions, which used to be voluntary. Now, however, employee goals include attendance at five sessions and hosting at one session. The IS organization supports technical and project management certification by paying for the passing of tests, but only for



BTCs is certification included specifically as a goals in these development plans. The typical certifications (displaying the number of certifications actually achieved as of 2007 calendar year-end in parentheses) included the following:

- ◆ Project management (3); three of the five BTCs received the Masters Project Management Certification from Villanova in 2007 and one in early 2008, although none yet have PMP certification
- ◆ .NET Master (1); Business Application Specialist
- ◆ A+ (2); Senior Security Analyst and Disaster Recovery Specialist
- ◆ Certified Application Security Specialist (1); Manager, Business Solutions
- ◆ Certified Business Continuity Professional (1); Director, Information Controls & Compliance
- ◆ Certified Help Desk Professional 2000 (1); Help Desk Analyst
- ◆ Certified Novell Administrator (CNA) (1); Senior Security Analyst
- ◆ Certified Novell Engineer (CNE) (3); Director-Technical Services, Manager-Network & Systems Engineering, and Senior Enterprise System Engineer)
- ◆ Cisco Certified Network Associate (CCNA) (2); LAN/WAN Supervisor and Senior Network Engineer, plus a LAN/WAN Engineer working on certification
- ◆ JAVA (1); Manager, Business Solutions
- ◆ Microsoft Certified DataBase Administrator (MCDBA) (1); Senior Business Application Specialist
- ◆ Microsoft Certified Professional (MCP) (3); Senior Security Analyst, Disaster Recovery Specialist, and Senior Business Application Specialist
- ◆ Microsoft Certified Solutions Provider (MSCP) (1); Senior Enterprise Systems Engineer
- ◆ Microsoft Certified Systems Engineer (MCSE) (5); Senior Network Engineer, Senior Business Application Specialist, Senior Security Analyst, Network Engineer, and Technical Writer
- ◆ Oracle8i DBA Certified Professional (2); Database Administrator (DBA) and Business Application Specialist
- ◆ Software testing (2); Manager, Quality Assurance, Senior QA Analyst
- ◆ Support Center Analyst (2); Help Desk Analysts

Other certifications were in progress at 2007 calendar year-end.

Finding III-9 The IS organization does not effectively use service-level agreements with its customers.

Only the Customer Contact Center has what is called by the IS organization a service level agreement (SLA) with its customers. This SLA is really only a few pages from a document titled “Client Contact Center Road Map” that describes the C3’s operations, including response times to user tickets, by severity-level code, as shown in *Exhibit III-15*.

Exhibit III-15
C3 Response Times by Severity-Level Code
as of December 31, 2007

	Severity Level Code	Customer Impact	Definition	Response Time	
				Business Hours/Non-Business Hours	7:00–17:30/17:30–7:00
1	Emergency	Critical business process halted	A problem that halts enterprise-wide critical business processes (e.g., AIMS, BCCS, ADP, Oracle, mobile are down).	30 minutes	30 minutes
2	High	Non-critical business process impacted	A problem that affects one or more users in a non-critical business process, but that could affect productivity if not swiftly resolved (i.e., no keyboard, hard drive crash, system login failed).	1 hour	4 business hours
3	Medium	Little business impact	A problem or request that has a deadline but is not urgent (e.g., format documents).	4 hours	4 business hours
4	Low	Request forms	Request for hardware/software, network access, Internet, telephone: that which enhances business processes.	4 hours	4 business hours
5	Mobile data terminal	Non-critical business process impacted	A mobile data issue.	30 minutes	30 minutes

Source: Information Response 446

While this roadmap is a good beginning toward an SLA, it is not a fully comprehensive SLA that is based on feedback regarding a user’s expectation nor does it include signatures by both the IS and user organizations. Of concern is that a recent internal audit in late 2007 indicated that almost 20% of the tickets sampled failed to meet the timeliness standards identified by the roadmap.

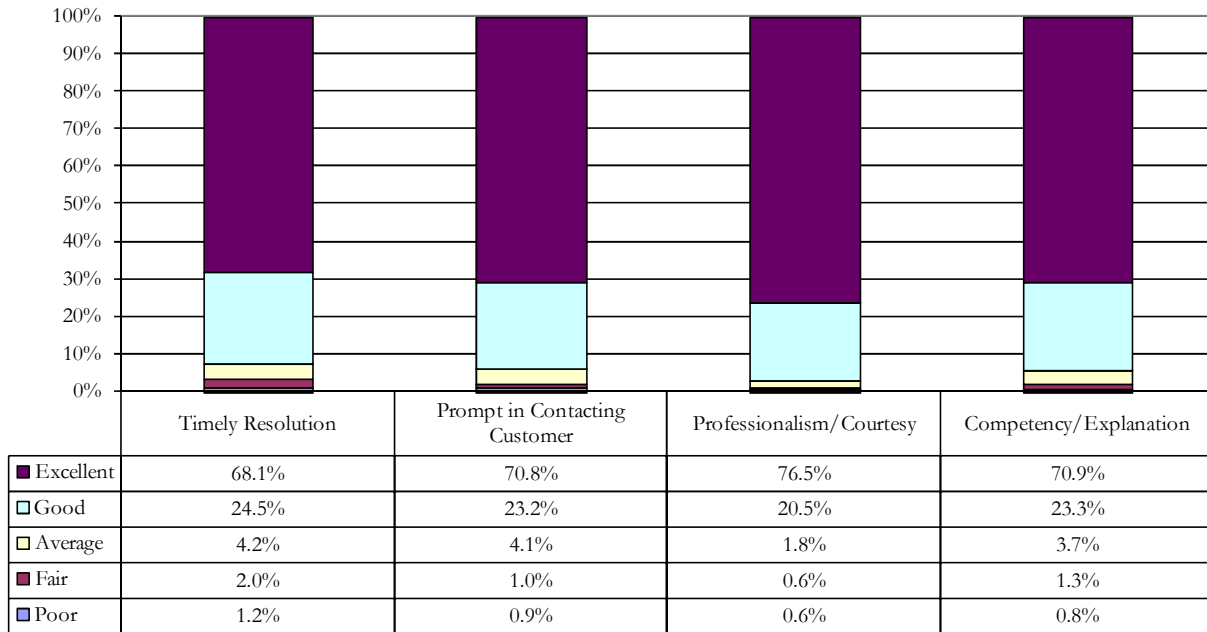


Other IS organizations have no SLA-type documentation. IS management indicates that it is because this SLA applies to the entire IS organization. Schumaker & Company disagrees. In other organizations, well-run technology organizations, we see each group within a technology organization have their own SLA that focuses on the specific services that they provide to end users.

Finding III-10 C3 surveys indicate that the IS organization is generally regarded as a professional, competent, and responsive organization.

Surveys are done when C3 tickets are closed. The survey results for March 29, 2006 to February 7, 2008 (based on 2,542 respondents) are illustrated in *Exhibit III-16*. For each of the four questions asked, IS consistently falls above 92% for above average (sum of excellent and good) results.

**Exhibit III-16
C3 Survey Results
March 29, 2006 to February 7, 2008**



Source: Information Responses 108 and 635

Survey respondents were also asked the question: “How satisfied are you with Information Service’s support?” The responses were 50.2% “exceeded expectations,” 48.2% “meet expectations,” and only 1.7% “does not meet expectations.”

Although general satisfaction surveys are not conducted, IS meets weekly with Consumer Affairs and monthly with Operations, its two biggest clients. Areas discussed typically include:

- ◆ Capital budgets

- ◆ Problem areas
- ◆ Major projects

Questions raised by these groups typically include lack of resources and communications, issues that are not uncommon for IS organizations, including those who use a chargeback mechanism like PGW does for allocating costs to user departments.

Finding III-11 The IS chargeback allocation methodologies are not regularly reviewed.

The IS organization is one of four PGW departments whose costs are allocated to user departments. The IS chargeback methodology, which was last reviewed by IS in 2004, is a combination of two factors:

- ◆ *Actual Allocation Amount:* Based on a 2004 investigation as to what PGW departments used IS resources (other than personal computers, laptops, and printers), a fixed monthly chargeback amount (per department) was developed, but neither the methodology nor the amount has been reviewed since that time.
- ◆ *Default Allocation Amount:* The number of devices (personal computers, laptops, and printers) multiplied by \$5,652 per device is used to develop a monthly chargeback amount for each PGW department. Because the number of devices can change, the amount is updated each month.

In addition, in Schumaker & Company's review of one month's allocation in FY2008, only 99.2% of IS costs were charged to other PGW departments.

Finding III-12 PGW has met all required elements of the Chapter 101 emergency preparedness self-certifications.

Each year since 2005, PGW has been required to file self-certification forms to the Secretary's Bureau at the PaPUC regarding its emergency preparedness, as required by 52 Pa. Code §§ 101.1-101.7. Subsequently, concurrent with its PaPUC annual report filing, PGW submits its self-certification filing. Therein, PGW must indicate that the requirements were met for the entire prior year (submitted in early 2008, for example, for 2007).

The regulation requires a jurisdictional utility to develop and maintain written physical and cyber-security, emergency-response, and business-continuity plans, which include:

1. A physical security plan must, at a minimum, include specific features of a mission-critical equipment or facility-protection program and company procedures to follow based upon changing threat conditions or situations.
2. A cyber-security plan must, at a minimum, include:
 - a. Critical functions requiring automated processing



- b. Appropriate backup for application software and data; appropriate backup may include having a separate, distinct storage medium for data or a different physical location for application software
 - c. Alternative methods for meeting critical functional responsibilities in the absence of information technology capabilities
 - d. A recognition of the critical time period for each information system before the utility could no longer continue to operate
3. A business-continuity plan must, at a minimum, include:
 - a. Guidance on the system restoration for emergencies, disasters, and mobilization
 - b. Establishment of a comprehensive process that addresses business recovery, business resumption, and contingency planning
 4. An emergency-response plan must, at a minimum, include:
 - a. Identification and assessment of the problem
 - b. Mitigation of the problem in a coordinated, timely, and effective manner
 - c. Notification of the appropriate emergency-services and emergency-preparedness support agencies and organizations

The adequacy of the physical-security plan, business-continuity plan, and emergency-response plan are further discussed in *Chapter VII – System Reliability Performance and Other Related Operations*, while the adequacy of the disaster-recovery and cyber-security plans is discussed in this chapter.

For 2003 and 2004, PGW submitted self-certification forms indicating that emergency-preparedness and business-continuity plans were in development (or had only recently been developed) and that testing had not necessarily been performed. However, PGW submitted self-certification forms for 2005, 2006, and 2007 indicating that it essentially met all such requirements, as these factors had been addressed.

Schumaker & Company's review of activities performed by PGW's Security, Safety, and Corporate Preparedness departments reflect that PGW is undertaking considerable positive efforts to ensure emergency preparedness. As discussed in *Finding III-13 and Finding III-14*, Schumaker & Company's review of the disaster-recovery and cyber-security plans indicate that they are adequate to PGW's needs, although (a) disaster recovery tests have not always been comprehensive or test results documented and (b) more attention could be paid by PGW to the days following the 48-hour recovery period and to the potential impact of a pandemic on PGW operations.

Finding III-13 Although PGW has adequate disaster-recovery plans and generally tests those plans, such tests have not always been comprehensive and test results have not always been adequately documented.

Schumaker & Company reviewed PGW's disaster-recovery plans and cyber-security plans and found the plans to be adequate.

With regard to disaster recovery, the last disaster-recovery test was performed in late August 2007. (The next test is planned to be done in late 2008, although a specific schedule had not yet been developed by IS at the completion of Schumaker & Company's field work.) The PGW Internal Audit organization also reviewed the disaster-recovery test plans and results associated with this test. Some of their key findings included:

- ◆ IA reviewed the PGW disaster-recovery plan and found it is complete as suggested by Information Systems Audit and Control Association (ISACA) standards and literature. The plan document is based on a four-year contract with SunGard, which requires six tests over that period. In addition, it requires that all critical business applications be restored to full functionality within 40 hours over three days for operating systems and related applications and data from offsite storage.
- ◆ IA determined that IS did not schedule a comprehensive disaster-recovery test in August, which was by design, although the test results were consistent with the test's objectives and resources provided.
- ◆ IA found no evidence of documentation of the controls tested.
 - IA requested but did not receive documentation of the controls performed in the test, although IS management indicates that it has provided documentation for the other five tests conducted since 2001.
 - IA did not receive documentation of the key controls, what risks they are geared to mitigate, or how they are performed showing what, who, why, and when, as well as any changes implemented for future tests.

In summary, implementation of disaster-recovery test plans needs to be improved.

With regard to cyber-security, each year PGW has an independent third party perform a penetration study and vulnerability assessment. The results of this assessment are documented and the Security Director must indicate how PGW will address any noted deficiencies. In subsequent years, IS' progress in addressing deficiencies is reviewed.



Finding III-14 The disaster-recovery process is not sufficiently linked to the business-continuity planning process, as it has not yet focused on those days following the 48-hour recovery period nor has it formally included the potential impact of a pandemic on PGW operations.

In its audit report, the Internal Audit organization stated that disaster recovery does not have a strong link to the business-continuity process. The audit report went on to suggest that the disaster-recovery plan be included as a key component of the business-continuity planning process. Specifically, the audit report stated:

- ◆ All of the key business units should work with the IS Security organization to review the plan and be included in performing the disaster-recovery testing of business application systems.
- ◆ A schedule should be developed to clearly communicate to all parties the comprehensive nature of the disaster-recovery plan for a specific time period.
- ◆ Without a comprehensive disaster-recovery plan that has been thoroughly tested, in the event of a disaster it is unlikely that critical data, systems, business applications, and networking services will be recovered without a significant interruption.

Schumaker & Company concurs. Additionally, neither the IS organization nor PGW in general has focused its business-continuity plans on what would happen beyond the 48-hour period for recovery of critical applications. Also, a specific situation, a pandemic, has not been considered in any detail by the IS organization. From an IS perspective, a pandemic could have substantial telecommunications impact, especially remote access. That is because PGW employees may be required to use remote access to conduct business operations. Few PGW employees have remote access privileges. Insufficient focus has been given to these two areas.

Recommendations

Recommendation III-1 Formalize a regularly conducted, long-range planning process. (Refer to Finding III-1.)

The current CIO has begun efforts to develop a long-range IS plan. While these efforts are commendable, going forward, such formal planning should regularly occur. At least annually, the IS plan should be reviewed and updated, as appropriate. A formal (written) plan document should be developed, which can be distributed not only to IS management and staff, but to other interested parties within the PGW organization. It should not be simply a list of projects that IS expects to undertake, although such a list with anticipated start and end dates should be included. The IS strategic direction should be identified and documented, with the list of projects in support of this direction clearly identified. Such projects typically include not only projects requested by PGW user departments to

achieve their goals and objectives, but also technically oriented projects for IS to perform in order to achieve PGW's future technology direction.

Recommendation III-2 Complete existing IS policies and procedures and expand focus to include internal IS guidelines. (Refer to Finding III-2.)

The IS organization should continue its efforts to complete enterprise-wide technology policies and procedures. However, of great importance going forward is the need for IS to document its own guidelines for effectively and efficiently running each of the groups that are part of the IS organization. The technical writers who are currently working with IS management and staff have not had sufficient time to achieve significant progress to date. Nevertheless, IS must find a way to keep a focus on these efforts and to complete an initial version that comprehensively addresses the entire IS organization. As part of this effort, a schedule should be developed to regularly review and update, as appropriate, each policy, procedure, and practice.

Recommendation III-3 Expand the purpose of the QA organization to become actively involved in all phases of major technology projects. (Refer to Finding III-3.)

A well-run QA organization has a documented QA plan that details the group's involvement in all aspects of all major applications development/systems implementation projects. The QA group should not be viewed primarily as a testing organization. Schumaker & Company concurs with IS management that QA professionals should perform quality assurance activities as part of requirements gathering on all major projects. Although a worthy next step, this strategy alone will not make the QA group a fully functioning QA function. It must be involved in all phases of a technology project to ensure that proper policies, procedures, and practices are being followed.

Recommendation III-4 Use Microsoft Project Server to effectively track activities, milestones, and resources for all major technology projects. (Refer to Finding III-5.)

The IS organization's FY2008 implementation of Microsoft Project Server should allow the group to more effectively track activities, milestones, and resources for all major technology projects. The software's efficient use will require that all necessary IS employees be trained on the use of the tool, on templates to be developed for ensuring standardization across projects, and on project management guidelines provided to all employees who are involved on major projects. The BTCs should be actively involved as leaders for driving its use across the IS organization.



Recommendation III-5 Properly secure the PGW telecommunications and server room. (Refer to Finding III-6.)

The entire IS operations area is appropriately secured to prevent access by unauthorized parties; however, once into the help desk and new employee training workstation area, no additional security (other than visual observation) is in effect to prevent only a select group of employees from having access to the telecommunications and server room.

Recommendation III-6 Expand emphasis on achievement of project management and technical certifications. (Refer to Finding III-8)

IS management should continue to support project management and technical certifications. Not only BTCs but also other IS employees who are involved on technology projects should be strongly encouraged to achieve PMP certification. Approximately 25 employees have achieved technical certifications. Other employees are working on achieving similar certifications. Encouraging employees to obtain project-management and technical certifications helps both PGW and its employees. Because it increases the skill sets of employees to more effectively and efficiently perform IT work, it should be more strongly encouraged, in which IS formally tracks achievement of and progress towards such certifications.

Recommendation III-7 Establish SLAs with all major IS customers. (Refer to Finding III-9 and Finding III-11.)

To truly become “a valued business partner,” the IS organization must increase its client focus by interacting effectively with its client groups. One of the ways the IS organization can begin is by establishing service level agreements with each of its major client groups, not just Consumer Affairs and Operations but also with other client groups. Each SLA should be developed in conjunction with individual client groups and should be based on the group’s service expectations. The SLA should be reviewed annually with each client group, after which both the client group and IS management should sign the SLA.

However, these agreements must not be developed and solely placed on a back shelf without further consideration. A mechanism must be developed that requires the IS organization to at least quarterly (if not monthly) obtain feedback from client groups as to how the IS organization is doing against the expectations included in the SLAs.

Recommendation III-8 Keep to the desired schedule for disaster-recovery tests, including frequent use of comprehensive tests that are fully documented. (Refer to Finding III-13.)

While the IS disaster-recovery plans are adequate for PGW’s needs, the organization has not sufficiently implemented these plans. Comprehensive tests should be regularly performed and fully documented.

The appropriate IS management also should work closely with the Internal Audit function to ensure that all of IA's 2007 recommendations are addressed.

Recommendation III-9 Incorporate disaster recovery into business-continuity plan process and expand its focus. (Refer to Finding III-14.)

The IS organization must be actively involved in all business-continuity planning and associated tests. Its role is not merely to ensure that existing systems are up and running in a timely manner. Its responsibilities should extend to identifying technologies that may need to be implemented in the future to ensure that business continuity is possible in the event of a disaster.

One example is that both PGW, including IS, must begin to plan for the hours after the initial 48 hours following a disaster have passed. While core systems may be up and running, other technology aspects will need to be addressed to ensure efficient and effective PGW operations if a longer-term impact of a disaster occurs. Not only IS, but other PGW departments, will need to be actively involved in business-continuity planning for this longer-term impact.

Another example is that a pandemic may require remote access by many PGW employees. IS has not been involved in any such planning but it should be.

B. Transportation and Fleet Management

This chapter provides a discussion of the transportation and fleet management services provided by Philadelphia Gas Works (PGW) in relation to the vehicles and equipment that are owned or used by PGW as part of its utility operations.

Background & Perspective

Organization & Staffing

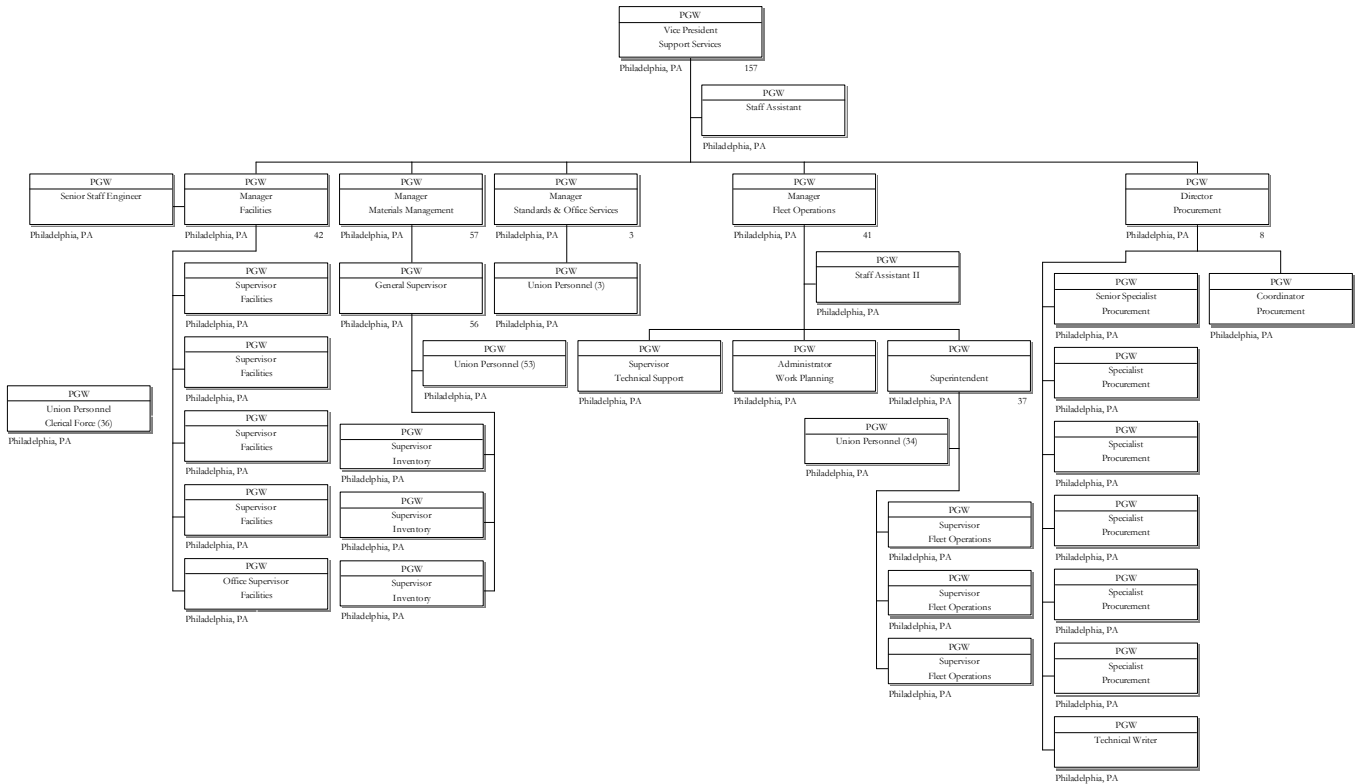
Organization and Facilities

The PGW Fleet Operations (FO) Department is responsible for all of the vehicles in the PGW fleet as well as the "street equipment" such as backhoes, compressors, and pipe-cutting machines. The FO Department is part of the PGW Supply Chain organization and reports to the Vice President Supply Chain. The FO mechanics perform routine maintenance and repair tasks on the PGW fleet and equipment. Large repair jobs, such as transmission or engine overhauls and major body work, are performed by external garages. The specialized expertise and amount of mechanic time that are required to complete such work necessitate outside assistance.



The Supply Chain organizational chart, which includes the FO Department organizational chart, is presented in *Exhibit III-17*.

**Exhibit III-17
PGW Supply Chain Organization Chart
as of December 31, 2007**



Source: Information Response 1

The primary and largest FO garage facility is located at the PGW West Montgomery Avenue corporate offices complex. The Montgomery facility is a seven-day by 24-hour operation in the winter and a six-day by 24-hour operation in the summer. Each eight-hour shift has one supervisor assigned to it. The bulk of the work is done during the day shift, with lesser amounts of work done at night. The night shift is primarily responsible for working on heavy trucks, with the workload focused on walk-ins (primarily for unscheduled emergency repairs), doing preventive maintenance (PM), and performing state inspections. The garage has separate areas for performing PM and state inspections, corrective maintenance (CM), body work/welding, and equipment and hydraulics repairs.

PGW also maintains three satellite garage facilities that are in field operations' center locations, those being Belfield, Porter, and Castor. These facilities are open during only the midnight shift and are staffed with two mechanics apiece. The PGW 28th Street parking lot contains vehicles that are awaiting service and vehicles that have been serviced and are waiting to be picked up.

Most of the PM work is performed at night to avoid tying up the vehicles during working hours. Routine repair work is normally performed during the day shift. The three satellite garages perform only PM and minor repair work.

Garage cleaning is provided by the PGW Facilities Management Department through contracted services. The West Montgomery Avenue garage facility was observed by Schumaker & Company consultants to be generally clean and well organized.

Staffing

Exhibit III-18 presents data on the levels of staffing in the FO Department, by position, for the period spanning FY2003 through FY 2007. It should be noted that the staffing levels have been on a steady decline during the period.

Exhibit III-18
FO Staffing by Position
FY2003 to FY2007

	FY2003	FY2004	FY2005	FY2006	FY2007	Change 2003 - 2007
Mechanics	31	25	25	24	26	-16.1%
Body Shop	7	6	6	5	5	-28.6%
Radio Tech	2	2	2	2	1	-50.0%
Supervisors	3	3	3	3	3	0.0%
Superintendent	1	1	1	1	1	0.0%
Administrative	2	2	2	3	3	50.0%
Dept. Manager	1	1	1	1	1	0.0%
Clerk	3	3	3	3	2	-33.3%
Total	50	43	43	42	42	-16.0%

Source: Information Response 533

Depending on vacations and sick time, seven to eight mechanics are assigned to the day shift at the Montgomery garage. The FO Department also has one “street mechanic,” working out of the Montgomery facility, who performs repairs and PM on the street. Such responsibilities include working on vehicles that have broken down in the field. FO has one large tow truck that is used to tow the larger trucks when required. Smaller towing jobs are performed by a contracted private towing company.

The FO Department uses working foremen, with one assigned per shift. Their primary responsibilities are assigning the work and tracking the status of each mechanic in relation to completing the work that he or she has been assigned. Additionally, there are three supervisors, with one assigned to each shift, who are responsible for managing the overall operation during their shift.



Mechanic training is primarily done by outside entities that come in to teach in-house classes on various topics. All of the FO mechanics have to be certified and must maintain their certification to ensure their continued employment.

Turnover among the mechanics has historically been very low. The last mechanic to be brought onto the FO staff was hired in approximately 2005. However, as of November 2007, there were six mechanics in the Montgomery garage who were planning to retire at the end of 2007.

The strategic intention as of November 2007 was to replace three of the six retiring personnel. Assuming a conservative total annual employee cost of \$60,000 per employee, this would result in an annual savings of approximately \$180,000 for PGW.

PGW management believes that the remaining staff will be able to keep up with the workload thanks primarily to the recent purchase of a significant number of new vehicles. These vehicles do not require the same level of repair and maintenance work as the older vehicles did, thereby lessening the workload on the mechanics. FO management does not expect this staff reduction to result in an increase in overtime as witnessed by *Exhibit III-19* which shows that the budget for overtime for FY 2008 is the same as the budgeted number for 2007.

Based on data provided by PGW, the average age of their 26 mechanics is 47 years and 14 are 50 years of age or older. PGW provided data related to the “worst case and more probable” retirement scenarios, as follows:

- ◆ If mechanics retire at the earliest possible date:
 - Within five years 54% could retire
 - Within ten years 69% could retire
 - Within fifteen years 84% could retire
- ◆ If mechanics retire at age 60 with 15 or more years of service:
 - Within five years 15% could retire
 - Within ten years 50% could retire
 - Within fifteen years 77% could retire

Exhibit III-19 presents data on the overtime charged by the FO group for the period spanning FY2004 through FY2007.

Exhibit III-19
Overtime Budget versus Actual
FY2004 to FY2007

Overtime Budget/Actual	FY2004	FY2005	FY2006	FY2007	FY2008	Percent Change FY2004 - FY2007
Actual OT Hours	5,874	9,161	6,280	8,219	NA	39.9%
Budget OT Hours	NA	3,490	6,780	6,900	6,900	
Variance Hours		5,671	-500	1,319		
Variance % of Budget		162.5%	-7.4%	19.1%		

Source: Information Response 552

Supervisors estimated (in late 2007) that the mechanics at Montgomery average about eight hours of overtime per week, most of which is charged in the winter. This overtime is required to keep up with the workload and is expected by the supervisors to increase to some extent in 2008. Such growth is anticipated as a result of the mechanic retirements that are scheduled for the end of 2007. During times when the mechanics cannot finish the work during the day shift, it can be rolled over to the night shift or they can request overtime. Overtime must be requested from and approved by an FO supervisor or manager.

Expenditures

Exhibit III-20 presents data on the operating budget versus actuals for the period spanning FY2003 through FY2007. Review of the data reveals a steady downward trend in the operating expenses.

Exhibit III-20
Operating Budget versus Actuals
FY2003 to FY2007

Operating Budget/Actual	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003 - FY2007
Actual	\$9,443,846	\$9,237,296	\$8,077,808	\$7,865,262	\$7,793,017	-17.5%
Budget	9,536,000	9,398,000	7,745,000	8,790,000	8,067,000	-15.4%
Variance \$	(92,154)	(160,704)	332,808	(924,738)	(273,983)	
Variance % of Budget	-1.0%	-1.7%	4.3%	-10.5%	-3.4%	

Source: Information Response 116

Exhibit III-21 presents data on the capital budget versus actuals for the period spanning FY2003 through FY2007. Review of the data reveals a generally increasing trend in the capital expenditures. This rise is attributable to the budgetary restrictions that were imposed in the earlier part of the FY1999 to FY2003 period and to the recent loosening of those restrictions due to the operational problems they were causing for the FO Department. These problems were primarily due to a significant increase in



corrective maintenance requirements due to the aging fleet. PGW stated that the reason the budget for FY2007 has not been reached is that capital funding was redirected to other PGW capital projects.

Exhibit III-21
Capital Budget versus Actuals
FY2003 to FY2007

Capital Budget/Actual	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003 - FY2007
Actual	\$807,173	\$2,966,723	\$1,404,750	\$2,586,037	\$2,455,433	204.2%
Budget	833,000	3,314,000	1,475,000	3,431,000	4,480,000	437.8%
Variance \$	(25,827)	(347,277)	(70,250)	(844,963)	(2,024,567)	
Variance % of Budget	-3.1%	-10.5%	-4.8%	-24.6%	-45.2%	

Source: Information Response 116

The FO Department, in conjunction with the Supply Chain group, was planning (as of late 2007) to issue a request for proposal (RFP) for a contractor to perform a portion of the vehicle maintenance and repair work. The intention is to enable FO management to collect the relevant data required to compare how competitive their FO internal costs are versus those of external service providers.

Major Processes and Systems

Processes

Because of cash flow problems, very little investment was made by PGW in new vehicles for a five-year period spanning approximately 1999 through 2003. This lack of replacement vehicles resulted in an aged fleet that required significantly more CM repair work. This requirement for larger amounts of CM resulted in less opportunity for the FO Department to perform PM, a tendency which only served to exacerbate the CM problem to an even greater degree. In 2004, a fleet revitalization study was performed by an external contractor, FMI. The resulting report presented a specific plan and timetable for bringing the PGW fleet back up to an improved level of operational and economic efficiency. This report has been used by PGW as the guideline for the renovation of its vehicular fleet.

Exhibit III-22, which follows, presents data related to PGW fleet composition by category of vehicle for the period FY2003 through FY2007.

**Exhibit III-22
PGW Fleet Composition
FY2003 to FY2007**

Category	Vehicle Description	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003-FY2007
Car	Car	179	179	179	154	150	-16.2%
Small Truck	SUV	8	6	3	3	3	-62.5%
Small Truck	Van-Mini	22	22	22	22	20	-9.1%
Small Truck	Van-Utility	333	333	308	289	266	-20.1%
Small Truck	Van-Passenger	4	4	4	3	3	-25.0%
Small Truck	Pickup	44	44	68	80	89	102.3%
Small Truck	Small Cube Truck	10	10	10	9	9	-10.0%
Small Truck	Mini-Maintenance Truck	6	6	6	6	6	0.0%
Small Truck	Welding Truck	8	8	8	8	8	0.0%
Large Truck	Large Cube Truck	5	5	5	3	2	-60.0%
Large Truck	Maintenance Truck	86	75	75	86	83	-3.5%
Large Truck	Pressure Force	10	10	10	10	10	0.0%
Large Truck	Dump Truck	18	18	18	18	18	0.0%
Large Truck	Fuel/Tanker Truck	3	3	3	3	3	0.0%
Large Truck	Stake Body/Platform	12	12	12	12	11	-8.3%
Large Truck	Tow Truck	1	1	1	1	1	0.0%
Large Truck	Vac Hoe Truck	7	7	7	7	7	0.0%
Large Truck	Load Luger/Tractor	3	3	3	3	3	0.0%
Large Truck	Fire Truck	2	0	0	2	1	-50.0%
Large Truck	Aerial Lift Truck	2	2	2	2	2	0.0%
Equipment	Backhoe	21	21	20	20	20	-4.8%
Equipment	Skid Steer Loader	10	10	11	11	11	10.0%
Equipment	Crane	2	2	2	2	2	0.0%
Equipment	Forklift	7	7	7	6	6	-14.3%
Equipment	Lifts	4	4	3	3	3	-25.0%
Equipment	Compressors (portable)	100	100	100	100	100	0.0%
Equipment	Gator	0	1	1	1	1	NA
Total Fleet		907	893	888	864	838	-7.6%

Source: Information Response 821

Review of the above exhibit reveals that PGW has been steadily reducing the size of its fleet during the time period in almost all categories of vehicle.

The PM work and state inspections are scheduled in advance for the coming month. If, during the course of a PM inspection, a mechanical problem is identified, the problem is repaired at that time, assuming it is relatively minor. If the problem is more significant and time-intensive, the work would be added to the CM schedule. The recent purchase of a significant number of new vehicles has allowed the FO mechanics to do much more scheduled PM as opposed to the heavy load of CM they had previously performed.



Exhibit III-23, which follows, contains a breakdown of the work performed by the FO mechanics for the period FY 2005 through FY 2007 by category of work. The data is presented in terms of hours and percentages for each category.

Exhibit III-23
Breakdown of FO Work by Category
FY2005 to FY2007

	FY2005		FY2006		FY2007	
	Hours	Percentage	Hours	Percentage	Hours	Percentage
Preventive Maintenance	22,808	40.9%	16,856	33.3%	13,427	28.1%
Corrective Maintenance	21,297	38.2%	13,574	26.8%	21,072	44.0%
Emergency Maintenance	11,610	20.8%	20,194	39.9%	13,353	27.9%
Total	55,715	100.0%	50,624	100.0%	47,852	100.0%

Source: Information Response 822

The above data in *Exhibit III-23* does not agree with what Schumaker & Company consultants had been told in interviews; that being that due to a significant purchase of new vehicles, preventive maintenance was going up and corrective maintenance going down. This data reflects an inconsistency in categorization of some kinds of work by mechanics and others who entered data into the M-4 system over the FY2005 to FY2007 period. In general, the mechanics were choosing to enter any repair as corrective even when the repair resulted from preventive maintenance inspection or other work. As the data indicates, this became especially noticeable in FY2007 and was subsequently corrected, and the staff re-trained on choosing the appropriate categories, for FY2008.

Beginning November 1, 2007, the service intervals used by the FO Department are as follows:

- ◆ Light vehicles (passenger cars, minivans, SUVs, pickup trucks, small cube trucks, crew cab trucks, and welding trucks)
 - Annual state inspections
 - Oil change (every 3,000 miles/three months)
 - Lifecycle maintenance intervals: increments of 15,000 miles/15 months (e.g., 30,000 miles/30 months, 45,000 miles/45 months, etc.)
- ◆ Medium vehicles
 - Annual state inspections
 - Oil change (2,500 miles/four months)
 - Lifecycle maintenance intervals: 5,000 miles/8 months, with increments of 8 months. (e.g., 16 month, 24 month, etc.)
- ◆ Heavy Vehicles

- Semi-annual state inspection
- Oil change (every 3,000 miles/three months)
- Lifecycle maintenance intervals: 27 months, with increments of 24 month., (e.g., 51 month., 75 month., etc.)
- ◆ Equipment
 - Repetitive maintenance “time” intervals: – e.g., every 2 months, every 3 months, etc., depending on the type of equipment (e.g., bobcat, backhoe, etc.)

Note: All repetitive maintenance services and lifecycle maintenance intervals include an oil change

Several factors were considered in the decision to change the maintenance intervals to those currently followed:

- ◆ The historical usage of PGW’s fleet (e.g., mileage, idling, peak period usage)
- ◆ The type (e.g., passenger car, walk-in, etc.) and quantity of vehicles in the fleet
- ◆ The age of the fleet
- ◆ The increase in the useful life of vehicles through technology (e.g., engine, transmission, lubricants)
- ◆ The manufacturer’s recommended maintenance intervals
- ◆ The lack of consistent, reliable data (e.g., odometer readings, fuel usage) when predicting and scheduling short-term preventive maintenance
- ◆ The UMS/FMI Fleet guidelines, as recommended in fleet revitalization studies

Multiple services are scheduled when warranted (e.g., state inspection, oil change, preventive maintenance). According to PGW management, preventive maintenance is scheduled to maximize the servicing of each unit and fleet availability, while minimizing downtime (e.g., parts, corrective maintenance) that would affect an operating department or critical unit types (e.g., walk-in, compressor, etc.).

To inform the drivers of the need to perform PM work on their assigned vehicle, either a call is made or an e-mail is sent by the FO Department administrative staff to the appropriate operations group supervisor or employee. That way, planning can be undertaken to get the vehicle to the proper garage for the work to be done. The FO administrative staff receives the scheduling information from the Planning Administrator who extracts it from the M-4 work management system. The FO Department performs approximately 100 to 150 PMs per month.

When a sedan is in the shop for maintenance, there is a fleet pool of sedans that can be loaned to the driver, as required. The quantity of pool vehicles is determined by the percentage downtime of the total sedans. To take a sedan out of the fleet pool, the driver must bring in a “pool ticket” that contains his



or her personal information and a supervisor's signature. There are approximately 20 to 30 cars in the fleet pool, but no trucks. Provision of loaner trucks is the responsibility of the various operations departments.

For state inspections, the FO Department is working on the development of a system that uses the last digit of the VINs to determine the month in which they must be done. The FO manager is responsible identifying those vehicles that have not been brought in for a state inspection. For the last two months of the year, equipment PM would be completed, rather than sedan PM.

Older vehicles at the end of their lifecycle pass through the decommissioning and disposal process, a practice that was validated in the "Vehicle Replacement and Maintenance Strategy" recommendation in a 2004 Fleet Management study performed by the UMS Group. Before vehicles are disposed of, the retired vehicles are stripped of their communications equipment (radios, laptops, etc.), company logos/decals, unit identification numbers, and other reusable items by the FO mechanics. All PGW vehicles are disposed of at public auction by Aspite Auto and Salvage Auction, who holds the PGW contract for such services. All vehicles have a visual inspection carried out by a certified mechanic from Fleet Operations prior to being sent for auction. Vehicle accumulation before auction cycles varies; however, a minimum of 10 is assembled before sending for auction. PGW is reimbursed for the price received at auction minus a 8% sales fee, plus towing charges, for the auction service. For example, an aggregate amount of 121 vehicles/equipment items were disposed via auction in FY2007.

One of the other assigned tasks of the FO Department is vehicle deployment. This process involves making sure that each of the newly acquired automobiles and light trucks has the proper decals, laptops, radios, first aid kits, license tags, etc. before it is deployed to the field. The FO Department manager does a physical inspection of all of the vehicles before they are deployed to ensure compliance with the established standards. The newly purchased medium and heavy-duty trucks are fully upfitted with equipment prior to delivery, so the FO Department is not responsible for this task.

The FO Department does tire repair in house, because PGW management believes it is faster to do it this way. The FO Department is also responsible for mounting the new tires that are purchased. This work has been evaluated and found to be more cost effective to contract most of the work to an outside outfit.

In the situation of accident repair resulting in a requirement for what is judged by FO management as minor body work, it is the standard policy of the FO Department to get three repair estimates on the body damage – one that is generated internally and one from each of the two external contract body shops the FO Department uses. The work is then awarded to the low bidder.

Because of the mechanic time-resource limitations of the FO garage, if the body damage is extensive, the vehicle will generally be sent out for repair. The FO body shop mechanics have had to do a lot of fabrication welding on older trucks in the recent past to make them safe and able to pass state inspection. This task consumed a significant amount of their available time, but it should be reduced in the future as a result of the purchase of new vehicles.

In the past, PGW had a large number of compressed natural gas (CNG)-powered cars and trucks. The cars were bi-fuel capable in that they could use either CNG or gasoline. The vans were dedicated CNG. PGW experienced significant mechanical problems with these vehicles due to their extended life cycle and the cars were difficult to get parts for, so the CNG-cars were phased out as of the end of 2007. PGW still had approximately 84 CNG-powered vans as of the end of 2007, but these vehicles are also being phased out due primarily to the cost of replacing their fuel tanks (which runs at about \$4,000 per vehicle). As such, it is the intention of PGW to go back to using only gasoline- and diesel-powered vehicles in the immediate future.

The FO supervisors estimated that Distribution Department vehicles are not dropped off at the garage facility in 80% of the cases. Rather, the FO Department goes to get them in the field, as it is the only way to ensure that the vehicles are brought in for their scheduled maintenance. However, the Field Services Operations and Materials Management departments are more cooperative about bringing in their vehicles.

Automobile maintenance and repair parts inventory management and operations are handled by Materials Management representatives. The mechanics order needed parts through a parts ticket, which must have a supervisor's signature. There are two to three PGW Materials Management personnel in the storeroom during the day shifts. The storeroom is open only until midnight and is then closed until 6:00 a.m. However, the supervisors have access to the storeroom if parts are required on the midnight shift. The parts are accounted for during the next business day with material tickets and inventory reconciliation.

The mechanics report daily on their productive and non-productive time. There are established targets for these numbers for all of the mechanics, with the goal being at least 65% productive time each month. This productivity standard was agreed to on October 17, 2006 in the Contract Extension Agreement between the Gas Works Employees' Union Local 686 and PGW. This agreement extended the 2005–2008 collective Bargaining Agreement to May 15, 2010. It also stipulated that the metric will measure time consumed during actual productive wrench time on maintenance and repair tasks, excluding travel time, time spent obtaining parts, and search and retrieval time. This percentage of wrench time is to be a measured percentage of total maintenance, job time, and/or repair time. Wrench time is defined as time spent on the job performing diagnosis, repair, and/or replacement, work order documentation, and street calls.

Over the course of the period spanning approximately May 2007 to October 2007, FO management has developed mechanic performance-productivity standards that are based on the revised PM standards developed. Such metrics contain a time standard for each of the PM tasks. Standards exist for the PM work that is performed on oil changes, state inspections, and filter work for each of the vehicle classes. These standards are composed of the times it should take a mechanic to perform these functions under normal conditions. They were developed based on industry standards and PGW historical data. These standards were implemented as of November 1, 2007.



These performance standards were agreed to on October 17, 2006 in the Contract Extension Agreement between the Gas Works Employees' Union Local 686 and PGW. This agreement extended the 2005–2008 collective Bargaining Agreement to May 15, 2010. It also stipulated that the actual hours worked by mechanics and shop personnel should not vary from the performance standards by more than negative ten percent. Additionally, it stipulated that, individually, mechanics will be measured against the established performance standards on a monthly basis.

These performance standards were implemented as of November 1, 2007. November 2007 was the first month for which this data was collected. The actual times are based on the data that is inputted by each of the mechanics on a daily basis. FO management intends to do a six-month review of this process to determine how it can be improved and to analyze whether it should be expanded to other maintenance and repair functions in the future.

A monthly Job Estimate Analysis Variance Report is printed from the fleet maintenance system. This report presents variances in mechanic performance for that month.

Exhibit III-24 presents the FO time standards that are contained in the performance standards for light vehicles. Light vehicles are defined as passenger cars, minivans, SUVs, pickup trucks, small cube trucks, crew cab trucks, and welding trucks. These FO time standards were developed based on industry standards and PGW historical data.

Exhibit III-24
Light Vehicle Performance Standards
as of November 1, 2007

Work Performed	Standard Hours
Oil Change	2.5
State Inspection	3.5
3,000 Miles or 3 Months Service	3.0
15,000 Miles or 15 Months Service	3.5
30,000 Miles or 30 Months Service	4.5
45,000 Miles or 45 Months Service-4 Cylinder	6.0
45,000 Miles or 45 Months Service-6 Cylinder	7.0
45,000 Miles or 45 Months Service-8 Cylinder	8.0
60,000 Miles or 60 Months Service	4.5
75,000 or 75 Months Service	3.5
90,000 Miles or 90 Months Service-4 Cylinder	7.0
90,000 Miles or 90 Months Service-6 Cylinder	8.0
90,000 Miles or 90 Months Service-8 Cylinder	9.0

Source: Information Response 547

Exhibit III-25 presents the FO time standards that are contained in the performance standards for medium vehicles. Medium vehicles are defined as walk-in trucks, two-yard dump trucks, and three-yard

dump trucks. These FO time standards were developed based on industry standards and PGW historical data.

Exhibit III-25
Medium Vehicle Performance Standards
as of November 1, 2007

Work Performed	Standard Hours
Oil Change	3.5
State Inspection	5.5
5,000 Miles or 8 Months Service	5.0
16 Months Service	5.0
24 Months Service	5.0
28 Months Service	5.0
32 Months Service	5.0
40 Months Service	5.0
48 Months Service	5.0
56 Months Service	5.0
64 Months Service	5.0
72 Months Service	5.0
80 Months Service	5.0
84 Months Service	5.0
88 Months Service	5.0
96 Months Service	5.0
104 Months Service	5.0
112 Months Service	5.0
120 Months Service	5.0

Source: Information Response 547

Exhibit III-26 presents the FO time standards that are contained in the performance standards for heavy vehicles. Heavy vehicles are defined as aerial lift trucks, drip trucks, fire trucks, fuel tankers, large cube trucks, load luggers, platform trucks, vacuum hoes, tow trucks, and five-yard dump trucks. These FO time standards were developed based on industry standards and PGW historical data.



Exhibit III-26
Heavy Vehicle Performance Standards
as of November 1, 2007

Work Performed	Standard Hours
Oil Change	3.5
State Inspection	6.0
27 Months Service	5.0
51 Months Service	5.0
75 Months Service	5.0
99 Months Service	5.0
123 Months Service	5.0
147 Months Service	5.0
171 Months Service	5.0
195 Months Service	5.0
219 Months Service	5.0

Source: Information Response 547

Exhibit III-27 presents the FO time standards that are contained in the performance standards for equipment. Equipment is defined as backhoes, compressors, Bobcats, and forklifts. These FO time standards were developed based on industry standards and PGW historical data.

Exhibit III-27
Equipment Performance Standards
as of November 1, 2007

Work Performed	Standard Hours
Backhoe - 2 Months Service	3.0
Backhoe - Annual	10.0
Compressor - 4 Months Service	3.0
Compressor - Annual	6.0
Bobcat - 3 Months Service	3.5
Bobcat - Annual	6.0
Forklift - 6 Months Service	4.0
Forklift - Annual	7.0

Source: Information Response 547

Systems

The fleet management computer system that is used by FO for administration and monitoring is the Maximus M4 fleet management software, which was implemented at PGW in March 2004. This

software is used primarily for recording and monitoring mechanics' time and for maintaining the vehicle repair and maintenance database and schedules. The Oracle inventory application (that is used by the Materials Management Department) uses the same part numbering system as the M4 application. The costs for parts are extracted from the Oracle application for cost calculation purposes in M4.

The last two weeks of the month are spent on the creation of the next month's PM schedule. This task is performed by running a two-year maintenance listing and manually identifying the vehicles and equipment that are due for PM in the next month. In the future, it is PGW's intention that this process would be done through an automatically generated PM schedule out of M4. As of the end of 2007, however, the process was still being performed manually and took about two weeks to complete.

Once the PM schedule has been generated, it is sent out to the operating divisions so they can make plans to bring in the designated vehicles during any downtime that might be planned for them in that month. The schedule is also given to the FO supervisors so their clerical staffs can make calls or send e-mails to schedule the actual appointments.

In the first two weeks of the month, the PM that was completed in the previous month is manually reviewed. This review identifies any vehicles that did not have the required PM performed in the previous month. This report should be an automated one but it was manual as of November 2007.

The M4 system automatically creates the work requests in the system for the mechanics to perform the work that is in the monthly PM schedule. M4 also creates for the FO storeroom a listing of the parts that will be needed to complete the work that is included in the monthly PM schedule.

Mechanics log their time directly into the M4 system. By early 2008, it was planned that reports on the variance from standards by mechanic were to be produced on a monthly basis. The supervisors will get copies of these reports so they may interact directly with the mechanics on any problems that are identified. The FO Department also has developed performance standards for clerical personnel.

The Fuel Force application (which is separate from M4) is used to authorize the pumping of fuel from the PGW fuel depots and to track the amounts that are used. There is an established interface from Fuel Force to M4 that automatically updates the odometer readings in M4 based on the data that is collected at the pump. Because of their size, there are about 200 vehicles or pieces of equipment that cannot be fueled at one of the PGW fuel depots (generally this is street equipment). Rather, they are fueled from a tanker truck in the field. The Fuel Force application allows a report to be printed that details the fuel consumption by vehicle, driver, and the number of times refueling occurred. This report would permit the identification of excessive consumption of fuel.

M4 has two other major interfaces with other PGW applications, those being:

- ◆ General ledger (G/L) interface – M4 feeds the G/L with changes in assigned vehicles (executive cars) and pool car usage for chargeback purposes. M4 is also updated with the personal data (such as name or status changes) based on a report that is generated by the



Human Resources Department.

- ◆ Parts interface – M4 extracts a listing of the parts that have been issued from Oracle so that the parts can be accounted for on a per-vehicle basis.

Each month, the bills for last month's gasoline and diesel fuel are manually audited by designated FO Department personnel, and an average price is calculated. This information is inputted into M4 to estimate the price of the next month's fuel. This information is then used in cost calculations.

As part of the Strategic Focused Organization (SFO) program, monthly metrics are collected for the FO Department. These metrics, including job variances, productivity, etc., are tracked and reported on a monthly basis. *Exhibit III-28* contains a complete listing of the FO performance metrics targets and results for FY2007. As of late 2007, metrics for FY2008 were under development. It was expected that a few new metrics would be added and that some minor changes to the reporting methodology would be implemented.

Exhibit III-28
FO Performance Metrics Targets and Results
FY2007

Metric	Unit of Measure	Target	FY2007 Average
General Statistics:			
Active Fleet Vehicles	Number	879	856
Non-Fuel Items	Number	68	57
CNG Vehicles	Number	NA	218
Employees	Number	43	42
Schedule Conformance:			
Work Order Sched. Compliance	WOs Completed	>90%	82%
PM Schedule Compliance	PMs Completed	>90%	NA
PM Program Compliance	PMs Accomplished	>90%	99%
Planning Effectiveness:			
PM Planning Accuracy	Time Variance on PMs	+/- 10%	10%
CM Planning Accuracy	TBD	+/- 25%	NA
Percent Planned	Planned Work vs. Total	>90%	93%
Maintenance Process Effectiveness:			
Percent PM	PM Hours vs. Total Hours	>50%	26%
Percent EM	EM Hours vs. Total Hours	<5%	7%
Percent CPM	CM WOs Created	<25%	50%
Vehicle Out of Service - Collision	OOS vs. Total Units	<8%	1.0%
Vehicle Out of Service - FSD	OOS vs. Total Units	<8%	4.6%
Vehicle Out of Service - Dist.	OOS vs. Total Units	<8%	5.5%
Vehicle Out of Service - GPD	OOS vs. Total Units	<8%	2.6%
Vehicle Out of Service - MMD	OOS vs. Total Units	<8%	6.0%
Maintenance Productivity:			
WIP Performance Index	WO Duration in Days	<30	35
Labor Utilization-Productivity	% Wrench Time	65%	76%
CM Work Request Backlog	CM Duration in Days	<28	18
Nonstock Parts Availability	Parts Duration in Days	<7	25
Customer Satisfaction:			
Positive Feedback Reply	Good or Excellent vs. Total	>90%	98%

Source: Information Response 551



Findings & Conclusions

Finding III-15 **The mechanic workforce is aging and many are going to be approaching retirement in the next few years.**

This situation needs to be properly addressed to ensure that there are a sufficient number of mechanics who can act as replacements. With the workforce aging, it is important to bring in new replacements, in a proper timeframe, so that they can be properly trained and given an adequate amount of experience. That way, they may smoothly step into these mechanic positions when the time is appropriate.

Finding III-16 **The production of the monthly PM schedule listing and the review of the previous month's PM work completed should be automated to eliminate the labor-intensive manual effort that is currently performed.**

As of the end of 2007, the designated employee of the FO Systems Support group was spending over half of his time each month in the development of the monthly PM schedule listing. Based on the capabilities of the M4 fleet maintenance application, this monthly monitoring and compilation should not be difficult to automate. Such automation would save significant amounts of the employee's time and effort. Which could amount to as much as a savings of \$30,000 annually (assuming an employee loaded cost of \$60,000) in employee time that could be spent on other important activities. This time could be then directed toward other tasks that would result in a greater benefit to the FO Department and its operations.

Finding III-17 **The FO storeroom lacks an auto-parts-knowledgeable person for the identification and ordering of parts.**

Automotive and truck parts are very specialized in nature and therefore require experienced stockroom personnel to properly and effectively run the operations. Such personnel are certainly available on the market and can bring great value to an automotive/truck parts storeroom operation. Greater parts knowledge means fewer mistaken orders and a reduction in the time that such errors slow down the maintenance and repair process. Interviews with PGW FO shop personnel revealed that not having a storeroom manned with auto parts knowledgeable personnel resulted in ordering errors and delays.

Finding III-18 **The level of communication and cooperation between the FO Department and the field operations groups is inconsistent.**

Implementing this goal would improve the efficiency of the Fleet Operations Department as well as the services that are provided to all of the various operating groups. It is important for PGW management to stress that this cooperation is critical to a smoothly running and efficient company. Higher levels of cooperation and communication could only lead to improved operations for both FO and the field

operating groups. Such benefits would include the availability of better information from the operating departments on vehicle availability and location, thereby facilitating FO operations.

Recommendations

Recommendation III-10 **Develop a specific human resources plan to ensure that the correct number of experienced replacements will be available to take over for the mechanics who will be retiring in the next few years. (Refer to Finding III-15.)**

This review and plan development should be done in conjunction with the PGW Human Resources Department to draw on their specialized expertise in developing such plans. Due to a lack of new hiring for many years, numerous utilities across the country are facing or have faced similar issues with their experienced craft employees. Some have discovered that identifying this potential situation and responding too late can create problems. Experienced craft employees have gained their technical expertise over the course of many years of training and work experience. This tenured knowledge cannot be replaced by a new employee in a short amount of time; rather sufficient time must be provided for new employees to obtain the proper training and experience so they may adequately step into their new role.

Recommendation III-11 **Use information collected from outside contractors to make decisions on which FO activities can best be performed by outside contractors and what areas of FO need to be improved to be comparable with outside contractors. (Refer to Finding III-15)**

In Schumaker & Company's experience, over the last several years, utilities have begun to seriously consider alternatives to a totally in-sourced fleet operations. Some utilities have totally outsourced fleet maintenance, others have outsourced various types of repairs – such as passenger car repairs while still doing major repairs in-house, and others have out-source parts supply and inventory. In each case, the decision made on what activities can be outsourced more effectively was based on the particular circumstances of the particular utility. The plan to issue a request for proposal (RFP) for a contractor to perform a portion of the vehicle maintenance and repair work would begin to provide FO personnel with the information necessary to determine the best way to perform various types of FO activities. Furthermore, in that FO is facing a natural attrition due to retirements, it would be a good time to make some decisions on potential outsourcing of various activities.



Recommendation III-12 **Initiate a concerted effort to automate the production of the monthly PM schedule, thereby resulting in manpower time savings. (Refer to Finding III-16.)**

The fleet management application is in place and the relevant data is being collected. The problem appears to be that there needs to be some additional programming done to bring the two together. PGW management should place an emphasis on getting these programming changes made due to the large monthly payback that would result. This programming could be done on either an internal or an external basis, depending on the availability of resources.

Recommendation III-13 **Evaluate the beneficial impact that having an auto-parts-knowledgeable person in the storeroom would have on improving the process of parts identification and ordering. (Refer to Finding III-17.)**

An improvement in parts identification and ordering should improve the efficiency and timeliness of the FO operations. That is because it would reduce the amount of time that is spent waiting for parts and dealing with parts that were ordered in error. This efficiency would, in turn, result in a better overall FO operation, better customer service, and a commensurate improvement in some of the metrics that are monitored.

Recommendation III-14 **Develop specific programs that are intended to improve the levels of cooperation and communication between the FO Department and the various field operating groups. (Refer to Finding III-18.)**

Interviews with FO staff revealed that there are varying levels of cooperation among the various operating groups. Some are very cooperative while others less so. PGW management needs to put a strong emphasis on this cooperation to make it clear to all the various groups and employees that it is required of them in order to foster a more efficient overall operation. Additionally, a review should be done of the communications methods and tools that are in place for interdepartmental communication to determine if any of the current processes could be improved.

C. Facilities and Property Management

This chapter provides a discussion of the facilities and property management services provided by Philadelphia Gas Works (PGW) in relation to the facilities and properties that are owned or used by PGW in its gas utility operations.

Background & Perspective

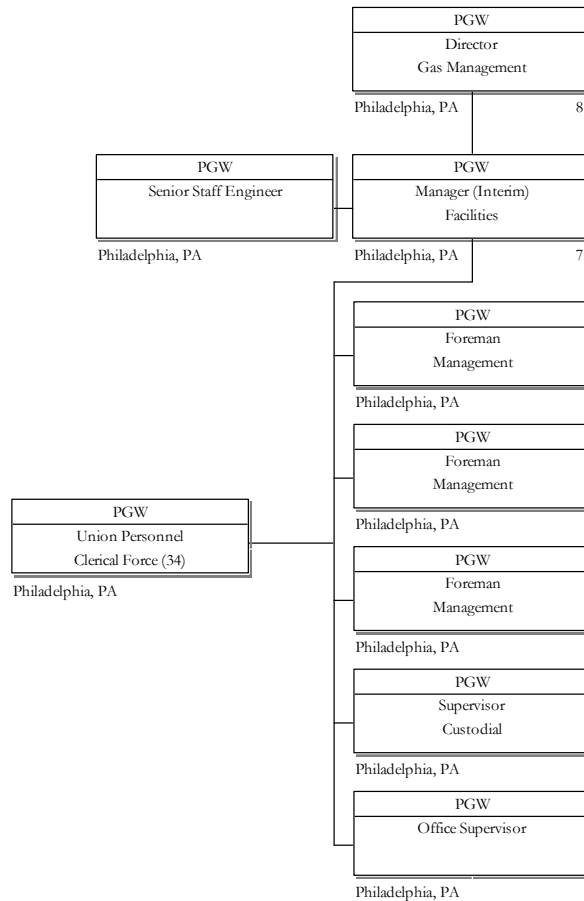
As of the November 1, 2007, the facilities and property management function, as performed by the PGW Facilities Department was transferred to the PGW Gas Management group from the Supply Chain organization, which it had been a part of previously. This transfer was the result of the reorganization of the Supply Chain organization. The company is in the process of filling the vacant position of the Facilities Manager, caused by the unexpected death in early October 2007 of the incumbent. As such, as of end of year (EOY) 2007, no one had been selected to fill the manager position on a full-time basis for the PGW Facilities Department.



Organization & Staffing

Exhibit III-29, which follows, presents the organization chart for the PGW Facilities Department.

**Exhibit III-29
PGW Facilities Department Organization Chart
as of December 31, 2007**



Source: Information Response 122

Within the PGW Facilities Department there are four categories of staff, those being:

- ◆ Administrative and Management – For FY2007 the breakdown was one Facilities Department Manager, one Staff Engineer, one Administrative Supervisor, one Janitorial Supervisor, and two Mechanical Supervisors.
- ◆ Union clerks
- ◆ Maintenance and Repair staff
- ◆ Janitorial staff

The staffing levels for the various Facilities Department staff categories for the period FY2003 through FY2007 are presented on *Exhibit III-30*.

Staff Category	Number of Staff 2003	Number of Staff 2004	Number of Staff 2005	Number of Staff 2006	Number of Staff 2007	Percent Change 2003-2007
Admin. & Mgmt.	7	6	6	6	7	0.0%
Union Clerk	2	2	2	2	2	0.0%
Maintenance	18	18	18	18	15	-16.7%
Janitorial	27	27	26	20	18	-33.3%
Total	54	53	52	46	42	-22.2%

Source: Information Response 122

The decrease in janitorial staff is due to attrition and was the result of a planned initiative to transition from in-house to outsourced janitorial staff.

Exhibit III-31 presents data on the annual levels of overtime expenditures for the period 2003 through 2007.

	2003	2004	2005	2006	2007	Percent Change 2003-2007
Overtime Expenditures	\$110,837	\$130,978	\$229,930	\$323,452	\$199,015	79.6%

Source: Information Response 814

The increase in overtime from 2003 through 2006 was explained by PGW as being due to the intentional attrition of personnel in the Facilities Department due to the intention for subcontracting the janitorial function. However, this outsourcing did not occur until 2007 creating the need for increased overtime.

Major Processes and Systems

The PGW Facilities Department has three primary functions, which are as follows:

- ◆ General management of the PGW facilities



- ◆ Maintaining and repairing the major equipment systems including the HVAC and electrical systems
- ◆ Custodial care of the PGW buildings and properties

The various tasks and responsibilities that are encompassed by each of these three functions are detailed in the following text.

General Management of the PGW Facilities

This function includes general management of the buildings and other facilities that are owned or used by PGW. This includes performance of the following activities:

- ◆ Verifying that the rent is paid for leased facilities
- ◆ Ensuring that the individual facilities are proper to meet the needs of PGW and its employees
- ◆ Leasing of facilities or buildings, as required
- ◆ Ensuring that the required basic services are provided such as indoor air quality testing, proper lighting, and extermination services, etc.
- ◆ Daily inspection of each of the major PGW facilities and buildings. Representatives of the Facilities Department inspect the major facilities on a daily basis, for the purpose of identifying any problems that have occurred such as missing or inoperable fire extinguishers or damaged equipment.
- ◆ Handling and resolution of complaints that arise about the various buildings and their support systems. Complaints concerning facility services (such as HVAC or power problems) that are not critical to operations or safety are to be entered by the reporting employee into the PGW intranet and are responded to by the Facilities Department based on the input information. For emergency situations requiring an immediate response, there is a published phone number that is to be called by the employee reporting the problem. The call will go to a Facilities Department clerk who will notify the appropriate Facilities Department supervisor.
- ◆ Acquisition of furniture is performed according to a formalized procedure that defines, by position, which employee should have what furniture, although discretion is used as required. There are also established standards for equipping cubicles. When furniture is purchased, it is generally purchased in small batches. All pieces of furniture are marked with a continuing property records (CPR) number that is recorded and monitored by the Fixed Assets group.
- ◆ The internal moving of furniture, as required, is handled by the Facilities Department.
- ◆ Trash collection is performed at the gas plants, service centers, office buildings, and other field facilities by a private contractor who supplies and empties the dumpsters. At the Montgomery facility, there are two trash compactors in use.
- ◆ Maintenance of parking lots including striping, signage, and issuing and management of parking

passes.

- ◆ A structural inspection of critical structures is performed by an external structural engineer every five years to ensure the integrity of the subject structures.
- ◆ Energy conservation is the responsibility of the Facilities Department which approves all utility bills for payment and monitors the levels of utility services that are being used. PGW has installed a gas-powered self-generation unit at the Montgomery facility to provide peak shaving for four months of the year (during the summer) to avoid the “ratchet impact” on electric bills. This peak shaving capability is only utilized during the day on weekdays. This generation unit also provides the source of backup power for the data center. There is also an additional emergency generator that is used to power the safety systems at the 1800 building.
- ◆ All building security is contracted for by the PGW internal security group headed by the Vice President – Corporate Preparedness and Security.

Maintaining and Repairing the Major Equipment Systems, including the HVAC and Electrical Systems

This function focuses primarily on maintenance and replacement decisions. There are established preventive maintenance (PM) schedules for all major pieces of equipment. These PM schedules are maintained in the MP2 software application, which is marketed by the DataStream Company. This software produces weekly lists of the PM tasks that are required to be accomplished during that week in accordance with the established maintenance schedule. The major concern in relation to electrical service is the provision of continuous, uninterrupted electrical and air conditioning service to the PGW data center, which is located at the Montgomery facility. Facilities Department staff members are on duty at the building 24 hours a day on weekdays to respond to any situations or alarms that may occur. On weekends, any alarms would be automatically transferred to the designated Facilities Department Supervisor who is on call during that period of time.

The MP2 software application that provides for the management of the PM operations was installed in 1997 and does not allow for the electronic transmission of data. As of the end of 2007 an updated system was in the process of being implemented and was expected to be on line by September 1, 2008.

The existing PM schedules and equipment database reports that are produced are very detailed and clearly define both the PM schedule and history dates, as well as the equipment specifications for each piece of equipment at PGW that receives PM.

Custodial Care of the PGW Buildings and Properties

As of EOY 2007, PGW was outsourcing the janitorial work for all of the buildings other than the 1800 building. PGW is limited in their use of an external firm at this building by union restrictions. But, as of EOY 2007, the PGW Facilities Department was in the process of transitioning this building work to being performed on an external basis through employee attrition and transfers. They were not filling

vacant internal custodial positions at that time. The custodial contract that they were bidding out as of EOY 2007 had the provision of including the Montgomery complex at a later time. It is believed that this transition to external provision of custodial service could be completed during 2008.

As of EOY 2007 PGW was using only one custodial company. However, in the contract that they were in the process of bidding at that time, PGW was allowing firms to bid on just part of the overall work package (i.e., selecting certain facilities to provide with custodial service). It was believed that this action would provide PGW with a larger bidder pool (and hence increased competition) and additional flexibility in making their selection decisions.

Regular custodial cleaning is done according to an established schedule, with most of the work being done at night to avoid disruptions to the business and operational process. Hard cleaning, which is defined as the stripping of floors and rewaxing, steam cleaning the garage floor, etc., is done under a separate contract than the primary custodial contract.

Other Functions of the PGW Facilities Department

If there is a real estate acquisition or divestiture that needs to be done, the Facilities Department would handle it, getting all of the proper approvals that are required for a purchase or sale. There have been very few real estate purchases or sales in the last several years.

Also the leasing of new facilities is the responsibility of the PGW Facilities Department. They would work through a realtor to get assistance in identifying available real estate. They would initiate the process by giving the realtor a listing of their requirements for the intended facility and subsequently choose from the short list of available properties that was developed by the realtor. Representatives of the Facilities Department would then negotiate the lease amount and the terms of the lease. PGW does not do much leasing as evidenced by the fact that they have only three leased properties, all of which are district offices. PGW has no facilities that are located in buildings that are occupied by the City of Philadelphia. All PGW buildings are owned by the City of Philadelphia.

The Facilities Department used to have a Space Planning Committee, which worked with an outside space planning organization on major new facilities. As there haven't been any major new facilities recently, the need for this has been diminished. On small space planning needs, the Facilities Department would handle it on an internal basis.

As of November, 2007, PGW had relatively little in the way of unoccupied facilities. These unoccupied facilities would include:

- ◆ Part of the 6th floor of the 1800 building in the Montgomery complex – 4,200 unoccupied square feet
- ◆ A portion of the third floor of the 1800 building in the Montgomery complex – 10,000 unoccupied square feet

- ◆ A portion of the first floor of the 1800 building in the Montgomery complex – 1,200 unoccupied square feet
- ◆ The top floor of the 1601 South Broad Street facility (a customer service center is located on the first floor) – 2,706 unoccupied square feet
- ◆ The top floor of the 5230 Chestnut Street facility (a customer service center is located on the first floor) – 5,340 unoccupied square feet
- ◆ The top floor of the 1337 West Erie Avenue facility (a customer service center is located on the first floor) – 7,860 unoccupied square feet

The PGW Facilities Department has not tried recently to rent out any of the above-listed vacant facilities, partly because there is a belief that it would not be feasible to lease out this space due to the layout of the available space and security considerations. They do rent out a few pieces of property within their service territory.

The snow plowing function is provided on an internal basis. In situations of under 4” of snow, the Facilities Department personnel would handle the clearing themselves. For snowfalls that are over 4”, the PGW Distribution group personnel would be called in to assist with their heavy construction equipment.

As of EOY 2007 the following facilities services were being outsourced by the Facilities Department:

- ◆ Specialized electrical and mechanical work
- ◆ Building management system maintenance (for HVAC controls)
- ◆ Major maintenance of the absorption chillers
- ◆ Small specialized work such as locksmithing, extermination services, etc.
- ◆ Janitorial work for all buildings other than the 1800 building
- ◆ Grass cutting

There have been no internal audits of the facilities and property management operations in the recent past.

PGW does not have facility/land acquisition and leasing procedures manuals. Rather PGW follows the requirements of the Management Agreement in order to acquire interests in real property (including leaseholds). The Management Agreement states in part:

“All acquisitions, sales, and leases of real estate proposed by or for the Gas Works by Company shall be submitted to the Gas Commission for its action and approval, and shall be submitted to City Council for its approval by ordinance.”

There are only two PGW-owned properties that were rented out as of EOY 2007, those being:

- ◆ Lot number 2 at the Richmond facility, which is rented out for \$1,500 per month
- ◆ Lot number 1 at the Richmond facility (plus 0.4 acres of parking adjacent to it), which is rented



out for \$2,881 per month

PGW leases these properties out with the assistance of a local realtor. This external assistance helps to ensure that the lease rates are in line with current market pricing in the Philadelphia area.

The process for the approval for the purchase and sale of property at PGW are as follows:

◆ Purchase of Real Property

- Once the need for the purchase of real property has been established and preliminary terms have been determined, a detailed analysis including proper justification is submitted to PGW Senior Management for approval. The next step is to obtain the approval of the PGW Board of Directors.
- The request is then submitted to the Philadelphia Gas Commission for hearings and approval. If it is so approved it is submitted to the Philadelphia City Council for approval. The request is reviewed by the Council's Public Property/Finance Committee and if there is a favorable recommendation it is sent to the full Council for approval.
- If approval has been obtained at all these levels then the purchase can be finalized.

◆ Sale of Real Property

- All real property purchased by PGW is owned by the City of Philadelphia and as such PGW cannot sell any real property. If PGW deems a piece of real property as surplus it will notify the City Department of Public Property. Formal notification will be done after approval of PGW Senior Management. The City will then take control of the real property.

PGW maintains 14 buildings, and the land that they are on, in the City of Philadelphia. Additionally, PGW maintains nine parcels of land.

PGW does not have market valuations for any of their properties other than the Montgomery Complex. As of September of 2006, the valuation of the PGW headquarters-area land and facilities were as follows:

- ◆ 800 W. Montgomery Ave., main office building and two parking lots – \$17,000,000 (of which \$2,700,000 is the value assigned to the land).
- ◆ 9th and Diamond Street, Meter Shop building and one parking lot – \$2,500,000 (of which \$2,100,000 is the value assigned to the land).
- ◆ 1900 – 1970 North 9th Street parking lot, adjacent to the Temple University SEPTA station – \$1,400,000.
- ◆ 1800 North 9th Street (8 story operations building), 1849 North 9th Street (Transportation building), and a parking lot east of the Transportation building – valued as a package at \$21,000,000 (of which \$2,700,000 is the value assigned to the land).

As of the end of 2007, PGW had no facility expansion plans or capital construction programs underway that were focused on new or significant enhancements to facilities. However, as part of the Business Transformation Initiative, PGW was reviewing all of their administrative, district office, and outlying stations to rationalize the space being utilized in the context of a new operating model.

Expenditures

Capital Budgeting

The capital budgeting process starts in December of the previous calendar year and ends in June for the fiscal year that starts on September 1st. Three months in advance of the initial capital budget submission, the Facilities Department collects information concerning the “wish list” of facilities-related projects that should be done. They also solicit client input for this list. The Facilities Department then prioritizes the list and pares it down to a reasonable size. In conjunction with the PGW Budgeting organization, the resulting list is pared down even further to a smaller number through a negotiation process. Upper management would then make the final decisions concerning which projects to include on the final annual approved projects list.

Exhibit III-32, which follows, presents the actuals and budget data for the Facilities Department capital budget.

Exhibit III-32
Facilities Department Capital Budget
Actuals and Budget
FY2003 to FY2007

Capital Budget/Actual	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003-FY2007
Actual	\$393,224	\$3,172,274	\$852,229	\$979,607	\$582,115	48.0%
Budget	542,000	2,119,000	1,087,000	2,788,000	2,346,000	332.8%
Variance (in Dollars)	(148,776)	1,053,274	(234,771)	(1,808,393)	(1,763,885)	
Variance % (of Budget)	-27.4%	49.7%	-21.6%	-64.9%	-75.2%	

Source: Information Response 130

Typically, capital projects must be completed within two fiscal years. Spending on projects budgeted for FY2007 will continue through FY2008. According to PGW management, the significant variances that were experienced in certain years were explained as follows:

- ◆ FY2003 – Discretionary expenditures were deferred due to fiscal constraints.
- ◆ FY2004 – The capital budget/actual variance of 49.7% over was due to the fact that upgrades to the Tioga facility were underestimated.



- ◆ FY2005 – Spending for unforeseen conditions was less than the budgeted amount.
- ◆ FY2006 – Funds were transferred out of the Facilities budget to pay for more urgently needed capital work.
- ◆ FY2007 – Expenditures for this fiscal year will continue to accrue until August 31, 2008, but at calendar year-end 2007, PGW management expected the final total to be close to the budgeted amount.

Forecasting and planning for the facilities management function at PGW is based on two primary components, those being:

- ◆ The annual goals and objectives that are contained in the annual PGW strategic plan
- ◆ Departmental reports that are issued from the MP2 Work Management System. This data includes the number of work orders that are issued by category.

This data, in conjunction with the continuous monitoring of conditions in PGW's buildings and other facilities by the Facilities Department personnel, are used as input to the planning processes for both capital and operating budgets and for the planning and scheduling of maintenance and repair work.

Operating Budget

Exhibit III-33, which follows, presents the actuals and budget data for the Facilities Department operating budget.

Exhibit III-33
Facilities Department Operating Budget
Actuals and Budget
FY2003 to FY2007

Operating Budget/Actual	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003-FY2007
Actual	\$8,082,024	\$7,591,289	\$7,431,513	\$7,299,249	\$7,402,489	-8.4%
Budget	7,355,000	7,577,000	7,387,000	7,853,000	8,141,000	10.7%
Variance (in Dollars)	727,024	14,289	44,513	(553,751)	(738,511)	
Variance % (of Budget)	9.9%	0.2%	0.6%	-7.1%	-9.1%	

Source: Information Response 130

The Facilities Department does have an emergency fund, which is a contingency for unforeseen conditions and emergencies that arise. To be allowed to use the money in this fund, the Facilities Department has to get the approval of the Vice President – Gas Management.

Findings & Conclusions

Finding III-19 **The Facilities Department lack adequate management controls, definitive operating procedures, and sufficient focus on the department's core competencies.**

This should be a primary focus of the new Facilities Department Manager to improve the operational efficiency of the group. Such specific improvements would include tighter management control, development of more definitive operating procedures, and a greater concentration on the department's core competencies. The latter will be made possible by the outsourcing of janitorial services and, therefore, less need to focus significant amounts of management attention on that function.

Finding III-20 **The Facilities Department has not had an internal audit performed in the recent past.**

Due to the amount of money that the Facilities Department is responsible for, an internal audit of the departmental operations is required. While there was no appearance of problems with the department's operations, an internal audit would verify that the proper safeguards are in place to ensure that there is little probability of problems occurring in the future.

Recommendations

Recommendation III-15 **Initiate an evaluation of the operations of the Facilities Department to identify procedures and processes that could be improved. (Refer to Finding III-19)**

As the Facilities Department is now under new leadership and part of a new organizational structure within PGW, this would be a good time to review the operations of the group. While this audit found no significant problems, interim management of the group expressed the opinion that operational performance could be improved. This operational performance initiative should be supported and encouraged.

Recommendation III-16 **Initiate an internal audit of the Facilities Department. (Refer to Finding III-20)**

It is recommended business practice to perform internal audits of all corporate departments that are responsible for significant financial transactions. As this is the case for the PGW Facilities Department, an internal audit should be initiated in the near future to verify that all transactions are valid and that the record keeping is adequate. Subsequently, future audits should be done periodically, as dictated by the



use of risk management tools and techniques. Refer to Chapter V – Financial Management for further discussion about these tools and techniques.

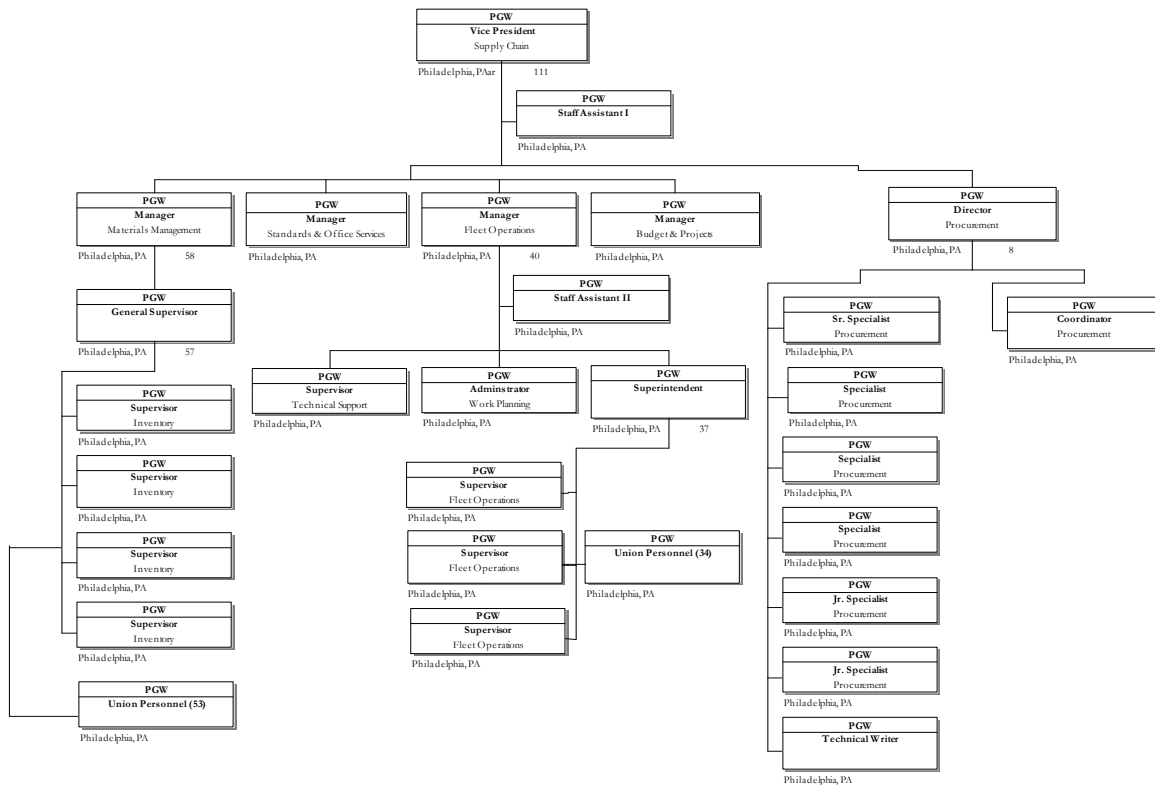
D. Procurement Services and Materials Management

This chapter provides a discussion of the procurement and materials management services provided by Philadelphia Gas Works (PGW) in relation to the material and supplies that are purchased, inventoried, and used by PGW as part of its gas system operations. The relevant functional entities in the Supply Chain (SC) organization include the following two groups:

- ◆ The Procurement Department
- ◆ The Materials Management Department

These departments report to the PGW Vice President Supply Chain. An organizational chart for the Supply Chain organization is presented in *Exhibit III-34*.

**Exhibit III-34
PGW Supply Chain Organizational Chart
as of December 31, 2007**



Source: Information Response 1

The operations and organization of each of these two departments are discussed in detail on the following pages.

Procurement Services

Background & Perspective

Until November 2007, the PGW Procurement Department was part of the PGW Finance organization. At that time, the group was merged into the SC organization to promote more integration with the other functional units in the SC group, in particular with the Materials Management Department.

The Procurement organization consists of nine employees, including seven buyers (this number includes the Procurement Department Director), one technical writer, and one procurement coordinator. The majority of the buyers' time is spent on bidding out contracts. All of these employees are management level. Descriptions of each of the positions follow:

- ◆ *Technical Writer* – This position is responsible for compiling data to write or edit text for informative or instructional, user documentation, brochures, manuals, training materials, RFP (Request for Proposals) or Procurement related technical information.
- ◆ *Procurement Coordinator* – This position is responsible for managing the Procurement Department's office operation on a day-to-day basis.
- ◆ *Junior Procurement Specialist* – There are two junior procurement specialists. They each have approximately one year of procurement experience and are learning PGW's organizational relationships and purchasing processes. This learning curve includes getting daily experience with the procurement operations as well as the Oracle procurement application. The Procurement Department Director and Senior Procurement Specialist are responsible for providing most of these junior specialists' training. Their promotion to the next level, which is procurement specialist, will be based on the qualifications and demonstrated performance of each of the individuals.
- ◆ *Procurement Specialist* – There are three procurement specialists, each of whom has a significant amount of PGW experience, ranging from 10 to 30 years. Most of the procurement specialists had experience in procurement before they joined the PGW Procurement Department. Each one is assigned to purchase a specific range of items, as follows:
 - One is responsible for operational supplies such as pipes, meters, etc.
 - One is responsible for gas plant equipment and supplies.
 - One is responsible for facilities maintenance and repair items, items that are required by the Engineering Department, and fleet-related items.
- ◆ *Senior Procurement Specialist* – This employee is assigned the responsibility for larger procurement



projects, mostly relating to construction projects.

- ◆ *Procurement Director* – This position manages the day-to-day operations of the Procurement Department and handles some of the purchasing responsibilities on large projects. Additionally, he acts as a resource for the rest of the PGW organization, especially in relation to Minority-owned Business Enterprises/Women-owned Business Enterprises (MBE/WBE) programs and initiatives.

Major Processes

Training of new buyers is done by the Procurement Department Director and the Senior Procurement Specialist. This job preparation is done primarily through on-the-job training and observation of performance. The trainers try to get the new buyers to use the contract quote from last year as a starting point for contract renewal work. They are then encouraged to try to better the price or the terms, if possible. The last two new buyers who were brought into the Procurement Department were internal transfers.

As of the end of 2007, hard copy purchase orders (POs) were being electronically generated and then faxed or mailed to the vendor. At that time, there was no e-commerce, but Procurement Department management was in the process of reviewing the concept. The City of Philadelphia's Purchasing Department oversees the Procurement Department's activities from a high level financial perspective; however, the PGW Procurement organization operates independent of the City of Philadelphia's Purchasing Department. The City of Philadelphia may request information related to the acquisition of goods and services by the PGW Procurement Department. A primary component of this dialogue is the amount of MBE/WBE participation that is included in spend totals.

As of the end of 2007, the Sourcing Project was reviewing the potential for reducing the number of vendors, and increasing MBE/WBE participation, used by the Procurement Department. This review was conducted in an effort to increase operational and financial effectiveness. The BTI group was also evaluating the cost-saving opportunities that may be available through the bundling of paving and gas main installation, under which the vendor would purchase the materials for the jobs (rather than having PGW purchase and deliver the materials to the contractors as is done now). A disadvantage of such bundling is that it may eliminate the ability of some minority vendors to bid on PGW contracts due to their large bundled size.

This Sourcing Project also looked at making use of vendors to hold material for PGW until PGW requests it (vendor stocking program). Another portion of this project is focused on an assessment of whether it is cost efficient to keep the material delivery function as an internally provided function as opposed to contracting it out.

As of November 2007, the Procurement Department was doing very little partnering with its vendors. (Note: Partnering usually involves making commitments to buy certain levels of materials from a vendor, development of a streamlined procurement process with that vendor, and vendor stocking

arrangements.) However, it was Procurement Department management's intention to review and evaluate increased strategic sourcing after the Sourcing pilot project being conducted is completed. Additionally at that time, the Vice President (VP) Supply Chain was reviewing the potential advantages of transferring the gasoline and diesel fuel provision function to a private contractor.

As of the end of 2007, the Procurement Department was working on developing operational performance metrics for the group, which they did not have in the past. They were still finalizing the complete set of metrics to be monitored, but they had committed to using at least the following parameters in 2008:

- ◆ Cycle time in days, requisition received date to purchase order issue date (target level to be determined)
- ◆ Increase Disadvantaged Business Enterprise (DBE) participation in the PGW purchasing program from a level of 5.6% in 2007 to 6.5% in 2008. This only reflects the Procurement Department jurisdiction, not PGW's goal for all contracts. The actual results for FY2007 was 13.6%, including subcontracting for all contracts.
- ◆ Develop a bundled bidding process for three commodities in FY2008, with the categories to be determined
- ◆ Survey the PGW management team and departmental contacts to determine the customer satisfaction rate
- ◆ Develop a vendor feedback mechanism

There are no standardized reports produced that calculate and recount the savings that have been achieved by the Procurement Department, nor is there a quantification of their financial contribution to the operation of PGW.

As of the end of 2007, there were no metrics being collected and analyzed to measure achieved savings or contribution to PGW by either the Procurement Department as a whole or the individual buyers. In the past, the PGW Procurement Department had a position called Purchasing Analyst that was responsible for developing vendor performance ratings and identifying new products. This position was eliminated several years ago for economic reasons. As of late 2007, vendor performance ratings were not being done and new product identification was being performed by the buyers on an as-time-allows basis. Also, the Purchasing Analyst used to develop a purchasing results metrics report. This reporting is also no longer done.

As of the end of 2007, the VP SC was intending to initiate some form of e-commerce in the near future. But first she wanted to restructure the Procurement Department (that was recently transferred into her organization). This restructuring was to be based on an assessment of the skills of the individual employees in the Procurement Department. She intended to have this organizational structure finalized by the spring of 2008.



Procurement Department representatives stated that it is often hard to find minority vendors in many situations. They attribute that difficulty to the technical nature of most of the material that is purchased by PGW and the size of many of the contracts. Recently, PGW divided the paving request for quote (RFQ) into four geographic areas in an attempt to reduce the size of the contracts, which successfully attracted minority vendors. PGW also tried to divide up the gas-main installation contract into individual contracts for each job, but that strategy did not result in any MBE primary bidders. PGW has had greater historical success in using WBE firms than they have with MBE firms.

More detailed information on the PGW Supplier Diversity Program is provided in this report in *Chapter VI – Diversity & EEO*.

Procurement Software Application

Both the Materials Management and Procurement Departments use modules of PGW's financial package, Oracle E-Business Suite, as their primary software. PGW does not use Electronic Data Interchange (EDI) or other electronic data communication technology in the purchasing process.

The Oracle iProcurement module provides functionality for:

- ◆ Enforcement of purchasing policies
- ◆ Automated requisition and purchase order processes
- ◆ Automated approvals processing
- ◆ Materials catalog and interface with inventory system
- ◆ Tracking, receiving, and reporting
- ◆ Interface to Accounts Payable

PGW has been using various versions of the Oracle Enterprise Resources Planning (ERP) software for approximately the last seven years. PGW implemented Oracle in July 2000. During the implementation, PGW employed a bare bones version of Oracle that did not take advantage of all of its functionality. This lack of full leverage was primarily due to the time that was allotted for the implementation process. Therefore, the Procurement Department is not using the full capabilities of the Oracle purchasing application. This under-usage limits its ability to function in an efficient manner and causes the procurement process to be very paper intensive. PGW did not change its process flows for the Oracle implementation. Rather, it simply implemented Oracle on top of its existing processes. Therefore, if a process was done on paper before the implementation, it was probably done on paper after the Oracle implementation.

Oracle version 11i, which is the version in use at PGW as of year end 2007, was implemented at PGW approximately three years ago. PGW has put together training manuals on Oracle that are used for internal training.

In Oracle, there must be an authorized requisition in order to be able to cut a PO. Oracle allows the Procurement Department to track the status of requisitions and POs.

There is a template for a standardized RFQ in the Oracle purchasing application that has the entire PGW boiler plate already in place. All the Procurement Department personnel have to do is add the technical specification content for the specific item being purchased.

Types of Purchase Orders Used

PGW is required by the City of Philadelphia and the Philadelphia Facilities Management Corporation (PFMC) to procure most materials and services in a competitive manner. Under the “Standards for Competitive Bidding” of the Philadelphia Management Agreement, it is required that “any purchasing by contract or otherwise of material, supplies, construction, alterations, repairs, maintenance, services, or any other item, thing, or service be obtained competitively with the exception of:”

- ◆ Unique articles or articles which for any other reason cannot be obtained in the open market
- ◆ Professional services
- ◆ Gas appliances and other gas-consuming equipment, repair parts, and their installation bought for resale or for sales promotional purposes. (PGW is no longer involved in appliance sales or resale.)
- ◆ Pipe couplings, bell joint clamps, compression ells, and other related materials that can only be purchased from one supplier
- ◆ Purchases in emergency situations
- ◆ Purchases of repair parts as may be needed from time to time for apparatus and equipment that is already part of PGW and presently limited to sole source procurement

Additionally, the PFMC Board must approve expenditures of \$1,000,000 or greater and multiple expenditures to the same vendor that are \$1,000,000 or greater in a fiscal year.



There are three types of POs that are in use by the PGW Procurement Department, as described in the following paragraphs.

- ◆ *Standard POs* – These purchase orders account for the bulk of the POs that are issued (estimated at 65%). The purchase authorization limits for these POs were designated by the Philadelphia Facilities Management Commission. The PFMC has granted authority to a select group of PGW managers to authorize department spending within an agreed upon range. The authorizations levels are specific to the various functional areas facilitating the day-to-day management of their organization. Individual PGW employees have a \$500 limit. This limitation forces the PGW employees to put in a requisition for approval on all purchases that are over \$500 (that are not included under a blanket contract). The process is as follows: The requestor enters a requisition into the Oracle procurement application with a specific buyer's name on it (rather than by type of material, as this is the way that it was originally set up in Oracle). The buyer that is listed would depend on the type of item or service that is being purchased. This requisition is then routed electronically to the appropriate operational department managers for electronic authorization of the requisition. Following receipt of an approved requisition, the buyer would go through a request for quote (RFQ) or request for proposal (RFP) process. This would determine the lowest technically acceptable and responsive bidder (RFQ) or the best value (RFP). The buyer examines the requisition and makes a determination of whether this item should be purchased from the outside or if it is available internally. The buyer would also review it to determine if the item could be acquired from a minority vendor. If an external purchase is required, the buyer would issue the PO to the appropriate vendor.

A bidding process may then be used to complete the acquisition. The rules on bidding indicate that bids from \$2,000 to \$10,000 require a bidding process without formal sealed bids, while those bids above \$10,000 require sealed bids.

If the RFQ is for over \$10,000, it must be done as a sealed bid process. If the RFQ is under \$10,000, a sealed bids are not required, but three quotes are requested via phone or fax to determine the lowest technically acceptable and responsive bidder. In a bid process (RFQ), the low price wins if all the technical specifications have been met. However, the phrase "Award to be made contingent on approval by the client organization" is included, which allows personnel to occasionally select other than the low bid, if warranted, based on other parts of the bid evaluation.

Generally, RFQs are used for commodity (materials and equipment) buys that are done on a lump-sum basis. RFPs are normally used for the procurement of services. In the RFQ process, it can generally be expected that the low bid will win. In the RFP process, as it is applied to large professional service contracts, for example, the technical evaluation and other factors, including but not limited to price, are weighed. RFP responses are sent to the client department requestor for their evaluation as to the technical expertise of the proposer and for its input into

the final selection. A scoring matrix, with weighted categories, is often used to evaluate RFP submissions. The number of evaluators varies depending on the specific proposals being evaluated.

The regulation regarding the bidding process requires that a minimum of three bids be obtained if at all possible. In those situations where only a single source is available, a Single Source Authorization form must be filled out by the requesting client department representative. This form must be signed by a Vice President. This form is primarily used for ordering those items that are only available from one vendor. Otherwise, the process is always to include at least three bidders, with the lowest technically acceptable bidder getting the contract.

Another associated form of standard PO is the limited PO. This purchase order is used only for purchases of non-recurring items that are less than \$500 and can be approved by the manager of the subject operating group. If the items or vendor are recurring, and/or total cost exceeds \$500, a Requisition for a standard or blanket PO should be created. The limited POs are totally transparent to the Procurement Department – that is they are not handled by the Procurement Department.

- ◆ *Blanket POs* – A blanket purchase order is defined as a PO that is issued to establish an account with a vendor to obtain materials and/or services over a specified period of time, with itemized pricing established for each item or service category. These are blanket purchase orders that are set up in Oracle and must include the following information at a minimum: line item detail on the item or material to be purchased; contract start/end date; not to exceed dollar limit; and the units in which the item is to be purchased. As an example, blanket POs are used for appliance parts. The Procurement Department would set up the blanket PO in Oracle. The representative of the appropriate operating group would then enter an individual release into the Oracle purchasing system against the Blanket Purchase Order. This release is then electronically routed to the appropriate operating group manager for approval, with the same approval limits being applied as requisition. The approved release would then be printed and either mailed or faxed to the vendor for fulfillment. As of late 2007, PGW did not have EDI or any other form of electronic interface with its vendors. As such, a physical transfer of hardcopy documents was always used. Generally, low-usage items are not put under blanket POs but rather are purchased on a standard PO basis. Most of the PGW blanket POs are for two years, with a one-year extension possible in some cases. They cannot be written for periods longer than four years.
- ◆ *Contract POs* – This type of PO is similar to a blanket PO with one notable exception: contract POs do not have to define the line items that are being purchased as must be done in the terms of a blanket PO. Contract POs are used for items that cannot be designated as a specific item, such as auto parts. (There would be too many individual items to enter into the list of authorized line items.) Rather, a contract PO authorizes purchases from a specific vendor without listing the specific items. In this transaction, the requestor would enter the items that are to be purchased into the Oracle purchasing application with a reference to the PO number



and get the proper operational manager approvals (standard approval limitations). The PO would then be cut. Contract POs do limit the range of items that can be purchased under them by providing the vendor with a listing of the items that cannot be purchased under their terms. For example, an automotive parts contract PO would allow the purchase of spark plugs but not engines. The Procurement Department would see and approve any Standard PO against a contract POs that were over \$500.

Exhibit III-35, which follows, presents data on the number of procurement, contract, blanket, and standard purchase orders produced in each year during the period spanning 2002 through 2007.

	2002	2003	2004	2005	2006	2007
Blanket PO	171	138	119	98	83	80
Blanket Release	2,733	3,293	3,142	2,440	2,257	2,135
Contract PO	133	166	170	227	199	194
Standard PO	12,111	12,114	12,111	13,067	12,628	11,957
Total	15,148	15,711	15,542	15,832	15,167	14,366

Source: Information Response 329

PGW uses a variety of resources to identify potential sourcing vendors. These resources include, but are not limited to, the following:

- ◆ The Oracle vendor database included in the Oracle e-Business application
- ◆ The Minority Business Enterprise Council (now known as Office of Economic Opportunity) Directory
- ◆ The Minority Supplier Development Council Directory
- ◆ The Thomas Register
- ◆ The Blue Book for Building and Construction
- ◆ The Yellow Pages
- ◆ Input from the requisitioning organization
- ◆ Other published and online sources as required

If the identified vendor passes an evaluation process, they are added to the potential vendor listing.

The PGW field personnel do not have purchasing cards to acquire material on a short-notice/emergency basis as is done at some utilities. Rather, they would have to do an emergency PO or an expedited release against a blanket. Emergency orders require an approval letter from a PGW VP that would allow them to sole-source the item. Procurement has established purchase orders with large

chain stores, such as Grainger, which are available to field personnel, allowing field personnel to better serve PGW's customers.

Gasoline/diesel fuel is not bid based on price, because all of the vendors are required to use the Oil Price Information Service (OPIS) index rates. Rather, the selection is based on the transportation costs for the delivered fuel. Most of the vehicles at PGW refuel at the various fuel depots that PGW maintains across the City. PGW vehicles can obtain fuel at selected Sunoco Stations with in-station fuel cards when PGW refueling stations are not accessible, but they are generally used only in emergency situations. In-station fuel cards remain at the Sunoco Stations. PGW personnel must give PGW ID's, vehicle numbers, and license tags numbers to the station owners to receive fuel.

As of the end of 2007, the Procurement Department management was evaluating, modifying, and streamlining the levels of purchasing authorizations so that authorizations would be done primarily by function and not just by job position title. The VP SC stated that she personally spends approximately one and a half hours per day, or approximately 15% of her time, on these approvals, an amount she believed was excessive.

Problems with Vendors

When a problem is experienced with a vendor, a Vendor Evaluation Form is filled out by the subject PGW operating organization representative to describe the problem that was encountered in detail. The Procurement Department would then contact the vendor in question to try to resolve the problem. If this strategy does not resolve the problem, the next step is to have a face-to-face meeting with both the vendor and the PGW operating organization representative to try to resolve the problem. The next step would be to place future orders with another vendor and give the problematic vendor a "time out." PGW would very seldom totally disqualify a vendor from the procurement process as a result of problems encountered with them as PGW believes that this could be unfair to the disqualified bidder. Before disqualifying a vendor, written documentation is required by the client department on their lack of performance. In the past, however, PGW has taken vendors off of its bidders' list because of poor performance, but this hasn't been done in the recent past.

Procurement Process

PGW purchases approximately 21,000 inventory items. PGW has an inventory material classification system that includes 50 different material classes. Some representative inventory classifications include the following: pipe, tubing, adapters, bushings, flanges, plugs, chemicals, and various types of auto parts.

Most of the material that is ordered is delivered to the PGW Materials Management Department for distribution by its personnel. Some purchased material does go directly to the requestor or to field sites.

The PGW Procurement Department does not conduct surveys of its clients (PGW operating groups) concerning vendor performance. Rather, it collects feedback from the clients on a very informal basis (conversations, etc.) or when problems with vendors occur.



The PGW Procurement Department does not have a formalized vendor certification process. Rather, it requires all new potential vendors to fill out a vendor qualification form. For existing purchased items, Oracle maintains a list of vendors that have been used previously. When a new vendor wants to be added to that list, the Procurement Department sends out a Questionnaire and Financial Statement for Qualifying Bidders form to the potential vendor. This document asks for information on financial status, experience, company history, and references. If an evaluation of this information is positive, the vendor is added to the potential bidders' list.

The quality standards that are applicable to an item are listed in the material specifications that are developed prior to the formulation of the RFQ. If the quality of items that are being shipped is consistently poor or the vendor is substituting inferior items, the Procurement Department would get involved to resolve the problems.

The PGW Procurement Department does not rotate buyers across vendors in an attempt to avoid situations of excessive familiarity. In fact, the buyers have not been rotated across vendors since about 1995. Procurement Department management stated that they do not feel it is necessary to undertake such rotation. That is because a straight low-bid selection procedure is used. Cross-training among the buyers is done only on an informal basis to allow buyers to substitute for each other.

Assessments of buyer performance are done on an informal basis only. The Procurement Department Director does not receive any standardized reports on the performance metrics of the buyers. Rather, the director observes how expeditiously orders are processed through the system and responds to any complaints from operating organization representatives.

In relation to quality assurance testing of the products that are purchased, chemicals are tested at the PGW Passyunk chemical laboratory. Pipe and other materials that are used in field operations are tested by the appropriate field operating group.

PGW stated that past attempts to establish a consortium buying arrangement with the City of Philadelphia have never worked out.

The Procurement Department buyers react to an electronic requisition for a material or service from anywhere in PGW that initiates the procurement process. The next steps are to develop an RFQ, distribute it to potential suppliers, collect the responses, evaluate them, make a selection, and place an order. RFP requests are put before the Competitive Contract Committee, as described in the Legal section of this chapter.

In the RFQ bid evaluation and selection process, price is the primary parameter that is evaluated, but several other aspects of the bid are also assessed. They include technical specifications, delivery dates, purchasing terms and conditions, and product quality. If all of the other factors are equal, then price becomes the determining factor. During the technical evaluation, the Procurement Department will frequently bring in a subject matter expert from the requesting operating group to assist in the

evaluation process. If the Procurement Department still has questions after the evaluation process is complete, it will bring in the vendor for a face-to-face meeting.

The PGW Procurement Department has an up-to-date standardized set of policies and procedures to govern the daily purchasing process.

The Procurement Department is still very paper intensive. For example, it uses paper POs that are faxed to the vendor. It then mails a copy of the PO to the vendor as a backup. The department files hard copies of RFQs, RFQ responses, and POs. These forms are filed along with the notes that were generated during the bidding process.

When an electronic requisition is received, the first thing the buyer does is to check that the proper approvals have been obtained on the requisition. It is possible to send a requisition to the Procurement Department without the proper approvals. In cases where the required approvals have not been obtained, the buyer would call the requisitioner and inform them that they need to acquire the proper approvals before the process can proceed. The buyer also looks at the dates by which the purchased items are required. If the dates are too far out into the future, the requisition may be held until a later time.

The three-way matching that is required in Oracle to pay an invoice is done in the accounts payable (A/P) group. Any discrepancies between these items places the transaction on hold.

Expenditures

Exhibit III-36 presents an analysis of the operating budget versus actual data for the period FY2003 through 2007 for the Procurement Department.

Exhibit III-36
Procurement Department
Operating Budget versus Actual Data
FY2003 to FY2007

Operating Budget/Actual	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003-FY2007
Actual	\$551,001	\$608,841	\$720,921	\$597,880	\$775,800	40.8%
Budget	813,000	780,000	790,000	804,000	698,000	-14.1%
Variance (in Dollars)	(261,999)	(171,159)	(69,079)	(206,120)	77,800	
Variance % (of Budget)	-32.2%	-21.9%	8.7%	-25.6%	11.1%	

Source: Information Response 139



PGW Procurement Department management explained the significant increase in actual costs between FY2003 and FY2007 as being due to the fact that the staffing of the department was increased from six employees to nine during this period.

During the FY2003 through FY2007 time frame, there were periods when the Procurement Department was under budget with respect to staffing levels. The annual budgets were prepared in anticipation of acquiring additional personnel. The budgeted complement of nine was reached during FY2007. The budget reduction in FY2007 was the result of internal cost saving initiatives.

Findings & Conclusions

Finding III-21 The Procurement Department does not integrate the operating departments planned future work into its material demand requirements forecasting process.

No group within PGW, either in an operating organization or the Supply Chain organization, does a thorough job of forecasting for purchased material usage on an annual basis. All of the forecasting that is done is based solely on historical data. The PGW Procurement Department needs to enhance its forecasting by working in conjunction with the operating departments and taking into consideration their planned future work. Improved forecasting would result in an improved ability to provide the required procurement services in an effective, efficient, and timely manner.

Finding III-22 Due to its reliance on paper based processes, the Procurement Department is currently more of an administrative group and does not take a proactive role in the management of the purchasing process.

This administrative workload is due, in a large part, to the paper intensiveness of the existing purchasing process. This paper intensiveness is, in turn, attributable to the lack of implementation and use of any e-procurement processes and capabilities. Having to produce, handle, and otherwise deal with large amounts of paper takes a significant amount of time. This is time that should not be required in this day and age with the enhanced capabilities that current procurement software (including Oracle) provides. This time spent with paper-based processes would be better spent focusing on the creation of a dynamic and proactive procurement organization that can focus on obtaining better products and services from vendors at improved prices.

Finding III-23 There is no regular surveying performed that is intended to solicit input from Procurement Department clients concerning vendor performance.

Currently, the process for obtaining vendor performance information is informal in nature and is driven primarily by situations where significant problems with a vendor's performance have been experienced. Unfortunately, at that point in the process, recognition of vendor problems is too late to enable proactive steps to be taken to avoid the problem in the first place. A simple form of vendor

performance surveying, one that is done in accordance with an established schedule, would be a vehicle for collecting this information in an efficient manner. This information could then be reviewed to identify potential problems with vendors or other areas. The Procurement Department could then work with those vendors to improve their performance in the eyes of the PGW clients. This surveying would also allow for the development of vendor performance ratings, something that was done in the past at PGW but has not been done recently.

Finding III-24 PGW Procurement Department buyers have not been rotated across vendors since approximately 1995.

Most contemporary purchasing departments have a policy of rotating their buyers across the pool of vendors on a regularly scheduled basis. Such rotations result in two major benefits. First, situations of excessive familiarity with vendors on the part of the buyers are avoided and situations where this familiarity may have been a problem in the past can be identified. While there were no apparent problems with the buyers at PGW, instituting a rotation schedule would certainly avoid any such occurrences in the future. Second, a regular rotation provides necessary cross-training for the buyers. That way, situations of vacation, illness, or personnel changes can be responded to in a proactive manner thanks to the flexibility of the buyer staff. Such cross-training also tends to provide job enrichment for the buyers in that they have the opportunity to learn about other aspects of the procurement profession. As a result, they are more valuable to both PGW and themselves.

Finding III-25 There is a lack of metrics on buyer performance.

No metrics are collected on buyer performance and no established empirical buyer-performance standards and guidelines exist at PGW. All of the performance evaluations are based on management observation and feedback from the client base. A relatively simple form of metric collection and standards could be created from the data that is currently collected and available. This information would provide Procurement Department management with a viable tool to assist them in the performance evaluation process. Additionally, it would provide feedback to the individual buyers as to how they are doing in terms of job performance. It would also serve as a tool in the training of new buyers as it would provide an indicator of their progress and equip them with a set of standardized performance metrics against which they know that their performance would be measured. Aggregation of this individual buyer data would provide information on the performance of the Procurement Department as a whole, which could be of use to Supply Chain organization management in evaluating performance and identifying potential problems.

Finding III-26 There are no metrics for measuring the Procurement Department's achieved savings or contributions to the profitability of PGW.

Many contemporary purchasing organizations have developed metrics that allow them to clearly demonstrate their contribution to the performance of the overall company. This capability serves to bring greater credibility to the purchasing departments in that they can quantify their contribution,



which is sometimes overlooked by other areas/functions of an organization. Such purchasing group achievement metrics can also be used by department management to judge, in a quantitative manner, their current performance relative to past periods and to establish empirical goals and objectives for the group to strive toward.

Finding III-27 An evaluation has not been performed to identify any financial benefits that could be gained from the establishment of a consortium buying arrangement with the City of Philadelphia.

Such a consortium arrangement has apparently been looked into in the past, but nothing has come of it. This lack of necessity does not mean that it should not be reviewed again. Personnel, economics, and the purchasing environment tend to change over the course of time, leading to new potential opportunities. While much of what PGW purchases is specific to the requirements of a gas utility and would not be of use to the City, there are numerous other areas of procurement that bring commonalities of the items purchased. Significant areas that immediately come to mind would be such things as vehicles, fuel, office supplies, contractor services, various forms of professional services, and various forms of repair/maintenance services. In areas such as these, there is a distinct possibility that the combined volume purchasing power of PGW and the City could result in financial benefits.

Finding III-28 The Oracle procurement application is not being used to its full potential and no apparent initiatives are in place to increase the utilization of its included capabilities.

The Oracle procurement application is well known throughout the procurement industry sector for its robustness and the many capabilities it can provide, especially in terms of e-commerce. However, to take full advantage of these capabilities, they must be set up properly and processes will have to be changed. Apparently, when the Oracle module was originally implemented, there were time restrictions that did not permit the implementation of the full range of available procurement capabilities. Because of the complexity and time requirements of the effort, such a “bare bones” implementation is not an unusual way to begin an Oracle implementation. However, most organizations will subsequently have a follow-up program to take greater advantage of the capabilities of the procurement module as they become more familiar with it use. This follow up has not been done at PGW and the company is still running Oracle in a “bare bones” manner. This lack of full leverage results in the underutilization of advanced capabilities and the inability to implement any form of e-commerce.

Finding III-29 The Procurement and Materials Management Departments have not adequately partnered and integrated their operations to achieve unrealized process improvements.

The Procurement Department is relatively new to the Supply Chain organization, having been transferred from the Finance organization in November 2007. One of the primary drivers for this reorganization was a desire on the part of PGW management to better integrate the operations of the

two organizations. This inclusion of both Procurement and Materials Management in one organization is a sound business approach for operations today. It is important to realize, however, that improved integration will only come with time and emphasis on its benefits. A specific focus should be placed on enhancing the integration of and the cooperation between the two groups to allow them to work in a seamless manner.

Finding III-30 PGW has not implemented the electronic commerce (Internet) capabilities of Oracle; it is currently doing no electronic commerce or electronic bill payments.

As of the end of 2007, PGW was doing no electronic commerce or electronic bill payments. RFQs, and POs were all being generated by the Procurement Department in hard copy for transmittal via fax. The department then mails a copy of the PO to the vendor as a backup. Other than the RFP process, there is no electronic commerce used. RFPs are not faxed, but posted on the web and emailed.

Moving to a full e-procurement mode of operation will require the purchase and implementation of an additional Oracle module. While there are certainly significant costs associated with this implementation, most firms have found that the ongoing operational and economic benefits outweigh the initial costs. Such benefits generally result from reductions in paperwork, less time spent communicating with vendors, and expedited transaction speed. Additionally, there are some capabilities contained in the current Oracle package, such as e-mail and faxing, that could be used now to eliminate some of the paper that is generated and the manual processes that accompany that process.

Finding III-31 There are too many levels of authorization required to make a purchase and this red tape makes the process cumbersome and confusing for the requisitioners.

At PGW, no distinction is made between commodities and capital purchases from an acquisition authorization point of view. While authorization levels are certainly necessary for an effective procurement program, excessive levels of authorization reduce the efficiency of the overall process. Streamlining the levels to the minimums that balance the need for controls with operational effectiveness is required to maintain adequate control over purchases while expediting the requisitioning process. It would also reduce the possibility for confusion and error on the part of the requisitioners.

Finding III-32 Partnering with vendors is not done to any extent at PGW, even though it would be expected to bring benefits in terms of lower costs, improved service, and better relations with vendors.

There are no designated strategic suppliers for PGW—all vendors (big and small) are treated the same. PGW does not delineate between strategic suppliers and secondary suppliers. For example, Dresser Inc., which is one of PGW's largest suppliers, is given only one-year contracts despite the fact that it is almost assured that PGW will use Dresser in the long term. This approach results in the additional



work of having to requote and re-establish the contract each year. A longer contract could result in additional discounts and more concessions from the vendors. PGW should formally designate strategic suppliers. Those strategic suppliers would then have longer-term contracts and would be subject to less paperwork than other vendors. Strategic supplier arrangements would result in less of an adversarial relationship with the strategic suppliers and would reduce the amount of paperwork required. They could also result in reduced inventory and faster delivery times through vendor inventory stocking arrangements. There are currently very few vendor stocking arrangements at PGW.

Finding III-33 The amount at which a sealed bid is required should be changed from the current \$10,000 threshold to a more reasonable level (e.g., \$25,000).

The \$10,000 limitation has been in place at PGW for some time. During this time, prices for just about everything have increased significantly, meaning that purchases in the past that would not have been subject to this restriction are now subject to it. Raising the limitation to a dollar figure that is more reasonable in terms of the current economy and pricing structures would save a lot of unnecessary paperwork and effort on the part of the Procurement Department. This decrease in required effort, in turn, should raise the level of performance and produce financial savings. It is not possible to estimate the savings without a significantly more in depth study of the actual operational costs of the process.

Recommendations

Recommendation III-17 Initiate a formal material-demand-requirements forecasting program in the Procurement Department. (Refer to Finding III-21.)

The PGW Procurement Department should begin to improve its forecasting by working in conjunction with the operating departments and their planned work for the future. In this way, forecasts could be made that would reflect the actual work that is to be done rather than the work that has been done in the past. Such enhanced forecasting would result in an improved ability to provide the required procurement services in an effective, efficient, and timely manner.

Recommendation III-18 Change the focus of the Procurement Department from being primarily an administrative group to being a proactive procurement organization that is actively involved in all aspects of the purchasing process. (Refer to Finding III-22.)

The first step in this effort is to eliminate much of the paper that is now being generated and handled as part of the procurement process. This paper-based procurement process requires large amounts of time that would be better spent on other more important procurement tasks, such as vendor partnering, identifying new potential vendors, price negotiations, etc. It is through activities such as these that the PGW Procurement Department can institute improvement in the overall procurement process and provide better service to its clients.

Recommendation III-19 **Develop a program to perform regular surveys of the operating department clients of the PGW Procurement Department concerning the performance of the largest vendors and any other vendors with which problems have been experienced in the past. (Refer to Finding III-23.)**

A simple form of vendor performance surveying should be done in accordance with an established schedule. This regularity would permit the collection of the required information in an efficient and timely manner. This information could then be reviewed to identify potential problems with vendors or other areas where the Procurement Department could work with the vendors to improve their performance in the eyes of the PGW clients. This review process would also allow for the development of vendor performance ratings, which should be of great use to the Procurement Department buyers.

Recommendation III-20 **Rotate the buyers across the vendors on a regularly scheduled basis, for both security and cross-training reasons. (Refer to Finding III-24.)**

As stated previously, such a regularly scheduled rotation of buyers prevents situations of excessive familiarity with vendors on the part of the buyers. It also identifies any situations where this familiarity may have been a problem in the past. Additionally, a regular rotation provides necessary cross-training for the buyers so that situations of vacation, illness, or personnel changes can be responded to in a proactive manner thanks to the increased flexibility of the buyer staff.

Recommendation III-21 **Develop a program to collect and use metrics that are related to individual buyer performance. (Refer to Finding III-25.)**

Such buyer performance metrics would provide Procurement Department management with a viable tool to assist them in the job performance evaluation process. These metrics would also provide feedback to the individual buyers as to how they are doing in terms of job performance. Additionally, they would serve as a tool in the training of new buyers as they would provide an indicator of those new buyers' progress as well as equip them with a set of standardized performance metrics against which they know that their performance would be measured.

Recommendation III-22 **Develop a program to collect metrics related to the savings or contributions to PGW's profitability that are achieved through the work of the Procurement Department. (Refer to Finding III-26.)**

Such metrics would provide a clear demonstration to PGW management of the Procurement Department's contribution to the performance of the overall company. This insight would serve to bring greater credibility to the Procurement Department in that PGW could quantify the staff's contribution, which can be sometimes overlooked. Such purchasing group achievement metrics could also be used by the department's management and the Supply Chain organization to judge, in a



quantitative manner, the current performance of the Procurement Department relative to past periods. They could also be leveraged to establish empirical goals and objectives for the group to strive toward.

Recommendation III-23 Explore the available options for creating a purchasing consortium arrangement with the City of Philadelphia Procurement Department. (Refer to Finding III-27.)

Because volume purchasing is one of the keys to controlling purchased material costs, it would seem logical to investigate the opportunities that are available for developing joint purchasing agreements with the City on those items and on materials that are purchased by both groups. Because both entities are part of the overall City of Philadelphia organization, such arrangements may be very feasible from an organizational perspective.

Recommendation III-24 Evaluate the additional functionality that is not being used in the Oracle procurement application and develop a formal plan and schedule for taking advantage of those features, one that would have the most beneficial impact on the operations of the Procurement Department. (Refer to Finding III-28.)

There are a number of capabilities in the existing Oracle procurement module that are not being used and which have been replaced with paper-based processes. This underutilization is inefficient from both an operational and an economic perspective. The basis of this study would be a determination of which of Oracle's features would be expected to bring the largest and most immediate benefit to the operations of the Procurement Department. There would certainly be costs associated with the implementation effort and the required training, but the long-term benefits that would be derived would almost certainly be greater.

Recommendation III-25 Identify operations and functions that could be better integrated between the Procurement Department and the Materials Management Department. (Refer to Finding III-29.)

The Procurement Department and the Materials Management Department are partners in the work that is focused on providing the PGW operating groups with the materials they need, when they need them, and where they need them. Therefore, a seamless integration between these two key groups can only lead to improved operational efficiency and, as a result, better service provision to their client groups.

Recommendation III-26 Evaluate the electronic commerce capabilities that are available through the Oracle e-procurement application and determine if these capabilities would be cost effective to implement. (Refer to Finding III-30.)

Moving to a full e-procurement mode of operation will require the purchase and implementation of an additional Oracle module. While there are certainly significant costs associated with this implementation, most firms have found that the ongoing operational and economic benefits outweigh the initial costs. Procurement Department management and staff need to review the associated costs and benefits that would accrue from such an implementation and determine if such an effort would be operationally and economically beneficial to both the department and its clients.

Recommendation III-27 Evaluate the purchasing authorization levels that are currently in place and identify potential areas that could be streamlined. (Refer to Finding III-31.)

Such a reduction in the levels of authorization would serve to expedite and simplify the overall procurement process for both the Procurement Department staff and its clients throughout PGW while still retaining control over dollars expenditures.

Recommendation III-28 Explore the advantages that increased partnering with vendors and designation of strategic suppliers would bring to the procurement process at PGW. (Refer to Finding III-32.)

If the evaluation does show that such a new strategic sourcing strategy would be beneficial, the next step would be to identify specific vendors with which to begin the program. Using these vendors as a pilot program would provide an empirical means of testing the potential benefits of this new strategy.

Recommendation III-29 Increase the amount at which a sealed bid is required from the current \$10,000 threshold to a more realistic level of \$25,000 or more. (Refer to Finding III-33.)

As discussed previously in this report, the \$10,000 limitation has been in place at PGW for some time. Raising the limitation to a number that is more reasonable in terms of the current economy and pricing structures would save a significant amount of unnecessary paperwork and effort on the part of the Procurement Department. This decrease in required effort, in turn, should raise the level of performance and produce financial savings.



Materials Management

Background & Perspective

Organization & Staffing

The PGW Materials Management Department (MMD) maintains six storerooms as follows:

- ◆ The General Storeroom at the Montgomery offices contains general inventory items for the Field Services Department (FSD) crews, including appliance repair parts and general materials. This storeroom has two foremen.
- ◆ The Tioga Master Storeroom contains the supplies and general materials required by the Field Operations crews, including pipes, fittings, valves, and underground pipe parts. The Tioga Storeroom is the largest PGW storeroom with 11 stock handlers and 13 delivery drivers. PGW moved into the Tioga Storeroom in June 2005 after it lost the consolidated warehouse it had previous to that month. This facility is the only one open on a 24/7 basis to handle emergency after-hour requirements. The A shift works 7:30 a.m. to 3:30 p.m. and is composed of two foremen and nine stock handlers. The B shift works from 3:30 p.m. to 11:30 p.m. and has one foreman, one storeroom worker, and one transportation person. The C shift runs from 11:30 p.m. to 7:30 a.m. and has one foreman and one storeroom worker. The PGW pipe inventory is maintained at this storeroom with the exception of coated steel pipe, which is inventoried by the vendor that applies the coating. This storeroom has four foremen in total. The MMD Transportation group handles the delivery requirements for the entire MMD out of the Tioga Storeroom.
- ◆ The Transportation Storeroom contains the auto and truck parts and accessories that are used by the PGW Fleet Operations mechanics in their garage, which is located in the Montgomery facility. This storeroom has two stock handlers.
- ◆ The Stationery Storeroom contains forms, office supplies, and stationery supplies for all of PGW. It is located at the Montgomery offices. Because of its relatively small size and value of inventory, this storeroom does not have a full-time foreman.
- ◆ The Richmond Storeroom at the Richmond Gas Plant contains parts for above-ground repairs at the gas processing plants. This storeroom has one stock handler.
- ◆ The Passyunk Storeroom at the Passyunk Gas Plant contains parts for above-ground repairs at the gas processing plants. This storeroom has one stock handler. The Passyunk mini storeroom is used to provide parts to the Passyunk Plant, furnish supplies and materials for Field Operations, and hold bulk storage of parts that will not fit into the Tioga facility.

All of the MMD storerooms are organized according to a grid system that is based on a standardized Storeroom/Aisle/Row/Bin designation nomenclature.

The Field Operations Department maintains four small storerooms that are used for appliance parts. These inventories are used to supply the crews and, for convenience's sake, are located in four service centers, those being:

- ◆ Porter
- ◆ Belfield
- ◆ Castor
- ◆ Montgomery

Major Processes and Systems

To restock parts in the field operations trucks or for a job, the crews can either come to the Tioga Storeroom to pick up the required materials or send their order as a fax, with the material being delivered to the job site or their assigned service center as requested. Consumables are charged out to a designated number by the whole box and then distributed to the crews or jobs as required, without further transactions being recorded.

To fulfill the requirements for material needed for large jobs, the MMD gets an engineering design drawing that specifies the requisite materials. The department would then pick or order the required items and ship them to the field location where the work is being performed. This process is also performed for jobs that are assigned to contractors. The MMD is responsible for providing the delivery of the material as ordered by the field operations groups.

There are established minimums and maximums for each inventory item. These levels are set by the operating groups, but can be modified by the MMD when personnel feel it is necessary. This min/max information is based on historical usage patterns and the input of the MMD staff. The minimum level also serves as the reorder point. The Daily Stock Status report presents detail for each of the individual storerooms on each item that has an on-hand quantity below the established minimum level. This information facilitates the ability to respond properly and expeditiously to these potential material-shortage situations.

Reordering stocked inventory items is done in the following manner: When an item falls below its minimum quantity in the Oracle inventory system, it is added to a report of items that need to be reordered. This report is reviewed on at least a daily basis by MMD personnel and a PO or a release is manually triggered in the system by the MMD. The PO is not automatically generated by the system. MMD personnel have a \$500 limit for emergency purchases, such as those required to resolve a stock-out situation. Such emergency purchases are generally done, on average, only once or twice a month.

The parts ordering process includes the following steps:

- ◆ For items covered under a blanket PO – Under the terms of the blanket, the MMD Inventory Supervisor performs releases directly to the vendor through a faxed PO.
- ◆ Limited PO – This purchase order is used for parts that are not under a contract but are less



than \$500 in price. These orders can be approved by the MMD Inventory Supervisor with an approved material requisition form. The MMD Inventory Supervisor then produces the PO and faxes it to the vendor.

- ◆ Put out to bid – This process is used for items that are more than \$500 in value. The MMD Inventory Supervisor would call a vendor to get a quote so that he or she would have a reference point as to what the approximate price of the item is. A requisition would then be entered into Oracle that would go to the appropriate operating group manager for review and approval. This approval step would initiate the transmittal of the requisition to the Procurement Department, whose staff would begin the standard bidding process.

The PGW part-numbering system has intelligence built in to it as follows:

- ◆ Inventory items are assigned an eight-digit material code number.
- ◆ The first four digits of the material code have intelligence built in to them. These four digits denote the storeroom location, the type of material, and the classification of the material.
- ◆ The last four digits do not contain intelligence in them.

This part-numbering system has been in place at PGW for many years.

In regard to stockroom security, to ensure the integrity of the inventory, only MMD storekeeping personnel are allowed into the storerooms. There are two levels of stock handlers at PGW: stock handler specialists and stock handler foremen. In order to acquire a needed part, the requestor would fill out a Material Issue Ticket, have it approved by the proper level of management, and give it to the stock handler. The stock handler then fills the order from stock and enters the required transactions into the Oracle inventory system. In the event that an item is needed from a storeroom after regular working hours, the operating personnel would place a phone call to the designated on-call MMD supervisor who would call out the appropriate stock handlers to fulfill the requirement.

There is a designated Training Foreman in each storeroom. New employees are given three months of training by the Training Foreman and are then assigned to the Operating Foreman. All of the recent new storeroom employees were existing PGW personnel who transferred in from outside operating group positions. This previous PGW experience provides these employees with a good working knowledge of the parts and equipment that are carried in inventory.

The MMD union personnel are members of the Gas Workers Employees Union. All workers up to the management level are unionized.

An ABC inventory system is used at MMD storerooms. The definitions of what constitutes the various levels of items vary based on the specific storeroom, as follows:

- ◆ At the Tioga Storeroom, the ABC classifications are based on the dollar value of the items. At this storeroom, A items are counted twice a year, B items once a year, and C items every other

year.

- ◆ At the Montgomery and Passyunk Storerooms, the ABC classification system is based on the movement of the items.
- ◆ At the Richmond Storeroom, the ABC classification system for general usage items is based on the movement of the items; for spare parts, it is based on dollar value.

Historical end-of-fiscal-year inventory levels for each MMD storeroom and in aggregate for the period FY2004 through FY2007 are shown on *Exhibit III-37*.

Exhibit III-37
End of FY Inventory Values by Storeroom
FY2004 to FY2007

Storeroom	Ending FY2004	Ending FY2005	Ending FY2006	Ending FY2007
Tioga	\$2,239,948	\$2,038,991	\$2,471,765	\$2,325,351
Montgomery	931,292	818,376	1,041,575	957,618
Passyunk Mini	40,676	45,337	46,115	42,327
Passyunk	1,088,845	1,061,746	1,133,017	1,135,235
Richmond	3,746,359	3,871,100	3,958,468	4,001,852
Stationary	91,140	87,511	68,662	72,190
Transportation	440,904	471,727	431,479	416,239
Total Value	\$8,579,164	\$8,394,788	\$9,151,081	\$8,950,812

Source: Information Response 538

As a whole, PGW has cut inventory significantly, from approximately \$14 million in 2002 to about \$8.6 million in 2004 while maintaining inventory levels at approximately \$9 million as of the end of 2007. This inventory reduction was accomplished primarily by reducing obsolete material, putting more material on blanket POs (thereby allowing PGW to carry less inventory due to a faster replenishment capability), and implementing vendor stocking arrangements (although only a few have been set up).

These end-of-year (EOY) 2007 inventory levels are after the Gas Processing group recently reduced the inventory at the Richmond storeroom by about \$0.5 million through a reduction in obsolete parts. The fact that this reduction is not clearly reflected in the data presented in *Exhibit III-37* was explained by MMD management as being due to the daily inventory changes based on the movement of materials. It was further stated that there will be a disparity in the total between September 1, 2007 and November 1, 2007.

Scrap material is placed in bins that are located at each of the storerooms and is collected by an external contractor. PGW is compensated for the scrap that is hauled away at a contract rate.



Exhibit III-38 presents data on the inventory reduction targets that were developed for 2008 by storeroom and in aggregate. While inventory reduction has been a goal of MMD for some years, specific inventory-reduction targets for individual storerooms were not set for the period spanning FY2004 through FY2007. However, such targets have been developed for FY2008.

Exhibit III-38
Target Inventory Value Reductions
by Storeroom for FY2008

Store Room	Ending FY2007	Projected Ending FY2008	Target 2008 Reduction
Tioga	\$2,325,351	\$1,900,000	\$425,351
Montgomery	957,618	800,000	157,618
Passyunk	42,327	45,000	(2,673)
Passyunk	1,135,235	1,062,132	73,103
Richmond	4,001,852	3,929,318	72,534
Transportation	72,190	60,000	12,190
Stationary	416,239	375,000	41,239
Total Value	\$8,950,812	\$171,450	\$779,362

Source: Information Response 538

Inventory turns are calculated for the individual MMD storerooms and for the storerooms in total. MMD management has established an inventory turns target of 4.0 for each of the individual storerooms and for the aggregate of storerooms. However, as of the end of 2007, the department was running at an aggregate turns level of 1.68. This performance is worse than in the past because PGW is now calculating inventory turns on a more accurate basis (i.e., not including inventory transfers in the calculation). Turns are calculated based on net issues (in dollars) divided by net inventory (in dollars).

Exhibit III-39, which follows, contains PGW's calculations for its annual total inventory turns for the period spanning 2002 through 2006.

Exhibit III-39
Annual Inventory Turns Calculations
2002 to 2006

	Inventory Average	Spare Parts	Net	Materials Issues	Material Transfers	Spare Parts Issues	Net Issues	Turnover Ratio
2006	\$8,988,887	\$4,664,253	\$4,324,634	\$8,410,699	\$160,230	\$538,568	\$8,032,361	1.86
2005	\$8,734,464	\$4,504,655	\$4,229,809	\$9,855,357	\$0	\$772,771	\$9,082,586	2.15
2004	\$8,902,317	\$4,632,925	\$4,269,392	\$12,951,100	\$0	\$1,178,513	\$11,772,587	2.76
2003	\$9,512,207	\$4,817,038	\$4,695,169	\$12,716,179	\$0	\$529,135	\$12,187,044	2.60
2002	\$10,296,376	\$4,909,709	\$5,386,667	\$11,668,011	\$0	\$878,070	\$10,789,941	2.00

Source: Information Response 333

It was stated by PGW that the drop in the inventory turnover rate in 2006 was due to the MMD having changed its methodology for calculating inventory turns that year. An analysis that was performed indicated that the earlier method of calculating turns used data that was called “total net material issues,” which included sub-inventory transfers and other adjustments. It was determined that it was necessary to revise the calculations to exclude these transfers and adjustments from the Material Issues category. A new category, Material Transfers, that did not include all of the previously included transfers and adjustments was added that was more reflective of the true inventory turns situation. Only then could the department produce data that was more accurate and reflective of the actual situation.

Exhibit III-40 contains the calculation of inventory turns for each PGW MMD storeroom individually and in total. It is presented separately from the calculations for 2002 through 2006 because of the development of a more sophisticated tracking workbook that is capable of reporting inventory turns on a continuous 12-month rolling average throughout the year.

Storeroom	Average Inventory Value for 2007	Total Net Issues for 2007	Turnover Ratio for 2007
Tioga	\$2,518,404	\$4,552,311	1.81
Montgomery	1,022,116	1,759,636	1.72
Passyunk Mini	44,337	121,213	2.73
Passyunk	221,460	63,175	0.29
Stationary	72,050	146,302	2.03
Richmond	202,068	122,282	0.61
Transportation	427,972	824,820	1.93
Total	\$4,508,407	\$7,589,739	1.68

Source: Information Responses 332 and 333

The inventory turns at the Tioga Storeroom are running at approximately 1.8 (usually runs in the 1.6 to 2.0 range). All of the Tioga inventory is in one category (general inventory) and is lumped together for turns calculation purposes. At the gas plants, the inventory is divided into two categories: spare parts versus general inventory. Only the general inventory is used for the turns calculation as the spare parts are generally expensive parts that do not move frequently but must be kept in stock.

MMD management stated that there are various contributing factors to the low inventory turnover ratios at the Passyunk and Richmond storerooms, including the following:

- ◆ Each storeroom inventories a large amount of high dollar items which do not move with regularity and, as they are included in the general inventory classification, they are included in



the turnover ratio calculation.

- ◆ The storerooms include material in the general inventory that is no longer needed due to the elimination of the Cascade plant.
- ◆ The storerooms include general materials added to the inventory for the new expander plant.
- ◆ Spare parts items that are being used with some frequency may need to be re-categorized to the general material classification so that they are included in the turnover ratio calculations

MMD defines a spare part as “anything that doesn’t move within a two year period”. Currently there are items in the general material category that should be classified as spare parts and vice versa. A plan of action for re-categorizing spare parts items was being reviewed. As of the end of 2007 an effort to remove excess material from the general inventory category was in progress, which should result in an increase in the turns ratio. Emergency parts are defined by PGW as those parts that are used in the PGW underground gas services network. This category includes parts that would be used in the event of a ruptured service, incident, or problem with pressure. Many of these parts have long lead times, especially those that are for large diameter pipe.

It is the stated intention of MMD management to push more of the responsibility for maintaining inventory on behalf of PGW out to the vendors. This approach should improve the inventory turns results and would assist in attaining a stated goal of reducing the number of storerooms from the current six to two. Due to the fact that the establishment of such vendor relationships is very case-specific, it is not possible to accurately estimate the percentage of inventory that could be pushed out to vendors or the resulting amount of potential cost savings.

All internal Distribution Department orders are entered through a fax of the various order forms from field supervisors and foremen. Department staff would put in a call to the Distribution “Call Desk” and give Distribution personnel their verbal material orders. The Call Desk employees would then turn the verbal orders into faxes that would be transmitted to the appropriate storeroom. Additionally, the truck crews can order the material at the window of the Tioga Storeroom, but this ordering approach is discouraged because of the lack of lead time. Items that are covered under blanket contracts are released by the MMD clerks based on orders that are placed.

The Procurement Department is involved only in the establishment of the overall blanket purchase orders, not in the actual day-to-day ordering of material from vendors. After the blanket is established, the actual ordering of material is the responsibility of the MMD. Procurement is also involved in orders (non-blanket) of more than \$500 that have to go out to bid. To initiate these orders over \$500, a “traveling requisition” is filled out and submitted to the Procurement Department. The Procurement Department is not involved in orders that are less than \$500, which are called “limited purchase orders” and are normally handled by the MMD.

The MMD is responsible for the delivery of the grease trucks to the work sites as required. These trucks are used in emergency situations to clog the gas lines with grease in an effort to stop gas leaks. They are required to respond to a request within five minutes of receiving the call, no matter the time of day.

There are two designated grease truck drivers, but any MMD employee can deliver the trucks as necessary. It is the Distribution field crews who perform the actual application of the grease.

The MMD Transportation group is responsible for the delivery of material to the field locations and service centers. There are 10 to 11 delivery trucks that have one driver each (except for the heavy gang truck that has two). The two delivery foremen load the trucks. During the off-shift hours, the storeroom workers would handle small deliveries. For larger delivery jobs during the off-shifts, the department would call out a Transportation group person. The MMD Inventory Supervisor develops a daily delivery schedule for that day in the morning based on the material that was ordered the previous day and needs to be delivered.

Inventory accuracy in the MMD storerooms is monitored through daily cycle counts that have been performed for the last seven years. (Note: Cycle counts are counts that are taken on a daily basis for selected items to ensure the continuous accuracy of the inventory data.) The department has performed only one full physical inventory in the recent past. That was for the Tioga Storeroom about two years ago as a result of indications of inventory accuracy problems.

Cycle count sheets are printed for each of the storerooms from the Oracle inventory system on a daily basis. They are then faxed to the individual storerooms for the counting that is to be done that day. At the storerooms, the foreman does the cycle counting (generally first thing in the day) and enters the data into the Oracle inventory system. The Cycle Count Adjustment Report shows the accuracy of the daily cycle counts. The MMD Inventory Supervisor reviews the exception report results of the counts from the Oracle system. The exception reports show all inventory discrepancies that are above either 10% of value or \$100. Stockhandlers can make small adjustments in the inventory counts based on the cycle count results. Discrepancies that are greater than 10% of the inventory value or \$100 have to be approved by the Inventory Supervisor prior to the adjustment being made. The Inventory Supervisor gets the results, researches any identified discrepancies, and resolves the problem. Discrepancies that are below the preset limit can be automatically adjusted in the Oracle system. Inventory variances have been generally found to be caused by stockhandlers' improper processing of the material tickets.

Cycle Count Entries and Adjustment reports are produced on a monthly basis by the Oracle system for each of the individual storerooms. These reports present detail on each of the cycle count adjustments that were made during the month at each storeroom by individual item adjustment.

Schumaker & Company consultants reviewed summary cycle counting accuracy data for three PGW fiscal years, those being September 1, 2004 through August 31, 2005, September 1, 2005 through August 31, 2006, and September 1, 2006 through August 31, 2007. A summary of the results for each of these periods is presented in *Exhibit III-41*.



Exhibit III-41
Cycle Counting Accuracy Results
FY2005 to FY2007

	Number of Counts Performed	Inventory Value Counted	Gross Adjustments	Net Adjustments	Gross Accuracy	Net Accuracy
FY2005	6,800	\$6,649,033	\$107,856	\$36,899	98.33%	99.43%
FY2006	10,613	\$9,967,238	\$153,022	(\$26,514)	98.46%	99.73%
FY2007	11,722	\$10,666,706	\$110,339	\$5,962	98.97%	99.94%

Source: Information Response 497

As an examination of the data presented above shows, the cycle counting program demonstrates that inventory accuracy at the PGW MMD storerooms is very good.

Significant amounts of overtime need to be approved by the Inventory Supervisor. The only time that the MMD works much overtime is in the winter, when water and gas main breaks occur which necessitate that major construction work be performed.

Exhibit III-42, which follows, presents data on the annual amount of overtime that the MMD has accumulated for the period FY2003 through FY2007.

Exhibit III-42
MMD Annual Overtime Data
FY2003 to FY2007

	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003-FY2007
Overtime Expenditures	\$237,065	\$359,682	\$266,736	\$362,121	\$307,051	29.5%
Overtime Hours	6,300	9,349	6,946	9,577	7,753	23.1%

Source: Information Response 810

A review of the data reveals that the level of overtime varies significantly from year to year. MMD management stated that the reason for this annual variation was based on the fact that the MMD works in support of the PGW operating departments, providing service and materials on demand. As such, MMD's overtime levels mirror the overtime worked by Field Operations. Significant annual variations are frequently due to the severity of the winter weather that is experienced. Due to these variations in demand and the continuing effort to reduce staffing levels by attrition, MMD uses overtime in lieu of FTEs.

The material that is shipped from the vendors is received at the appropriate storeroom by the stock handlers. These employees match the PO with the packing list and then verify that all of the items are included in the shipment and that they have not been damaged. If a greater level of technical expertise

is required to determine if an item is of acceptable quality, the stock handlers would enlist an employee from the appropriate operating group. If a problem with a shipment is identified, the receiver would complete a Discrepancy Reporting form that would detail the issue. Based on this information, the MMD would contact the vendor to get a Return Material Authorization (RMA). In the event a problem with high-value items occurs, the Inventory Supervisor would transfer the issue to the Procurement Department, which would resolve the issue.

Parts that are designated as spare parts are not included in the turns calculations. The MMD supervisors stated that there is a large number of parts in the general inventory category that should be designated as spare parts. As of the end of 2007, there was an ongoing effort to standardize the determination of which items should be classified as spare parts. This initiative is being reviewed by a cross-functional team that was working on the project as of the end of 2007.

Exhibit III-43 contains data on the composition of the inventory between general inventory and spare parts at each of the PGW storerooms. This snapshot of the inventory is as of August 31, 2007.

Exhibit III-43
Analysis of Inventory Composition by Storeroom
as of August 31, 2007

Storeroom	Department	Types of Materials	General Inventory Value	Spare Parts Value
Tioga	Field Ops - Distribution	Pipe, Valves, Fittings, Couplings	\$2,518,404	\$0
Montgomery	Field Ops - FSD	Appliance Parts, General Materials	1,022,116	0
Passyunk Mini	Field Ops - Distribution	Pipe, Valves, Fittings, Couplings	44,337	0
Passyunk	Gas Processing	General Materials	221,460	912,701
Stationery	Forms and Stationery	Forms and Stationery	72,050	0
Richmond	Gas Processing	General Materials	202,068	3,789,548
Transportation	Fleet Equipment	Vehicle Parts and Equipment	427,972	0
Total Value			\$4,508,407	\$4,702,249

Source: Information Response 154

Inventory Systems

As stated previously, both the MMD and the Procurement Department use modules of PGW's financial package, Oracle E-Business Suite, as their primary software. The inventory software that is currently being used by PGW is Oracle ERP version 11i. This version was implemented in about 2004.

The Oracle Inventory Management application provides functionality for:

- ◆ Definition and classification of items (materials catalog and standards)
- ◆ Inventory balances at each of the MMD storerooms
- ◆ Inventory receiving, tracking, and reporting



- ◆ Cycle counting and physical inventory
- ◆ Materials transactions
- ◆ Inventory lifecycle and turnover data
- ◆ Materials control

The original Oracle implementation started in 1997–1998. The purchasing and materials management applications were brought online in 2000. The purchasing and materials management implementation took about 4.5 months to complete. In 2004, PGW did a major system upgrade to the 11i version. It took 16–20 weeks for the upgrade of Oracle. As of the end of 2007, only a minor upgrade was scheduled for the future. The policies and procedures manuals for Oracle were updated in July of 2004. PGW is not using the Oracle Alerts functionality, which is a powerful Oracle application tool. The Alerts functionality provides the capability for the application to send emails to selected individuals in the case that a defined situation occurs. For example, if inventory levels at a storeroom reached a point of being too high or too low, emails would automatically be sent to designated individuals.

PGW does not own the Oracle modules that would be required to implement total e-procurement. However, it could make strides into this area by making better use of the current modules it already owns and the limited e-procurement functionality included therein.

PGW is not taking full advantage of the reporting capabilities of Oracle either. It currently uses the Noetix Report Writer application for developing ad hoc reports, but very few people are trained in use of this application. For example, no one in the Procurement Department is trained in its use. As of the end of 2007, PGW was implementing the Noetix Dashboard for several financial metrics.

Expenditures

Exhibit III-44 presents an analysis of the operating budget versus actual data for the period spanning FY2003 through FY2007 for the MMD.

Exhibit III-44
Materials Management Department
Operating Budget versus Actual Data
FY2003 to FY2007

Operating Budget/Actual	FY2003	FY2004	FY2005	FY2006	FY2007	Percent Change FY2003 – FY2007
Actual	\$4,556,800	\$4,883,616	\$4,802,652	\$4,353,594	\$4,137,600	-9.2%
Budget	\$5,081,000	\$4,711,000	\$4,063,000	\$4,312,000	\$4,774,000	-6.0%
Variance (in Dollars)	(\$524,200)	\$172,616	\$739,652	\$41,594	(\$636,400)	
Variance % (of Budget)	-10.3%	3.7%	18.2%	1.0%	-13.3%	

Source: Information Response 139

In response to an Information Request for an explanation of the reasons for the significant variances experienced in FY2003, FY2005, and FY2007, the following information was provided:

- ◆ FY2003 – The \$524,200 under-budget variance was composed primarily of two items, those being labor and the annual service allocation for transportation services. MMD ended FY2003 averaging four fewer employees than were budgeted. The allocation of fleet expenses is budgeted and actualized by the Finance Department and is not under MMD’s control.
- ◆ FY2005 – The \$739,652 overage is nearly all labor cost. During this time period MMD averaged five employees above the budgeted figure of 55.
- ◆ FY2007 – The primary components of this \$636,400 under-budget variance were as follows:
 - Labor, due to the fact that MMD averaged fewer employees than were included in the budget figure
 - Purchased Services, due to the abandonment of plans to outsource the Pipe Shop operation
 - Fleet expenses, due again to the fact that MMD does not control this number

An analysis of the trends in both the actual and budget data over the period reveals that both have decreased. However, the level of the decreases has been reasonable and should not be the cause of any operating efficiency problems.

Findings & Conclusions

Finding III-34 The aggregate level of inventory at PGW is too high.

The EOY 2007 inventory level was approximately \$9 million and MMD management thinks that it would be feasible to reduce this number to \$7 million over the course of time. This decrease could be partially accomplished through a reduction in the amount of obsolete and slow-moving inventory that is carried in stock. The reduction efforts could also be assisted through an increased level of partnering with certain vendors who would agree to hold the inventory for PGW and ship it only when it was required. This alliance would then serve to reduce the inventory levels at MMD storerooms for these items. Additionally, if PGW could consolidate its six storerooms to a smaller number of larger warehouses, reductions of inventory as well as increases in operational efficiency should result. Inventory reduction targets have been established for each of the storerooms and for the aggregated MMD storerooms for FY2008. Such an inventory reduction would also significantly contribute to the efforts of MMD to increase its inventory turns level.

Based on achieving a \$7 million inventory level, PGW would be able to reduce its inventory valuation by approximately \$2 million, a one-time savings. Assuming 25% inventory carrying charges (which is the general industry standard), PGW would also be able to reduce its annual costs by approximately \$500,000 (25% x \$2,000,000).



Finding III-35 The overall number of employees in the Materials Management Department is too high.

This decrease in manpower would be accomplished through inventory reductions and consolidation of storeroom facilities. Additionally, increased utilization of the full range of capabilities contained in the Oracle inventory management system would allow for a reduction in the amount of paper produced and the time that it takes to handle it.

MMD management stated that it thought that a reduction of eight in MMD staff was a feasible target. Based on a conservative estimate of a total annual cost of \$50,000 per employee, if this eight employee reduction were achieved it can be estimated that it would result in an annual savings to PGW of approximately \$400,000 (8 x \$50,000).

Finding III-36 The level of inventory turnover in the PGW storerooms in 2007 was too low.

MMD management has set a goal of 4.0 for inventory turns at each of the individual storerooms and for the storerooms in aggregate. This goal would appear to be an aggressive but reasonable one. Standardization of the designation of spare parts would result in a more accurate view of the inventory turns that are under the control of MMD management (as opposed to the portion of the turns that they cannot impact). It should also result in an increase in the number calculated for inventory turns. Additionally, reductions of inventory, as discussed previously, would have a positive impact on the level of turns that is experienced.

Finding III-37 PGW does not have a standardized spare parts category to make its inventory turns calculations more accurate in relation to inventory movements that can be controlled.

As of the end of 2007, there was approximately \$9 million in total inventory, of which \$4 million was designated as spare parts. However, the spare parts designation is not applied evenly across the storerooms. Most utilities have a standardized empirical definition of spare parts, which they apply equally to all parts of their inventory. These spare parts are then excluded from the turns calculations because they are not controllable by the inventory managers due to their critical nature. At the PGW gas plants, the inventory is divided into two categories: spare parts and general inventory. However, at the general inventory storerooms this division is not done. Only the general inventory is used for the turns calculation because the spare parts are generally expensive parts that do not move frequently but must be kept in stock in the event that repairs are necessary.

Finding III-38 There are no formalized procedures for day-to-day inventory operations at the storerooms.

While there are procedures for the Oracle inventory processes and the system inputs involved, there are no general day-to-day operations procedures as would be used to provide operational guidance to the MMD operations staff. Such procedures are important as they serve to standardize operations across the storerooms, they provide a valid form of reference when operational questions arise, and they are an invaluable training tool for new employees. In inventory management, it is very important to minimize the mistakes made because they directly and negatively impact accuracy and efficiency. Procedures provide a good tool for guarding against these mistakes.

Finding III-39 The material delivery function may not be cost effective when provided on an in-house basis as opposed to having the service provided by an external contractor.

It is expensive to run a transportation group, especially in the face of rising fuel prices. Several utilities have found that they are better off sticking to their core competencies in several areas including transportation. Firms that specialize in transportation can frequently provide the service on an external basis for less than it can be provided internally thanks to the specialized expertise and economies of scale they can offer. An evaluative study of this topic would determine which future course of action would be the one best taken.

Finding III-40 An evaluation has not been performed of the potential economic advantages to be gained from transferring the gasoline and diesel fuel provision function to a private contractor.

As with the previously mentioned Transportation function, specialized expertise and economies of scale could lead to cost reductions in this area also. Again, an evaluative economic study should provide a quantitative analysis of the situation. It should also allow for the most operationally and economically beneficial course of action to be taken.

Finding III-41 Outsourcing the vehicle parts procurement and inventory function would be expected to result in economic benefits.

Outsourcing of this function could potentially serve two purposes: saving money and putting personnel who are more knowledgeable of vehicle parts into the Fleet Operations storeroom. Again, firms that specialize in the provision of vehicle parts procurement and inventory can achieve specialized expertise and economies of scale. That is because such operations are within their core competencies. Several large firms have gone this route and have been generally pleased with the results achieved.



Finding III-42 Not enough use is being made of vendor stocking arrangements (vendors holding the inventory for PGW until needed).

While a small amount of this partnering is being done, it is not nearly at the level it could be. For example, another Philadelphia utility has totally outsourced parts of its warehouse and delivery function, actually allowing the vendor to move into its warehouse. The results have been very favorable. PGW needs to identify such opportunities and then act on them. Increased vendor control of inventory would be expected to result in significant reductions in inventory levels with a commensurate rise in the turnover rate.

Finding III-43 A cross-training program does not exist that would allow MMD supervisors to receive high-level training in the operations of the Distribution field crews, thereby enabling them to do a better job of ordering replacements and parts.

Also, other cross-training should be instituted to give supervisors a better idea of the operational functions performed by the other operational groups. In order to provide a high level of customer service, it is necessary to know the needs of the customers. Cross-training of this sort would be expected to achieve benefits in terms of improving cooperation and coordination among MMD and the various operating groups. Such seamlessness is essential to efficient operations. The training provided can be done at a high level to provide just enough insight into the functional requirements and desires as necessary to initiate change.

Finding III-44 A review that would identify the potential benefits that could be achieved from the addition of a bar-coding function at the MMD storeroom operations has not been performed.

State-of-the-art warehouse facilities in the current environment almost always base their operational processes on the bar-coding function. Use of bar coding speeds the conduct of the processes and ensures that a higher level of accuracy will be attained. It accomplishes these feats by taking most of the human-error factor out of the equation. As stated previously, a very high level of inventory and transactional accuracy is essential to the conduct of an efficient and effective Materials Management function.

Finding III-45 Due to the fact that the six current storerooms are not consolidated, the resulting operating costs are too high.

Consolidating storerooms would avoid the considerable amount of double-handling and wasted effort that results from having multiple storerooms. An examination to consolidate the storerooms should include a lease versus buy analysis for the storeroom facility. At a minimum, this investigation should include a consolidation into one storeroom for Montgomery and Tioga. Such unification was done at one time in another larger facility but that facility was sold (PGW had leased it). When it lost this large

storeroom facility, PGW no longer had a facility large enough to house the combined inventory so multiple storerooms were established. Such inventory unification would be a significant contributor to PGW's efforts to reduce inventory and the resultant cost benefits.

Finding III-46 **A review of the functionality of the current use of the Oracle inventory application that would identify those improvements that could be implemented has not been performed.**

There is fax and e-mail capability in the existing Oracle inventory and purchasing modules, but that functionality is not being used by PGW. Sub-inventory transfers could be done in a paperless manner in the Oracle inventory application, but this process is not being performed. There are a number of capabilities in the existing Oracle inventory management module that are not being used and which have been replaced with paper-based processes. This approach is inefficient from both an operational and an economic perspective. Because the functionality is already in place and could be of great benefit, it would certainly seem logical to take advantage of it. There would certainly be costs associated with the implementation effort and the required training, but the long-term benefits that would be derived would almost certainly outweigh them.

Recommendations

Recommendation III-30 **Initiate increased efforts to reduce the level of inventory in the MMD storerooms. (Refer to Finding III-34.)**

Inventory targets have been established for each of the MMD storerooms for 2008, which is a very good first step. But concrete strategies now have to be established to ensure the achievement of these goals in the designated timeframe. Numerous means to achieve inventory reductions have been discussed in this report and they should provide a good basis for action. However, other methods of inventory reduction should be solicited from the MMD staff and managers as they have the highest level of knowledge of the daily operations. Additionally, an inventory reduction results-monitoring program should be put into place (if one does not exist already) to ensure that the ongoing progress of the initiative is known to all involved with it.

As discussed in *Finding III-34*, PGW would be able to reduce its inventory valuation by approximately \$2 million, a one-time savings. Assuming 25% inventory carrying charges (which is the general industry standard), PGW would also be able to reduce its annual costs by approximately \$500,000 (25% x \$2,000,000).

Recommendation III-31 **Initiate efforts to reduce the number of employees in the MMD. (Refer to Finding III-35.)**

Employee reductions should be the natural result of some of the other initiatives discussed in this report, such as inventory reduction, warehouse consolidation, and increased use of available Oracle



capabilities. However, as in any such employee-reduction program, it is critical that the work goes away before the number of employees is reduced. Additionally, employee reductions should be well thought-out in advance to avoid deleterious effects on the operations or the included employees.

As discussed in *Finding III-35*, a reduction of eight in MMD staff is a feasible target. Based on a conservative estimate of a total annual cost of \$50,000 per employee, if this eight employee reduction were achieved it can be estimated that it would result in an annual savings to PGW of approximately \$400,000 (8 x \$50,000).

Recommendation III-32 **Initiate a focused effort to increase the level of inventory turnover in the MMD storerooms and in aggregate. (Refer to Finding III-36.)**

Again, this effort would go hand in hand with the other initiatives discussed in this report, such as reduced levels of inventory, consolidation of storerooms, and improved utilization and application of the spare parts designation. Making operational gains in any of those areas should have a positive effect on the level of inventory turns that are produced.

Recommendation III-33 **Perform an analysis to determine the best way to utilize the spare parts classification and take the necessary steps to ensure that it is applied evenly across the storerooms. (Refer to Finding III-37.)**

As stated previously in this report, most utilities have a standardized empirical definition of spare parts and apply this definition equally to all parts of their inventory. These spare parts are then excluded from the turns calculations because their critical nature renders them uncontrollable by the inventory managers. Only the general inventory should be used for the turns calculation. That is because the spare parts are generally expensive parts that do not move frequently but must be kept in stock in the event that equipment repairs are needed.

Recommendation III-34 **Develop formal procedures to guide and govern the day-to-day operations of the MMD storerooms. (Refer to Finding III-38.)**

Oracle-related inventory procedures already exist at PGW. These processes could easily serve as the basis for the development of a fully functional set of day-to-day operational procedures for the MMD operations.

Recommendation III-35 **Conduct an evaluation to determine whether the Material Delivery function is cost effective when provided on an in-house basis or if the service could be provided as well and more cost effectively by an external contractor. (Refer to Finding III-39.)**

Such a study would be a standard cost/benefit analysis to determine which course of action would serve the MMD and PGW in general the best. It is important to make sure that all of the various advantages and disadvantages of each of the modes of operation are included and thoroughly considered.

Recommendation III-36 **Conduct an evaluation to identify if there are potential advantages to be gained by transferring the gasoline and diesel fuel provision function to a private contractor. (Refer to Finding III-40.)**

This assessment entails another straightforward cost/benefit analysis, but weight should be given to the operational advantages of having someone else deal with the day-to-day fuel provision function.

Recommendation III-37 **Conduct an analysis to determine if it would be cost and operationally effective to outsource the vehicle parts procurement and inventory function. (Refer to Finding III-41.)**

As stated previously in this report, outsourcing of this function could potentially serve two purposes: saving money and putting personnel who are more knowledgeable of vehicle parts into the Fleet Operations storeroom. Again, firms that specialize in the provision of vehicle parts procurement and inventory bring specialized expertise and economies of scale. That is because such operations are within their core competencies. A local example of where such an outsourcing effort has been successful is at Philadelphia Energy Company (PECO).

Recommendation III-38 **Initiate efforts to increase the usage of vendor stocking arrangements. (Refer to Finding III-42.)**

This effort should not be focused solely on initiating vendor stocking agreements. Rather, it should also attempt, in conjunction with the Procurement Department, to identify the opportunities that exist for the creation of a more wide-ranging strategic sourcing program. However, it is likely that the vendor stocking aspect is the one that would pay the largest returns to PGW in a relatively short timeframe.

Recommendation III-39 **Develop a high-level cross-training program that would provide MMD supervisors with increased training in the requirements and preferences of the field operations groups that are their clients. (Refer to Finding III-43.)**

This cross-training program does not need to be intensive or extremely time-consuming to produce the desired effect. Rather, it should provide more in the way of exposure to the daily workings of the



operational groups so that their requirements can be better understood. A frequent result of such a program is an improvement in communication between the materials management groups and the operating groups, which can serve to significantly improve coordination.

Recommendation III-40 **Review the operational advantages to be gained from the implementation of a bar-coding program in the MMD storerooms. (Refer to Finding III-44.)**

This assessment entails a fairly standardized analysis that would look at the costs and the benefits and then determine if bar-coding would be worthwhile from both operational and economical standpoints. Most of the materials management organizations that have performed similar studies have found that bar-coding did bring substantial benefits to their operations.

Recommendation III-41 **Conduct an analysis to determine the economic and operational benefits that would be gained from the consolidation of the MMD storerooms. (Refer to Finding III-45.)**

Under the current mode of operation with six storeroom facilities, a considerable amount of double-handling and wasted effort results. Shipments are received in one storeroom and are put into storage. Subsequently, they are required by another storeroom and have to be picked, packed, and transported again. Then at the second warehouse, the receiving process must be undertaken again. This assessment should include a lease versus buy analysis for the storeroom facility. At a minimum, this evaluation should include consideration of a consolidation into one storeroom for the Montgomery and Tioga storerooms. Such unification was done at one time in another larger facility but that facility was sold (PGW had leased it). Subsequent to this event, PGW no longer had a facility large enough to house the combined inventory so multiple storerooms were established.

Recommendation III-42 **Evaluate the unused functionality of the Oracle inventory management application and develop a formal plan and schedule for taking advantage of those features that would have the most beneficial impact on the MMD operations. (Refer to Finding III-46.)**

There are a number of capabilities in the existing Oracle inventory management module that are not being used and which have been replaced with paper-based processes. This underutilization is inefficient from both an operational and an economic perspective. The basis of this study would be a determination of which Oracle features would be expected to bring the largest and most immediate benefit to the operations of the MMD. There would certainly be costs associated with the implementation effort and the required training, but the long-term benefits that would be derived would almost certainly outweigh them.

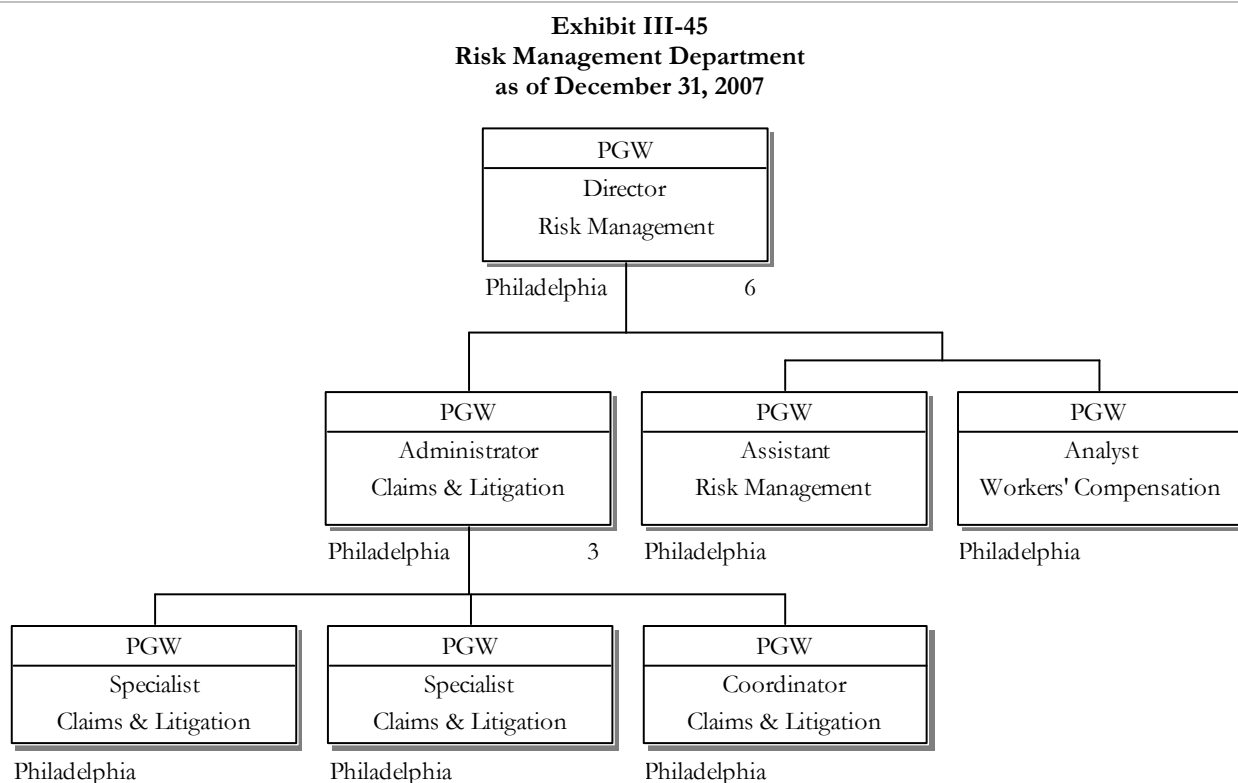
E. Risk Management

This section provides a discussion of Philadelphia Gas Works' (PGW's) risk management services.

Background & Perspective

Organization & Staffing

Risk management services are provided by the Risk Management Department, as shown in *Exhibit III-45*.

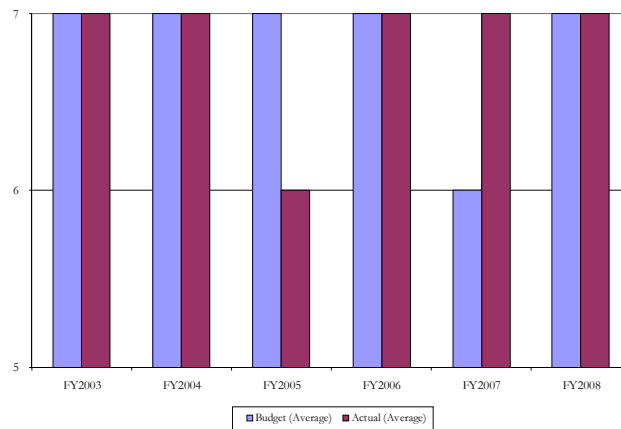


Source: Information Responses 1 and 159

Exhibit III-46 illustrates a breakdown of actual and budget Risk Management staffing levels for fiscal year (FY) 2003 to FY2008, which have ranged between six and seven employees.



Exhibit III-46
Risk Management Staffing Levels
FY2003 to FY2008



Source: Information Responses 598 and 763

The Risk Management Department historically has been involved in:

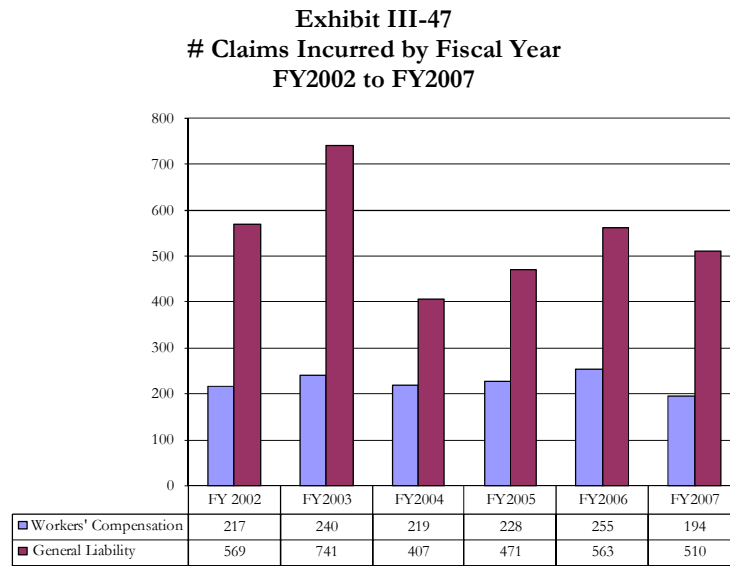
- ◆ Claims and litigation
- ◆ Insurance and contracts
- ◆ Workers' compensation

The Risk Management Director estimates that approximately 20% of this group's staff hours are dedicated to activities such as enterprise risk management (ERM), risk mitigation, and other risk planning areas. In recent months, for example, the Director of Risk Management has also been actively involved in establishing an ERM program at PGW, as discussed further in *Finding III-47*.

Claims and Litigation

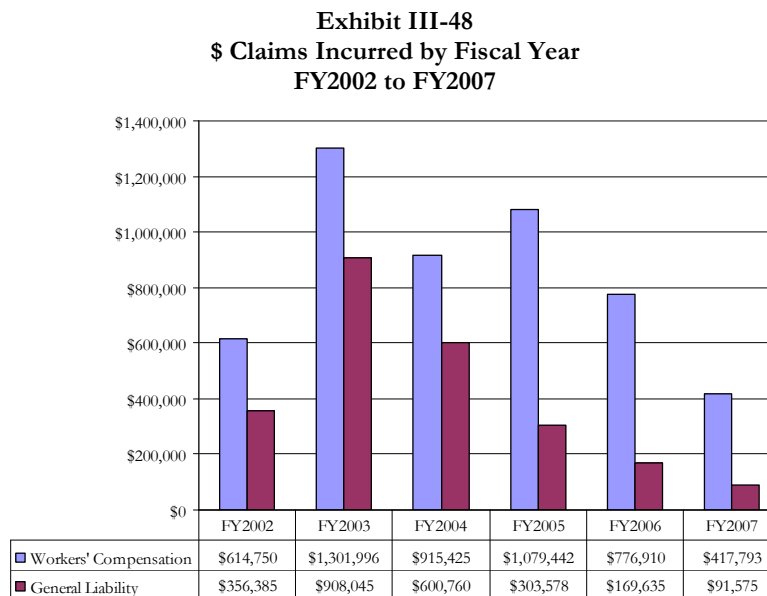
The claims and litigation functions include liability, property, and personal injury claims as well as litigation support for lawsuits, which are now typically handled by internal legal counsel. (See *Chapter III – Support Services Legal Services* for further discussion about activities performed by PGW's Legal Department.) The investigation of claims is done by the claims and litigation specialists, also called adjusters, under the direction of the Administrator, Claims and Litigation. To perform their investigations, the adjusters rely primarily on PGW records, as they have access to all of PGW's operations/customer service systems. When investigations require field work, adjusters rely on front-line supervisors or outside vendors. Many of the claims against PGW are slip/fall claims. The claims staff also works closely with PGW counsel in crafting PGW's defense strategy, responding to interrogatories, preparing for depositions, and making recommendations for settlement.

Exhibit III-47 illustrates the number (#) of general liability and workers' compensation claims incurred annually from FY2002 through FY2007.



Source: Information Response 402

Exhibit III-48 illustrates the dollars (\$) paid to date for those claims previously included in Exhibit III-47.

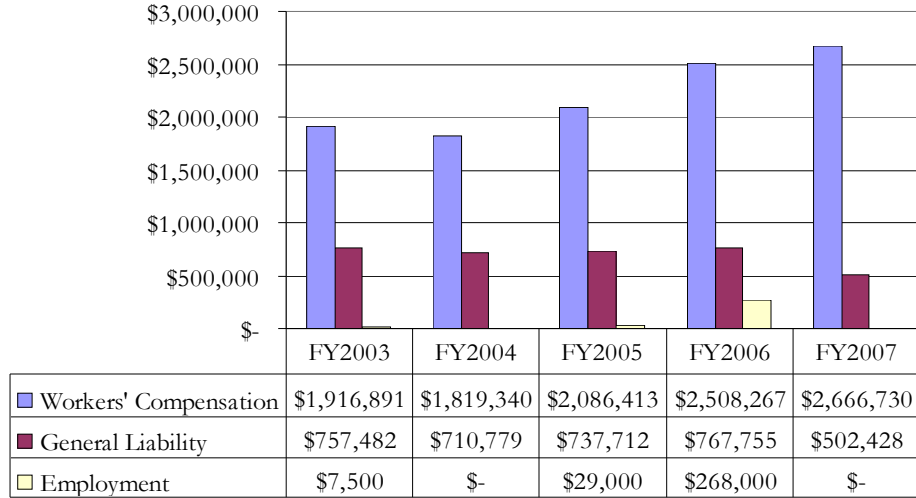


Source: Information Response 402

Exhibit III-49 displays the dollars paid each year (FY2003 to FY2007) for general liability, workers'

compensation, and employment claims, regardless of when the claims were incurred.

**Exhibit III-49
Claims Paid by Fiscal Year
FY2003 to FY2007**

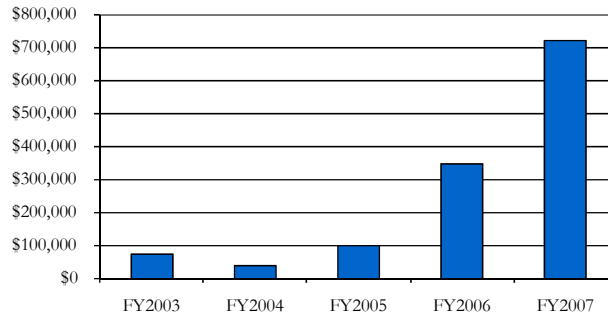


Source: Information Responses 166 and 402

With regard to workers' compensation claims, PGW management indicates that the combination of an aggressive claims management and proactive safety/loss control programs has been instrumental in controlling the number of workers' compensations claims, as shown in *Exhibit III-47*.

Costs associated with these claims have generally been decreasing, as shown in *Exhibit III-48*. Actual dollars paid have been increasing, as shown in *Exhibit III-49*, largely because of settlements, as shown in *Exhibit III-50*.

**Exhibit III-50
PGW Workers' Compensation Settlements
FY2003 to FY2007**



Since FY1999, PGW has been engaged in a comprehensive reform of its workers' compensation program. The first part of the reform involved implementing an aggressive claims and medical case management program through a third-party administrator. (PGW continues to be self-insured for workers' compensation; however, since FY1998, PGW has engaged the services of a professional third-party administrator instead of overseeing the program in-house.) PGW's Employee Utilization Committee became more aggressive in placing disabled employees in alternative employment. Once the overall system was changed to ensure that new cases would be effectively handled from the outset, the focus shifted to older cases, particularly those involving former employees who were still collecting workers' compensation for total disability. PGW successfully litigated many of these cases to closure and actually achieved criminal convictions in two cases of actual fraud. Many of the remaining cases ultimately settled, because the claimants recognized that the aggressive claims management would ultimately lead to a termination or modification of benefits. The result was a temporary spike in payments but with a subsequent decline. That decrease occurred because PGW is paying a much smaller number of claimants each week. In addition to PGW committing more funds to close out older cases, the number of cases being settled has increased dramatically, with two in FY2003, one in FY2004, two in FY2005 and FY2006, and then nine in FY2007. To date in FY2008, an additional four cases have already settled.

With regard to general liability claims, PGW's costs over the past five years have stayed relatively stable, with a drop in FY2007. Settlements, which typically involve slip/fall cases or automobile accidents, have generally come in at under \$50,000. The FY2007 drop is explained by the fact that there were no cases over \$90,000 paid in that year. In the past several years, PGW has tightened its liability claims and its litigation process. A key initiative has been the establishment of a Claims and Litigation Committee, which reviews all litigated cases to identify trends and to develop appropriate loss prevention measures. A representative from the Operations Department sits on the committee to provide expert opinions and to also be a point of accountability for any loss prevention initiatives.

According to the Tort Claims Act (Act), the City of Philadelphia (and therefore PGW) generally cannot be sued, unless both of the following conditions are satisfied and the injury occurs as a result of one of the exceptions to the Act as listed in the next section:

1. The damages would be recoverable under common law or a statute creating a cause of action if the injury were caused by a person not having available a defense under section 8541 (relating to governmental immunity generally) or section 8546 (relating to defense of official immunity) ; and
2. The injury was caused by the negligent acts of the local agency, or an employee thereof, acting within the scope of his office or duties with respect to one of the categories listed in subsection (b). As used in this paragraph, "negligent acts" shall not include acts or conduct that constitute a crime, actual fraud, actual malice, or willful misconduct.



Plaintiffs can receive pain and suffering only if there is permanent injury, and even then, the entire recovery (including lost wages and medical care) is limited to a maximum amount of \$500,000 per occurrence. These eight exceptions to immunity are:

1. Vehicle liability
2. Care, custody, or control of personal property
3. Real property, excluding trees, traffic signs, lights and other traffic controls, street lights and street lighting systems; facilities of steam, sewer, water, gas, and electric systems owned by the local agency and located within rights-of-way; streets; and sidewalks
4. Trees, traffic controls, and street lighting
5. Utility service facilities
6. Streets
7. Sidewalks
8. Care, custody, or control of animals

With regard to employment claims, there does not appear to be a trend, with \$7,500 paid in FY2003, nothing in FY2004, \$29,000 in FY2005, \$268,000 in FY2006, and nothing in FY2007, as shown in *Exhibit III-49*. (In FY2008, \$156,000 was paid.) PGW routinely prevails in employment cases and actually receives fees awarded against the plaintiffs in some cases. The bulk of the monies paid in FY2006 and FY2008 were to four plaintiffs, with the settlements being for no more than a year of salary and, in most cases, only six months. PGW management considers these cases to be atypical of most employment cases filed against PGW, both in nature and result.

Insurance & Contracts

The Risk Management Assistant (who had approximately 25 years' experience as an insurance broker before joining PGW five years ago) is responsible for PGW's insurance portfolio, as shown in *Exhibit III-51*.

Exhibit III-51
Types of PGW Insurance Coverage
FY2003 to FY2008
(Page 1 of 2)

Type of Coverage	Policy Term	Amount of Coverage	Annual Premium	Expense per Dollar of Coverage
Liability		Self-funded (a)		
Excess Liability*	09/01/07-08	\$210,000,000	\$1,567,135	0.7%
(First layer-AEGIS-\$35 million)	09/01/06-07	\$210,000,000	\$1,776,661	0.8%
(Second layer-EIM-\$100 million)	09/01/05-06	\$210,000,000	\$1,769,120	0.8%
(Third layer-AEGIS-\$50 million)	09/01/04-05	\$210,000,000	\$1,759,223	0.8%
(Fourth layer-XL Europe Ltd	09/01/03-04	\$210,000,000	\$1,695,057	0.8%
-\$25 million)	09/01/02-03	\$210,000,000	\$1,066,344	0.5%
Workers' Compensation		Self-funded (b)		
Excess Workers' Compensation*	09/01/07-08	\$35,000,000	\$239,325	0.7%
(First layer-Excess of PGW's	09/01/06-07	\$35,000,000	\$232,731	0.7%
retention of \$500,000 for each accident	09/01/05-06	\$35,000,000	\$228,869	0.7%
or each employee for disease)	09/01/04-05	\$35,000,000	\$217,946	0.6%
	09/01/03-04	\$35,000,000	\$176,884	0.5%
	09/01/02-03	\$35,000,000	\$108,644	0.3%
Excess Workers' Compensation*	09/01/07-08	Statutory	\$132,468	N/A
(Second layer-Excess of \$35,000,000	09/01/06-07	Statutory	\$128,395	N/A
above first layer)	09/01/05-06	Statutory	\$121,719	N/A
	09/01/04-05	Statutory	\$175,000	N/A
	09/01/03-04	\$20,000,000	\$115,230	0.6%
	09/01/02-03	\$20,000,000	\$7,766	0.0%
Professional Liability*	09/01/07-08	\$10,000,000	\$41,818	0.4%
	09/01/06-07	\$10,000,000	\$41,818	0.4%
	09/01/05-06	\$10,000,000	\$41,818	0.4%
	09/01/04-05	\$10,000,000	\$41,234	0.4%
	09/01/03-04	(c)	\$0	N/A
	09/01/02-03	(c)	\$0	N/A
Property	10/31/07-08	\$250,000,000	\$1,043,274	0.4%
	10/31/06-07	\$250,000,000	\$1,187,026	0.5%
	10/31/05-06	\$250,000,000	\$973,092	0.4%
	10/31/04-05	\$250,000,000	\$802,000	0.3%
	10/31/03-04	\$250,000,000	\$1,024,000	0.4%
	10/31/02-03	\$250,000,000	\$985,290	0.4%

* Includes terrorism coverage

(a) PGW's retention is \$1 million for each occurrence and \$1 million for any one claimant/\$1 million for any one occurrence for employment practices liability.

(b) PGW's retention is \$500,000 for each accident or each employee for disease.

(c) Included in excess liability

Statutory coverage for workers' compensation in Pennsylvania has no limits.

Acronyms included above: AEGIS for AEGIS Insurance Services, Inc. and EIM for Energy Insurance Mutual, both industry mutuals.

Source: Information Responses 163 and 404



Exhibit III-51
Types of PGW Insurance Coverage
FY2003 to FY2008
(Page 2 of 2)

Type of Coverage	Policy Term	Amount of Coverage	Annual Premium	Expense per Dollar of Coverage
Fiduciary & Employee Benefit Liability	09/01/07-08	\$35,000,000	\$60,207	0.2%
	09/01/06-07	\$35,000,000	\$56,800	0.2%
	09/01/05-06	\$35,000,000	\$46,000	0.1%
	09/01/04-05	\$35,000,000	\$42,102	0.1%
	09/01/03-04	\$35,000,000	\$40,184	0.1%
	09/01/02-03	\$35,000,000	\$35,000	0.1%
Excess Fiduciary & Employee Benefit Liability	09/01/07-08	\$25,000,000	\$32,020	0.1%
	09/01/06-07	\$25,000,000	\$32,020	0.1%
	09/01/05-06	\$25,000,000	\$27,846	0.1%
	09/01/04-05	\$25,000,000	\$25,000	0.1%
	09/01/03-04	\$25,000,000	\$25,000	0.1%
	09/01/02-03	\$25,000,000	(d)	N/A
Crime	10/31/07-08	\$5,000,000	\$31,949	0.6%
	10/31/06-07	\$5,000,000	\$34,806	0.7%
	10/31/05-06	\$5,000,000	\$35,609	0.7%
	10/31/04-05	\$5,000,000	\$36,790	0.7%
	10/31/03-04	\$5,000,000	\$46,910	0.9%
	10/31/02-03	\$5,000,000	\$36,000	0.7%
Directors & Officers Liability	2/28/07-08	\$10,000,000	\$113,898	1.1%
	2/28/06-07	\$10,000,000	\$113,033	1.1%
	2/28/05-06	\$10,000,000	\$112,737	1.1%
	2/28/04-05	\$10,000,000	\$127,510	1.3%
	2/28/03-04	\$10,000,000	\$126,585	1.3%
	2/28/02-03	\$10,000,000	\$98,627	1.0%
Boiler & Machinery	10/31/07-08	(e)	\$0	N/A
	10/31/06-07	(e)	\$0	N/A
	10/31/05-06	(e)	\$0	N/A
	10/31/04-05	\$50,000,000	\$90,494	0.2%
	10/31/03-04	\$50,000,000	\$73,295	0.1%
	10/31/02-03	\$50,000,000	\$64,228	0.1%

(d) Included in EIM total premium

(e) Included under property

Source: Information Responses 163 and 404

The September 11, 2001 (9/11) attacks caused a significant hardening of insurance markets, including those for excess liability and excess workers' compensation coverage. PGW experienced large premium increases from 2002–2003 to 2003–2004 with these two coverage areas. In addition to premium increases, a significant reduction in capacity worldwide occurred during this same timeframe. While

much of PGW's coverage is with energy industry mutuals, even AEGIS had to raise premiums because of escalating reinsurance costs. Additionally, AEGIS had been losing money on its excess workers' compensation book of business. Finally, again because of the 9/11 attacks, carriers started charging increased premiums for terrorism coverage in 2002. According to PGW management, all of these factors contributed to PGW's increased premium costs.

In 2007 PGW increased its (self-funded) retention from \$500,000 to \$1 million under its excess liability policy, because AEGIS offered significant premium savings for doing so. This coverage provides reimbursement for settlements/verdicts, attorney fees, and other litigation expenses, such as expert witnesses. To evaluate the retention increase, PGW had to weigh the premium savings against any potential additional expenses. For the Tort Claims Act cases, which account for most of the cases under the excess liability coverage, there is no additional exposure for settlement or verdict, which still remains capped at \$500,000. PGW also believes that there is also minimal exposure for attorney fees, because PGW handles most of these cases in-house, an internal expense not recoverable under the excess liability coverage. Thus, the real additional exposure would come from litigation expenses, which PGW management indicates are typically far less than the premium savings achieved by accepting the retention increase. In the event of a case not covered under the Tort Claims Act cap, such as a third-party environmental lawsuit, there would be a \$500,000 additional exposure (the difference between the original \$500,000 retention and the new \$1 million retention), but these non-Tort Claims Act cases have been rare, and with the premium savings of \$210,000, the costs would be recovered in a little over two years.

PGW has \$250 million coverage for property insurance. This figure is based on a month-long study performed approximately three years ago by American Appraisal to identify the replacement cost of PGW's property. Previously, PGW used factors to estimate replacement cost. It turns out that PGW's estimates were fairly close to the study results. Now PGW will have American Appraisal (or a similar organization) perform an update every two years.

The Risk Management Department also reviews all procurement documents, such as requests for proposal (RFPs) and contracts, regarding indemnification, setting insurance requirements, and exercising loss control measures.

PGW has used an innovative buyback of pre-1986 excess liability policies to fund its environmental remediation projects. These policies had remained open, because they were written on an occurrence basis and did not contain pollution exclusions.² Technically, a third-party environmental claim would have to be filed against PGW to trigger coverage under these policies. However, in recent years, some insurance companies have agreed to settlements in an effort to close the books on their outstanding obligations, even in the absence of actual third-party claims. Such settlements are generally based on an analysis of the insured's environmental clean-up costs, with the theory being that a clean-up now would prevent third-party claims from being filed in the future. PGW hired a specialty law firm from

² After 1986, standard policies excluded most pollution claims and were written on a claims-made basis. The bulk of PGW's environmental liability is attributable to its old manufactured natural gas plants, which had ceased operation in the early 1970s.



Washington, D.C. The contract was a no-risk one for PGW in that the fee arrangement was a maximum of 20% contingency. The firm performed a comprehensive overview of PGW's historical coverage and then approached six insurers (or their successor entities) demanding payment. To date, five insurers have settled for a total recovery of approximately \$18 million, with the law firms getting slightly over \$3.1 million and PGW retaining the balance of approximately \$15 million. PGW has been using these funds to engage in environmental remediation of its former manufactured gas plant sites. PGW currently has third-party environmental coverage through its excess liability policies.

Workers' Compensation

PGW self-funds to its retention of \$500,000 per accident/injury/occupational disease (regardless of the number of employees injured in the accident). The first layer of excess workers' compensation (excess of retention up to \$35 million) is through AEGIS. The second layer of excess workers' compensation is through Zurich American, has no limits, and will pay whatever PGW's outstanding obligations are under the Pennsylvania Worker's Compensation Act (known as statutory limits). In the 1990s, PGW was losing cases. In the past, during the early 2000s, PGW paid \$10,000 to \$12,000 in claims per week for former employees still receiving benefits. After aggressively settling and/or winning, by late 2007, PGW was down to approximately \$6,000 to \$8,000 per week (and actuarial analyses show a downward trend). After actions were taken, PGW had two 2005 claims outstanding, two 2006 claims outstanding, and 14 2007 claims outstanding. PGW's third-party administrator (TPA) is CompServices, Inc. (a wholly-owned subsidiary of Blue Cross).

With regard to workers' compensation claims, PGW management indicates that several factors contribute to PGW's workers' compensation claims. Currently, such claims are primarily strains and sprains for most new injuries, followed closely by slips and falls. Contributing factors include:

- ◆ Heavy nature of field service work (Operations employees make up the bulk of PGW's injured employees.)
- ◆ Nature of the work environment (Poor conditions of customer housing—because many of PGW's customers live in poverty, their houses may be run down and in dangerous conditions.)
- ◆ Motor vehicle accidents (Philadelphia has a large proportion of unlicensed and uninsured drivers.)
- ◆ PGW's aging workforce (77% of PGW's employees are over 40 years old; this group has experienced the bulk of work injuries and has also been responsible for the bulk of costs associated with these injuries.)

The various PGW departments are now working together to make sure they are aligned with regard to new WC cases and are attempting to consistently follow PGW's policies. The following groups meet monthly to review all cases greater than 30 days out or longstanding long-term disability (LTD) cases:

- ◆ Human Resources

- ◆ Organizational Development
- ◆ Risk Management
- ◆ Corporate Preparedness
- ◆ Medical
- ◆ Operations

This group focuses on workers' compensation, loss control, and absence control activities. With regard to PGW's back-to-work program, refer to *Chapter II – Executive Management & HR* for details. PGW also works with its unions to put effective language in its union contracts to assist management in controlling the amount of uncontrolled absences/losses. Additionally, PGW has basically eliminated the effects of “waffle checks” to employees. A “waffle check” is PGW parlance for the partial disability benefit paid through the workers' compensation system to employees who have returned to work following an injury, yet have some lingering restrictions. A partial disability benefit was long mandated by the Pennsylvania Workers' Compensation Act to compensate an injured worker for lost overtime due to a work injury. However, the law became the source of abuse because the injured worker received the same benefit whether or not there would have actually been overtime available had s/he been able to work to full capacity. Organizations with high seasonal overtime—like PGW—were particularly subject to this abuse. In 1997, the Pennsylvania legislature amended the Workers' Compensation Act to remove this inequity by mandating that the partial disability benefit would not be due if the result would be that the injured worker took home more in wages and workers' compensation than did a similar employee working in the same job. In 2001, as part of an overall effort to reform PGW's workers' compensation program, the Risk Management Department designed and implemented a plan to change the “waffle” calculation in accordance with the law. Essentially, the system was modified to include a comparison of the injured worker's combination of workers' compensation and wages. Under the system, if the total is less than or equal to what fellow workers in the same job title earned that week, the worker receives the same partial benefit s/he would have received before the act changed, because there would be no inequity. If the total is greater, however, then the worker receives only enough of a partial benefit to bring him or her up to the same wage level that week as his or her fellow employees. The calculation is done on a weekly basis to reflect the actual availability of overtime as a means of making the process fair. PGW has yielded some savings, although such savings are difficult to calculate with specificity given the variables.

In 1997, PGW paid \$350,000 in waffle checks; now they pay roughly \$115,000 annually. More importantly, the change in the process removed a disincentive to bring employees back to work on light duty. Previously, some PGW employees expressed resentment that an injured worker was being paid more than fellow employees working the same hours. Some used this resentment to lobby against an aggressive light-duty program, arguing that the downside outweighed the benefit. This barrier has been removed, with injured workers still receiving a fair benefit for their true lost wages but not a form of injury bonus. (See *Chapter II – Executive Management, External Relations, & Human Resources* for additional discussion about light-duty/return-to-work activities at PGW.)



In May–June 2007, AEGIS Insurance Services performed a risk assessment of the natural gas operations at PGW. The assessment’s purpose was to provide AEGIS Insurance Services’ Underwriting Division with additional information concerning the operating practices and condition of PGW’s system. As a result, the Underwriting Division could facilitate an enhanced evaluation of PGW’s general liability risk exposure and loss control practices and procedures to underwrite insurance risks on behalf of its principal, AEGIS.

As part of its loss control activities, PGW also does training such as safe driving (defensive) training. PGW’s policies state that employees who no longer have driver’s licenses are supposed to report that fact to management. Every month, PGW gets a monthly report from the City that allows verification from PennDOT that all PGW drivers have valid licenses. If an employee hasn’t told PGW that he or she has lost his or her license, then he or she can be fired. Also, when an individual is hired, PGW reviews his or her 10-year history of vehicle driving records. The Managers’ Safety Committee reviews all preventable motor vehicle accidents which uses the American Gas Association (AGA) definition as follows: “any motor vehicle accident where the operator of the vehicle failed to do everything reasonable to avoid the accident.” Each month the Director of Safety consults with Risk Management personnel to review the previous months’ accidents. Documents reviewed include the Form 119 (claims reporting), employee statements, police reports, witness information, input from the employee’s departmental supervision, and any other available investigatory data. Following this review, the Director of Safety makes the determination as to whether the accident was preventable. At the next Managers’ Safety Committee meeting, the Director of Safety will then discuss specific cases as warranted, review overall accidents statistics, and identify any trends. Also, drug testing at the PGW Medical office occurs when the driver is or is possibly at fault. (The Managers’ Safety Committee provides managerial input and recommendations for PGW safety programs, helps set safety goals and objectives, exchanges information among departments, and assures the quality of the programs, includes management, supervision and safety coordinators from the Operations, Operations Support, Customer Services, Medical, Chemical Services, and Safety Departments.) (Other types of safety training are discussed in *Chapter II – Executive Management & HR.*)

Other loss control activities performed by the Risk Management Department include:

- ◆ Participation on the Claims & Litigation Committee, which meets monthly, involving the Risk Management, Finance, Legal, and Operations departments; this committee reviews all litigation, provides settlement authority, reviews reserves, and works with the Operations Department to identify loss reduction initiatives based on adverse claims experience.
- ◆ Implementation of an automated process for assessment and follow up regarding paving jobs, which can lead to slip/fall cases
- ◆ Teaching at Distribution school

For example, after a number of slip/fall cases, the Operations Department changed its in-house process for assigning and tracking paving work. Also, the Risk Management Department began annual training

of Distribution foremen and supervisors to alert them to the impact of their work on suits and claims against PGW and to educate them on ways to reduce the frequency and severity of such claims.

According to PGW management, loss control expenses cannot easily be broken out between workers' compensation and liability; however, PGW has attempted to do so in *Exhibit III-52*.

Exhibit III-52
Estimated Loss Control Expenses
FY2003 to FY2007

Line of Coverage	Total Losses	Expenses	%
Workers' Compensation	\$2,665,730	\$242,278	9.1%
Excess Liability	\$502,428	\$228,278	45.4%

Source: Information Responses 601

Efforts to reduce the frequency of automobile accidents will ideally yield reductions in both areas. Additionally, much of the work in these areas is done at no cost, both in-house and throughout PGW, thereby making accurate breakouts extremely difficult. PGW also receives free loss control services through its energy industry mutual, AEGIS.

Major Processes and Systems

Processes

The Risk Management Department has done no formal insurance studies in the last five years, but the following process is used to: (a) evaluate insurance companies for reliability, promptness of payment, and cost-effectiveness and (b) perform management analyses of alternatives and preferred approaches. Since 1999, PGW has received broker services from Marsh, the nation's largest insurance broker, which it believes provides the best and most current information about carriers as well as significant leverage when disputes arise with individual carriers. Marsh monitors the financial solvency of insurance companies and advises PGW of any decline in insurers' ratings. Marsh's standards mean that the insurance broker places coverage only with companies possessing an A.M. Best rating of at least A- and an unencumbered policyholders' surplus of \$50 million. This latter stipulation corresponds to an A.M. Best financial size category (FSC) of VII (\$25 million to \$50 million in adjusted policyholders' surplus). Marsh also provides annual benchmarking studies that provide costs for similar organizations.

PGW monitors insurance market conditions and, when appropriate, competitively markets the insurance policies to alternative carriers and restructures programs as necessary to achieve the most cost-effective program. Each year, the Risk Management Department meets with Marsh in advance of PGW's renewal to discuss strategy, including whether and to whom to market. Much of PGW's excess liability and workers' compensation coverage (as well as a percentage of its property coverage) is provided through two energy industry mutuals. According to PGW management, those mutuals' pricing, particularly in the market following September 11, 2001, has traditionally been more favorable

for PGW. Moreover, their coverage is also considered broader: For example, the industry mutuals provide pollution coverage along with their excess liability coverage, which most carriers do not. That said, PGW has periodically gone out to market those lines of coverage to ensure that the mutuals continue to provide the best pricing and terms, most recently in 2007 for excess liability and each year over the last several years for property.

The Risk Management Department provides an ongoing evaluation of PGW's insurance needs. Recently, PGW increased its self-insured retention for excess liability after analysis revealed that the premium savings outweighed the additional risk. Additionally, the department is currently exploring the purchase of cyber liability coverage as well as some additional first-party environmental coverage.

With regard to formal policies and procedures, the Risk Management Department has issued documentation regarding reporting on duty injuries (#796), reporting accidents involving company-issued vehicles (#797), reporting damage to public or private property (#798), and reporting public personal injuries (#799).

Systems

In October 2003, the Risk Management Department began using the RiskMaster® package for tracking and monitoring liability claims. Data from 1991–2003 was converted to RiskMaster®. Once implemented, the Legal and Safety departments also began using RiskMaster® and looking at the same data. Workers' compensation claims are handled through PGW's third-party administrator and are not tracked through RiskMaster®. Scanning is done on a case-by-case basis into RiskMaster® for items such as complaints and pictures. Each month, the Risk Management Department runs a report showing the assessment of injury and damage cases, and several times a year it provides that report to Finance as part of an overall reserve and cost analysis. An upgrade to the Internet-based version of RiskMaster® had been pushed back, because the Information Services (IS) Department had to complete its Oracle upgrade before the RiskMaster® upgrade could happen. The Oracle upgrade was scheduled for 2008. The Risk Management Department is taking steps to obtain the RiskMaster® upgrade, ideally by the end of third quarter FY2009. Use of the Internet with RiskMaster® will allow PGW staff to access RiskMaster® from any computer, instead of having to install the system on individual machines with every new user. Also, the field staff also is expected to have RiskMaster® Internet access before the end of FY2009. Form 119 will be done electronically, making transfers to the Risk Management Department easier. Enhanced report writing will also be available once the upgrade occurs. Meanwhile, the Risk Management Department is preparing for implementation of labor and employment cases using RiskMaster®.

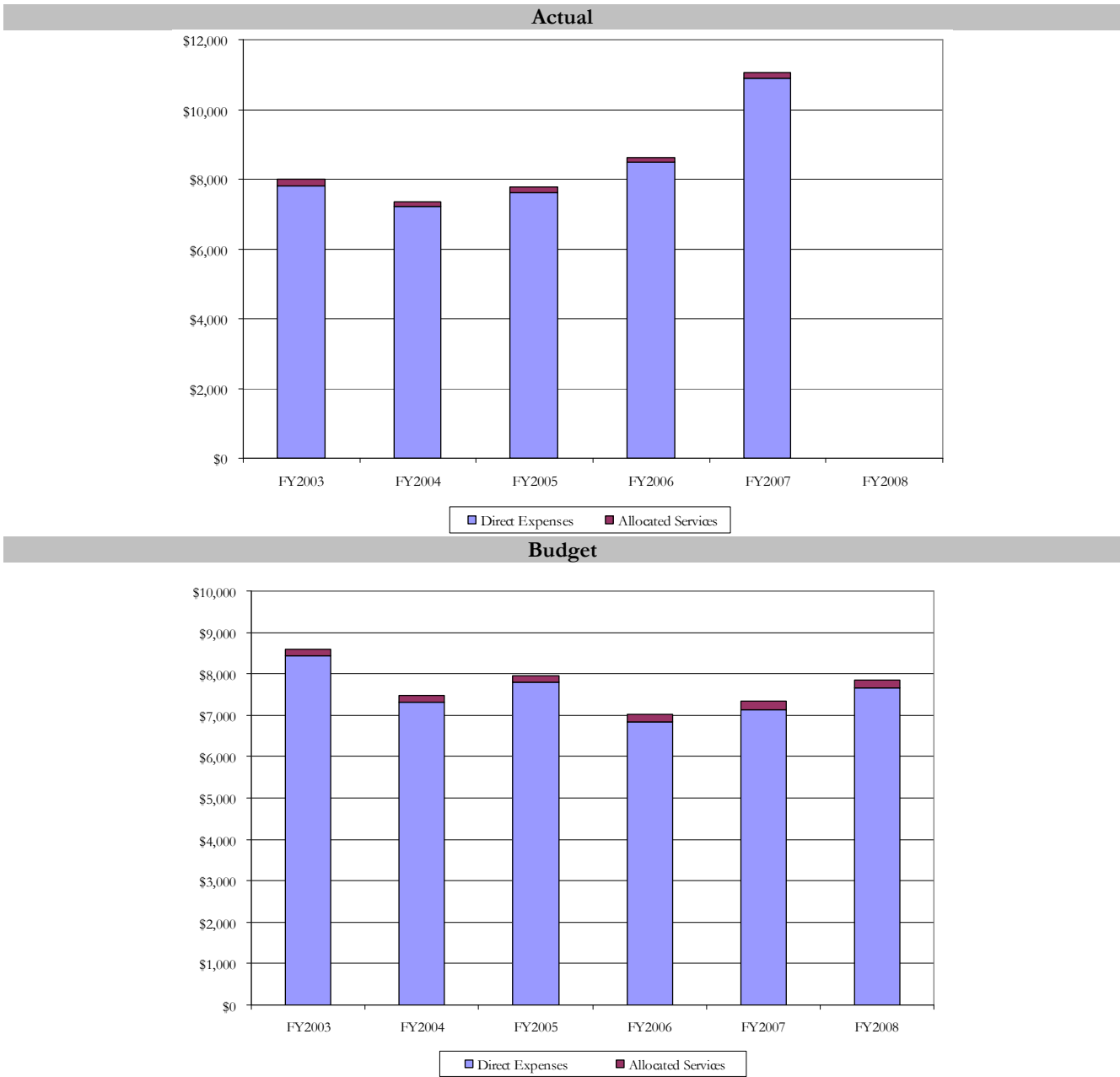
Because the City of Philadelphia and PECO Energy also use RiskMaster®, PGW is able to informally network with both these groups to support the software package.

Operating Expenses

Exhibit III-53 displays operating expenses (direct Risk Management expenses versus expenses for allocated services from other PGW departments for FY2003 to FY2007 (actual to budget)) for the Risk Management Department, plus the FY2008 budget (FY2008 actual not completed at time of audit). Budgeted expenses generally trended downward from FY2003 to FY2006 but have been gradually increasing since FY2006. On the other hand, actual expenses have generally been increasing since FY2004. In FY2006 and FY2007, PGW's actual expenses were greater than its budgeted expenses. In both years PGW's actual appropriations to reserves were greater than its budget for this line item. In FY2007 actual insurance costs were also greater than budget for this line item, although some casualty coverage expires with the end of the fiscal year and PGW made a payment in FY2007 for FY2008 coverage.



**Exhibit III-53
Risk Management Operating Expenses
(\$ Thousands)
FY2003 to FY2008**



Source: Information Response 598

The major operating expense components are labor, purchased services, insurance, and appropriation to reserve, as shown in *Exhibit III-54*. From FY2003 to FY2007, labor has been increasing, purchased services have been decreasing, insurance has been relatively stable since FY2003, and appropriations to

reserve have been increasing. The expenses for allocated services, a relatively small component of Risk Management's overall operating expenses, have remained fairly stable from FY2003 to FY2007.

Exhibit III-54
Risk Management Operating Expenses
(\$ Thousands)
FY2003 to FY2008

Actual						
	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
Direct Expenses						
Labor Total	\$334	\$327	\$343	\$351	\$395	
Expense of Employees	\$0	\$2	\$1	\$1	\$2	
General Material	\$2	\$4	\$2	\$3	\$4	
Postage	\$1	\$1	\$0	\$1	\$0	
Dues & Subscriptions	\$1	\$1	\$0	\$1	\$1	
Purchased Services	\$851	\$804	\$821	\$696	\$636	
Insurance	\$4,097	\$3,435	\$3,435	\$3,509	\$5,522	
Equipment Rentals & Leasing	\$2	\$2	\$10	\$6	\$6	
Appropriation to Reserve	\$2,533	\$2,635	\$3,000	\$3,898	\$4,155	
Maintenance of Software	\$0	\$0	\$0	\$19	\$0	
Direct Expenses	\$7,821	\$7,211	\$7,612	\$8,485	\$10,721	
Allocated Services						
Building Services	\$63	\$55	\$58	\$53	\$77	
Information Systems	\$91	\$81	\$87	\$83	\$89	
Office Services	\$15	\$15	\$12	\$11	\$9	
Telecommunications	\$0	\$0	\$0	\$0	\$0	
Allocated Services	\$169	\$151	\$157	\$147	\$175	
Total Expenses	\$7,990	\$7,362	\$7,769	\$8,632	\$10,896	\$0
Budget						
	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
Direct Expenses						
Labor Total	\$331	\$342	\$342	\$360	\$341	\$401
Expense of Employees	\$4	\$3	\$3	\$3	\$3	\$3
General Material	\$2	\$2	\$2	\$2	\$2	\$2
Postage	\$2	\$2	\$2	\$1	\$1	\$1
Dues & Subscriptions	\$2	\$2	\$2	\$1	\$1	\$1
Purchased Services	\$813	\$699	\$815	\$795	\$750	\$781
Insurance	\$4,636	\$3,621	\$4,090	\$3,550	\$3,757	\$3,948
Equipment Rentals & Leasing	\$2	\$2	\$2	\$2	\$4	\$4
Appropriation to Reserve	\$2,634	\$2,632	\$2,518	\$2,116	\$2,257	\$2,503
Maintenance of Software	\$0	\$0	\$18	\$18	\$19	\$19
Direct Expenses	\$8,426	\$7,305	\$7,794	\$6,848	\$7,135	\$7,663
Allocated Services						
Building Services	\$66	\$57	\$58	\$62	\$92	\$77
Information Systems	\$82	\$91	\$94	\$91	\$98	\$90
Office Services	\$6	\$0	\$12	\$12	\$10	\$9
Telecommunications	\$14	\$16	\$1	\$1	\$1	\$1
Transportation Services	\$4	\$1				
Allocated Services	\$172	\$165	\$165	\$166	\$201	\$177
Total Expenses	\$8,598	\$7,470	\$7,959	\$7,014	\$7,336	\$7,840

* The FY2007 insurance did not actually go over budget. Some casualty coverage expires with the fiscal year and PGW made the payment in FY2007 for FY2008 coverage. The total premiums for the coverage purchased were under budget.
Source: Information Response 598



Another way to review Risk Management's operating expenses is to consider not only the administrative and external expenses of the Risk Management Department, but also to include these expenses for other PGW departments involved in providing risk management activities. *Exhibit III-55* illustrates those expenses in dollars and as a percentage of coverage by line of coverage.

Exhibit III-55
Annual Insurance-Related Administrative and External Services Expense as a % of Insurance Coverage
FY2007

	Limits	Expenses	%
Excess Liability	\$210,000,000	\$356,102	0.2%
Excess Workers' Compensation	\$35,000,000	\$744,251	2.1%
Professional Liability	\$10,000,000	\$69,500	0.7%
Property	\$250,000,000	\$166,125	0.1%
Fiduciary & Employee Benefit Liability	\$35,000,000	\$69,500	0.2%
Excess Fiduciary & Employee Benefit Liability	\$25,000,000	\$69,500	0.3%
Directors & Officers Liability	\$10,000,000	\$69,500	0.7%
Crime	\$5,000,000	\$69,500	1.4%

This chart was done by applying the Marsh fee and all general liability expenses to the excess liability limits, and the workers' compensation expenses to the excess workers' compensation limits. However, because PGW has statutory limits for workers' compensation (meaning no finite limit, but everything that could be required to be paid under the statute), the chart used only the first layer of excess coverage, \$35 million.

Source: Information Responses 164 and 600

Findings & Conclusions

Finding III-47 **PGW's enterprise risk management program is still in its infancy.**

In early 2007, Pricewaterhouse Coopers, LLC (PwC) performed an assessment of PGW's readiness for an enterprise-wide risk management program. Since then, PGW has been compiling its risk inventory, which has been coordinated by the Risk Management Director. As of early 2008, the Risk Management Director and PGW's President were ranking those risks, with input from senior vice presidents and vice presidents. It is also discussed in Finance's quarterly internal control meetings.

The next phase is to set goals and formalize action plans, after which the Risk Management Director will monitor these plans on a monthly basis. Specific activities include combining the existing risk inventory list into PGW's Strategic Focused Organization (SFO) structure (discussed in *Chapter II – Executive Management, External Relations, & Human Resources*), ranking the SFO's 13 major risk categories, and developing action plans. The structure divides risks into 13 overarching risks, which are to be ranked and weighted for a total of 100%. The details of this next phase are still being developed and a formal proposal is expected to be presented to PGW's Board (PFMC) by the middle of 2008.

According to PGW management, progress in 2008 has been slowed down. That is because the Risk Management Department has also been given the task of identifying all of PGW's external reporting requirements and incorporating this information into the ERM program activities.

Recommendations

Recommendation III-43 Formalize and enhance PGW's ERM program. (Refer to Finding III-47.)

Enterprise risk management has been defined as a process, brought about by an entity's Board of Directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within the risk appetite, so as to provide reasonable assurance regarding the achievement of the entity's objectives." PGW has begun by developing an initial risk inventory list, but that strategy alone does not constitute an ERM program. PGW must now dedicate the time and resources to formalize its ERM policies, processes, and practices such that the endeavor is an ongoing and regularly scheduled set of program activities. For ERM to create value, it must be embedded in and connected directly to PGW's strategic planning efforts. As PGW management evaluates strategic alternatives that are designed to reach its performance goals, it must also include related risk across each alternative in that evaluation process. Doing so will allow PGW to determine whether the potential returns are commensurate with the associated risk that each alternative brings—and to ensure that risks it takes are within its stakeholders' appetite for risk.

PGW should develop a detailed plan for taking the next steps in fully developing its ERM program. It may also wish to create a formal committee that will work closely with the Risk Management Director in taking the next steps and in folding ERM into the strategic planning process.

F. Legal Services

This section provides a discussion of Philadelphia Gas Works' (PGW's) legal services.

Background & Perspective

Goals & Objectives

The goals and objectives of the Legal Department are to:

- ◆ Provide vigorous and successful advocacy of PGW's interests in litigation and pre-litigation matters



- ◆ Aggressively defend PGW in liability cases
- ◆ Help PGW balance business interests with municipal requirements
- ◆ Protect and maximize PGW's corporate and financial interests in the negotiation and consummation of all contractual, commercial, financial, and real estate transactions
- ◆ Enhance and support PGW's collections efforts
- ◆ Support the business risk and exposure analyses
- ◆ Provide guidance and advice regarding ethics matters
- ◆ Provide guidance and advocacy with respect to regulatory matters, including matters that involve the Pennsylvania Public Utility Commission (PaPUC), Philadelphia Gas Commission (PGC), the City of Philadelphia (as owner and regulator), and other regulatory bodies
- ◆ Provide sound and practical legal advice to the Board and PGW's management team

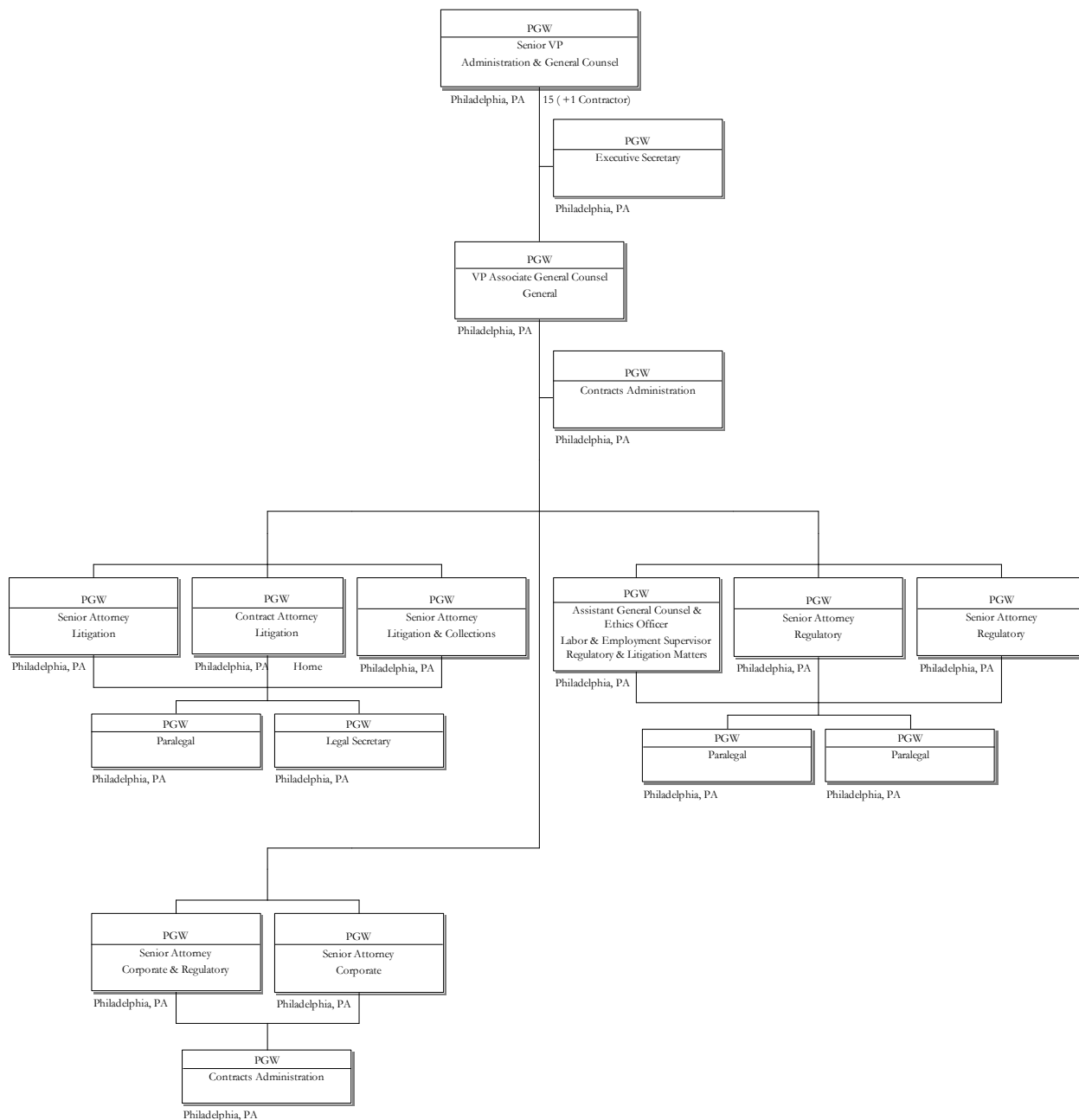
The Legal Department's plan in accomplishing these goals and objectives is to:

- ◆ Maximize the use of in-house counsel that is familiar with PGW's business, practices, and history, whenever possible
- ◆ Effectively partner with outside counsel when necessary
- ◆ Maintain an open-door, informal relationship with PGW management employees

Organization & Staffing

The PGW Legal organization, as shown in *Exhibit III-56*, is headed by the Senior Vice President (SVP) Administration and General Counsel (GC).

**Exhibit III-56
PGW Legal Organization
as of December 31, 2007**



Source: Information Response 1

The Legal organization has positions for 10 attorneys, including the General Counsel, the Associate General Counsel, the Assistant General Counsel and Ethics Officer, six senior attorneys, and one

contract attorney, plus six support staff (three paralegals, one legal secretary, one executive secretary, and one contracts administrator). As of December 31, 2007, one of the paralegal positions was vacant.

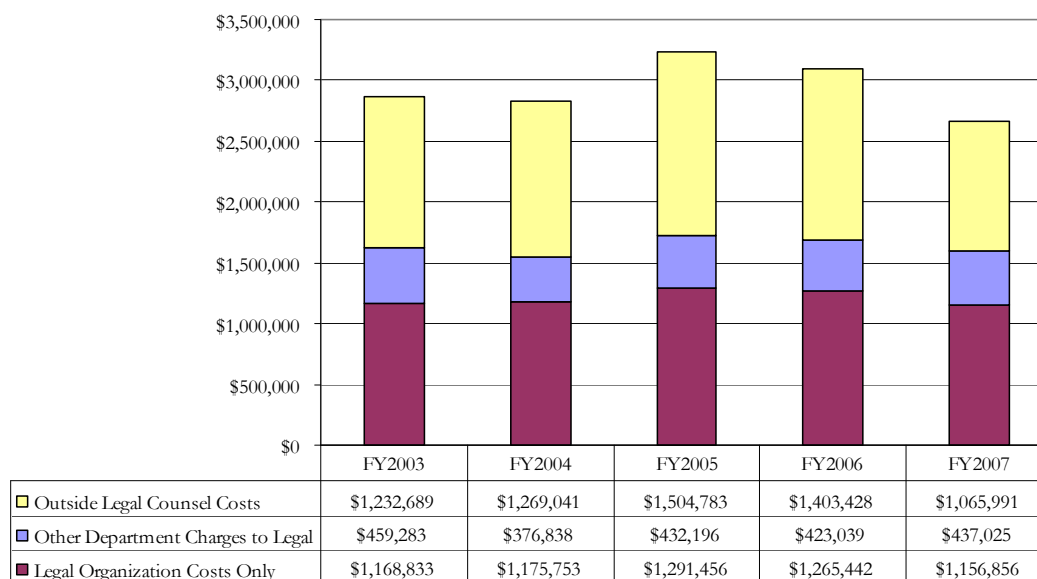
The SVP/GC joined PGW in 1998 from the City of Philadelphia Legal organization to assist the PGW CEO in establishing the senior management team. The SVP/GC reports to the Chief Operating Officer (COO) with dotted line responsibility to the CEO. Since 2005, in addition to the Legal organization, the Organizational Development (OD) and Human Resources (HR) organizations report to the SVP/GC. These responsibilities were added based on the legal connections that HR requires. (See *Chapter II – Executive Management & HR* for a detailed discussion of these functions.) The Risk Management organization (discussed in Chapter III – Support Services) and the Compliance, Technical, & Business Transformation organization also report to the SVP/GC.

In 1998, PGW had four attorneys and relied primarily on outside counsel for legal services and had a six-week backlog of work. After coming to PGW and establishing an organization, the SVP/GC has been increasing the use of internal counsel. (Several of the attorneys in the PGW Legal organization also came from the City's Legal organization.) This internal dependence excludes peak loads and specialty work, such as regulatory/rate case (Wolf Block) and employment cases (when a conflict of interest occurs). (Legal management believes this approach has been particularly cost effective in prosecuting small claims.) When needed, all outside counsel firms are obtained through the City's request for proposal (RFP) process. Other parts of the PGW organization are not permitted to hire outside counsel; only PGW's Legal organization is authorized to do so.

Expenditures

Exhibit III-57 displays PGW's legal operating costs, including internal Legal organization costs only, costs charged to the Legal organization from other PGW departments, and outside legal counsel costs, for FY2003 to FY2007.

**Exhibit III-57
PGW Legal Operating Costs
FY2003 to FY2007**



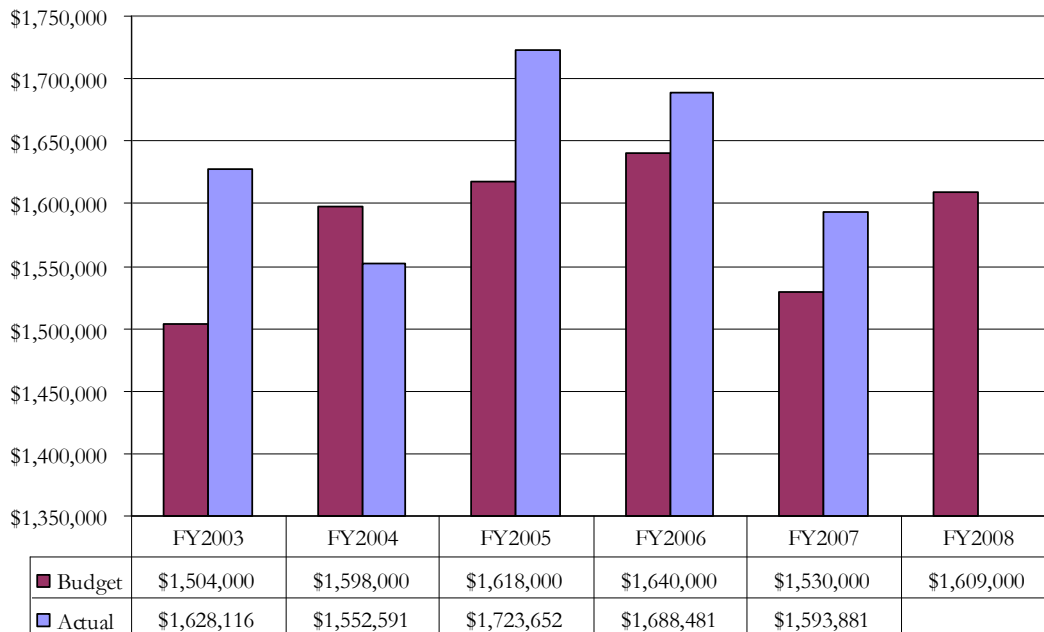
Source: Information Responses 167 and 396

According to Legal management, since 1998, the quality of legal work has improved while legal operating costs have gone down. Specifically, external counsel costs have been reduced from approximately \$3.5 million in FY1998 to \$1.0 million in FY2007 (as shown in *Exhibit III-60*). Meanwhile, internal counsel costs have increased from approximately \$0.5 million in FY1998 to approximately \$1.6 million in FY2007 (shown in *Exhibit III-58*), which is substantially less than the \$2.5 million decrease in external costs.



Exhibit III-58 illustrates fiscal year (FY) actual operating costs (excluding outside counsel costs) for FY2003 to FY2007, with FY2008's budget also shown. Although actual expenses have generally exceeded budgeted expenses over this time period, the variances have been small (between 3% and 8% of budget) and primarily personnel-related. The use of purchased services (contract staff) to supplement employees has fluctuated based on temporary workflow needs and available staffing levels. Salary increases have tended to trend Legal's budgeted amounts upwards.

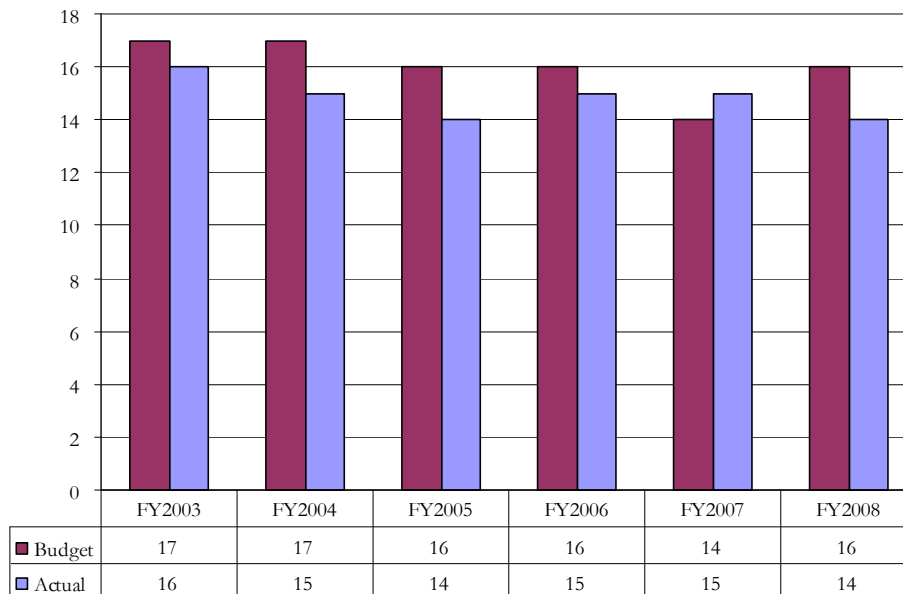
Exhibit III-58
PGW Internal Legal Operating Costs
2003 to 2007 (Actual)/2003 to 2008 (Budget)



Source: Information Response 396

Exhibit III-59 illustrates a breakdown of actual (average) and budget Legal staffing levels for FY2003 to FY2008. While the Legal organization has generally been above its budget with regard to costs, it has been due, in part, to generally being below its budgeted staffing levels and causing it to use more purchased services than anticipated. Legal management believes that due to market forces, it has been generally difficult to maintain a complete roster of personnel at all times during budget years.

Exhibit III-59
Legal Staffing Levels
2003 to 2008



Source: Information Response 396

Exhibit III-60 displays the detail, by category, for PGW's outside legal costs for the FY2003 to FY2007 time period.

Exhibit III-60
Summary of PGW Outside Legal Counsel Costs
2003 to 2007

Category	FY2003	FY2004	FY2005	FY2006	FY2007
Authority Legislation	\$0	\$0	\$0	\$182,499	\$0
Bankruptcy	\$2,528	\$7,830	\$7,455	\$9,049	\$1,723
Claims	\$0	\$180,375	\$192,589	\$96,650	\$82,580
Collections	\$0	\$10,260	\$0	\$7,875	\$0
Criminal	\$13,816	\$4,450	\$7,100	\$0	\$0
Environmental	\$0	\$96,648	\$183,955	\$30,909	\$23,819
Labor	\$33,802	\$0	\$0	\$0	\$16,934
Labor/Employment	\$32,917	\$82,511	\$191,402	\$207,253	\$148,578
LNG	\$0	\$72,882	\$202,758	\$150,532	\$0
Merger/FERC	\$43,020	\$102,933	\$222,968	\$329,330	\$144,763
Miscellaneous	\$123,834	\$0	\$0	\$0	\$0
Pension	\$5,000	\$0	\$0	\$0	\$0
Regulatory	\$67,689	\$553,959	\$364,652	\$288,204	\$518,796
Regulatory/Employee Benefits	\$482,599	\$0	\$0	\$0	\$0
Special Litigation	\$97,324	\$0	\$0	\$0	\$0
Tort Litigation	\$88,770	\$0	\$0	\$0	\$0
Workers' Compensation	\$241,390	\$157,193	\$131,903	\$101,127	\$128,798
Total Outside Legal Counsel Costs	\$1,232,689	\$1,269,041	\$1,504,782	\$1,403,428	\$1,065,991

Source: Information Response 167

As a City of Philadelphia asset and therefore subject to City requirements, external legal firms must offer discounted rates that are the lower of the City's standard rates (shown in *Exhibit III-61*) or 80% of the external counsel's regular rates. For example, if a partner with less than five years of experience regularly bills at \$240/hour, then PGW pays only \$192/hour (80% x \$240 = \$192), not \$200/hour as shown in *Exhibit III-61*.

Exhibit III-61
City/PGW Standard Attorney Rates
as of December 31, 2007

Type	# Years' Experience	Hourly Rate
Partner	≥ 5	\$225
	< 5	\$200
Associate	≥ 5	\$170
	< 5	\$155

Source: Interview 8 (Update of Information Response 393)

Based on its informal monitoring of the marketplace, PGW Legal management considers these rates to be generally low. However, Legal management does not believe the low rates to be a major issue at this time. This assessment is largely due to the fact that PGW currently uses external counsel to a lesser extent than in prior years (approximately \$1 million in FY2007). Despite relatively low rates, Legal management is generally satisfied with the quality of services provided by external counsel firms.

Exhibit III-62 lists the existing external counsel firms under contract with PGW for legal services, including the type of services they provide PGW and the FY2008 not-to-exceed (NTE) contract amounts (totaling approximately \$1.4 million).

Exhibit III-62
Existing External Counsel Firms under Contract
as of December 31, 2007

Firm	Type of Services Provided	FY2008 NTE
Duca & Prim	Workers' Compensation	\$6,000
Naulty, Scaricamazza & McDevitt	Workers' Compensation	\$45,000
Sand & Saidel	Workers' Compensation	\$5,000
Denise Smyler	Workers' Compensation	\$10,000
Mitchell/Gallagher	Workers' Compensation	\$7,000
Schaff & Young	Workers' Compensation	\$45,000
Grant & Lebowitz	Employment	\$100,000
Ballard Spahr	Employment/Miscellaneous	\$100,000
Cozen O'Connor	Employment	\$60,000
Colette Pete	Claims	\$90,000
Andre Dasent	Regulatory	\$150,000
Wolf, Block	Regulatory	\$380,000
Klehr Harrison	Bankruptcy	\$10,000
McCarthy Sweeney	Federal Energy Regulatory Commission	\$130,000
Manko	Environmental	\$250,000
Eisenstein Malanchuk (with Mattioni Ltd.)	Environmental Insurance Recovery	Unknown; depends on recovery amounts.*

* Firm has thus far received \$3,003,250 (a blended rate of 17.6%) for a net amount to PGW of \$14,035,552.
Source: Information Response 394

Management Synopsis of Current Cases

In November 2007, the Legal organization had approximately 92 active civil action cases pending in which PGW was a party. (There were 11 additional cases in which the court had granted judgment in favor of PGW and PGW was, or would be, pursuing satisfaction of these judgments.) Of these, PGW was the plaintiff in 13 cases and the defendant in 79 cases. The cases in which PGW was the plaintiff



typically involved claims for damage to PGW property. The overwhelming majority of cases in which PGW was a defendant were negligence lawsuits arising from falls into trenches, trips allegedly caused by PGW sidewalk fixtures, and, to a far lesser extent, vehicle accidents. In November 2007 PGW was also the defendant in one class action lawsuit (seeking damages on behalf of customers whose homes may have suffered mercury spills when mercury gas regulators were removed from their homes), one disability discrimination lawsuit, and one Fair Credit Reporting Act lawsuit.

Additionally, there were 21 bankruptcy cases in which PGW was actively involved as a creditor, 152 active PaPUC formal consumer complaints in which PGW was the respondent, five PaPUC administrative proceedings involving construction, one PaPUC rate case, one PaPUC case in which PGW was seeking declaratory relief, and seven unemployment compensation cases.

Additionally, PGW had 22 active workers' compensation cases in litigation, down from 48 in December 2003. From FY2001 to FY2008 (November 2007), workers' compensation claims had dropped from 212 open cases to 70 open cases. (PGW has engaged in a settlement initiative to rid itself of old cases, aggressively seeking to suspend or terminate benefits where appropriate.) Over the last two years, PGW has settled 11 longstanding workers' compensation cases for \$971,000, yielding \$980,000 in savings. PGW has also initiated successful criminal prosecution against two former PGW employees for workers' compensation fraud, with restitution rewarded in the amount of \$50,000.

Additionally, PGW worked on or completed 39 contracts in November 2007 and six RFPs/request for quotes (RFQs), as well as other commercial counseling matters.

Major Processes and Systems

Processes

Each month, the Associate GC provides a report to the Legal Senior VP and General Counsel. This report summarizes issues and actions for commercial law, litigation, and regulatory affairs categories, in addition to providing data charts for recurring work categories.

Starting in FY2007 (9/06–8/07, which is the first fiscal year following enactment of Section 17-1400 of the Philadelphia Code (often called the City's pay-2-play ordinance), which requires public website posting of professional contracting opportunities over \$25,000), PGW began issuing RFPs for external counsel firms. Typically, RFPs are issued only for new categories of legal services or when existing contracts with acceptable providers expire. In FY2007, Legal issued an RFP for regulatory matters. (PGW may also issue an RFP for a specific project involving legal services, if appropriate). Contracts are for one year with the option for three one-year renewals. Although PGW is bound by standard billing rates, it attempts to allow proposers to provide "creative" proposals when pricing services.

Taking the lowest proposal cost is not required. Instead, the selection of professional legal services is based on value for services provided. The "value" is generally based on criteria that typically include factors such as years of experience, reputation in community, and similarity of background to provide

services requested. All contracts for outside counsel work are passed through the SVP/GC to the Philadelphia Facilities Management Corporation (PFMC) Board and finally to the City Solicitor, who has final signoff. The City Solicitor (usually a partner from a Philadelphia law firm) is often rotated every two years or so.

A Competitive Contracts Committee meets briefly on a weekly basis to review all potential professional services contracts, including legal work, to make sure the proper procurement procedures are being followed. (Contracts expected to be greater than \$25,000 must go through a formal proposal process that is administered by the PGW Procurement organization.) PGW users who wish to issue an RFP explain what they need. (Prior documentation is made available to committee members.) Committee members include:

- ◆ General Counsel
- ◆ Associate General Counsel
- ◆ Contracts Administrator
- ◆ All other attorneys in the Legal organization who practice commercial law
- ◆ Procurement
- ◆ HR
- ◆ Risk Management
- ◆ Security
- ◆ Information Services
- ◆ Liquefied Natural Gas (LNG) Plant Manager
- ◆ Finance

The Contracts Administrator keeps a list of all items before the committee, although the assigned attorney and the associated user department are responsible for monitoring the progress of an item.

Systems

Among the systems used by the Legal organization are:

- ◆ A Microsoft Access contract management system (CMS) – In early 2007 the Legal organization investigated alternatives. However, Legal management decided that changing systems was not warranted, as any change would be too time consuming to implement and use given the Legal organization's general satisfaction with CMS.
- ◆ Electronic scanning of paper files in conjunction with CMS.
- ◆ RiskMaster®, a case management system for tort claims – Data entry is done by Risk Management employees, but data is shared with the Legal organization.
- ◆ An Epitome Systems database for tracking PaPUC complaints – Implementation of this database occurred in 2007.
- ◆ A database used on a project-by-project basis for gas cost recovery (GCR) data requests



- ◆ Microsoft applications, including Word, Excel, Access, and Outlook

Findings & Conclusions

Finding III-48 The Legal organization has concerns regarding the hiring and retention of Legal staff due to low salaries for attorneys and paralegals relative to the marketplace.

One of Legal's biggest concerns, especially going forward in time, is undermarket pay for attorneys and paralegals. Additionally, PGW management has expressed that undermarket pay is becoming a company-wide issue in that it may impact hiring and retention of talented professional staffs beyond attorneys and paralegals. In the early 2000s (for approximately five years), PGW was under a raise freeze. About two years ago, PGW was able to start giving 0% to 4% raises annually, depending on performance. There remains, however, a general mandate to keep costs down. Most PGW attorneys have substantial experience, usually at least 10 years' worth. According to Legal management, for example, major Philadelphia law firms pay considerably more for entry-level attorneys (no experience) than PGW pays its highly experienced attorneys. (Schumaker & Company's web research identified news articles, such as "More Associates' Salaries Are on the Rise," that confirmed Legal management's contention and, in fact, identified specific law firms where this tendency was the case.) Legal management indicates that to attract attorneys to PGW and keep them, it must focus primarily on lifestyle, work style, and dedication to public service, not pay. To do so, and to ensure that PGW makes offers to candidates who are willing to stay given PGW's salary structure, the entire Legal staff typically is involved in interviewing candidates. This interview process involves a considerable amount of time. Although Legal management has, in the past, been able to attract quality candidates who are willing to come to PGW given its pay structure, the organization is becoming increasingly concerned that, going forward, it will be experiencing great difficulty.

Recommendations

Recommendation III-44 Conduct a formal compensation study to evaluate marketplace salaries for attorneys and paralegals. (Refer to Finding III-48.)

It was beyond the scope of this audit to perform a detailed compensation study; however, the PGW Legal organization, in conjunction with the PGW Organizational Development organization, should perform a detailed compensation study for the Legal organization. If a disparity is identified, then analyses should be performed to identify the advantages and disadvantages of keeping attorney and paralegal salaries in their current ranges versus adjusting these ranges. Further, OD should consider periodic re-evaluation compensation studies for professional classes of employees to be proactive with respect to market-based attrition.

IV. Corporate Governance

This chapter addresses the corporate governance policies, practices, and procedures of Philadelphia Gas Works (PGW). Specifically, this chapter will review the makeup and activities of the Philadelphia Facilities Management Corporation (PFMC) and its Committees and the Philadelphia Gas Commission, Board interfaces with external and internal auditors and PGW senior management, and actions to comply with the requirements of local and state governance requirements. Although PGW is not required to abide by the Sarbanes-Oxley Act (SOX), the attendant Securities and Exchange Commission (SEC) rulemaking, or the governance requirements of the New York Stock Exchange (NYSE), we reviewed its applications of these requirements as they might appropriately apply to PGW.

A. Background and Perspective

Philadelphia Gas Works is subject to the governance authority of the Philadelphia Facilities Management Commission (PFMC), the Philadelphia Gas Commission (PGC), the Mayor of the City of Philadelphia (Mayor) and City Council (with the assistance of City departments such as the Controller and Solicitor), and the Pennsylvania Public Utility Commission (PaPUC). These roles are defined in the Management Agreement between the City of Philadelphia and the Philadelphia Facilities Management Corporation dated December 29, 1972 (Management Agreement). PGW governance is further defined through the Nonprofit Corporation Law (15Pa.C.S. 5101, et seq.), The Whistleblower Law (43 P.S. 1421 et seq.), and the Public Official and Employee Ethics Act (65 Pa.C.S. 1101 et seq.).

Exhibit IV-1 summarizes the major oversight responsibilities for PGW.



Exhibit IV-1
Oversight Responsibilities for Philadelphia Gas Works
as of December 31, 2007

Party	Responsibilities
The City of Philadelphia	Owns PGW assets
Philadelphia Facilities Management Corporation (PFMC)	Manages and operates PGW and its assets
Mayor	Appoints all members of PFMC Board of Directors (BOD)
City's Director of Finance	Appoints two members of the PGC Reviews PGW's capital budget and makes recommendations to City Council
City Solicitor	Approves PGW short-term loans and commercial paper financing for form and extent Legal advisor for both PGW and the PGC
City Council	Approves PGW capital budgets Appoints two members of the Gas Commission
City Controller	Approves PGW short-term loans and commercial paper financing Member of the PGC
Philadelphia Gas Commission (PGC)	May audit PGW's books Approves PGW's operating budget and forecast Reviews PGW's capital budget and makes recommendations to City Council Approves PGW's short-term loans and commercial paper financing Reviews PGW's gas purchase contracts and makes recommendations to City Council regarding approval Approves PGW's real estate acquisitions and makes recommendations to City Council regarding approval May audit PGW's books
Pennsylvania Public Utilities Commission (PaPUC)	Exercises powers not specifically granted to the PFMC in the Management Agreement Reviews and approves rates Resolves customer service disputes Approves changes to tariff Conducts financial and management audits of PGW Oversees PGW's adherence to federal pipeline safety regulations

Source: Information Response 431

Philadelphia Facilities Management Corporation (PFMC)

The Management Agreement is between the City of Philadelphia (City) and the PFMC, and was enacted as a series of City ordinances. The PFMC is a non-profit corporation (Company) that was organized in 1972 for the specific purpose of operating the Philadelphia Gas Works—a group of real and personal assets owned by the City. The Management Agreement broadly lays out management responsibilities of the PFMC such as the hiring of key management personnel; the production, purchase and delivery of gas; the setting of standards for gas and electricity (standards provided for in the General Terms and Conditions of tariffs on file with the Federal Energy Regulatory Commission, including testing quality and pressure of gas and the adequacy of testing apparatus and determining the total heating value of gas, the purity of gas (e.g., from sulfur and ammonia), gas pressure; financial management; and other items. Although mention is made in the Management Agreement of PGW having a Board of Directors, governance in this agreement rests with the Philadelphia Gas Commission, whose members are appointed by the Mayor and City Council and are aided by the City Solicitor and the City Director of Financial Control.

There are no internal PGW members on the Board. There are no other formal selection policies, practices, or criteria for members of the Board. What's more, there are no restrictions (e.g., retirement age, tenure, etc) for membership.

The PFMC Board has two committees: Finance and Audit. Neither of these committees has a charter to define its responsibilities and authority.

Philadelphia Gas Commission (PGC)

In addition, governance is also exercised by the Philadelphia Gas Commission. The PGC, governed by the Management Agreement Act, consists of five members: two members appointed by the Mayor, two members appointed by the City Council, and the City Controller. The PGC further oversees the operation of PGW, specifically approving PGW's annual operating budget and reviewing and making recommendations to City Council concerning PGW's capital budget. (As of July 2000, responsibility for rates and handling customer complaints was transferred to the Pennsylvania Public Utility Commission). Also, the PGC must approve the Chief Executive Officer (CEO), the Chief Operating Officer (COO), and the Chief Financial Officer (CFO) selected by the PFMC. The PGC also reviews and makes recommendations to City Council with respect to all PGW gas purchase contracts, and approves and makes recommendations to City Council with respect to all real estate acquisitions (including leases and easements).



Other Applicable Laws and Legislation

PFMC is bound by the Commonwealth of Pennsylvania's Nonprofit Corporation Law. In general, this law requires nonprofit corporations in Pennsylvania to be operated in a professional, responsible, legal, and ethical manner and, from a governance perspective, defines the basic roles and responsibilities of the PFMC Board of Directors.

The Natural Gas Competition Law gives the PaPUC broad jurisdiction over any natural gas public utility subject to its jurisdiction. This control includes authority over a gas utility's recovery of costs/tariffs, gas supply and transportation, affiliate relations, credit and collections, safety and reliability, conservation, financial fitness, rates, labor and employee issues, customer services and education, and metering, among other items.

PGW and PFMC are also bound by the Public Official and Employee Ethics Act, which generally prohibits conflicts of interest, seeking improper influence and receiving financial gain (contracts and otherwise) through position or employment, and by the Whistleblower Law, whereby employees are protected against discharge, discrimination, or retaliation when reporting ethical violations or wrongdoing to authorities.

PGW also interacts with the Pennsylvania State Ethics Commission regarding filing requirements for the financial disclosure forms and interpretation of the State Ethics Act. In addition, PGW consults with the Philadelphia Board of Ethics in developing and implementing PGW's Ethics Policy.

Publicly traded companies have long been subject to financial and disclosure laws and regulations (e.g., The Securities Exchange Act of 1934 and the Foreign Corrupt Practices Act, which among other things required companies to have internal controls). The financial and public business community at large has been active in strengthening corporate governance principles through efforts such as The National Commission on Fraudulent Financial Reporting (Treadway Commission/Report) and the General Accounting Office. In 1998, the NYSE and the National Association of Securities Dealers (NASD) sponsored a committee (known as the Blue Ribbon Committee) that developed recommendations to improve audit committees' effectiveness. Subsequently, the NYSE, the NASD, and the Securities and Exchange Commission revised listing standards and developed new rules concerning the corporate governance roles of the audit committees.

Nevertheless, recent events surrounding several spectacular company collapses (e.g., Enron in 2001, and WorldCom and Global Crossing in 2002) and the allegations of misdeeds by corporate executives, independent auditors, and other market participants have undermined investor confidence in the U.S. financial markets. In response, Congress passed, and the President signed into law, the Sarbanes-Oxley Act of 2002, which effected sweeping corporate disclosure and financial reporting reform. This act directed the SEC to enact new rules to meet its intent. The SEC took and considered comments from interested parties and published the new rules in 2003.

The most applicable sections of SOX as they apply to large, publicly traded corporations involve:

- ◆ strengthening auditor independence
- ◆ increasing the roles and responsibilities of the company auditing committees
- ◆ requiring senior management to certify and otherwise be generally held responsible for the accuracy of financial statements
- ◆ increasing the disclosure and transparency of financial information in quarterly and annual reports
- ◆ enhancing company internal controls (to include the establishment of a Code of Ethics)

As mentioned earlier, because PGW is not a publicly traded company, it is not bound by SOX/SEC/NYSE requirements. Nevertheless, the spirit of many of the efforts to strengthen governance is applicable to a large commercial utility such as PGW.

Philadelphia Gas Works is an unincorporated collection of assets wholly owned by the City of Philadelphia and, by law, is operated for the sole and exclusive benefit of the City. The PFMC acts as PGW's Board of Directors. The PFMC Board consists of seven members (five outside directors, the City's Finance Director, and the Mayor's Chief of Staff) who are appointed by the Mayor of Philadelphia to two-year terms.

Board members on the PFMC receive no compensation for their service (although certain PGC members may be paid a per diem rate if they so request) and in essence must be willing to serve as a public servant. Likewise, the members of the PGC also receive no additional compensation for serving, but normally the PGC members, some of whom are city officials or personnel, are compensated for that other city position or office.

Audits

Since 2003, PGW's financial audits have been conducted by KPMG, LLP. PGW's internal auditing function is contracted out to a public accounting firm under the overall direction of PGW's Director of Internal Auditing. The Director of Internal Audit and an internal staff of one also perform some small auditing functions. The Director of Internal Audit reports directly to the PFMC Audit Committee (two members) with some direction coming from the PGW President and CEO.

Business Transformation

Since November, 2006 PGW has been undertaking a program called Business Transformation (BT). PGW, in conjunction with outside consulting assistance, undertook a BT Phase I effort in late 2006 to early 2007 to preliminarily identify potential opportunities for making improvements in existing business processes. This six-week study resulted in the identification of approximately 13 different areas of opportunity or initiatives. A BT Phase II effort was conducted to develop further background and



understanding of the 13 areas and to develop more detailed information regarding cost and benefits for each initiative. These initiatives are briefly summarized in *Exhibit IV-2*. These initiatives identified approximately \$140 million in projected five-year benefits to PGW, thereby necessitating an expenditure of over \$30 million in outside consulting assistance and other costs to achieve. Although the total program is still being considered, through various reviews with the PFMC Board and PGC, the portions approved are shown in *Exhibit IV-2* in gray shadowing.

Exhibit IV-2
Approved Business Transformation Initiatives
 as of July 2, 2008

Business Area	Initiative - Original 13 Initiatives	Business Objectives
Field Operations		
	Asset and Resource Management	Implement new Asset and Resource Management organization with focus on economically optimizing what work to do and when to do it and who should do it
	Field Management	Optimize field, scheduling and dispatch organization, processes, and support tools
Supply Chain		
	Strategic sourcing	Improve total cost of ownership for pipes, valves, fittings, maintenance, repair and operations purchases, IS, and others
	Fleet Optimization	Right-size the fleet and rationalize maintenance
	Warehousing and logistics transformation	Centralize warehouses, optimize organization, transform material delivery models and optimize inventory, and improve materials availability
Customer Affairs		
	Collections transformation	Improve collections by an additional 1 1/2 percentage points
	Operations transformation	
Enterprise Wide		
	SFO metrics and performance mgt	Align individual performance with PGW financial objectives
	BT Phase I for other PGW areas	Find BT benefits in HR, OD, Finance, IS, Legal, Marketing, Gas Operations, and Customer Affairs Back Office
	Office of Business Transformation	Program meets PGW business case and other objectives
	Real estate rationalization	Lower annual real estate OPEX and CAPEX costs
	Time and attendance optimization	Implement process and control improvement, and centralize time function
	Parts and Labor Plan optimization	Finalize PLP analysis with hypothesis of discontinuance
Total Program		

Shaded initiatives are those approved by PGC as of July 8, 2008 for implementation with the capital portion of Field Management being approved by City Council
 Source: Information Response 391

The PGC approved program includes:

- ◆ Customer affairs
 - Write-off reactivation
 - Landlord cooperation/lien rewrite
 - Soft-off monitor/risk-based collection strategies
- ◆ Field operations
 - Resource management
 - Field management

These initiatives are anticipated to yield recurring annual benefits (currently estimated at approximately \$40 million over five years) to PGW. Such benefits are expected to be achieved primarily through improved collection rates, reduced operating expense, reduced utility gas expense, reduced annual write-off amount, and reduced operating and capital expense. Specific ways of measuring these results have been developed as a part of Business Transformation. This program involves a lower upfront commitment of funds for outside consulting assistance and other capital expenditures (approximately \$9 million).

In addition, the items identified under Real Estate Rationalization and Time and Attendance Optimization, *Exhibit IV-2*, are currently being pursued because they involve minimal outside assistance.

B. Findings and Conclusions

Finding IV-1 The corporate governance structure and processes for PGW are not optimal.

PGW is governed by two separate entities, PFMC and PGC, with overlapping and somewhat unclear roles and responsibilities. The PFMC members are selected by the Mayor of Philadelphia to serve two-year terms. There are no selection criteria for PFMC members. Moreover, with any change in City administration, the entire PFMC membership could be replaced by the incoming Mayor. The skills and experience of the current PFMC is fairly broad, but there are some gaps. There is vast experience in legal and government service, and applicable experience in external relations and finance. However, there are no PFMC members who have the desired level of experience with private sector finance and auditing. Likewise, there are no members who have senior-level utility management experience.

The majority of the PGC's members have deep experience in government as well as municipal and private sector finance. PFMC directors and most PGC members receive no board compensation for their service, which could hinder recruitment of future directors and members. The Chief Executive



Officer of PGW (who is operating on a short-term contract and could also be replaced at the same time the entire PFMC is being replaced) does not serve on the PFMC or PGC.

As mentioned earlier, the management agreement that created the PFMC and defines its responsibilities actually calls for the PFMC to manage PGW. Broad oversight responsibilities also reside with the PGC. Because the PFMC is a private non-profit corporation with a Board of Directors, PGW actually has two defacto boards. As noted earlier, the rate-setting and customer complaint functions, previously handled by the PGC, have been transferred to the Pennsylvania Public Utility Commission, thereby reducing PGC's oversight responsibilities. The PGC's focus, beyond its general, vaguely defined oversight role, is now approving budgets, gas contracts, and real estate acquisitions, after they have been approved by PFMC. Given these changes, there is no reason to have two Boards of Directors.

The PGC has no committee structure. The PFMC has two committees: Finance and Audit. The Audit Committee has no charter to define its roles and responsibilities and is comprised of only two members.

In Schumaker & Company's experience in the private utility sector, and especially with the advent of Sarbanes-Oxley, the roles and responsibility of Board of Directors typically have become much more clearly defined with very structured committee structures, greater emphasis on the Board composition (in terms of relevant technical and business experience), staggered Board member terms, and Board compensation. Also, detailed minutes of all Board and committee meetings are kept and board actions clearly documented.

Schumaker & Company consultants are familiar with public entities in the utility and non-utility industry. None of these other entities operate with two separate Boards in the fashion that PGW does.

Finding IV-2 PGW has a substantive code of ethics, although improvements can be made.

PGW has a formal code of ethics that closely follows the tenets of the State Ethics Act. In some cases, PGW's ethics policies are stricter and more prescriptive, to which the stricter standards apply. The most recent version of this document was approved by the PFMC Board in December 2006, with a version reflected in the Ethics and Conflict of Interest Compliance Policy and Program (Human Resources Department Personnel Policies and Procedures revised August 10, 2007). The code defines PGW's expectations for honesty, integrity, and loyalty as well as specific issues related to cash and bank accounts, confidential information, wrongful or illegal conduct on company property or time, expense reimbursements, outside employment, misuse of company time, and property/equipment/data resources, records, and political contributions and activities, among other items. There are specific, detailed sections devoted to conflicts of interest, soliciting or accepting gifts and preferential treatment, soliciting future employment and accepting honorariums, and contracts and contracting, among other items. The code of ethics explicitly provides for means of reporting ethical violations, including reporting violations anonymously (if desired) through the PGW Ethics Hotline and direct contact with PGW's Ethics Officer. The code also specifically forbids retaliation against any employees who report

ethical violations. This code applies only to covered employees and does not include bargaining unit employees.

An Ethics Officer has been designated in PGW's Legal Department and he has developed a series of ethics training presentations. "Corporate Ethics" is a two-hour program that was presented to approximately 550 exempt PGW employees over the period spanning January through March 2006 (12 presentations with approximately 50 employees per presentation). The topics included definitions, common issues, expectations, responsibilities, what to do in various situations, and where and how to report violations. The Operations Ethics Program (also a two-hour program) was presented to approximately 50 PGW Operations supervisors (10 supervisors per session). These presentations further focused on employee discipline, leadership, and communication. The Workplace Ethics – Information Services, an ethics training session that is similar to the other two but focuses more on specific information services ethics issues, was presented to 15 PGW Information Services supervisors in June 2007. PGW's Ethics Officer has also made training presentations to the City of Philadelphia Controller's Office. As of February, 2008, there is only one additional ethics training session scheduled (there are no ongoing ethics training programs/schedules), and there are no requirements for all PGW employees (e.g., bargaining unit employees) to undergo ethics training.

The Ethics Officer's phone number is listed in the Ethics Policy. Likewise, the ethics hotline and its use are publicized in the Ethics Policy. All ethics allegations are investigated and confidential reports (which include specific determinations and recommendations) are prepared by the Ethics Officer on the disposition. Non-bargaining-unit employees are required by the State Ethics Act to annually sign a Statement of Financial Interests form (a computer-based form from the Pennsylvania State Ethics Commission). This form requires disclosure of real estate interests, creditors, all direct or indirect sources of income, gifts, and any office/directorship/employment/financial interests in any other for-profit business, among other items. PGW's exempt (non-bargaining-unit employees) are required to attend ethics training. At these sessions, they are issued a copy of PGW's Ethics Policy and are required to sign in.

Finding IV-3 The PGC and PFMC maintain adequate controls over PGW; however, the PFMC Audit Committee does not maintain minutes that clearly show their relationship and interactions with external and internal auditors.

PFMC expenditure approval limits are clearly documented and reasonable. Advance PFMC approval is required for any payments, individually or in aggregate, of over \$1,000,000 to any one vendor in the course of any fiscal year (and over \$2,000,000 to any one vendor over the course of any three fiscal years). The PFMC will also approve any payment greater than \$500,000 if the payment is not included in the current capital or operating budget although PGW needs capital authorization from City Council before spending any capital. The President/CEO of PGW is authorized to bind PGW to contracts of over \$1,000,000 in an emergency but must immediately notify the PFMC Board Chairman of this act. The PFMC must also address/approve this action at its next scheduled meeting.



The PGC has authority to retain outside expertise and has utilized the services of two outside consultants for technical services during budget hearings. The PFMC has similar authority, although it has not made use of any outside expertise.

Although the PGC does not maintain minutes of its meetings, it has a staff essentially dedicated to analysis of PGW budget submissions. The PFMC met 13 times in 2005 and 17 times in 2006. (Board minutes for 2007 available only through February.) A wide range of topics were addressed such as capital and operating budgets and specific budget items, legal contracts, new business opportunities and asset maximization, rate case issues, labor contracts and negotiations, metric goals and compensation, and ethics, among other issues. The PFMC Finance Committee met five times through May 2007 and addressed issues related to major contracts, cash management, capital budget extensions, and PFMC approval limits, among other items. There are no committee meeting minutes for the PFMC Audit Committee nor are reports from external auditors or internal auditors on internal controls explicitly discussed in meeting minutes.

The PGC and PFMC held four joint meetings between December 2006 and July 2007 with executive briefings on issues concerning PGC/PFMC respective roles and responsibilities, business transformation, authority governance, budget, and broad strategic issues facing PGW. Minutes were not kept defining specific issues or any actions taken.

Finding IV-4 Audit Committee oversight is weak.

The NYSE Blue Ribbon Committee laid out a number of requirements concerning board audit committees, which include:

- ◆ Publishing formal, written charters
- ◆ Requiring that outside auditors to be accountable directly to the Board and that the audit committee that nominates, hires, and fires the auditor and company management not be in that reporting line
- ◆ Bringing outside and internal auditors into the same line of communication
- ◆ Having outside auditors discuss with the audit committee the quality of the company's accounting principles (e.g., process used by management in formulating particularly sensitive accounting estimates)
- ◆ Ensuring the audit committee doesn't become overloaded with duties

The PFMC Audit Committee consists of only two members and has held only one meeting each in 2006 and 2007. (No meetings were held in 2005, or YTD February, 2008.) The only available minutes of these meetings are from the August 2007 meeting, which addressed only internal audit activities and budgets. External audits or internal controls were not discussed. There is no committee charter for the PFMC Audit Committee that defines its roles and responsibilities. As such, the Audit Committee's authority to nominate, hire, and fire the external auditor is unclear. Moreover, there is no record of

discussions between the Audit Committee and external auditors on the quality of PGW's financial statements or internal controls.

Written status reports on internal audit reports and activities are made only once a year to the Audit Committee.

Selection of outside auditing services is governed by the Management Agreement as a professional service. PGW's current external auditor (KPMG, LLP) was selected through a competitive RFP process to perform PGW's audit for 2003, with an option to extend the contract in subsequent years. KPMG performed PGW's audits for the five-year period spanning 2003 through 2007. PGW has stated that it plans to issue another request for proposal for an external auditor in 2008. However, PGW is extending the KPMG contract for one final year in accordance with its renewal rights under the existing agreement.

During the past five years, KPMG has performed only audit services and bond offering assistance. KPMG has not provided any non-audit-related services (e.g., consulting services). However, PGW does not have any written restrictions that its external auditor is restricted from providing non-auditing and consulting services.

Finding IV-5 The Internal Auditing function at PGW properly reports directly to the PFMC Board; however, internal auditing is too dependent on outside auditors.

SOX/SEC/NYSE rules recognize the importance of internal audit's independence from management pressure and have expressed that the internal auditor should have a direct-line reporting relationship with the Board of Directors (Audit Committee).

PGW's internal auditing function reports directly to the PFMC, with a dotted-line relationship with the President and CEO of PGW. The internal auditor has no reporting relationship with the Finance Department.

PGW's internal auditing function is staffed by a director and one staff person. Most internal auditing work is performed by Pricewaterhouse Coopers (PwC). Likewise, the scope of internal audits is limited and does not include substantive reviews of major financial processes.

Finding IV-6 Internal controls activities do not address some areas of risk throughout PGW.

The three main parts of SOX/SEC specifying requirements for compliance that are most applicable to PGW are:

- ◆ Section 302 establishes corporate responsibility for security reports. The CEO and CFO must prepare a statement that certifies financial statements and disclosures.



- ◆ Section 404 establishes the need to assess internal controls and an internal control report must commit senior management to taking responsibility for and assessing the effectiveness of internal controls.
- ◆ Section 409 requires real-time disclosure of security issues. Material changes affecting financial disclosures must be reported on a rapid and current basis.

Although PGW does not face the same level of control risks that are faced by public companies (e.g., falsifying financial results to satisfy shareholder demands for profits) and is not subject to SOX/SEC, it is a large enterprise that should take steps to maintain and improve financial controls. PGW currently relies on its internal auditing function to evaluate and maintain internal controls. As mentioned in the previous finding, this level of effort (as it pertains to financial internal controls) is inadequate. Likewise, there is no internal controls function within the Finance Department.

The BT initiatives have not been fully implemented, so we cannot comment on their potential impact on internal controls. Recently, the PGC approved a portion of these initiatives (as shown in *Exhibit IV-2* mainly addressing customer service and revenue-enhancing initiatives), which do not appear to directly address internal controls.

Finding IV-7 Many of the items being addressed in the Business Transformation project are similar to some of the issues identified in this management audit.

Schumaker & Company consultants reviewed the materials prepared and presented to the PFMC and PGC regarding the BT effort. Many of the issues that are attempting to be addressed by the BT effort are similar to items identified in this management audit as needing improvement. For instance, this audit report makes comments regarding the following items that have been approved in BT:

- ◆ Customer affairs
 - Write-off reactivation
 - Landlord cooperation/lien rewrite
 - Soft-off monitor/risk-based collection strategies
- ◆ Field operations
 - Resource management
 - Field management

The BT initiatives that have been approved by PFMC would go a long way to addressing some of the issues mentioned in this management audit. However, Schumaker & Company consultants have also made findings in other areas of the organization where the specific BT items have been identified but not yet been approved. Such areas include:

- ◆ Purchasing and materials management
- ◆ Fleet management

C. Recommendations

Recommendation IV-1 Streamline the corporate governance processes of PGW. (Refer to Finding IV-1.)

The current governance processes of PGW could perhaps be best described as a remnant of the past. At one time, a separate company, UGI, was charged with operation oversight of PGW and the PGC existed for rate setting purposes. The PFMC was created in a sense to replace UGI and then in July 2000, responsibility for rates and handling customer complaints was transferred to the Pennsylvania Public Utility Commission. Today, PGW is governed by the PFMC, PGC, and City Council with rate setting responsibilities being with the Pennsylvania Public Utility Commission.

The PFMC and PGC should be combined into one Board of at least nine members. It should be noted that such an action would require a change in City of Philadelphia ordinance(s), which must be passed by City Council.

The number of committees should be expanded to include a Governance/Nominating Committee and a Compensation Committee. Other committees can include an Operations Committee, a Risk Management Committee, and an External Relations Committee. The Audit Committee should have at least three members with extensive financial and auditing experience.

PGW should also establish clear, comprehensive Board and committee charters. New Board members should be selected by the Nominating Committee, which is guided by selection criteria. Directors can still be approved by the Mayor and City Council. Director terms should be staggered so that the whole Board cannot be changed out at the same time, even with a change of city administration. This will serve the Board's need for continuity.

The Board should be substantially independent (e.g., at least seven members from outside PGW/City government). All Board members should annually fill out questionnaires to identify any potential conflicts of interests. The CEO of PGW should be included on the Board and his performance (and those of other senior managers) placed under the purview of the Compensation Committee.

The compensation of Board members should be established for outside directors (no additional compensation for PGW CEO or City employees) by utilizing compensation surveys to establish appropriate levels. Compensation should not include pension benefits for independent directors.



Recommendation IV-2 Develop an ongoing ethics training program. (Refer to Finding IV-2.)

PGW should develop an ongoing schedule whereby all PGW personnel will periodically (e.g., every three to five years) undergo ethics training.

Recommendation IV-3 Strengthen the Board Audit Committee function. (Refer to Finding IV-3 and Finding IV-4.)

The Board should develop an explicit, detailed charter for the Audit Committee. The charter should specify the Audit Committee's responsibility for overseeing and reviewing the integrity of PGW's financial statements, PGW's compliance with legal and regulatory requirements, the independent auditor's qualifications and independence, and the performance of PGW's Internal Audit function and independent auditors. The Board Audit Committee should also:

- ◆ Add a third member with financial auditing experience.
- ◆ Maintain minutes of meetings, which include details of interactions with the external and internal auditors, and meet formally at least once quarterly.
- ◆ Make presentations to the full Board at meetings.
- ◆ Enforce City policies to rebid external audit services every five years.

Recommendation IV-4 Strengthen PGW's Internal Audit function and enhance internal controls. (Refer to Finding IV-5 and Finding IV-6.)

PGW should evaluate the utilization of an outside contractor (non-major accounting firm) to replace PwC for performing internal audits. Subsequently PGW could expand the Internal Audit function by adding staff at a measured pace. The Internal Audit function should expand its scope to identify, map, and evaluate major financial processes and key control points. Alternately, the Finance Department should establish a small (two- to three-person) Internal Controls group.

Recommendation IV-5 Expedite the pursuit of the Business Transformation project. (Refer to Finding IV-7.)

Only a portion of the BT project has been approved to date. This management audit report identifies other findings and recommendations that could be addressed by certain aspects of the BT project. Pending the successful outcome of the already approved portion of the BT project, the remaining portion of BT should be revisited for implementation. It should also be included in the implementation plan submitted by PGW to the PaPUC in response to our management audit report.

V. Financial Management

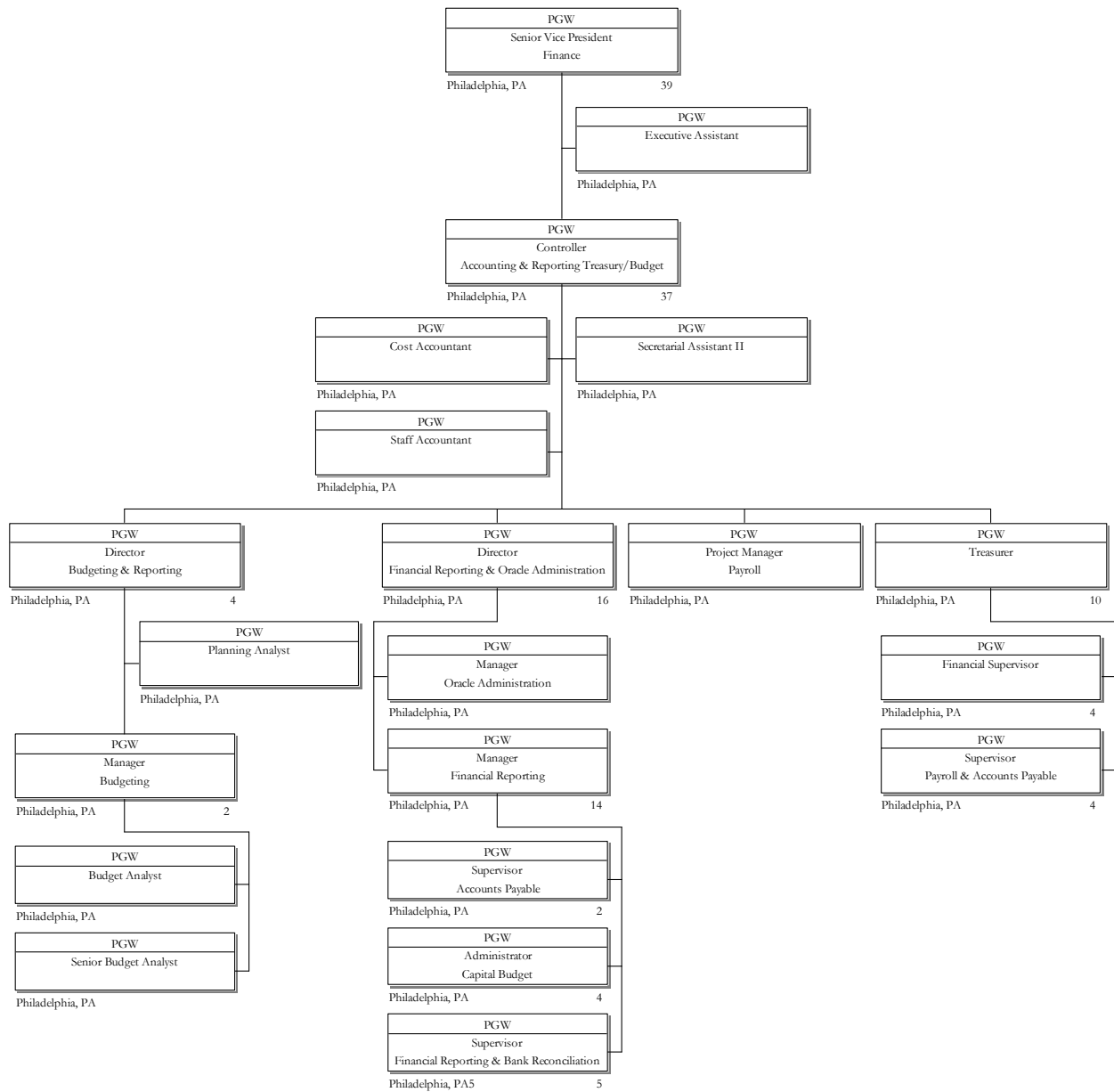
This chapter provides a review of financial management functions supporting Philadelphia Gas Works (PGW).

A. Background & Perspective

Financial management functions to support PGW are provided by members of the Finance and the Internal Audit Departments. The Finance Department is headed by a Senior VP – Finance and reports directly to PGW’s President and Chief Executive Officer. The Internal Audit Department is headed by a Director, Internal Audit and reports directly to the Philadelphia Facilities Management Corporation (PFMC) Board of Directors, with dotted-line responsibility to PGW’s President and Chief Executive Officer. The Finance Department consists of a total of 40 employees, which include 21 non-union staff who report up to the Senior VP – Finance. In addition to administrative staff, there is only one position reporting directly to the Senior VP – Finance. This is PGW’s Controller who is responsible for budgeting, accounting, financial reporting, and treasury functions. Three departments or sections report to the Controller. These include Budgeting and Reporting, headed by a director; Financial Reporting & Oracle Administration, headed by a director;; and Treasury, headed by the Treasurer. An administrative staff person, a Payroll project manager, a cost accountant, and a staff accountant also report to the Controller. The Finance Department’s organizational chart is shown in *Exhibit V-1*.



**Exhibit V-1
PGW Finance Organization
as of December 31, 2007**



Source: Information Responses 1 and 379

Exhibit V-2 presents the Finance organization, displaying the primary financial functions and the staffing of each unit therein.

Exhibit V-2
Finance Organization Functions
as of December 31, 2007

Organizational Unit	Financial Functions	Staffing	
		Non-Union	Union
SVP – Finance Executive Assistant	♦ Manages all financial functions provided for PGW, with the exception of the Internal Audit function	2	
Controller	♦ Accounting, financial reporting, treasury, and budgeting activities	4	
Director, Budgeting & Reporting	♦ Develop, justify, and support operating and capital budgets ♦ Manage budget approval process ♦ Monitor, analyze, report, and explain periodic variances for both the operating and capital budgets Analyzing and reporting periodic performance against the budgets	2	
Manager, Budgeting (Vacant position during audit)	♦ Develop, justify, and support operating budget ♦ Monitor, analyze, report, and explain periodic variances for operating budget	3	
Director, Financial Reporting & Oracle Administration (Vacant position during audit)	♦ Management of Oracle liaison function ♦ Management of financial reporting	1	
Manager, Oracle Administration	♦ Functional support of Oracle financial modules/user support ♦ Liaison between functional and technical personnel	11	
Manager, Financial Reporting	♦ Oversees primary accounting functions for PGW ♦ Manages financial sections: Accounts Payable (A/P), Capital Projects & Fixed Assets, and General Ledger (G/L)	1	
Supervisor, Accounts Payable	♦ Processes accounts payable using Oracle A/P module	1	2
Administrator, Capital Budget	♦ Manages Capital Addition function from initiation of capital project to closure ♦ Manages fixed assets from entry on books until removal	1	4 (1 vacant)
Supervisor, Financial Reporting & Bank Reconciliation	♦ Reconciles all PGW bank accounts ♦ Assists in monthly general ledger processes, including manual journal entries, prepaids, etc.	1	5 (1 vacant)
Project Manager, Payroll	♦ Troubleshoots payroll problems for employees and retirees ♦ Processes year-end payroll functions ♦ Manages tax update process ♦ Provides requested payroll reports	1	
Treasurer	♦ Manages all treasury functions for PGW	1	
Financial Supervisor	♦ Tracks cash in and out of PGW ♦ Invests excess cash ♦ Acts as PGW liaison for banking relationships	1	4 (1 vacant)
Supervisor, Payroll & Accounts Payable	♦ Supervises all payroll processes ♦ Supervises all accounts payable processes	1	4
Total Financial Staff		21	19

Source: Information Response 1 and Interviews 4, 5, 57, 58, 59, 60, 61, 65, 66, and 67



PGW's financial statements for the fiscal years (FYs) ended August 31, 2003 through 2007 were audited by KPMG. The audit reports stated that these financial statements (balance sheets, statements of revenues and expenses, and changes in fund equity and cash flows) presented the financial positions of PGW fairly and in conformity with U.S. generally accepted accounting principles. Our analysis of the last five years of financial information is shown in *Exhibit V-3* (Statement of Revenues and Expenses, FY2003–FY2007) and *Exhibit V-4* (Balance Sheets, FY2003–FY2007).

Exhibit V-3
Philadelphia Gas Works
Statement of Revenues and Expenses
(\$ Thousands)
FY2003 to FY2007

	FY2003	FY2004	FY2005	FY2006	FY2007	% Change FY2003 - FY2007
REVENUES						
Sales of Gas	\$766,535	\$783,356	\$830,550	\$929,961	\$840,105	9.6%
Other Operating Revenues	\$30,625	\$28,954	\$32,807	\$24,007	\$19,246	-37.2%
Total Revenues	\$797,160	\$812,310	\$863,357	\$953,968	\$859,351	7.8%
OPERATING EXPENSES						
Operating Expenses before Depreciation	\$690,254	\$705,185	\$757,967	\$845,315	\$783,368	13.5%
Depreciation	\$31,181	\$33,966	\$35,045	\$34,725	\$36,380	16.7%
Total Operating Expense	\$721,435	\$739,151	\$793,012	\$880,040	\$819,748	13.6%
OPERATING INCOME	\$75,725	\$73,159	\$70,345	\$73,928	\$39,603	-47.7%
OTHER INCOME (DEDUCTIONS)	\$3,753	\$3,580	\$4,778	\$8,518	\$13,073	248.3%
INTEREST	\$56,728	\$59,580	\$63,851	\$65,687	\$68,780	21.2%
NET INCOME	\$22,750	\$17,159	\$11,272	\$16,759	(\$16,104)	-170.8%
Distribution to the City of Philadelphia	(\$18,000)	\$0	\$0	\$0	\$0	

Source: Information Responses 46 and 765

Exhibit V-4
Philadelphia Gas Works
Balance Sheets
(\$ Thousands)
FY2003 to FY2007

	FY2003	FY2004	FY2005	FY2006	FY2007	% Change FY2003 - FY2007
ASSETS						
Utility Plant, Net	\$928	\$951	\$982	\$1,008	\$1,040	12.1%
Restricted Investment Funds	\$195	\$136	\$209	\$136	\$277	42.1%
Current Assets						
Accounts Receivable	\$93	\$93	\$87	\$74	\$72	-22.6%
Other Current Assets	\$95	\$116	\$148	\$181	\$205	115.8%
Total Current Assets	\$188	\$209	\$235	\$255	\$277	47.3%
Other Assets and Deferred Debits	\$94	\$82	\$94	\$107	\$104	10.6%
TOTAL ASSETS	\$1,405	\$1,378	\$1,520	\$1,506	\$1,698	20.9%
FUND EQUITY and LIABILITIES						
Fund Equity	\$194	\$211	\$223	\$239	\$223	14.9%
Total Long-term Debt	\$961	\$914	\$1,076	\$1,076	\$1,202	25.1%
Current Liabilities						
Notes Payable	\$119	\$96	\$50	\$55	\$52	-56.3%
Current Portion of Long-term Debt	\$38	\$42	\$42	\$40	\$87	128.9%
Other Current Liabilities and Deferred Credits	\$69	\$94	\$105	\$74	\$86	24.6%
Total Current Liabilities	\$226	\$232	\$197	\$169	\$225	-0.4%
Other Liabilities and Deferred Credits	\$24	\$21	\$24	\$22	\$48	100.0%
TOTAL FUND EQUITY AND LIABILITIES	\$1,405	\$1,378	\$1,520	\$1,506	\$1,698	20.9%

Current portion of long-term debt in FY2007 includes \$43 million note payable to City as current portion of long-term debt (shown in FY2006 in long-term debt).

Source: Information Responses 46 and 766

A significant decrease in revenues in FY2007 resulted in relatively unfavorable trends over the five-year period spanning FY2003 through FY2007, with revenues increasing by only 7.8% and operating income decreasing by 47.7%. The decrease in operating revenues in 2007 (a decrease of \$94.6 million from the FY 2006 level) was primarily due to lower fuel costs, which are part of operating revenues through the gas cost rate (GCR). This provision of PGW's rate schedules allows variations in the cost of purchased gas to be passed through to customers. The balance sheet reflects a steady increase in the amount of long-term debt (increase of over 25% for the five-year period ended FY2007), while net utility plant, the primary use of long-term debt, shows a more modest increase of 12.1% over the same five-year period.

Per Philadelphia City Council Bill No. 455, Agreement between the City of Philadelphia and PFMC for the management and operation of the Philadelphia Gas Works, dated December 29, 1972, PGW makes an annual \$18 million payment to the City. As required by Section VII of this agreement, PGW is to make a base payment in the "aggregate annual principal" amount of \$18 million, payable in amounts of \$4.5 million on the first of February, March, April, and May of each year. Since 1972, these monies were contributed to the City and \$24.5 million instead of \$18 million was paid once, although generally the payment is the same each year. In the last five years, the payment was made in FY2003, but it was not required by the City in FY2004. In subsequent years, FY2005 to FY2007, PGW made the payment



to the City, and the City, in turn, granted the \$18 million back to PGW. According to PGW management, the \$18 million figure is not based on a calculation but is simply a flat fee paid to the City “in lieu of taxes.” Prior to 1972, when PGW was managed by UGI, PGW paid approximately \$11.5 million each year to the City, of which approximately \$1 million was then given to UGI.

PGW has been rated by three credit-rating agencies, Moody’s Investor Service, Standard & Poor’s, and FitchRatings, over the past five years. Generally, PGW has been given more positive reviews in recent years. *Exhibit V-5* displays credit strengths and weaknesses noted by the credit agencies.

Exhibit V-5
Credit Agency Credit Comments Concerning PGW
as of December 31, 2007

Credit Strengths	Credit Weaknesses or Concerns
<ul style="list-style-type: none"> ◆ Experienced management team ◆ Demonstrated strong record of operational improvements and strategic planning ◆ Stable customer base ◆ Well-maintained system ◆ Reasonably effective relationship with state regulators willing to approve rate increase in recovery of commodity costs ◆ More aggressive action on collection of receivables ◆ Competitive commodity prices 	<ul style="list-style-type: none"> ◆ Heavy reliance on external sources of liquidity for working-capital needs ◆ Historically volatile collection rates ◆ Sizeable low-income population with high collection delinquencies ◆ High natural gas prices could result in increased payment delinquencies ◆ Highly leveraged with above-average debt ratios ◆ Limited capacity of City of Philadelphia to provide further financial assistance

Source: Information Response 51

Ratings for the past four years from the three credit-rating agencies are shown in *Exhibit V-6*.

Exhibit V-6
PGW Credit Agency Ratings
2003 to 2007

Year	FitchRatings		Moody's		Standard & Poor's	
	Rating	Outlook	Rating	Outlook	Rating	Outlook
2003	BBB+ BBB	Stable	Baa2 Baa2	Stable	BBB BBB-	Negative
2004	BBB- BB+	Negative	Baa2 Baa3	Negative	BBB- BB+	Negative
2005	BBB- BB+	Negative	Baa2 Baa3	Negative	BBB- BB+	Negative
2006	BBB- BB+	Stable	Baa2 Baa3	Stable	BBB-BBB-	Negative
2007	BBB BBB-	Stable	Baa2 Baa3	Stable	BBB- BB+	Stable

Source: Information Responses 51 and 764

The reasons given for the increased rating in 2007 and the improved outlook in 2006 were credit strengths, including PGW's ability to satisfy debt service coverage, sustained improvement in collection rates, and well-maintained system assets.

PGW's debt instruments consist of short-term notes (a commercial paper program and a note payable to the City of Philadelphia) and long-term debt, which is composed of revenue bonds.

A \$45 million note payable to the City was initiated in 2000 to allow PGW to operate through the winter of 2000–2001. This loan carries no interest. Repayment of the loan was initially scheduled for no later than January of 2003, but several ordinances have been signed by the City's mayor extending the repayment date to August of 2008. Two million dollars were repaid in FY2007 (on August 31, 2007), and the remaining \$43 million was classified under the current portion of long-term debt and was scheduled for payment in FY2008 (\$20.5 million on December 28, 2007 and \$22.5 million on August 29, 2008).

The City Council has given PGW approval to sell short-term notes in a principal amount that, combined with interest, cannot exceed \$200 million. The current Series E of this tax-exempt commercial paper program was instituted at the start of 2006, with a commitment amount of \$150 million and an expiration date of May 29, 2010. PGW has not yet acted to increase the commercial paper program to the \$200 million limit.

The proceeds of the revenue bonds were applied to reduce capital improvement loans from the City, to fund future capital projects, or to refund bonds previously issued. These bonds are categorized into term and serial bonds with maturities ranging from one to 30 years. Bonds are refunded when economically possible, utilizing the City of Philadelphia guideline that a refunding transaction should provide 3% net present-value savings on the face value of the refunded bonds. A schedule displaying PGW's long-term debt is shown in *Exhibit V-7*.



Exhibit V-7
Long-Term Debt
as of December 31, 2007

Class and Series of Obligations	Nominal Date of Issue	Date of Maturity	Principal Amount Authorized	Outstanding Per Balance Sheet	Interest For Year		Held By Respondent	
					Rate	Amount	As Reacquired. LT Debt	In Sinking & Other Funds
Long-Term Debt Bonds								
City of Philadelphia Gas Works Revenue Bonds								
Eleventh Series C	1/01/1989	1/01/2012	\$19,940,000	\$5,064,435		\$1,335,720		
Fifteenth Series	1/01/1994	8/01/2024	\$5,100,000	\$0	4.80%	\$290,333		
Sixteenth Series	6/01/1999	7/01/2015	\$62,315,000	\$34,850,000	4.25%	\$2,095,694		
First Series A	6/01/1998	7/01/2026	\$161,640,000	\$106,770,000	5.00%	\$5,876,618		
First Series C	6/01/1998	7/01/2014	\$21,995,000	\$11,545,000	4.30%	\$586,665		
Second Series	5/15/2007	10/01/2012	\$15,640,000	\$13,325,000	4.25%	\$865,493		
Third Series	5/15/2007	10/01/2012	\$14,535,000	\$13,570,000	4.00%	\$772,918		
Fourth Series	5/15/2007	10/01/2032	\$98,485,000	\$97,200,000	3.00%	\$5,330,723		\$103,452,896
Seventeenth Series	4/01/2003	6/01/2026	\$186,705,000	\$158,585,000	4.00%	\$8,569,513		
Fifth Series A-1	10/01/2004	9/01/2034	\$120,000,000	\$120,000,000	5.00%	\$6,000,363		
Fifth Series A-2	10/01/2004	9/01/2035	\$30,000,000	\$30,000,000	2.00%	\$1,096,759		
Eighteenth Series	10/01/2004	8/01/2021	\$57,820,000	\$54,635,000	5.00%	\$2,751,938		
Sixth Series	1/20/2006	8/1/2034	\$313,390,000	\$313,390,000	3.66%	\$11,399,612		
Seventh Series	5/15/2007	10/1/2038	\$200,000,000	\$200,000,000	5.00%	\$6,196,481		
Seventh Series Refunding	5/15/2007	10/1/2029	\$30,900,000	\$30,900,000	5.00%	\$969,917		
Nineteenth Series	5/15/2007	10/1/2024	\$14,450,000	\$14,450,000	5.00%	\$453,569		
Total Long-Term Debt Bonds				\$1,204,284,435		\$54,592,316	\$0	\$103,452,896
Long-Term Debt								
Eleventh Series C/TECA Securities Accreted Value	1/01/1989	01/01/2012		\$14,366,432		\$0		
TOTALS			\$1,352,915,000	\$1,218,650,867		\$54,592,316	\$0	\$103,452,896

Source: Information Responses 46 and 787

PGW's long-term investment program for operating funds is consistent with the City of Philadelphia's investment policy, which does not allow investments with maturities longer than two years. The City of Philadelphia manages the Sinking Fund for the revenue bonds described above. These are generally long-term investments. PGW does also have a Capital Improvement Fund consisting of the net proceeds of a revenue bond sale. With the 5th Series bond proceeds, funds have been invested in a guaranteed investment contract with scheduled draws to match needed funds to support the Capital Budget spending. Bond proceeds are managed under the direction of the City of Philadelphia Treasurer's Office. All short-term investments are made in compliance with the City of Philadelphia's investment policy. This policy governs the management of all monetary funds and specifies what investments are allowed. Authorized investments include:

- ◆ Bonds or notes of the United States government
- ◆ United States Treasury obligation, including separate trading of interest and principal securities (STRIPS), receipts indicating an undivided interest in such United States Treasury obligation, and stripped coupons held under book entry with the New York Federal Reserve Bank
- ◆ United States Agency obligations rated Aaa/AAA by Moody's Investor Services or Standard & Poor's, respectively
- ◆ Collateralized certificates of deposit
- ◆ Bankers' acceptances, Eurodollar deposits, and Euro certificates of deposit that are collateralized

- ◆ Commercial paper rated M1G1 or A1+ by Moody's Investor Services and Standard & Poor's, respectively
- ◆ General obligation bonds of corporations rated "AA" or better by Moody's Investor Services or Standard & Poor's, with a maturity of two (2) years or less
- ◆ Collateralized Mortgage Obligations and Passthrough Securities that are rated "AA" or better by Moody's Investor Services or Standard & Poor's, or are collateralized with securities that meet the City's own investment criteria as set forth in this section, with a maturity of two (2) years or less
- ◆ Money market mutual funds, as defined by the Securities and Exchange Commission
- ◆ Repurchase agreements that are collateralized through either actual delivery of eligible collateral or segregation of collateral by a depository that is holding the counterparty's securities, provided such collateral meets the City's own investment criteria as set forth in this section
- ◆ Obligations of the Commonwealth, or any municipality or other political subdivision of the Commonwealth, registered or otherwise as to principal and interest, with a maturity of two (2) years or less

Spending priorities encompassing all spending opportunities must compete for limited operating and capital funds. The use of such funds is governed by PGW's strategic goals, which include maintenance of a safe and reliable infrastructure, improving customer service, reducing cost, or generating a positive economic return. PGW does not have financial hedging procedures for natural gas purchases and does not participate in hedging activities.

The remainder of the background and perspective section is divided into five segments:

- ◆ Financing
- ◆ Cash Management
- ◆ Accounting and Property Records
- ◆ Budget Management, Reporting, and Controls
- ◆ Internal Auditing

Financing

PGW's cost of capital for the past five years has averaged 5.026%, which is a favorable rate for a gas utility in the United States during this time period and reflects PGW's municipal status. Cost of capital calculations for the past five years (FY2003 to FY2007) are shown in *Exhibit V-8*.



**Exhibit V-8
Cost of Capital
FY2003 to FY2007**

Fiscal Year	Item	Daily Outstanding Balances	Interest Expense	Interest Rate
FY2003	Revenue Bonds	\$945,715,734	\$51,650,159	5.461%
	Capital Leases	\$6,888,348	\$364,839	5.296%
	Commercial Paper	\$70,750,000	\$3,120,274	4.410%
	Weighted Average	<u>\$1,023,354,082</u>	<u>\$55,135,272</u>	5.388%
FY2004	Revenue Bonds	\$960,402,107	\$50,672,942	5.276%
	Capital Leases	\$3,207,672	\$169,896	5.297%
	Commercial Paper	\$62,000,000	\$2,175,000	3.508%
	Weighted Average	<u>\$1,025,609,779</u>	<u>\$53,017,838</u>	5.169%
FY2005	Revenue Bonds	\$1,050,666,422	\$54,690,229	5.205%
	Capital Leases	\$162,262	\$8,596	5.298%
	Commercial Paper	\$42,841,530	\$2,332,685	5.445%
	Weighted Average	<u>\$1,093,670,214</u>	<u>\$57,031,510</u>	5.215%
FY2006	Revenue Bonds	\$1,063,549,767	\$47,348,748	4.452%
	Commercial Paper	\$125,100,000	\$5,989,378	4.788%
	Weighted Average	<u>\$1,188,649,767</u>	<u>\$53,338,126</u>	4.487%
FY2007	Revenue Bonds	\$1,063,549,767	\$52,864,945	4.971%
	Commercial Paper	\$123,600,000	\$5,967,812	4.828%
	Weighted Average	<u>\$1,187,149,767</u>	<u>\$58,832,757</u>	4.956%
Total 5 Years	Weighted Average Calculation	\$5,518,433,609	\$277,355,503	5.026%

Source: Information Responses 62 and 767

PGW's net customer account write-offs for the past five fiscal years are shown in *Exhibit V-9*.

Exhibit V-9
Net Customer Account Write-Offs
FY2003 to FY2007

Year	Write-Off Amount	% Change From Prior Year
FY2007	58,658	-25.5%
FY2006	78,723	-15.4%
FY2005	93,160	34.4%
FY2004	69,332	57.9%
FY2003	43,914	- 1.2% (a)

(a) 2002 write-off was \$48,411.

Source: Information Responses 63 and 768

Write-off amounts decreased by over 25% in FY2007 and by over 15% in FY2006 after even larger increases were experienced in FY2004 and FY2005. The reasons for these shifts are discussed in *Chapter VIII - Customer Service* of this report.

Cash Management

The management of cash is handled primarily by the Treasurer with the exception of cash reconciliation, which is performed by a work group in the Financial Reporting & Oracle Administration Department. PGW has multiple bank accounts with several different banks. The main operating accounts are with Bank of America (BOA) and Wachovia Bank. Each bank has deposit (input) and disbursement (output) accounts as shown in *Exhibit V-10*.



Exhibit V-10
Main Operating Bank Accounts
as of December 31, 2007

Bank	Deposit Activity	Disbursement Activity
Wachovia	Wire/automated clearinghouse (ACH) payments from customers, such as the Philadelphia Housing Authority (PHA), the City of Philadelphia, and the federal government Buy/Pay AmeriCash IPP Legal Checkfree Tier Technologies Paymentech Interest income from Provident and Dreyfus temporary investments and miscellaneous obligations	Wire/ACH payments for debt service, gas inventory, temporary investments, and miscellaneous obligations
Bank of America	Coin/currency from the District Offices (Customer Service Centers) Coin/currency from the Street Collectors (a) Credit card receipts I-Checks (Intelli-check systems) Integrated Voice Response (IVR) System (pay by phone) Parts & Labor Plan payments by Internet Web via credit cards Encoded checks via Regulus Non-encoded checks from the District Offices and Treasury Department Regulus remittance processing (third-party provider of remittance processing) Pension funding from PGW Retirement Pension Fund	Pension payroll Regular weekly payroll Gas refund checks for customers Regular accounts payable Legal payables Wires to Wachovia Bank

(a) These deposits are managed by Customer Affairs, which uses a number of companies to collect customer payments and send them on to BOA.

Source: Information Response 65

Approximately 85% of gas payments come to PGW's control through a Bank of America (BOA)/Regulus joint venture lockbox operation in Rochelle Park, NJ. The other cash collection bank that PGW uses is Wachovia Bank, which handles incoming and outgoing ACH and wire transfers. Approximately 85% of receipts are credited to PGW's account the day after being collected, with 100% credit by the second day. A number of reports are used to help control and manage PGW's cash, all of which are summarized each day in a document titled a Book of Work. Cash management reports that are part of this document are listed in *Exhibit V-11*.

Exhibit V-11
Book of Work Reports
FY2003 to FY2007

Cash Report	Function
Cash Summary Sheet	Summarizes all daily cash activity
BOA Current Day Wire Report	BOA wire transfers
Domestic Wire Transfer Detail	Shows details on all domestic wire transfers and ACH transfers
Intraday Position Report	Shows Wachovia Bank intraday balance and account activity
Current Day Detail Report	Daily activity detail for all BOA accounts
Current Day Summary Report	Summarizes activity for all BOA accounts
Balance/Detail Inquiry Report	Daily activity and balance on Wachovia accounts
Electronic Funds Transfer (EFT) Advice Report	Report of EFT activity for Wachovia Bank
Current Day Controlled Disbursement Presentment Report	Controlled disbursements for BOA accounts
Current Day Balance Report	Details of current day balances in BOA accounts
Previous Day Summary Report	Details of previous day balances in BOA accounts

Source: Information Response 381

The following nine zero balance accounts (ZBAs) are associated with the BOA relationship.

- ◆ Active payroll
- ◆ Retirement payroll
- ◆ Accounts payable
- ◆ Billing Collections & Customer Service (BCCS) refund
- ◆ Flexible Spending Account (FSA)
- ◆ Legal
- ◆ Credit & Collections (C/C)
- ◆ District Office
- ◆ Mail Receipts

Exhibit V-12 shows all of the other banks and accounts that PGW has used over the last five years, including cash and investment balances at year end.

Exhibit V-12
Cash & Temporary Investments – Year-end Balances
FY2003 to FY2007

Cash & Temporary Investments	FY2003*	FY2004*	FY2005*	FY2006*	FY2007*
United Bank (Savings Bonds)	\$3,688	\$0	\$0	\$0	\$0
First Union	\$0	(\$348,249)	(\$212,029)	(\$175,087)	(\$121,393)
Mellon	\$0	(\$459,908)	(\$21,215)	(\$20,237)	(\$15,596)
Wachovia	\$106,124	\$434,845	\$97,239	\$12,944	\$72,736
PNC	\$54,399	(\$236,646)	(\$224,720)	(\$202,128)	(\$182,463)
U.S. Bank	\$9,503	\$23,183	\$29,546	\$86,329	\$5,831
Dreyfus	\$25,000	\$25,000	\$0	\$0	\$0
Provident	\$25,000	\$3,570,000	\$14,825,812	\$8,400,000	\$53,701,763
Travelers Checks on Hand	\$26,250	\$9,700	\$22,700	\$9,500	\$13,350
District Office & Mail Receipts to be Deposited	\$62,260	\$62,260	\$62,260	\$62,260	\$62,260
Bank of America Customer Refund Payment	\$0	(\$78,517)	(\$249,947)	(\$541,124)	(\$605,967)
Bank of America Accounts Payable	\$0	(\$2,713,154)	(\$2,417,455)	(\$3,252,166)	(\$2,856,423)
Bank of America Mail & DO Receipts	\$0	\$1,582,889	\$1,265,203	\$550,228	\$812,664
Bank of America Credit Card & Vendor Receipts	\$0	\$284,497	\$166,864	\$686,346	\$613,657
Bank of America Active Payroll	\$0	(\$94,214)	(\$62,033)	(\$68,328)	(\$256,050)
Bank of America Retiree Payroll	\$0	(\$28,110)	(\$20,240)	(\$51,185)	(\$36,906)
Bank of America Flexible Spending	\$0	\$0	(\$10,603)	(\$1,071)	\$8,415
Bank of America Legal Payments/Court Filings	\$0	\$0	(\$1,082)	(\$209)	(\$209)
Bank of America Master Account	\$0	\$1,517,000	\$1,856,177	\$1,153,193	\$431,697
Employee Bond Subscription	\$0	\$0	\$305	\$305	\$0
Expenses Advanced to Employees	\$20,172	\$12,823	\$12,241	\$4,937	\$6,029
Expenses Advanced to Employees M/C	\$5,730	\$196	(\$744)	(\$1,779)	\$187
Stamp Refunds	\$110	\$110	\$110	\$110	\$110
Petty Cash	\$42,100	\$42,300	\$42,300	\$44,300	\$44,300
Huntingdon Bank Master Account	\$0	\$60,000	\$60,000	\$0	\$0
TOTAL CASH & TEMPORARY INVESTMENTS	\$380,336	\$3,666,004	\$15,220,690	\$6,697,138	\$51,697,992

*All year-end cash balances include proceeds from outstanding tax-exempt commercial paper.

Source: Information Responses 64 and 769 and Company clarifications to information responses

Exhibit V-13 shows the total cash and investments for the same banks and accounts by month for FY2003 to FY2007.

Exhibit V-13
Cash & Temporary Investments – Month-end Balances
(\$ Thousands)
FY2003 to FY2007

Month	FY2003*		FY2004*		FY2005*		FY2006*		FY2007*	
	Temp Investments	TXCP Outstanding	Temp Investments	TXCP Outstanding	Temp Investments	TXCP Outstanding	Temp Investments	TXCP Outstanding	Temp Investments	TXCP Outstanding
September	(\$2,805)	\$79,800	(\$2,887)	\$71,500	\$315	\$32,500	\$12,963	\$49,900	\$83,848	\$14,960
October	(\$6,275)	\$76,800	(\$1,667)	\$73,600	\$298	\$32	\$58,967	\$99,200	\$77,335	\$149,500
November	\$6,054	\$77,800	(\$649)	\$77,800	\$3,693	\$45,500	\$31,677	\$99,200	\$68,484	\$149,500
December	\$1,139	\$75,750	\$3,495	\$79,800	\$3,693	\$45,500	\$26,320	\$99,200	\$46,263	\$149,500
January	\$3,640	\$63,750	\$262	\$63	\$5,236	\$54,900	\$36,866	\$149,900	\$50,332	\$149,500
February	\$2,352	\$58	\$1,777	\$64	\$7,219	\$53,500	\$49,343	\$148,600	\$92,979	\$149,500
March	\$3,406	\$32,500	\$393	\$30	\$84,182	\$79,800	\$88,290	\$148,600	\$135,365	\$149,500
April	\$2,297	\$36,500	\$3,716	\$0	\$67,105	\$79,800	\$98,030	\$148,600	\$158,287	\$149,500
May	\$2,154	\$9	\$2,014	\$0	\$3,032	\$0	\$150,603	\$149,800	\$141,374	\$139,500
June	\$1,100	\$17	\$13,012	\$11,500	\$74,857	\$79,800	\$137,291	\$149,800	\$140,180	\$139,500
July	(\$966)	\$69,500	\$1,299	\$1,250	\$31,937	\$79,800	\$103,935	\$149	\$100,207	\$139,500
August	\$380	\$74	\$3,666	\$50,750	\$15,221	\$49,900	\$6,697	\$55	\$51,698	\$51,600

*All monthly cash balances include proceeds from outstanding tax-exempt commercial paper (TXCP).

Source: Information Responses 64 and 770

Cash forecasting is performed by the Treasury Department as part of the annual budget development activities. The cash forecast is projected for the upcoming fiscal years and for the five-year forecast. This cash forecast will be adjusted as deemed necessary to reflect changes that have occurred and that impact cash positions.

Cash disbursement checks are issued twice a week: on Tuesdays and Thursdays and the last business day of the month. The preliminary check disbursement run (from the Oracle system) lists all accounts payable (A/P) checks and BCCS refunds. Checks under \$20,000 require only one signature and are machine signed. Checks \$20,000 or greater require two signatures and are manually signed. There are four authorized check signers: Treasurer, Controller, Financial Supervisor, and the Supervisor of Payroll and A/P. The Bank of America uses a positive pay system, which matches check information with a payment schedule. There are approximately 200 checks per payment day, with perhaps five of these being written for \$20,000 or more. All check stock is properly secured at PGW's facility with access limited to the Controller, Payroll Project Manager, Payroll and Accounts Payable Supervisor, Financial Supervisor, and two senior level clerks. Invoices are paid on a net 30 system, which is determined by the Oracle A/P and cash disbursement system (the system looks for net 30 terms or due date). Current paid invoices and other documentation for A/P are properly secured onsite and are then (after 90 days) moved to offsite storage at Iron Mountain.



Accounting and Property Records

The general accounting functions performed for PGW are conducted by the Financial Reporting and Oracle (System) Administration areas. These areas have a vacancy at its head, with the next level managers reporting directly to the Controller rather than to the Director position. These areas are responsible for:

- ◆ Issuing periodic and special reports, including reports to outside bodies such as the Philadelphia Gas Commission (PGC), the City of Philadelphia, the Pennsylvania Public Utility Commission (PaPUC), and PFMC
- ◆ Managing and monitoring year-end audits
- ◆ Classifying expenditures
- ◆ Managing property records and reclassifying property
- ◆ Performing general ledger, accounts payable, and bank reconciliation functions
- ◆ Performing systems administration for the Oracle Financials system

PGW uses Oracle Financials version 11.5.9 as its Enterprise Resource Planning (ERP) system. Oracle Financials is part of the Oracle E-Business Suite, which is a fully integrated, comprehensive suite of business applications. Within the Oracle E-Business Suite, PGW uses the following six modules:

- ◆ Accounts Payable
- ◆ Fixed Assets
- ◆ General Ledger
- ◆ Inventory
- ◆ Projects
- ◆ Purchasing

Each module has a corresponding user manual that is provided by Oracle Corporation. PGW started using its Oracle Financials system in September of 1998 with the implementation of four modules: General Ledger, Accounts Payable, Projects, and Fixed Assets. The Purchasing and Inventory modules were implemented in June of 2000. An additional Oracle module that PGW is considering is E-Procurement. Cap Gemini assisted in both implementation and upgrading of its database to Oracle 9i (9.205). PGW has had very few technical problems with the Oracle modules that PGW's internal support could not handle. The most common problems users have faced include:

- ◆ Not understanding their approval authority (such authority is set in Oracle and is approved by the Board Of Directors by level of employee)
- ◆ Common entry errors – requisitions, account numbers that do not exist
- ◆ Use of system – shipping designation

- ◆ Data – how and where to get data out of the Oracle database; PGW uses Noetix and ADI as software report-writing tools (doesn't require technical knowledge)
- ◆ Questions about access – hierarchy issues

Other systems that PGW uses include the following:

- ◆ *Billing/BCCS* – PGW utilizes 23 billing cycles (PGW bills approximately \$800 million per year), with the results being available the next day in the general ledger.
- ◆ *Fleet system* – PGW use a transportation (maintenance) system primarily for budgeting and keeping track of pool cars and field service vans.
- ◆ *Payroll* – Automated Data Processing (ADP) runs the payroll system for PGW's management labor, weekly, and pension payrolls. Currently, PGW is looking at a new time and labor system to feed the payroll system.
- ◆ *Mainframe Applications* – PGW still uses its outsourced mainframe system for monthly reports, including union labor, supervisor labor, and tools/transportation. Data must be set up on the mainframe and in the Oracle Projects module that is run as part of Oracle Financials. The mainframe will be retired once pending projects are implemented to replace employee timekeeping, corporate attendance, and labor distribution. Implementation of these projects is expected prior to the end of calendar year 2008.

The Accounts Payable function performs a three-way match (purchase order, invoice, and receiving report) for all accounts payable disbursements. All invoices are mailed directly to Accounts Payable. Purchase orders (POs) come to Accounts Payable from Procurement. (All purchases must have a PO.) Receiving reports come to Accounts Payable from the department that received (and ordered) the item. If matched, the invoice is entered into the Oracle Accounts Payable module. An exception would be wire transfers, which are enacted by the Treasury Department, which then notifies the Accounts Payable function. Accounts Payable would then make an entry into the Oracle Accounts Payable module. Wire transfer payments are used for payments like debt and health care disbursements to a health care insurer. Hard-copy documentation of the transaction is sent to Treasury, where payment is made.

There are a number of monthly reports that Accounts Payable uses, including Discounts Taken & Lost Report, Period Close Exception Report, Invoice-on-Hold Report, Invoice Register, and Batch Control Report. The Invoice Register documents all the invoices that have been processed throughout the day, with total invoices summarized on the Batch Control Report. A recent month's Batch Control Report listed 2,480 invoices processed during the month, or approximately 124 invoices per day. Accounts Payable volume can require processing of as many as 300 invoices per day. Although with this kind of volume, PGW cannot process all invoices in a single eight-hour shift.

Payroll has been outsourced to ADP since 2003. Pay is weekly. PGW has a current collective-bargaining agreement with the Gas Works Employees Union Local 686, Utility Workers Union of America. This agreement, which does not terminate until May 15, 2010, has a provision requiring a



weekly payroll. Files are downloaded from Dragon, the name for PGW's current timekeeping system for union employees, and are transmitted to the Payroll Department. Time reporting is by exception only except for shift differentials and overtime. PGW is trying to limit the need for data entry for time collection purposes.

Payroll sends a flat file to ADP. The PGW Payroll Department troubleshoots problems and sends errors back to HR, IT, or the timekeepers. Payroll ("141") cards contain all new hire and wage rate information. There is a 141 card for every PGW employee. A Payroll Confirm report comes out on Monday for the previous Friday's payroll. PGW's Payroll Department is responsible for troubleshooting payroll problems for employees and retirees, processing year-end payroll functions (producing W2s and 1099Rs), managing tax updates, and responding to requests for payroll reports (weekly and monthly) using Report Smith, an ad hoc report writer.

Prior to beginning the arrangement with ADP, PGW prepared a Payroll System Cost Analysis for the proposed ADP/Human Resource Information System (HRIS). Problems that were to be addressed were unsatisfactory mainframe-performance, tax-compliance issues, and payroll functionality limitations. By moving to ADP, PGW was to gain functionality, an integrated real-time solution, and financial stability with a user-friendly system and an experienced system implementation and support team. The cost/benefit analysis that was performed indicated a payback period of approximately six years, with most of the cost savings coming from a shutdown of the mainframe computer for Payroll and Labor Distribution processes (approximately \$400,000 per year). However, because the mainframe has not yet been shut down, some of these cost savings have not been realized. The mainframe will be retired after several projects (employee timekeeping, corporate attendance, and labor distribution) have been implemented prior to December 31, 2008.

WorkForce has been chosen as the new time- and labor-reporting system. It will replace timekeeping, labor reporting, scheduling, and corporate attendance systems on the mainframe. WorkForce beat out proposed systems offered by ADP and Oracle on functionality and user friendliness. This new system is scheduled to go live in November 2008. Implementation timing is being driven by IT's need to remove the current time- and labor-reporting system off the mainframe.

Budget Management, Reporting, and Controls

Preparing and managing PGW's operating and capital budget is the responsibility of PGW's Budgeting and Reporting Department, which is headed by a budget director with four non-union staff.

Operating Budget

PGW's operating budget process is initiated in February of each year with a budget instruction kick-off letter going out in February. Information provided in the instructions for development of the budget includes the following information:

- ◆ Number of degree days
- ◆ Average staffing levels
- ◆ General wage increases
- ◆ Gas sales policy
- ◆ Level of capital spending
- ◆ Percentage inflation increase for materials and other purchase services

With individual departmental goals approved, the establishment of individual staffing levels is the first priority of the process. In March, the budget area receives staffing level proposals from each department with justification for any increase in staffing requirements. These proposals are compiled and reviewed by the senior team to insure that resources are aligned with PGW's corporate objectives. With staffing levels approved, the remainder of each departmental budget is identified during the April timeframe. The service departments' budgets (Fleet Operations, Information Services, Telecommunications, Facilities, and Engineering) are finalized first, because these budgets are fully allocated to other departments based on prescribed allocation criteria.

The Budget Department compiles all departmental budgets. At the end of April, a review session is conducted to determine operating spending for the remainder of the current year and proposed spending for the upcoming fiscal year. Proposed departmental budgets are approved or modified, and then compiled by the Budget Department for further approval. With departmental budgets finalized, other critical components of the budget can be finalized, including: cash and coverage requirements, financing needs, and identification of rate relief.

The draft operating budget is initially presented to the Finance Committee of the PFMC Board of Directors in May for their review prior to approval by the entire Board of PFMC. Concurrently, the draft budget is forwarded to the City's Director of Finance for review to insure the budget is, in form and content, satisfactory. The draft operating budget is then forwarded to the Philadelphia Gas Commission for approval at the end of May.

The PGC's review process begins in June and usually ends in August or September with a recommended decision to be approved at a PGC meeting in September or October. The approval process conducted by the PGC includes informal sessions both prior to the budget submission, as well as after the submission, the development of data inquiries and responses, submission of testimony from the Public Advocate, public hearing(s), briefs, a recommended decision by the hearing examiner, and ultimate approval by the PGC itself.

Capital Budget

The timetable for the development of the capital budget begins earlier, because it has to be reviewed for recommendation by the PGC and the Finance Director for approval by City Council. This capital process is initiated in September with the forwarding of the capital budget kick-off letter, which provides specific timelines, budget assumptions, and filing requirements for the capital budget. Individual capital projects are identified by each department and consolidated by the Budget



Department for review by senior management. All capital projects are prioritized based on the criteria presented in *Exhibit V-16*. The proposed budget is then presented to the Finance Committee of the PFMC Board of Directors for their review prior to approval by the entire PFMC Board.

Upon the PFMC Board's approval, the budget is forwarded to the Finance Director to review the budget for form and content and to the Philadelphia PGC for their recommendation to City Council. The approval process conducted by the Commission includes informal discovery sessions, the development of data inquiries and responses, submission of testimony from the Public Advocate, public hearing(s), briefs, a recommended decision by the hearing examiner, and ultimate approval by the PGC of a recommendation for approval to City Council. Final approval is received by City Council by budget ordinance. The proposed budget is forwarded to City Council's Finance Committee prior to City Council approval.

The time schedule for developing the FY2008 (2007–2008) operating budget is shown in *Exhibit V-14*.

Exhibit V-14
Operating Budget Time Schedule
FY2008

Budget Task	Date Required
Operating Plan and Departmental Goals Submitted for Approval	March 1, 2007
Personnel Analysis with Detail of Union vs. Management and Payroll Budget Based Upon Approved Operating Plan	March 5, 2007
Finance Review (Discussion with Senior Team)	March 9, 2007
Information from Service Departments to Establish Service Rates	March 23, 2007
Service Allocations to Using Departments	March 30, 2007
FY2008 Operating Budget Department Summary & Five-Year Forecast of Departmental Personnel Level	April 5, 2007
Senior Team Review, Departmental Budget Meetings	April 18–24, 2007
Finance Director, Gas Commission and Advocate Budget Review	April 30–May 2, 2007
Forecast for FY2009 through FY2013	May 4, 2007
Present Proposed Operating Budget & Forecast to PFMC Board Finance Committee and Director of Finance	May 9, 2007
Present Final Proposed Operating Budget & Forecast to PFMC Board & City Finance Director	May 14, 2007
File Proposed Operating Budget & Forecast with the Philadelphia Gas Commission	May 25, 2007

Source: Information Response 79

Information provided in the instructions to the budget developers includes the following assumptions:

- ◆ The number of degree days
- ◆ Average staffing levels
- ◆ General wage increases

- ◆ Gas sales policy
- ◆ Level of capital spending
- ◆ Percentage inflation increase for materials and other purchased services

The time schedule for developing the FY2008 (2007–2008) capital budget is shown on *Exhibit V-15*.

Exhibit V-15
Capital Budget Time Schedule
FY2008

Budget Task	Date Required
Marketing Forecast of New Load Additions and Estimate of Metering Requirements Forwarded to Appropriate Departments	September 25, 2006
Request for Engineering and/or Estimating Services	September 25, 2006
Building Furniture Office Requirements Submitted to Facilities	October 9, 2006
Fleet Requirements Submitted to Fleet Operations	October 9, 2006
Enterprise Steering Committee Meeting to Approve FY2007 Projects	November 8, 2006
Capital Budget Workshop	November 2006
Departmental Capital Budget and Forecasts Forwarded to Director of Budget Reporting for Consolidation	November 20, 2006
Capital Budget Review by Senior Team and Budget Approved for Submission to PFMC	November 27, 2006
Revised Forecast of 2007 Capital Spending	December 18, 2006
Present Capital Budget to PFMC Board for Approval	December 14, 2006
Present Proposed Capital Budget and Forecast to Gas Commission and City Finance Director	January 2, 2007
Present Proposed Capital Budget and Forecast to City Council for Approval	To Be Determined

Source: Information Responses 79 and 815



Additionally, there are priority categories for the capital budget, as shown in *Exhibit V-16*. These criteria are used to determine individual project priorities.

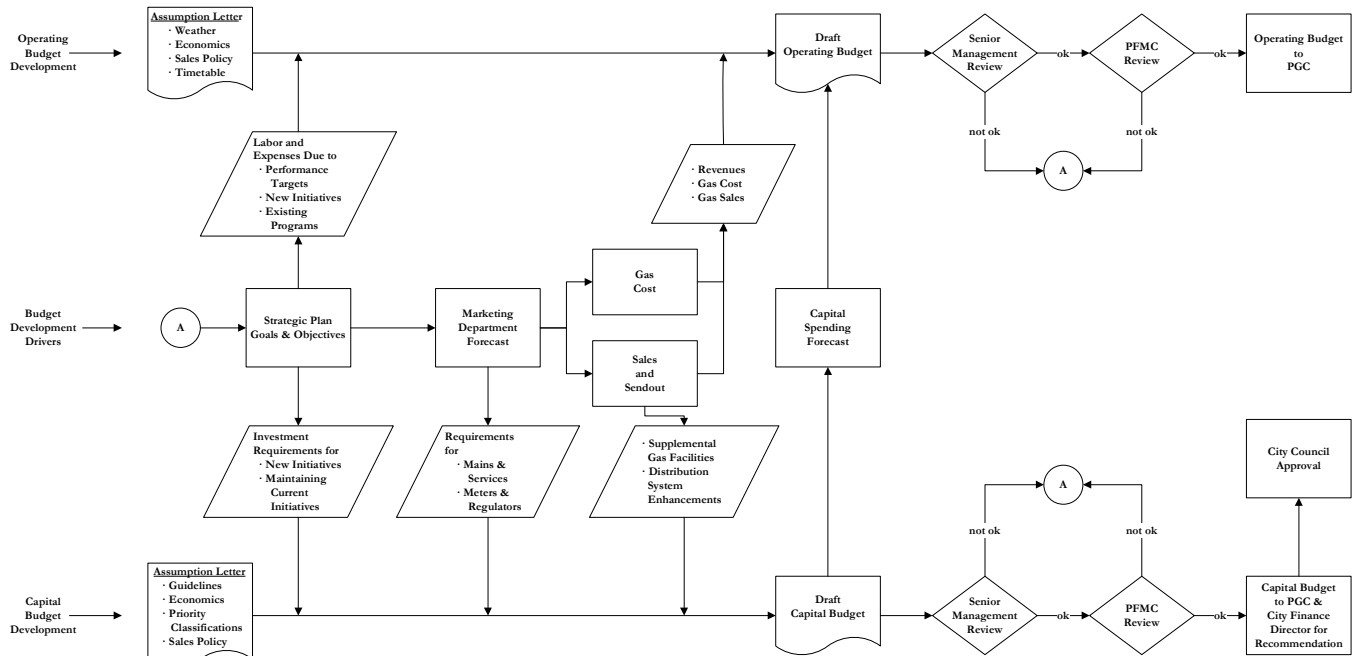
Exhibit V-16
Capital Budget Priority Classification
FY2008

Priority	Classification	Requirements
1 - Safety	Such projects will reflect capital investment that is critical to ensuring public safety, the integrity of PGW's facilities, and/or the safety of PGW's employees.	No cost/benefit analysis is required to satisfy any safety consideration associated with such projects. However, a cost/benefit justification is required for that part of a project which exceeds minimum requirements to achieve an acceptable level of risk.
2 - Reliability	Such projects will reflect capital investment that is essential to maintaining the reliability of PGW's facilities in proper working condition as defined by acceptable engineering practices. Included in this priority category is the replacement of facilities approaching the end of their useful life (and which need to be upgraded or replaced for reliability considerations).	Such projects require cost/benefit or risk assessment of potential impact.
3 - Enforced Relocations	Such projects reflect capital investment that is based upon forecasted city, state, or federal mandated projects as well as those of other agencies or utilities that have a direct impact on PGW facilities. Such projects include the replacement of facilities resulting from enforced relocations.	Such projects require documentation (obtained through a due diligence effort) of the reason(s) for relocation.
4 - Load Growth	Such projects reflect capital investment that is required to provide new or additional facilities to customers.	Such projects require payback-orientated cost/benefit analysis.
5 - Improved Efficiency and Discretionary	Such projects reflect capital investment that offers opportunity to improve efficiency of operations and subsequent reductions in operating costs.	Such projects require cost/benefit analysis and the identification of consequences from delaying such projects.

Source: Information Response 79

The planning process for the operating and capital budgets is shown on a flowchart in *Exhibit V-17*.

**Exhibit V-17
Operating and Capital Budget Planning Process
FY2008**



Source: Information Response 81

Internal Auditing

Organization and Staffing

The Internal Audit (IA) function was shut down for approximately 12 to 18 months (2002 to 2003) during PGW's issues with its failed billing system and was restarted again in 2003. At that time in 2003, the IA function had only one auditor, who was primarily an information technology (IT) auditor. During the 2003 to 2004 timeframe, PGW outsourced most of its Internal Audit activities to Pricewaterhouse Coopers (PwC) to supplement the IT auditor's activities. In 2005, the Internal Audit function was essentially put on hiatus again after PwC's contract ended. Only one internal employee, an IT systems auditor, remained on staff during the hiatus. In late 2005, the existing IA Director was named, resulting in an Internal Audit organization that was composed of the Director and one auditor. In October 2006, another contract with PwC was established to provide supplemental IA staff and to perform six internal audits. In late 2007, PwC's contract was suspended, and as of early 2008, a decision had not yet been made as to whether it would be continued by using available renewal options.

The IA Director tends to focus on financial audits and the IA auditor on systems audits, although the IA Director wants both individuals to handle both types of audits. Schumaker & Company did not get a

good explanation of what audits the IA staff performs versus what PwC performs, although it was indicated that IA performs small audits and supports PwC efforts.

The Internal Audit function reports directly to the PFMC Audit Committee, although the PGW President and Chief Executive Officer (CEO) gives some direction on audit scope.

Major Processes and Systems

In the 2003 to 2004 time period, the following internal audits were conducted by PwC auditors:

- ◆ Billing Collections and Customer Service System general IT controls assessment (May 2003)
- ◆ Credit & Collections and un-collectables & write-offs control assessments (August 2003)
- ◆ Senior citizen discount program controls assessment (October 2003)
- ◆ Gas procurement process and controls assessment (January 2004)
- ◆ Billing, billing adjustment, and employee delinquencies control assessments (February 2004)
- ◆ Process control assessment of the Materials Management Department (February 2004)
- ◆ Metering process controls assessment (February 2004)
- ◆ IT security control processes and infrastructure assessment audit (March 2004)
- ◆ Payroll business process controls assessment (August 2004)
- ◆ Human resources benefits audit (December 2004)
- ◆ Fleet Management Department business process controls assessment (December 2004)

Then, no audits were performed in 2005.

The last formal audit plan was created in March 2006, although another one was in draft form in early 2008. The March 2006 plan was based on IA risk assessment recommendations made by PwC in early 2003, major PGW systems, and old PwC audits previously completed. PwC performed five internal audit projects from October 2006 through April 2007. The following reports were subsequently provided, as follows:

- ◆ Enterprise risk management (ERM) readiness assessment (January 2007)
- ◆ Procurement best practices' review (November 2007)
- ◆ Capital projects' allocated costs (November 2007)
- ◆ Mobile project implementation (November 2007)
- ◆ Billing, Collections, and Customer Service (BCCS) application (January 2008)

Internal audits performed by the Internal Audit Director and the IT auditor during this same timeframe include:

- ◆ Disaster business recovery planning and testing (October 2007)
- ◆ Expense of employees (November 2007)
- ◆ Information security process review (Oracle Financials) (November 2007)
- ◆ Comprehensive risk inventory (November 2007)

◆ IT Help Desk operations (December 2007)

In November 2007, the IA Director indicated that he had drafted a new audit plan but was waiting on results of all ten audits (performed by PwC and the Internal Audit staff) before finalizing the plan. On November 13, 2007, Schumaker & Company requested a copy of this draft plan. When a response was received over two months later on January 21, 2008, it stated, “The 2008 audit plan is awaiting approval by the new Board and will be forwarded as soon as it is received.” In conversations with PGW management, we learned that the initial response was considered unacceptable and, therefore, was not provided. Included was a discussion of meetings held in December 2007 (after our initial meeting with the IA Director) involving the CEO, the Risk Management Director, and the SVP Business Transformation to prepare an updated version of the plan. The process involved a discussion of:

1. What represents success for PGW?
2. What are the barriers to achieving that success?
3. How does PGW manage those barriers?
4. How do management and the Board know the barriers are managed to the desired level?

This group identified the need to have the Risk Management organization further explore barrier management and establish a risk assessment priority by conferring with VPs in January 2008. At that time, PGW management planned to distribute the risk assessment and a draft audit plan to the Board in February 2008. Involved Board members were to include the Audit Committee, which has been appointed to oversee risk assessment activities. According to IA management, at the time, one of the major components of the audit plan was likely to be systems. A draft audit plan was finally presented to the PFMC Audit Committee at its meeting on April 21, 2008. The following six major projects were identified for completion during the remainder of calendar year (CY) 2008:

- ◆ Compliance audits of PGW’s gas purchasing practices
- ◆ Compliance audits of Information Services (IS) processes
- ◆ Audits of the Oracle Financials system’s applications and compliance
- ◆ Compliance audits of PGW’s physical plant and infrastructure
- ◆ Compliance audits of health insurance eligibility and statutorily mandated training
- ◆ Process and compliance audit of the Meter Investigation Unit (MIU) incentive payment practices

Following the audit plan’s approval by the Audit Committee, it was subsequently provided to Schumaker & Company.

The IA function has no risk assessment tools and techniques that it routinely uses to determine the focus of its audit plan. The latest audit plan (March 2006) was based on the IA risk assessment recommendations made by PwC in early 2003, major PGW systems, and old PwC audits previously completed. However, the IA organization does not perform annual risk assessments to develop an annual audit plan. As part of its development of the upcoming 2008 audit plan, PGW’s risk inventory documentation (currently being developed with priorities) is being used in conjunction with the PwC

2007 ERM readiness assessment report. In Schumaker & Company's opinion, however, using PGW's overall risk assessment is not the same as using IA risk assessment tools and techniques that most well-run IA departments use.

With regard to individual Internal Audit work plans, the IA Director has developed a preliminary format that is currently in use (see above IA audits), but he is still performing quality assurance on the format. Following completion of field work, the typical activities include conducting field work exit discussions with the subject department's management, developing a draft Internal Audit report, and meeting with the subject department to discuss the report. The subject department then develops a response and Internal Audit publishes the final report (may change from draft depending on the department's response) to the Audit Committee, the subject department, and PGW top-level management.

B. Findings & Conclusions

Overall Financial Management Function

Finding V-1 PGW's credit position has improved over the past five years.

PGW's credit rating from Fitch, Moody's, and Standard & Poor's has improved in the past five years. Outlooks from all three agencies have improved to stable from negative. Ratings have improved or stabilized at investment-grade-quality credit. This situation reflects the assessments that PGW was experiencing improved results in gas provision bill collections, continued relief from the annual payment to the City, and the availability and expansion of PGW's commercial paper facility. This improvement in liquidity has resulted in the restoration of adequate debt-coverage levels.

Finding V-2 Finance personnel are experienced and have demonstrated effective management control over financial operations.

PGW's key financial management personnel have extensive financial management experience and, generally, have been in their positions at PGW for a considerable amount of time. This knowledge and experience base enhances PGW's financial operation stability and its financial picture as presented to interested outside organizations. PGW's experienced management team is noted by the credit agencies as one of its strengths. Those financial personnel who have not been employed by PGW for significant amounts of time have considerable financial experience from previous employers.

Finding V-3 The use of union personnel in the Finance Department limits work flexibility and responsiveness.

All of PGW's non-management personnel are members of a bargaining unit, including personnel working in the financial management area. In the past, this situation has caused some difficulties for some of the Finance organizations, limiting the amount and type of work that can be done by time period and department. Usually, personnel in utility finance organizations are not included in their company's bargaining unit. This separation affords them more flexibility to respond to work requirements during critical, time-sensitive periods, such as during budget development or revision, and at the end of the month, quarter, and year.

Financing

Finding V-4 PGW's financing has been obtained at favorable rates and terms.

For the past five years, PGW has acquired financing for its capital program and operating needs at favorable rates. The weighted-average interest rate paid for revenue bonds, commercial leases, and commercial paper over the past five years is 5.026%. In 2007, this weighted average was only 4.956%. This average included 4.971% for \$1,063,549,767 in revenue bonds and 4.828% for \$123,600,000 in commercial paper. These are favorable rates for utility companies and reflect the recent, more favorable ratings from the credit agencies. They also reflect the fact that PGW is owned by the City of Philadelphia and is the largest municipally owned gas utility in the United States.

Cash Management

Finding V-5 PGW's cash management process is effective and efficient.

The cash management function at PGW operates efficiently and cost effectively, with adequate automation and minimal manual processes. Personnel are knowledgeable and experienced with a good grasp of the financial requirements and demands for gas utility operations. Cash collections are processed quickly, with approximately 85% of receipts credited to PGW's accounts the first day after collection and the remaining 15% by the second day after collection. The cash management systems and reports allow PGW management to effectively monitor cash movement through Philadelphia Gas Works and into investment facilities.



Accounting and Property Records

Finding V-6 **The payroll system cost/benefit analysis used to justify the ADP payroll system does not present a strong argument to justify the ADP solution, with actual results worse than portrayed in the analysis.**

The cost/benefit analysis used to justify the new ADP/Human Resource Information System (HRIS) indicated a payback period of approximately six years, with most of the cost savings resulting from PGW's ability to eliminate its mainframe computer. A six-year payback is not a particularly attractive economic benefit if it was to be realized. Because of delays incurred, the mainframe is still operating and the cost benefits have not been realized as planned. PGW has not updated its original cost/benefit study to reflect actual results; however, it is obvious that the economic justification for a new system has been diminished.

Budget Management, Reporting, and Controls

Finding V-7 **The budget approval process for operating and capital budgets is too cumbersome and too long.**

The effectiveness of all planning functions is degraded by delays in the planning approval process. If this process stretches out so that the new operating and capital cycle begins before the budget is approved, there can be serious doubts concerning both the appropriateness of the budgeting process and the truth of the actual budget numbers. Only the FY2007 capital budget was approved in the past five years prior to the start of the budget year. For two years during this time period, the capital budget was not approved until over nine months of the budget year had passed. The operating budget approvals have been received only marginally quicker than the capital budget approvals. The operating budget approvals were received from one month to over five months after the start of the budget year.

Internal Auditing

Finding V-8 **The PGW organization does not have an effective IA program with appropriate management policies, plans, procedures, practices, and systems.**

Schumaker & Company consultants noted many deficiencies in IA's program during the course of this management and operations audit. Some of the key deficiencies include:

- ◆ Lack of a regularly developed annual audit plan and calendar – Only two formal audit plans have been approved in the last several years, specifically March 2006 and April 2008. The IA

function does not follow the industry-standard practice of developing a formal audit plan before the beginning of each calendar (or fiscal) year.

- ◆ Lack of IA risk assessment tools and techniques – The IA function does not perform formal risk assessments using a risk-assessment tool as part of an annual audit planning process. The use of such a tool is not used by PGW’s IA function to perform risk-assessment analyses as a means of determining the specific focus of its audit plan. Commercially-off-the-shelf (COTS) applications are readily available to IA functions, but PGW has not purchased such a system. The use of PGW’s risk inventory (as discussed in Chapter III – Support Services – Risk Management) is not adequate for IA planning purposes. PGW’s risk inventory is an input to, not the sole basis for, developing the focus of IA’s audit plan.
- ◆ Lack of standard work plan formats – With regard to individual Internal Audit work plans, the IA Director has developed a preliminary format that is currently in use. However, he is still performing quality assurance on the format, despite the fact that IA has been in existence for several years.
- ◆ Infrequent presentations to the PFMC Audit Committee – The PFMC Audit Committee is supposed to meet quarterly; however, it has not kept to its schedule. (See Chapter IV – Corporate Governance for discussion about the PFMC Audit Committee.) In fact, the IA Director has met with the Audit Committee only three times in the last three years. (See *Finding V-10* for more discussion.)
- ◆ Few audits performed during the early 2000s – In the early 2000s, the IA function was shut down approximately 12 to 18 months (2002 to 2003) and was restarted again in 2003. Since 2003, only 21 audits have been completed. Because the contract with the outside firm was inactive for frequent periods of time, no audits were conducted during these inactive periods unless performed by IA staff. Schumaker & Company understands that under the existing IA organizational structure, much of the audit work must be done by an outside contractor. However, such a structure is no excuse for irregular conduct of audits.

These deficiencies are symptoms of an ineffective IA function without appropriate management policies, plans, procedures, practices, and systems.

Finding V-9 The internal audit reports that have been created since 2003 appear to be reasonably well done.

Schumaker & Company reviewed the 11 audit reports completed in late 2007 and early 2008 by PwC and the IA staff. Our review found that they generally included the elements we would expect to see in such reports. Nevertheless, this fact does not necessarily indicate that IA is performing the appropriate audits, as discussed previously in *Finding V-8*.



Finding V-10 The IA Director infrequently meets with the Board Committee.

The IA Director attempts to meet with the Board Audit Committee at least quarterly; however, he also stated that he has made only three formal presentations to the Audit Committee. Since coming to Internal Audit in September 2005, he has made presentations on April 16, 2006, August 16, 2007, and April 21, 2008. Although he stated that the Audit Committee was involved in approving audit plans, this procedure has been developed irregularly, as discussed previously in *Finding V-8*.

C. Recommendations

Overall Financial Management Function

Recommendation V-1 Institute flexible work rules and hours in financial management functions. (Refer to Finding V-3.)

The lack of flexibility in working hours and tasks has hindered financial management operations. Labor negotiations with the bargaining unit should be initiated in an attempt to gain the necessary flexibility needed by the financial organization during critical time periods or during emergency operating situations.

Accounting and Property Records

Recommendation V-2 Update the payroll system cost analysis. (Refer to Finding V-6.)

The assumptions used in the cost/benefit system to justify the new ADP/HRIS are no longer valid. From an economic position, what had been a limited justification for this new system and operation is now even more questionable. Although it might be too late to change directions at this time, the revised study should still be completed to provide useful experience in making future economic estimates.

Budget Management, Reporting, and Controls

Recommendation V-3 Improve the timing of the budget preparation and approval process. (Refer to Finding V-7.)

Budgets should be prepared efficiently and approved in a timely manner, certainly before the start of the budget year. This efficiency and timeliness has failed to occur at PGW for both the capital and operating budgets for the past five years. Two things should be considered in order to complete the

budget process, including approvals prior to the start of the budget year. First, consideration should be given to expediting the budget approval process. All of the parties involved, including PGW, PFMC, PGC, and the City Council, should meet to agree on an efficient and greatly expedited budget approval process. This may require changes to the Management Agreement and the City Charter. Secondly, PGW should consider starting the budget development process at an earlier date, depending on the results or lack thereof from the first (budget approval expediency) task. It is acknowledged that moving dates forward may be difficult and could adversely impact the quality of information used to develop the budget. However, continually beginning the budget year without an approved budget is not an acceptable alternative.

Internal Auditing

Recommendation V-4 Modify the IA program structure by addressing all noted deficiencies. (Refer to Finding V-8.)

Each of the deficiencies noted in *Finding V-8* must be addressed as quickly as possible by IA management. The IA function cannot continue to operate without appropriate management policies, plans, procedures, practices, and systems. Having only one IA Director and a systems auditor relying on an outside contractor to perform a large portion of the audits is not an excuse. Without these management policies, plans, procedures, practices, and systems, PGW management cannot rely on IA to achieve its purpose. As defined by the Institute of Internal Auditors, an Internal Audit function should be an independent, objective, assurance, and consulting activity that is designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a *systematic, disciplined* approach to evaluate and improve the effectiveness of risk management, control, and governance processes. The scope of IA activities includes examining and evaluating the policies, procedures, and systems that are in place to ensure reliability and integrity of information; complying with policies, plans, procedures, laws, and regulations; safeguarding assets; economically and efficiently using resources; and accomplishing established objectives and goals for operations or programs.

The existing PGW IA program structure does not achieve this purpose.

Recommendation V-5 Implement a process to ensure that the IA Director meets quarterly with the Board's Audit Committee. (Refer to Finding V-10.)

Even though the Audit Committee itself has not met regularly in the past several years, the IA Director must find a way to meet at least quarterly with the PFMC Audit Committee or its Committee Chair to discuss audit issues.



VI. Diversity & EEO

This chapter addresses diversity and equal employment opportunity (EEO) programs at Philadelphia Gas Works (PGW) for both employee and supplier diversity programs.

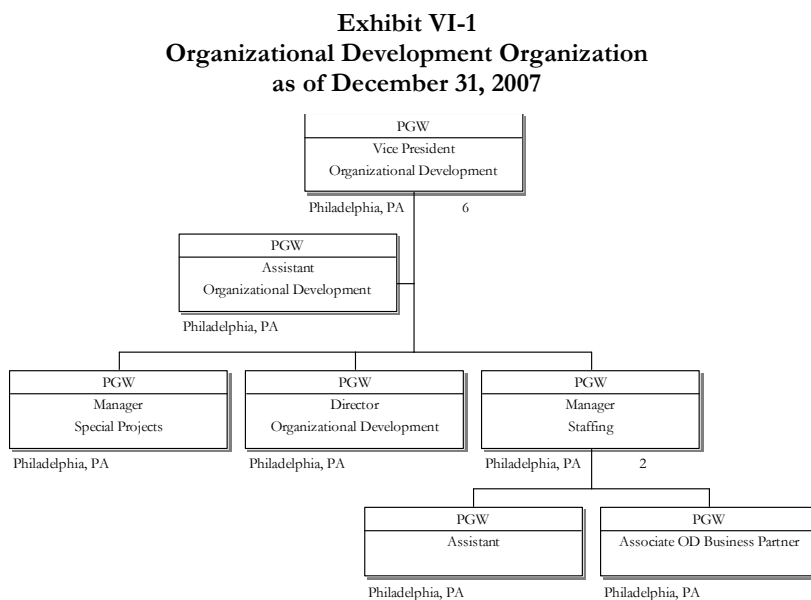
A. Background & Perspective

PGW's affirmative action and diversity commitment is evidenced by a range of policies and practices. While primary responsibility for the affirmative action and diversity programs resides within the Organizational Development (OD) function, accountability extends to all managers. Senior management sets the example at PGW by communicating its explicit support for diversity through corporate value statements, formal goals, and the performance appraisal process.

Employee Diversity

Organization & Staffing

Diversity and EEO/affirmative action (AA) initiatives are the responsibility of the Organizational Development Department, as shown in *Exhibit VI-1*. This department is led by a Vice President (VP) and reports to the Senior VP of Administration and General Counsel.



Source: Information Responses 1 and 609



Affirmative Action and Diversity Functions

As a municipal utility, PGW is not required by the federal government or the Commonwealth of Pennsylvania to produce affirmative action plans (AAPs), but it voluntarily does so. PGW is also not required to file Equal Employment Opportunity Commission (EEOC) reports (EEO-1 reports), and it does not do so. PGW uses Berkshire Associates software for AAP tracking and reporting. Berkshire’s BALANCEaap® supports the preparation of an Office of Federal Contract Compliance Program (OFCCP)-compliant AAP and associated reports.

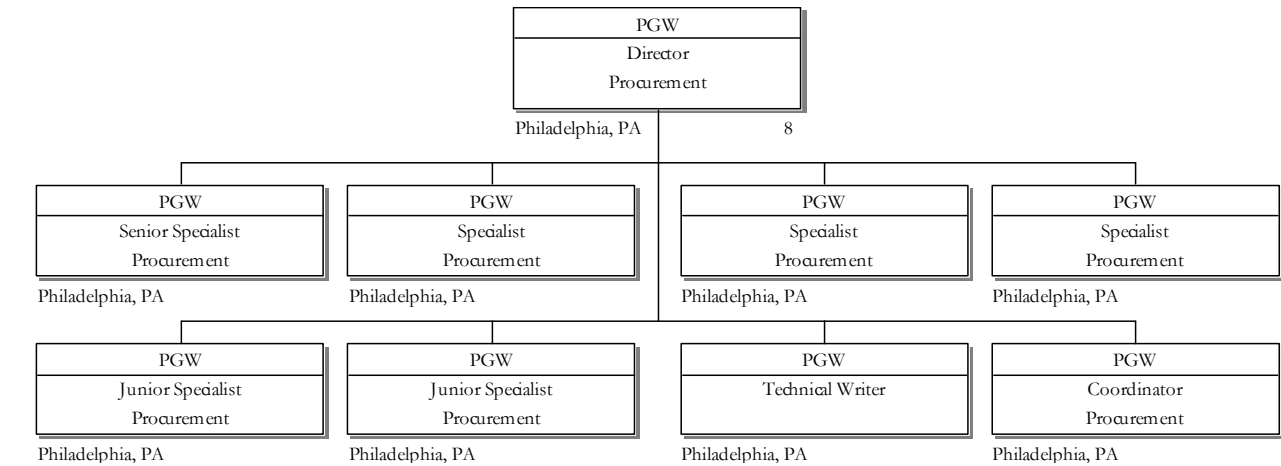
PGW tracks and reports utilization as a key performance indicator. This metric applies to both the OD organization and PGW as a whole. The OD VP recognizes that PGW is underutilized in certain key classifications. Every posting is marked for its utilization level and underutilized positions are given special consideration in recruitment and selection. Diversity hiring goals are specified in staffing service level agreements (SLAs) that are now provided to hiring departments. The OD VP also reports that PGW is doing a better job of developing a diverse profile in management positions and senior PGW executives are supportive of diverse hiring practices. PGW’s utilization performance is discussed in *Finding VI-3* and *Finding VI-4*.

Supplier Diversity

Organization & Staffing

All supplier diversity activities are performed by the PGW Procurement organization. The Director of Procurement reports to the VP of Support Services.

**Exhibit VI-2
Procurement Organization
as of December 31, 2007**



Source: Interviews 31 and 131 and Information Response 1

Upcoming changes in the Procurement organization for later in 2008, which have been approved but not yet been implemented, include adding a Diversity Manager position, changing the name of the organization to the Supply Chain organization (even though it will include only procurement and not inventory management activities), and undertaking an enterprise-wide business transformation (BT) initiative that will be focused on supply chain activities. Refer to Chapter III – Support Services – Procurement Services & Materials Management for additional discussion about BT initiatives.

Major Processes & Systems

The PGW Procurement organization is subject to City of Philadelphia (City) policies regarding purchasing from minority business enterprise (MBE), women business enterprise (WBE), and disabled-owned business enterprise (DBE) companies. The stated purpose PGW's supplier diversity program is to provide equal opportunity for all businesses and persons and to assure that funds are not used, directly or indirectly, to promote, reinforce, or perpetuate discriminatory practices. The Procurement organization uses the following agencies and organizations to increase minority/women/persons with disability business enterprise (MWDBE) supplier participation in both the bid and request for proposal (RFP) and request for quote (RFQ) processes:

- ◆ Minority Supplier Development Council (MSDC) (directories available online at a secure site)
- ◆ Minority Business Enterprise Council (MBEC) (now known as Office of Economic Opportunity) (directories available online at www.phila.gov/mbec)
- ◆ National Association of Women Business Owners (NAWBO)
- ◆ Purchasing Management Association of Philadelphia (PMAP)
- ◆ African-American Chamber of Commerce of Philadelphia, New Jersey, and Delaware

Contact with these groups can occur via telephone, through e-mail, or by accessing the agency's website for information. During such correspondence, this organization also uses other commonly available directories for sourcing potential vendors, including:

- ◆ Thomas Register directory (hardbound book)
- ◆ The Blue Book – Building and Construction (hardbound book)

The agencies listed above represent examples of the resources used by PGW. In addition, Procurement staff contact colleagues at other companies for information on categories/classifications of vendors. The aims of such outreach efforts are to broaden the vendor base and stimulate competition. In addition, the Procurement organization maintains an internal database of women and minority vendors using Oracle e-Business Suite, which is PGW's sole procurement software system. Diversity certificates and the source of certification are maintained within this system.

For all bids processed through the Procurement organizations, MWDBE assessments and the related participation ranges are established following an examination of the scope of work. Projects involving multiple disciplines, such as painting, electrical, plumbing, etc., would be evaluated based not only on the availability of MWDBE contractors within those crafts, but also on a discretionary basis the volume



of work associated with the project. In a similar fashion, RFPs for professional services are reviewed for potential MWDBE subcontract opportunities and/or opportunities for material suppliers to participate in a project. In instances involving the purchase of general commodities or other finished goods, the Procurement organization uses the vendor information in Oracle as well as other resources (such as MBEC, MSDC, and other agencies) to help identify potential MWDBE suppliers for inclusion in the bid process.

Awards to vendors who respond to RFPs do not have to go to the lowest cost vendor. On the other hand, all RFQ awards must go to the lowest-cost qualified bidder, regardless of diversity status. Large projects (mostly construction) have a 15% to 20% target for the prime contractor to use minority subcontractors. Even this stipulation, however, is not enforceable, and a bidder cannot be rejected for not achieving this goal.

The City of Philadelphia's spend goals include participation targets of 20% MBE, 10% WBE, and 2% DBE; however, PGW has not developed formal supplier spend targets. Nor were formal targets established for FY2008 due to the transition of the Procurement organization in November 2007 from the Finance organization to the Support Services organization. Instead, in the last few years, PGW has used the prior year's actual spend percentage as an unofficial benchmark, in which each year it strives to improve its M/WBE spend over last year's M/WBE spend.

In calculating its spend percentage, PGW considers both direct (prime contractor) and indirect (subcontractor) spend (i.e., purchases directly from MBE and WBE businesses and purchases that involve components from or subcontracting with MBE and WBE businesses).

In fiscal year (FY) 2006, as shown later in *Exhibit VI-4*, PGW began tracking spend against both self-certified MWDBE vendors and those certified by recognized certifying agencies, such as the Minority Business Enterprise Council, the Commonwealth of Pennsylvania, the State of New Jersey, the Minority Supplier Development Council, the Southeastern Pennsylvania Transportation Authority (SEPTA), the Pennsylvania Department of Transportation (PennDot), the New Jersey Department of Transportation (NJDot), the Delaware Department of Transportation (DelDot), and the Small Business Administration (SBA). PGW does not consider this list as all inclusive, as vendors may submit certification letters or certificates from other agencies with their marketing materials. PGW management feels that its service territory being confined to the City of Philadelphia may have some bearing on which vendors may decide to seek business opportunities with PGW. For instance, a material supplier outside the tri-state area may elect to contact PGW, while a construction or service entity may choose not to pursue opportunities because of the distance, the logistics, etc.

Diversity Purchases Data

Exhibit VI-3 illustrates percentage of PGW prime contractor spend for MWDBE contractors from FY2003 to FY2007.

Exhibit VI-3
Summary Level Prime Contractor Spend
FY2003 to FY2007

	FY2003	FY2004	FY2005	FY2006	FY2007
Asian	\$113,087 0.14%	\$224,847 0.31%	\$252,031 0.29%	\$149,132 0.19%	\$819,169 1.10%
Black	\$2,128,444 2.65%	\$2,221,535 3.01%	\$2,236,639 2.53%	\$3,166,103 4.01%	\$2,421,199 3.26%
Disabled	\$0 0.00%	\$0 0.00%	\$0 0.00%	\$0 0.00%	\$0 0.00%
Hispanic	\$20,595 0.03%	\$44,050 0.06%	\$386,505 0.44%	\$409,933 0.52%	\$488,170 0.66%
Native American	\$5,269 0.01%	\$0 0.00%	\$0 0.00%	\$35,902 0.05%	\$21,897 0.03%
Women	\$2,506,234 3.11%	\$2,412,737 3.27%	\$2,481,399 2.81%	\$2,458,399 3.12%	\$2,788,424 3.76%
Total MWDBE Spend	\$4,773,629	\$4,903,169	\$5,356,574	\$6,219,469	\$6,538,859
Total MWDBE Spend %	5.93%	6.65%	6.06%	7.89%	8.80%

Source: Information Response 191 and 540

Exhibit VI-4 illustrates PGW's actual spend with MWDBE organizations from FY2003 to FY2007. The detailed data is segmented by spend administered through the Procurement organization, spend not administered through the Procurement organization, and PGW's total company spend. Also included in this detailed data, starting in FY2006, is spend segmented by certified versus non-certified contractors.



Exhibit VI-4
MWDBE Prime Contractor Spend
FY2003 to FY2007
Page 1 of 2

Fiscal Year 2007									
	Procurement			Company less Procurement			Total Company		
	Purchase Orders			Purchase Orders			Purchase Orders		
	Number	Value	Value %	Number	Value	Value %	Number	Value	Value %
Asian	8	4,251	0.18%	108	247,345	0.76%	116	251,596	0.34%
Asian MBEC Certified	40	69,427	0.17%	53	498,147	1.52%	93	567,573	0.76%
Black	43	92,450	0.22%	66	179,557	0.55%	109	272,007	0.37%
Black MBEC Certified	129	214,821	0.52%	305	1,934,371	5.92%	434	2,149,192	2.89%
Disabled	-	-	-	-	-	-	-	-	-
Disabled MBEC Certified	-	-	-	-	-	-	-	-	-
Hispanic	46	236,877	0.57%	1	225	0.00%	47	237,102	0.32%
Hispanic MBEC Certified	24	54,607	0.13%	7	196,461	0.60%	31	251,068	0.34%
Majority	3,975	39,296,637	94.43%	8,762	28,445,146	87.07%	12,737	67,741,783	91.20%
Native American	3	21,987	0.05%	-	-	-	3	21,987	0.03%
Native American MBEC Certified	-	-	-	-	-	-	-	-	-
Women	452	1,479,188	3.55%	294	352,825	1.08%	746	1,832,013	2.47%
Women MBEC Certified	7	142,303	0.34%	6	814,109	2.49%	13	956,411	1.29%
Total Minority/Women Certified Purchases*	200	481,157	1.16%	371	3,443,088	10.54%	571	3,924,245	5.28%
Total Minority/Women Purchases*	752	2,315,911	5.57%	840	4,223,039	12.93%	1,592	6,538,950	8.80%
Total Purchases	4,727	41,612,548	100.00%	9,602	32,668,185	100.00%	14,329	74,280,734	100.00%

Fiscal Year 2006									
	Procurement			Company less Procurement			Total Company		
	Purchase Orders			Purchase Orders			Purchase Orders		
	Number	Value	Value %	Number	Value	Value %	Number	Value	Value %
Asian	2	292	0.00%	17	21,208	0.06%	19	21,499	0.03%
Asian MBEC Certified	46	122,618	0.30%	13	5,015	0.01%	59	127,633	0.16%
Black	73	199,380	0.48%	78	133,609	0.36%	151	332,989	0.42%
Black MBEC Certified	186	585,601	1.42%	331	2,247,514	5.98%	517	2,833,114	3.59%
Disabled	-	-	-	-	-	-	-	-	-
Disabled MBEC Certified	-	-	-	-	-	-	-	-	-
Hispanic	37	81,009	0.20%	1	225	0.00%	38	81,234	0.10%
Hispanic MBEC Certified	31	297,665	0.72%	5	31,033	0.08%	36	328,699	0.42%
Majority	4,304	38,399,311	93.02%	9,265	34,218,614	91.11%	13,569	72,617,925	92.11%
Native American	3	35,902	0.09%	-	-	-	3	35,902	0.05%
Native American MBEC Certified	-	-	-	-	-	-	-	-	-
Women	410	1,557,058	3.77%	376	901,341	2.40%	786	2,458,399	3.12%
Women MBEC Certified	-	-	-	-	-	-	-	-	-
Total Minority/Women Certified Purchases*	263	1,005,884	2.44%	349	2,283,562	6.08%	612	3,289,446	4.17%
Total Minority/Women Purchases*	788	2,879,525	6.98%	821	3,339,945	8.89%	1,609	6,219,470	7.89%
Total Purchases	5,092	41,278,835	100.00%	10,086	37,558,560	100.00%	15,178	78,837,395	100.00%

Fiscal Year 2005									
	Procurement			Company less Procurement			Total Company		
	Purchase Orders			Purchase Orders			Purchase Orders		
	Number	Value	Value %	Number	Value	Value %	Number	Value	Value %
Asian	24	198,057	0.36%	36	53,974	0.16%	60	252,031	0.29%
Black	233	710,317	1.29%	335	1,526,322	4.57%	568	2,236,639	2.53%
Disabled	-	-	-	-	-	-	-	-	-
Hispanic	57	383,334	0.70%	8	3,171	0.01%	65	386,505	0.44%
Majority	4,770	51,463,172	93.63%	9,641	31,533,400	94.45%	14,411	82,996,572	93.94%
Native American	-	-	-	-	-	-	-	-	-
Women	479	2,211,021	4.02%	332	270,378	0.81%	811	2,481,399	2.81%
Total Minority/Women Purchases*	793	3,502,729	6.37%	711	1,853,845	5.55%	1,504	5,356,574	6.06%
Total Purchases	5,563	54,965,901	100.00%	10,352	33,387,244	100.00%	15,915	88,353,146	100.00%

* Excludes majority spend
Source: Information Response 191

Exhibit VI-4
M/WBE Prime Contractor Spend
FY2003 to FY2007
Page 2 of 2

Fiscal Year 2004									
	Procurement			Company less Procurement			Total Company		
	Purchase Orders			Purchase Orders			Purchase Orders		
	Number	Value	Value %	Number	Value	Value %	Number	Value	Value %
Asian	32	170,450	0.38%	26	54,397	0.19%	58	224,847	0.31%
Black	232	923,917	2.04%	309	1,297,618	4.55%	541	2,221,535	3.01%
Disabled	-	-	0.00%	-	-	0.00%	-	-	0.00%
Hispanic	46	39,913	0.09%	10	4,138	0.01%	56	44,050	0.06%
Majority	4,998	41,906,181	92.74%	8,912	26,906,414	94.31%	13,910	68,812,595	93.35%
Native American	-	-	0.00%	-	-	0.00%	-	-	0.00%
Women	720	2,145,374	4.75%	264	267,363	0.94%	984	2,412,737	3.27%
Total Minority/Women Purchases*	1,030	3,279,654	7.26%	609	1,623,515	5.69%	1,639	4,903,169	6.65%
Total Purchases	6,028	45,185,835	100.00%	9,521	28,529,929	100.00%	15,549	73,715,764	100.00%

Fiscal Year 2003									
	Procurement			Company less Procurement			Total Company		
	Purchase Orders			Purchase Orders			Purchase Orders		
	Number	Value	Value %	Number	Value	Value %	Number	Value	Value %
Asian	32	71,629	0.14%	24	41,458	0.14%	56	113,087	0.14%
Black	217	863,109	1.73%	305	1,265,335	4.13%	522	2,128,444	2.65%
Disabled	-	-	0.00%	-	-	0.00%	-	-	0.00%
Hispanic	6	18,923	0.04%	5	1,672	0.01%	11	20,595	0.03%
Majority	5,446	46,656,815	93.66%	8,624	29,032,706	94.72%	14,070	75,689,521	94.07%
Native American	1	5,269	0.01%	-	-	0.00%	1	5,269	0.01%
Women	829	2,197,688	4.41%	335	308,546	1.01%	1,164	2,506,234	3.11%
Total Minority/Women Purchases*	1,085	3,156,618	6.34%	669	1,617,011	5.28%	1,754	4,773,629	5.93%
Total Purchases	6,531	49,813,433	100.00%	9,293	30,649,717	100.00%	15,824	80,463,150	100.00%

* Excludes majority spend
Source: Information Response 191

Spend not administered through the Procurement organization, as shown in *Exhibit VI-4*, primarily includes the following:

- ◆ Limited value purchase orders (<\$500)
- ◆ Professional services without a RFQ or RFP (special circumstances only)
- ◆ Releases against a master purchase order (PO); at PGW they are referred to as “standard purchase orders,” which are connected in Oracle to a “contract purchase order.” These terms are Oracle’s terminology, which is the software package used by PGW’s Procurement organization.
- ◆ Releases against a blanket PO
- ◆ Purchases > \$500 and under \$25,000 that the Procurement organization does not directly administer, which are shown in *Exhibit VI-4* as “company less procurement” items. (All requisitions over \$25,000 must go through the Procurement organization, while purchases under \$25,000 are not required to be administered by the Procurement organization); however,



all professional services are reviewed by Procurement as part of the Competitive Contract Committee process, including those under \$25,000.

B. Findings & Conclusions

Finding VI-1 **PGW has a very strong affirmative action compliance process that reflects a clear commitment to equal employment opportunity, nondiscriminatory workplace practices, and affirmative action in hiring and promotion.**

At Philadelphia Gas Works, senior management believes that its commitment is the driving force in ensuring the success of PGW's diversity initiatives. As part of the senior management team's shared values, management's role in affirmative action and EEO is defined as being an:

Active agent(s) in ensuring that the letter and spirit of the EEO/AA laws and policies are adhered to; ensuring that all personnel decisions are fair and consistent across the board; personally engaging in exploring and implementing employment, personnel, purchasing, and other opportunities through the lens of equal opportunity.

The importance of diversity, AA, and EEO are underscored by their inclusion in all management performance appraisals.

Although under no Federal requirement to do so, PGW prepares an annual affirmative action plan. In addition, PGW reviews each classification for underutilization and identifies targeted positions for minority and women hiring when appropriate. As we discussed in *Finding VI-3*, PGW designates a position as underrepresented whenever representation in a given classification falls below the level of available qualified women and minorities in the workforce. Managers clearly understand these hiring goals as they are indicated in a service level agreement that is prepared by the staffing specialist from the Organizational Development Department.

The following illustrate some of PGW's current initiatives that are focused on improving minority and female representation, retaining/retraining disabled employees, and proactively educating the PGW workforce:

- ◆ Executive Leadership Program – A two-year leadership development program; for high-potential young women and minority employee participants; three minority/three female)
- ◆ Engineering Open House (14 hires – seven minority/four female)
- ◆ Information Services Open House (two hires – two minority)
- ◆ Mandatory five-part EEOC series given by EEOC to the management team
- ◆ Sexual Harassment Awareness Training

- ◆ College Relations Program
- ◆ Job shadowing (19 students)
- ◆ Co-op/intern programs with Temple and Drexel universities (17 interns: six minority/six female)
- ◆ Diversity fairs (NAACP, Urban League, Congresso, Berean, etc.)
- ◆ Aggressive Employee Utilization Committee, which focuses on getting those who are disabled, be they on or off the job, back to work (24 placements: 10 minorities/one female)
- ◆ Enhanced tuition assistance
- ◆ Training and development classes
- ◆ Minority recruitment strategy for union positions

In addition, PGW has established an EEO/AA office to be proactive in assuring nondiscriminatory work practices. The mission of the EEO/AA office is “to ensure that all employees and applicants are treated fairly and that there is a clear understanding that PGW will not tolerate harassment or discrimination of any kind.” The requirement for non-discriminatory practices is clearly established in PGW policies. In support, the EEO/AA office maintains an open-door policy that allows for early response to potential problems. Employees are encouraged to come in and discuss concerns with HR/OD professionals. These confidential discussions have contributed to an overall low number of employment practices complaints (see *Finding VI-2*).

Finding VI-2 PGW has had relatively few external complaints regarding employment practices and the majority have been resolved in its favor.

Since 2001, only 52 complaints have been filed with the federal Equal Employment Opportunity Commission (EEOC), the Philadelphia Human Rights Commission (PHRC), or the Pennsylvania Commission on Human Relations (PCHR). Of these, 44 (85%) were either withdrawn or resulted in no-cause findings. PGW averages just six external complaints per year and has not received a probable-cause finding by any external agency in the past six years.

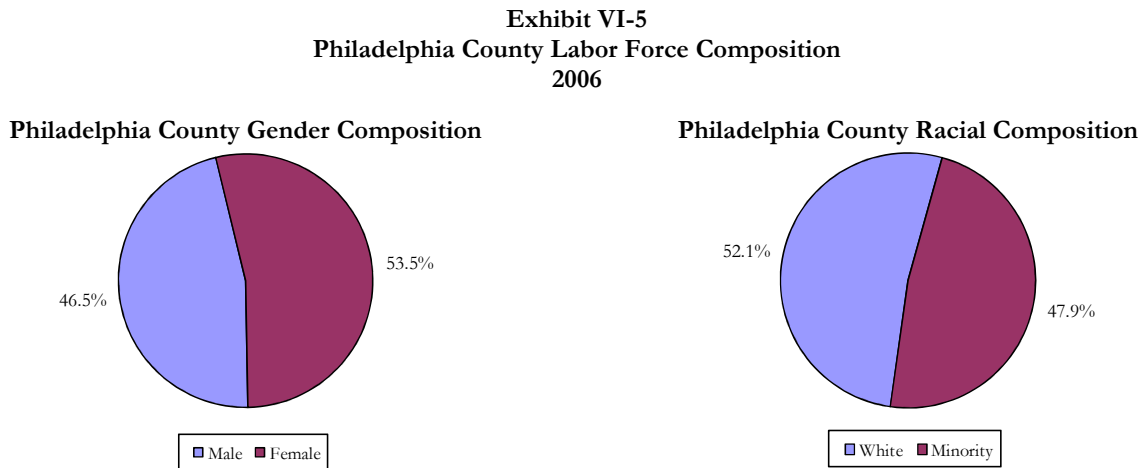
Twelve cases reached litigation. Of those, PGW settled just three cases and the average settlement was \$2,200. In addition, PGW obtained five judgments against plaintiffs for frivolous actions. There are eight cases still pending as of December 31, 2007. The oldest case was filed with the PHRC in September 2006 and the most recent was filed in October of 2007. As of late 2007, PGW had no federal or state regulatory-compliance audits in progress.

PGW cites the collaborative team effort from the Organizational Development, Human Resources, Labor Relations, and Legal organizations to assure a timely and consistent response that conforms to the letter of Pennsylvania and federal employment law. In addition, PGW has had formal anti-harassment/sexual harassment policies and procedures in place since 1985 (last updated in 2007), including a formal complaint form to encourage employees to seek an internal resolution of their issue.



Finding VI-3 **Minorities and women continue to be underrepresented in several key job groups at PGW.**

Exhibit VI-5 illustrates Philadelphia County's gender and race composition for its labor force as of 2006 (the latest available data).

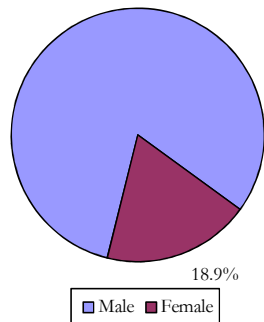


Source: Information Response 187 (PGW 2007 Affirmative Action Plan) and Information Response 804

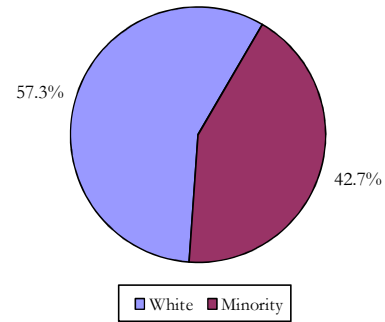
Philadelphia County's labor force is approximately 53.5% female and 46.5% male and approximately 52.1% white and 47.9% minority. At PGW, women and minorities are employed at a lower percentage than they participate in the workforce overall. *Exhibit VI-6* shows the proportional composition of PGW's workforce. Minorities comprise 42.7% of the PGW workforce while women comprise just 18.9% of it.

Exhibit VI-6
PGW Gender and Race Composition
as of November 1, 2006

PGW Gender Composition



PGW Racial Composition



Source: Information Response 187 (PGW 2007 Affirmative Action Plan) and Information Response 804

Of course, it is overly simplistic to compare aggregate participation rates of women and minorities. Hence, companies rely on more sophisticated *utilization analysis* to determine whether their workforce fairly represents the women and minority composition of the available workforce. Utilization analysis of women and minorities is a somewhat arcane process. Results are affected by what geographic area is used to determine workforce availability and what method is used to calculate underutilization. The utilization analysis compares the actual percentage of minorities and females in each job group (from the job group analysis) with the calculated percentage availability of minorities and females (from the availability analysis). It then uses the results of this comparison to determine whether minorities and females are “underutilized” in any job group. Underutilization is defined as “having fewer minorities or women in a particular group than would reasonably be expected by their availability.” There are four accepted methods used to calculate underutilization:

1. *Any difference* – This approach is the simplest and suggests that underutilization exists if there is any difference between the availability of women or minorities compared to these groups’ percentages in the employer’s actual workforce.
2. *Difference greater than or equal to one person* – This approach suggests that if the difference between utilization level and the weighted availability level is one or more, a job category is considered to be underutilized and therefore a recruiting target for it would be set.
3. *80% rule* – This approach suggests that if the utilization level is within 80% of the weighted availability, then the job category is considered to have an acceptable utilization level. Goals are set for job categories where the utilization level falls below 80%.
4. *Two standard deviations rule* – This approach uses a more sophisticated statistical test to determine whether the utilization level falls within an acceptable range. If utilization is more than two standard deviations from the weighted availability figure, then a job category is considered to be underutilized.



PGW uses the *any difference* method. As such, affirmative action hiring goals are set for any job category where the representation rate of women or minorities is below the availability level, which by the nature of this method, PGW holds itself to a higher standard, as the any different method is the most stringent of the four accepted methods. *Exhibit VI-7* shows underutilization using the *any difference* method as presented in PGW's 2007 Affirmative Action Plan (the most recent data available).

Exhibit VI-7
PGW Women and Minority Utilization
as of November 1, 2006

Job Group	Minorities			Women		
	Number	Percentage	Underutilized?	Number	Percentage	Underutilized?
Officers	3 of 18	16.67%	Yes	4 of 18	22.22%	No
Directors	12 of 36	33.33%	No	6 of 36	16.67%	Yes
Administrative Managers	13 of 38	34.21%	Yes	14 of 38	36.84%	Yes
Technical Managers	7 of 40	17.50%	Yes	6 of 40	15.00%	No
IT Managers	1 of 7	14.29%	Yes	1 of 7	14.29%	Yes
Administrative Supervisors	22 of 38	57.89%	No	17 of 38	44.74%	No
Technical Supervisors	17 of 82	20.73%	Yes	2 of 82	2.44%	Yes
Administrative Professionals	14 of 44	31.82%	Yes	24 of 44	54.55%	No
Technical Professionals	24 of 57	42.11%	No	11 of 57	19.30%	Yes
IT Professionals	19 of 37	51.35%	No	13 of 37	35.14%	Yes
Traditional Technicians	23 of 108	21.30%	Yes	2 of 108	1.85%	Yes
Administrative Technicians	25 of 54	46.30%	Yes	22 of 54	40.74%	No
Sales	3 of 8	37.50%	Yes	3 of 8	37.50%	No
Customer Contact Clerks	92 of 114	80.70%	No	48 of 114	42.11%	No
Clerks	64 of 105	60.95%	No	55 of 105	52.38%	No
Secretaries	19 of 32	59.38%	No	32 of 32	100.00%	No
Field Clerks	19 of 52	36.54%	Yes	1 of 52	1.92%	Yes
Skilled Clerks	71 of 128	55.47%	Yes	63 of 128	49.22%	Yes
Skilled Craftsman I	54 of 201	26.87%	Yes	0 of 201	0.00%	Yes
Skilled Craftsman II	71 of 208	34.13%	No	2 of 208	0.96%	Yes
Semi-skilled Operatives I	131 of 245	53.47%	No	3 of 245	1.22%	Yes
Semi-skilled Operatives II	7 of 18	38.89%	Yes	0 of 18	0.00%	Yes
Semi-skilled Operatives III	29 of 78	37.18%	Yes	1 of 78	1.28%	Yes
Services	14 of 18	77.78%	No	3 of 18	16.67%	No

Source: Information Response 187 (PGW 2007 AAP) and Information Response 804

Exhibit VI-8 illustrates PGW's employment mix by gender and race for the last four fiscal years (FY2004 to FY2007). This exhibit shows that, when comparing these figures to *Exhibit VI-5*, PGW is underrepresented with regard to females and minorities on an overall basis.

Exhibit VI-8
PGW Employment Mix by Gender and Race
FY2004 to FY2007

Employment Data	FY2004	FY2005	FY2006	FY2007
Asian (Male)	0.5%	0.6%	0.8%	0.8%
Black/African American (Male)	22.8%	22.6%	22.6%	22.4%
Native Hawaiian/Pacific Islander (Male)	0.0%	0.0%	0.0%	0.0%
White (Male)	50.8%	50.5%	50.6%	49.8%
Hispanic (Male)	7.2%	7.1%	7.0%	7.2%
Asian (Female)	0.2%	0.2%	0.3%	0.3%
Black/African American (Female)	10.3%	10.6%	10.0%	10.3%
Native Hawaiian/Pacific Islander (Female)	0.0%	0.0%	0.0%	0.0%
White (Female)	6.9%	6.9%	7.1%	7.0%
Hispanic (Female)	1.5%	1.6%	1.6%	2.2%
PGW Total	100.0%	100.0%	100.0%	100.0%
Minority	42.3%	42.7%	42.3%	43.3%
Female	18.8%	19.3%	19.0%	19.8%

Source: Information Response 187 (EEO-1)

Based on EEO-1 data (as discussed previously, although EEO-1 data is kept, it is not filed), female representation has slightly increased from 17% in FY2001 (before audit data) to 18.8% in FY2004 (the first year reviewed as part of this audit) and then to 19.8% in FY2007. PGW's minority representation has slightly increased from 41% in FY2001 to 42.3% in FY2004 and then to 43.3% in 2007. (Note that slight differences in percentages may occur between AAP and EEO-1 data because information comes from two different systems.) Participation rates for both groups have increased, although the overall workforce decreased from 1,783 in FY2001 to 1,770 in FY2007.

The job groups used in PGW's AAPs were created over six years ago by the Director of EEO Compliance. PGW used standard EEO job categories as a starting point, from which 24 job groups were created. Underrepresentation of PGW EEO reporting job groups is described in *Exhibit VI-9*.



**Exhibit VI-9
PGW Job Categories**

EEO Job Groups	PGW Job Groups
1 Officials and Managers	100 Officers 101 Directors 102 Administrative Managers 103 Technical Managers 104 IT Managers 105 Administrative Supervisors 106 Technical Supervisors
2 Professionals	201 Administrative Professionals 202 Technical Professionals 203 IT Professionals
3 Technicians	301 Traditional Technicians 302 Administrative Technicians
4 Sales	400 Sales
5 Office and Clerical	500 Customer Contact Clerks 501 Clerks 502 Secretaries 503 Field Clerks 504 Skilled Clerks
6 Craft Workers (skilled)	601 Skilled Craftsman I 602 Skilled Craftsman II
7 Operatives (semi-skilled)	701 Skilled Operatives I 702 Skilled Operatives II 703 Semi-skilled Operatives III
8 Laborers (unskilled)	
9 Service	900 Services

Source: <http://www.eeoc.gov/eeo1survey/jobclassification.html> and Information Response 187

PGW uses federal census data for its availability factor analysis. For executive/officer positions and several manager positions, the United States is considered the reasonable recruitment area. For all other management positions, the Philadelphia-Trenton area is considered the reasonable recruitment area. For all union-covered positions, the Philadelphia County area is considered the reasonable recruitment area.

Job groups that PGW management has identified as currently (2007) underrepresented are identified in *Exhibit VI-10* and the percentage of female and minority representation is provided using the most recent data provided to Schumaker & Company

Exhibit VI-10
Underrepresented Job Groups
as of November 1, 2006 (2007 Affirmative Action Plan)

Job groups with female underrepresentation	Percent Female	Job groups with minority underrepresentation	Percent Minority
Directors	16.67	Administrative Managers	34.21
Administrative Managers	36.84	Administrative Supervisors	57.89
Technical Managers	15.00	Technical Managers	17.50
Traditional Technicians	1.85	Technical Supervisors	20.73
Clerks (field/skilled)	35.56	Administrative Technicians	46.30
Skilled Craft Workers	0.05	Skilled Craft Workers	30.56
Semi-skilled Operatives	1.15	Traditional Technicians	21.30
		Field Clerks	36.54
		Semi-skilled Operatives	52.47

Source: Information Responses 309 and 312

Finding VI-4 **PGW's small gains in women and minority utilization are significantly impacted by declining workforce levels and a corresponding small number of new hires.**

In the last five years, minority and female representation has increased only slightly at PGW. Minority representation increased from 41% (736) in FY2001 to approximately 43% (759) in FY2006. In that same timeframe, female representation increased from 17% (308) to approximately 19% (335).

The percentage of minorities in the PGW workforce has increased by only 3% (from 736 to 759) while the percentage of females in the PGW workforce has increased by almost 9% (from 308 to 335). These increases appear to be small gains, but they were accomplished even though the overall workforce at PGW declined by about 1% (from 1,783 to 1,770). The declining workforce means a lower replenishment rate and thus fewer opportunities to bring minorities and women into the PGW workforce.

For the one-year period from November 1, 2006 to October 31, 2007, 80 employees were hired, of which 40% (32) were females and 63% (50) were minorities. For that same time period, 84 employees were promoted, of which 15% (13) were female and 56% (47) were minority. Included among that group were five employees (two females and three minorities) who were promoted into the Officer job group.

Retention of minorities and females is also a challenge for PGW. According to PGW management, PGW has lost a significant number of talented female and minority employees, especially in the



engineering, finance, and operations areas. The turnover in these job groups is primarily due to salary issues and the availability of better opportunities outside the PGW organization.

Compounding the problem is collective-bargaining-agreement limits on hiring and promotion. Minority and female participation rates can only increase when people are hired at the entry level. In FY2006, PGW implemented a strategy to increase women and minority representation in the entry-level candidate pool.

Finding VI-5 While it performs many EEO/AA activities, PGW has not fully implemented a comprehensive diversity initiative in which it has adopted a broader view of diversity that promotes an inclusive workplace as a business strategy.

PGW has implemented many of the requirements that a well-run organization would have with regard to employee diversity compliance. Such implementations include:

- ◆ Configuration of the senior management team, including participation by females and minorities in the senior vice president (SVP) and VP positions
 - Five of 13 VPs, or roughly 38%, are women, minorities, or both.
 - One of four SVPs, or 25%, are women, minorities, or both.
- ◆ Establishment of an ongoing executive leadership (or high-potential) program.
- ◆ Conduct of mandatory EEOC training for the management team.
- ◆ Incorporation of EEO/AA into management's performance appraisals
- ◆ Incorporation of diversity principles into hiring, promotion, and transfer policies, procedures, and activities, including participation in diversity organizations, conduct of open houses, job fairs, co-op/intern programs, and other college relations programs
- ◆ Onsite partnership with Community College of Philadelphia, in which college courses are offered to employees who are interested in pursuing their degrees. The inaugural class had 20 participants and the program is focused on encouraging all employees to pursue higher education. Of the 20 participants 70% were minorities and 85% were female.
- ◆ High school internship program sponsored by the City of Philadelphia. A total of eight students (100% minority and 80% female) participated. Students worked in departments, such as IS, Materials Management, and Human Resources.
- ◆ Establishment of Tech Association for engineers with a focus of mentoring newly-hired engineers. The total number of engineers hired consisted of seven minorities and four females. This program, which is aimed at retaining minorities and females in this job category, is a direct result of the college relations program and involvement in other recruiting events.
- ◆ Implementation of several policies that are aimed at providing flexible options for employees

and to make the culture more receptive to PGW's diversity.

- ◆ PGW has partnered with several neighborhood organizations with the aim of increasing the qualified minority and women applicant pool. PGW has been awarded the Partnership Award (in recognition of valuable contributions) from the Honickman Learning Center (HLC). The HLC is associated with Project H.O.M.E. in Philadelphia and its primary purpose is to promote adult learning and workforce development.

While it performs many EEO/AA activities, PGW has not fully implemented a comprehensive diversity initiative. In fact, when we asked for a description of diversity programs that are currently in place within the PGW organization, the response was that "PGW utilizes its AAP to ensure diversity within the organization." Schumaker & Company would characterize PGW as somewhere slightly above achieving compliance but not having a proactive diversity program with a wide range of activities.

Dr. Roosevelt Thomas, Jr., perhaps the foremost authority on workplace diversity, was the first to argue for a strategic approach to diversity. He suggested that a diverse workforce and an inclusive organizational environment were, in fact, strategic advantages. He cites improved decision-making, the ability to attract and retain top talent, and a more fully engaged workforce as examples. More recently, Dr. Thomas has suggested that diversity is "the differences, similarities, and related tensions that exist in any mixture." Dr. Thomas describes diversity management as "making quality decisions" in the midst of these "differences, similarities, and tensions."

As such, companies that approach diversity as a strategic advantage have invested in initiatives that foster inclusion, employee engagement, and leadership development. Diversity leadership is often a core leadership competency. Workplace practices aimed at inclusion and engagement are valued and widespread.

Although not formally integrated into a company-wide diversity strategy, we saw some evidence that PGW is moving in the right direction. One example is a diverse Legal organization, including both male and female employees with white, black, Latina, Asian-Pacific Islander, and gay and lesbian representation. Also, PGW external counsel firms include four disadvantaged business enterprise organizations, of which two are certified by the City. Another example, and perhaps most notably, PGW's most recently hired customer service representatives (CSRs) for the call center are bilingual. These CSRs reflect a growing segment of PGW's customer base and, thus, are an example of diversity as business strategy.

In another example, PGW has also hired a Customer Affairs employee with mobility problems (wheel chair/scooter) and has made accommodations, i.e. building of a bathroom. In addition, PGW has employed an individual returning to college as an intern who is hearing impaired.

Building on the progress made so far, we expect PGW to be in a position to move its diversity activities to the next level and connect them in a comprehensive strategy with a clear relationship to organizational performance.



Finding VI-6 PGW has filed only one annual diversity report with the PaPUC since coming under its regulatory oversight in 2000.

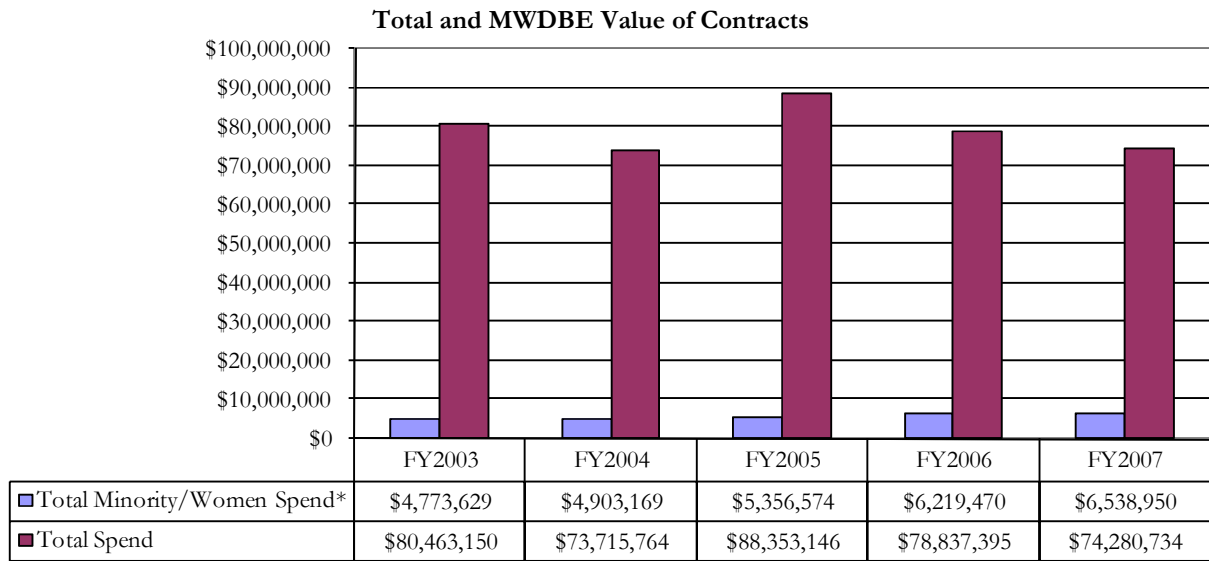
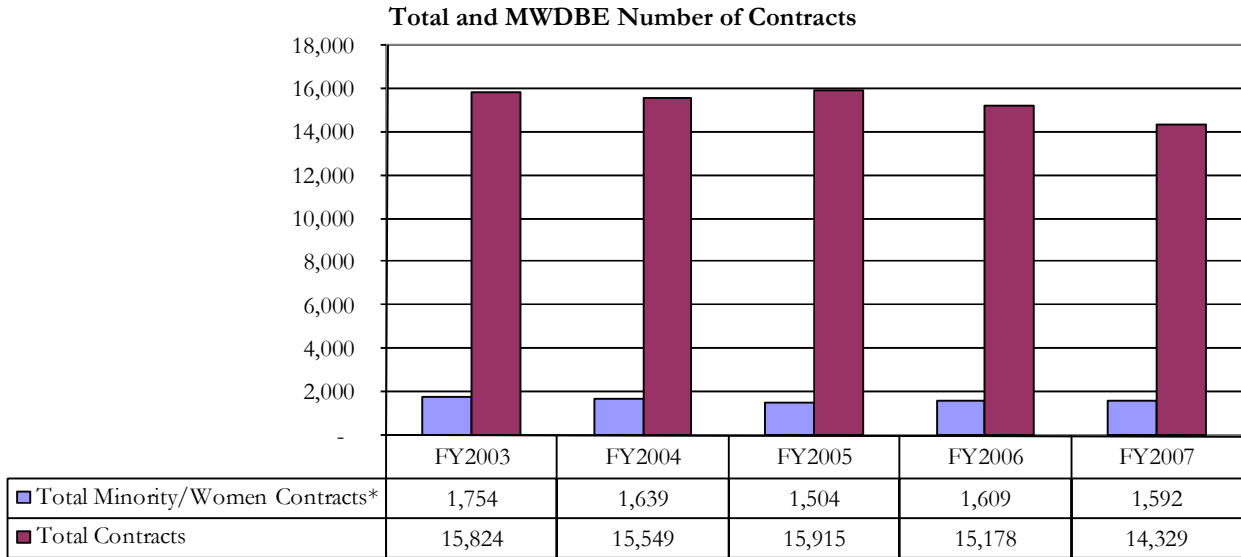
PGW has filed only one diversity report (1999 report in July 2000) with the PaPUC since coming under the Pennsylvania Public Utility Commission's oversight in 2000. The existing Organizational Development VP did not realize such reporting is required by the PaPUC. However, for more than a decade the Commission has been encouraging utilities to improve diversity.

On March 16, 1992, a Secretarial letter was issued by the Commission directing all jurisdictional utilities affected by Section 516 of the Public Utility Code (utilities whose plant-in-service exceeds \$10 million) to file certain diversity information with the Commission on a quarterly basis. On May 18, 1994, the Commission issued an Order, at M-009450558, directing these utilities to file diversity status reports on a semi-annual rather than quarterly basis, to submit EEO plans annually, and to file certain diversity procurement data. In February 1995, the Commission adopted a Policy Statement "Regarding Diversity at Major Jurisdictional Utility Companies" (entered into the regulations at 52 Pa. Code §69.801 through 69.809), which encourages the utilities to include diversity efforts as a component of their business strategy in connection with the procurement of goods and services.

Finding VI-7 The MWDBE spend as a percentage of total PGW spend is gradually, but favorably, increasing despite decreases in total PGW spend.

Exhibit VI-11 displays the number and value of contracts for FY2003 to FY2007 total and M/WBE spend.

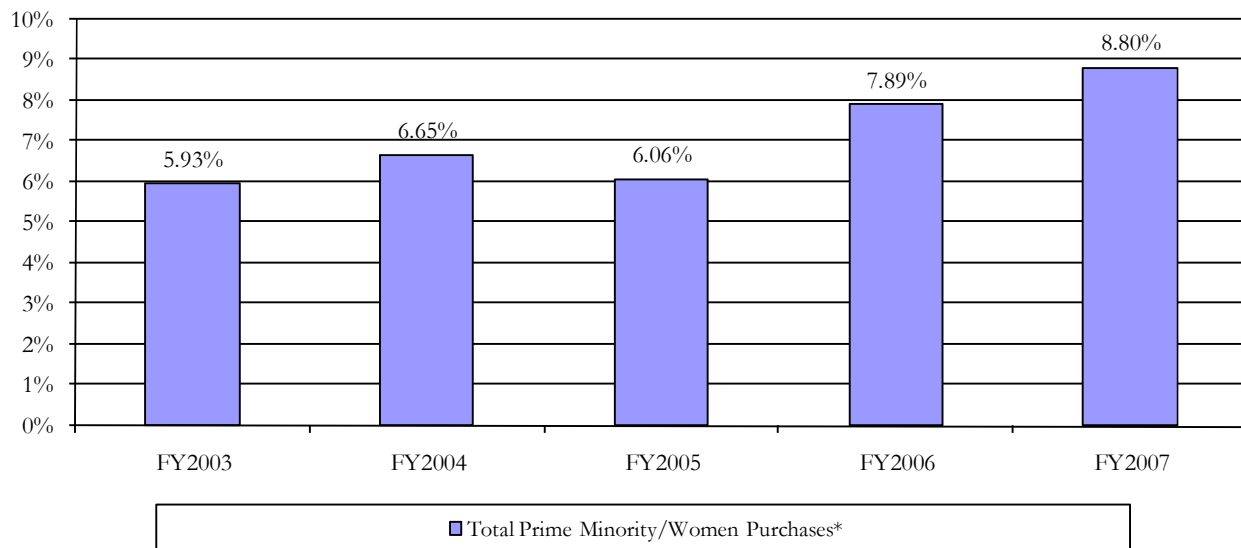
**Exhibit VI-11
Number of Contracts and Value for Total and MWDBE Spend
FY2003 to FY2007**



* Excludes majority contractors
Source: Information Response 191

The total number of PGW contracts decreased over this time period by approximately 9.4% and the number of contracts involving M/WBE vendors decreased by 9.2%. At the same time, the total value of PGW contracts decreased by approximately 7.7%, while the M/WBE spend increased by 37.0%. As a result, the percentage of spend paid to M/WBE prime contractors to total spend increased favorably from 5.9% in FY2003 to 8.8% in FY2007, as shown in *Exhibit VI-12*. These figures are based on total company spend, including those with no opportunity for M/WBE spend. (These figures do not include the portion of payments to non-M/WBE prime contractors for the use of M/WBE subcontractors.)

Exhibit VI-12
Percentage of Prime Contractor M/WBE Spend
FY2003 to FY2007



* Excludes majority spend and M/WBE spend by prime contractors with subcontractors
Source: Information Response 191

Although PGW has not had formal supplier spend goals in the past five years, in FY2007 it began to set a benchmark so it could assess its total M/WBE spend (M/WBE prime contractor and M/WBE subcontractor to non-M/WBE prime contractor) against the prior year's spend. In FY2007 actual total M/WBE spend was 13.6%. PGW's FY2008 target was to exceed 13.6%. (FY2008 began September 1, 2007, prior to Schumaker & Company's audit field work start date. PGW's FY2008 estimate was that it would achieve actual spend of approximately 14.7%.)

Finding VI-8 **Neither the Procurement Director nor individual buyers have diversity spend targets to strive toward achieving either the City's spend goal or PGW's unofficial benchmark targets.**

Although the City has a spend goal of 20% and PGW has unofficial spend benchmark targets, as discussed in *Finding VI-7*, specific annual targets have not been developed for the Procurement

organization, its Director, or its buyers as a means of increasing diversity spend and commencing achievement of targets. PGW can track spend by commodity/service area and by buyer, but it does not use that information to develop group or individual targets. Neither progress toward the City's goal nor PGW's unofficial targets have been historically part of the evaluation for this group or its employees. Although the Director of Procurement encourages MWDBE searches, participation in the bidding process, and award of contracts to MWDBE organizations when they are qualified, the lack of diversity spend targets results in insufficient focus on improving spend results and eventually achieving the goals or targets.

C. Recommendations

Recommendation VI-1 Expand PGW's diversity program so as to include increased focus on leveraging diversity as a business advantage. (Refer to Finding VI-1, Finding VI-3, and Finding VI-5.)

The direct commitment and support of the Chief Executive Officer (CEO) and other senior management team members is critical to a fully adopted diversity initiative. Given its circumstances, PGW has done an excellent job of increasing minority and women participation in the workforce and assuring that the workplace is free from discriminatory practices. However, most of these activities are still focused on compliance rather than attempting to leverage diversity as a business advantage.

While most companies focus on training and leadership development, this approach may be cost prohibitive for PGW. As such, Schumaker & Company is reluctant to recommend that PGW spend considerable sums of monies on such initiatives. Instead, we suggest that PGW find ways to undertake diversity initiatives that are relatively cost effective.

As an initial step, PGW may consider forming a diversity council to address diversity issues in the workplace, to define a diversity strategy, and to monitor the company's progress. Typically, these councils are employee teams representing all levels of the organization, with appropriate consideration given to other demographic characteristics. An effective diversity council is an important communication link and is likely to be viewed as a tangible element of PGW's commitment.

PGW may consider developing a diversity competency and incorporating this competency into its performance management process. Knowledge of PGW's relevant policies and clearly articulated behaviors can be built into management development plans. In particular, developing communication skills that foster respect and inclusion are critical in any workplace today.

Most important, PGW leadership must embrace diversity as a business strategy and clearly define how diversity makes PGW more effective and better able to serve the communities in which it operates. This approach may include, among other things, advancing its commitment to supplier diversity,



supporting community workforce development to assure a supply of skilled employees within the city, and hiring customer service employees who are able to effectively communicate with PGW customers.

Employee engagement and diversity are two sides of the same coin. By expanding its definition and commitment to diversity, PGW can more effectively engage employees in its business transformation process. Perhaps this is the most important link between diversity and business strategy that can be found at PGW.

It is beyond the scope of this audit to define a comprehensive diversity initiative for PGW. We would expect PGW executive leadership, with support from a vibrant diversity council, to define a strategy that works best for PGW. Schumaker & Company believes that PGW must take a broader view of diversity and more clearly link it to business performance.

Recommendation VI-2 Begin filing comprehensive diversity reports to the PaPUC annually. (Refer to Finding VI-6.)

Each year PGW should submit comprehensive diversity reports that incorporate five years of historical data in accordance with the most recent PaPUC reporting guidelines. Both employer and supplier diversity sections should be included in these reports.

Recommendation VI-3 Explore the use of spend targets in the Procurement Department's performance objectives. (Refer to Finding VI-8.)

The Procurement Department is not being held sufficiently accountable for increasing actual spend dollars with diverse suppliers so as to meet PGW's MWDBE spend goal. PGW management should explore the inclusion of spend targets as part of the group's, the Director's, and the buyer's objectives. Schumaker & Company would expect to see the group and Director goal to be the same; however, targets would likely vary by buyer. That is because the Director indicates that the commodity/service area and the seniority of the buyer generally determine how well each buyer does with regard to MWDBE participation. To ensure that proper focus is placed on these targets, if implemented, evaluation of employees should incorporate progress toward these targets. Additionally, safeguards can be put in place to prevent the organization from inappropriately awarding bids to non-competitive diverse suppliers.

VII. System Reliability Performance and Other Related Operations

We have organized this review into two work plan areas:

- ◆ *Gas Supply* – the procurement and management of the gas supply; and
- ◆ *Gas Operations* – The design and condition of PGW’s distribution facilities are a measure of its service flexibility, its provision for customer safety, and its company growth potential. The operations portion of this area includes gas engineering construction and maintenance, field services and distribution forces, meter management, and workforce management.

Schumaker & Company consultants also assessed PGW’s system reliability performance and related operations. This issue area will include, but NOT be limited to, the following activities:

- ◆ A review of gas maintenance activities to determine their overall appropriateness and adherence to internal specifications as well as any applicable regulatory requirements
- ◆ A review of unaccounted-for gas levels and the methodology used to tabulate and track unaccounted-for gas levels and trends
- ◆ The extent of PGW’s leak detection efforts, leaks per mile, leak categorization, and leak backlog
- ◆ A review of gas infrastructure replacement efforts, particularly those related to the replacement of cast iron mains, bare steel services, etc. (including PGW’s compliance with Commission orders, such as ordering paragraph No. 5 of the Commission’s Order adopted on November, 22, 2000, at R-00005654)
- ◆ A review and assessment of PGW’s efforts to comply with the Distribution Integrity Management Program (DIMP)
- ◆ A review and assessment of PGW’s Service Line Valve Installation Program
- ◆ A review and determination of whether gas leak emergency response times are reasonable
- ◆ A need to expand the cathodic protection program to include all existing coated steel pipe
- ◆ A review of PGW’s damage prevention programs including the electronic mapping of gas system facilities, the trend of third-party line hits, and damage recovery efforts
- ◆ A review and analysis of Gas Operations’ staffing levels relative to:
 - The trend of full-time equivalent employees (and contractors)
 - The age of Gas Operations’ employees by job category to identify future gaps in qualified personnel due to pending retirements, etc.
 - Internal efforts to address future manpower requirements



- ◆ The adequacy of PGW's employee safety, skills training, and productivity improvement/work management programs

A. Gas Supply Management

The Gas Supply Management work plan area addresses activities in the procurement and delivery of natural gas to customers. As such, it includes activities that are traditionally referred to as system operations, demand forecasting/load research, gas control, gas procurement, storage, gas transportation, and liquid natural gas (LNG).

Our review focused on PGW's ability to obtain a least-cost portfolio of supply that ensures reliability and that balances the control of price volatility and uncertainty with lower cost. Gas Supply, Transportation & Control, and Gas Planning establishes the criteria for the request for proposal (RFP), evaluates the replies, and selects suppliers based on the RFP's requirements, the reliability of the supplier, the supplier's expertise, and price. RFPs with clear instructions as to the amount, time period, delivery point, pipelines, and type of pricing (including which indexes are to be used) are a necessity. All supplies, except for spot market purchases, are obtained through competitive RFP processes.

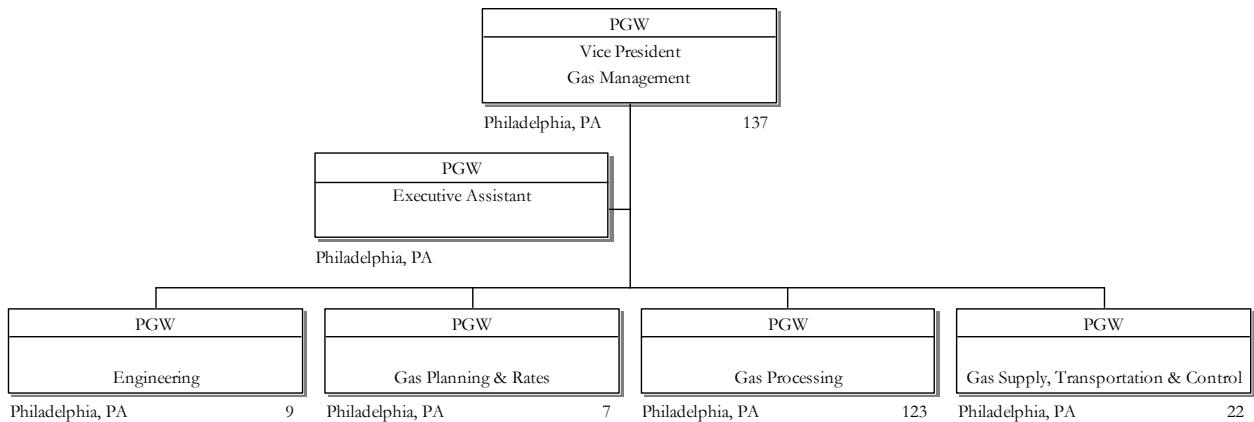
Our principal objective in evaluating this function for PGW was to verify that the associated activities are being conducted in an effective and efficient manner. The ultimate objective of this area is the identification of cost-effective gas supply management.

Background & Perspective

The Vice President (VP) of Gas Management holds primary responsibility for engineering, facilities, gas processing, gas planning and interstate transportation rates, and gas supply, which includes gas control, gas commodity, gas transportation, and operations for the entire PGW gas system, as shown in *Exhibit VII-1*.

As of December 31, 2007, PGW has four departments that interface with each other and provide support to the entire unit, as shown in *Exhibit VII-1*.

**Exhibit VII-1
Gas Management Organization
as of December 31, 2007**



All tasks are managed by PGW staff; asset management is not outsourced to any third-parties in either a management or an agency relationship. PGW does not permit financial hedges; only physical hedges are permitted.

There is one standard monthly meeting, which is categorized as the monthly staff meeting with all department heads who report to the Vice President in attendance. A second meeting takes place weekly to discuss the natural gas market, natural gas utilization and purchasing strategies. During the winter period, daily meetings are held between Gas Control and Gas Supply. Weekly meetings are held within Gas Management in addition to encouraging an open communication environment for all employees. There is a weekly Project Planning meeting between Gas Processing and Engineering and some other departmental meetings which also take place which are not discussed in this section.

Gas Processing

Approximately 123 employees are tasked with the operations of the two gas plants and nine metering and regulating stations. They are responsible for operations, maintenance, capital improvements, regulatory compliance, training, and safety initiatives. This Department is made up of operators, mechanics, technicians, gas engineers, training and safety personnel. It is organized into three areas:

- ◆ *Operations & Maintenance* – Operates and maintains PGW’s gas plants and gate stations as to ensure safe and economic operation of these facilities; manages the receipt of gas into the PGW system from the aspect of line pressure adjustment and manages gate stations and equipment. This area is responsible for gas regulatory-compliance requirements for the gas plants and gate stations, including all surveys and inspections required by the United States Department of Transportation (USDOT) regulations which are enforced by the Pennsylvania Public Utility Commission Gas Safety Division.



- ◆ *Operations & Maintenance of LNG Facilities* – responsible for all gas received that is liquefied and injected into tanks and for all gas that is converted back for redelivery into the distribution system on a daily basis. Seven staff members are dedicated to safety and plant protection.
- ◆ *Capital Improvement* – projects are evaluated to determine if they should be performed by PGW personnel or contracted out. The RFQ and RFP process, the evaluation, the selection process, and oversight of the winning bidder are the responsibilities of this group. Gas Processing maintains, installs, and replaces PGW's infrastructure in the two gas plants and nine gate stations, including all surveys and inspections that are required by USDOT regulations. This department is also responsible for damage prevention within the plant.

The Richmond LNG facility is the largest municipal-owned facility in the nation and ranks among the largest 10% of all LNG facilities in the country. LNG at the Richmond Plant and the Passyunk Plant provide multiple functions including design-day gas requirements, daily peaking, and system pressure support during periods of high demand, and gas supply that can result from system failures. The LNG allows lower pipeline demand charges rather than acquiring additional pipeline firm transportation. The LNG currently provides for peaking requirements on especially cold days and furnishes insurance against extremely cold weather. It is the responsibility of Gas Processing to process gas received from the pipelines, provide and maintain LNG storage, and to re-process gas removed from LNG storage.. Gas is received at nine gate stations which Gas Processing operates and maintains.

The pipeline gas must be liquefied and injected into the tanks. The schedule typically has been modified to provide liquefaction throughout the year except for July and August when the liquefier maintenance and overhaul work is performed. Maximum injections over a 12 month period (from the liquefaction process) are approximately 2,100,000 thousand cubic feet (Mcf) in any one season although additional injections might be possible via truck delivery for emergency situations. The maximum daily withdrawal is 411,000 Mcf per day from the Richmond Plant over a 8-9 day period at maximum withdrawal levels, and 45,000 Mcf per day from the Passyunk Plant over a 5-6 day period at maximum withdrawal levels. Should a winter ever require the withdrawal of all 3,930,000 Mcf of usable inventory, it would not be possible to refill the LNG tanks during the following nine months with the current liquefaction system. A pending project (currently on hold due to lack of funding) is the expansion of the liquefaction capacity at the Richmond LNG plant to equal the storage capacity level of 4.305 billion cubic feet (Bcf).

Most other duties are construction related and or maintenance based with the exception of adjustment of line pressures.

Gas Planning & Rates Department

It is the responsibility of Gas Planning to gather historic consumption in order to estimate gas requirements for the future. It is also the responsibility of the Gas Planning section to manage all Pennsylvania Public Utility Commission (PaPUC) regulatory gas filings. This Department gathers all pricing data that is itemized in the Gas Cost Recovery (GCR) filings and Philadelphia Gas Commission (PGC) budget filings. All requests for reports to serve in-house Company requirements as well as report

filings for the PaPUC fall under the responsibility of this group. Other responsibilities of these two groups include:

- ◆ To forecast the requirements of the system – Changes in population, demand side management, new homes, and alternate fuel conversions are the types of items considered. Data to support historic consumption are provided by the BCCS system (PGW’s customer information system) and are fed into the Plan Metrics Computer System, which is maintained by the Planning & Rates Department. This data is shared with the other departments for the purpose of planning and purchasing.
- ◆ To determine all costs associated with the function of providing gas service within the PGW footprint for distribution – Data from the computer systems from Gas Processing and Gas Supply/Transportation feed into the New Energy Computer System, which is maintained by the Planning & Rates Department. Accurate costs are captured through this mechanism. (Interruptible transportation rates for transportation customers are not handled by the Gas Planning & Rates Department but rather fall under the Marketing Department.)
- ◆ To make the required minimum five PaPUC filings (quarterly and annual 1307f filings) each year in addition to participating in Federal Energy Regulatory Commission (FERC) matters and pipeline transportation rate structure.
- ◆ To generate reports to support the Vice President in evaluating all departments under his supervision – Reports are also generated to support upper management in addition to any other in-house report requirement.

The general responsibilities of the Gas Planning & Rates Department are to accurately compile and present to management recommendations that are likely to affect the supply of gas on the PGW system in the future, to gather gas costs for the GCR PaPUC filings, to track pipeline rates, to track matters of interest to PGW at the FERC level, and to have a global insight for future pricing data. Because of the depth of information gathered by this group, its team members field a great many requests for reports that are required by management and other in-house interests.

System Control & Gas Supply/Transportation

A third department, divided into three different sections, is responsible for the operating and administrative side of the business. These different sections include:

- ◆ *Gas Control Group* – Commonly referred to as Gas Control, this group is responsible for the physical control and electronic monitoring of gas as it enters PGW’s distribution system and as it is then physically distributed from the LNG facility through PGW’s distribution lines to the customers’ burner tip. In conjunction with the Operations Department, this section electronically monitors and operates PGW’s gas distribution system to ensure the safety and reliability of delivered service. This group also interfaces with interstate pipelines and the department’s acquisition side, with the end goal of monitoring gas supplies that enter and are



finally distributed through the distribution system.

- ◆ *Acquisition* – This section acquires all gas supply to meet PGW’s sales service requirements, performs analysis to meet design requirements for supply and deliverability, contracts for these requirements, and optimizes the use of these assets in such a way as to ensure supply at least cost. This section also analyzes and allocates pipeline capacity to meet supply needs and administers end-user transportation services to large commercial and industrial customers in addition to monitoring the CHOICE³ programs. The section is also responsible for the monthly estimate of gas cost, the allocation of all gases, the calculation of the inventory cost of the storages, and the proper payment of all of PGW’s natural gas assets. This section is also responsible for the nomination and confirmation of all gas that flows through PGW city gates. This is done on a 24/7 basis 365 days per year.
- ◆ *Gas Accounting* – This section is responsible for the monthly reconciliation of the pipeline transportation and natural gas supplier invoices as well as the estimation of natural gas cost for treasury payment and Gas Planning cost estimate for Finance. This process entails the tracking of natural gas volumes, verification of pipeline tariff rates and natural gas prices. Gas Accounting compiles reports of all natural gas expenses and provides pricing for natural gas storage inventories, natural gas cost for the LNG rate, and the Cogeneration rate.

Gas Control holds primary responsibility for the integrity of the PGW system. Gas Control has the ability, through its flow control, to accept or reject gas as it comes into the PGW distribution system. The supply mix is precisely determined and accepted or rejected based on operational and financial impact. Through its Supervisory Control and Data Acquisition (SCADA) Electronic Computer System, Gas Control monitors line pressures, and when pressures change outside operating parameters, an alarm is activated. This alarm signals a problem, and through immediate actions by this Department, PGW’s natural gas system is protected or at least potential damage is minimized. Because of the critical nature of this responsibility, Gas Control operates 24 hours each day every day of the year. PGW has five senior gas controllers and five controllers on staff.

The group dealing with the supply and transportation of gas would include gas buyers, capacity transportation sellers, whose duties include capacity release on the interstate pipeline, transportation coordinators who nominate the gas through the interstate pipelines to the city gate, gas accountants and employees who administer the end-user transportation programs. The entire staff is involved in the responses for the 1307f submittals, analysis of supply opportunities and the day to day movement and payment of all gases for PGW. These include all positions in the department.

The Gas Supply & Transportation Department acquires all gas supply, including peaking services, to meet PGW’s projected peak-day and seasonal requirements of firm sales customers who utilize the distribution system. For the winter of 2007–2008, the Gas Supply & Transportation Department must be able to provide for the winter-design-day requirement of 744,525 decatherms (dths).⁴ The gas supply buyer works in close coordination with the gas transportation coordinator, who is obligated to allocate the associated firm capacity and pipeline storage assets that are necessary to ensure that sufficient gas is

³ / CHOICE programs provide the end customer to choose a separate gas supplier.

⁴ / 1 decatherm = .9634 Mcf natural gas (This is based 1,038 BTU/SCF which is typical for PGW)

available at PGW's city gate, regardless of the demand, on any given day. The group manages the associated bill payment to suppliers and direct invoicing where PGW had excess supplies and sales were made. In addition, programs are monitored whereby commercial, industrial, and CHOICE customers are using open-access transportation to PGW's city gate.

Findings & Conclusions

Finding VII-1 PGW's LNG facility is appropriately managed.

Schumaker & Company consultants toured both the Richmond and the Passyunk LNG facilities and interviewed plant management. We found both facilities to be in generally good repair (i.e., they appeared to be well maintained). PGW has electronic systems that are adequate to provide real-time control and monitoring of the LNG facilities. There are seven staff members who are dedicated to safety and plant protection.

These facilities are used to support PGW in the winter and have the capacity to deliver to PGW's distribution system up to 473,328 dths per day, with a maximum supply quantity of 4,079,340 dths in a winter season. The ability to liquefy and inject into storage does not provide for 100% of the load during any one design year; because of the coolant requirement associated with liquefying natural gas, only 2,179,000 dths can be injected in any one season. An expansion project is on hold due to funding that would increase the facility's ability to liquefy and inject the entire 4,468,590 dths in one season. Because the facility does not operate at 100% load factor, PGW typically does not sell any portion of the LNG capacity to natural gas entities such as gas distribution utilities, gas marketers, etc. Design-day requirements include the LNG facility as a supply source.

Finding VII-2 Gas measurement is within a 2% variance which is within acceptable limits.

Gas delivered to the PGW system is accurately measured. The measurement of gas entering into PGW's system was reviewed. PGW meter readings for the past five years were compared to measurement readings from the delivering pipelines. It was found that the difference between the two sets of measurement had, at minimum, an acceptable level of difference within 2%.

PGW gathers the necessary information to feed the SCADA system from reliable sources. Gas Control has electronic systems that gather the aggregate usage geographically and monitor temperatures and gas flows as well as weather and wind patterns. The SCADA system is recognized by gas control departments throughout the country and is the primary system used by PGW.



Finding VII-3 Gas forecasting is within predominately a 5% band, rarely falling outside a 10% band, both of which are within acceptable limits.

Our analysis established that the projected usage compared to actual consumption is usually within a 5% band and rarely falls outside a 10% band. We also examined the Gas Cost Rate (GCR) filing with Market Forecasts through November 2007. PGW has a design-day requirement of 744,525dths. The past five winters (02-03 through 06-07) have been very moderate from a temperature standpoint; 52 days required more than 500,000 dths, with only 6 day's consumption in excess of 600,000 dths. Using Mcf, these numbers are 46 days and 2 days, respectively.

Gas Planning & Rates accurately track the historic usage on the PGW system. They project the annual loss of load and annual growth with sufficient accuracy, and they determine geographically where the gas should enter the PGW system. That way, the Gas Control and Gas Supply Departments can accurately forecast long-term and short-term requirements.

Communication among the various gas departments is good for controlling the flow of gas within the system. PGW's Gas Control Department communicates with the other gas departments (i.e., Acquisition, Processing & Planning) frequently so that all units are well informed. Daily calls are conducted with the Acquisition Department throughout the winter period so that gas flows are communicated. Daily/hourly contact is also made with all other units on an as-needed basis.

Sufficient computer systems are in place to monitor system pressures from a safety point of view. Line pressures are monitored via computers, with direct live connections to the station. In this way, live pressures and signal alarms can be monitored. Additional computer systems are in place to receive alarms from the regulator station when parameters fall outside of a selected bandwidth. In such cases, the computer directly notifies the Gas Control Center so that the pressure force section of the distribution department crews can be alerted.

Finding VII-4 During the period spanning April through November, only one controller, either a senior or a regular controller, is assigned to all shifts.

There are 10 gas controllers in the Gas Control function; five are senior gas controllers and five are regular gas controllers. The average winter-day flow is approximately 325,000 dths with the potential to flow 744,525 dths under extreme conditions. Two or three gas controllers are assigned during the winter depending on the size of the forecasted load; therefore, vacations are not permitted during the winter.

The job requires 24-hour coverage every day of the year. However, only one controller is on duty during the period spanning April through November. Vacations are taken during this time period and many of the more senior staff members are entitled to four weeks of vacation making it difficult to maintain two controllers during the summer months without training more new controllers.

Finding VII-5 Gas Control has multiple senior controllers who are eligible to retire at any time.

At least three of the senior members could elect to take retirement with a notice period of between two weeks to two months. Looking into the future, some⁵ employees will be eligible for retirement within the next three years.

Finding VII-6 PGW accurately gathers items of cost for the GCR filings and for financial reviews.

All costs and pricing data related to gas cost, transportation, and LNG supplies are gathered by this group. Overhead expense and like charges are expensed to the appropriate rate classifications of customers to arrive at a net cost of service. This data is used in various financial reviews by the Accounting and Financial Departments.

Finding VII-7 The computer systems are adequate to manage the Gas Planning & Rates responsibilities.

Sufficient computer systems are in place to monitor system consumptions and projections for future usage. The computer systems are adequate to capture all cost components and rate information. These systems have the functionality to generate reports and to serve PGW report requirements. All source data is manually inputted because the other departments that feed the source data do not have computer systems that are compatible with the system used by Gas Planning & Rates.

Finding VII-8 The RFP that solicits gas commodity suppliers is not placed on PGW's electronic bulletin board.

The RFP for gas supply is mailed to the all suppliers that currently have executed a Natural Gas Approved Standardized Buy/Sell Agreement (NAESB) in place with PGW.⁶ However, by not placing

⁵ / Approximately 400 of 1700 employees are eligible to retire within the next five years

⁶ / A NAESB is a master buy/sell gas transaction agreement under which an entity can either be a buyer or a seller in a natural gas transaction. Once the master contract is in place, transactions can be documented briefly in a single-page confirmation form that is attached to the back of a base agreement. The concept is modeled after the standard documentation developed by the International Swaps & Derivative Association, Inc. (ISDA) for privately negotiated derivative transactions. The Gas Industry Standards Board (GISB) developed a model agreement for both short-term and long-term natural gas purchases and sales on the wholesale level. A large panel was selected from every segment of the natural gas industry, effective with Federal Order 636 in November 1992, to develop the standardization of such an industry-wide agreement. The process took more than two years. An index of natural gas terms with accepted definitions was developed as the foundation of the model, and a comprehensive model master purchase and sale agreement was agreed to.

The standardized master natural gas buy/sell agreement received wide acceptance and is now used throughout the natural gas industry. In the present environment, it would be difficult to find an entity that would not prefer the NAESB standard agreement as a base document. As a practical matter, when the need arises for a buy/sell natural gas agreement between two entities, the NAESB standard agreement is reviewed by both entities and most probably will be amended to provide for the particular legal requirements of both parties wishing to do business.



the RFP on PGW's electronic bulletin board, PGW might be missing opportunities to obtain gas supply from which it has not yet established a NAESB agreement.

Generally, PGW issues RFPs for gas supply several times a year such as for summer supply, for winter supply and perhaps a couple of other times in a year. We examined the written RFP process that is initiated in order to solicit suppliers to bid for a supply contract. In our opinion, we found that the RFP language is satisfactory. We also found that the RFP process is used in all situations except for day-to-day spot purchases. In addition, we found that it is reasonable to not go through a formal RFP process for day-to-day spot purchases.

Finding VII-9 The financial strength of gas suppliers is not evaluated prior to entering into a NAESB purchasing agreement.

Gas suppliers must have an approved NASEB agreement with all appropriate PGW amendments inserted and accepted. In addition a new supplier is slowly brought along with first daily purchases, expanding to weekly purchases and then monthly purchases to finally, multi-month purchases. Gas suppliers who make an application for a NAESB agreement are not required to present financial information demonstrating that their company has the financial strength to perform under the NAESB agreement. A supplier that introduces itself and requests consideration to become a PGW vendor will become a vendor when the appropriate amendments to the NAESB agreement are completed. The supplier has the obligation of proving itself as a reliable vendor, and over time, it will build credibility and be provided more opportunities to provide gas supply. Schumaker & Company consultants determined that no supplier has defaulted in the last five years; however, in our experience many gas utilities still make it a practice to periodically evaluate the financial strength of their suppliers.

Finding VII-10 PGW has non-performance measures in its long-term contracts that properly force suppliers to honor their agreements.

We examined the master supply agreement used for suppliers. The gas industry standard agreement is used with amendments. NASEB provides for cover standard (a contract provision that addresses what happens in the event the one party fails to fulfill its obligations) which simply stated is that if either side defaults, the defaulting party is responsible for replacement costs of the gas. This is an excellent provision and it is very effective in keeping suppliers honest.

Finding VII-11 PGW has designed solid risk protection into its long-term contracts to avoid taking gas, if not needed, with no penalties.

PGW has two winter season contracts with take or release provisions that provide that if, five days prior to the end of each month, PGW can determine its daily requirements in the following month, it has the option of not accepting 20,000 dths per day of excess supplies with no risk to PGW. Additionally, PGW has the ability to turn back 50,000 dths per day with a 24-hour notice. These options allow PGW the risk-free flexibility to accept only supplies that are estimated for the upcoming month's consumption

or supplies that can be sold off system at a profit. PGW examines the contract price and compares said price to market prices. Using the assets available it looks for opportunities to maximize the firm assets it has whether through opportunity sales or capacity release. This is an excellent practice and is very acceptable because it permits PGW to turn back the actual gas commodity during warmer-than-expected winter periods.

Finding VII-12 PGW's physical hedges and pricing strategy are acceptable.

PGW's winter supply percentages are, 52% fixed price, 33% first of month priced, and 15% unbundled storage used as a fiscal hedge. PGW's summer supply percentages are 65% fixed price for storage injection and 35% market priced for city usage and any additional storage needed. We examined the current gas supply plan indicating supply and price objectives, market forecasts, and sources of supply. Approximately 33% of the annual requirement is stored, with injections beginning in April and continuing on a monthly basis through October. About 10% of the storage portion is committed to a fixed price and the remainder is purchased at the market rate during the month the gas is injected. Approximately 10% of the annual consumption is hedged by locking in prices one to 13 months ahead of delivery dates, per PUC settlement agreement. Additional quantities are hedged prior to delivery by a strategy agreed to internally and monitoring the market conditions. We found the supply pricing/purchasing strategy to be reasonable.

Market prices are based on industry trade publications (i.e., Inside FERC and Gas Daily). Both publications are based on the New York Mercantile Exchange. Market pricing for spot day-to-day purchases is determined by an electronic service. The day-to-day electronic service is acceptable in the natural gas industry and is widely used for the purpose of establishing the daily rate in the marketplace.

Finding VII-13 PGW is managing its transportation capacity effectively.

Unused interstate pipeline capacity to transport the gas commodity from the production area to the city gate (i.e., capacity to support 300,034 dths) is released on the interstate pipeline bulletin boards⁷ during the summer periods. PGW is able to capture maximum rates a good deal of the time, and even when maximum rates are not captured, PGW captures transportation rate between 15 cents and 30 cents per dth – with 30 cents being approximately the maximum rate that PGW could obtain. PGW puts forth a lot of effort to solicit its suppliers and to obtain maximum rates for its pipeline capacity. PGW places the unused capacity up for public bid on the interstate pipeline's bulletin boards. Currently, PGW has released 43,822 dths per day for a continuous 12-month period with recall rights. This is the industry-acceptable method and is a FERC requirement. PGW is able to estimate its usage with sufficient accuracy so that capacity not utilized and not placed up for public bid is within acceptable tolerances.

⁷ / All pipelines (specifically the most relevant to PGW being Texas Eastern Pipeline, Transco, Dominion Gas Transmission, and Equitrans i.e. the pipelines they use for transportation) are required by the FERC to maintain electronic bulletin boards for facilitating transportation buy/sell arrangements.



Unused capacity to transport the gas commodity from the production area to the city gate (i.e., capacity to support 300,034 dths) is not released in the same quantities during the winter periods as it is during the summer periods. Winter demand is significantly higher than shoulder- and summer-month requirements, and for normal and colder-than-normal winters much excess capacity does not exist. During a warmer-than-normal winter (e.g., the winter of 2005–2006), excess/unused capacity did exist. PGW did release capacity for individual months and for partial months during these winter periods. This released capacity is currently reflected as a full credit to the customers through the GCR mechanism but reportedly starting in November 2008 it will be handled as a 75% credit to PGW customers per agreement with the PaPUC.

Finding VII-14 PGW's LNG facility is currently at maximum capacity due to recent warm winters and as a result has excess fixed gas supply assets of approximately 2 Bcf above peak day.

It is not being suggested in this report that the over-all asset levels be permanently reduced. We find that because the LNG facility is under-developed that only one half of the capacity can be replenished in any one year. When the LNG facility is at full capacity, excess inventory above the peak day levels exist. This excess inventory should permit PGW to make some decisions that could lower the overall cost of gas for PGW customers through off system sales, releases, or other mechanisms.

There is approximately 200,000 dths per day difference between peak day and a relatively cold winter day. Recent warm winters has established consumption levels to be less than 500,000 dths per day over one hundred days during the winter period. The result is that daily excess is at least 240,000 dths per day and frequently more than 300,000 dths per day.

PGW enters into winter-only supply contracts that fill approximately 62% of PGW's daily firm transportation capacity on two intrastate pipelines. PGW uses its long-term gas supply contracts to feed into its firm transportation contracts on Transcontinental Pipeline (Transco) and Texas Eastern Pipeline. This grouping of supplies provides for combined firm transportation capacity of 300,034 dths (of which 43,822 was released last operating season) per day to PGW's city gate. This is the first grouping of supplies that is scheduled for delivery to PGW's city gate. Storage equals 51% of PGW's average winter-day requirement. PGW's average winter day requirement is 300,000 to 350,000 dth.

PGW has storage contracts on Texas Eastern Pipeline, Transco, Dominion Gas Transmission, and Equitrans, LP to inject into storage during the seven summer months and to withdraw gas during the five-month winter period. These services allow PGW to withdraw 167,000 dths per day when the storage fields are at 100% full but are subject to ratcheted deliverability as the volumes decrease, during the winter period. The standard practice for distribution companies in the natural gas industry is to support peak-day supply requirements with approximately thirty percent of storage services. PGW meets this standard. During the winter and shoulder periods, storage gas is the second supply of gas that is scheduled to the city gate, as shown in *Exhibit VII-2*. Certain of the storage services also allow PGW to balance its gas supplies with system demand.

Exhibit VII-2
PGW Supply at Various Facilities

Source	Supply	Units
Firm Supply and Transportation	300,034	dths/day
Storage Withdraws	167,000	dths/day
LNG Facility	473,328	dths/day (up to 9 days at maximum capacity)
Released Capacity with Winter	-43,822	
Recall rights. (1 year)		
Total	896,540	dths/day

Note: As a point of reference, summer requirements usually run in the 40,000 to 50,000 dths/day
Source: Schumaker & Company Information Response 417 Analysis and Interviews

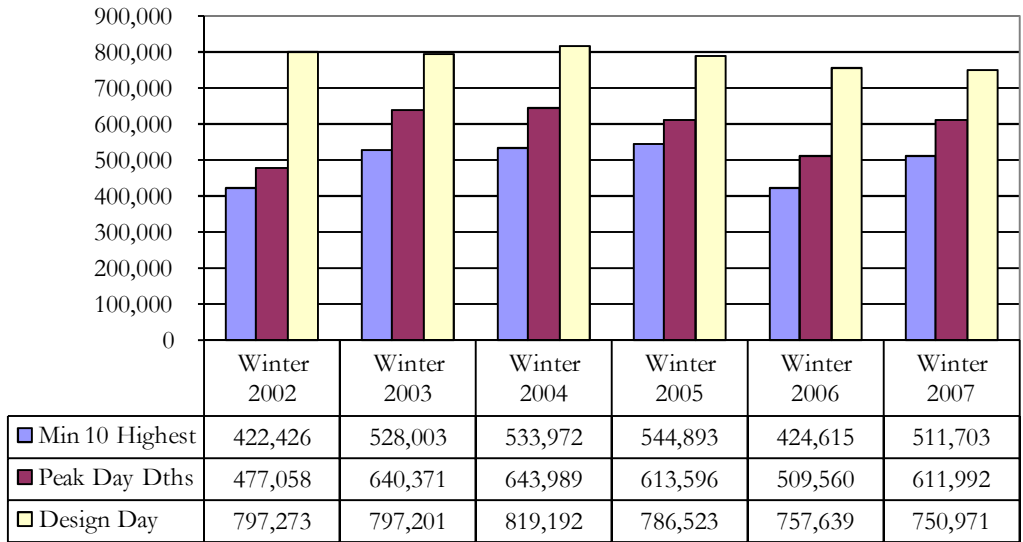
The next grouping of supplies involves PGW's own two peaking facilities to inject firm supplies directly into its distribution system. The LNG peaking service is designed to provide up to 473,328 dths per day, for a maximum supply quantity of 4,079,340 dths in a winter season. As a practical matter, the LNG Facility is used for small daily withdrawals as necessary over the winter period. Withdrawals from the LNG Facility has been as high as 150,000 to 170,000 dths for a few winter days but zero withdrawals from the LNG facility are typical on the majority of winter days.

Considering that PGW has not experienced a single peak day in the past five years, the LNG facility is adequate if not in excess. Because PGW owns the LNG facility, it can elect not to use this supply source during a winter that may be warmer than projected. However, if the Richmond plant liquefaction expansion were completed, PGW would be able to sell services to others.

Exhibit VII-3 compares the peak day to the 10 highest days in each of the last six winter seasons. PGW has not come close to meeting its design day in each of the last six years. Even if a longer view is considered, PGW has only exceeded 700,000 as peak day in three of the 30 last years and it would appear from *Exhibit VII-4* that the peak day requirements have decreased over the last 30 years since the 1997/1998 season.

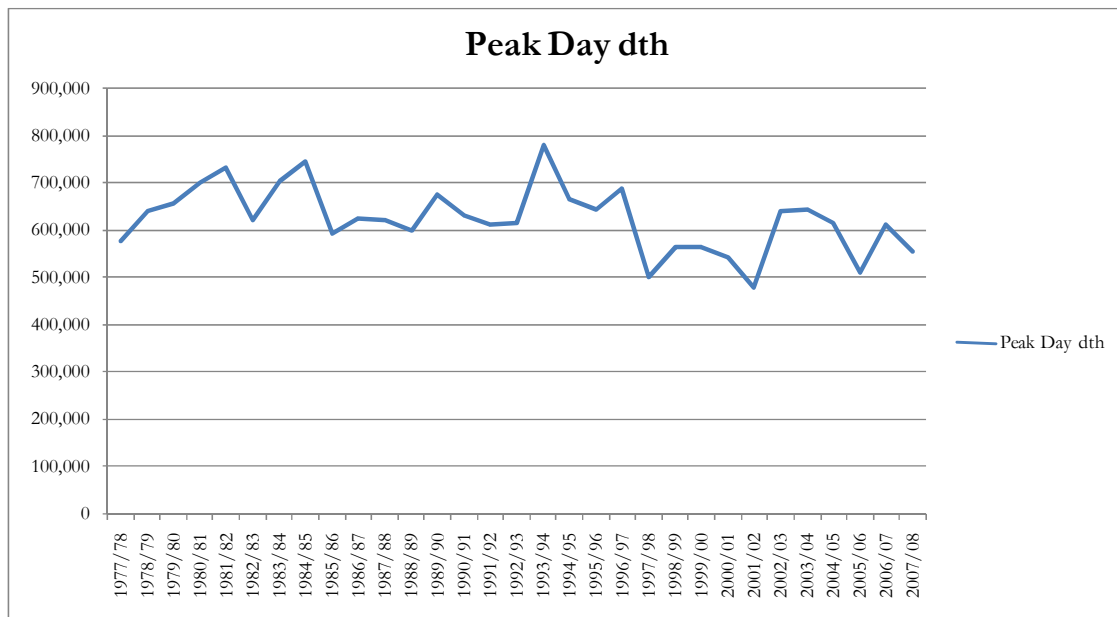


**Exhibit VII-3
Peak-Day Design Compared to Historical Experience
Winter 2002–Winter 2007**



Source: Information Response 412 Analysis
GasRel_Peak Day.xls

**Exhibit VII-4
Peak Day Demand
1997/1998 to 2007/2008**



Source: Information Response 412 Analysis

The annual requirement can be split into two groups: Winter for the November–March timeframe and summer spanning the April–October timeframe. Significantly different levels of demand exist between the seasons. Storage gas is being injected and therefore is typically not being delivered to the city gate during the summer period. Storage provides a balancing resource during the summer injection period. Peaking services are contracted for winter delivery days only. Therefore, not more than 65,000 dths of capacity are utilized for delivery during the summer period, thereby leaving PGW with a substantial amount of excess capacity to be released or liquefied for LNG storage.

Finding VII-15 PGW stays within the daily ratchet levels of storage injections and withdrawals.

PGW has not incurred penalties over the past five years on any upstream pipeline. This absence of infraction is an indication of not only accurate load projections but also accurate nominating and supply management by the Supply & Transportation Department.

Finding VII-16 PGW does not have an enterprise computer system for managing gas supply and gas transportation.

We examined the computer system used by the Gas Acquisition Department; this group is responsible for Gas Control, Gas Supply and Gas Transportation. The management of Gas Supply and Gas



Transportation is tracked with a series of eight Microsoft Excel spreadsheets. These spreadsheets handle the gathering of transactions so that supplier invoices, transportation invoices, and sales of excess supplies are captured. An additional five spreadsheets track the CHOICE program, with additional spreadsheets to track industrial balancing. A review of this process revealed that the spreadsheets are populated by manual inputs. This spreadsheet data is then fed to the Accounting group, where the data must be manually inputted again into the group's own respective system. Some of the data is forwarded directly to Gas Planning & Rates, where it is manually entered into these departments' systems.

Finding VII-17 **PGW has been investigating some significant potential changes in its gas supply assets; however, at the time of our review, the conditions were not permitting them to go forward.**

As discussed in the above findings, PGW currently has sufficient gas supply assets to meet needs of existing PGW customers. However, due to limitation of the liquefaction capabilities and the capital costs associated with adding a second liquefaction plant at the Richmond LNG facility, PGW has not been able to maximize the use of that facility for either PGW customers or other potential third-party customers. In PGW's last rate case filing, PGW attempted to fund a significant portion of the Richmond LNG facility expansion costs, but the funding mechanism was not approved. Other opportunities have also been investigated, such as truck or ship delivery of LNG; however, for PGW customers at this time, these options would all most likely prove to simply increase gas costs for PGW customers.

PGW has also looked at a municipal prepay mechanism for funding gas supply. The details of how this would work is more complicated than needs to be explained in this report; however, suffice it to say that the success of being able to execute such a transaction is largely dependent on the difference between tax free bond interest rates and non tax free bond interest rates. Furthermore, prime players in these transactions are investment banks, with Merrill Lynch being the leading contender in the case of PGW, which are currently facing their own set of problems.

It became apparent from our review that these other opportunities could require anywhere from 3-4 months to several years to come to fruition, if ever. Therefore, we focused our review on current possibilities.

Recommendations

Recommendation VII-1 **Provide at least two controllers on all shifts for the Gas Control Center. (Refer to Finding VII-4 and Finding VII-5.)**

The Gas Control Department has the responsibility of electronically monitoring, through its SCADA system, all pipeline pressures. If pressures change in an unexpected manner, an alarm goes off. This

alarm is the indication for the gas controller to immediately act in order to preserve the PGW pipeline system and, at the very least, notify the Gas Processing Department and/or Gas Distribution to send crews to correct the problem. Damage can be minimized directly through the proper monitoring of information from the SCADA system. Failures in the PGW lines can be caused by foreign interference (i.e., construction issues can affect a gas main and cause major damage); therefore, PGW does not have the benefit of foreseeability. It is reasonable to assume that with only one controller on duty, there will be intervals where the controller will be absent from the SCADA system if only for 15-minute breaks. Such absences are also likely, for instance, during a major incident when the workload would be more than one person could effectively handle.

Recommendation VII-2 Take steps to plan for the retirements that could have a major impact on the ability to staff the Gas Control Center. (Refer to Finding VII-5)

In addition to the current inadequate staffing levels, Gas Control has senior controllers who are eligible to retire at any time. A new hire, with the appropriate education and experience, in the controller function takes two years to train. The mix of employees currently on staff consists of five senior controllers and five regular controllers. At least three of the senior members could elect to take retirement with a notice period of between two weeks to two months, thereby leaving PGW with a serious staff problem. Additional members are eligible to retire over the next three years. It's not being suggested that PGW add staff to its overall staff levels. Rather, it is being recommended that PGW transfer existing staff and responsibilities into this department so that coverage is provided.

Recommendation VII-3 Place the RFP that solicits gas commodity suppliers on the PGW electronic bulletin board. (Refer to Finding VII-8.)

Not placing RFPs on the PGW electronic bulletin board limits PGW to those suppliers that it already has a business relationship with. Natural gas storage being what it is, the storage assets controlled by any given supplier change from one year to the next. The storage component of any supplier's portfolio has a significant impact on that supplier's ability to deliver in peak seasons. It will also impact the price or terms that that supplier can provide. Suppliers do not think in terms of the execution of a NAESB agreement taking upwards of 30 days. And in the case of PGW, because the company is owned by a municipality, it will take upwards of 30 days to execute a NAESB agreement. Not being a current supplier does not mean that other suppliers are not monitoring the bulletin boards. It makes sense for PGW to state in its bulletin board notification the turnaround time for the execution of NAESB agreements. The RFP can be e-mailed to existing suppliers in addition to a bulletin board posting.



Recommendation VII-4 **Institute a program to perform vendor credit checks in order to qualify for a NAESB purchasing agreement, and to perform credit evaluations on a regular basis for existing suppliers. (Refer to Finding VII-9.)**

All PGW NAESB agreements have the ability to set the price for upcoming months or to have the contracts default to an agreed-upon market index. Regardless of which scenario a contract falls under, the potential for daily prices to spike during the course of the month is very probable during peak cold months. If a supplier is financially strapped and fails to deliver, PGW is at risk of purchasing replacement gas at much higher market prices than the committed price with the existing supplier. All measures to minimize this risk should be performed by PGW.

Recommendation VII-5 **Evaluate an all-inclusive or enterprise computer system to track the gathering of transactions so that supplier invoices, transportation invoices, and sales of excess supplies are captured. (Refer to Finding VII-16.)**

There currently exists a significant degree of manual input which is time-consuming and lends itself to human error in the Gas Supply group. The natural gas industry is a transaction-intensive business and the accurate gathering of those transactions is essential. Schumaker & Company consultants found no indication that errors have occurred; however, we have not performed an analysis to this level of detail. The data is transferred from Gas Supply to Gas Accounting and Gas Planning & Rates, where all data is manually processed. In this age of information technology, computers transfer data to one another thus significantly reducing the risk of error in addition to providing a time-saving element.

Recommendation VII-6 **Evaluate, year-to-year as well as on a real time basis, PGW's gas supply assets to determine, based on the LNG levels, whether programs for storage capacity can be created to add value and savings as part of the 1307 (f) review. (Refer to Finding VII-14)**

PGW has not experienced an actual design day situation over the last five years. Although the United States East Coast has experienced warm winters over the past several decades, 1976 was extremely cold for the entire winter period, 1989 had a portion of the winter that was very cold, December 2000, and January 2001 were very cold. Nonetheless, PGW must be prepared for that winter when an extreme weather condition occurs. However, the gas supply portfolio can be structured in such a way as to minimize excess assets. A general recommendation is to purchase more peaking services for an assortment of days and to release long-term firm commitments for one year at a time.

This past winter of 2007 -2008 was very mild; therefore, PGW's LNG storage is relatively full with a maximum capacity of 4,459,980dths. The LNG facility can support the winter of 2008–2009 with less than 4,459,980 dths. PGW has excess LNG supply of approximately 2,000,000 dths of inventory for the upcoming winter season of 2008–2009. More LNG storage enhances the value of PGW's other

assets by creating options. PGW did not leverage the LNG availability this past winter and therefore opportunities were missed.

An evaluation of firm upstream storage is required so that an appropriate release mechanism can be developed for the upcoming year.

Notwithstanding the obvious advantage of storing gas in the summer for redelivery in the winter, PGW storage contracts provide balancing language whereby gas is injected and/or withdrawn daily so that the PGW system can be balanced each day. The release of storage assets must consider this balancing mechanism as a necessity. Schumaker & Company recommends a combination of two strategies as follows:

Strategy Number 1

When PGW enters into an agency management agreement for storage utilization, storage management, and release of storage capacity with an independent marketer, the following principles should be considered:

- ◆ PGW may, at any time, obtain from the agent the same services it could obtain from the storage assets if PGW managed the asset itself and the agency relationship did not exist.
- ◆ The agent is obligated to adhere to all storage contract provisions, pipeline penalty provisions, pipeline tariff provisions, and balancing specifications.
- ◆ Through the hierarchy of gas flowing to PGW's city gate, the storage withdrawals are the first gas reserve called upon after base load supplies. PGW notifies the agent on a daily/monthly basis of the requested delivery and takes the required amount of its stored gas by the end of the term.
- ◆ The agent invoices PGW as if it were injecting the gas into storage in one-seventh increments over the seven summer-month period, and PGW purchases the gas commodity from the agent at the prices in effect during the time of virtual injection. Market price is determined by the Inside FERC publication for first-of-the-month prices minus one penny. That way, PGW saves one penny that it probably could not otherwise save. PGW pays a reservation fee for the right to call upon the storage supply at any time.

The agent has all flexibilities associated with sourcing the gas that is injected into storage during the summer period and may be able to realize profits through price arbitrage. Large physical gas producers, coupled with derivative hedging tools, can maximize storage assets in a way that is not available to a regulated entity such as PGW. For this reason, the PGW-type agency relationship is attractive to large producer/marketing types.

- ◆ This type of arrangement between a Local Distribution Company (LDC)-regulated entity and an unregulated entity is common in the industry. It is also common for the agent to pay a sum



of money to the LDC for the flexibilities it gains from the relationship.

- ◆ PGW solicits interested parties through the normal RFP process described. Interested parties respond and are expected to pay PGW an asset management fee for the privilege of being PGW's agent in managing the storage asset. PGW evaluates the responses, and assuming that the supplier is creditworthy and has a solid back-shop for support, the bid that realizes the greatest savings to the consumer would most likely be accepted by PGW.

In Schumaker & Company's opinion, a regulated entity does not have the flexibilities to maximize storage assets in the manner independent marketers in the private sector do. Therefore, the above arrangement is an approach whereby PGW can realize some additional benefits from its storage assets without incurring additional risk. The guidelines outlined above are acceptable as long as:

1. PGW always takes the storage gas from the agent at its city gate or sells unused gas in the open market for market prices.
2. PGW follows the supply and nominating process outlined, whereby storage gas is the first gas scheduled for delivery to the city gate during the winter periods after gas supplies are moved on its firm transportation capacity.
3. Long-haul supplies and transportation capacity are not compromised to accommodate an asset-management agency marketer.
4. PGW should receive some credit (benefit) through the PGC mechanism – i.e., should be some sort of sharing mechanism similar to what many of the other LDC's have for off-system sales and storage arrangements.
5. PGW should seek such an agent through the capacity release mechanism.

Strategy Number 2

Authorize a straightforward regular release of firm storage and the associated firm transportation for a one-year period at maximum rates. The supplemental feature to be added separately is a peaking service from the supplier that obtains the firm storage and transportation.

The concept here is to reduce firm storage assets by releasing firm storage and transportation at maximum rates. Since stored gas is paid for at the time of purchase and the money is not recouped until the residential customer ultimately pays PGW up to nine months later, this plan assists with cash flow and the cost of commercial paper.

PGW can operate safely with total peaking services of at least 50,000 dths per day. The goal is to release a certain quantity of PGW firm storage and transportation and to buy back a peaking service from the same supplier. Using the same supplier ensures that that supplier has the assets to perform under the peaking service. The peaking service should be priced at the market and tied to an index. Because firm storage is of such value to marketers, first-of-the-month pricing is obtainable for the peaking service as opposed to daily spiking prices.

Once an appropriate strategy is chosen, the appropriate regulatory review would need to be undertaken early on during PGW's annual 1307(f) proceeding at the PaPUC.

B. Gas Operations & Maintenance

Background & Perspective

Organization

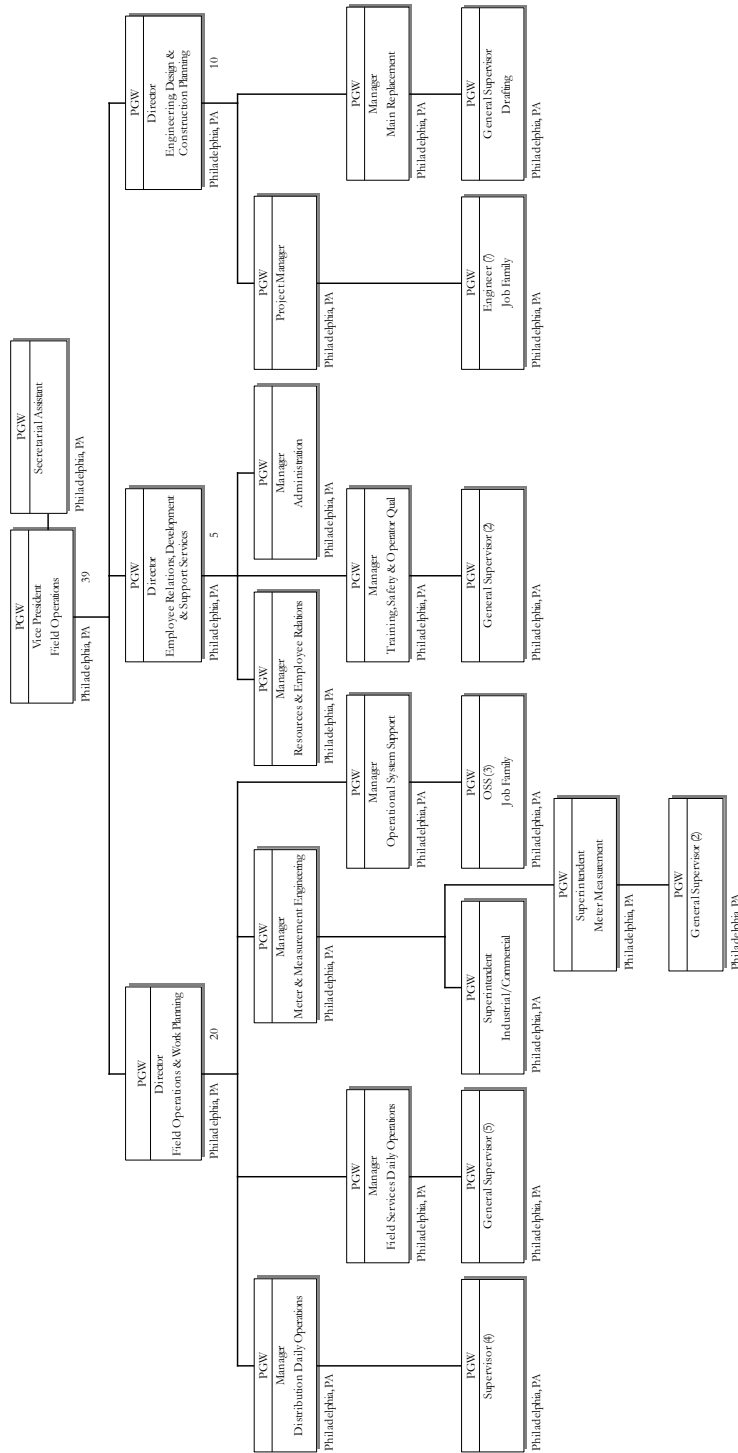
The Field Operations organization, shown in *Exhibit VII-5*, is responsible for the operations and maintenance of PGW's gas distribution system.

There are three major groups as discussed below.

- ◆ *Field Operations and Work Planning* – This group is responsible for field operations maintenance, inspections, construction and work scheduling and other support functions:
 - *Distribution* – This group includes the dispatching, leak management, leak repairs, new construction, and paving functions. There are 385 personnel in this group
 - *Field Services* – This group will install piping only to the meter and not beyond, but it will make temporary (issue a hazard (red) tag) repairs beyond the meter on customer piping, such as in the case of a call on a gas leak. There are 268 personnel in this group
 - *Meter and Measurements* – This group is responsible for meter shop, meter reading and commercial and industrial meters and pressure force personnel. There are 72 personnel in this group
 - *Operations Support System* – This group provides system support for all computer systems used in Operations and manage the data retention and program analysis for all of the above. There are 4 personnel in this group
- ◆ *Employee Relations, Development, and Support Services* – This group is responsible for employee relations, technical training, and other support services. There are 42 personnel in this group
- ◆ *Engineering, Design and Construction Planning* – This group is assigned responsibility for the engineering design work related to the gas after it comes out of the gas plants. It is part of Field Operations. There are 35 personnel



**Exhibit VII-5
Field Operations Organization
as of December 31, 2007**



Source: Information Response 1 and Interviews

Capital Spending

PGW's capital program has averaged around \$65 million to \$70 million per year for the last 10 years, as shown in *Exhibit VII-7*. Significant increases in certain areas of the capital program occurred in the 1998–1999 timeframe in the information technology and customer services categories. Such fluctuations had to do with the conversion to Billing Collection & Customer Service (BCCS). Significant increases also occurred in the 2001–2004 timeframe with the upgrade of the liquefaction line at the Richmond LNG facility. Throughout that time period, distribution system capital expenditures increased from \$32 million to \$50 million.

Distribution department capital spending budgeted dollars has increased primarily in the following budget categories as shown in *Finding VII-6*.

Exhibit VII-6
Capital Project Changes
FY 1999 to FY 2009

Category	FY 1999	FY 2009	Percentage Increase
Service Additions	\$3,287,000	\$6,542,000	99%
Service Replacements	\$9,649,000	\$18,851,000	95%
Main Additions	\$1,527,000	\$3,142,000	106%
Main Replacements	\$6,375,000	\$15,606,000	145%

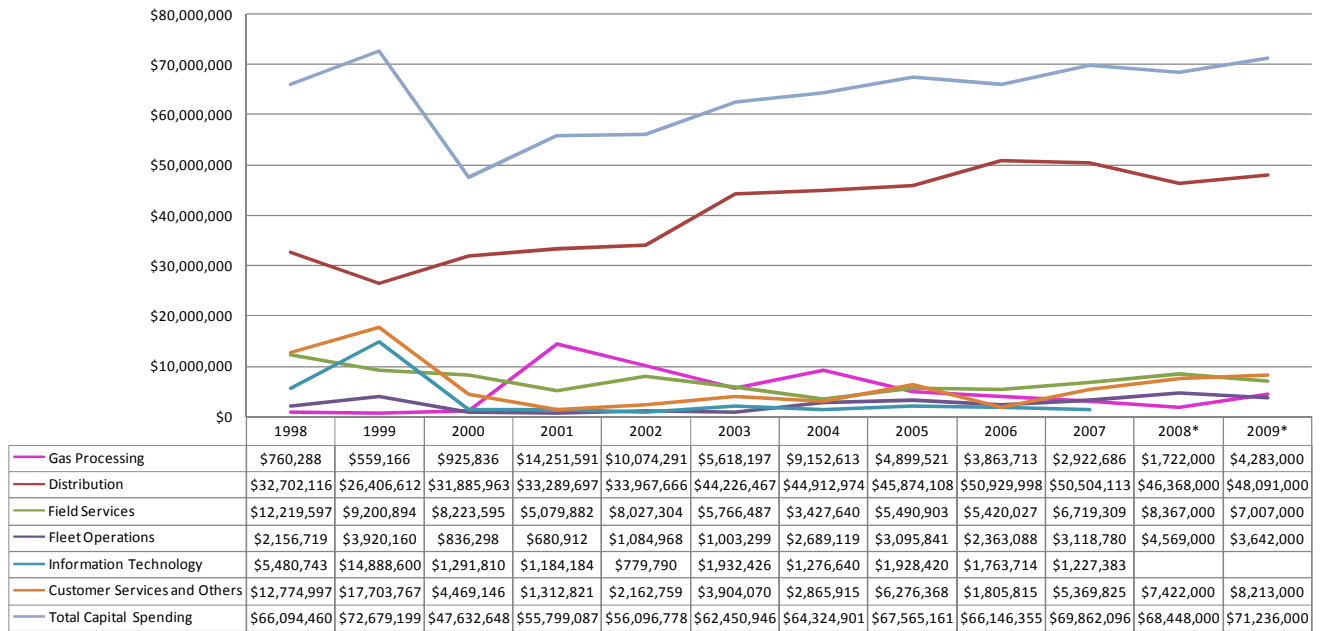
Source: Task Report Review Comments

Notwithstanding the normal escalation factor for inflation, which results in an \$11,000,000 increase over a ten year period (assuming a 3% escalation factor for all expenses annually for 10 years results in an increase from \$32,000,000 to \$43,000,000).

In addition, the previous management audit performed in 2000 recommended a substantial increase in the amount of miles of cast iron main replaced annually. In or around FY 2002-2003 PGW proceeded to escalate the miles of cast iron main replaced from approximately 8 miles to the current level of 18 miles per year. Consequently, the dollars allocated to perform this work has increased proportionately.



**Exhibit VII-7
PGW Historical and Forecasted Capital Expenditures
1998 to 2009**



* Forecasted capital expenditures

Source: Information Responses 678 and 679

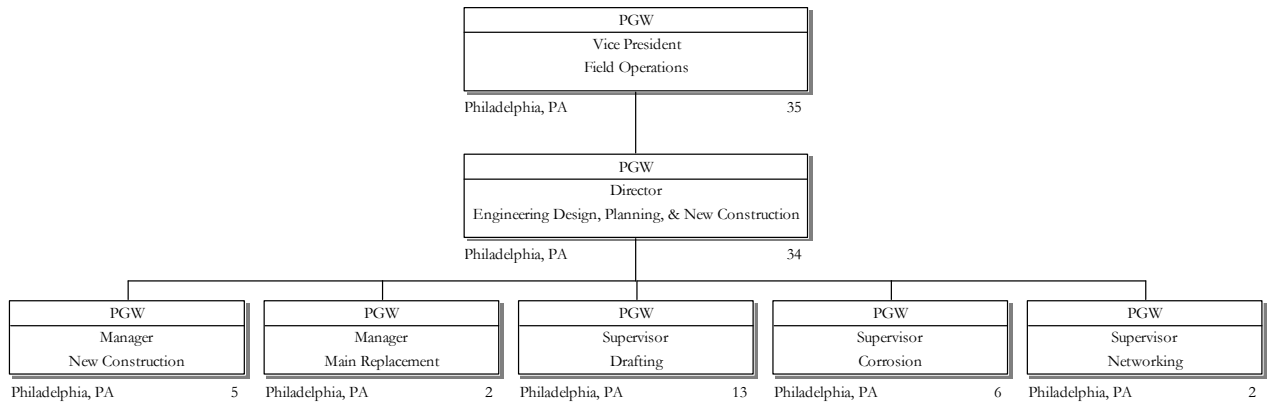
Engineering Activities

There are two engineering departments at PGW: one for LNG and the gas plants and the other for the distribution network.

Engineering Design and Construction Planning

The Distribution Engineering Design and Construction Planning group is organized as shown in *Exhibit VII-8*.

Exhibit VII-8
Distribution Engineering Department
as of June 30, 2008



Source: Information Response 654

Distribution Engineering is a section within the Distribution Department and is responsible for the design aspect of construction projects, not for the actual construction function. The field construction is handled by the Distribution Operations section. Distribution Engineering section consists of four supervisors and 39 employees, is organized as follows:

- ◆ New Business Design
- ◆ Main Replacement
- ◆ Drafting
- ◆ Corrosion
- ◆ Networking Modeling

New Business Design

The New Business group consists of a supervisor, two engineers, and three estimators. They do the actual design work and accompanying estimating of new business projects (Load Additions) projects. If the gas flow in a section of new construction is over 1,000 cubic feet/hour the design will go to this network group for assessment of its impact on the overall network. – (i.e., flow rates are modeled in the gas network model before actual design).

PGW tracks new construction work progress on using an Excel spreadsheet. PGW would like to have a work management system that would track the progress of ongoing construction design projects, but it hasn't been able to obtain the funding.



For a small, new residential service, Field Operations will install the service using installation standards and produces a service card that would contain the construction details. This card would serve as the record for the service installation. This data is maintained by the Distribution group.

Main Replacement

The Main Replacement group consists of one supervisor and two engineers. The overall goal at PGW is to replace 18 miles of cast iron main per year which equates to approximately 1% of its cast iron system main. There are two main replacement programs that contribute to this 18-mile target, specifically:

- ◆ *Prudent main replacement* – These are gas mains that the Engineering Department determines need to be replaced based on ranking the mains primarily on broken main history.
- ◆ *Enforced main replacement* – These main replacements are driven by work projects that are done by PennDOT, the water department, and other utility projects.

In summary, at the time of our interviews, Engineering is currently using the Navigant risk assessment model to make main replacement decisions. This methodology will be replaced by the Advantica MRP (Main Replacement Program) application in the near future, which is further discussed in a *Finding VII-21*.

Drafting

The Drafting group consists of a supervisor, 10 drafters/plotters, and three field drafters. The drafters/plotters work on the development of the design drawings. The field drafters develop the as-built drawings based on the actual field installations. These as-builts are then incorporated into the detailed main maps, which are updated by the perpetuator. There are approximately 6,000 detailed main maps that contain specific details of the field installations. There are also general main maps (about 100) that are much larger in scale with less detail. For historical purposes, the Drafting group is currently scanning in old drawings and microfiche to preserve them for the future. The detail main maps (DMM) are not GPS coordinate-based. Rather, they are based on relative locations from curbs, building lines, etc. The drafters do the construction drawings in Automated Computer Aided Drafting (AutoCAD), starting with a blank slate (rather than modifying historical drawings). Therefore, they have to add all of the existing detail to the drawings. The system maps (DMM) are considered by PGW management to be very detailed and accurate. Thanks to the relatively consistent nature of the construction work, there has been time to concentrate on maintaining these maps. The drafters generally do not have a large amount of new construction to add to their system maps.

A productivity tracking system is maintained in the drafting area. Various spreadsheets are used to monitor drafter productivity. The main spreadsheets track how much main is drawn on a monthly basis. The other primary spreadsheet tracks how much of the 18-mile main replacement target has been designed, drawn, and is out to bid to date. The Engineering/Planning department targets completing this work by May or June of each year to ensure that there is sufficient time to bid out and construct

these projects. The drafters turn in a slip at the end of a project design that includes the number of feet of pipe that was drawn and the time spent on the drawing. This data is then used to develop the drafter productivity statistics. This drafter productivity reporting has been done for only the last two to three years.

The engineers use AutoCAD LT (Lite) to review drawings and make simple sketches. Engineering and Planning would like to have the capability to red-line (correct or revise) drawings using AutoCAD. Currently, PGW has to perform such revision on a manual markup basis.

Corrosion

The Corrosion group consists of a supervisor and six technicians who are assigned two major areas of responsibility:

- ◆ Review of the cathodic protection systems for the new construction that involves steel pipe
- ◆ Enforcement of CFR Part 192⁸ in which this group performs the field assessments and then, based on the result, turns the problem over to Distribution for repair

PGW is increasing the amount of cathodic protection of new and existing to include selected coated steel pipe. PGW is currently replacing about 10,000 services per year with plastic replacement pipe.

Network Modeling Group

The Network Modeling group consists of two technicians who maintain the system model. This model includes all of the major piping in the PGW distribution network and is used to model flow rates and pressures throughout the PGW system under different scenarios. Although it is a separate system, it contains only information necessary from the AutoCAD drawings for modeling purposes. The model is based on the Advantica's Synergy model (formerly the Stoner model) and includes all mains, all three inch and larger services, and all high pressure services.. PGW assesses new construction for its impact on the network's operations and performs the required annual studies of the network. The AutoCAD drawings are separate from this model, and in the case of changes to the distribution system, both the DMM maps and network models must be updated separately.

⁸ / The Office of Pipeline Safety (part of the U./S. Department of Transportation) or OPS is the primary federal regulatory agency responsible for ensuring the safe, reliable, and environmentally sound operation of America's energy pipelines. These rules are promulgated in 49 CFR Part 192, Subpart N; and 49 CFR Part 195, Subpart G. OPS develops and implements pipeline safety regulations at the federal level, and shares regulatory responsibility with the states to oversee more than two million miles of pipelines..



Gas Plant and Other Engineering

Gas Plant Engineering is responsible for the engineering associated primarily with the LNG facilities and gate stations. This Engineering group reports to the Gas Management organization as shown in *Exhibit VII-1*. There are seven engineers and one clerical person. The engineers include:

- ◆ One Chemical Engineer
- ◆ Two Mechanical Engineers
- ◆ Three Electrical Engineers
- ◆ One Metallurgical Specialist (full-time contract employee)

Of the engineers, two work out of the Richmond plant and one works out of the Passyunk plant.

The engineering group's engineers are not allowed to use AutoCAD due to union restrictions. They alternatively use AutoCAD LT to make sketches and simple drawings. They can also redline drawings using AutoCAD LT. VoloView is also used for viewing drawings and redlining them. This group performs the engineering for the 10 gate stations for three primary types of projects, those being replacement of process heaters, control valves, and instrumentation. This group puts together a specification that is put out to bid. The engineers then oversee the construction process.

There are 11 contract consulting engineering firms that are available to perform the drafting work as required. That is because the group recently lost its draftsman to the Distribution division. The group also uses consulting engineering firms for specialized technical expertise. All engineering contracts are established by competitive bid.

The group oversees the plant drawings for each of the gas plants. Since late 1990, all of the drawings have been done in AutoCAD. The AutoCAD files and hard copies are backed up in a vault. Due to security concerns, all of the drawings are put up on an FTP website for secure distribution to the consulting engineering firms.

This group did the original specifications for the liquefaction plant. Its team members also designed the new plant and the tie-ins to the old plant at Richmond. They were assisted on this project by a consulting engineering firm.

PGW has 10 gate stations plus two more that are part of the gas plants at Richmond and Passyunk.

The group assists the Gas Processing Department (GPD) in developing its annual budgets. The GPD initiates the budget process and this group then helps the GPD finalize the budget for January submission. This streamlining helps the GPD forecast the workload and resource requirements for the coming year. The Gas Plant group can also obtain an advanced accounting charge code such that they can perform engineering related activities early on in a project prior to capital budget approval, even though the work will not begin until September.

This group also does the engineering work that is required by the Facilities group, since the head of engineering was also appointed to be head of that group.

Field Operations

Field Operations are composed of the following four groups:

- ◆ *Field Services Department (FSD)* – This group consists of 287 employees and handles emergency and leak response investigation, customer requested turn on/turn off, medical and bill paid turn on, meter and regulator installation, relight/rebuild, meter exchange/remove program, parts and labor appliance service on the customer premises. This group will install piping only to the meter and not beyond, but it will make temporary repairs and issue hazard tag beyond the meter on customer piping, such as in the case of a call on a gas leak.
- ◆ *Distribution Department* – This group consists of 443 employees and includes dispatching, leak management, leak repairs, new construction, main replacement, damage prevention and paving restoration, functions.
- ◆ *Meter Measurement and Pressure Force Support* – This group consists of 72 employees. They manage the meters and the telemetries from large commercial customers. It also manages the large street regulators that are included on the high pressure system. This group also includes the meter reading group.
- ◆ *Operations Systems Support (OSS)* – This group consists of four employees. OSS is responsible for statistical analysis of the work performance data. It also maintains the Automated Information Management System (AIMS) database and works with Information Systems on implementing AIMS upgrades.

There are two separate dispatch groups, one for Distribution and one for FSD. PGW has tried to combine these groups in the past, but the knowledge bases between the two groups are quite different.

Staffing Levels

Field force staffing levels over the last five years are shown in *Exhibit VII-9*. Since 2003, the number of union personnel has decreased by 36 positions overall, whereas the number of management positions has increased by two, the largest increase being in the Distribution area. According to PGW management, a significant number of PGW personnel will be eligible to retire within the next several years.



Exhibit VII-9
Field Force Staffing Levels
2003 to 2007

End of FY	2003	2004	2005	2006	2007
Field Service Department					
Management	49	49	52	51	48
Union	306	283	307	299	299
Total FSD	355	332	359	350	347
Distribution Department					
Management	63	67	64	69	67
Union	424	413	409	405	395
Total Distribution	487	480	473	474	462
Total Field Operations	842	812	832	824	809

Source: Information Response 656

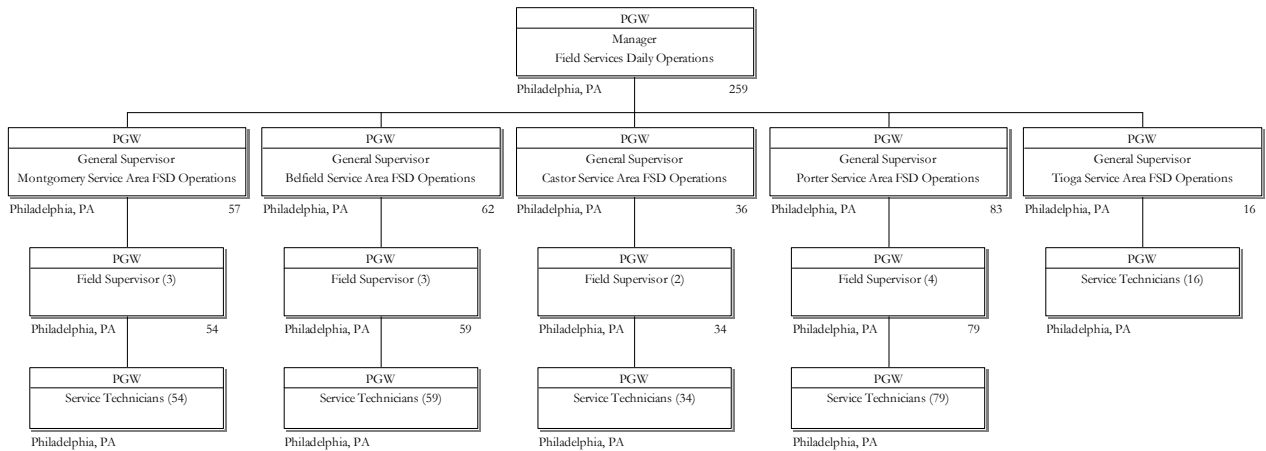
Union relations at PGW have improved significantly over the past five years. PGW management credits this improvement primarily to better communication. Dispatchers and supervisors are non-union. Foremen levels and below are all union personnel.

PGW is trying to bring in a large number of young engineers so that they can gain the proper experience to replace employees who will be retiring in the future. The Distribution and Field Services Departments have a large number of employees who are eligible to retire, but history has shown that most of them will wait for several years before retiring. Deregulation caused a cessation of hiring at PGW that is leading to some of the employee shortages the company is now experiencing. It has proven difficult to get union members to step up into management roles. This difficulty is primarily attributable to the loss of overtime wages and therefore a reduction in total annual pay. Supervisors get OT, but no one above that level does.

Field Services Department

The FSD is organized as shown in *Exhibit VII-10*. The FSD has a workforce of approximately 268 employees not counting Meter and Measurement as discussed in the following section. The FSD has 24 hour 365 day coverage to ensure rapid responses to leak situations. The Saturday schedule is similar to the Monday to Friday schedules. The Department also schedules a limited number of appointments on Sundays (i.e., just enough to keep the minimal number of employees scheduled busy between leak/emergency calls).

**Exhibit VII-10
Field Services Department
as of June 31, 2008**



Source: Information Request 653

FSD does all of the work on the inside of the customer premise – i.e. from the meter to the inside piping (most meters at PGW are located inside the premise as oppose to outside. This responsibility structure stands in contrast to Distribution, which does the work on the network up to the customer premise. The overall goal is to get all scheduled work completed within three business days.

Almost all FSD employees – other than new Cadet (what entry level employees are called) employees – are trained in appliance repair. The FSD currently has 50+ new Cadet Service Technicians who are being trained only in meter work and not appliance repair. In the future, they will be trained in appliance repair if there are further resource requirements within PGW for these skills. Other than these Cadets, almost all of the FSD Service Techs are trained in both gas piping and metering and appliance repair.

Scheduling for customer appointments is done based on three time windows, those being 8:00 a.m. to 12:00 noon, 12:00 noon to 4:00 p.m., and 4:00 p.m. to 8:00 p.m. The FSD is currently doing approximately 800 jobs per day. The Department has a target of performing 90% of the jobs on time (i.e., within the scheduled time window) and is currently meeting this goal.

The FSD crews are dispatched via their truck-mounted laptops and the Automated Information Management System (AIMS). Currently, only FSD personnel use the truck mounted laptops but that will change with the next version of AIMS called AIMS2. The major difference between AIMS and AIMS2 is that AIMS2 is intended for use primarily by Distribution, whereas AIMS was only for use by FSD.

The FSD uses a resource scheduling module to plan the scheduled workload. This module is basically an Excel spreadsheet model. However, this scheduling approach is complicated by leak repairs that are

put directly into the dispatch module as soon as the leak reports are received. The target is to respond to 95% of leaks within a 60-minute window. PGW is currently running at approximately 98%.

There are three two-man teams that work the 11:00 p.m. to 7:00 a.m. shift each day. These teams are focused on responding to reports of leaks. These shifts are generally staffed with volunteers, but in the absence of volunteers, there can be mandatory staffing based on reverse seniority. These crews are on standby when they are not responding to leak reports, due primarily to the lack of other viable work that can be accomplished at this time of day.

Forecasting of the workload is done by the Dispatch Center using the AIMS application. Assignment of the daily workload is conducted in a similar manner. However, the software application does not completely take into consideration the geographical component of the resource assignment equation. Therefore, the Dispatch Center has a night employee (in PGW terminology called a redater) who goes through the work assignments and reworks them based on geographical considerations. This reworking is done through a manual process. The current average travel time for techs between job sites is approximately 12 minutes. The supervisors can change the assignments, but they have to do so through the Dispatch Center.

The department reviews the workload and completion status daily at 10:30 am, 2:30 pm and 6:30 pm to reshuffle it as required for the rest of the day. If it appears as though it is going to miss a customer appointment, the call center will call the customer to inform him or her of this situation and to arrange for a later time or reschedule the appointment.

The service technicians (techs) are required to call the customer before arrival to let him or her know that they are on the way. If the customer is not present when the tech arrives, it is declared a Cannot Get In (CGI). CGI's happen in about 10% of the customer calls PGW makes.

New performance standards were recently implemented in the last union contract for service techs based on negotiation with the union. These standards include the following:

- ◆ Time to perform standardized tasks
- ◆ Repeat calls (less than seven days for another call)
- ◆ Log-on time (sign-in time on the computer system in the truck)

If someone is not meeting the time standard, it is usually due to a training problem. As such, that employee is scheduled for retraining. Employees can be demoted for poor performance.

There is an annual and monthly overtime (OT) budget that is established by the FSD management (with approval at higher levels) based on historical data. This budget for 2008 fiscal year is 72,000 man hours for both labor and management in the FSD. Supervisors or dispatchers need to approve all OT.

Gas leaks reports that come in go to the Dispatch Center, which manually decides which service tech to dispatch and then adds this assignment to the AIMS system. Most of the reported leaks are assigned to a tech within 20 minutes.

The FSD field force is divided into five geographical territories. Techs are generally assigned to work within their designated territory, but this assignment can be modified based on the workload. Each of these geographical territories has its own service center that the techs work out of. Those five geographical territories are:

- ◆ *Montgomery Service Area* – This area has a general supervisor, three field supervisors, and 54 service techs. Beyond providing service and repair to the designated service territory, the Montgomery general supervisor has the responsibility for meter reading, theft of service, and Automated Meter Reading (AMR) across PGW.
- ◆ *Belfield Service Area* – This area has a general supervisor, three field supervisors, and 59 service techs. Beyond providing service and repair to the designated service territory, the Belfield general supervisor has the responsibility for handling new residential construction for all of PGW. He works with the contractors to plan for larger jobs. The FSD will not set the meter in a residence until the contractor has completed its piping work and is ready for the installation to occur. Such preparation includes gas turn on. This requirement avoids the necessity for multiple visits.
- ◆ *Castor Service Area* – This area has a general supervisor, two field supervisors, and 34 service techs. Beyond providing service and repair to the designated service territory, the Castor general supervisor has the responsibility for the absence control function for all of the FSD. He ensures that longer absences are followed up on and validated and that a timeframe is established. The FSD has been running at about a 4% absence rate due to illness.
- ◆ *Porter Service Area* – This area has a general supervisor, four field supervisors, and 79 service techs (due to the large service area). Beyond providing service and repair to the designated service territory, the Porter general supervisor has the responsibility for the appliance repair throughout PGW's service territory. He is responsible for the maintenance of the appliance repair parts inventory. The intention of the appliance repair parts inventory is to carry the correct parts in each of the trucks to be able to make the repair on the first visit in the majority of the calls. This goal avoids the necessity for two visits to the client site. All of the A Grade service techs have a full complement of appliance repair parts on their trucks, based on a standardized list of what they should be carrying.
- ◆ *Tioga Service Area* – This area has a superintendent, 1 field supervisor, 6 fitters, 10 specialists - one grade up from Class A—and three Class A techs that perform hotel and restaurant work. Collectively these employees are known as the Industrial, Commercial, and Fitter group. The Tioga superintendent and service techs have the responsibility of performing large commercial and industrial work. They focus on servicing large commercial and industrial users, and they work with large diameter pipe turn-ons for all of PGW. If that large work is not available, the service techs can perform residential work, which is normally covered by the service techs out of other service areas.



Parts and Labor Plan

The Parts and Labor Plan (PLP) is PGW's home appliance repair program which PGW customers can pay additional costs to enroll. It covers gas heaters, electric central air conditioning units, gas hot water heaters, and gas dryers. PGW used to cover gas ranges and ovens, but due to the wide range of products and the accompanying large number of parts, it dropped this coverage. The PLP has a guarantee of 24-hour response during the winter months, which are defined as December 1st through April 15th. If PGW fails to respond within 24 hours, the customer can call in a private contractor to make the repair. PGW will then pay the bill, but this situation rarely has arisen. In the winter, the FSD averages 125 calls for heater repairs per day. The PLP accounts for 15% to 18% of the overall daily work of the FSD.

Administrative Organization

The Administrative organization area provides office support for the FSD group.

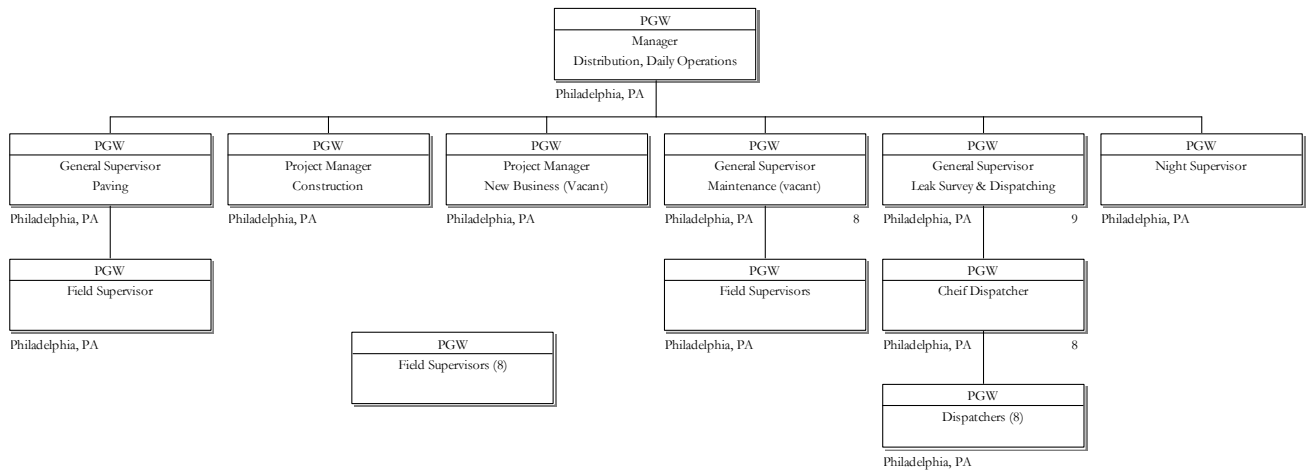
- ◆ *Quality Assurance (QA)* – The QA group consists of 12 to 14 employees. Its function includes manpower clerks who put data into the resources management system to allow determination of what resources are available on any given day. These clerks enter in sick, vacation, etc. time.
- ◆ *Repair Clerks, Timekeepers, and General Order Clerks* – The timekeepers enter in the manual timesheets that are produced on a daily basis by the service techs. The service techs enter their time into the AIMS2 system and onto paper timesheets. The paper timesheets are used for timekeeping purposes and the AIMS data is used for historical data tracking and comparative purposes only. The two recorded times for each individual are validated against one another to ensure no discrepancies. The other clerks keep track of data regarding several areas, including work that is completed by the Meter Shop.

Distribution Operations

The Distribution function includes all activities related to underground piping, including operations and maintenance (O&M), damage prevention, construction, leak detection and repair, dispatching of crews, paving. The Distribution group, shown in *Exhibit VII-11*, is responsible for everything up to the meter, including curb boxes and shutoff valves. There are 385 people in the overall Distribution group.

Distribution worker is a job category for a common laborer position that performs functions such as jack hammering and digging. There are also a few senior distribution workers who perform basically the same functions but have more experience. The next level up is compressor operator, with pipe mechanics falling at the next level. The next levels are Senior Pipe Mechanic, Distribution inspectors, Foreman and General Foreman. All new workers who join the group are brought in at the distribution worker level.

**Exhibit VII-11
Distribution Operations
as of June 31, 2008**



Source: Information Response 656

There are three major Distribution groups:

- ◆ Maintenance Operations – which is composed of Maintenance and Leak Survey & Dispatching
- ◆ Construction /New Business
- ◆ Paving

The various distribution crews report into the various groups and are periodically readjusted based on the specific needs during a given time of the year. The function of each of these groups is detailed in the following text:

Maintenance Operations Group

The Maintenance Operations group consists of:

- ◆ Nine supervisors
- ◆ Nine dispatchers
- ◆ Eight damage prevention inspectors (doing mark-outs and field inspection)
- ◆ 28 day crews – usually 2 man crews but also some 3 man crews
- ◆ 12 to 16 midday crews (depending on time of year)
- ◆ Four to seven late-night crews (depending on time of year)
- ◆ Three to five leak survey crews
- ◆ Two to three leak recheck crews

The Maintenance Operations group has seven vacuum trucks that are used for small scale excavation work. Five of the trucks are dedicated to performing work related to abandonments (including service



shutoffs) and corrosion control, and two of the trucks are dedicated to the repair of Class 2 leaks. The Maintenance Operations group is also responsible for providing liaison with the Fleet Management group and for managing the leak monitoring program.

Construction/New Business Group

This group is composed of seven supervisors and 25 to 27 crews in the summer or 19 crews in the winter. These are four-man crews in the summer and three-man crews in the winter. There are also construction inspectors who are assigned to contractors to oversee their designated contractors' construction efforts.

This group oversees all construction work including main installation, main replacement, new customer work, and large leak repairs and cutouts. Due to the shift in workload during the winter, employees are transferred from the Construction Operations group to the Maintenance Operations group. That way, they can handle the increased number of leaks that occur during the winter period. The Construction Operations group generally works only the daylight shift, except on those occasions when work is being done in Center City and the permits require work to be done at night. This group is also responsible for contract inspections and liaison with Engineering Design and Construction Planning and the PGW Marketing group in relation to New Business construction projects. The group also holds responsibility for responding to customer complaints concerning completed paving work.

The Engineering Design and Construction Planning and the Construction Operations groups make the decision on whether to use in-house versus external crews for construction projects. The majority of the 18 miles of main that is replaced each year is contracted out. The Supply Chain group oversees the bidding process but the Engineering Design and Construction Planning selects the winning bid. The bid packages are based on a group of blocks in an area that needs to be worked. There are generally eight to twelve contract bids that are put out in a year, with three to four bidders responding to each one.

Per the collective bargaining agreement with the Union, there is a PGW restriction against contractors working on a live gas line. Normally, the contractor will install the gas line, test it, and then turn it over to the PGW Construction crews. These crew members will then retest the line and turn the gas on.

One of the primary intentions of the AIMS2 package was to make it useable by the Distribution group, which AIMS was not. It is the current intention to have an AIMS2 package that can be used for training purposes up and running by July 2008, with full implementation by the end of the year.

It is intended that AIMS2 will be used for the following tasks:

- ◆ Recording of all leak reports, dispatching for repair, and documentation of all related activities
- ◆ Recording of all main replacement projects, which will be generated electronically and then dispatched to the field

AIMS2 will also be used by the Pressure Force group and the Corrosion group. These groups are not part of the Distribution Operations organization.

The Distribution organization crews operate out of the same service centers as the FSD, where they share facilities.

Paving Group

The Paving group is responsible for valve box adjustments (in relation to grade and pavement), manhole work (two crews), and inspection and supervision of the paving contractors (five to seven inspectors), performing paving restoration work for all construction and maintenance activities. This group consists of:

- ◆ One supervisor
- ◆ Seven inspectors
- ◆ Four union craftsmen
- ◆ One paving clerk

The majority of the paving work is done by contractors, with PGW crews doing only small paving jobs. There are two two-man manhole crews that perform this paving work. The Supply Chain group is responsible for the bidding and selection of paving contractors. However, the Distribution group does have input into the process, and bidders can be eliminated for past non-performance.

Meter and Measurement Engineering

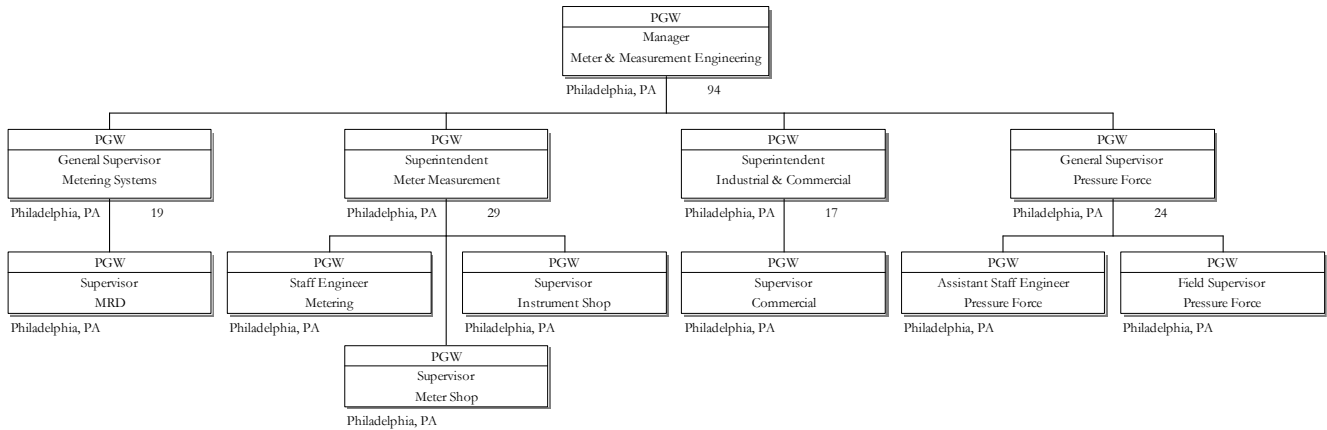
There are approximately 12 non-union and 60 union personnel in the Meter and Measurement Engineering Department of PGW as shown in *Exhibit VII-12*. This group is responsible for all activities associated with metering of gas flows at PGW. It is organized into the following entities:

- ◆ Meter Shop
- ◆ Pressure Force group
- ◆ Commercial/Industrial
- ◆ Meter Reading

This organization is further discussed in Chapter VIII – Customer Service.



Exhibit VII-12
Meter and Measurement Engineering
as of June 30, 2008



Source: Information Request 660

PGW had projected to change out approximately 60,000 meters in 2008. It was originally thought that the meters would be replaced in 20 years; however, the meters are being replaced over the next several years, based on the original installation date of the meter, because of the shorter than expected life of the batteries attached to the meters that are part of the automatic meter-reading device. The majority of these used meters will be tested and sent back to meter inventory. Some are repaired as required, which may include recalibration, and retesting. Those that pass the testing will be put back on the shelf for reuse. Historically, PGW has been able to reuse about 85% of the meters that were replaced. PGW also adds bar-coding to the meters to give them the ability to track the meters from the storeroom to the trucks and to their final installation location.

As a result of the testing program, 90% of the replaced meters have passed the accuracy test. Of the 10% that fail, 6% were found to be running fast and 4% running slow. The 90% that pass are reconditioned and sent back out into the field for reinstallation. The meters are bar coded in the shop. This process allows the service tech to scan the information at the time of installation, thereby ensuring proper matching of the meter and the installation address. If meters are to be disposed of, they are sold off as scrap. A 10% sampling of new meters is tested to ensure accuracy.

Work Management

All workload assignments for both FSD and Distribution are managed from the 9th and Montgomery headquarters location. There are five outlying stations (previously discussed) where the employees start and end their shifts. Work is assigned to the employees at these stations for travel efficiencies.

Overall work backlog for the FSD is displayed daily on what is called the “Allocation and Workload Report” The report is distributed to management by 7:00 a.m. every morning and is used to compare and manage workload resources. It displays the previous day’s statistics, the current day’s workload, and the future jobs being scheduled one day, seven days, and 14 days out. A second report displays the scheduling of manpower and the shifts employees are assigned.

Distribution monitors maintenance (leak workload) through a weekly report called the “Weekly Inventory Report.” This report displays leaks that have been prioritized to be resolved.

For corporate review, Field Operations reports a summary (metrics) of numerous prioritized programs.

Mapping

PGW does not have a geographic information system (GIS) system; however, the entire main distribution system is detailed **to scale** on their DMM maps through years of perpetuation and a policy to assign two “field drafters” and one office drafter (perpetuator) to the perpetuation program. The Detail Main Maps are on AutoCAD and can be viewed by foremen, supervisors, dispatchers, and inspectors as long as access is given to the individual. According to PGW management, the program is extraordinary because of the age and accuracy of the information.

Along with the Detail Main Maps (DMM), Distribution has a variety of other archived maps and reports that aid in the safe operation of the system. For example, there are maps to display the critical valves of the higher-pressure systems. Service information is recorded on hard copies and posted into an Oracle based UFD program. Leak repairs are recorded on hard copies and onto the same Oracle database. Paving is also found on hard copy and Access databases. The Oracle database that houses all this information is called the Underground Facility Database (UFD). The front-end viewing screen is available through the corporate share drive. The field (through their laptops) and office personnel can see this information at any time. It is based on block addresses.

Main Replacement Programs

This functional area consists of one supervisor and two engineers. The overall goal at PGW is to replace 18 miles of cast iron main per year, which is approximately 1% of the existing cast iron pipe. There are two main replacement programs that contribute to this 18-mile target, specifically:

- ◆ *Prudent Main Replacement* – These are mains that the Engineering Department determines need to be replaced based on the Navigant program. The Navigant program ranks the mains that need to be replaced on a block-by-block basis based solely on leak/break history. The Navigant program is eight to 10 years old and its results are based primarily on broken main historical data on both breaks and outstanding main leaks. PGW normally does 12 to 14 miles of prudent main replacement per year. It is currently acquiring a new program from Advantica to replace the Navigant program. This program will perform a risk assessment of all the mains based on a number of factors. It is scheduled to be operational by April 2008. With the



Advantica program, PGW will try to get the top 100 to 200 blocks replaced each year, while still having reasonably sized projects (so that they are not doing a lot of small, disjointed projects). In doing this, PGW will try to combine smaller projects, even if some of the projects are not at the top of their priority list. PGW is also trying to add consideration of the main's proximity to schools, hospitals, greenways, etc. into the project prioritization process. Advantica is going to populate its database with information that is extracted by a script from the system maps and with data from the Underground Facilities Database.

- ◆ *Enforced Main Replacement* – These main replacements are driven by work projects done by PennDOT, the water department, and other utility projects. Generally, four to six miles of main replacement is done each year under this category. PGW will usually replace all the pipe in a construction area due to the increased potential for leaks occurring as a result of the pipe being undermined during the construction process.

The Navigant program selected block-by-block pipe segments based solely on historical main break/leak history. Both main break repairs and outstanding leaks are contained in the UFD. This information is used to develop a block-by-block ranking of pipe segments for replacement. In short, the budget for the miles of pipe to be replaced on a yearly basis (which has been 18 miles for the last several years) is set, and the individual pipe segments were chosen based on the Navigant results.

As shown in *Exhibit VII-13*, the miles of cast iron pipe has been reduced from 1,680 miles to 1,624 miles. This decrease represents approximately a 3.3% reduction (roughly 1% per year). This replacement rate brings PGW into minimal compliance with Commission orders, such as ordering paragraph No. 5 of the Commission's Order adopted on November, 22, 2000, at R-00005654, assuming only cast iron pipe was being talked as referenced earlier in the order, specifically:

...In this regard, PGW notes that it does not need to be ordered to commit to do these things because the LNG Liquefaction Replacement Program and the 1.0% cast iron main replacement program are part of PGW's proposed capital budget and capital funds are reflected in that budget...⁹

⁹ / Commission's Order adopted on November, 22, 2000, at R-00005654 page 28

**Exhibit VII-13
Miles of Main By Type
2003 to 2007**

	2003	2004	2005	2006	2007	Percentage Change
2" or Less						
Steel	53	53	53	53	53	0.0%
Ductile Iron						
Copper						
Cast Wrought Iron						
Plastic PVC						
Plastic PE	17	18	19	20	21	23.5%
Plastic ABS						
Other						
Total	70	71	72	73	74	5.71%
2"-4"						
Steel	277	277	276	275	275	-0.7%
Ductile Iron	56	56	56	56	56	0.0%
Copper						
Cast Wrought Iron	339	330	322	313	306	-9.7%
Plastic PVC						
Plastic PE	120	136	150	166	178	48.3%
Plastic ABS						
Other						
Total	792	799	804	810	815	2.90%
4"-8"						
Steel	448	446	444	443	443	-1.1%
Ductile Iron	76	76	75	75	75	-1.3%
Copper						
Cast Wrought Iron	1,034	1,024	1,016	1,005	995	-3.8%
Plastic PVC						
Plastic PE	55	63	71	79	87	58.2%
Plastic ABS						
Other						
Total	1,613	1,609	1,606	1,602	1,600	-0.81%
8"-12"						
Steel	101	101	101	101	101	0.0%
Ductile Iron	5	5	5	5	5	0.0%
Copper						
Cast Wrought Iron	131	130	130	130	130	-0.8%
Plastic PVC						
Plastic PE						
Plastic ABS						
Other						
Total	237	236	236	236	236	-0.42%
Over 12"						
Steel	122	122	122	122	122	0.0%
Ductile Iron						
Copper						
Cast Wrought Iron	176	176	176	176	176	0.0%
Plastic PVC						
Plastic PE						
Plastic ABS						
Other						
Total	298	298	298	298	298	0.00%
All Lengths						
Steel	1,001	999	996	994	994	-0.7%
Ductile Iron	137	137	136	136	136	-0.7%
Copper						
Cast Wrought Iron	1,680	1,660	1,644	1,624	1,607	-4.3%
Plastic PVC						
Plastic PE	192	217	240	265	286	49.0%
Plastic ABS						
Other						
Total	3,010	3,013	3,016	3,019	3,023	0.43%

Source: Information Response 655

In addition, PGW continues to replace its' steel services with plastic services due to leakage.

Exhibit VII-14 provides statistics on the number of steel services that have been replaced. The number of steel services has been reduced by over 24% since 2003.

Exhibit VII-14
Number of Services By Type
2003 to 2007

	2003	2004	2005	2006	2007	Percentage Change
1" or Less						
Steel	132	138	121	119	109	-17.42%
Ductile Iron						
Copper	49	42	43	42	37	-24.49%
Cast Wrought Iron						
Plastic PVC						
Plastic PE	252,998	254,828	259,714	256,233	274,353	8.44%
Plastic ABS						
Other						
Total	253,179	255,008	259,878	256,394	274,499	8.42%
1"-2"						
Steel	227,606	219,149	179,351	171,339	165,205	-27.42%
Ductile Iron						
Copper						
Cast Wrought Iron						
Plastic PVC						
Plastic PE	11,867	13,032	12,629	12,602	14,956	26.03%
Plastic ABS						
Other						
Total	239,473	232,181	191,980	183,941	180,161	-24.77%
2"-4"						
Steel	3,367	3,352	2,813	2,769	2,798	-16.90%
Ductile Iron						
Copper						
Cast Wrought Iron						
Plastic PVC						
Plastic PE	2,537	2,610	2,241	2,217	2,466	-2.80%
Plastic ABS						
Other						
Total	5,904	5,962	5,054	4,986	5,264	-10.84%
4"-8"						
Steel	1,006	988	840	797	847	-15.81%
Ductile Iron						
Copper						
Cast Wrought Iron						
Plastic PVC						
Plastic PE	175	194	148	151	200	14.29%
Plastic ABS						
Other						
Total	1,181	1,182	988	948	1,047	-11.35%
Over 8"						
Steel	16	16	13	12	18	12.50%
Ductile Iron						
Copper						
Cast Wrought Iron						
Plastic PVC						
Plastic PE						
Plastic ABS						
Other						
Total	16	16	13	12	18	12.50%
All Sizes						
Steel	232,127	223,643	183,138	175,036	168,977	-27.20%
Ductile Iron						
Copper	49	42	43	42	37	-24.49%
Cast Wrought Iron						
Plastic PVC						
Plastic PE	267,577	270,664	274,732	271,203	291,975	9.12%
Plastic ABS						
Other						
Total	499,753	494,349	457,913	446,281	460,989	-7.76%

Source::Information Response 655

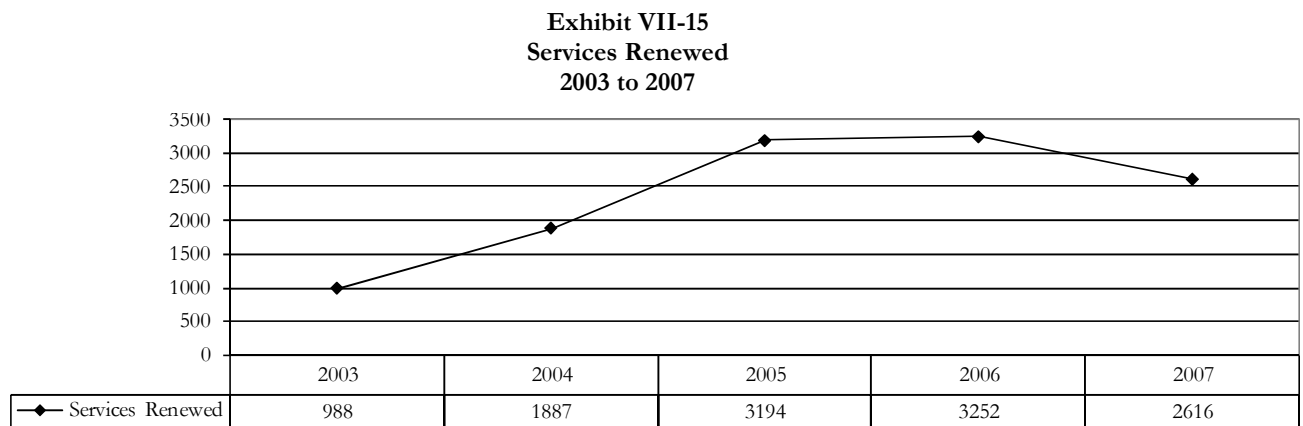
Service Line Valve Installation Program

In most cases, if PGW needs to turn-off a service (due to a request for a normal turn-off or for non-payment etc.), it is necessary to gain access to the premise to perform the turn-off. If there is a service valve in the street prior to the line going into the premise, the shut-off can sometimes be performed at the service valve – if there are not multiple meters behind the service valve. Thus the lack of a service valve can be an issue when attempting to cut off service if access to the premise is not possible.

PGW is unable to provide any statistics on the number of premises without service valves or premises with service valves with multiple meters behind the service valve although it appears there are still a large number of these instances. It is important to recognize that installing a service valve potentially involves digging up streets and sidewalks in an urban area of Philadelphia.

However, when PGW replaces a service line, it always adds a curb box with a valve to allow service cutoffs. When a shutoff is done for reasons of non-payment and it requires digging up the service line (due to the lack of a shutoff valve), PGW has vacuum trucks that can uncover the line for capping. Upon payment of the outstanding bill, a curb box is installed that includes a shutoff valve and the service is restarted. On an annual basis, there are approximately 2,000 services each year that are shut off and then restored following the installation of a curb box. When a steel service line is identified during this process, it is replaced with plastic.

PGW does not keep statistics specifically concerning the renewal of a service without a valve. However, PGW's non-payment shutoff program (NPSO) generates a physical abandonment only (which requires the service to be dug up and capped) when the service has no valve. Working from this premise, distribution crews are given assignments daily to renew (reinstate) lines that have been previously abandoned. When service is restored that have been abandoned a valve is installed. These statistics are shown in *Exhibit VII-15*. The number of renewals of service has increased significantly since 2003 due to the increase in the number of turnoffs.

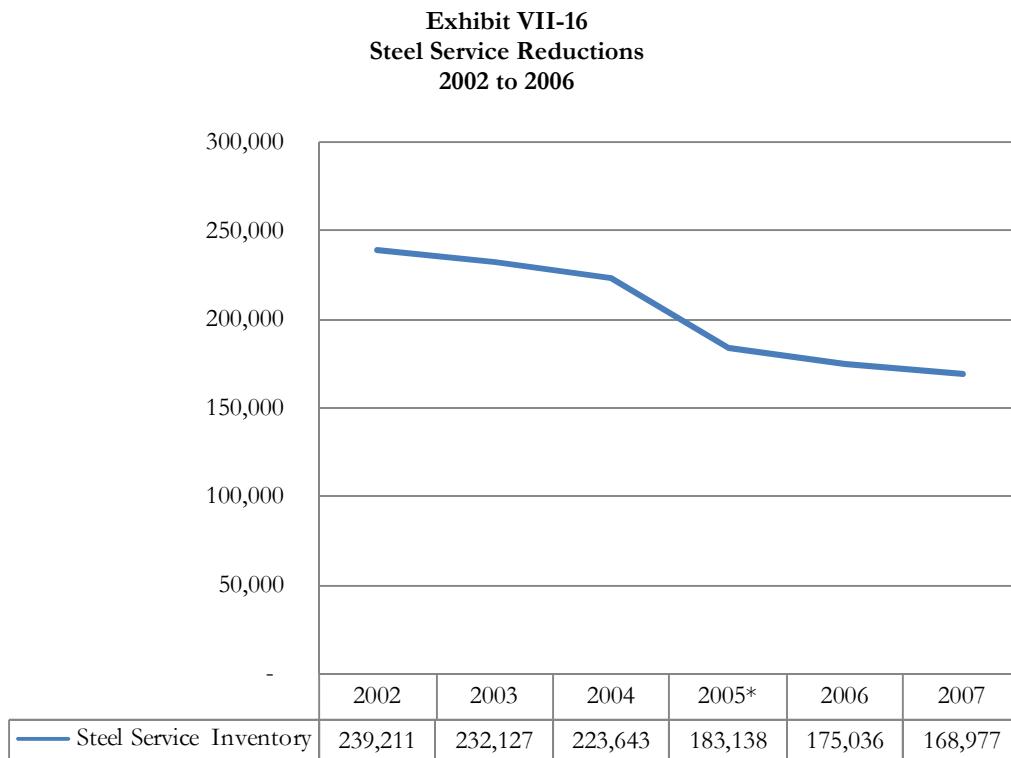


Source: Information Response 648



There are also valve-less services that are being renewed without a shutoff being involved. Such renewal is occurring because of maintenance (leakage) and in conjunction with replacement of mains. However, there are no statistics on these renewals.

PGW also has a program of replacing steel services with plastic services. These replacements would also include a service valve as part of the process. Since 2002, the number of steel services has been reduced by 26%. These statistics are shown in *Exhibit VII-16*.



Source: Information Response 649

Gas Leak Response Rates

The Distribution group is also responsible for the leak tracking database and support of the work on AIMS2. As of the end of 2007, all of the Distribution trucks were equipped with a laptop on which the technicians can look up repair history, services installed, and other network data on a block-by-block basis. This data comes from the UFD Oracle database. AIMS2 has made this data available to the field crews. Leak history data is all paper based at this time. It is not currently accessible to the field crews who have to call in to the Dispatch Center to obtain. Leak history is currently being added to the AIMS2 database, which would make it accessible to field technicians. It is intended that this initiative will be completed by the end of 2008.

Distribution will AIMS2 for leak repair dispatching. If the leak is a serious one, the Distribution group responds. However, most of the leaks are of a lesser nature and are responded to by the FSD group, which usually handles about 100 leak reports per day. The leak response target is less than 60 minutes. PGW normally runs at 98% to 99% compliance with this target. The PGW standard is 95% of the leaks responded to within 60 minutes.

All outside leaks are the responsibility of the Distribution group. PGW does not use a 1, 2, 3 leak classification protocol. Rather, leaks are divided into hazardous and non-hazardous. This determination is made based on the assessment done by the first responder from the FSD group or the Distribution crew. He or she surveys the site, makes a determination, and informs the Dispatch Center of the status. It is the Dispatch Center that is responsible for rescheduling the leak based on a set of policies called the “Work Initiation Schedule” and for dispatching the appropriate crew as required. The dispatchers also serve in the role of leak auditors.

Hazardous leaks are to be repaired immediately. Non-hazardous leaks go into a work/recheck schedule. At the beginning, a leak must be rechecked within 72 hours. Based on the characteristics of the leak, it will then be classified as a 15-day, 30-day, or 90-day leak, depending on the timeframe according to which it is to be put into the scheduled work for repair.

Leaks are managed currently only in paper format but are scheduled to be transferred to AIMS2 by the end of 2008. PGW Bulletin 126 gives the details of the work initiation schedule.

Leaks are defined as hazardous based on an assessment of the following criteria:

- ◆ Inside of a building
- ◆ Within five feet of a building
- ◆ Within a sewer line
- ◆ Near a conduit
- ◆ Major leak

The material composition of the pipe that is experiencing the leak has no effect on the leak classification to which it is assigned.

The data on recorded leaks is contained in the open leak file, which is broken down into two categories, those being “Work Immediate” or “Work or Recheck in “X” days:

- ◆ Work Immediate
- ◆ Work or Recheck in 15 days (similar to a GPTC Grade 2 leak)¹⁰
- ◆ Work or Recheck in 30 days (similar to a GPTC Grade 2 leak)
- ◆ Work or Recheck in 90 days (similar to a GPTC Grade 3 leak)

¹⁰ / PGW has its own categories for leaks classification which is somewhat similar to Gas Piping Technology Committee (GPTC) which produced a book called “Guide for Gas Transmission and Distribution Piping Systems” which is used by gas operators to help them comply to federal code requirements CFR 49 §191 and 192.



If a recheck shows that the leak has become more serious, the inspector would contact the Dispatch Center and a repair crew would be assigned immediately. An average of 12 to 13 leak reports are received per day from customers and approximately 80% of those are classified as “Work Immediately”.

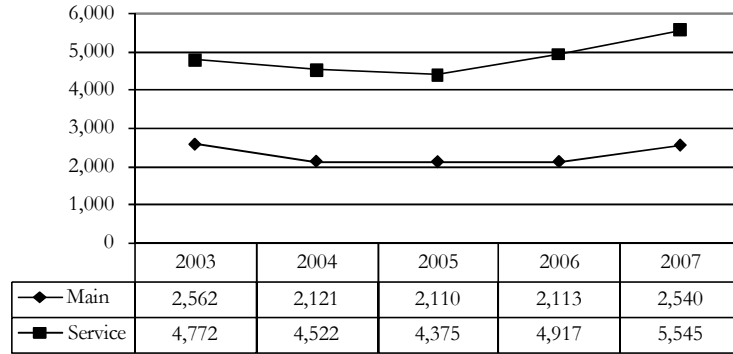
Leak surveys are done by designated Distribution crews who use optical methane detection equipment. These surveys are regularly scheduled and are not driven by leak reports.

PGW currently operates with the following leak crews, survey crews and leak auditor:

- ◆ 2 – Mobile Leak Crews (two-man crews driving a van) with the leak detection equipment mounted on the van’s front bumper; cover the entire city in a year; usually operate from December to August
- ◆ 1 – Mobile Leak Crew (two-man crew in a van) with the leak detection equipment mounted on the van’s front bumper; used to patrol all prudent cast iron segments (top 300 segments) from the frost-on to frost-off timeframe; usually operating one to two months of the year during the winter months
- ◆ 3 – two-man walking crews that operate year round ; cover the entire city every three years; walk up each side of the street with equipment to detect potential leaks
- ◆ 2 to 3 – Recheck Crews (two-man crews in a van with handheld detectors) operate according to the recheck schedule
- ◆ Maintenance crews operating as leak crews – as needed year around; primarily to do repair assigned to other tasks when not assigned on leaks
- ◆ Dispatch Center Auditor – night schedule auditor who handles rescheduling of the rechecks (recheck schedule)

PGW has increased the number of leaks being repaired in each of the last three years as shown in *Exhibit VII-17*. As a result the number of outstanding leaks has remained relatively flat since 2002, as shown in *Exhibit VII-18*. This indicates that PGW is keeping up with the number of leaks (i.e., that backlog is not increasing).

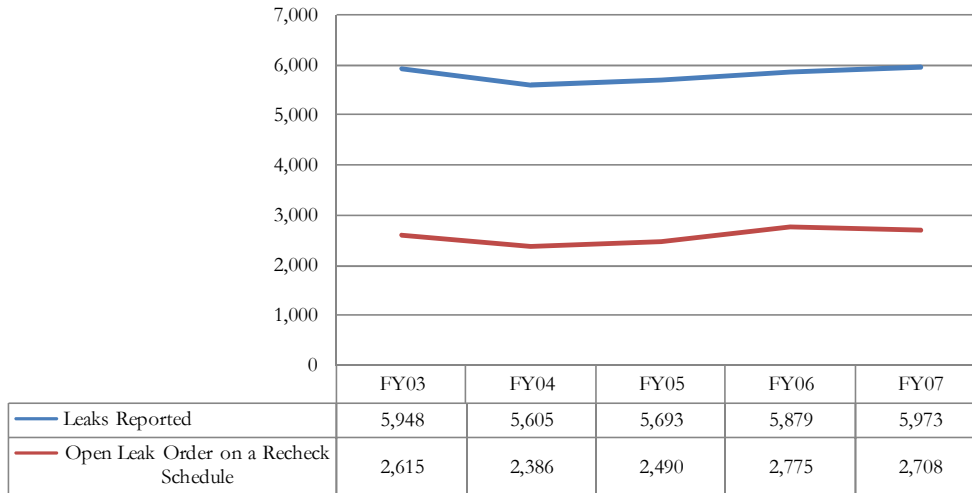
**Exhibit VII-17
Repaired Gas Leaks
2002 to 2006**



Source: Information Response 255

As shown in *Exhibit VII-18*, there are approximately just under 6,000 leaks reported each year that result in around 2,500 leaks being put on a recheck schedule.

**Exhibit VII-18
Main Leak Status
2003 to 2007**



Source: Information Responses 657 and 658

Unaccounted For Gas

PGW's unaccounted-for gas (UAG) has averaged approximately 2.5% over the last four years as shown in *Exhibit VII-19*. As can be seen in *Exhibit VII-19*, the gross unaccounted-for gas is adjusted for certain categories of estimated usage to arrive at net unaccounted-for gas. This figure is then used to calculate the overall percentage. These calculations are reported to the Department of Transportation (DOT).

As shown in *Exhibit VII-19*, starting in 2004, PGW began to account for its own internal gas usage in performing these calculations. In addition, in 2005, PGW began to include an estimate for theft of gas service, which ends up being one of the adjustments' largest percentages.

Exhibit VII-19
Unaccounted-for Gas Calculations
Thousands Cubic Feet (Mcf)
2003 to 2006

Category	2003		2004		2005		2006	
		MCF		MCF		MCF		MCF
Total Sendout		81,488,857		71,936,829		72,703,987		62,134,220
Accounted-For Gas		79,344,240		69,264,295		69,946,002		60,194,174
Unaccounted-For Gas (Gross)		2,144,617		2,672,534		2,757,985		1,940,046
Estimated Gas Adjustments								
	MCF		MCF		MCF		MCF	
- Maintenance and Construction		3,266		3,810		3,639		4,058
- Gate station bleeds		7,762		7,762		7,762		7,743
- Meter accuracy		(745,030)		(33,218)		(101,242)		(62,102)
- Correction for 6" w.c.		866,327		696,536		734,426		641,966
- Third-party damage				8,870		0		0
- Utility usage				3,214		12,335		14,247
- Theft of service				0		61,761		84,298
Total Estimated Gas Adjustments		132,324		686,974		718,680		690,210
DOT Reported Unaccounted-For Gas (Net)		2,012,293		1,985,560		2,039,305		1,249,836
Unaccounted-For Gas as a % of Total Sendout		2.5%		2.8%		2.8%		2.0%
Estimated Gas Adjustments Percentage of Gross UAG		6.17%		25.70%		26.06%		35.58%

Source: Information Response 682

Cathodic Protection

Management of corrosion control, cathodic protection, and code compliance for this business function is performed by the Corrosion control group, which falls under the Distribution Department Engineering section. This group reviews all new designs involving steel mains or services and provides the proper cathodic protection design to meet the particular installation. In addition, the group is responsible for performing all code-related maintenance and inspections that have been afforded to these facilities after they have been installed. The group meets regularly with the city coordinating groups, which focus on suppression of stray current problems throughout the city. The Corrosion control section has six management employees (corrosion technicians) and one supervisor.

As of the end of 2007, PGW had a total of 505 miles of coated unprotected main (reduced from 519 miles in 2002) and 489 miles of coated cathodically protected main. There is no uncoated, unprotected main. PGW applied cathodic protection to 0.59 miles of main from 2003 through 2007 and replaced or abandoned another 13.5 miles to arrive at the total of 505 as shown in *Exhibit VII-20*.

As of the end of 2002, PGW had a total of 485 miles of cathodically protected existing main. The following (4.21 miles) additional amounts were added to the existing cathodically protected mains in each subsequent year 2003 through 2007 to arrive at the total of 489 as shown in *Exhibit VII-20*.

Exhibit VII-20
Progress in Cathodic Protection for Mains
2003 to 2007

Year	Total Miles of Coated Unprotected Main	Total Miles of Cathodically Protected Main
2003	518.89	486.17
2004	518.70	486.83
2005	518.65	487.88
2006	518.44	488.85
2007	518.41	489.23
Miles Abandoned/Replacement (2003-2007)	13.5	
Total	505	489.23

Source: Information Response 849

Damage Prevention Programs

Distribution oversees the leak history and damage prevention databases. They track the number of hits and locate tickets that are produced. PGW is currently running at under 100 hits per year system wide, with very few of these hits being due to mismarks. PGW has assigned eight very experienced people to do the mark-outs. It also posts a watchman (generally a mechanic or more senior level employee who is on light duty) at large jobs to supervise and try to ensure avoidance of any line hits.

In the future, all locates will be monitored by the AIMS2 application. As of January 2008, this monitoring and tracking is performed on a totally manual paper-based system. The supervisor who performs the damage inspection is responsible for determining the cause of the damage and for estimating the cost of repair so that it can be billed back to the entity that caused the problem. PGW had 79 line hits in 2006. In general, contractors have been very good about calling for the proper mark-outs.



PGW has performed approximately 40,000 locates per year over the past two years as shown in *Exhibit VII-21*. There were less than 50 hits in 2007. The Damage Prevention program results are summarized in *Exhibit VII-29* and *Exhibit VII-30*, which appear later in this chapter.

Exhibit VII-21
Locates Versus Resulting Damages
1995 to 2007

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
# Locate Requests	21,157	23,473	28,089	27,984	31,025	34,030	37,297	35,178	39,368	38,871	38,708	40,500	41,702
Resulting in Damages	163	118	158	156	162	129	139	93	113	102	94	79	46

Source: Information Response 651

Labor Safety and Training Group

Training for the service technicians is performed by the PGW Training group that is part of the Employee Relations, Development, and Support Services organization. Service techs are tested on their knowledge in written examinations and through field evaluations. Passing of these tests is a requirement for promotion to the next position level, but there must be a need for an employee in the advanced position for a promotion to take place.

PGW performs the normal safety and training functions. PGW has multiple safety programs to protect workers, property, and the public. Some programs are PGW wide and others are department specific based on the type of work being performed. The programs are described briefly below:

- ◆ *Personal Protective Equipment* – This program includes protection for the eyes, face, head, hands, body, and feet. Hearing, chemical, LNG, flash, and arc flash protection is addressed along with preventing physical injuries. In the last few years, PGW has expanded the Flame Resistant Clothing Program to multiple operating departments.
- ◆ *Hearing and Sight Conservation* – This program involves noise surveys, employee audiograms, and vision tests, plus engineering controls, administrative procedures, and personal protective equipment.
- ◆ *Defensive Driving* – This program includes instruction in the Smith System (an off the shelf defensive driving program), training for new drivers, and retraining for employees who have preventable motor vehicle accidents.
- ◆ *Prevention of Strains and Sprains* – This program involves instruction from Nova Care (an off the shelf program for preventing back and other injuries) on the prevention of back, shoulder, and muscle group injuries. It includes equipment considerations and the voluntary use of back belts.
- ◆ *Prevention of Slips, Trips, and Falls* – This program includes instruction and consideration of housekeeping, plus walking surfaces on the job.

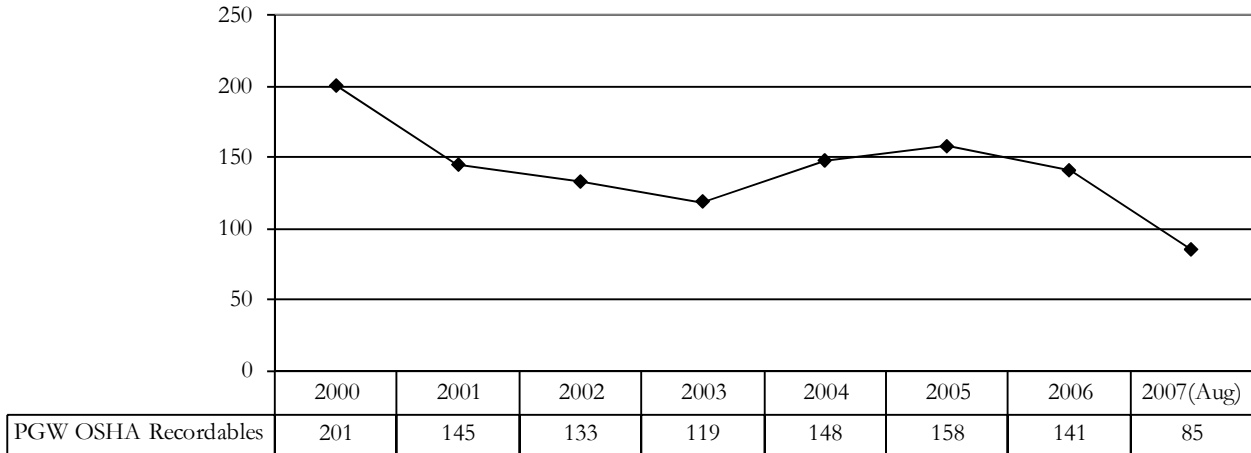
- ◆ *Confined Spaces* – This program includes the inspection, testing, permits, entry, and attendant requirement when work is required in confined spaces.
- ◆ *Accident Reporting* – This program includes the proper reporting, investigation, coordination with the Workers’ Compensation requirements, and feedback to prevent future similar accidents.
- ◆ *Work Area Protection* – The focus of this program is on protection provided at excavations in the streets and sidewalks. It involves instruction and use of appropriate signs, cones, barriers, and barricades to protect employees and the public.
- ◆ *Excavations* – This program involves instruction about proper digging, shoring, and ditch ladder requirements.
- ◆ *Proper Material Handling* – This program includes the appropriate use and care of lifting transport and rigging equipment. Formalized forklift training has been added to the program.
- ◆ *Electrical and Mechanical Safeguarding* – This program involves machine guarding plus lockout and tagout procedures. It involves permits to protect against potentially energized devices. It also includes the use of intrinsically safe devices such as flashlights and radios.
- ◆ *Hazardous Materials* – This program involves the chemical substance Right to Know instruction, plus the safe handling, storage, and disposal of hazardous materials and gas cylinders.
- ◆ *Fire Prevention and Control* – This program includes Fire & Evacuation Plans plus maintenance of fire systems, fire extinguishers, and alarms.
- ◆ *Substance Abuse Awareness and Prevention* – This program includes employee drug and alcohol testing and training plus the Medical Review Officer (MRO) and Employee Assistant activities.
- ◆ *Safe Tools and Equipment* – This program includes the use and care of hand and power tools, ladders, and equipment.
- ◆ *CPR and First Aid* – This program includes training in CPR, first aid, and automatic external defibrillator (AED) use. It also includes the capabilities of the Company Medical Department.
- ◆ *Plant Safety* – This program includes instruction about hazards in the plants and appropriate procedures, as well as inspections of the facilities.
- ◆ *Office Safety* – This program includes instruction about hazards in offices and appropriate procedures, as well as inspection of the facilities.
- ◆ *Contractor Safety* – This program involves instruction to contractor employees. It starts at pre-bid meetings and initial orientation sessions.

The safety statistics for the calendar years 2000 through August 2007 (since the last PaPUC audit) are shown in *Exhibit VII-22* and *Exhibit VII-23*.

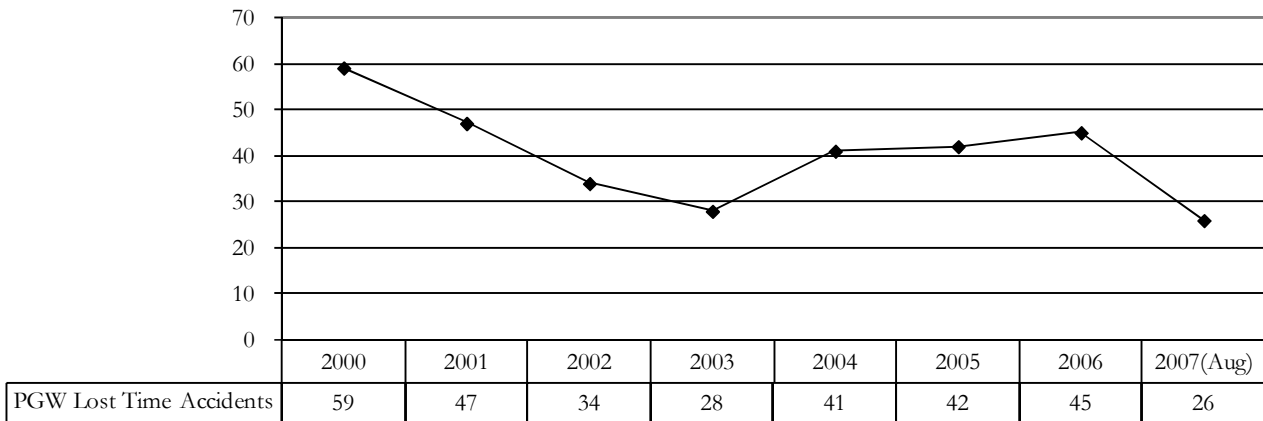


**Exhibit VII-22
Safety Statistics
as of August 31, 2007
2000 to 2007**

PGW OSHA Recordables



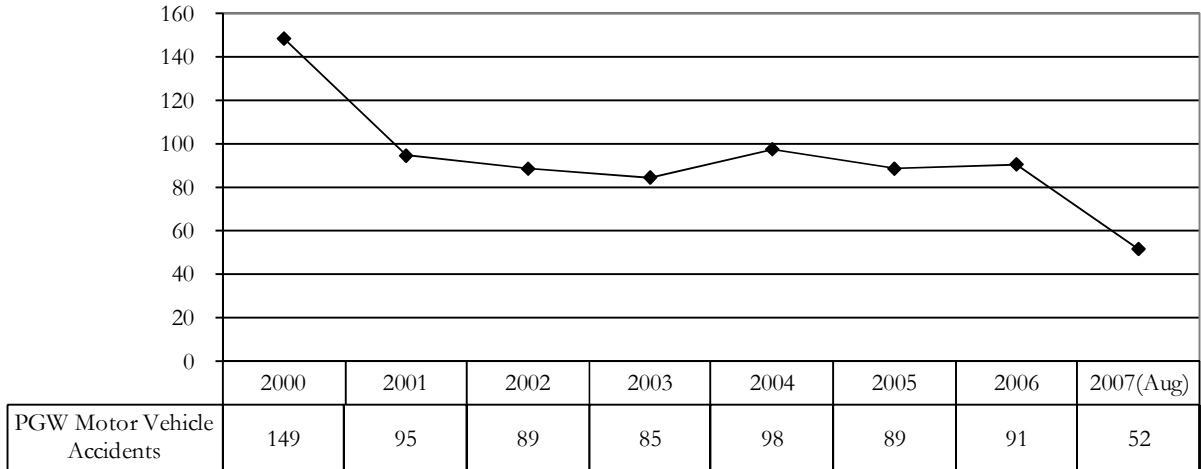
PGW Lost Time Accidents



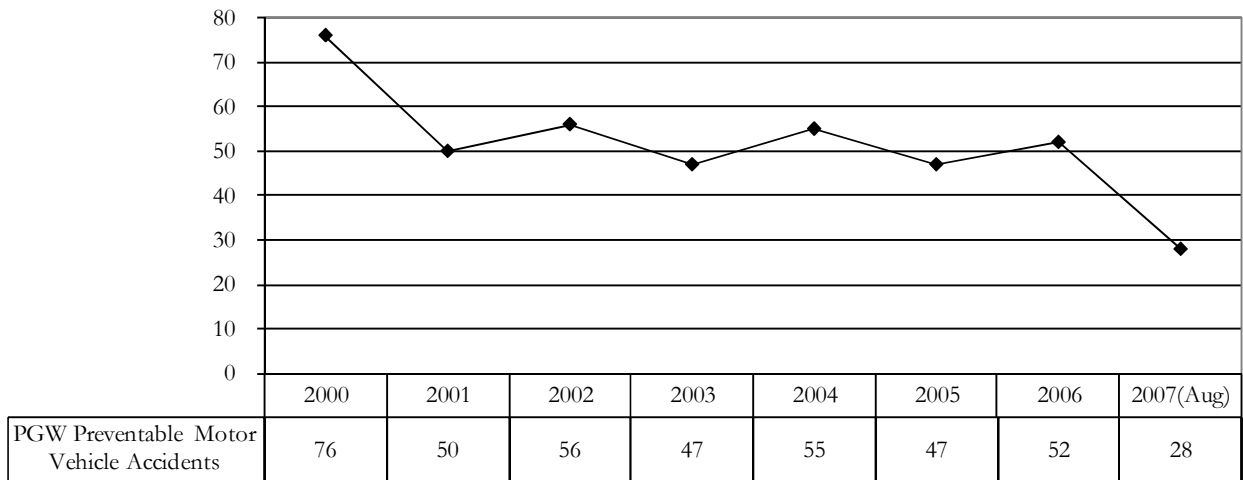
Source: Information Response 42

Exhibit VII-23
Vehicle Safety Statistics for Last Five Years
as of August 31, 2007

PGW Motor Vehicle Accidents



PGW Preventable Motor Vehicle Accidents



Source: Information Response 42

PGW has been making progress in lowering its OSHA recordable incident rate over the past several years. PGW's recordable incident rate for calendar year 2007 through August is 7.32 injuries per 100 workers.

A detailed look at the distribution gas companies that are reporting to the American Gas Association (AGA) indicates that very few, if any, service just urban customers, as PGW does. Obviously, urban environments tend to have more hazards than suburban and rural environments. Customer properties are usually older, which reflects itself in more disrepair and lighting issues. The buried facilities in the streets are more clustered and vehicle traffic is much greater. Thus, in order to make a fair comparison,



PGW was compared to other companies that predominantly service cities. Below is a list of such companies. The comparison of nine such gas distribution companies and their 2006 calendar year OSHA Recordable Rates as reported to the AGA are shown in *Exhibit VII-24*.

Exhibit VII-24
Safety Statistic Comparison (OSHA Recordable Rates) to Other Utilities
 as of December 31, 2006

Company	2006*
National Grid	16.30
Laclede Gas Company	9.47
Columbia Gas of PA	9.33
Pacific Gas and Electric	9.15
Memphis Light	9.06
PGW	8.03
Columbia Gas of Ohio	7.59
Southern California Gas Company	6.00
Peoples Gas Light and Coke	5.80
Washington Gas Light Company	5.26

Source: Information Response 42

* Incidents per 100 employees per year shown as 2006 calendar year recordable incident rate

Findings & Conclusions

Finding VII-18 PGW business systems are not as complete or automated as others in the industry.

The primary system used for managing PGW's field forces is AIMS. AIMS is the system that interfaces to the laptop PCs that are located in the FSD technicians' trucks. The technicians are dispatched using that product. At the time of our review, AIMS was only being used in the Field Services Department. The distribution field forces are managed via an internal paper-based system. Schumaker & Company understands that AIMS2 will automate the distribution field forces. In addition, there are several paper processes within PGW (such as leak survey paper card) that should also be automated.

Currently, the FSD daily resource assignment and scheduling software application does not take into consideration the geographical component of the resource assignment equation. More and more utilities are integrating GPS technologies into their dispatching tools to attempt to improve their field resource utilization. This initiative could eliminate the need for the night redater (previously discussed) and provide other capabilities, such as street-level routing.

The service techs enter their time into the AIMS system and onto paper timesheets. The paper timesheets are used for timekeeping purposes and the AIMS data is used for historical data tracking.

The two recorded times for each individual are validated against one another, by supervisors and the time clerks, to ensure no discrepancies. This is an apparent duplication of labor on the part of the techs and the use of additional time by the manpower clerks. This duplicate effort may be resolved with the new time and attendance system discussed in *Chapter II – Support Functions – Information Technology*.

The business processes are very paper intensive. Schumaker & Company consultants conducted several ride-alongs with FSD technicians. These ride-alongs included:

- ◆ Gas Leak – Heater Dispatch (Parts and Labor) – Result – Greased valve, placed a safety tag on exhaust vent
- ◆ Gas Leak Report – Result – Nothing found, tagged vent
- ◆ Gas Leak Report – Leaking range, discovered filed leak, theft of service on survey – Several hours on-site – Result – Gas theft investigation
- ◆ Could Not Get In (CGI)
- ◆ Heater Dispatch – Result – Heater condemned, cracked heater exchanger

In addition to the redundancy, we observed the FSD technicians manually having to write down information from the terminal (all meter numbers at the premise and other information) prior to entering the building. No printers are available in the trucks. Schumaker & Company understands that computerization of some of these processes is anticipated under AIMS2.

Finding VII-19 Planning and scheduling functions for field work; distribution, field service and collections are fragmented and inconsistent across various work types.

Individual work groups are responsible for forecasting, planning, scheduling and monitoring of their unique workloads which limits the ability to optimize overall field forces. In some cases, workforce planning is primarily a manual process and in other areas some level of computerization (primarily Excel spreadsheets) is available. Although PGW currently utilizes AIMS for the dispatching of work, the workforce planning portion of that tool was not completely developed. Other utilities have developed more sophisticated workforce planning tools that are based on project management techniques and other management principles that support improved resource leveling and assignment across various work groups including contractors.

Finding VII-20 The FSD has improved its performance over the last five years.

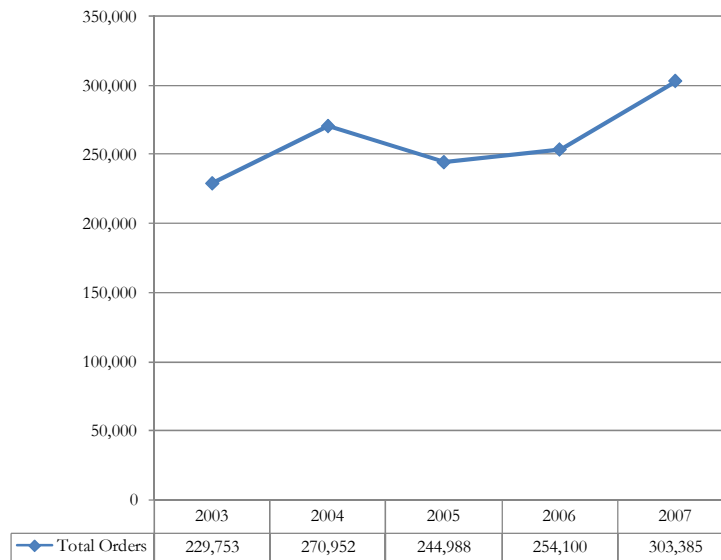
Notwithstanding the use of more manual systems within the FSD, the Department has slightly improved its performance over the last five years. While the number of personnel has declined slightly since 2003 (see *Exhibit VII-9*), the total number of orders completed has increased, as shown in *Exhibit VII-25*. The percentage of PaPUC appointments met has also increased to 90% during this timeframe, as shown in *Exhibit VII-25*.



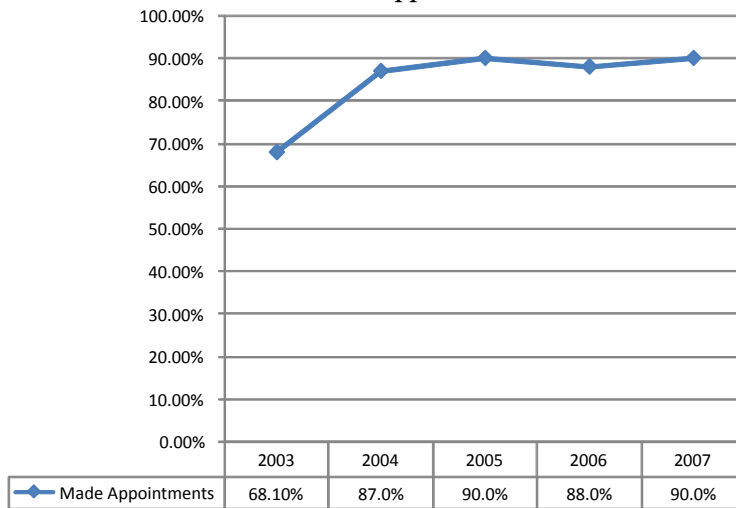
Leak response rates have similarly increased to 99%, as shown in *Exhibit VII-26*, and the average wait in days has declined to less than one day for all categories of work, as shown in *Exhibit VII-27*.

**Exhibit VII-25
FSD Performance Statistics
Orders / Appointments Made
2003 to 2007**

Total Orders Per Year



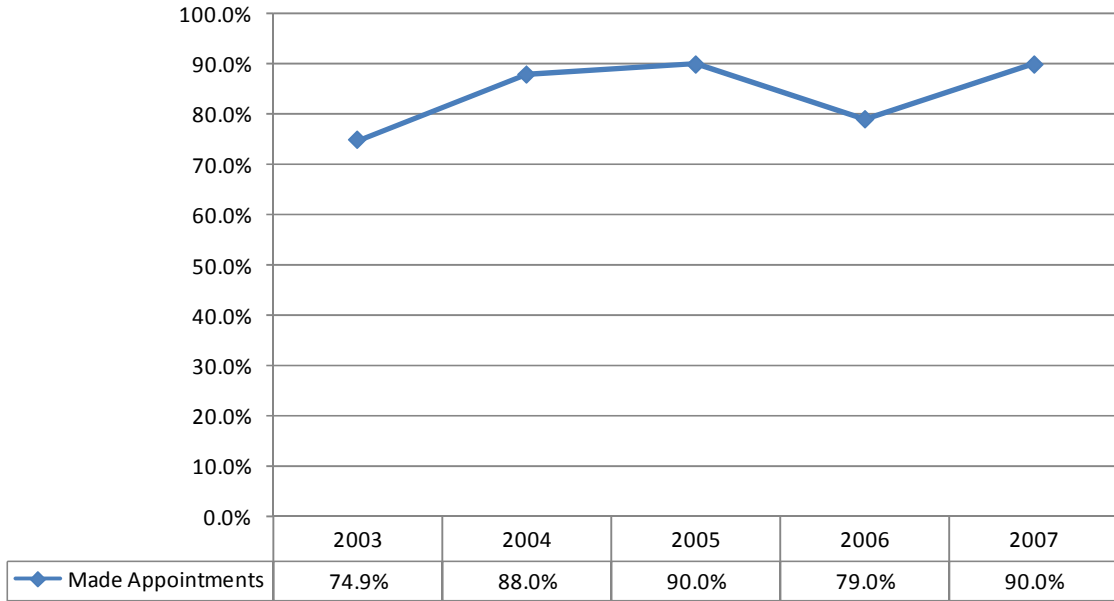
% PaPUC Appointments Made



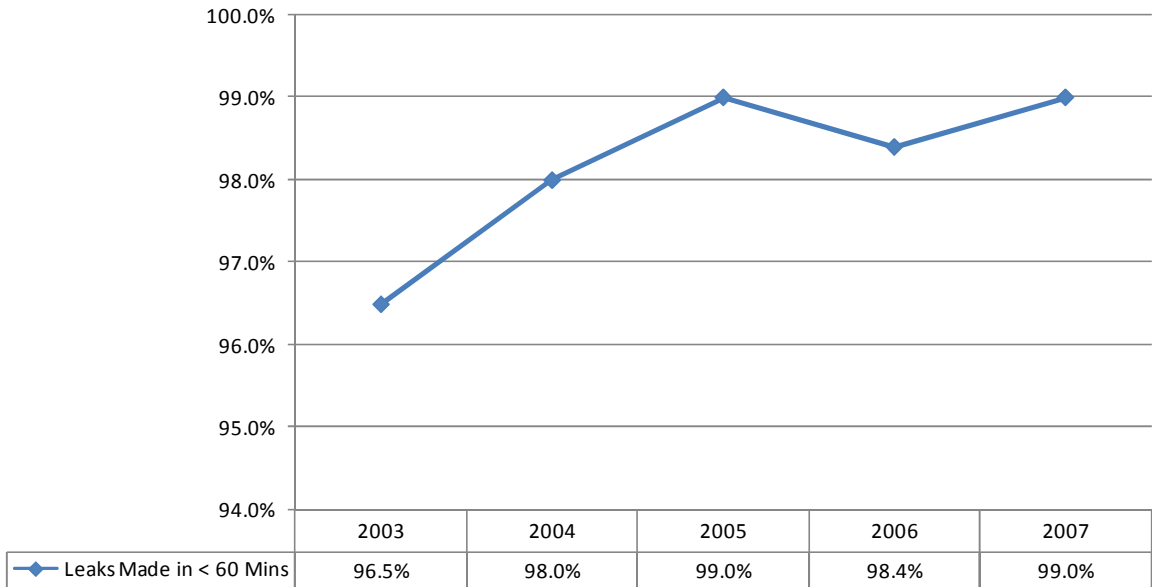
Source: Information Response 652

**Exhibit VII-26
FSD Performance Statistics
% FSD Appointments Made / % Leaks Made in < 60 Minutes
2003 to 2007**

% FSD Appointments Made



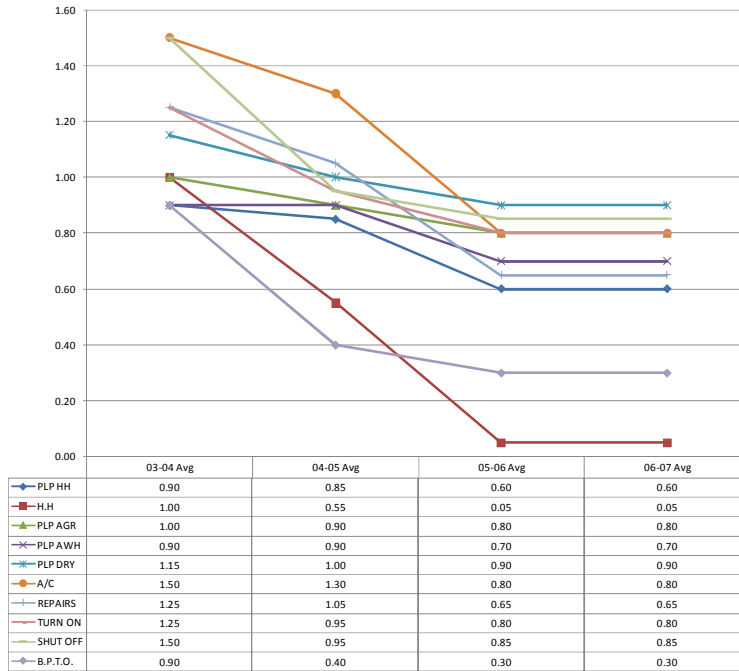
% Leaks Made in < 60 Minutes



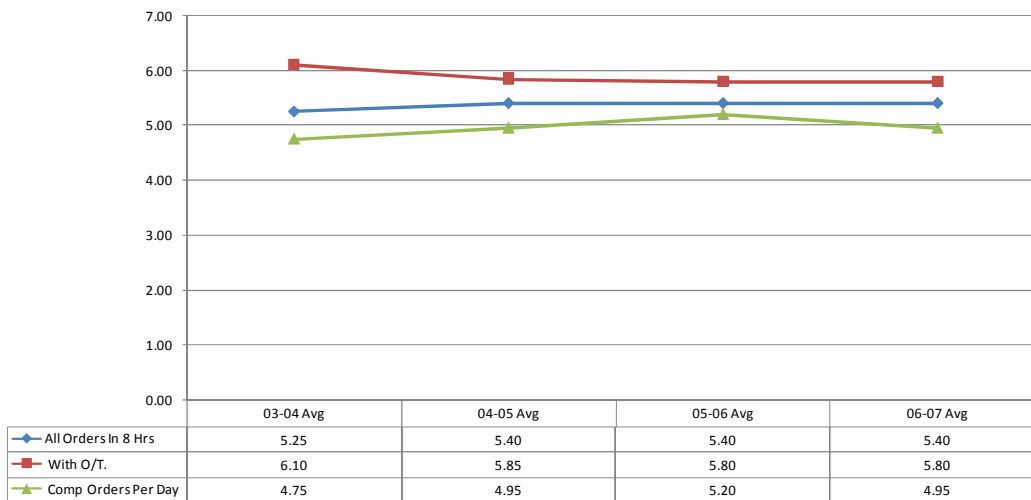
Source: Information Response 652

**Exhibit VII-27
FSD Performance Statistics
Average Wait in Days / Average Orders Worked Per Technician
2003 to 2007**

**Average Wait in Days for the Year
(Two-Year Averages)**



**Average Orders Worked Per Technician
(Two-Year Averages Per Day)**



Source: Information Response 652

Finding VII-21 **PGW has recently implemented a new main replacement model that is an improvement over the previous model; however, further refinements are still possible.**

As previously discussed, PGW has recently implemented an Advantica-developed product called Main Replacement Prioritization (MRP). This product is an improvement over the previous decision-making tool in that it includes more factors in the main replacement selection process. The primary selection criterion is based on a computed risk factor. However, other utilities have also factored in lifecycle economic factors, service leaks factors, and other information from external sources—including, for instance, Google Earth—to improve the decision-making process. Economic factors can play an important role in the decision-making process. For instance, if a municipal street is going to be resurfaced, as much as 30% of the cost of the main replacement project might be avoided, whereas if a municipal street is going to be totally reconstructed, as much as 60% of the main replacement costs might be avoided. As PGW becomes more comfortable with the recently implemented software, it should consider some of these potential enhancements that other gas utilities have made.

Advantica Program

The Advantica study provided two major deliverables:

- ◆ A benchmarking study – comparisons to 27 other gas utilities
- ◆ A new main replacement model called the Main Replacement Program

The benchmarking study compared PGW gas facilities and replacement rates with 27 other gas utilities. In addition, a more detailed comparison of more similar gas utilities in the Northeast (Baltimore Gas and Electric Company, Public Service Gas and Electric Company, Consolidated Edison Company, and others) was also performed. In general, PGW ranked in the mid quarter when compared to the other utilities. The benchmarking analysis did not compare the decision-making tools employed at each utility in making main replacement decisions. Rather, it primarily looked at replacement rates in terms of annual miles of pipe replaced.

Main Replacement Program

The Main Replacement Program takes more factors that the previous Navigant program into consideration in ranking main replacement projects. The following factors have been incorporated into the MRP:

- ◆ Pipe diameter
- ◆ Installation year – year the pipe segment was installed
- ◆ Pipe material – cast iron, bare steel, etc.
- ◆ Pressure – pipe operating pressure



- ◆ Proximity to certain buildings – schools, hospitals, etc. based on service connections. Other factors could be included (population of school or hospital, etc.) but that information would need to be collected.
- ◆ Main break/leak history on the segment – the actual history on main breaks and outstanding leaks on the pipe segment
- ◆ Main break/leak zones experience – the actual history of main break/leaks on surrounding pipe segments (pipe segments within a certain distance, currently 300 feet)

The ranking is done on a segment basis. A segment is defined as a length of pipe where all of the parameters are the same (i.e., a new segment is created when one of the above factors (pipe diameter, year installed, etc.) changes). Therefore, a pipe segment can be bigger or smaller than a city block, and in many cases, a pipe segment is smaller than a city block.

MRP contains an algorithm that weights all of the above factors on a pipe segment basis to develop a relative ranking of pipe segments based on risk. In addition, MRP will group the various pipe segments into larger groupings and projects, for consideration as a group.

Service leaks are not directly considered in MRP. MRP also does not include an economic analysis; the primary criterion for ranking pipe segments is the risk algorithm. The leaks can be represented on a city map with PGW main maps overlaid on top of that map to provide a pseudo GIS representation. Municipal paving programs have to be manually factored into the main replacement program.

As of June 2008, MRP is operational and being tested by PGW personnel. PGW has run some initial pipe segment selections for review and verification.

Distribution Integrity Management Program (DIMP)

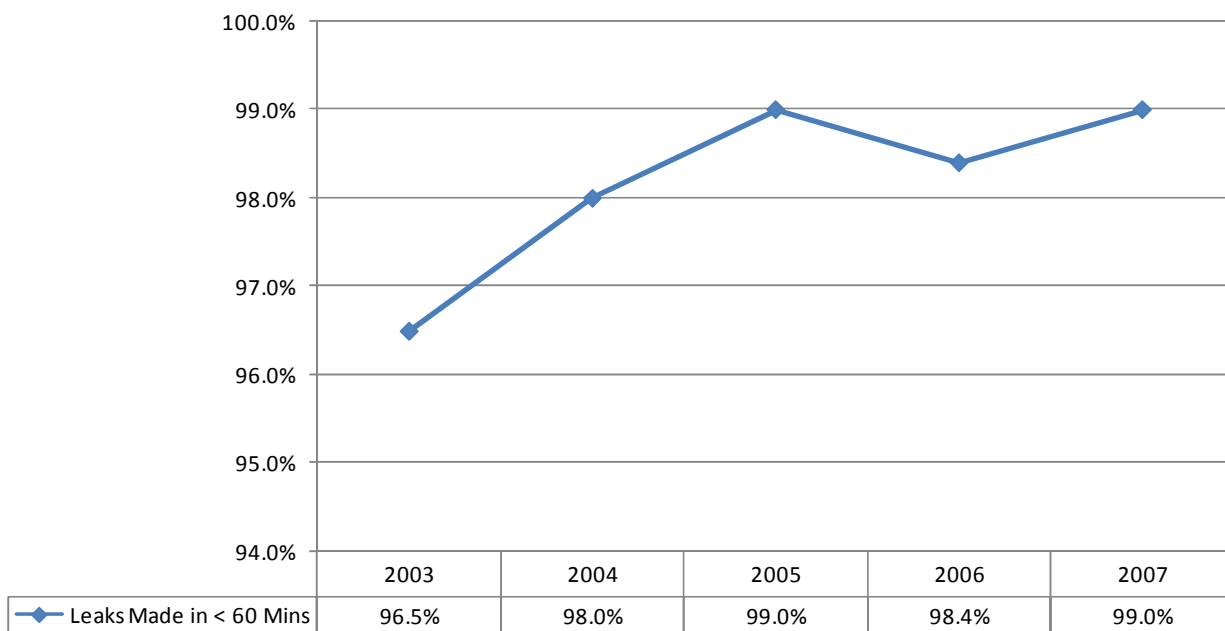
DIMP was issued in June of 2008 by the OPS. PGW is in the process of developing its program in response to DIMP. PGW anticipates using the Advantica model to develop much of the data required for a Distribution Integrity Management Plan that will be in compliance with the regulations.¹¹ The Advantica program will permit a certain level of mapping of leaks by geographic area.

Finding VII-22 PGW's leak response target is less aggressive than others in our recent experience with other gas utilities.

PGW's leak response target is 95% within one hour. PGW has been successful at achieving this target, as shown in *Exhibit VII-28*, usually being around 98%, and PGW is currently achieving 99%, as shown in *Exhibit VII-28*. Other gas utilities (including PECO Energy) have established a 99% target and have been achieving this level.

¹¹ / PGW has only two miles of transmission line, which is drawn up on a separate AutoCAD map. This main runs from the Tenneco station to the Passyunk plant.¹¹

**Exhibit VII-28
Gas Leak Rate Response
2003 to 2007**



Source: Information Response 652

Finding VII-23 PGW has an exceptional damage prevention program.

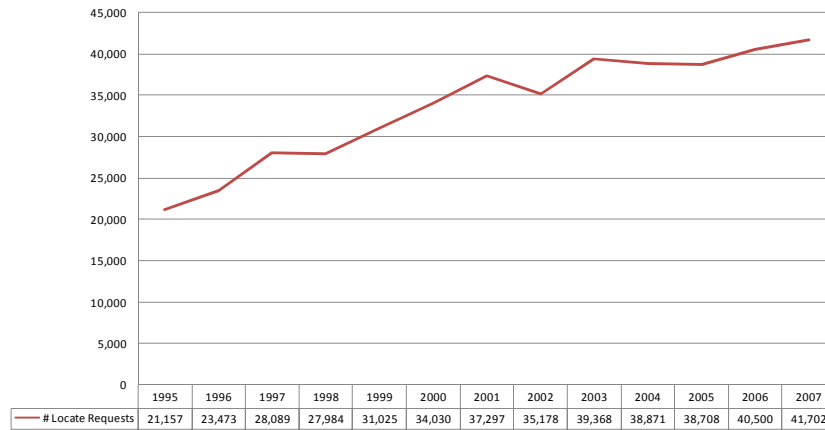
The statistics from the PGW damage prevention program are shown in *Exhibit VII-29* and *Exhibit VII-30*. Although the number of tickets (request for locates) has increased significantly since 1995, the damages per 1,000 locate tickets and the cost to perform each locate have decreased over that timeframe. As shown in *Exhibit VII-30*, the total cost of damages has likewise decreased over the last five years. Recently, the American Gas Association recognized PGW for the success of its damage prevention program.

Philadelphia Gas Works (PGW) has been recognized for outstanding achievement by the American Gas Association (AGA). PGW has been ranked in the top quartile out of more than 80 natural gas utilities in the nation by the AGA's Operations Best Practices Benchmarking Program in the areas of Damage Prevention and Marking and Locating. The AGA Operations Best Practices Benchmarking Program identifies procedures of superior-performing gas industry companies and innovative work practices that can be used to improve participants' operations and reduce costs. PGW has not only achieved results, but its damage prevention initiative is also cost-efficient.

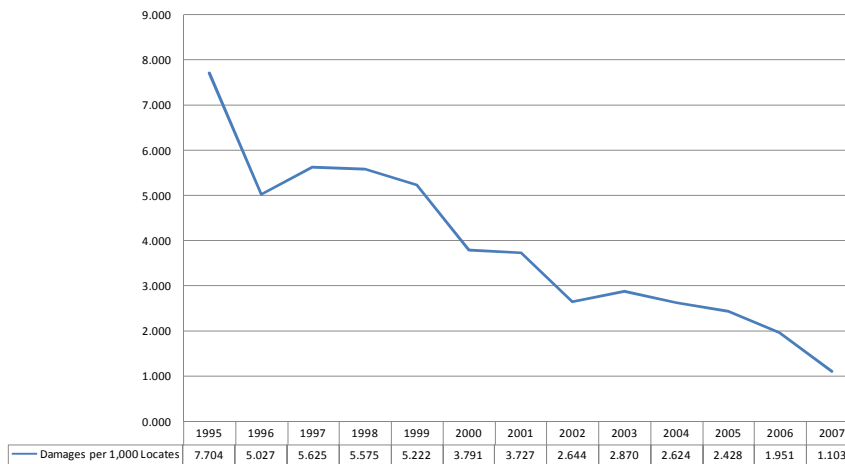


**Exhibit VII-29
Damage Prevention Performance Reports
1995 to 2007**

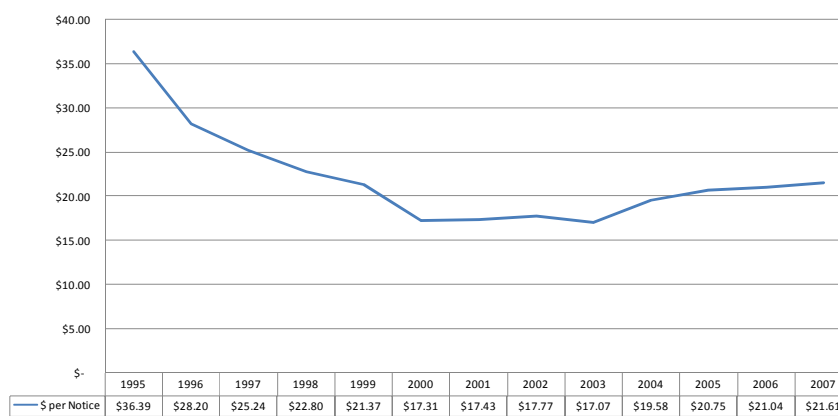
Number of Locate Requests



Damage Tickets Per 1,000 Locate Tickets

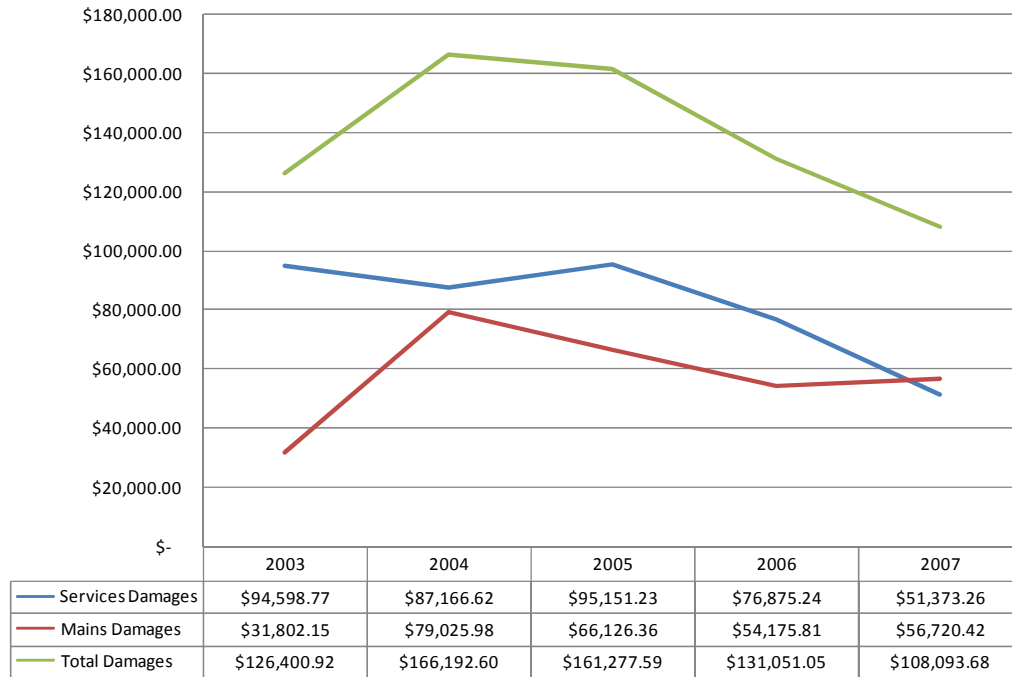


Cost to Perform Locate Request



Source: Information Response 651

**Exhibit VII-30
Damages Cost Per Year
2003 to 2007**

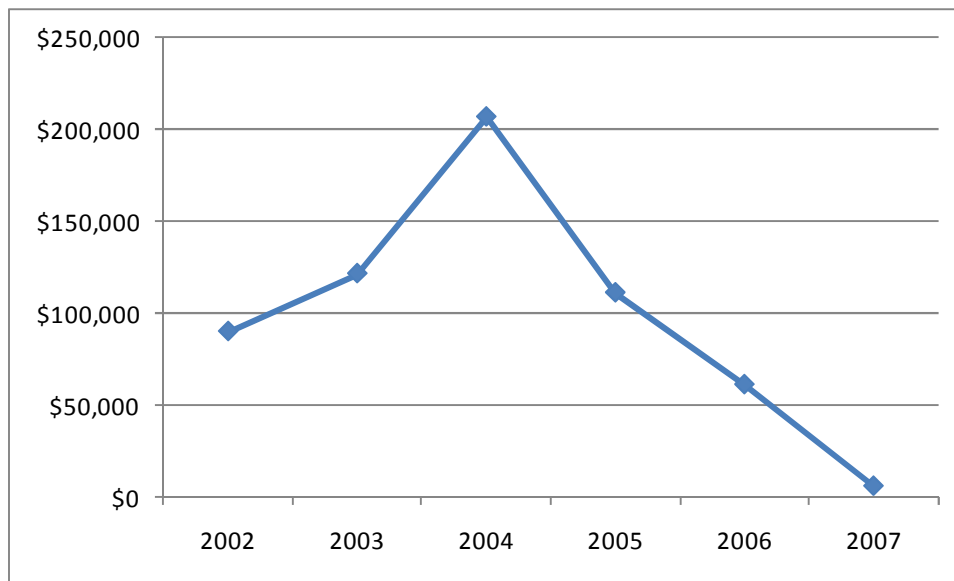


Source: Information Response 651

Collections from third parties have shown a corresponding decrease with the decrease in the number of third party hits as shown in *Exhibit VII-31*.



Exhibit VII-31
Third Party Collections For Damages
2002 to 2007



Source: Task Report Review Input

Finding VII-24 PGW has developed a good safety program.

As demonstrated earlier in *Exhibit VII-22* through *Exhibit VII-24*, the trends observed with respect to the PGW safety program all trend downward (which is the correct direction for better safety). In fact, PGW also won the Energy Association of Pennsylvania Safety Improvement Award. This award recognizes companies with 100,000 or more hours worked that reported an exceptional reduction in incident rates for 2007 as compared to 2006.

Finding VII-25 Gas theft accounts for a significant portion of PGW's unaccounted-for gas.

As shown in *Exhibit VII-19*, starting in 2004, PGW began to account for its own internal gas usage in performing these calculations. In addition, in 2005, PGW began to include an estimate for theft of gas service, which ends up being one of the adjustments' largest percentages as shown in *Exhibit VII-32*. Furthermore, the number has increased from 2005 to 2006.

Exhibit VII-32
Unaccounted for Gas As a Percentage of Gas Adjustments
as of December 2006

Accounted For Gas Adjustments	2005 MCF	2005 Percent	2006 MCF	2006 Percent
- Maintenance and Construction	3,639	0.5%	4,058	0.6%
- Gate station bleeds	7,762	1.1%	7,743	1.1%
- Meter accuracy	-101,242	-14.1%	-62,102	-9.0%
- Correction for 6" w.c.	734,426	102.2%	641,966	93.0%
- Third-party damage	0	0.0%	0	0.0%
- Utility usage	12,335	1.7%	14,247	2.1%
- Theft of service	61,761	8.6%	84,298	12.2%
Total Estimate Gas Adjustments	718,680	100.0%	690,210	100.0%

Finding VII-26 PGW staffing levels are generally higher than our recent experience with other gas utilities.

With the advent of deregulation, in general, the utility industry has been reducing staffing levels. Some of this reduction has come from a “tightening of the belt”; whereas in other cases, it has come from either a change in the business or an elimination of some portion of the business. For instance, some utilities have outsourced such things as fleet maintenance, facility mark-outs, meter change-outs, and other business functions. Many utilities have abandoned such programs as the Parts and Labor program, or as a minimum, they operate them with a separate set of books and records to ensure regulators that the ratepayers are not subsidizing the Parts and Labor programs.

Schumaker & Company consultants recognize that PGW currently employs a significant number of individuals who will be eligible for retirement within the next several years. It is our understanding that the number of eligible employees might approach 400 (out of approximately 1,700) people across the entire organization in the next five years. Some of the business functions that need to be reviewed and assessed relative to future staffing needs within Field Operations should include:

- ◆ *Parts and Labor Program* – Should this be continued or should staffing levels be allowed to decline? At a minimum, it needs to be self-supporting.
- ◆ *Meter Change-Outs* – PGW is currently undertaking a meter change-out program that will be finished within several years. Internal resources are currently being used to perform this change-out, but within a few years, this workload will be significantly reduced. Can PGW justify retaining this staffing until the next change-out or should it plan on contracting the next change-out?
- ◆ *Mark-outs or Locates* – PGW currently performs all of its own facility mark-outs with internal resources. While PGW has achieved good results in the area of damage prevention, could just as good of results be achieved if this task were contracted out?



Additional efficiencies should be possible as a result of the implementation of AIMS2 and other items identified in the Business Transformation initiatives. In short, Schumaker & Company consultants would expect that over the next several years, with the retirements that are expected to occur, a one-to-one replacement of retirees would not take place but some fundamental decisions would be made to reduce staffing levels.

Recommendations

Recommendation VII-7 Enhance the FSD and Distribution business processes through more computerization. (Refer to Finding VII-18.)

As discussed previously, many of the field operations business processes are currently manual. Although manual systems can be made to work, in today's environment utilities have been automating more and more of their daily processes. In particular there are some "simple" processes – such as the inspection tracking system which is basically a paper card system and some of the tracking of street regulators testing and operation 4" and larger valves – that could be easily adopted to a computerized database (as opposed to implementing a large GIS system) that would streamline some of the existing business processes.

Schumaker & Company recognizes that some of these business processes were being considered for technology support as either a part of the AIMS2 project or as part of the Business Transformation project. We would expect that PGW would reengineer and convert many of these manual tracking systems to an appropriate computer technology.

Recommendation VII-8 Centralize all field force planning, scheduling, performance monitoring and analysis functions. (Refer to Finding VII-19.)

A centralized field force planning group would permit the adoption of better management tools (systems) for planning, scheduling and monitoring the field forces. Although the different field forces perform slightly different functions, commonalities in business processes would result in more efficient use of field forces.

Recommendation VII-9 Consider certain future enhancements to the Advantica program after gaining experience with the current implementation. (Refer to Finding VII-21.)

The Advantica program is a significant improvement over the previous main replacement model because it considers more factors in pipe main replacement scoring than just leak/breaks. Some of the items that are not taken into consideration that we have seen other gas utilities using include:

- ◆ Service line leaks

- ◆ Economic analysis; the primary criterion for ranking pipe segments is the risk algorithm.
- ◆ Municipal paving programs manually factored into the main replacement program.

After sufficient experience is gained with the current implementation, further considerations should be given to each of the above items. Furthermore, the Distribution Integrity Management Program could have an impact on some of these items.

Recommendation VII-10 Set more aggressive performance targets on gas leak response. (Refer to Finding VII-22.)

PGW's leak response target is currently 95% within 60 minutes and it has exceeded that target in each of the last five years, with two of the last three years being at 99%. Other gas utilities have established higher targets to achieve and measure their performance. For instance PECO Energy's target is to be above 99% and that organization was exceeding its target.

Recommendation VII-11 Build a stronger gas theft of service program. (Refer to Finding VII-25.)

PGW began calculating theft of service as an item in its unaccounted for gas calculations in 2005. These numbers are shown in *Exhibit VII-33*.

**Exhibit VII-33
Potential Lost Revenue at Tariff Rates
2005 to 2006**

Year	MCF	CCF	PGW Tariff Rate	Lost Revenue
2005	61,761	617,610	\$2.92	\$1,803,421
2006	84,298	842,980	\$2.92	\$2,461,502

Source: Information Response 682 and PGW Published Tariff

This recommendation is further discussed in *Chapter VIII – Issue 5 – Customer Service*. Between both this chapter and the *Chapter VIII – Issue 5 – Customer Service*, expected annual savings in the \$2 million to \$4 million range might be expected.

Recommendation VII-12 Reassess PGW future field operations staffing levels based on its needs taking into consideration the organization's pending retirements. (Refer to Finding VII-26.)

With the pending retirements that are likely over the next five years, PGW has the opportunity to reorganize its business and streamline operations without having to resort to more drastic measures such



as layoffs. Through a combination of improving business processes, eliminating certain business processes, and potentially outsourcing certain non-critical business processes, PGW could achieve some long-term cost savings to the benefit of PGW ratepayers. Some of the business functions that need to be reviewed and assessed within Field Operations include:

- ◆ *Parts and Labor Program* – Should this be continued or should staffing levels be allowed to decline? At a minimum, it needs to be self-supporting.
- ◆ *Meter Change-Outs* – PGW is currently undertaking a meter change-out program that will be finished within several years. Internal resources are currently being used to perform this change-out, but within a few years, this workload will be significantly reduced. Can PGW justify retaining this staffing until the next change-out or should it plan on contracting the next change-out?
- ◆ *Mark-outs* – PGW currently performs all of its own facility mark-outs with internal resources. While PGW has achieved good results in the area of damage prevention, could just as good of results be achieved if this task were contracted out?

Additional efficiencies should be possible as a result of the implementation of AIMS2 and other items identified in the Business Transformation initiatives. In short, Schumaker & Company consultants would expect that over the next several years, with the retirements that are expected to occur, a one-to-one replacement of retirees would not take place but some fundamental decisions would be made to reduce staffing levels.

VIII. Customer Service

Philadelphia Gas Works (PGW) provides an essential service to its customers in the City of Philadelphia—and must provide this service in a prompt, accurate, and responsive manner. Planning, organization, procedures, and philosophy are all essential components in delivering effective customer service. This chapter addresses the activities with respect to customer service operations, including:

- ◆ Customer service, complaints, and inquiries
- ◆ Call center
- ◆ Credit and collections
- ◆ Universal services
- ◆ Regulatory compliance

A. Background & Perspective

Among the areas or issues addressed in this examination were:

- ◆ The capabilities and effectiveness of PGW's customer information and billing systems compared to systems used by other gas utilities, and the training of customer service personnel in system utilization
- ◆ The reasonableness of PGW's call center staffing levels and the center's overall performance and performance trends as compared to the rest of the industry
- ◆ The cost-effectiveness and performance of the customer service district offices with respect to customer accessibility, wait times, and hours of operation
- ◆ A review and assessment of customer complaint procedures, including the adequacy of PGW's practices for measuring customer complaints, the trend of PGW's consumer complaint rates, justified complaint rates, and complaint response times – This review should include an assessment of PGW's compliance with Pennsylvania Public Utility Commission (PaPUC) regulations including the settlement agreement adopted by the Commission on September 28, 2006, at Docket No. M-00061963
- ◆ A review of PGW's accounts receivables and collection policies and procedures, including but not limited to aging of customer accounts and amounts of arrearages, procedures in place to reduce the number/amounts of uncollectible accounts, collections efforts and actual results, efforts to contain the size of unpaid balances on residential and small business customers' accounts, the cost-effectiveness of PGW's field collection procedures, and the levels of PGW's uncollectible account write-offs
- ◆ A review and assessment of PGW's gas service shut-off policies, procedures, and actual practices



- ◆ A review and assessment of PGW's pilot Landlord Cooperation Program – This pilot program is currently being offered to landlords of residential property and allows those landlords who register and cooperate to avoid the imposition of a municipal lien, authorized under various statutes, for tenant gas debt by complying with the terms of the program
- ◆ A determination of whether PGW is consistently issuing refunds to customers who discontinued service with a credit balance owed to them or is periodically forwarding unclaimed customer refunds to the Pennsylvania Treasury Department as unclaimed property
- ◆ An assessment of PGW's progress on installing automatic meter-reading meters for industrial and commercial customers
- ◆ A review and assessment of PGW's meter readings and billing frequency, including how PGW's performance compares to other gas utilities in terms of frequency of consistently acquired meter readings and in issuing bills to customers
- ◆ An evaluation of PGW's policies and procedures for minimizing and reducing theft of service or unauthorized usage (including how well PGW's curb boxes are secured when service is terminated)

When evaluating PGW's customer service, billing, and collection policies and procedures, we considered all applicable Commission regulations in Title 52 of the *Pennsylvania Code*, as well as Title 66 of the Pennsylvania Consolidated Statutes (or Public Utility Code). Such consideration included the changes that have occurred to the Public Utility Code as a result of the recently enacted Commonwealth law know as Act 201 of 2004, codified as Chapter 14 of the Public Utility Code. During our review, we did not find any specific instances in which PGW was in violation of PaPUC Chapter 56 regulations or Chapter 14 of the Public Utility Code.

Guiding Principles

Consistent with PGW's vision to become a leading natural gas utility that provides consistent, accurate, and quality service to all customers through highly skilled people, the Customer Affairs organization has established guiding principles. These principles are focused on successfully sustaining collections performance, addressing technology obsolescence, and providing unfettered customer service to PGW customers. Specifically, Customer Affairs seeks to:

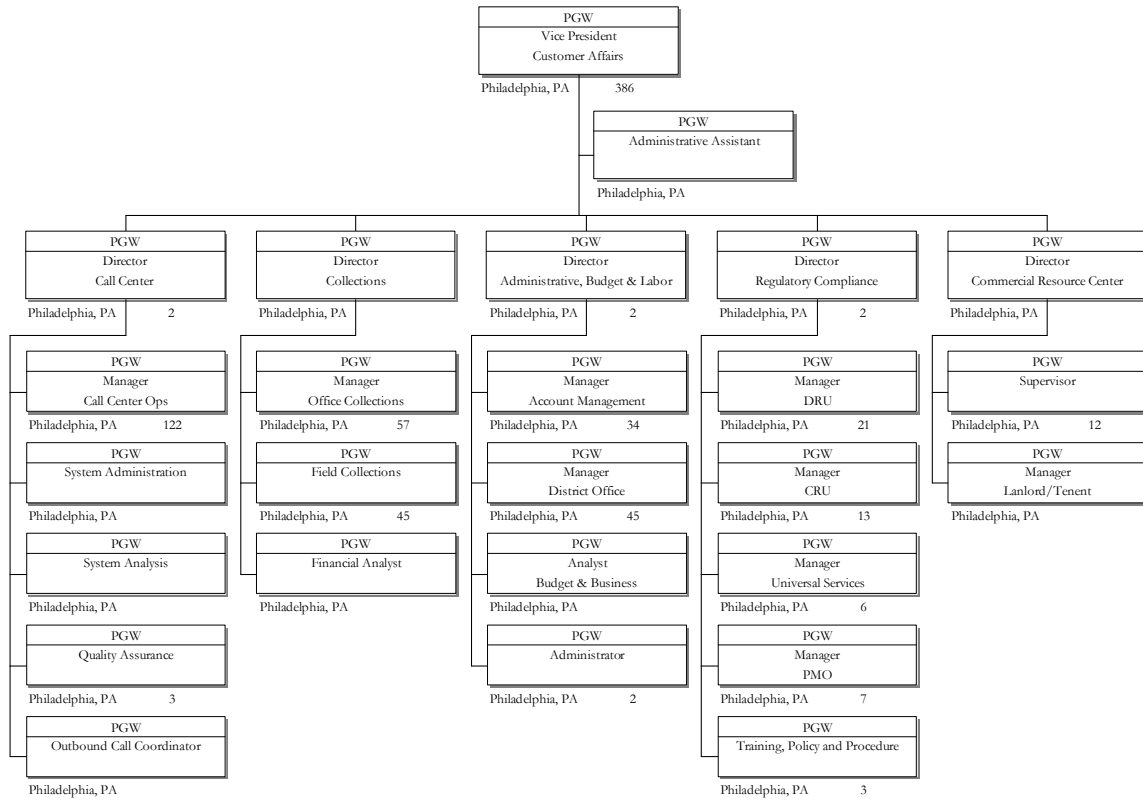
- ◆ Provide 24/7 access to self-service and emergency services
- ◆ Deliver highest quality at the lowest possible operating cost
- ◆ Ensure customer satisfaction on every customer contact
- ◆ Perform first contact resolution on every customer contact made
- ◆ Interact with a multi-channel focus
- ◆ Increase revenue generation for new customers
- ◆ Maintain a customer-centric focus
- ◆ Provide differentiated customer representative handling of sales and service needs

- ◆ Collaborate cross-organization
- ◆ Maintain regulatory compliance
- ◆ Furnish quantitative and qualitative reporting
- ◆ Afford anytime, anywhere relationships

Organization & Staffing

To achieve these goals, PGW Customer Affairs is organized into five units: Call Center, Collections, Administration, Budget & Labor, and Regulatory Affairs. *Exhibit VIII-1* provides an organizational chart for the Customer Affairs function. Each organizational unit is discussed on the following pages.

Exhibit VIII-1
PGW Customer Affairs Organization
as of June 30, 2008



Source: Information Response 454

Call Center

The PGW call center is open 24 hours a day seven days a week to handle leaks and emergency calls. Billing, service, and general customer calls are received Monday to Friday, 7:00 a.m. to 6:00 p.m. Furthermore, since 2005 following chapter 14, the call center is also open on Saturdays from 9 am to 1 pm from April through November for service restorations and personnel are available to process medicals that are received on the weekend. PGW does not shut off service the day before a holiday. As of September 1, 2006, all calls, including outbound collections calls, are handled in the call center. These collection campaigns (periodic planned collection efforts) are planned by the collection department and executed by the call center

Staffing

Call center staffing has remained relatively stable. From 2004 to 2006, the unionized customer service representatives and related positions ranged from 98 to 109. In 2007, collections staff were combined with call center staff bringing the total to 135.

The additional staff includes trainees. Ten of these trainees are bilingual representatives who report to a bilingual supervisor. The implementation of an upgraded integrated voice response (IVR) technology is intended to better serve PGW customers by providing self service options and to help contain the number of employees in the call center within the budgeted figure. The IVR system also helps reduce customers' wait time for reaching PGW.

Call center staff are now cross-trained to handle incoming customer calls as well as perform collections work. The higher staffing level and cross-training provides substantial flexibility in the management of PGW customer service. In addition to the director, there are currently two managers in the call center and one Quality Assurance manager. There are 10 supervisors (eight for call handling and two in QA), three call administrators, and one administrative support staff person.

Operations

In fiscal year (FY) 2006 (September 2005 through August 2006), the customer service call center received over 1.4 million calls, not including the collection split. In recent years, the call center has implemented a number of changes to improve service quality. These modifications include:

- ◆ *Call Quality Monitoring* – All calls are recorded and monitored for quality assurance through the NICE system which was implemented in June 1997. This system provides digital recording, capture and storage of customer interactions. PGW has also installed Envision *click-to-coach* in 2003 to capture both screen and voice and enable supervisors to provide specific feedback to customer service representatives. This system provides enhanced quality monitoring and sophisticated interaction analytics that allow management to better understand and strengthen customer relationships.

- ◆ *Skill-Based Routing* – This process ensures that calls are routed to representatives with the correct skills to handle the customers’ needs. It also helps PGW identify representatives’ strengths and areas for improvement.
- ◆ *Web Self-Service* – In 2004, PGW began accepting turn-on and -off service requests through the web and has averaged 10,000 requests per year.
- ◆ *IVR Upgrade* – These changes improve PGW’s current Integrated Voice Response (IVR) system by enhancing call flow navigation and increasing the self-service capabilities available to PGW customers. PGW’s Interactive Voice Response system (IVR) is the I3 from Tier version 2.4. All incoming calls to PGW’s main Call Center number (215-235-1000) are directed to the I3. Currently customers calling 215-235-1000 are using the I3 and able to access account information including a copy of a bill, get payment information including payment centers and PGW Customer Service Offices; and get information on low income and grant programs. The upgrade to the IVR will be programmed in June 2008 and included the following items:
 - Voice activated response including: current bill information, copy of bill to make a check or credit card payment and Auto Pay Program.
 - Enroll and cancellation for the Easy Way Budget Billing Program
 - Scheduling meter exchanges
 - CAP application request
 - Turn Off request
- ◆ *Automated Outbound Calling* – PGW is now able to deliver a consistent message while reducing the total work effort. This automation improves the utilization of phone representatives by utilizing representatives on inbound calls instead of having to assign representatives to make the outbound calls. The automated system also allows customers to pay their bills without representative assistance which reduces inbound call volume.

Technology

The network configuration in the call center consists of three trunk groups. The first trunk group consists of nine T1 lines for a total of 214 channels to handle all incoming service and billing calls. The second trunk group consists of one T1 line for a total of 23 channels to handle all incoming emergency calls. The third trunk group consists of three T1 lines for a total of 72 channels to handle all incoming collection calls. Verizon is the vendor that is handling all incoming call traffic at PGW.

The telephone system is a Definity G3r version 11 from Avaya. The automated call director (ACD) is built into the telephone system. PGW’s IVR system is the I3 from Tier version 2.4. All incoming calls to PGW’s main Call Center are directed to the I3. Customers calling the main Call Center are using the I3 and able to access the following:

- ◆ Account information, including copy of bill



- ◆ Payment Information, including payment centers and PGW customer service district offices
- ◆ Low income and grant information

As stated above in the IVR upgrade section, PGW has worked with Tier to add additional applications to the IVR.

The call center uses Expert Agent Selection (EAS) version 11 from AVAYA to assign skills and preferences to the call center representatives. The skill-based routing of calls helps assure first call resolution for PGW customers.

Credit and Collections

The Credit and Collections division is divided into two groups:

- ◆ *Collections Office* – This unit includes collection agency management who oversee the work of outside agencies that are performing collections for PGW. It also includes credit reporting and credit reporting related disputes. In March 2008 PGW stopped credit reporting however the function for credit reporting related disputes remains. Staff also administers the medical certification process of customers. This unit handles liens, settlements, sheriff sales, and bankruptcies.
- ◆ *Field Collections & Revenue Protection Unit (RPU)* – This unit manages in-house collection events, issues notices, conducts field visits and performs shut offs. It also performs the field visitation portion of the cold weather survey. This unit is also responsible for following up on User's Without Contract (UWAC's) the prevention, detection and investigation of gas theft cases (Unauthorized Usage – UU's). There are approximately 40 personnel in the office (back office and revenue protection) and 40 field personnel (field collections)

In addition to the two groups above there is staff dedicated to producing and analyzing collection reports. Although not part of the Collections group, the Commercial Resource Center does become involved in some collection activities and administers the Landlord Cooperation Program

- ◆ *Commercial Resource Center* – This unit handles metering, billing issues, collection, bankruptcy, and lien and settlement handling for all commercial, industrial, municipal, and transportation rate accounts.
- ◆ *Landlord Cooperation Program* – This unit works with landlords enrolled in the LCP pilot program. The objectives of the program are to improve access to tenant-occupied premises; utilize incentive programs to gain landlord support in providing premise access; gain access to perform meter and equipment maintenance; shut-off tenants for non-payment; minimize soft-off and limit user without a contract (UWAC) accounts by reverting accounts back to landlords where possible.

PGW previously used five different collection agencies. Databases have been used to track performance by placement and by agency. Recoveries for the placements span multiple years. However, in 2006-2007, after a request for proposal (RFP) process, PGW commenced placements with five national collection agencies in an effort to enhance performance. In addition, PGW is currently in the process of developing an improved automated agency reporting process that will track the requested information by any specified date range, by agency and by batched placement.

Administrative, Budget, and Labor

The Administrative, Budget, and Labor division is divided into four units:

- ◆ *Bill Print & Remittance Processing* – This group is responsible for overseeing the processing and remittances of bills and payments for PGW customers. PGW outsourced bill printing in 2003 to Docucorp (now Kubra). In FY2007, PGW sent out approximately seven million bills and notices. PGW has offered its customers electronic bills since August of 2005 with over 15,500 or 3% of them enrolled in E-bills. There was a 24% increase in E-bills over the period of FY07 vs FY08 and a subsequent bill-print cost reduction for PGW. Remittance processing was outsourced to Bank of America/Regulus Group as of January 2006, which consisted of approximately 5.3 million items in FY2007. PGW maintains of goal of processing 99.9% of all payments the day they are received by the lockbox provider. PGW has been achieving its goal of processing approximately 99.9% of all payments upon the day of receipt.
- ◆ *Account Management/ Customer Accounting* – This unit is responsible for the accurate and timely processing of all billing adjustments, account errors, Billing Collection & Customer Service (BCCS – PGW’s name for its billing collection and customer service system) reconciliation, and other inquiries.
- ◆ *Customer Service Centers* – PGW continues to operate six customer service district offices within the city. These offices seek to provide quality service to walk-in customers via the timely and accurate posting of payments, the resolving of customer complaints and disputes, the taking of applications for payment programs, and the entering of payment arrangements. During FY2006, the customer service centers:
 - Handled over 186,000 customer inquiries and requests related to their gas service
 - Processed over 65,000 applications for low-income and energy assistance programs
 - Processed over 17,000 payment arrangements, of which approximately 9,000 were for bill-paid turn-ons
 - Processed over 20,000 new customer turn-ons
- ◆ *Budget Analysis and Payroll Administration* – This unit prepares the departmental capital and operating budgets, as well as, provides analytical and administrative support for customer service’s operational activities as it relates to departmental performance, fiscal management, facility management, and policy and procedure development and implementation.



Regulatory Compliance

The Regulatory Compliance is divided into five units:

- ◆ *Customer Review Unit (CRU)* – This unit is responsible for handling informal and formal complaints from the PaPUC. It is composed of a manager and 11 budgeted CRU officers (1 position vacant) who handle informal and formal disputes and file the reports with the PaPUC.
- ◆ *Training* – This unit is responsible for training Customer affairs personnel. It is composed of a manager and 2 training supervisors.
- ◆ *Project Management Office (PMO)* – This unit is responsible for maintaining and testing software (such as but not limited to billing, online payment, IVR, etc..) systems used in customer affairs.
- ◆ *Universal Services Department* – This unit is responsible for overall administration of the CAP, the Conservation Works Program, Low Income Home Energy Assistance Program (LIHEAP), Utility Emergency Service Fund (UESF), city grants, and senior discount programs. It consists of a manager, a supervisor, and four union personnel.
- ◆ *Dispute Resolution Unit (DRU)* – This unit is responsible for handling disputes, correspondence, and constituency cases. It consists of a manager, three supervisors and 17 union personnel who serve as the escalation route for all disputes, the bulk being from the customer service representatives (CSRs).

Regulatory Compliance also handles PaPUC Chapter 56 regulations, Chapter 14 of the Public Utility Code, matters pertaining to implementation orders, and citations and violations. In addition, the division provides feed back and direction regarding regulatory issues to the Call Center and Collections. In FY2007, Regulatory Compliance conducted over 2,327 hours of training in customer affairs, including new hire training, refresher training, and standup meetings and briefings.

The current goals and objectives for the Customer Affairs division are:

- ◆ Resolve 100% of informal complaints and disputes within 30 days
- ◆ Increase first call resolution through employee training
- ◆ Improve quality assurance in the call center
- ◆ Increase LIHEAP participation
- ◆ Increase CAP participants as a percentage of eligible customers

Billing Collection and Customer Service

The Billing Collection and Customer Service (BCCS) system is a full-function customer information system that automates and supports all aspects relating to customer information, billing, payments, collections, and payment plans. When a customer moves within the service area, there is no need to set

up a new account. Customers keep the same account number and all customers' history remains with the account. The following are components of BCCS:

- ◆ Security
- ◆ Workflow tracking
- ◆ Rate definition (i.e., maintenance of various rates and taxes for all utility rates/classes)
- ◆ Meter reading, including meter-read maintenance
- ◆ Bill processing, including:
 - Scheduling of billing
 - Manual and batch billing
 - Budget billing
 - Maintenance of customer deposits and interest
- ◆ Payment processing, including:
 - Batch submissions
 - Payment maintenance
- ◆ Financial adjustments and corrections
- ◆ Credit and collections (i.e., setup of collection paths, payment arrangements, etc.)
- ◆ Customer contact tracking (i.e., recording information about each contact PGW has had with a customer)

Billing Cycle

The duration of each element of the billing cycle is driven by the billing process, as described below.

- ◆ *Day 1*
 - Creation of meter batches for scheduled cycle.
- ◆ *Day 2*
 - Meter data is downloaded to automatic meter reading (AMR) vans.
 - Meter routes are read by AMR vans.
 - Meter reading area uploads information to BCCS nightly
 - Meter Reading identifies missed reads in the morning of Day 3.



- ◆ *Day 3*
 - Read One Pro, a handheld meter reading device, is used by Meter Readers in an effort to obtain missed reads.
 - Any meter readings obtained from the Read One Pro are uploaded in the daily meter read job.
- ◆ *Days 4*
 - Nightly, billing occurs for the scheduled cycle. Accounts without a meter read are estimated.
 - Accounts containing billing exceptions are placed on an exception report to be reviewed by the Billing group (Account Management Department) on day 5. If an account requires further follow up, the billing group issues a service order that requests verification of the current reading.
 - Account Management Department works those accounts that are contained in an exception report by correcting the account and reissuing a bill for Day 5 nightly billing.
- ◆ *Days 5*
 - Early morning, Accounts in which no exception was flagged and those that were manually billed are included in the Bill Print job.
 - Non billing exception bills are transmitted for processing and bill print, which occurs in the early morning hours of Day 5 or three days after the meter was read. This would usually be 99.1% to 99.9% of the accounts that were read on Day 2 and 3.
 - Account Management works billing exceptions, creating a manual bill.
- ◆ *Days 6*
 - Early morning, Accounts manually billed from the exception report are included in the file for bill print.

Therefore, 99.1 to 99.9% of billings are printed and mailed two days (Day 4 night of the account billing process) after meter readings are obtained; however, those accounts requiring a reread or some other review are usually issued on the fifth day and are processed on Day 6. By the end of Day 6, all (100%) accounts are billed.

PGW processes approximately 500,000 bills per month. The number of off-schedule bills (which is significantly less than 1%) is shown in *Exhibit VIII-2* for some sample months in 2007.

Exhibit VIII-2
Number of Off-Schedule Bills (Sample Months)
as of December 31, 2007

Month	Off-Schedule Bills
March 2007	3,642
April 2007	4,692
May 2007	3,469
June 2007	3,864
July 2007	3,353
August 2007	3,554

Source: Information Response 215

The monthly average residential bills not rendered once every billing cycle for calendar years 2004 to 2007 are shown in *Exhibit VIII-3*.

Exhibit VIII-3
Number of Average Monthly Residential Bills Not Rendered Once Every Billing Cycle
2004 to 2007

Calendar Year	Number	Percentage
2004	4,156	1%
2005	4,227	1%
2006	56	0.01%
2007	96	0.02%

Source: Information Response 216



With the outsourcing of bill printing and remittance processing as previously discussed, PGW has been able to reduce its bill processing costs as shown in *Exhibit VIII-4*.

Year	Costs	Bills Processed	Cost Per Bill
FY2004	\$1,361,329	5,921,844	\$0.23
FY2005	\$1,275,451	6,089,128	\$0.21
FY2006	\$1,512,088	6,065,074	\$0.25
FY2007	\$1,109,808	6,089,239	\$0.18

Source: Information Responses 217 and 212

Remittance Processing

PGW's remittance processing is handled as follows:

- ◆ *Mail Receipts* (approximately 57% of all payments) – PGW receives and processes customer payments through its lockbox, with Bank of America/Regulus Group. PGW customer payments are forwarded via the U.S. Postal Service to PO Box 11700 Newark, N.J. and are processed by the Regulus Group. All payment information from the Regulus Group is interfaced with the PGW BCCS system each evening and customer accounts are updated. The number of bills remitted in FY2007 were 3,057,327. PGW outsourced its remittance processing and related deposit services to Bank of America/Regulus Group in January 2006. PGW pays a monthly processing fee for payments remitted to its Regulus-maintained lockbox, which is located in Newark, N.J. Remittance cost for FY2007 was \$387,213.
- ◆ *Authorized Locations* (approximately 14% of all payments) – PGW customers can make payments at authorized locations, such as BuyPay (200 locations), Americash (483 locations), and In Person Payment Centers (150 locations). An authorized location is an establishment that has numerous locations throughout the city that accept bill payments from consumers for things such as utility bills. The authorized location sends payment information to PGW daily in an FTP file, which is interfaced with the PGW BCCS system each evening. Customer accounts are subsequently updated accordingly. BuyPay remittances in FY2007 totaled 17,612, Americash remittances in FY2007 totaled 685,500, and In Person Payment Centers remittances in FY2007 totaled 53,008. PGW customers submitting payments via the authorized locations are charged a convenience fee by the relevant location of not more than one dollar which is paid directly to the authorized location.

- ◆ *Customer Service Centers* (approximately 11% of all payments) – PGW has six customer service centers (CSC) or customer service district offices located in facilities that are maintained by PGW. These centers accept payments and provide additional services to PGW customers. Customer payments are taken via a cashier and payment information is sent via an FTP file, which is interfaced with PGW BCCS system each evening. Customer accounts are subsequently updated accordingly. PGW staffing levels permit only four of the CSCs to be operational each day. CSC staff rotates to different offices based on the day of the week an office is open. Bills remitted in FY2007 totaled 596,116. PGW customer service centers are full-service centers that collect customer payments and provide services such as assisting in making payment arrangements and applying for other customer assistance programs. There is no charge to process customer payments; however, there are credit card fees incurred and paid by PGW for processing payments via credit cards. Remittance cost of credit card fees for FY2007 totaled \$93,341. The primary purpose of the offices is not to take payment but to provide services that cannot be rendered over the phone. In FY07, PGW Customer Service Centers received 187,000 visits for service such as billing, CRP, Turn-Ons, Turn-Offs, Payment Arrangements and other service related issues.
- ◆ *Bill Matrix (Desktop/Web Application)* (approximately 6% of all payments) – PGW customers can make payments via credit card or check, which are accepted by a customer service representative over the telephone or by visiting PGW’s website. PGW customers can make one-time payments or sign up for the Auto Pay program. All customers paying by check or credit card are assessed a \$2.95 convenience fee by the outside vendor providing the service. Customers who sign up for PGW’s Auto Pay program for their checking account are not assessed a fee. Bills remitted in FY2007 totaled 297,803. Customers making a one-time payment via the IVR or desktop application by check or credit card are assessed a \$2.95 convenience fee by the vendor that handles the processing. Remittance cost of credit card fees for FY2007 totaled \$89,917.
- ◆ *IVR system* (approximately 3% of all payments) – PGW customers can make payments via credit card or check, which are accepted through the Integrated Voice Response (IVR) system. PGW customers can make one-time payments or sign up for the Auto Pay program. Unless the customer is enrolled in PGW’s Auto Pay program, PGW’s outside vendor who provides the service, does charge a \$2.95 convenience fee should a customer make a credit card or payment by phone. Bills remitted in FY2007 totaled 167,897.
- ◆ *PLP – Web Payments (Bill Matrix)* (less than 1% of all payments) – PGW customers may pay for their Parts and Labor Plan contract, which covers the prepaid maintenance insurance on certain home appliances. These payments can be made by credit card or check by visiting PGW’s website. Convenience fees for PLP payments made via the web are not charged to the customers however, the third party convenience fee is assessed to customers who make the payment over the phone. Bills remitted in FY2007 totaled 4,924. Remittance cost of credit card fees for just PLP in FY2007 totaled \$14,818.
- ◆ *Online Bill Payment Service* (approximately 8% of all payments) – Besides paying their bill directly



through PGW's website, customers may pay their bill via an online bill-payer service. PGW presently receives and processes customer bill payments from CheckFree and Metavante online bill payment services. The Online Bill Payment service sends payment information to PGW daily in an FTP file, which is interfaced with the PGW BCCS system each evening. Customer accounts are then updated accordingly. CheckFree bills remitted in FY2007 totaled 432,092. Metavante bills remitted in FY2007 totaled 12,608. PGW does not incur any remittance cost in association with customers submitting payments via Online Bill Payment services.

Customer Assistance Programs

PGW's customer assistance program (CAP), called by PGW the Customer Responsibility Program (CRP) is available to low-income, payment-troubled customers.¹² PGW's residential customer base contains the largest total number and percentage of low-income natural gas customers in Pennsylvania. Approximately 30% of PGW customers are classified as low-income customers. This percentage compares to other gas utilities in PA that fall in the 16% to 23% range, with the lowest being PECO – Gas at 9%. As a result, PGW must deal with the largest number of customers on payment agreements than any other utility in Pennsylvania.

This customer composition results in a larger customer service workload for dealing with these issues, and it also results in PGW incurring the highest gross write-offs (approximately \$90 million annually in 2005) of any gas utility in Pennsylvania. PGW's gross write-offs are four times larger than the next highest gas utility in Pennsylvania and more than 10 times higher than many of the Pennsylvania gas utilities.

PGW's average universal service spending per residential customer in 2006 was \$167.71. This compares to the next highest gas utility in Pennsylvania (Columbia Gas) at \$75.27 and the lowest being PG Energy at \$10.22. Clearly, there is a significant disparity between the highest and lowest average universal service spending in Pennsylvania.

CAP

The CAP program allows a discount monthly bill based on a percentage of the household's gross income, regardless of the actual usage. If a CAP participant pays their set CAP bill each month, in full and on time, they will have 1/36 of their pre-program arrearage forgiven each month. Both the discount amounts and forgiveness offered by PGW's CAP program are embedded in the rates which are then absorbed by the remaining (or non-CAP) PGW customers. Eligible CAP customers pay anywhere from 8% to 10% of their gross household income. PGW customers Service Centers serve as intake centers – places where a customer can sign up for the CAP program. Customers may also submit application by mail to PGW. CAP customers are required to recertify for the program yearly, except participants receiving LIHEAP who must recertify bi-yearly. Currently, about 16.5% of PGW

¹² / This report will refer to the CRP program has the CAP program to be consistent with terminology used by the PaPUC

customers are on the CAP program.. The number of customers on the CAP program is shown in *Exhibit VIII-5*.

Exhibit VIII-5 CAP Participation FY2005 to FY2007			
	FY2005	FY2006	FY2007
September	53,227	64,719	74,299
October	45,378	64,810	74,641
November	56,150	65,135	75,093
December	60,621	67,140	76,045
January	60,500	68,948	76,363
February	63,089	71,154	75,528
March	64,103	71,493	76,207
April	66,125	74,224	77,993
May	67,082	74,736	79,550
June	66,523	75,038	79,909
July	65,697	75,156	79,253
August	64,937	74,884	77,745
Average	61,119	70,620	76,886

Source: Information Response 221

As shown in *Exhibit VIII-5*, PGW has been effective in increasing the number of CAP customers over the last three years.. PGW personnel indicated that there could be as many as 150,000 customers who may be eligible for the CAP program. PGW has the second highest CAP participation rate (55% in 2006 compared to PECO at 98%) for gas utilities in Pennsylvania. However, many of the potentially eligible customers may not be enrolled in CAP because they may be in more monetarily favorable arrangement, such as a payment plan or the senior citizen discount program. CAP participation rate is defined as the number of participants enrolled (as as December 31, 2006 in this case) divided by the number of confirmed low-income customers. This results in an average universal service spending per residential customer of \$167.71, the highest of all electric and/or gas utilities in Pennsylvania.

The CAP program permits low-income customers to pay for their gas as a percentage of their income. The difference from what a customer would normally pay is considered a discount. In addition, if a customer on a regular payment arrangement defaults on the agreement, the customer's unpaid bills will be included in the potential pre-program arrearage forgiveness amount, should the customer later enroll in CAP. CAP discounts have risen from approximately \$61 million in FY2005 to over \$90 million in FY2007, as shown in *Exhibit VIII-6*.



**Exhibit VIII-6
CAP Discounts
FY2005 to FY2007**

	FY2005	FY2006	FY2007
September	(\$1,362,859)	(\$1,725,443)	(\$1,847,895)
October	(\$948,359)	(\$794,969)	(\$89,495)
November	\$1,604,504	\$3,112,253	\$6,784,945
December	\$7,466,548	\$16,916,299	\$12,918,987
January	\$15,815,633	\$22,222,990	\$17,736,572
February	\$17,809,508	\$21,339,644	\$24,147,043
March	\$14,766,883	\$19,901,410	\$19,405,170
April	\$8,170,898	\$10,186,986	\$11,623,841
May	\$1,694,963	\$1,837,613	\$2,435,447
June	(\$387,162)	(\$594,467)	\$1,635,231
July	(\$1,685,597)	(\$1,775,745)	\$2,288,701
August	(\$1,775,745)	(\$655,048)	\$2,576,906
Total	\$61,169,215	\$89,971,523	\$99,615,453

Source: Information Response 222

On September 1, 2003, PGW's CAP program was modified and converted to meet PaPUC's regulations. As part of those changes, PGW's CAP program's modifications implemented on September 1, 2003 included a structured arrearage forgiveness. The forgiveness amounts, indicated in the table below, represents forgiveness applied only to CAP accounts enrolled in CAP on or after September 1, 2003, although accounts enrolled in CAP prior to September 1, 2003 also received forgiveness.

**Exhibit VIII-7
CAP Forgiveness
FY1998 to FY2007**

	CAP Forgiveness for Accounts Entered on CRP after 9/1/2003	CAP Discount	Average Participants	Average Discount Per Participants
FY1998		\$11,964,417	52,170	\$229
FY1999		\$9,303,891	49,963	\$186
FY2000		\$14,363,405	49,358	\$291
FY2001		\$37,641,655	59,646	\$631
FY2002		\$16,110,272	62,781	\$257
FY2003		\$32,882,889	51,610	\$637
FY2004	\$2,911,491	\$54,779,064	58,100	\$993
FY2005	\$8,499,781	\$61,072,324	61,108	\$1,139
FY2006	\$10,118,668	\$89,971,523	70,599	\$1,418
FY2007	\$9,337,049	\$86,613,777	76,880	\$1,248

Source: Information Response 455

PGW evaluates the Universal Service programs including CAP according to the PaPUC regulations. Every three years, PGW hires an outside firm to study the CAP program.

Senior Citizen Discount

In 2003, as a result of a PUC order, the senior citizen discount program was discontinued but participants who had enrolled in the program prior to September 1, 2003 were allowed to continue receiving the discount. At that time, there were approximately 80,000 customers on the program but that figure has since dropped to 46,000. Customers over 65, independent of income, were given a 20% discount on their bill. On an annual basis, PGW hires an independent third party agency to provide data on ineligible (deceased) customers receiving the senior citizen discount in order for PGW to perform an audit to discover ineligible (deceased) customers so they can be removed from the program.

Participation in the senior citizen discount is shown in *Exhibit VIII-8*. While the number of participants has decreased by 45% since 2003, the cost of the program has increased by 12%. That difference is attributable to the effect of increased natural gas costs and base rates.



**Exhibit VIII-8
Senior Citizen Discount
FY1999 to FY2007**

	Participation	Discount
FY1999	84,000	\$12,958,103
FY2000	83,806	\$13,118,187
FY2001	82,381	\$20,607,093
FY2002	85,771	\$14,958,584
FY2003	81,514	\$20,193,767
FY2004	70,054	\$18,520,578
FY2005	60,877	\$16,916,311
FY2006	51,967	\$16,479,734
FY2007	46,588	\$14,506,097

Source: Information Response 457

Special Grants Program

During fiscal years 2005, 2006, and 2007, PGW and the Mayor's Office of Community Services made agreements to provide one-time grants to individuals for two purposes: 1) the restoration of gas service or 2) prevention of gas service termination. PGW referred to this grant as the City grant.

Exhibit VIII-9 summarizes the participation statistics and the amount of grants issued. PGW signed a memorandum of understanding with the Mayor's Office of Community Services for this special grant for FY08, with \$200,000 available to assist PGW customers. The memorandum of understanding with the Mayor's Office of Community Services for the city grant for FY08 was signed in November 2007.

**Exhibit VIII-9
City Grants
FY2005 to FY2007**

Fiscal Year	Number of Accounts	Grant Amount
FY2005	199	\$59,683
FY2006	1,837	\$550,000
FY2007	653	\$200,000

Note: Differences FY2005 to FY2006 is due to City of Philadelphia approval of program timeframe
Source: Information Response 458

Pennsylvania Governor's Office Grant Program (State Grant)

During the 2006–2007 winter season, PGW and the State of Pennsylvania offered a grant to help PGW customers restore their gas service. *Exhibit VIII-10* summarizes the participation statistics and the amount of grants issued in the 2006–2007 season. During 2007-2008 winter season, the grant was offered again to help PGW customers restore their gas service. During this period, 670 accounts were awarded the assistance totaling \$200,000.

Exhibit VIII-10
State Grants
as of December 31, 2007

Fiscal Year	# of Accounts	Grant amount
FY2007	525	\$157,500

Source: Information Response 458

LIHEAP

LIHEAP is a federally funded program that is administered by the state. There are three types of LIHEAP programs, of which PGW handles intake for only one. LIHEAP is in full swing November through March.

- ◆ *LIHEAP Cash – This program consists of grants of money that can be applied to a customer's bill and/or against the actual cost of home energy for CAP customers, which is paid by non-CAP customers. PGW does intake for this program.*
- ◆ *LIHEAP Crisis – This program is for customers whose service has been shut off or are facing shut off. They can receive funds to help avoid such a crisis. In Philadelphia County, the administrator for the program in FY07 was the City of Philadelphia's License and Inspections Department (L&I). In FY 08 the administrator was changed to the Energy Coordination Agency (ECA). Under both administrators, intake for this program is available at agencies throughout the City of Philadelphia.*
- ◆ *LIHEAP Weatherization – Weatherization Assistance – Other agencies do intake for this program. There are intake centers throughout the City.*

Exhibit VIII-11 provides the summary statistics for the LIHEAP program at PGW.



**Exhibit VIII-11
LIHEAP Grants Summary
FY2000 to FY2007**

	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
# LIHEAP Cash Payments	41,084	58,712	57,364	57,575	63,091	63,377	65,319	62,487
LIHEAP Cash Amounts (\$)	\$8,814,111	\$12,522,066	\$13,834,332	\$13,304,058	\$16,038,010	\$16,649,495	\$15,416,311	\$16,243,105
# CRISIS Payments	17,944	28,207	10,781	17,675	9,295	10,515	21,515	16,689
CRISIS Amounts (\$)	\$5,217,203	\$18,534,942	\$3,231,170	\$8,613,596	\$2,630,735	\$3,112,630	\$8,472,290	\$5,076,458

Source: Information Response 460

Note: Data is based on actual payments received from DPW. Households may receive multiple payments within a grant season.

Utility Energy Services Fuel Fund

In addition, PGW customers are eligible for the Utility Energy Services Fuel Fund. This fund provides funding to PGW customers via a matching program in which PGW and other third parties match contributions from the UESF. Under this program PGW matches the contributions from UESF. In order to be eligible for the UESF assistance, the amount of the UESF grant and PGW's match must bring the total account balance to zero. In cases where the customer's balance exceeds the UESF assistance and PGW match amounts, a third party or customer contribution may be accepted to approval of the grant. There are various intake centers (run by various energy agencies) that process the paperwork for the fuel fund. Statistics on the Utility Energy Services Fuel Fund are shown in *Exhibit VIII-12*.

**Exhibit VIII-12
Fuel Fund Grants
FY1999 to FY2007**

	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
UESF Payments	624	1,243	1,215	3,228	1,195	1,623	944	1,283	2,085
UESF Amounts (\$)	\$265,282	\$534,599	\$535,810	\$1,912,447	\$568,212	\$778,172	\$447,563	\$586,490	\$1,470,658

Source: Information Response 461

Note: Amount includes components from UESF, PGW's match, and client's and/or third-party contributions.

Meter Reading

This organization is broken down into the following organizational entities:

- ◆ Meter Shop
- ◆ Pressure Force group
- ◆ Commercial/Industrial group
- ◆ Meter Reading group

Each of these groups is discussed in the following text.

Meter Shop

This group has four supervisors (a superintendent, an instrument section supervisor, a meter repair supervisor, and a senior staff engineer) and 25 union employees (13 in Instrumentation and 12 in Meter Repair). This group is divided into two groups:

Instrument Section – The group is responsible for performing the inspection/maintenance plan to satisfy PaPUC requirements. There are two types of large meters, those being turbine meters and rotary meters. PGW has replaced all of its large diaphragm meters (which have a two-year testing interval) with rotary meters (which have a 10-year testing interval). Also, a differential pressure test can be performed in the field on rotary meters but not on diaphragm meters. That is because the latter have to be removed and brought back into the shop for testing.

A corrector is a device that sits on the meter and acts as a multiplier for the meter reading. These correctors are inspected on a quarterly basis.

Meter Repair – There is a large ongoing program that is focused on AMR replacement and meter testing for residential meters. The potential for failure by aging batteries necessitates such a program. PGW performed testing on the AMR batteries and determined that they should be replaced at 15 to 16 years in an attempt to avoid problems (manufacturer's stated battery life of 20 years). PGW started installation of AMR meters in 1992, with a large number of meters (approximately 300,000) installed around the 1995–1996 period. Another 200,000 were installed over the next eight years. The replacement/testing program is focused on addressing these first 300,000 since they would be expected to experience problems first. All of these first-wave residential meters are scheduled for replacement by 2011. PGW is currently performing approximately 59,000 meter replacement/testing/renovations per year.

Every meter that is brought in is tested and the results recorded, even if the meter is to be disposed of. If testing reveals that the meter is reading fast, the customer is given a refund of the estimated amount that was overcharged. If the meter is running slow, no charges are applied to the customer.

PGW has applied to the PaPUC for a 20-year testing interval on residential meters based on meter testing results. Based on past performance, PGW currently has a 16-year interval. Eight years is the current PaPUC nominal standard.

As a result of the testing program, 90% of the meters have passed the accuracy test. Of the 10% that have failed, 6% were found to be running fast and 4% running slow. The 90% that pass are reconditioned and sent back out into the field for reinstallation. The meters are bar-coded in the shop. This coding allows the service tech to scan information at the time of installation, thereby ensuring proper matching of the meter and the installation address. If meters are to be disposed of, they are sent back to the manufacturer. A 10% sampling of new meters is tested to ensure accuracy.



Customers can request a meter test for \$10, with the meter being pulled by field service technicians and brought to the shop. These tests are performed in the Meter Shop on the 1st, 15th, and last working day of the month. PGW gets about 200 such requests each year. History has shown that the meters are accurate about 90% of the time.

Pressure Force Group

This group consists of three management and 23 union positions. The group is responsible for performing the inspection and maintenance of high-pressure systems and piping. The Pressure Force group is also responsible for the street regulators that reduce the neighborhoods' pipeline pressures. These street regulators are tested every two months. The valves on high-pressure lines are tested once a year. This group is responsible for performing work on service valves that are larger than 4" to ensure that they are working properly. This group is responsible for theft of service on only large meters. Customer Service handles this function for residential customers.

The group's work is currently being tracked manually on paper, but this tracking will be automated with the AIMS2 (the business application that is used to dispatch work and which provides the laptop interface in the PGW service technicians' trucks) application. The Pressure Force group is currently using a card system to assign and track the work. Visual inspection of bridge mains is done twice a year. The group also monitors the telemetry on high-pressure lines for any alarms that may occur. The system pressure is modified throughout the year based on the season (usage) and the ambient temperature. As required, the group also assists in repairing leaks and/or hits on high-pressure lines.

Commercial/Industrial Group

This group consists of two supervisors and 16 technicians located at Tioga Station. The group builds and installs meter/regulator sets in the field for commercial and industrial installations – welded for high pressure and non-welded for lower pressures. The group is also responsible for hotels, restaurants, and apartment metering.

The Marketing group puts the data on meters that are to be installed into Gold Mine – a customer relationship management application used in marketing. This information is transmitted to the supervisors. The information is inputted to AIMS2 so that the installation can be scheduled. Confirmation of installation initiates the billing process.

There is a zero usage report that would show very low usage by large customers. Such a report would initiate an investigation of the situation. This group also does shutoffs of large customers.

Meter Reading Group

All PGW meters are read automatically. All residential and some commercial meters are read using AMR technology via a drive-by van. The remaining commercial and industrial meters are also read

electronically using a different reading technology that can provide more instantaneous readings and other features.

PGW has set its own goal of reading 98% of the entire meter population (active and non-active) every month. For the last two years (2006–2007), PGW has accomplished this goal, achieving over 99%. In addition, PGW has a formal program to replace any customers' equipment that has had an estimated read for 3 months.

The Meter Reading group consists of two management and 18 union personnel. This group is responsible for the capturing of automated meter reads. It takes almost the entire month to complete one full cycle of the meter reading process. The data collection van drivers are expected to collect readings from 95% of the meters in their designated read area each day.

PGW has seven meter reading collection vans running per day. These vehicles read about 20 days per month via AMR. This frequency equates to 20,000 to 40,000 meter reads per day. The list of meters to be read that day by the van is downloaded in the morning from BCCS. The AMR reading program determines the route the van will follow that day. The collection equipment does a blast wakeup to all of the meters in the immediate area. The meters awaken for seven seconds and are read during that timeframe. The automated readers in the vans can store up to 15,000 meter reads which are not part of the current route.

For meters that are not read due to some failure of the AMR, PGW sends out an employee with a handheld device to try to get a reading. After the readings are collected for the day, the meter reader pulls the floppy disk or memory card from the AMR reading device. The data on these storage devices is then uploaded to the BCCS system. The missed reads are identified by the BCCS system and are downloaded to the handheld reading devices that are used for follow up.

Most meters are read once a month, but Special and City accounts are read twice a month due to their requirements. Another function that is performed by the Meter Reading group is the identification of active customers who are getting estimated reads. Generally, these situations are resolved by changing out the meters that are involved. The PaPUC requires that an actual reading be taken at least every six months. There are a few large industrial meters that require a manual read to be taken. Due to the size of the meters, AMR cannot be used.

The Meter Reading group had 150 union employees before the implementation of AMR. Now there are 18 employees.

Theft of Gas Service

The Customer Affairs, Revenue Protection Unit (RPU) is responsible for all theft of service, residential, commercial and industrial customers. The monetary incentive to an employee who finds theft is \$10 for



an unauthorized user theft type and \$30 for a bypass. For both situations the employee must eliminate the theft or bypass and ensure safety at the premise.

Exhibit VIII-13 includes the gas theft statistics for the last five years.

	2003	2004	2005	2006	2007
# of Unauthorized Users	2,219	2,924	4,506	5,928	2,975
\$ Value of Unauthorized Users Billed	Not Tracked	Not Tracked	Not Tracked	\$4,026,220.85	\$875,713
# of Bypasses	172	632	495	622	1,433
# of Bypasses Billed	Not Tracked	Not Tracked	Not Tracked	Not Tracked	Not Tracked
# of Cases Prosecuted	0	0	0	0	0
# of Investigations Opened	Not Tracked	Not Tracked	Not Tracked	17,066	14,998
# of Investigations Closed	Not Tracked	Not Tracked	Not Tracked	17,066	14,998

Source: Information Response754

PGW's unauthorized user (UU) program was implemented in January 2005, which included a backlog of unauthorized users. During 2005 and 2006 most of the backlog was caught up therefore the reason for the decrease in 2007. In 2008 further improvement in the unauthorized user program was implemented to further automate the process.

As shown in *Exhibit VIII-13*, PGW has only recently (2006) begun tracking some of the statistics that Schumaker & Company consultants normally expect to be tracked in a gas theft program.

Exhibit VIII-14 shows the number of gas theft tips and the number of gas theft identifications as a result of those tips for the last two fiscal years. The dollars collected as a result of the theft tips were not tracked.

FY	# of Theft Tips	Thefts Found	Success Rate	Dollars Collected
FY2006	102	43	42.16%	Not Tracked
FY2007	79	59	74.68%	Not Tracked

Source: Information Response 755

During the review, Schumaker & Company consultants conducted several ride-arounds with field service technicians. On the Field Services Department (FSD) ride-around, a gas leak was responded to that resulted in the identification of theft of service (a bypass of the meter). An in-depth investigation identified further concerns regarding PGW theft prevention programs. Also Schumaker & Company

learned that the City is reluctant to prosecute gas theft incidents, which sends inappropriate messages to PGW's customers.

Findings & Conclusions

Finding VIII-1 PGW manages a significant number of paper-intensive processes.

If you look at the number of different programs PGW deals with in assisting its customer base, a significant amount of “paper” is dealt with. Many of these programs have been developed by different agencies and have their own paper forms and procedures that are unique to the specific program.

- ◆ CAP
- ◆ Senior Citizen Discount
- ◆ Special Grants Program
- ◆ Pennsylvania Governor's Office Grant Program
- ◆ LIHEAP
- ◆ Fuel Fund

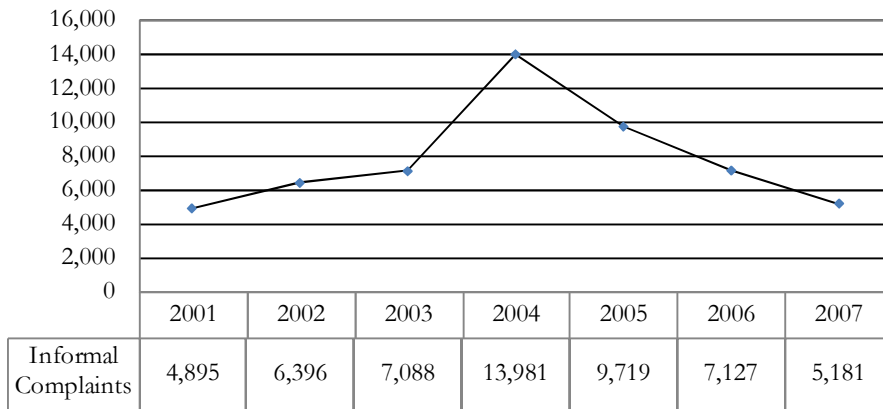
Finding VIII-2 Both formal and informal complaints have declined at PGW during the years 2005 to 2007.

The number of complaints has gone down significantly over the last 10 years. The number of complaints initially rose with the billing problems, the gas cost increase, and PaPUC getting jurisdiction such that by December 2005, there were approximately 15,000 informal complaints and a 5,000 informal complaint backlog (not being addressed in the allotted time). By December 2006, PGW was in compliance with the turnaround time for addressing complaints.

As shown in *Exhibit VIII-15*, the number of informal complaints has declined over the last four years. After increasing in 2004, the numbers have been gradually decreasing since 2004.



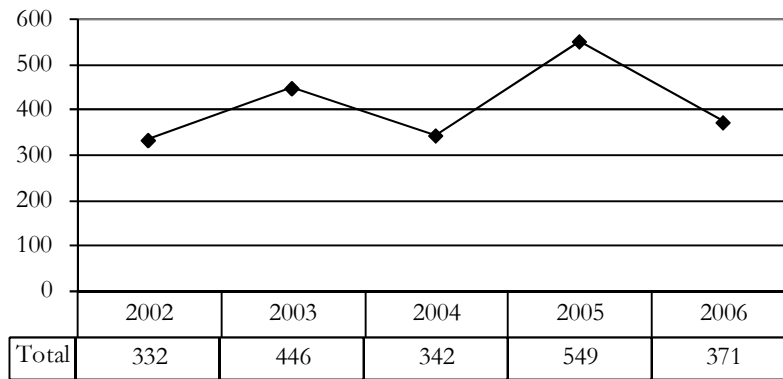
**Exhibit VIII-15
Informal Complaints
2001 to 2007**



Source: Information Response 463

The trend in the number of formal complaints is shown in *Exhibit VIII-16*.

**Exhibit VIII-16
Formal Complaints
2002 to 2006**



Source: Information Response 463

Prior to May 2007, PGW had a complaint tracking system used by the Dispute Resolution Unit (DRU) which handles disputes received directly from customers and the Customer Resolution Unit (CRU) which focuses on handling PUC complaints. The database required many manual processes and entries. In 2006 PGW began to develop a database that would enable them to better handle and track complaints. The volume of PUC complaints coupled with the manual processes in the previous database resulted in a significant back log of unanswered PUC complaints. In addition to developing

the new database system, PGW made staffing changes and for many months worked extra hours which enabled the back log of PUC complaints to be eliminated by December 2006.

The new complaint system, the Epitome system, provides a “cradle to grave” approach to complaint tracking. The database tracks a complaint from the time the dispute is filed by the customer with PGW and if pursued, through the PUC informal and formal complaint processes. Through the use of complaint types and sub-types, PGW is able to further delineate the nature of complaints. The system also provides PGW with the opportunity to perform root cause analysis on a random selection of complaints. In CRU, the document type (e.g., informal complaint or payment arrangement complaint) is automatically selected by the system. Once the case type is selected the junior officer or the review officer reads the complaint and, based on the actual complaint subject, must verify a case subtype from a drop-down menu based on the case type that has been chosen

Several changes were made in response to the settlement agreement (adopted by the PaPUC in Docket No. M-00061963) to improve the handling of informal complaints. In particular, PGW agreed to provide reports more quickly for complaints identified by the Bureau of Consumer Service (BCS) as requiring special consideration. In a situation where gas service has been terminated, the company will respond to a complaint within five business days.

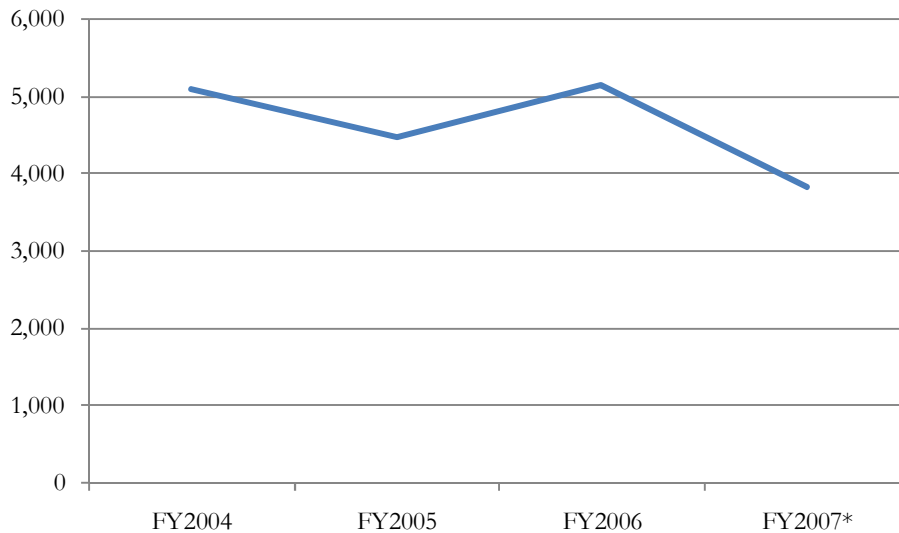
As mentioned earlier, PGW made staffing and system changes to enable the reports to be provided in a timely manner and to provide the Commission with quarterly updates for two years to verify compliance with the settlement. PGW reorganized its Customer Review Unit to address staff and productivity issues and developed a new streamlined complaint database and electronic document management system to improve the complaint process.

At the same time PGW implemented the Epitome system in May 2007 for CRU, PGW also installed a version of the new database for the Dispute Resolution Unit (DRU). DRU handles the disputes received directly from the customer. When a customer service representative receives a dispute, he or she provides a detailed description of the customer dispute (e.g., “Customer of record (or name of caller)” is disputing the “date’ bill” for “\$ amount” for the “specified” reason). There are five dispute case types: Billing, Credit, Payment Arrangement (PAR), Service, and Universal Service and many dispute sub-types which further delineate the nature of the complaint.



The trend in the number of disputes is shown in *Exhibit VIII-17*.

Exhibit VIII-17
Dispute Trends
FY2004 to FY2007



Source: Information Response 204

* FY2007 is a partial year.

During FY2007, a new database was implemented for disputes. Statistics provided in the tables above reflect disputes received under the old disputes database. For the remainder of FY2008, after implementation of the new database, PGW received an additional 1,482 disputes. Dispute types and method received (as shown in *Exhibit VIII-18* and *Exhibit VIII-19*) are tracked in the new database but the reports were not initially available. Shortly after implementation reports were developed and have been available since September 2007.

Exhibit VIII-18
Disputes by Method Received
FY2004 to FY2007

	FY2004	FY2005	FY2006	FY2007*
Call Center	1,797	1,909	2,682	2,382
District	647	511	510	273
Docucorp	439	537	393	253
AMD	340	284	250	225
Collections	289	254	537	262
Other	906	377	288	183
Mail	45	55	56	10
PGW Other Emp	232	271	192	84
City	10	4	18	5
CRU	18	49	80	61
Executive Staff	69	57	89	28
Undetermined	291	171	52	69
Total	5,083	4,479	5,147	3,835

Source: Information Response 204

* FY2007 is a partial year.



**Exhibit VIII-19
Disputes by Type
FY2004 to FY2007**

	FY2004	FY2005	FY2006	FY2007*
Billing	4	627	1,441	1,162
High Bill	3,439	1,874	1,752	1,425
Other	906	377	288	183
\$50 Fast Call/PLP Issues	0	48	64	44
Meter Twist	1	57	128	145
Metering	1	474	342	137
Rates	1	125	316	231
Foreign Load	0	24	114	73
Liability Dispute	0	13	2	6
Discontinuance/Transfer	0	13	19	5
CRP	0	5	16	17
Lost Payment	0	15	39	9
Bill Format	0	22	29	12
Make Up Bill	0	40	31	6
Credit & Deposits	0	5	11	10
General HBC	1	13	46	14
Payments	0	14	21	11
Service Quality	0	1	0	2
Service Interruptions	0	1	1	3
ID Theft	0	5	2	4
Failed to Establish Account	0	1	4	1
Budget Confusion	0	11	13	1
Lien & Judgement	0	1	3	3
UWO/STO	0	1	2	1
Mailing Address	0	1	5	1
Credit /Service Denials	0	3	0	1
Scheduling Delays	0	0	0	1
Payment Agreement	0	0	6	2
Undetermined	291	171	52	69
High/Low Bill Review	439	537	393	253
WNA	NA	NA	1	0
Multiple SAs	NA	NA	1	0
Competition	NA	NA	1	1
Name Game	NA	NA	1	0
Damages	NA	NA	1	0
Personnel Problems	NA	NA	2	2
Total	5,083	4,479	5,147	3,835

Source: Information Response 204

* FY2007 is a partial year.

PGW has been successful at reducing the number of citations being received from BCS over the last three years. PGW performs both monthly and quarterly analysis of the number and type of citations

received from BCS. Our review of these quarterly reports indicates that there has been a year-to-year improvement (reduction) in the number of citations being issued.

Finding VIII-3 The service level at PGW's call center is very low.

There is no industry-wide service-level standard (i.e., calls answered within a certain period of time); however, the most common goal in call centers today is on average having 80% of the calls answered within 20 seconds. A conservative goal is to answer 70% of the calls within 30 seconds.

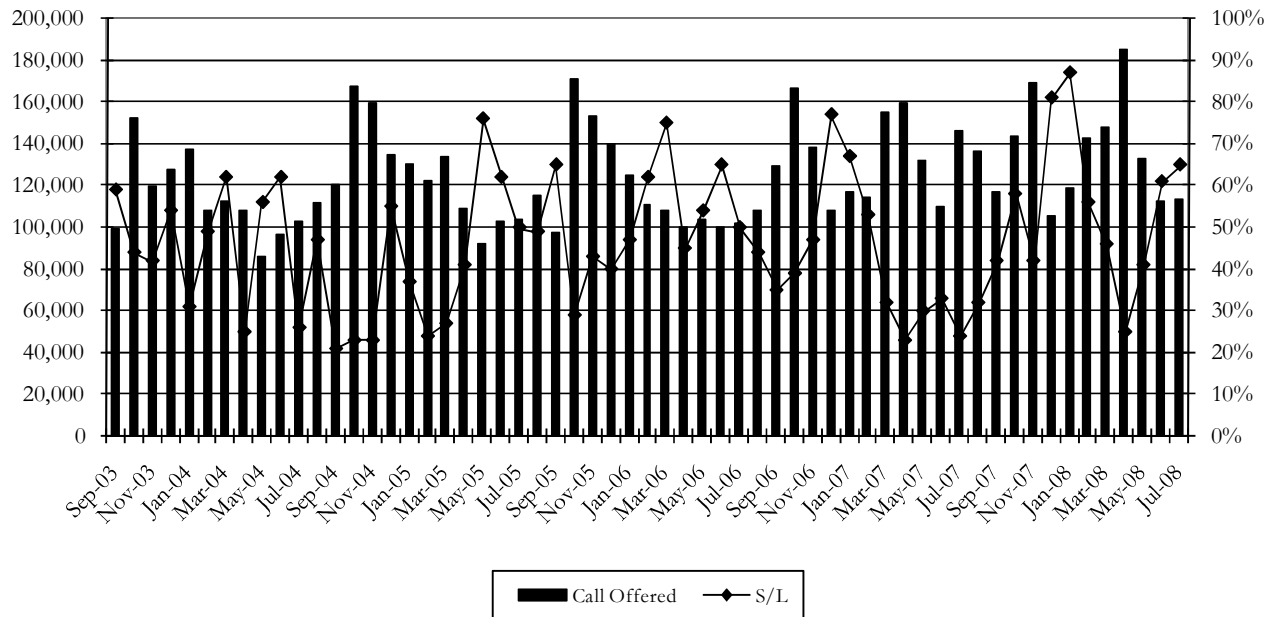
The International Customer Management Institute (ICMI) reports that 7.6% of the call centers in their survey always meet their service-level objective (as they have defined it), 32.4% nearly always meet their service-level objective and 26.7% usually meet their service-level objective. Fully two-thirds of the call centers surveyed report meeting their service-level objectives most of the time.

PGW's service level is highly inconsistent and generally far below even the 70% of calls answered in 30 seconds benchmark. In 2007, PGW's service level ranged from an average of 23% of calls answered within 30 seconds in April to 81% in December. These performance levels are closely related to call volume, with April being the highest-volume month and December the lowest. Overall, for the current fiscal year (September 2007 through July 2008), PGW has averaged 53% of its calls answered within 30 seconds.

Exhibit VIII-20 provides call-volume and service-level performance for the period spanning September 2003 through July 2008.



Exhibit VIII-20
Call-Volume and Service-Level Performance (% of calls answered in 30 seconds or less)
FY2004 to FY2008 (through July)

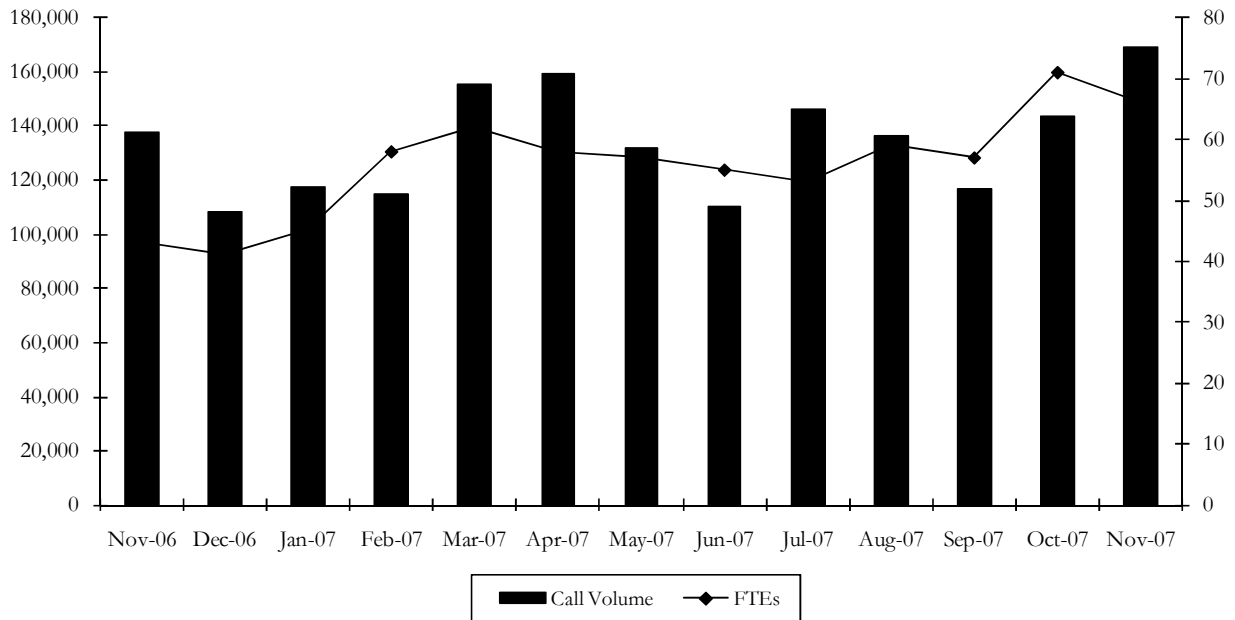


Source: Information Response 817

Schumaker & Company also looked at monthly variability in the call centers' staffing levels. It is clear that staffing levels do have some effect on service levels, but they do not appear to predict service levels. Using November 2006 through November 2007 as a sample period, available CSRs ranged from a low of 41 full-time equivalents (FTEs) to a high of 71 FTEs. In September 2006 PGW combined the Collections Department with the Call Center for the purposes of streamlining inbound and outbound calling efforts. Therefore the average available inbound FTE per day-shift began to increase.

In November 2006, the call volume was 137,764 (offered; 124,946 actually handled). During that month, there were 43 FTEs available in the call center and the average call volume per FTE was 3,204 calls. During this month, the service level was 47%. A year later in November 2007, the call volume was 168,644 and there were 66 FTEs available. The average call volume for each FTE was 2,555. At the same time, the service level was lower at just 42%. Therefore, increased staffing from November 2006 to November 2007 has not improved the performance of the call center. According to PGW management, this was due to the collection staff's unwillingness to transfer to the call center forcing PGW to hire new and inexperienced CSRs. *Exhibit VIII-21* provides call volume (calls offered) and staffing levels for November 2006 through November 2007.

Exhibit VIII-21
Call Volume and Staffing Levels
November 2006 to November 2007



Source: Information Response 585

Analysis of service level is made difficult because Schumaker & Company is working from reports and not the original data. Nonetheless, it appears that the current staffing level of about 68 FTE CSRs will produce a service level at 75% or above for call volumes of less than 120,000. Call volume peaked at approximately 185,000 in April of 2008 and the service level declined to 25%. It appears that PGW staffs its call center to the low call-volume months and is inadequately staffed for average and above-average call volumes.

Finding VIII-4 PGW's first call resolution rates are below average.

PGW contracts with Metrix Matrix Inc to conduct customer satisfaction surveys. The surveys are conducted on customers that have had a recent contact with PGW rather than PGW's entire customer base. Metrix/Matrix performs satisfaction research for many different types of organizations and functions, including utilities. The PGW study has a 95% confidence level. First call resolution rates at PGW, as reported by Metrix Matrix Inc, remained consistently at the 75%–76% level through FY2006. FY2007 data suggests an improvement, with the rate rising to 77.82%. Annual first call resolution rates for FY2003 to FY2007 are provided in *Exhibit VIII-22*

Exhibit VIII-22
First Call Resolution Rate
FY2003 to FY2007

Fiscal Year	First Call Resolution Rate
FY2003	76.03%
FY2004	76.13%
FY2005	74.98%
FY2006	75.54%
FY2007	77.82%

Source: Information Responses 617 and 818

In spite of the recent improvement, the first call resolution remains below average. The ICMI reports that 69% of the call centers in its study have first call resolution rates at 80% or better. (Although ICMI notes that measurement methods vary widely and the data includes CSR self-reporting.)

This low performance level is particularly troubling in light of the poor service-level performance that appears directly related to call volume. Customer issues that are not resolved on the first call generate one or more additional calls. Therefore, improving first call resolution performance lowers call volume.

Based on Schumaker & Company's review, it appears that high turnover rates and CSRs with limited experience are the primary causes of not resolving issues on the first call. This issue is discussed in *Finding VIII-5*.

Finding VIII-5 **Although PGW was not able to provide actual turnover rates for call center employees, the staff turnover rate in PGW's call center exceeds the industry average.**

PGW was not able to provide actual turnover rates for call center employees. During the management audit, Schumaker & Company was provided conflicting information as to the actual turnover rate and therefore it was not possible to develop a definitive comparison to industry experience.

A 2007 study by the International Customer Management Institute (ICMI) found that 54% of call centers had external (CSRs leaving the company) turnover rates of 20% or less. ICMI also found that 80% of all call centers reported external turnover rates below 40%.

A key issue appears to be a starting pay rate that is lower than other area call centers. PGW is also constrained by a residency rule that circumscribes opportunities for hiring from a broader base of both union and management employees. However, at PGW the employees who remain in the position have a pay progression process and benefits that are better than other local call centers. CSRs hired after 2001 have a starting pay of \$9.76 an hour, and over the course of 10 years, that rate can increase to

\$24.95 per hour. As of early 2008, seniority was relatively low, with approximately 30% of CSRs being with PGW less than two years, as shown in *Exhibit VIII-23*.

Exhibit VIII-23
CSR Seniority Levels
as of December 31, 2007

Years Experience	Number of CSRs	Percentage of Total	Cummulative Percentage
In training	11	8.3%	8.3%
3-6 months	9	6.8%	15.2%
6 months – 1 year	11	8.3%	23.5%
1 – 2 years	8	6.1%	29.5%
2 – 3 years	19	14.4%	43.9%
3 – 5 years	8	6.1%	50.0%
5 – 10 years	21	15.9%	65.9%
10 years plus (33 reps + 12 QAs)	45	34.1%	100.0%
Total	132		

Source: Information Response 569

Finding VIII-6 The unplanned absence rate for call center representatives is high, a tendency that PGW has not analyzed and addressed root causes.

In general PGW has made significant progress in reducing employee absenteeism. In 2000, the average for PGW as a whole was 16 days per year (all absences – including sick leave). In 2007, that number was reduced to 11.2 days per year. This reduction represents a 30% improvement from 2000 to 2007. The company-wide average dropped to 7.6 days in 2003 after implementing the requirement of a doctor's note from the first day of absence. It started to increase in 2004 with the implementation of three two-day grace absences. With the 2007 negotiated change in the grace periods, the average sick leave usage (does not include other absences) as of November, 2007 is back down to 10.1 days per year.

The story is much different in PGW's call center. Although declining, the average days of unplanned absence (anything other than vacation and holidays) remains at 22.7 for the call center representatives – nearly twice the average for PGW as a whole. According to PGW management, the Call Center captures a number of individuals that are transferred from other departments through the EUC (Employee Utilization Committee) process. In many instances these individuals have long term health issues that require long term absenteeism from the center. This problem skews or exacerbates results in the overall number of average days of unplanned absence to be higher than expected. *Exhibit VIII-24* provides unplanned absence rates for 2003 to 2007



Exhibit VIII-24
Average Days of Unplanned Absence for Call Center Representatives
2003 to 2007

	Avg. Days
2003	31.4
2004	21.2
2005	32.0
2006	31.8
2007	22.7

Source: Information Response 816

Schumaker & Company supports PGW's efforts to reduce absence abuse and recognizes the success it has had in reducing absenteeism. Nonetheless, we question whether enough analysis has been done of the root causes of absences in the call center. Although PGW is considering a survey of call center employee satisfaction, it has yet to implement it. As such, PGW does not have any meaningful information on employee attitudes and the challenges of working in the call center.

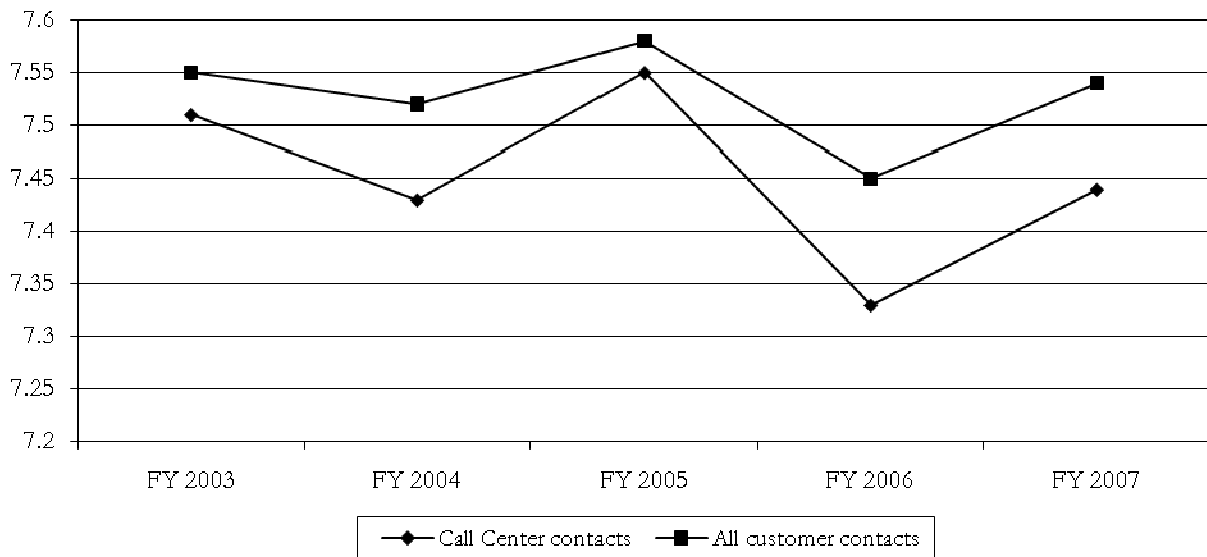
Working conditions, supervisory practices, pay, and a host of other factors drive employee satisfaction and have a direct effect on absenteeism. Efforts to reduce abuse therefore need to have a corresponding effort to help employees deal with work/life challenges.

A 20 to 30 day unplanned absenteeism results in a need for additional CSRs to cover those absences. It is the equivalent to 1 to 1.5 months of time not being able to answer telephones, which would translate into an 8% to 13% (1/12 to 1.5/12) increase in additional staffing to cover these absences. The additional CSR resources required would be the equivalent of six (8% of 68 current CSR) or nine (13% of 68 current CSRs), which at a \$50,000 cost per CSR results in \$300,000 to \$450,000 in additional costs. Therefore, PGW should be focusing on steps to lower absenteeism to avoid these costs and improve service levels.

Finding VIII-7 PGW has opportunities to improve its customer satisfaction.

Customer satisfaction at PGW, as measured by Metrix Matrix Inc, declined in 2006 but recovered somewhat in 2007. Monthly tracking by Metrix Matrix Inc shows that customer satisfaction ratings have hovered around 7.5 on a 10-point scale for the last five years. Although deemed adequate, these scores are not outstanding and Schumaker & Co. was not given any indication of an effort to improve them. *Exhibit VIII-25* provides customer satisfaction scores for the years 2003 to 2007.

Exhibit VIII-25
Customer Satisfaction Ratings (10-point scale)
2003 to 2007



Source: Information Response 617

The data presented in *Exhibit VIII-25* is from a rather simple report. While useful for tracking, it provides little in the way of actionable information. In 2006, PGW contracted with Metrix Matrix for a comprehensive analysis of customer satisfaction. Unfortunately, PGW has not contracted for this type of analysis since the 2006 report.

The 2006 analysis indicated that PGW customers were generally satisfied with call center and field representative contacts. Overall, 75% of customers contacted for the study were satisfied with their PGW contact. Satisfaction with call center representatives was 85% and 90% for field service representatives.

While these results are relatively positive, the study also provides key insights into factors that drive satisfaction and dissatisfaction perceptions. The factors that the study reported as most often producing dissatisfaction with call center representatives were:

1. PGW rates
2. Having to make multiple contacts on the same issue
3. Wait time to speak with a representative

The factors that were most likely, if improved, to increase customer satisfaction were:

1. Knowledge of call center representatives



2. Wait time to speak with a representative
3. Courtesy of call center representatives

Unfortunately, since this report, wait times have generally increased (*Finding VIII-3*). PGW has had below-average first call resolution (*Finding VIII-4*), and the call center has continued to be plagued with high turnover (*Finding VIII-5*), thereby leading to the need to continually hire inexperienced (less knowledgeable) CSRs.

For field service representatives, the factors that were most likely to produce customer dissatisfaction were:

1. PGW rates
2. Not calling to confirm prior to arrival
3. Not completing the request in one visit

The factors that would have the largest positive effect on customer service perceptions, if improved, were:

1. Knowledge of field service representatives
2. Completing the request in one visit
3. Courtesy of the field service representatives

PGW has implemented several efforts to mitigate and improve customer satisfaction. In the summer of 2007, PGW provided a soft skill and courtesy training program to all of its CSRs and supervisors. This training was offered by ICMI and conducted at Temple University. In addition, all supervisors were required to participate in specific supervisory skills training programs offered by consultants contracted by PGW. PGW also revamped its QA program and conducted a supervisory training through Envision on quality and coaching techniques. As a result, hopefully, customer survey results would be expected to show improvements in customer satisfaction.

Given the specific information contained in this report, Schumaker & Company expected to see a strategy to improve customer satisfaction that includes measuring for results.

Finding VIII-8 Call center supervisors spend a large percentage of time on administrative tasks and less time on coaching call center representatives.

PGW reports that call center supervisors spend just 20% of their time on coaching and developing employees. The supervisors responsibilities were described as “Walk the floor, keep people in their seats, coaching and monitoring, handle escalated calls, answer questions, audit some reps work (to assure accuracy). PGW also reports time spent on additional administrative tasks such as team statistics and PaPUC violations. While all of this is important work, the trend in other call centers is clearly

toward maximizing the time supervisors spend on coaching and employee development. At other utilities Schumaker & Company has audited, the goal is to make those tasks 100% of the supervisor's job.

Finding VIII-9 PGW is fairly unique in continuing to maintain multiple customer service district offices to provide customer contact in its service territory.

In one sense, customer service district offices are a remnant of the early days in the utility industry. At that time, before the widespread use of computers, customer service district offices maintained the recording of payments on individual customer accounts, thus making it important that the customer go to the proper office to pay his or her bill and have that payment correctly applied to the account. At that time, utilities typically sold and serviced appliances, with the customer service district offices serving a dual purpose of providing merchandising floor space for showing the appliances. However, those days are long past and the majority of investor-owned utilities and municipal utilities have all but eliminated customer service district offices, except for perhaps one maintained at the main office. In the case of investor-owned utilities that continue to sell appliances, that portion of the business is typically accounted for as a separate "below the line" business such that the customers who avail themselves of the service pay the full cost of that service.

PGW maintains six customer service district offices where customers can pay bills, request service and inquire about their account, apply for LIHEAP grants, and make payment arrangements including CAP arrangements. In 2003, PGW had eight customer service district offices, but coinciding with the time that the PaPUC assumed jurisdiction, the number of customer service district offices was reduced to six. No offices are open every day of the week. When open, each office is staffed with from 8 to 10 people including security personnel, CSR's, and management personnel. During the fall and winter months, PGW also hires temporary (agency) employees to assist customers with completing LIHEAP applications.

The volume of traffic at each of the customer service district offices is shown in *Exhibit VIII-26*, which reflects the number of customers per office, the number of walk-in payments/customer inquiries per office, and number of customer service employees per office for FY2007. It should be noted that this exhibit reflects the same figure for total customers and customer inquiries, as they both represent interactions with customers regarding inquiries and account matters. The walk-in payments are independent of the number of customer inquiries; payments could be made by customers visiting for an inquiry as well. The customer service centers do not handle customer calls. Phone calls are primarily handled through the PGW call center.



Exhibit VIII-26
Customer Service District Office Statistics
For FY2008

Office	Total Customers	Walk-in Payments	Customers Inquiries	Avg Staffing	Ratio of Customers per Employee
Center City	33,444	111,371	33,444	8	4,181
South Phila	22,823	59,560	22,823	6	2,583
West Phila	38,621	111,229	38,621	8	4,828
North Phila	36,157	68,786	36,157	8	4,520
Germantown	26,662	71,010	26,662	7	3,333
Frankford	35,252	62,999	35,252	7	4,407
Total	192,959	484,955	192,959		

Source: Information Response 832

The role of PGW's customer service district offices has changed significantly since their inception. Like many other utilities, PGW has been out of the appliance sales business for some time. Consequently, many of the existing facilities are overly large in square footage compared to what is currently needed to perform their function. Most customers now pay their bills without visiting a customer service district office. As the economic base of many parts of Philadelphia has declined over the years, the role of the customer service district office has changed as well. While these offices continue to accept payments from customers who, for various reasons, prefer to pay in person, the bulk of the work performed in these offices is assisting lower-income customers.

While other utilities require customers to pay by mail or at a payment center (operated by a third-party), PGW continues to accept walk-in payments. However, walk-in payments constitute only a small portion of the district office activity. Of the 8 to 10 people previously mentioned at each district office, approximately 6 to 8 of them are dedicated to assisting customers. Typically, bill payment is handled by one to two cashiers. The remainder of the staff provides a range of customer services including payment arrangements, service requests, and account issues.

Finding VIII-10 PGW customer service district offices are poorly maintained and present a negative image of PGW to its customers.

Schumaker & Company consultants toured three customer service district offices including Center City Philadelphia, South Philadelphia, and North Philadelphia. All of the customer service district offices are old and in obvious need of renovation. Dirty and torn carpet, broken furniture, and clutter appear to be the norm. This environment reflects poorly on PGW and can only serve to create negative customer perceptions. We are particularly troubled that the condition of the offices appears to reflect the poverty of those customers these offices are most likely to serve.

Finding VIII-11 LIHEAP applicants are not afforded sufficient privacy when applying for assistance.

In each office we visited, LIHEAP applicants were crowded around small tables (and in one case, rickety old card tables) when seeking assistance in completing an application. During this process, they must discuss sensitive personal data (including social security numbers) while other applicants are just inches away. In each office, these tables are located in the center of the office, making applicants (and their economic status) clearly visible to all who enter the office.

Finding VIII-12 PGW efficiently manages its customer service district offices.

In November 2007, PGW implemented customer contact queuing software that provides real-time information on customer volume in each office. A manager in the Center City office can view information on all offices and move staff to address high demand. The queuing system also ensures customers are served in order and tracks wait and service time.

In addition, PGW assigns customer service representatives to either the front desk, where they are able to triage customers and provide services requiring little time, or to private cubicles (which are used more for new account setup and other activities and not currently being used for universal service programs), where they can handle more complicated situations. This approach allows for smoother service and less wait time for customers.

Finally, PGW does not open all offices every day of the week. This operating schedule allows PGW to maintain offices in multiple locations around the city with fewer staff. The convenience of these offices does not seem to be significantly diminished by the three-day schedules.

PGW has implemented new technologies for managing the queues at each of the offices. From the management console, various reports are available to determine such things as length of the queue, average wait time in the queue, handling time, and other parameters that can be used to manage the operations of each of the offices. Although the CSRs typically work out of an assigned office, they can be moved from one office to another, based on information from the queue management product.

Finding VIII-13 PGW operates a Parts and Labor Plan as a part of its ongoing business.

The Parts and Labor Plan is sold as a protection plan that covers central heating, water heaters, and electric A/C if it is an integral part of the natural gas heating system. In the late 1970s, 160,000 customers were on the plan. In Fiscal 2007, this figure is now down to 65,000. In that same timeframe, service calls have gone from 65,000 to 20,000, and staffing has been accordingly reduced.

In many other jurisdictions, Parts and Labor Plans are viewed as a competitive service (i.e., a service that the utility is providing in competition with other providers). As such, many jurisdictions place specific requirements on the programs, including;



- ◆ Separate books and records must be kept to demonstrate that the non-participant ratepayers are not subsidizing the participants.
- ◆ The allocation of shared costs must be properly handled.

As a result, some utilities have abandoned this part of the business and instead choose not to compete with the private sector. Other utilities account for such services as a separate business (either a totally separate entity or one that is embedded within the utility) with very specific recordkeeping to demonstrate that other ratepayers are not subsidizing the participants.

PGW had a Customer Plus program that was a replacement business (i.e, furnace, hot water, etc.) until a couple of years ago. PGW replaced 1,000 residential units per month and performed energy audits. However, that service was terminated in 1999.

Finding VIII-14 PGW's Pilot Landlord Cooperation Program was approved for final implementation in July 2008.

The Landlord Cooperation Program (LCP) is a new pilot program whereby licensed Philadelphia residential end user property owners/landlords (who are non-customers and non-resident owners, for multi meter properties or single family rental dwellings) register and cooperate in the pilot program to avoid the imposition of a municipal lien on a registered property for tenant incurred gas debt by complying with the terms of the LCP. As an example, the owner must cooperate with PGW by providing necessary access to his or her property. Such access will more easily facilitate meter equipment inspections and shutoffs. The obvious benefit to the program registrant is the potential to avoid lien placement if a tenant fails to pay his/her gas bill.

As of July 2008, only a high-level project plan for the Landlord Cooperation Program (LCP) was available. The timeline associated with this plan reflects the following assumptions:

- ◆ PGW is in the process of obtaining approval to integrate a complete business transformation initiative that will focus on both the financial and operational well-being of PGW going forward. At this time, the LCP is considered to be in the scope of business transformation and the goal was to obtain the relevant budgetary approval for full implementation and begin work in the March 2008 timeframe. Budgetary approval from the Philadelphia Gas Commission was actually received in July 16, 2008.
- ◆ PGW is currently in the process of enhancing the AIMS application in order to integrate all operational work onto a single electronic platform. Implementation of the LCP will require system-level changes to the AIMS application, and as such, system development, testing, and rollout will be impacted by the AIMS enhancement project.

In short, information regarding the landlords of each premise needs to be made available in both BCCS and AIMS, which will involve adding new fields in each application. As of July 2008, the Landlord Cooperation Program was scheduled to go fully operational in the 2nd Quarter of 2009.

Finding VIII-15 Timely customer payments remain a problem for PGW as the vast majority of customer aged receivables are greater than 90 days old.

PGW's service territory has 50% of the state's Welfare cases and the highest percentage (approximately 30%) of low income customers of any utility in the state. The low income and inability to pay issues not only affect the accounts receivables measurement, but might also skew other measurements. For example, when a customer cannot make the necessary payment this will impact customer satisfaction, call volume, and first call resolution. PGW's accounts receivable aging reflects some of the difficulty that PGW faces in customers paying their bills in a timely manner. It also illuminates the specific issues that fact creates in the collections function at PGW. PGW's accounts receivable aging for the last three years is shown in *Exhibit VIII-27*. Generally, one would expect the 0–30-day numbers to be much larger as a percentage of the total accounts receivable (i.e., more similar to the numbers shown on the bottom line of *Exhibit VIII-27*—closer to 50% versus 6% to 8%). The 76–77% of accounts receivable in the greater than 91-day range is significantly larger than would be expected for a utility if customers were capable of paying their bills. The “More Norm” line in *Exhibit VIII-27* was developed based on Schumaker & Company recent experience with other utilities. It is important to note that the accounts receivable includes millions of dollars (31%) tied to pre-program CAP arrears, arrearages being carried through payment arrangements, and amounts held while a dispute is pending.

It should be noted that *Exhibit VIII-27* represents the accounts receivable aging as of August in each of the last three years. Considering that this August snapshot is many months after the winter season, these numbers are probably some of the best experienced during the year. The overall reduction in the accounts receivable aging total amount, to a large extent, reflects a decrease in natural gas sales (warmer winter) and the actual price of natural gas. The percentages in each category remain relatively unchanged.

Exhibit VIII-27
Accounts Receivable Aging
August 2005 to August 2007

As of Date	0-30 days	31-60 days	61-90 days	Greater than 91 days	Total Receivables
Aug-05	\$20,019,436	\$19,432,484	\$20,962,537	\$204,886,192	\$265,300,648
Aug-06	\$15,961,332	\$20,541,390	\$19,329,838	\$176,669,443	\$232,502,004
Aug-07	\$16,969,051	\$18,162,029	\$14,347,825	\$159,165,958	\$208,644,862
Aug-05	7.55%	7.32%	7.90%	77.23%	100.00%
Aug-06	6.87%	8.83%	8.31%	75.99%	100.00%
Aug-07	8.13%	8.70%	6.88%	76.29%	100.00%
More Norm	51.00%	12.00%	7.00%	30.00%	100.00%

Source: Information Response 228



Since 2002, the amount written-off each year has increased to \$93 million in 2005 (the Senior Discount and CAP discount are not included as part of the write-off) or 34.9% of billed gas revenue, as shown in *Exhibit VIII-28*. The write-off amount dropped to less than \$60 million in 2007.

Exhibit VIII-28
Uncollectible Trends
2002–2006
(000)

	Actual 2002	Actual 2003	Actual 2004	Actual 2005	Actual 2006	Actual 2007
Billed Gas Revenues (\$000)	\$557,466	\$755,920	\$786,406	\$846,729	\$899,174	\$868,586
Accounts Receivable (\$000)	\$254,047	\$321,408	\$323,340	\$295,114	\$243,249	\$211,608
Less Reserve for Bad Debt (\$000)	(\$187,461)	(\$228,548)	(\$230,216)	(\$207,480)	(\$168,889)	(\$150,231)
Net Accounts Receivable (\$000)	\$66,586	\$92,860	\$93,124	\$87,634	\$74,360	\$61,377
Bad Debt Reserve/Accounts Receivable	73.8%	71.1%	71.2%	70.3%	69.4%	71.0%
Write-Offs Net (\$000)	\$48,411	\$43,914	\$69,332	\$93,160	\$78,723	\$58,658
Receivable as a Percentage of Billed Gas Revenues	45.6%	42.5%	41.1%	34.9%	27.1%	24.4%
Bad Debt (\$000)	\$51,548	\$85,000	\$71,000	\$70,424	\$40,132	\$40,000
Bad Debt Expense as a Percentage of Billed Gas Revenues	9.2%	11.2%	9.0%	8.3%	4.5%	4.6%
Bad Debt Expense as a Percentage /Accounts Receivable	20.3%	26.4%	22.0%	23.9%	16.5%	18.9%
Number of Delinquent Customers at August 31	168,136	155,399	167,576	165,479	148,571	126,024

Source: Information Response 853

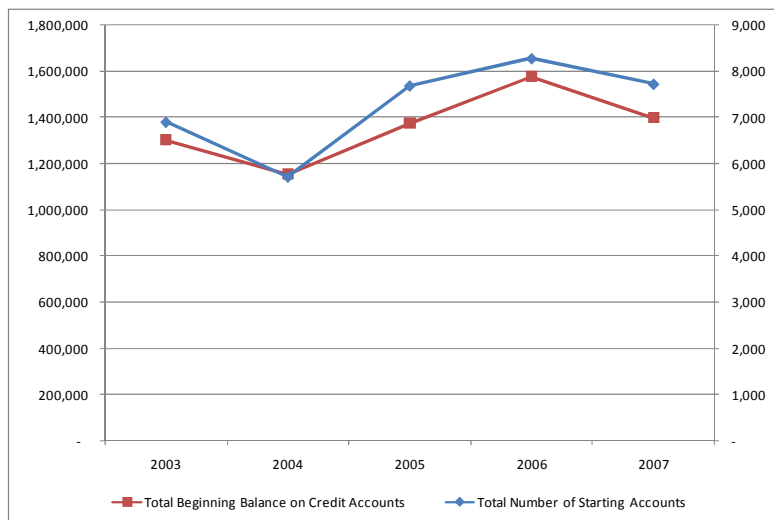
Finding VIII-16 For customers that terminate service with credit balances, PGW appears to be initially successful at refunding to 36% of the customers accounting for 43% of the credit balances.

Each year some PGW customers terminate service having a credit balance – which usually arises from a budget billing, initial deposit refund requirements, or overpayment. Approximately one-third of the time the customer is issued a refund. However in other cases, PGW is unable to locate the customer or a location to which the refund check can be sent. Over a five year period, PGW works these credit balance accounts. After five years the remaining amounts in these unclaimed customer refunds are forwarded to the Pennsylvania Treasury Department as unclaimed property.

The estimated annual number of accounts and total balance of customer accounts with credit balances is shown in *Exhibit VIII-29*. The current number of accounts with credit balances and the amount of those credit balances are shown in *Exhibit VIII-30*. Over the five-year period from 2003 to 2007, approximately 36,308 accounts containing \$6,805,383 in credit balances occurred and during that same time period PGW refunded \$2,952,021 to 13,057 accounts or 36% of the initial number of credit balance customers amounting to 43% of the initial credit balances. This leaves roughly \$3,853,362 outstanding over that five-year time period or approximately \$770,672 to be turned over to Pennsylvania Treasury Department as unclaimed property on an annual basis. Due to the nature of the way the information was provided to Schumaker & Company in the information response, it is difficult to be

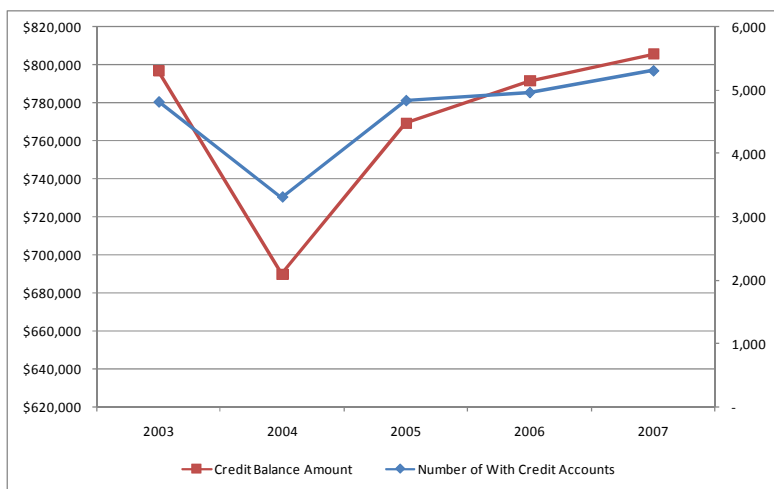
more precise. The refunds were not time sequenced to the origin year of the credit balance but to the payment year of the refund so we used the five-year average.

Exhibit VIII-29
Estimated Beginning Number of Accounts and Credit Balances
2003 to 2007



Source: Information Response 850

Exhibit VIII-30
Number of Accounts With Credit Balances
2003 to 2007



Source: Information Response 850

Finding VIII-17 PGW is incurring extra costs in its soft-off program.

Many utilities that have gone to AMR have instituted soft-off programs. Traditionally, when a customer terminates service, a utility would dispatch a technician to the premise to read and turn-off the meter. Consequently when service is established by another customer, another dispatch of a technician would be necessary to perform a “turn-on” of service. In most cases, utilities typically try to dispatch a technician to read the meter without having to do a turn off/turn on – i.e., if there is an individual moving into the premise calls within a couple of days of the first occupant who is leaving the premise.

A soft-off program avoids these dispatches by not actually turning the meter on/off. In a soft-off program, a technician is not dispatched to “turn-off” the meter; instead the meter is monitored for unauthorized usage. Only if unauthorized usage is identified is a technician dispatched to “turn-off” the meter. Therefore, the utility realizes efficiencies by avoiding the cost of two technician dispatches as long as the amount of gas consumed (authorized or unauthorized) is not excessive.

PGW is currently incurring an expense of \$5.7 to \$6.7 million per year in natural gas costs as a result of its current soft-off program. The cost of dispatching a technician is roughly \$100 (counting both a turn-off at \$32 and turn-on at \$68). PGW performs approximately 25,000 soft-offs each year. Ideally a soft-off program should cost no more in natural gas than the cost of dispatching a technician to do a turn off/on. Therefore, the maximum expected cost for natural gas would be $\$100 \times 25,000 = \2.5 million and ideally it would be less than that amount. The incremental cost of labor to do these actual turn off/ons would be the same amount or $\$100 \times 25,000 = \2.5 million. Therefore, performing a dispatch to do a turn off/on would cost in total ideally somewhat less than \$5 million compared to the \$5.7 to \$6.7 million in excess gas alone. The difference is roughly \$1 to \$2 million in extra gas costs each year (assuming that a hard turn off/on would result in slightly better than the \$2.5 million by \$300,000 or only a \$2.2 million in gas cost).

In summary, the current soft-off program is costing \$1 million to \$2 million a year in extra costs or \$5 million to \$9 million in extra costs over the three-year time period. Schumaker & Company recognizes that the current soft-off program is currently being managed through primarily manual processes (note, manual entry into Excel spreadsheets is really still a manual process). However, PGW is currently not performing a sufficient number of hard shut-offs to avoid excessive gas costs, so that people are able to steal gas. The underlying business systems have not been developed to effectively support the soft-off program. The Business Transformation program, that was recently approved, includes some automation in the soft-off program.

Finding VIII-18 PGW’s gas theft detection processes need to be strengthened.

Schumaker & Company reviewed PGW’s procedures dealing with theft of service. Three procedures were provided with respect to theft of service, specifically:

- ◆ *Unauthorized users* – The purpose of this process is to define rules when terminating gas service to premises with gas usage after the company has shut-off service.

- ◆ *Theft reporting* – The purpose of this procedure is to establish a Revenue Protection Unit (RPU) contact list for reporting incidents of theft of service.
- ◆ *Unauthorized user shut-off method* – The purpose of this process is to define the proper method for physical disconnection of gas service for unauthorized usage.

While these procedures appear appropriate for governing activities once theft is discovered, what we did not find were any specific procedures addressing the process of theft identification. While Schumaker & Company consultants have been told that reports are produced showing inactive accounts with consumption, this process is evidently not documented in a procedure at this time. Nor in our experience is that sufficient for an adequate theft detection program.

Schumaker & Company understands that PGW monitors all accounts that have been shut-off for non-payment or due to customer request. If usage is detected on subsequent meter readings after the final bill has been issued, an order is generated for immediate shutoff during non-CWIP (cold weather interim period). During CWIP an order is generated to immediately deliver a 72 hour shut-off notice and service will be immediately shut-off following the 72 hours. This procedure was implemented in January of 2005 and since that time PGW has identified some significant gas theft.

In and around 1989, Schumaker & Company consultants conducted a review of what was then Cincinnati Gas & Electric Company (CG&E), which had an exceptional gas theft detection program. CG&E maintained specific information on all the premises with gas service, including square footage, whether it contain a gas furnace, gas range and oven, and gas water heater. Based on this information and the historical consumption at the premise, CG&E calculated expected gas consumption for each gas meter using the above information and heating degree days for the time period. The information was used to calculate and expected high and low readings for that gas meter, which was not only used as a high/low kick out on the meter readers input into the handheld meter reading device (in 1989, automatic meter reading was under development but not implemented to any great extent anywhere in the U.S.), but also as a means for identifying potential gas theft. In short, CG&E was using historical and other information to identify potential theft, after which either the RPU followed up or the meter reader was given specific instructions to “look around” the meter for signs of potential theft while on the route. If during the follow-up, theft was confirmed, CG&E aggressively pursued payment from the offending party, including prosecution where it made sense.

We did not find a similar program at PGW. To just be pursuing inactive accounts with consumption without also including active accounts with zero consumption (which was the case in the theft identified during our observation of field activities) is insufficient for theft detection.

Schumaker & Company consultants are also concerned that with only monthly meter reading, PGW is not able to implement certain programs that other utilities that read more frequently can implement. For instance, other utilities can also identify meters that stop for a period of time in the middle of the meter reading cycle, meters that run backwards, and other situations including potential tampering.



PGW is unable to use some of these techniques because of its current meter reading process – placing all the more emphasis on other theft detection programs.

Furthermore, one of our concerns with the soft-off program is that given its current meter reading technology, PGW may not be able to identify gas theft until as much as 50 to 60 days after the soft-off is initiated. Having reviewed some of the gas consumption at some premises that occur in PGW’s service territory, following a soft-off the actual consumption of natural gas can exceed the cost to dispatch within three to four weeks during the winter months. Other utilities that read more frequently are in a position to identify potential theft within a week after a soft-off begins.

Several other questions also arose from the investigation of the gas theft incident in the *Theft of Gas Service* section in this chapter (Page 349) previously discussed:

- ◆ How was Customer A able to incur a \$12,000 outstanding balance and start over with a new account number in Customer A’s name at the same premise location?
- ◆ Why didn’t PGW shut off the service earlier instead of continually dispatching technicians to post three-day notices for over a year?
 - There was only one active meter behind the curb valve.
 - There was no registered usage on the “active” meter.
 - Why didn’t the finding of “unauthorized” usage in 2005 signal possible theft in the 2007–2008 timeframe?
- ◆ What steps have been taken to collect on the two outstanding balances?
 - The initial \$12,000
 - The latter \$600

Furthermore, it appears from *Exhibit VIII-13* that many of the statistics Schumaker & Company consultants would have been expected to be tracked regarding gas theft have only recently begun to be tracked at PGW. We note that in 2006, PGW reported the identification of over \$4 million in theft; however, PGW was unable to report what portion of that amount has been collected. Furthermore, PGW has not prosecuted any cases in the last five years.

PGW indicated that the police and District Attorney’s Office have not pursued these investigations except where there has been an explosion or an eye-witness could testify that he or she actually saw the theft take place. Absent an explosion or an eyewitness, it is difficult to prove that a particular individual committed the gas theft. In an explosion case, there is usually sufficient evidence to identify the perpetrator, who is usually found by the police at the scene of the explosion that he or she caused, sometimes with the tools still in their hands. Notwithstanding, in Schumaker & Company consultants experience other electric and gas utilities pursue customers in the courts who have stolen significant energy from them.

Moreover, we find it surprising that the numbers of investigations that are opened and closed are the same in each year. In our experience, there is typically a difference, in that many investigations carry over more than a year (i.e., one year you may open more than you close and the next year you may close more than you open), thereby resulting in a backlog of cases. We are not sure if PGW is using the same definition for investigations that other utilities have used.

Furthermore, we had asked some specific questions that were never answered in our investigation into theft detection, specifically:

- ◆ Does PGW have the ability to determine the total number of curb boxes in territory, broken down by the number of meters behind each curb box?
- ◆ Can PGW measure the amount of account churn in a building and could that figure be used as an indication of theft (i.e., tenant in apartment A gets behind on bill, calls PGW, and has the account put in tenant B's name)? What happens to the original amount owed?
- ◆ Has PGW performed any statistical analysis of parameters that can be used to identify theft, such as two-month no reads indicate an 80% probability of theft?
- ◆ In theft situations, PGW FSD technicians are required to obtain British thermal unit (BTU) ratings of all appliances so theft impact can be estimated. Does this information persist beyond the investigation?
- ◆ How good are PGW records regarding premise and load information? Is there a database? What percentage of the premises does PGW have information on?

In short between the soft-off program and the weak theft detection program, there is a significant amount of natural gas being used without corresponding revenue to PGW.

B. Recommendations

Recommendation VIII-1 Investigate the possibility of streamlining some of the paper work in PGW's Universal Services Programs through some type of computerization or electronic document management program. (Refer to Finding VIII-1)

Due to the composition of PGW's customer base, which contains both the highest percentage and number of low income customers, PGW is dealing with a greater workload related to Universal Service Programs than any other electric or gas utility in Pennsylvania. Anything that could be done to streamline these processes would result in lower long term costs.



Recommendation VIII-2 Hire part-time CSRs and implement variable staffing levels based on predicted call volume. (Refer to Finding VIII-3.)

Although largely predictable, call volumes vary considerably. Most call centers accommodate these varying call volumes with part-time staff and variable scheduling. PGW needs to do a better job of handling peak call volumes, and part-time and variable scheduling are the obvious solutions.

Some call centers, particularly those like PGW with a close proximity to a college or university, find that college students appreciate part-time work and can often work split schedules around classes if travel time is not an issue.

Schumaker & Company recognizes the challenges posed by collective bargaining agreements. We hope the union will recognize that hiring additional full-time employees does not make sense given the highly variable call volume. Full-time employees should and will continue to provide a base level of staffing. However, peak periods are most efficiently addressed by variable schedules. This scheduling is clearly in the best interests of PGW customers.

Recommendation VIII-3 Investigate methods to improve CSR selection and retention. (Refer to Finding VIII-5.)

Call center work is stressful and high turnover is an industry-wide problem. PGW must do a better job of identifying the factors that predict success in the job and build these factors into the selection evaluation of potential call center employees.

Some call centers have contracted with specialized staffing agencies to screen and hire CSRs. The companies operating the call center then have a specified period of time to decide whether or not to hire the employee for a full-time position. This decision may take a year or more, but it provides the call center operator with much great flexibility in selection. For PGW, an employee who makes it through the probationary period is afforded significant job protection. Poor performance may not be clearly evident in the normal probationary period.

PGW's low pay scale is also a concern. Schumaker & Company understands the job can pay well if an employee gains sufficient seniority. Unfortunately, the low starting wage limits PGW's ability to attract higher-quality employees and may be a driver in the high turnover rates. Although not easily quantified, Schumaker & Company believes the direct cost of high turnover and the indirect cost of lower customer service and productivity are, in fact, far greater than the money saved by low initial pay.

Recommendation VIII-4 Include CSR turnover as a key performance indicator (KPI) for the call center. (Refer to Finding VIII-5.)

Clearly reducing turnover would reduce PGW's direct and indirect costs. Establishing turnover as a KPI that is shared by call center management and Human Resources/Organizational Development will serve to focus attention on improving performance in this area.

Recommendation VIII-5 Redesign the call center supervisor jobs to focus more on coaching and development. (Refer to Finding VIII-7 and Finding VIII-8.)

Nearly all call centers that Schumaker & Company has looked at have made a substantial effort to limit administrative burdens on supervisors and to enable supervisors to be fully focused on employee coaching and development. This “high touch” approach to management is critical to retaining CSRs and to meeting or exceeding service-level standards. In other utilities audited by Schumaker & Company, coaching and development are the primary, if not exclusive, focus of call center supervisors.

PGW must redesign call center supervisors’ duties to be close to 100% coaching and development. At the same time, existing supervisors should be given training in coaching and development. New supervisors should be selected based on their coaching and development competency.

Recommendation VIII-6 Develop a method for measuring actual call center turnover rates. (Refer to Finding VIII-5.)

In Schumaker & Company’s experience call center turnover rates are a performance indicator that is closely monitored at other call centers that we have reviewed. It provides an indication of the quality of the environment that the organization has created to retain call center representatives.

Recommendation VIII-7 Assess the root causes of absenteeism and address the quality of work/life issues in the call center in conjunction with the enforcement of absence policies. (Refer to Finding VIII-3, Finding VIII-4, Finding VIII-5, Finding VIII-6 and Finding VIII-8.)

As we discussed in our findings, PGW has done a good job of reducing abuse and overall absenteeism. We have also expressed our concern that the efforts to control abuse have made life more difficult for PGW employees—especially low-seniority/low-wage employees in the call center.

PGW must assess the situation and understand employee perceptions. Clearly, a first step is a comprehensive employee attitude survey. Schumaker & Company recommends against any standardized survey as it will likely not explore specific issues relevant to call center employees. A customized survey directed at specific issues is worth the investment.

Based on the findings, PGW should develop a comprehensive organizational development strategy that addresses employee concerns. This strategy may range from schedules, to supervisory practices and work/life management challenges. At this point, it is not possible to identify the specific strategies that will improve employee satisfaction, reduce turnover, and ultimately improve service levels in the call center.

PGW should commit to implementing appropriate strategies, involving employees in the process, and measuring the effects of these changes.



Recommendation VIII-8 Implement an annual comprehensive customer satisfaction analysis and develop an improvement strategy based on the results. (Refer to Finding VIII-3, Finding VIII-4, and Finding VIII-7.)

Schumaker & Company recognizes the significant expense of a comprehensive customer satisfaction analysis. Nonetheless, we are convinced of the need for PGW to be more customer focused. Improving service is largely impossible without the insights gained through such analysis. Such information allows PGW to direct limited resources to the factors that will most improve customer satisfaction. Well-defined strategies based on data are essential to improving customer satisfaction.

Equally important, PGW will have no way of evaluating its success without customer satisfaction data. The 2006 study done by Metrix/Matrix is discussed in *Finding VIII-7*. The report is full of useful information and this or a similar study should be conducted annually.

Recommendation VIII-9 Address customer dissatisfaction/satisfaction drivers. (Refer to Finding VIII-4.)

The 2006 customer satisfaction report provides substantial information on what drives satisfaction and dissatisfaction for PGW customers. This report is an obvious starting point for developing a customer satisfaction strategy and provides baseline measures for assessing improvement efforts.

Recommendation VIII-10 Make changes to the configuration of the various customer service district offices. (Refer to Finding VIII-9.)

As mentioned in *Finding VIII-9*, the direction in the utility industry has been to utilize fewer customer service district offices. Currently only about 10% to 15% of the PGW customer base uses the customer service district offices. In fact, PECO Energy, which provides electric service to the same footprint as PGW provides gas service, only has one office at its main building – all of its other offices were closed years ago. The cost of maintaining customer service district offices is the major reason that most electric and gas utilities have reduced the number of offices that they operate.

PGW should perform a study of their customer service district offices that considers the following items:

- ◆ Reducing the number of offices based on the results of the study and better maintaining the remaining offices.
- ◆ Walk-in payments are the largest volume of transactions that occur in the customer service district offices. There are over 900 authorized payment locations in the City of Philadelphia. Therefore, it appears that an authorized payment locations would be just as convenient, or more, as a PGW district office for bill payment. PGW should consider charging a processing fee similar to authorized locations to defray the costs of maintaining customer service district offices. This could be worth \$400,000 to \$500,000 year in additional collections. This would

probably barely cover the costs of maintaining the district office payment function, but it should be studied.

- ◆ Assess what impact a reduction in customer service district offices would have on CAP participation rates. PGW currently has a 55% CAP participation rate, which is second highest for all gas utilities in Pennsylvania. How much do the customer service district offices contribute to that rate? Some data and statistics might need to be collected to prove this benefit of customer service district offices.
 - PECO Energy has a participation rate of 98% but only one customer service office.
 - PGW has a 55% rate with six customer service district offices.

Schumaker & Company consultants recognize that there are both economic and political issues to be dealt with in closing customer service district offices. In fact, many of these same issues have been effectively dealt with by others utilities to lower their overall cost of operations as a means to keep rates as low as possible. PGW's current number of customer service district offices appears to be a "first class" expenditure for an organization that can only afford a normal business approach in today's utility environment.

Recommendation VIII-11 Make modest renovations to customer service district offices. (Refer to Finding VIII-10.)

The days of customer offices may be limited; in the meantime, modest improvements should be made. A fresh coat of paint, better lighting, new carpeting, and new furniture for customers seems appropriate.

Recommendation VIII-12 Provide privacy for LIHEAP applicants. (Refer to Finding VIII-11.)

LIHEAP applications are taken at crowded folding tables while other customer business is generally conducted in private cubicles. Customers are providing confidential information and should be afforded a higher degree of privacy when seeking assistance.

Recommendation VIII-13 Demonstrate, periodically, to the PaPUC that the Parts and Labor Program is self-supporting. (Refer to Finding VIII-13.)

As previously mentioned, many state regulatory commissions consider such programs a competitive service that should be funded totally by the customers that use the program. Another way of stating that sentence is that the ratepayers who are not using that program should not be providing any funding to that program – what many refer to as cross subsidization. A study needs to be performed periodically to ensure that this is the case.



Recommendation VIII-14 Work with PFMC and the PGC to develop a plan for addressing the major issues facing the City of Philadelphia regarding PGW. (Refer to Finding VIII-15.)

PGW, and more importantly PGW's customers and owners (the citizens of Philadelphia), face enormous costs relating to their customer assistance programs. PGW's average universal service spending per residential customer in 2006 was \$167.71. This amount does not include the cost of the senior citizen discount (which is being phased out), which would add several more dollars to that amount. It compares to the next highest gas utility in Pennsylvania (Columbia Gas) at \$75.27 and the lowest being UGI at \$10.22. Clearly, there is a significant disparity between the highest and lowest average universal service spending in Pennsylvania.

In Schumaker & Company's experience, universal service programs were originally created at a federal or state level to provide adequate funding to achieve universal service – service for all – in those situations in which funding by the single utility serving the area would result in too large of a burden (cost or risk) for that particular or any one entity (utility) to undertake. This concept was developed in the telecommunications industry to provide funding to underserved areas of the country. PGW offers programs, pursuant to PUC mandate, designed to provide service for all, but it operates as a PGW-only program – i.e., PGW must provide all the funding (cost and risk) for the program. – While this was and is a decision made, to a large extent, above and beyond PGW's control, we have real concerns if this program has become too expensive for the City of Philadelphia alone to support.

- ◆ The PGW universal service program amounts to a \$167.71 burden on each and every residential customer (where low income or not) in the City of Philadelphia – double the next highest burden and as much as 10 times some others.
- ◆ PGW and its customers have been burdened with the consistent increase in the price of natural gas since the year 2000. When (most likely not if) the price of natural gas increases significantly, PGW might be hard pressed to not ask the City of Philadelphia for monetary relief. It is extremely unlikely that the City will be capable of providing assistance, given its own financial difficulties. It should be recognized that PGW's annual \$18 million payment to the City is a small amount compared to the \$90 million of uncollectibles (write-offs, discounts, etc.) PGW incurred in 2005. Furthermore, the City has waived payment (by accepting payment and then granting it back to PGW) for the period from Fiscal Year 2004 through 2010. As previously discussed, PGW's current CAP penetration rate is roughly 55% which is the second highest in the state of Pennsylvania. What would be the financial impact of a 98% penetration rate?
- ◆ There are other approaches to universal service programs that have been adopted in other states that involve sharing the costs among utilities – similar to the telecommunications industry. As PGW would more than likely have more to gain from such a program, other utilities, ratepayers, legislators, etc. might resist such a program, even if the additional costs flow through to customers and to shareholders. Schumaker & Company understands that, in the past, PGW has explored such possibilities with Commonwealth officials and, predictably, found no willingness to consider the idea; however, now might be a better time to continue to pursue

these possibilities instead of waiting for the next significant increase in gas prices.

- ◆ While it is commendable to date that all three groups (PFMC, PGC, and PGW) have performed their responsibilities as deemed by various interpretations of the various management agreements, rules, and regulations, we question if one of the major issues facing PGW is being adequately addressed.
- ◆ We recognize that PGW has taken and is in the process of taking steps to improve its customer affairs processes in the areas of collections through the write-off reactivation program, landlord cooperation program, and other risk-based collection strategies. While we support these items and expect that they will yield benefits, PGW will still be faced with larger levels of write-offs compared to other utilities.
- ◆ We recognize that PFMC Board members have been diligently meeting to provide oversight of PGW operations. There have been numerous discussions of this issue at the Board meetings. Without an expansion of funds from external sources, the problem will not be resolved.
- ◆ We recognize that the PGC has been diligent in performing extensive reviews of PGW capital and operating budgets; while that is the PGC's specific charter, we question if addressing some of the larger issues facing PGW would not yield a greater benefit to the citizens of Philadelphia such as getting involved in cases before the PaPUC in the interests of the City of Philadelphia. Although we recognize that the PGC has no direct jurisdiction over these issues, since it is an issue that directly concerns financial impacts on the City (as was witnessed over the last several years), it is something that should be investigated by all parties.
- ◆ There is a need to recognize that PGW is a unique utility operation within Pennsylvania. Not only does it have the highest percentage of low income customers but it is also customer owned – i.e., by the citizens of the City of Philadelphia.

The last point is important, as there are no PGW shareholders – only the citizens of Philadelphia. Like many older cities (such as Detroit), PGW maintains an infrastructure that was designed to support a larger population with much higher natural gas consumption per customer. With the reduction in the growth in number of customers, the lower consumption per customer (probably due to energy efficiency and conservation), and the migration of larger customers to gas transportation without gas supply, PGW is now in a position of having gas supply assets that might be better used to the benefit of the citizens of Philadelphia. PGW could be in a position of using its gas assets to perhaps fund some of these programs if PaPUC regulations permit. Unfortunately, the current state of regulations on gas supply have been written more for investor-owned utilities where the gas supply asset benefits must flow through the gas cost recovery mechanism – such that shareholders do not benefit. However, the shareholders of PGW are the customer of PGW.

In short, PGC, PFMC, and PGW need to come together to having the following items investigated:

- ◆ Perform a detailed investigation of universal service programs in the gas industry around the country, specifically what is the funding mechanism in each state, how are they administered,



what are the limits.

- ◆ Perform a detailed investigation of each CAP program at each of the Pennsylvania gas utilities.
- ◆ Develop different scenarios of how the universal service burden might be shared/divided between and among PGW and various utilities, taxpayers, etc.
- ◆ Develop an approach for using PGW gas supply assets to perhaps fund some of the universal service programs – after all the customers in fact own the assets.

If those savings are not flowed through the GCR, but assigned to fund the CAP program or the PGW capital program to avoid the higher costs of borrowing, more money could be raised to fund the CAP program such that base rates would not have to be increased to fund the CAP program. Once information is collected and analyses are performed, PGC, PFMC, and PGW need to decide a unified approach to lobby regulators, legislators, and society in general to make the necessary changes.

Recommendation VIII-15 Create measurements for measuring the effectiveness of refunding customers with credit balances. (Refer to Finding VIII-16.)

In response to our information requests regarding refunds to customer with credit balances, PGW provided a draft written procedure that was developed after our request was made which PGW believed documented business practices that have been in place for the last several years. PGW provided summarized information regarding credit balance customers and amounts over a period of time, which Schumaker & Company consultants used to develop some overall conclusions, however better information should be developed and reported on an ongoing basis. Specifically, it would be more beneficial to know what the number of credit balance customers and credit balances that were initiated in any given year, and then annually report the reduction in those numbers and balances over the next five years (prior to being turned over to the Pennsylvania Department of Treasury). This type of information could be used to measure the performance in providing customer refunds on a timely basis.

Recommendation VIII-16 Reevaluate the use of the soft-off program at PGW. (Refer to Finding VIII-17.)

In summary, the current soft-off program is costing \$1 million to \$2 million a year in extra costs or \$3 million to \$6 million in extra costs over the three-year time period. Schumaker & Company recognizes that the current soft-off program is currently being managed through primarily manual processes (note, manual entry into Excel spreadsheets is really still a manual process). The underlying business systems have not been developed to effectively support the soft-off program. The Business Transformation program, that was recently approved, includes some automation in the soft-off program..

Recommendation VIII-17 Undertake a major study to improve the gas theft prevention program. (Refer to Finding VIII-18.)

This study should not just look at short term solutions but also consider longer term solutions. There were many issues and concerns raised during Schumaker & Company's in-depth investigation into the identified gas-theft incident and our review of the overall gas theft statistics. As discussed in the findings, the major emphasis should be placed on the theft detection business process. Some of the items to be performed or considered would include:

- ◆ *Theft case investigations* – Choose prior theft cases and develop timelines for how the theft occurred, how it could have been identified earlier, and what changes in current business processes would be necessary to better and earlier identify the theft.
 - *Geographic characteristics* – Is theft more prevalent in certain areas of the service territory?
 - *Premise characteristics* – Is theft more prevalent in certain types of premises?
 - *Historical characteristics* – Could changes in consumption over time be used to identify theft earlier?
 - *Theft origin* – Curb valve, inside premise meter by pass, outside premise by pass, user without contract (an unauthorized user after soft-off), and finally an unauthorized user (after hard-off)
- ◆ *Reconsider meter reading frequency* – What could be done to more frequently read meters to identify theft and support the soft-off program? Perhaps, in the short-term, PGW could consider pilot reading twice a month (every 15 days) to shorten the exposure window. It could also consider newer meter reading technology – recognizing that this step would be a long-term solution.
- ◆ *Standard statistics and reporting* – What key performance indicators need to be developed to measure the effectiveness in theft of service program beyond *Exhibit VIII-13*, based on above analysis?
- ◆ *Written procedures and technology systems* – What business processes need to be documented and what technology systems need to be developed or modified to support the gas theft program?

PGW's gas theft statistics identify anywhere from \$800,000 to \$4 million in gas theft, as shown in *Exhibit VIII-13*. This number is also supported by numbers being reported in its unaccounted-for-gas reports discussed in *Chapter VII – System Reliability Performance and Other Related Operations*. As a result, there is a significant cost savings that might be possible through implementation of a more rigorous gas theft detection and prosecution program.



A. Data and Statistics

This appendix details the operations and financial performance of Philadelphia Gas Works (PGW). This appendix is divided into two sections:

- ◆ *Section I:* PGW's annual data and compound growth percentage by category over a five-year period (2002 to 2006)
- ◆ *Section II:* Comparative analysis of PGW to a select group of gas utilities over a five-year period (2002 to 2006), including:
 - Columbia Gas of Pennsylvania (CGP)
 - Dominion Peoples (Peoples Natural Gas Company or PNG)
 - Equitable Gas Company (EGC)
 - National Fuel Gas (NFG)
 - PECO Energy Company (PECO)
 - UGI Utilities, Inc. (UGI)

Schumaker & Company has reviewed each firm's Annual Report documents for the years 2002 through 2006 furnished by the Pennsylvania Public Utility Commission (PaPUC). Collected data include all line items from balance sheet, income statement, cash flows, plant in service, depreciation, depletion and amortization, taxes, salaries, operating revenue, sales, and number of customers, operation and maintenance expenses, environmental facilities and expenses, and much more.

Section 1 – PGW

This section of the report presents PGW's annual statistics for the years 2002 through 2006.

- ◆ Total net plant in service
- ◆ Operating revenue
- ◆ Gas sales by volume
- ◆ Total average number of customers and customers year-end
- ◆ Total employees (year-end)
- ◆ Total operation and maintenance expense
- ◆ Gas distribution lines
- ◆ Performance ratio expense

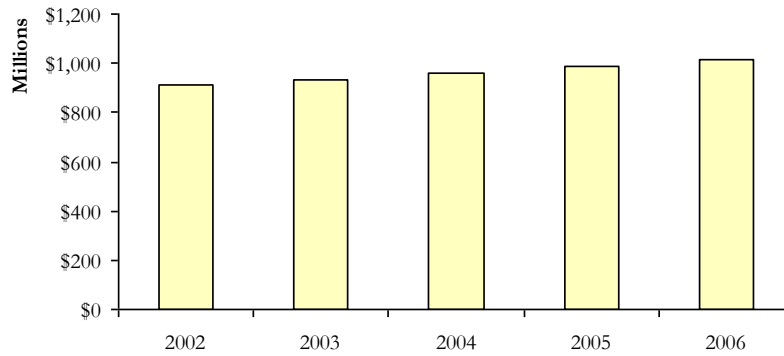


Total Net Plant in Service

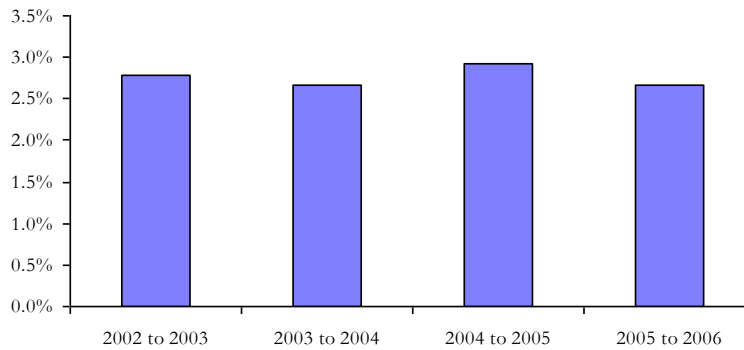
Exhibit A-1
Total Net Plant in Service
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Gross Utility Plant in Service	1,424,429,755	1,485,873,426	1,536,899,079	1,590,138,166	1,638,392,589	3.56%
Accum Prov for Depreciation of Gas Utility Plant	(515,308,310)	(550,497,083)	(577,897,499)	(603,196,530)	(625,128,320)	4.95%
Accum Prov for Depreciation of & Amort of Other	(283,833)	(1,232,090)	0	0	0	-100.00%
Total Net Gas Plant in Service	\$908,837,612	\$934,144,253	\$959,001,580	\$986,941,636	\$1,013,264,269	2.76%
Dollar Growth by Year		\$25,306,641	\$24,857,327	\$27,940,056	\$26,322,633	
		2002 to 2003	2003 to 2004	2004 to 2005	2005 to 2006	
Percentage Growth by Year		2.8%	2.7%	2.9%	2.7%	

Net Plant By Year



Percentage Growth By Year

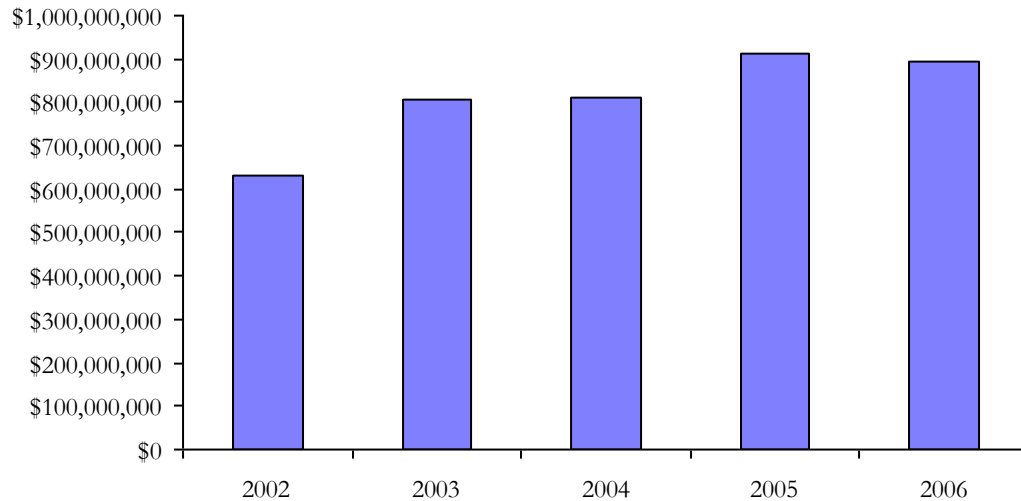


Source: Information Response 46

Operating Revenue

Exhibit A-2
Operating Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Sales of Gas						
Residential Sales	\$424,870,501	\$560,691,140	\$563,848,119	\$633,820,198	\$608,286,662	9.39%
Commercial & Industrial Sales	\$150,421,593	\$187,040,329	\$198,434,036	\$228,506,427	\$225,045,524	10.60%
Other Sales to Public Authorities	\$17,916,158	\$23,215,385	\$23,438,522	\$26,627,235	\$29,805,730	13.57%
Other Operating Revenues						
Forfeited Discounts	\$20,170,852	\$19,122,326	\$19,375,325	\$19,617,455	\$11,190,172	-13.70%
Miscellaneous Service Revenues	\$102,602	\$112,161	\$286,877	\$215,163	\$267,708	27.09%
Revenues from Transportation of Gas of Others Through Distribution Facilities	\$2,874,903	\$2,476,717	\$3,512,328	\$4,975,905	\$7,633,867	27.65%
Other Gas Revenues	\$16,233,270	\$11,907,339	\$3,174,273	(\$2,175,529)	\$13,559,434	-4.40%
Total Gas Operating Revenue	\$632,589,879	\$804,565,397	\$812,069,480	\$911,586,854	\$895,789,097	9.09%



Source: Information Response 46

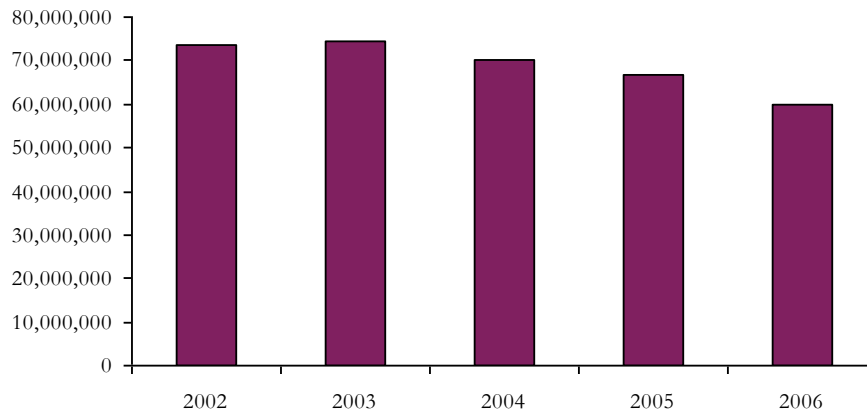
In fiscal year (FY) 2005 and prior, PGW calculated finance charges on all accounts active and inactive. A change in policy resulted in finance charges only being charged to active customers that lowered forfeited discounts between 2005 and 2006.



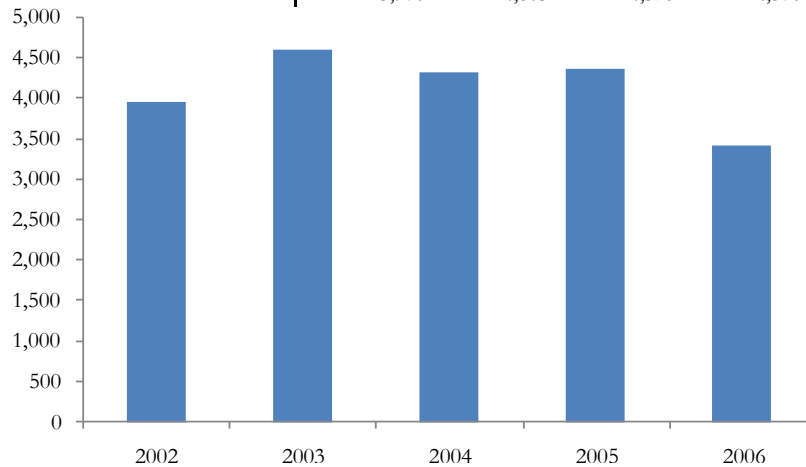
Gas Sales by Volume

**Exhibit A-3
Total Gas Sold versus Degree Days
(MCF)
as of December 31, 2007**

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Residential Metered Sales	39,870,199	45,984,403	41,525,918	41,281,157	33,425,538	-4.31%
Commercial & Industrial Metered Sales	18,781,705	16,931,197	15,533,822	14,867,827	12,197,798	-10.23%
GTS	13,031,208	9,760,423	9,449,419	10,994,812	11,979,515	-2.08%
PHA + Municipal	1,859,559	2,052,000	1,794,920	1,674,656	1,584,368	-3.92%
Other Gas Revenues	0	(405,931)	2,024,202	(2,239,817)	732,385	N/A
Total Sales of Gas	73,542,671	74,322,092	70,328,281	66,578,635	59,919,604	-4.99%



	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Degree Days	3,970	4,603	4,325	4,370	3,420	-3.66%



Source: Information Response 46 and Company Comments (2002 adjusted as municipal heating and non-heating were not included in the 2002 PaPUC annual report).

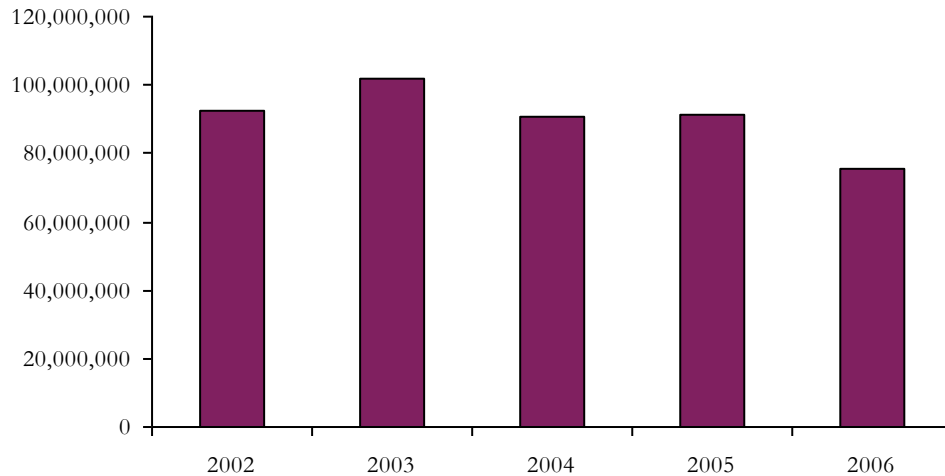
Exhibit A-4
Total MCF as Reported (Received & Delivered)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Purchased Gas*	64,642,689	72,758,706	67,506,730	66,513,108	51,557,609	-5.50%
Gas of Others Received for Transportation*	12,956,760	9,367,644	8,179,005	7,978,580	11,784,353	-2.34%
Exchange Gas Received	0	0	0	14,920,605	0	N/A
Gas Received from Underground Storage	13,198,009	17,041,171	12,164,389	0	11,135,684	-4.16%
LNG Vaporized	1,797,993	2,787,884	2,744,755	2,057,430	1,033,514	-12.93%
Total MCF Received	92,595,451	101,955,405	90,594,879	91,469,723	75,511,160	-4.97%

* 2002 data was listed as Natural Gas Produced and L.P.G. Gas Produced and Mixed with Natural Gas but relates to data of these two categories respectively for 2003-2006

Natural Gas Sales	60,361,265	64,540,803	60,119,867	57,940,982	47,457,230	-5.84%
Deliveries of Gas Transported or Compressed for Others	12,956,760	9,367,644	8,179,005	10,877,470	11,784,353	-2.34%
Natural Gas used by Respondent	943,817	8,671,831	7,134,478	5,079,175	550,590	-12.61%
Natural Gas Delivered to Storage	14,194,258	14,312,573	13,273,742	14,465,693	12,581,352	-2.97%
Other Deliveries	603,354	3,613,341	1,302,037	0	1,712,745	29.80%
Unaccounted for	3,535,997	1,449,213	585,750	3,106,403	1,424,890	-20.33%
Total MCF Delivered & Unaccounted For	92,595,451	101,955,405	90,594,879	91,469,723	75,511,160	-4.97%

Unaccounted For as Percentage of Total Delivered	3.8%	1.4%	0.6%	3.4%	1.9%	-16.2%
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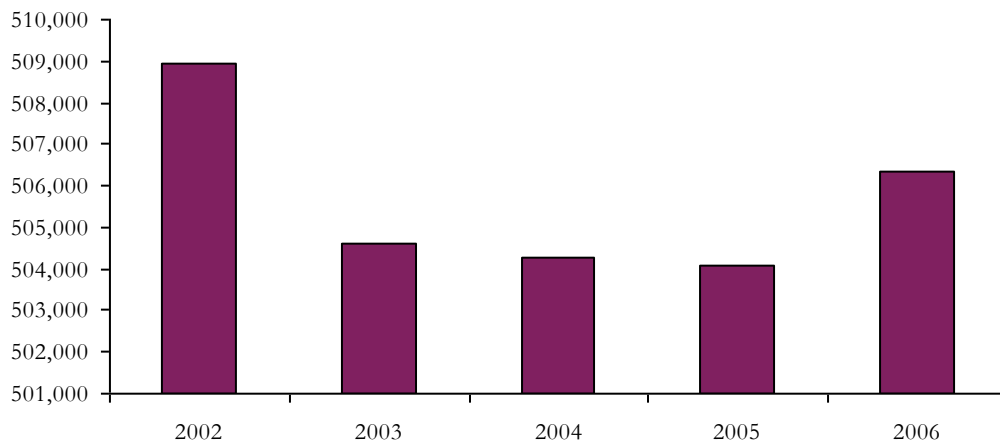
Source: Information Response 46



Total Number of Customers

Exhibit A-5
Total Average Number of Customers
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Residential	477,231	473,062	472,384	472,191	475,076	-0.11%
Commercial & Industrial	26,847	26,735	26,820	26,713	26,425	-0.40%
Philadelphia Housing Authority (PHA) + Municipal	4,859	4,806	5,085	5,181	4,837	-0.11%
Total Average Number of Customers	508,937	504,603	504,289	504,085	506,338	-0.13%



Source: Information Response 46 and Company Comments

**Exhibit A-6
Total Number of Customers (Year-end)
as of December 31, 2007**

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Residential	475,860	474,117	471,672	476,553	478,530	0.14%
Commercial & Industrial	26,847	26,861	27,051	26,851	26,585	-0.24%
Philadelphia Housing Authority (PHA) + Municipal	4,859	4,985	5,273	5,014	4,773	-0.45%
Total Number of Customers (End of Year)	507,566	505,963	503,996	508,418	509,888	0.11%



Source: Information Response 46

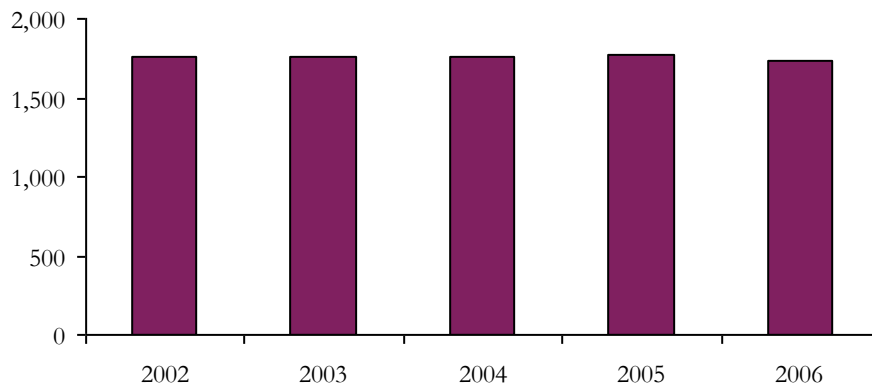
PGW reports the Philadelphia Housing Authority (PHA) and Municipal categories separately from other categories for customers and revenues, because they are separate rate classes.

Total Employees (Year-End)

The counts in *Exhibit A-7* represent end-of-year totals and include active, full-time and part-time employees.

Exhibit A-7
Total Employees (Year-End)
 as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Total Employees at Year End	1,759	1,763	1,762	1,768	1,738	-0.30%

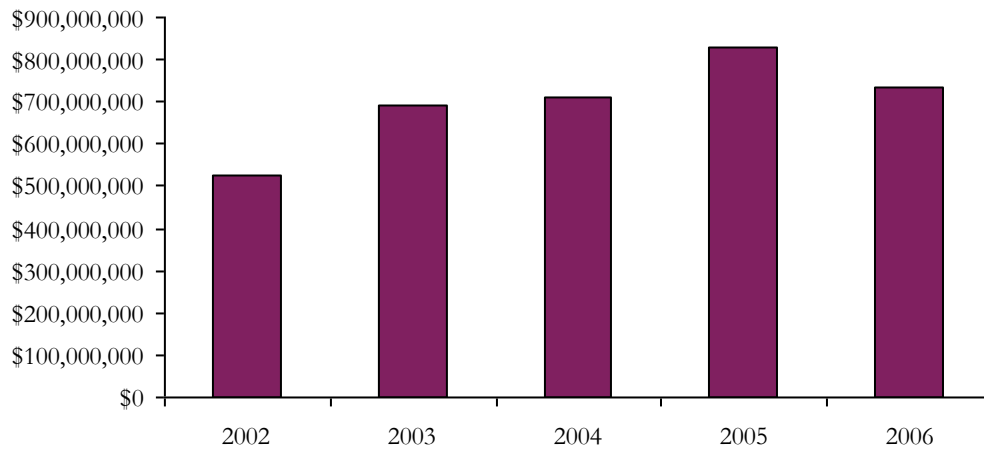


Source: Information Response 46

Total Operation and Maintenance Expense

Exhibit A-8
Total Operation and Maintenance Expense
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Total Gas Operating Expenses	506,805,577	672,044,303	692,173,200	805,322,368	716,505,786	9.04%
Maintenance Expenses	17,239,657	20,264,458	19,085,708	22,358,703	18,717,787	2.08%
Total Gas Operating & Maintenance Expenses	\$524,045,234	\$692,308,761	\$711,258,908	\$827,681,071	\$735,223,573	8.83%



Source: Information Response 46 and Company clarifications to information responses (adjusted as original PaPUC annual reports for 2002 and 2003 contained formula errors in Tab 405; PGW corrected the errors in 2004 and notified the PaPUC).

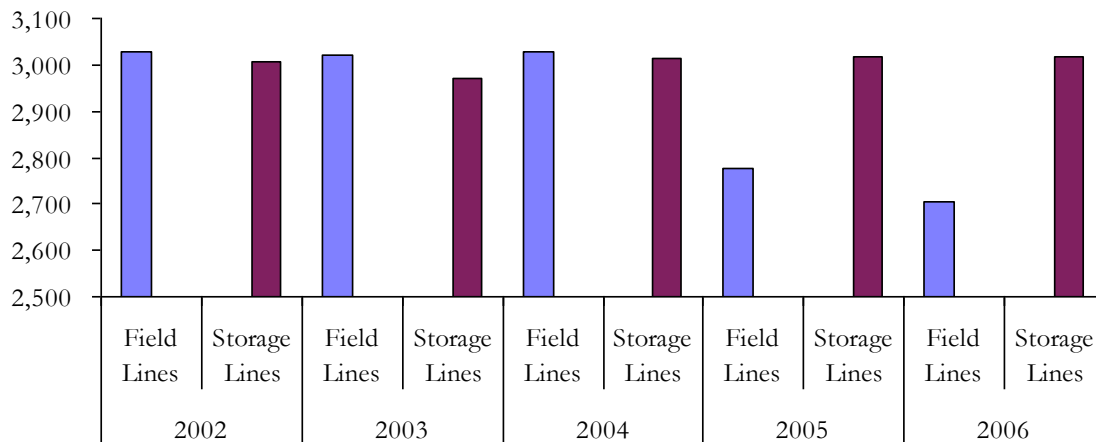
PGW's O&M expenses until 2005 primarily increased due to the increase in natural gas prices; however, PGW's O&M expenses from 2005 to 2006 decreased, due to a change in commodity price, volume, and demand.



Gas Distribution Lines

**Exhibit A-9
Gas Distribution Lines
(Miles)
as of December 31, 2007**

Miles	2002		2003		2004		2005		2006		Compound Growth/Loss 2002-2006	
	Field Lines	Storage Lines	Field Lines	Storage Lines	Field Lines	Storage Lines	Field Lines	Storage Lines	Field Lines	Storage Lines	Field Lines	Storage Lines
2" Or Less		68		70		71		72		73		1.79%
Over 2" thru 4"		788		793		799		804		810		0.69%
Over 4" thru 8"		1,617		1,613		1,609		1,606		1,602		-0.23%
Over 8" thru 12"		237		237		236		236		236		-0.11%
Over 12"		296		298		298		298		298		0.17%
Total Storage Lines (Miles)		3,006		3,011		3,013		3,016		3,019		0.11%
1" or Less	1,500		1,534		1,579		1,575		1,554			0.89%
Over 1" thru 2"	1,488		1,451		1,407		1,163		1,115			-6.96%
Over 2" thru 4"	35		35		36		31		30			-3.78%
Over 4" thru 8"	6		1		7		6		6			0.00%
Over 12"	0		0		0		0		0			0.00%
Total Field Lines (Miles)	3,029		3,021		3,029		2,775		2,705			-2.79%
Meters in Service at End of Year	520,281		515,914		512,654		515,464		517,298			-0.14%



Source: Information Response 46 and Company clarifications to information responses

The reduction in field lines from 2004 to 2006 is the result of a data conversion to an underground facilities database. (The annual PaPUC report requires statistics for field lines (services) and storage lines (mains); see 516. *Gas Lines, Meters and Services* of the PaPUC annual report.)

Performance Ratios

Exhibit A-10 Performance Ratios as of December 31, 2007

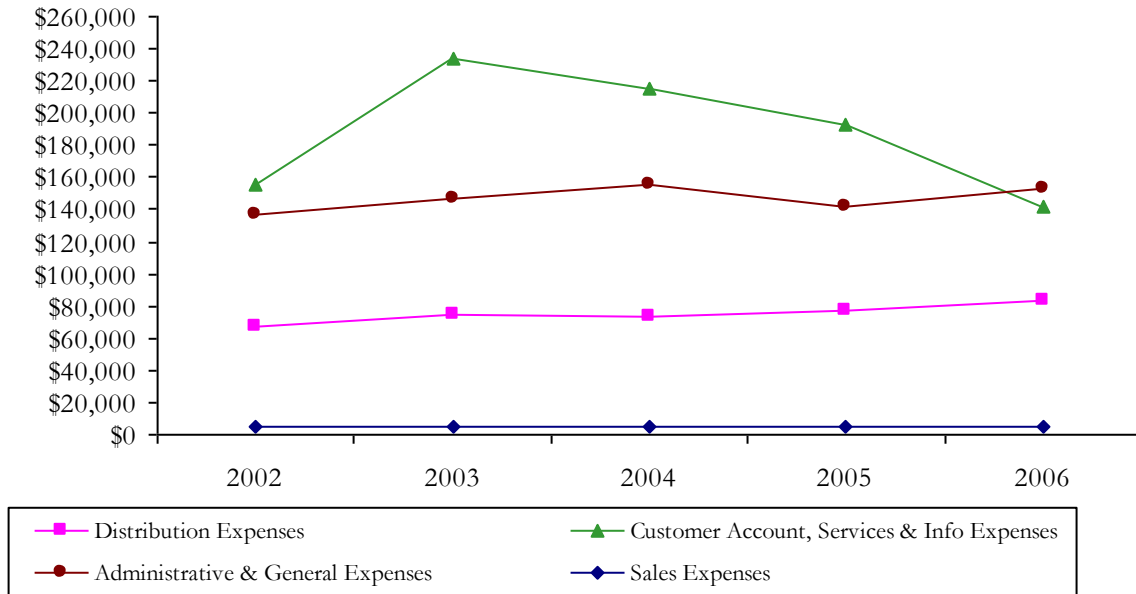
	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Total Distribution Operation Expenses	\$24,118,016	\$24,572,133	\$25,719,398	\$27,498,870	\$31,020,031	6.49%
Total Distribution Maintenance Expenses	\$10,032,580	\$13,374,037	\$11,195,554	\$11,440,260	\$11,556,912	3.60%
Total Customer Service and Information Expenses	\$2,185,042	\$2,237,450	\$2,558,444	\$2,442,482	\$2,622,594	4.67%
Total Customer Account Expenses	\$73,777,203	\$113,350,565	\$103,368,591	\$93,164,548	\$67,476,842	-2.21%
Total Administrative & General Expenses	\$69,752,649	\$74,273,774	\$78,481,285	\$72,330,544	\$77,919,878	2.81%
Total Sales Expenses	\$2,734,000	\$2,782,000	\$2,607,000	\$2,618,000	\$2,409,000	-3.11%
Number of Customers End of Year	507,548	505,963	503,996	508,418	510,024	0.12%
Distribution Expenses per Thousand Customers	\$67,285	\$74,998	\$73,245	\$76,589	\$83,480	5.54%
Customer Account, Services & Information Expenses per Thousand Customers	\$149,665	\$228,452	\$210,174	\$188,048	\$137,443	-2.11%
Administrative & General Expenses per Thousand Customers	\$137,431	\$146,797	\$155,718	\$142,266	\$152,777	2.68%
Sales Expenses per Thousand Customers	\$5,387	\$5,498	\$5,173	\$5,149	\$4,723	-3.23%
Operating Revenues	\$632,589,879	\$804,565,397	\$812,069,480	\$911,586,854	\$895,789,097	9.09%
Operating Revenue (Residential, Commercial, & Industrial)	\$575,292,094	\$747,731,469	\$762,282,155	\$862,326,625	\$833,332,186	9.71%
Distribution Expenses as Percentage of Customer Class Revenue	5.40%	4.72%	4.55%	4.27%	4.75%	-3.13%
Customer Account, Services & Information Expenses as Percentage of Customer Class Revenue	12.01%	14.37%	13.04%	10.49%	7.83%	-10.15%
Administrative & General Expenses as Percentage of Customer Class Revenue	11.03%	9.23%	9.66%	7.93%	8.70%	-5.76%
Sales Expenses as Percentage of Customer Class Revenue	0.43%	0.35%	0.32%	0.29%	0.27%	-11.18%
Total MCF Sold	\$73,542,671	\$74,728,023	\$68,304,079	\$68,818,452	\$59,187,219	-5.28%
Total MCF Sold (Residential, Commercial, & Industrial)	\$58,651,904	\$62,915,600	\$57,059,740	\$56,148,984	\$45,623,336	-6.09%
Distribution Expenses per MCF	\$0.46	\$0.51	\$0.54	\$0.57	\$0.72	11.56%
Customer Account, Services & Information Expenses per MCF	\$1.03	\$1.55	\$1.55	\$1.39	\$1.18	3.48%
Administrative & General Expenses per MCF	\$0.95	\$0.99	\$1.15	\$1.05	\$1.32	8.54%
Sales Expenses per MCF	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	2.29%

Source: Information Response 46 and Company clarifications to information responses



Performance Ratios per One Thousand Customers

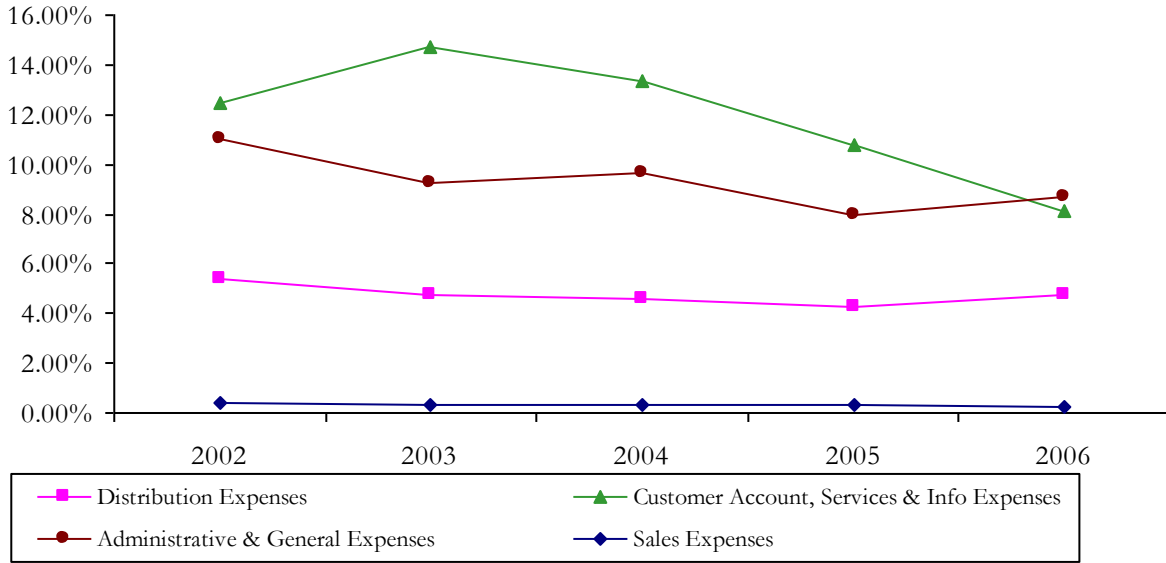
Exhibit A-11
Performance Ratios per One Thousand Customers
as of December 31, 2007



Source: Information Response 46 and Company clarifications to information responses

Performance Ratios as Percentage of Customer Class Revenue

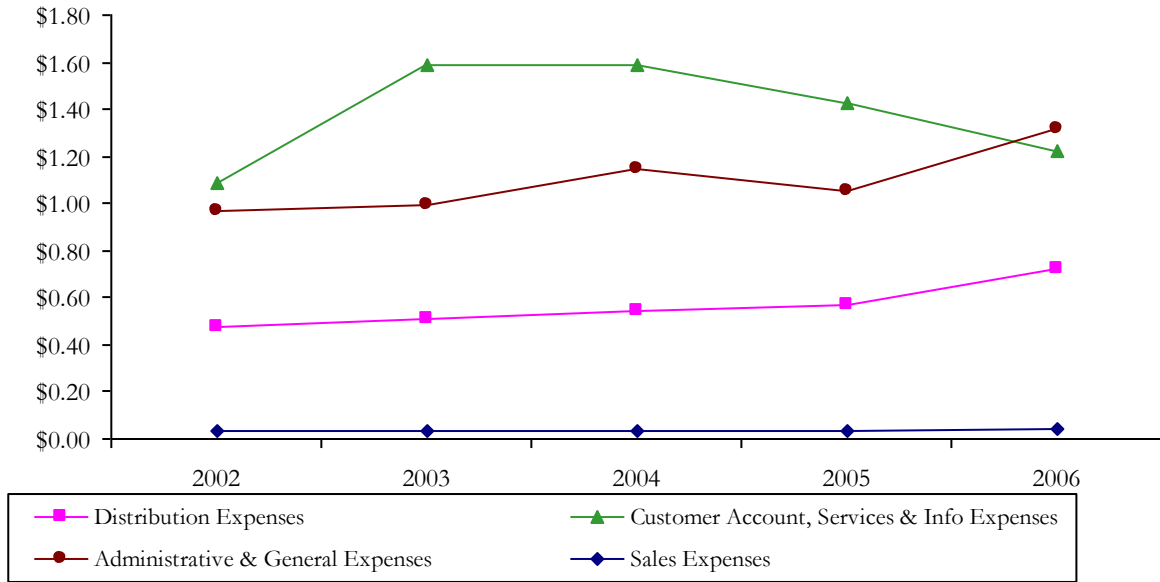
Exhibit A-12
Performance Ratios as Percentage of Customer Class Revenue
as of December 31, 2007



Source: Information Response 46 and Company clarifications to information responses

Performance Ratios per MCF

Exhibit A-13
Performance Ratios per MCF
as of December 31, 2007



Source: Information Response 46 and Company clarifications to information responses

Section 2 – Comparative

This section provides a comparative analysis of PGW to a select group of appropriate gas utilities over a five-year period (2002 to 2006). These comparators include:

- ◆ Columbia Gas of Pennsylvania (CGP)
- ◆ Dominion Peoples (Peoples Natural Gas Company or PNG)
- ◆ Equitable Gas Company (EGC)
- ◆ National Fuel Gas (NFG)
- ◆ PECO Energy Company (PECO)
- ◆ UGI Utilities, Inc. (UGI)

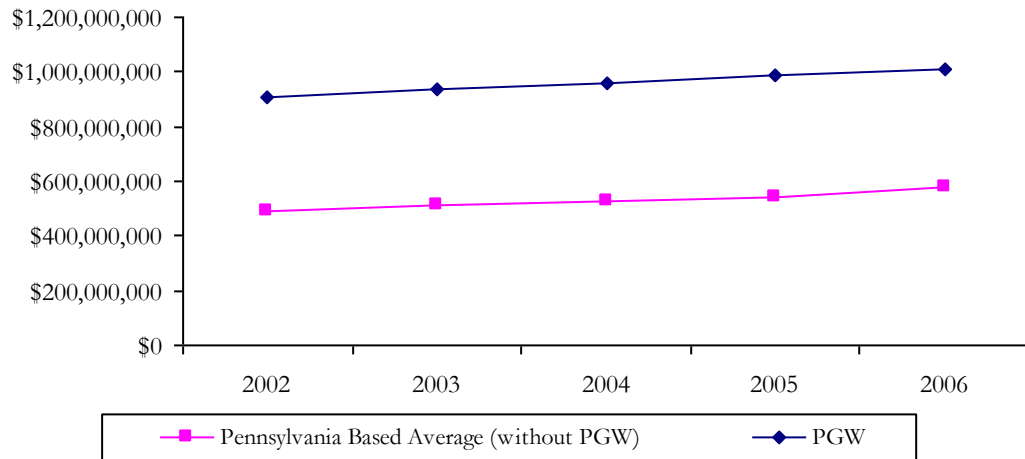
This section of the report uses each firm's Annual Report documents furnished by the PaPUC as its major source of data and presents the following statistics for the years 2002 through 2006.

- ◆ Total net plant in service
- ◆ Gas sales by volume
- ◆ Operating revenue
- ◆ Total number of customers (year-end)
- ◆ Total employees (year-end)
- ◆ Total operation and maintenance expense
- ◆ Performance ratio expense

Total Net Plant in Service

Exhibit A-14
Total Net Gas Plant in Service
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$908,837,612	\$934,144,253	\$959,001,580	\$986,941,636	\$1,013,264,269	2.76%
Columbia Gas of Pennsylvania	\$418,080,979	\$423,615,824	\$432,860,141	\$458,605,364	\$488,099,482	3.95%
Dominion Peoples (PNG)	\$471,251,393	\$488,968,302	\$516,521,722	\$542,754,449	\$620,508,225	7.12%
Equitable Gas Company	\$368,156,626	\$396,949,508	\$410,814,693	\$408,030,430	\$460,377,147	5.75%
National Fuel Gas (NFG)	\$259,105,297	\$267,106,506	\$273,720,099	\$270,623,947	\$278,597,989	1.83%
PECO Energy Company	\$917,043,310	\$966,558,146	\$991,903,030	\$1,010,732,337	\$1,043,281,743	3.28%
UGI Utilities, Inc.	\$513,668,152	\$539,689,447	\$556,658,254	\$569,955,926	\$589,439,329	3.50%
Pennsylvania Based Average (without PGW)	\$491,217,626	\$513,814,622	\$530,412,990	\$543,450,409	\$580,050,653	4.24%



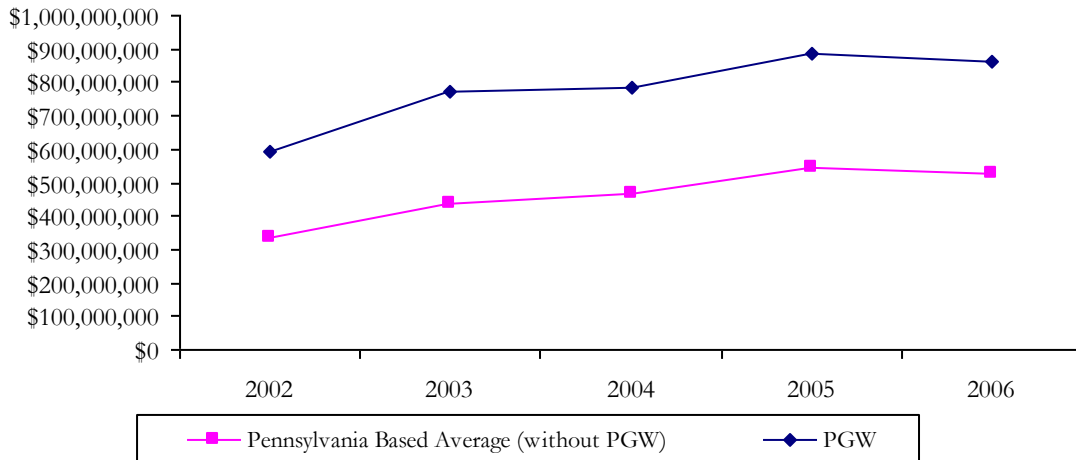
Source: Information Response 46

Operating Revenue

Total operating revenue includes residential, commercial, industrial, and all public classes.

Exhibit A-15
Total Operating Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$593,208,252	\$770,946,853	\$785,720,677	\$888,953,860	\$863,137,916	9.83%
Columbia Gas of Pennsylvania	\$273,051,245	\$443,905,567	\$436,797,172	\$535,649,081	\$537,183,300	18.43%
Dominion Peoples (PNG)	\$306,394,248	\$415,489,031	\$444,056,591	\$529,811,759	\$480,493,386	11.91%
Equitable Gas Company	\$313,916,866	\$392,767,775	\$417,036,963	\$468,242,091	\$440,351,244	8.83%
National Fuel Gas (NFG) - PA Division only	\$234,130,275	\$284,883,811	\$310,133,713	\$357,878,984	\$343,323,706	10.04%
PECO Energy Company	\$509,592,812	\$626,216,090	\$715,430,113	\$796,917,187	\$784,577,893	11.39%
UGI Utilities, Inc.	\$376,018,869	\$462,127,071	\$495,451,498	\$582,728,515	\$577,557,858	11.33%
Pennsylvania Based Average (without PGW)	\$335,517,386	\$437,564,891	\$469,817,675	\$545,204,603	\$527,247,898	11.96%



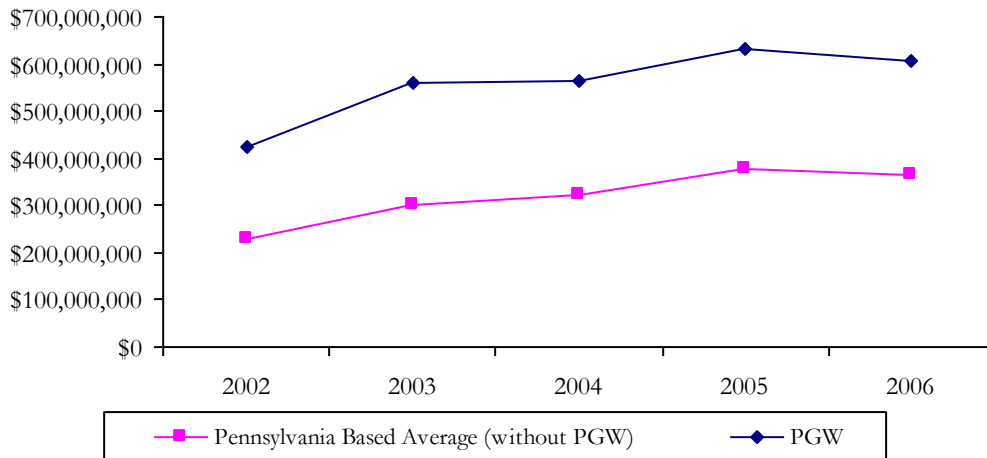
Source: Information Response 46



Residential Revenue

**Exhibit A-16
Residential Revenue
as of December 31, 2007**

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$424,870,501	\$560,691,139	\$563,848,119	\$633,820,198	\$608,286,662	9.39%
Columbia Gas of Pennsylvania	\$188,343,042	\$308,278,803	\$309,317,695	\$386,013,282	\$389,323,207	19.91%
Dominion Peoples (PNG)	\$228,953,538	\$306,755,390	\$328,377,370	\$390,600,152	\$357,215,892	11.76%
Equitable Gas Company	\$237,822,027	\$300,721,518	\$320,030,141	\$362,965,375	\$338,106,218	9.19%
National Fuel Gas (NFG) - PA Division only	\$185,174,392	\$228,935,688	\$249,573,501	\$287,462,455	\$276,407,583	10.53%
PECO Energy Company	\$331,986,974	\$410,733,877	\$469,724,889	\$526,993,564	\$509,569,867	11.31%
UGI Utilities, Inc.	\$195,246,202	\$247,784,477	\$266,851,756	\$315,190,041	\$311,835,563	12.42%
Pennsylvania Based Average (without PGW)	\$227,921,029	\$300,534,959	\$323,979,225	\$378,204,145	\$363,743,055	12.40%

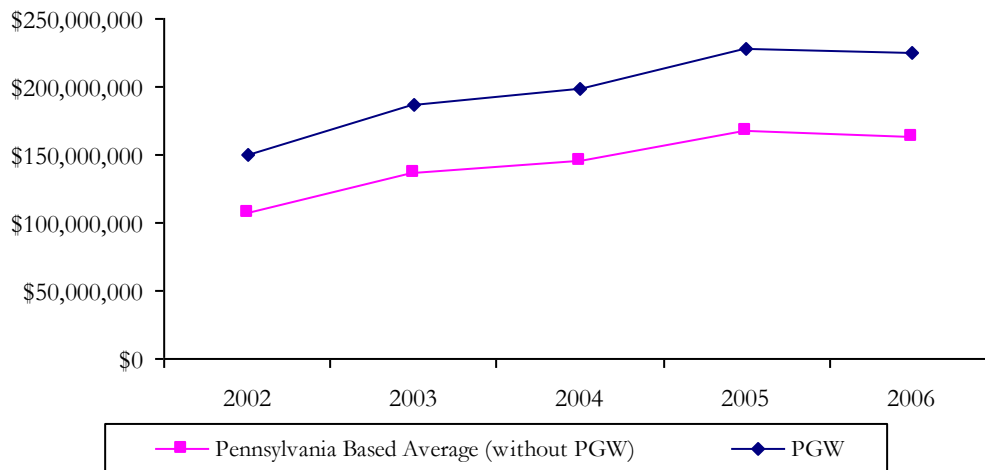


Source: Information Response 46

Commercial and Industrial Revenue

Exhibit A-17
Commercial and Industrial Revenue
as of December 31, 2007

Commercial & Industrial Revenue	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$150,421,593	\$187,040,329	\$198,434,036	\$228,506,427	\$225,045,524	10.60%
Columbia Gas of Pennsylvania	\$84,708,203	\$135,626,764	\$127,479,477	\$149,635,799	\$147,860,093	14.94%
Dominion Peoples (PNG)	\$77,440,710	\$108,733,641	\$115,679,221	\$139,211,607	\$123,277,494	12.33%
Equitable Gas Company	\$76,094,839	\$92,046,257	\$97,006,822	\$105,276,716	\$102,245,026	7.66%
National Fuel Gas (NFG) - PA Division only	\$48,955,883	\$55,948,123	\$60,560,212	\$70,416,529	\$66,916,123	8.13%
PECO Energy Company	\$177,605,838	\$215,482,213	\$245,705,224	\$269,923,623	\$275,008,026	11.55%
UGI Utilities, Inc.	\$180,772,667	\$214,342,594	\$228,599,742	\$267,538,474	\$265,722,295	10.11%
Pennsylvania Based Average (without PGW)	\$107,596,357	\$137,029,932	\$145,838,450	\$167,000,458	\$163,504,843	11.03%



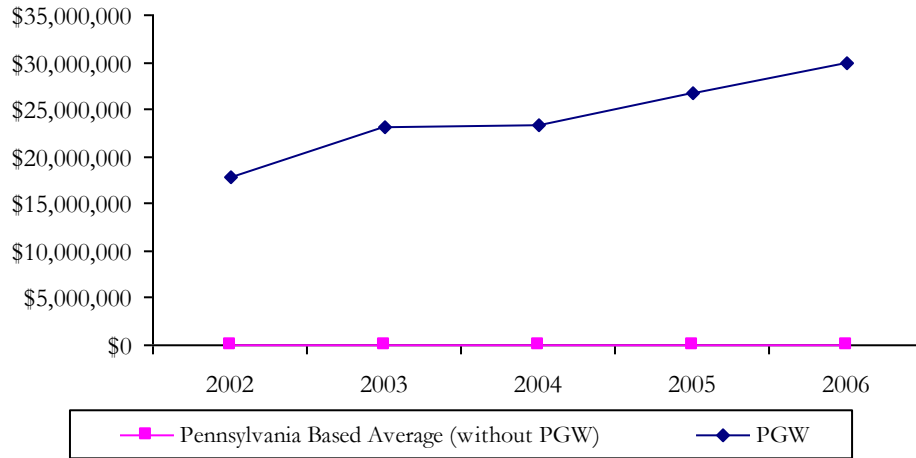
Source: Information Response 46



PHA plus Municipal Revenue

**Exhibit A-18
PHA + Municipal Revenue
as of December 31, 2007**

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$17,916,158	\$23,215,385	\$23,438,522	\$26,627,235	\$29,805,730	13.57%
Columbia Gas of Pennsylvania	\$0	\$0	\$0	\$0	\$0	0.00%
Dominion Peoples (PNG)	\$0	\$0	\$0	\$0	\$0	0.00%
Equitable Gas Company	\$0	\$0	\$0	\$0	\$0	0.00%
National Fuel Gas (NFG) - PA Division only	\$0	\$0	\$0	\$0	\$0	0.00%
PECO Energy Company	\$0	\$0	\$0	\$0	\$0	0.00%
UGI Utilities, Inc.	\$0	\$0	\$0	\$0	\$0	0.00%
Pennsylvania Based Average (without PGW)	\$0	\$0	\$0	\$0	\$0	0.00%



Source: Information Response 46

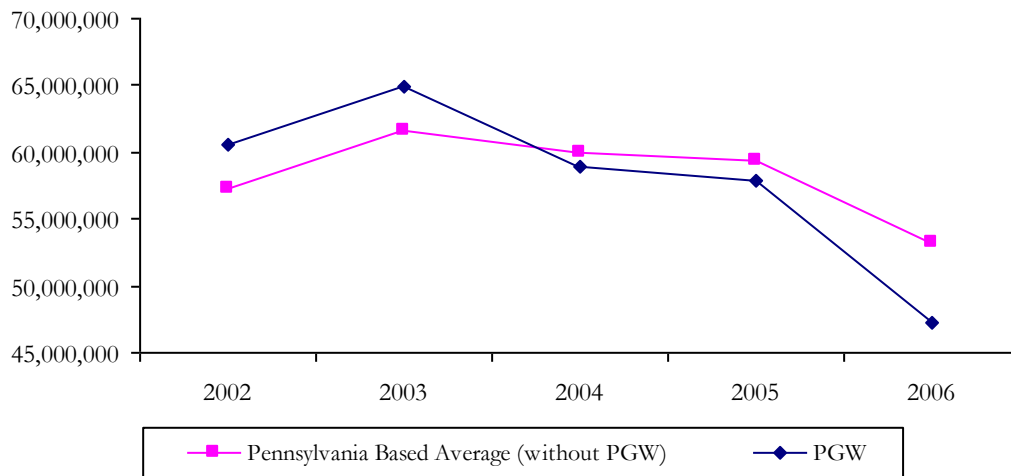
The PGW increase from 2002 to 2003 was due to the base rate increase in 2003. From 2003 through 2006, a steady increase in the natural gas component of the gas cost recovery (GCR) caused the increasing trend.

Gas Sales by Volume

Total gas sales by volume include residential, commercial, industrial, and all public sales.

Exhibit A-19
Total Residential, Commercial, Industrial, and Public Gas Sales by Volume
(MCF)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	60,511,463	64,967,600	58,854,660	57,823,640	47,207,704	-6.02%
Columbia Gas of Pennsylvania	35,118,778	41,532,153	38,902,787	39,894,915	35,992,391	0.62%
Dominion Peoples (PNG)	66,815,911	71,687,884	69,620,940	70,380,959	62,951,159	-1.48%
Equitable Gas Company	53,980,178	56,046,633	55,117,345	50,047,601	44,855,050	-4.52%
National Fuel Gas (NFG) - PA Division only	27,648,393	28,412,340	26,818,356	25,756,924	21,700,537	-5.88%
PECO Energy Company	85,540,805	88,261,119	87,099,467	85,065,178	76,103,118	-2.88%
UGI Utilities, Inc.	74,407,097	83,806,979	81,871,094	84,642,881	78,198,792	1.25%
Pennsylvania Based Average (without PGW)	57,251,860	61,624,518	59,904,998	59,298,076	53,300,175	-1.77%

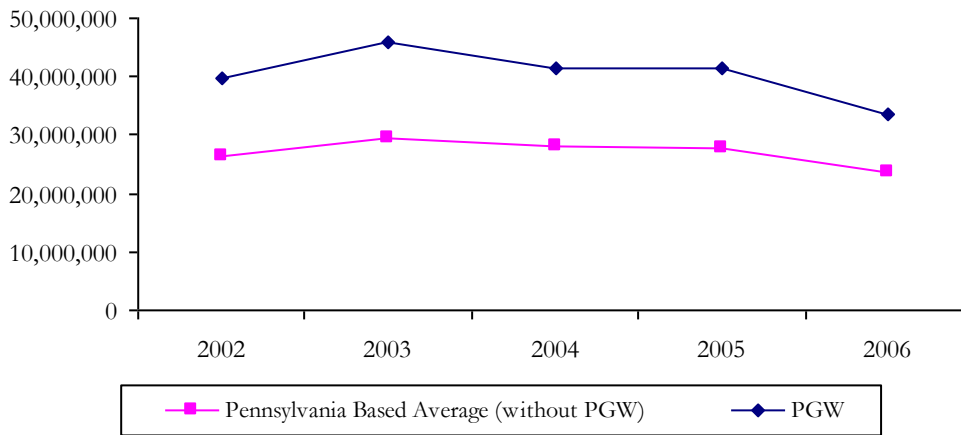


Source: Information Response 46

Residential Gas Sold

Exhibit A-20
Residential Gas Sold
(MCF)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	39,870,199	45,984,403	41,525,918	41,281,157	33,425,538	-4.31%
Columbia Gas of Pennsylvania	23,548,290	28,091,342	26,560,056	27,832,998	25,140,744	1.65%
Dominion Peoples (PNGy)	34,105,258	36,319,955	33,770,320	33,210,577	27,967,069	-4.84%
Equitable Gas Company	24,346,037	27,262,156	25,520,369	24,679,902	21,013,964	-3.61%
National Fuel Gas (NFG) - PA Division only	21,531,077	22,822,952	21,492,181	20,564,375	17,342,510	-5.26%
PECO Energy Company	35,621,278	40,560,140	39,216,302	39,042,315	32,443,973	-2.31%
UGI Utilities, Inc.	18,637,515	22,030,844	21,024,268	21,392,386	17,959,868	-0.92%
Pennsylvania Based Average (without PGW)	26,298,243	29,514,565	27,930,583	27,787,092	23,644,688	-2.62%

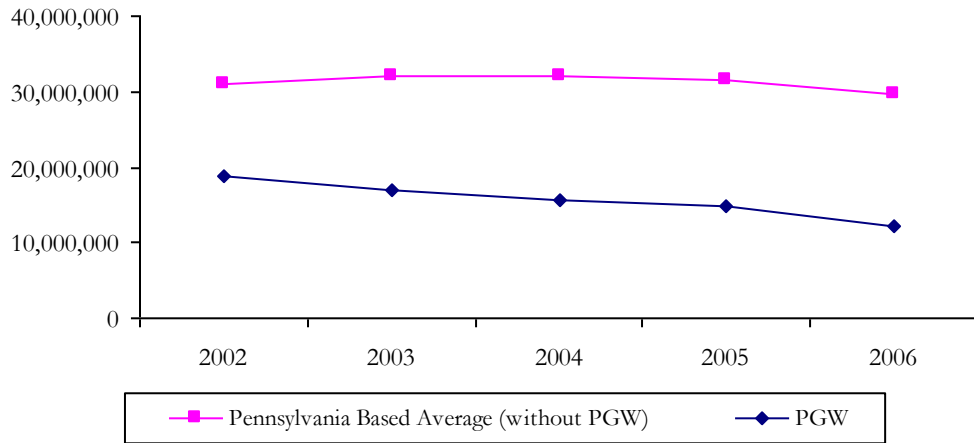


Source: Information Response 46

Commercial and Industrial Gas Sold

**Exhibit A-21
Commercial and Industrial Gas Sold
(MCF)
as of December 31, 2007**

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	18,781,705	16,931,197	15,533,822	14,867,827	12,197,798	-10.23%
Columbia Gas of Pennsylvania	11,570,488	13,440,811	12,342,731	12,061,917	10,851,647	-1.59%
Dominion Peoples (PNG)	32,710,653	35,367,929	35,850,620	37,170,382	34,984,090	1.69%
Equitable Gas Company	29,634,141	28,784,477	29,596,976	25,367,699	23,841,086	-5.29%
National Fuel Gas (NFG) - PA Division only	6,117,316	5,589,388	5,326,175	5,192,549	4,358,027	-8.13%
PECO Energy Company	49,919,527	47,700,979	47,883,165	46,022,863	43,659,145	-3.29%
UGI Utilities, Inc.	55,769,582	61,776,135	60,846,826	63,250,495	60,238,924	1.95%
Pennsylvania Based Average (without PGW)	30,953,618	32,109,953	31,974,416	31,510,984	29,655,487	-1.07%



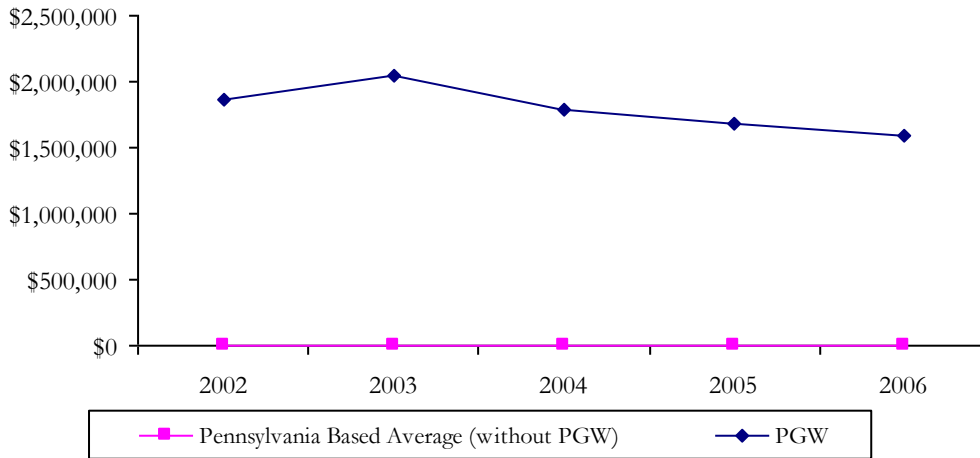
Source: Information Response 46

The drop off in commercial and industrial gas sold by PGW is primarily due to the migration of commercial and industrial customers converting to gas transportation service (GTS). At the same time interruptible transportation sales increased from a volume of 146,000 MCF in 2002 to a volume of 4,142,000 MCF in 2006.

PHA plus Municipal Gas Sold

Exhibit A-22
PHA + Municipal Gas Sold
(MCF)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	1,859,559	2,052,000	1,794,920	1,674,656	1,584,368	-3.92%
Columbia Gas of Pennsylvania	\$0	\$0	\$0	\$0	\$0	0.00%
Dominion Peoples (PNG)	\$0	\$0	\$0	\$0	\$0	0.00%
Equitable Gas Company	\$0	\$0	\$0	\$0	\$0	0.00%
National Fuel Gas (NFG) - PA Division only	\$0	\$0	\$0	\$0	\$0	0.00%
PECO Energy Company	\$0	\$0	\$0	\$0	\$0	0.00%
UGI Utilities, Inc.	\$0	\$0	\$0	\$0	\$0	0.00%
Pennsylvania Based Average (without PGW)	\$0	\$0	\$0	\$0	\$0	0.00%

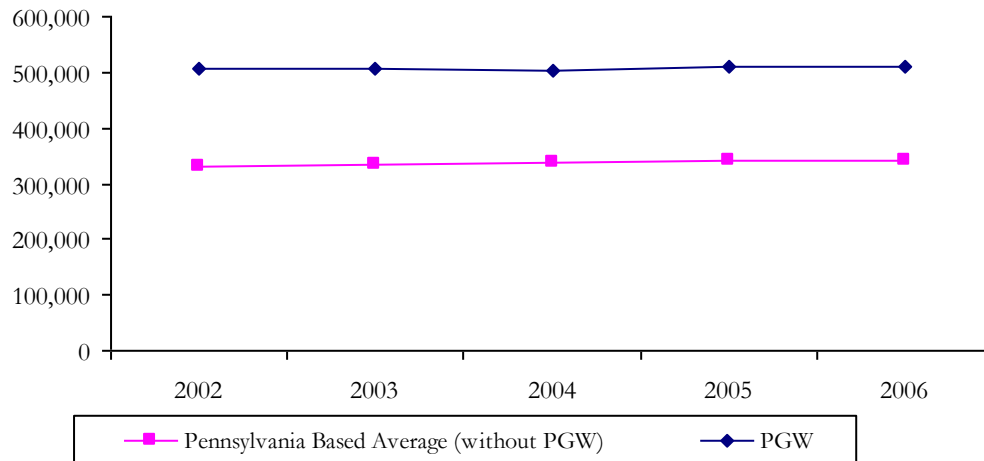


Source: Information Response 46 and Company clarifications to information responses (2002 adjusted as municipal heating and non-heating were not included in the 2002 PaPUC annual report).

Total Number of Customers (Year-End)

Exhibit A-23
Total Number of Customers (Year-End)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	507,548	505,963	503,996	508,418	509,888	0.12%
Columbia Gas of Pennsylvania	398,953	401,882	404,764	406,996	410,165	0.70%
Dominion Peoples (PNG)	355,948	356,434	357,253	357,218	357,669	0.12%
Equitable Gas Company	274,996	274,439	276,329	274,412	273,963	-0.09%
National Fuel Gas (NFG) - PA Division only	216,072	215,733	215,505	213,370	211,482	-0.54%
PECO Energy Company	449,107	456,724	464,617	471,972	475,541	1.44%
UGI Utilities, Inc.	291,609	299,271	308,038	314,693	321,385	2.46%
Pennsylvania Based Average (without PGW)	331,114	334,081	337,751	339,777	341,701	0.79%

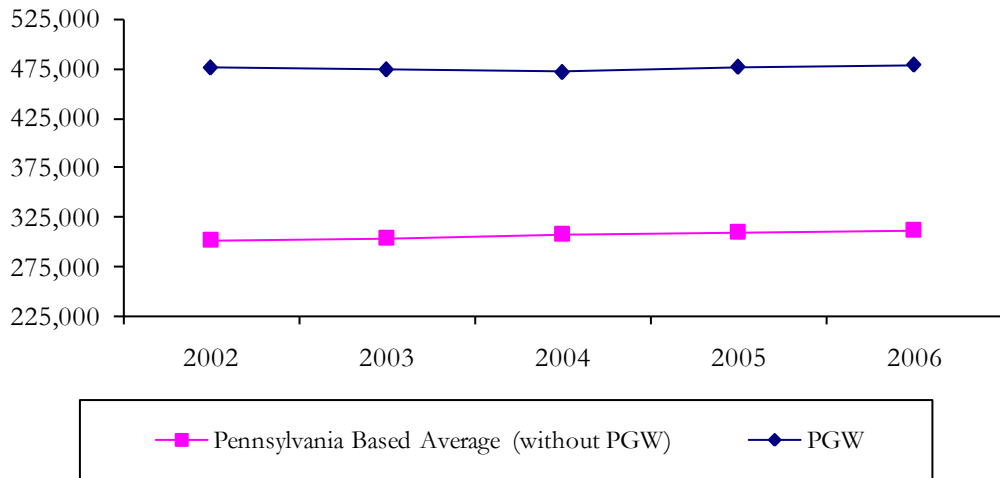


Source: Information Response 46

Residential Number of Customers (Year-End)

Exhibit A-24
Residential Number of Customers (Year-End)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	475,860	474,117	471,672	476,553	478,530	3.95%
Columbia Gas of Pennsylvania	359,440	362,561	365,772	368,238	371,692	0.84%
Dominion Peoples (PNG)	326,683	326,984	327,867	328,034	328,684	0.15%
Equitable Gas Company	256,073	255,568	257,375	255,648	255,428	-0.06%
National Fuel Gas (NFG) - PA Division only	199,668	199,417	199,147	198,198	196,520	-0.40%
PECO Energy Company	409,906	416,568	423,858	430,753	434,119	1.45%
UGI Utilities, Inc.	260,791	268,206	275,991	281,907	288,103	2.52%
Pennsylvania Based Average (without PGW)	302,094	304,884	308,335	310,463	312,424	0.84%

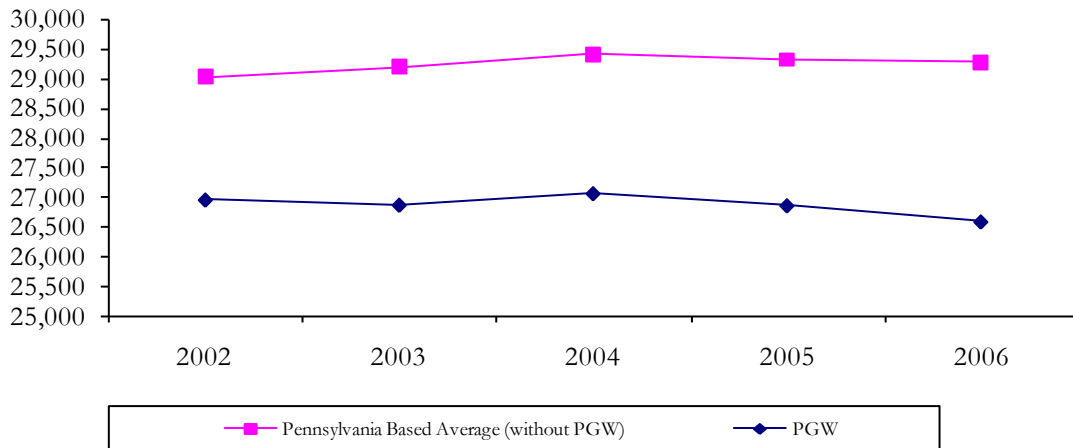


Source: Information Response 46

Commercial and Industrial Number of Customers (Year-End)

Exhibit A-25
Commercial and Industrial Number of Customers (Year-End)
 as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	26,946	26,861	27,051	26,851	26,585	-0.34%
Columbia Gas of Pennsylvania	39,513	39,321	38,992	38,758	38,473	-0.66%
Dominion Peoples (PNG)	29,265	29,450	29,386	29,184	28,985	-0.24%
Equitable Gas Company	18,923	18,871	18,954	18,764	18,535	-0.52%
National Fuel Gas (NFG) - PA Division only	16,404	16,316	16,358	15,172	14,962	-2.27%
PECO Energy Company	39,201	40,156	40,759	41,219	41,422	1.39%
UGI Utilities, Inc.	30,818	31,065	32,047	32,786	33,282	1.94%
Pennsylvania Based Average (without PGW)	29,021	29,197	29,416	29,314	29,277	0.22%



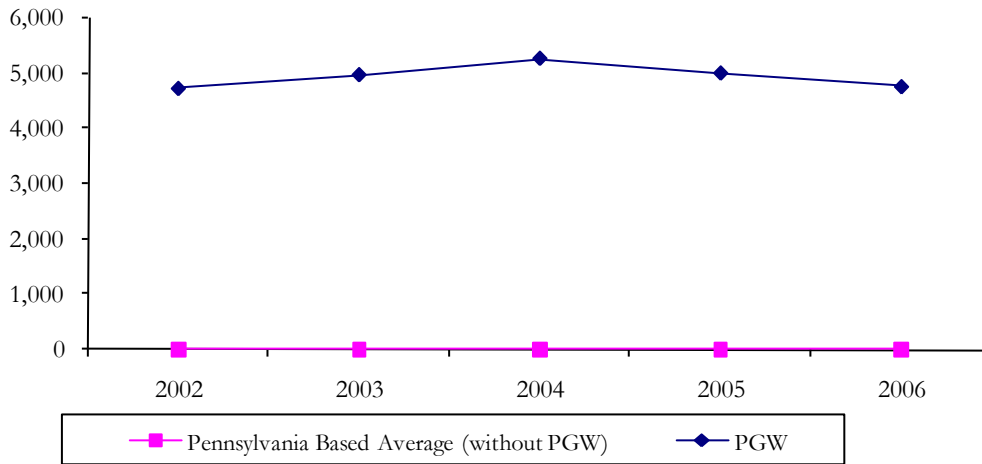
Source: Information Response 46



PHA plus Municipal Number of Customers (Year-End)

Exhibit A-26
 PHA + Municipal Number of Customers (Year-End)
 as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	4,742	4,985	5,273	5,014	4,773	0.16%
Columbia Gas of Pennsylvania	0	0	0	0	0	0.00%
Dominion Peoples (PNG)	0	0	0	0	0	0.00%
Equitable Gas Company	0	0	0	0	0	0.00%
National Fuel Gas (NFG) - PA Division only	0	0	0	0	0	0.00%
PECO Energy Company	0	0	0	0	0	0.00%
UGI Utilities, Inc.	0	0	0	0	0	0.00%
Pennsylvania Based Average (without PGW)	0	0	0	0	0	0.00%



Source: Information Response 46

Total Employees (Year-End)

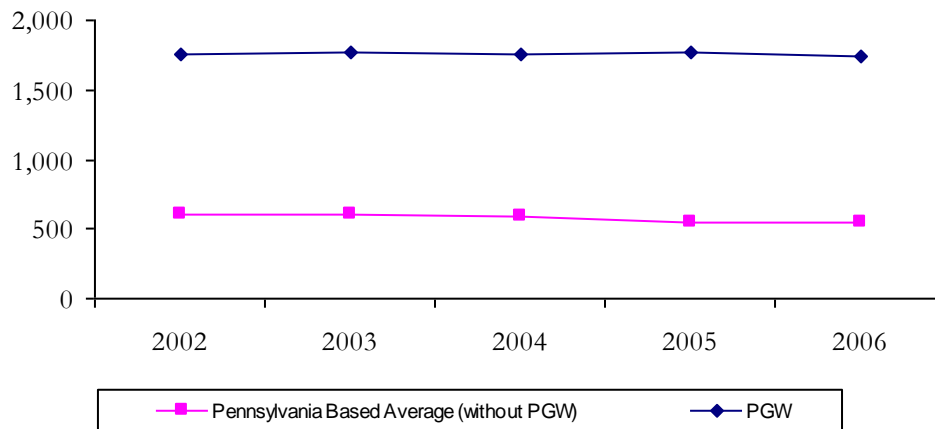
The counts in *Exhibit A-27* represent end-of-year totals and include active, full-time and part-time employees.

Exhibit A-27
Total Number of Employees (Year-End)
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	1,759	1,763	1,762	1,768	1,738	-0.30%
Columbia Gas of Pennsylvania	621	628	637	477	474	-6.53%
Dominion Peoples (PNG)	627	597	555	568	487	-6.12%
Equitable Gas Company	521	484	486	459	444	-3.92%
National Fuel Gas (NFG) - PA Div. (includes transportation)	351	359	330	324	343	-0.57%
PECO Energy Company ¹	2,821	2,536	2,421	539	553	N/A
UGI Utilities, Inc.	922	953	928	911	967	1.20%
Pennsylvania Based Average (without PGW)	608	604	587	546	545	-2.73%

¹ 2002-2004: These counts represent end-of-year totals for electric and gas operations and include active, full-time and part-time employees (i.e., field forces and field staff and PECO non-field forces - excluding temporary employees) and a high level allocated share of shared services employees (i.e., Corporate, BSC transactional, and EDSS). These numbers have not been included in the Pennsylvania Based Average.

2005-2006: These counts represent end-of-year totals for employees in gas operations and allocation of the employees in support functions. These numbers have been included in the Pennsylvania Based Average.



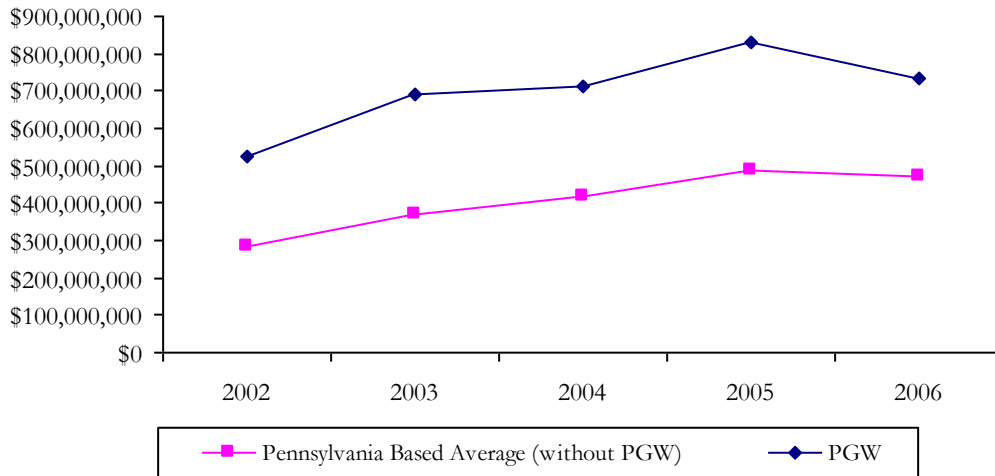
Source: Information Response 46



Total Operation and Maintenance Expense

Exhibit A-28
Total Operation & Maintenance Expense
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss 2002-2006
Philadelphia Gas Works (PGW)	\$524,045,234	\$692,308,761	\$711,258,908	\$827,681,071	\$735,223,573	8.83%
Columbia Gas of Pennsylvania	\$307,393,969	\$440,515,552	\$463,957,888	\$575,032,116	\$516,255,320	13.84%
Dominion Peoples (PNG)	\$199,059,169	\$316,785,957	\$353,659,878	\$442,161,530	\$414,673,657	20.14%
Equitable Gas Company	\$265,317,191	\$312,470,154	\$360,926,466	\$413,375,571	\$386,750,791	9.88%
National Fuel Gas (NFG) - PA Division only	\$207,857,906	\$270,429,422	\$296,087,070	\$341,464,295	\$326,961,282	11.99%
PECO Energy Company	\$430,292,908	\$514,456,493	\$620,318,955	\$691,246,900	\$698,256,507	12.87%
UGI Utilities, Inc.	\$278,287,230	\$356,933,357	\$397,815,478	\$474,160,501	\$479,933,110	14.60%
Pennsylvania Based Average (without PGW)	\$281,368,062	\$368,598,489	\$415,460,956	\$489,573,486	\$470,471,778	13.71%



Source: Information Response 46 and Company clarifications to information responses

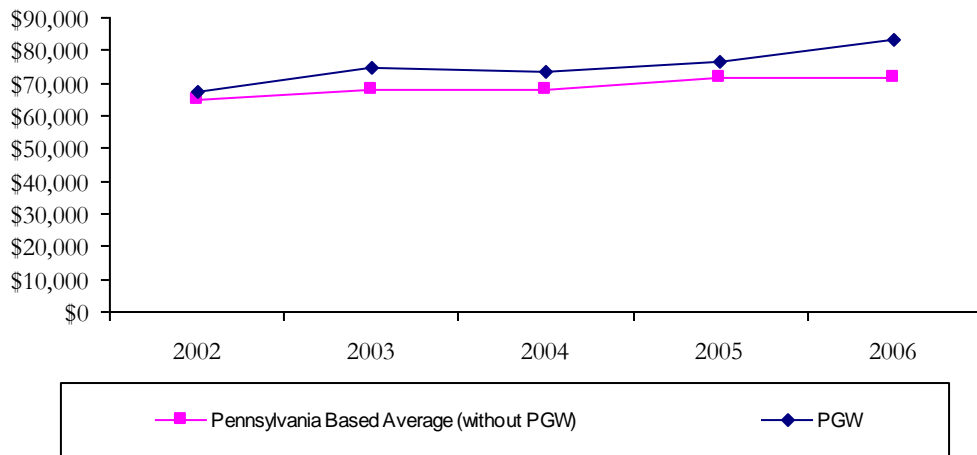
Exhibit Performance Ratio Expense

Distribution Expenses per One Thousand Customers

Exhibit A-29
Distribution Expenses per One Thousand Customers
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$67,287	\$74,998	\$73,245	\$76,589	\$83,503	5.55%
Columbia Gas of Pennsylvania	\$62,117	\$66,773	\$68,876	\$69,627	\$72,946	4.10%
Dominion Peoples (PNG)	\$62,109	\$68,737	\$77,653	\$79,936	\$77,904	5.83%
Equitable Gas Company	\$79,349	\$85,323	\$85,114	\$93,383	\$91,308	3.57%
National Fuel Gas (NFG) - PA Division only	\$55,071	\$55,215	\$57,824	\$61,595	\$58,577	1.55%
PECO Energy Company	\$67,448	\$61,272	\$56,377	\$66,206	\$68,765	0.48%
UGI Utilities, Inc.	\$61,845	\$71,209	\$63,186	\$60,682	\$59,077	-1.14%
Pennsylvania Based Average (without PGW)	\$64,657	\$68,088	\$68,172	\$71,905	\$71,429	2.52%

Note: Customers include all metered customers



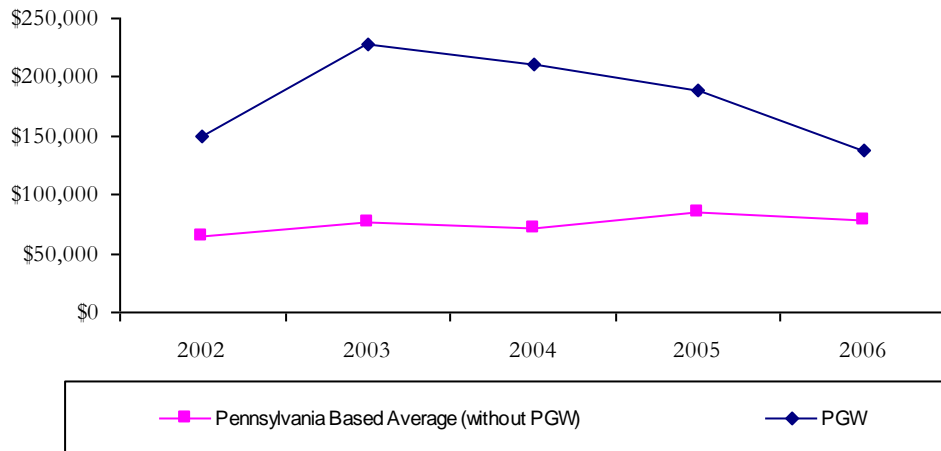
Source: Information Response 46 and Company clarifications to information responses

Customer Account, Services & Information Expenses per One Thousand Customers

Exhibit A-30
Customer Account, Services & Information Expenses per One Thousand Customers
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$149,665	\$228,452	\$210,174	\$188,048	\$137,480	-2.10%
Columbia Gas of Pennsylvania	\$65,303	\$103,434	\$74,896	\$102,415	\$96,092	10.14%
Dominion Peoples (PNG)	\$50,105	\$53,852	\$64,510	\$70,028	\$62,657	5.75%
Equitable Gas Company	\$76,569	\$95,999	\$84,353	\$93,946	\$68,584	-2.72%
National Fuel Gas (NFG) - PA Division only	\$78,235	\$75,593	\$84,674	\$121,372	\$108,980	8.64%
PECO Energy Company	\$43,015	\$46,070	\$41,052	\$46,453	\$53,759	5.73%
UGI Utilities, Inc.	\$73,173	\$81,093	\$79,164	\$79,591	\$78,893	1.90%
Pennsylvania Based Average (without PGW)	\$64,400	\$76,007	\$71,441	\$85,634	\$78,161	4.96%

Note: Customers include all metered customers



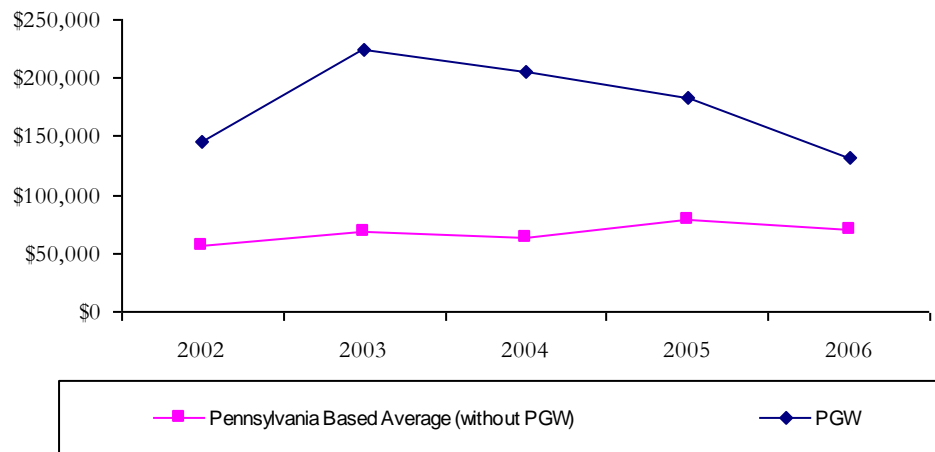
Source: Information Response 46 and Company clarifications to information responses

Customer Account Expenses per One Thousand Customers

**Exhibit A-31
Customer Account Expenses per One Thousand Customers
as of December 31, 2007**

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$145,360	\$224,029	\$205,098	\$183,244	\$132,337	-2.32%
Columbia Gas of Pennsylvania	\$59,602	\$98,882	\$70,326	\$98,006	\$91,569	11.33%
Dominion Peoples (TPNG)	\$41,904	\$47,842	\$58,983	\$66,185	\$59,793	9.29%
Equitable Gas Company	\$71,671	\$92,242	\$80,080	\$89,324	\$64,116	-2.75%
National Fuel Gas (NFG) - PA Division only	\$60,732	\$56,222	\$65,396	\$100,044	\$87,629	9.60%
PECO Energy Company	\$42,530	\$45,704	\$40,806	\$46,037	\$50,401	4.34%
UGI Utilities, Inc.	\$62,843	\$70,639	\$68,882	\$70,649	\$69,224	2.45%
Pennsylvania Based Average (without PGW)	\$56,547	\$68,589	\$64,079	\$78,374	\$70,455	5.65%

Note: Customers include all metered customers



Source: Information Response 46 and Company clarifications to information responses

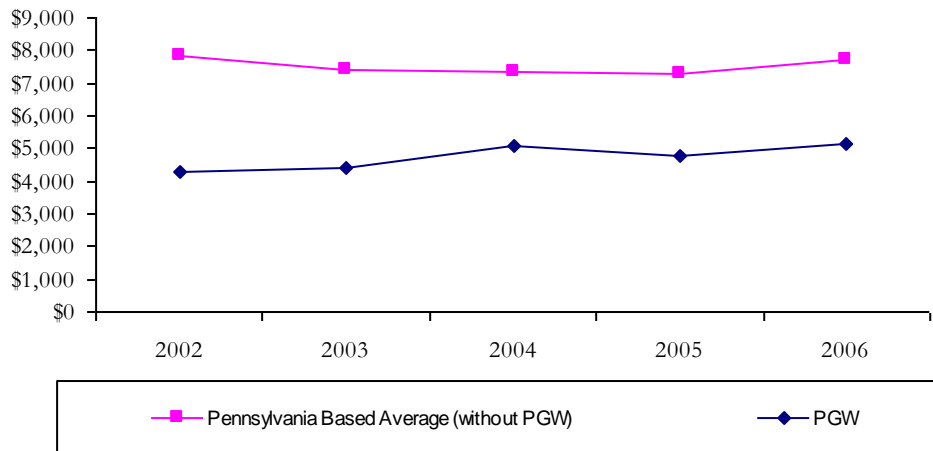
PGW was unable to identify why it compares unfavorably to other panel companies as it has not performed an assessment to compare PGW to the other utilities noted; however, *Chapter VIII – Customer Service* provides findings, conclusions, and recommendations regarding PGW’s operations in this area.

Customer Service and Information Expenses per One Thousand Customers

Exhibit A-32
Customer Service and Information Expenses per One Thousand Customers
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$4,305	\$4,422	\$5,076	\$4,804	\$5,143	4.55%
Columbia Gas of Pennsylvania	\$5,701	\$4,552	\$4,570	\$4,409	\$4,523	-5.62%
Dominion Peoples (PNG)	\$8,201	\$6,010	\$5,527	\$3,843	\$2,863	-23.13%
Equitable Gas Company	\$4,897	\$3,757	\$4,273	\$4,623	\$4,468	-2.27%
National Fuel Gas (NFG) - PA Division only	\$17,503	\$19,371	\$19,277	\$21,327	\$21,351	5.09%
PECO Energy Company	\$485	\$366	\$247	\$416	\$3,358	62.21%
UGI Utilities, Inc.	\$10,330	\$10,454	\$10,281	\$8,942	\$9,668	-1.64%
Pennsylvania Based Average (without PGW)	\$7,853	\$7,418	\$7,362	\$7,260	\$7,705	-0.47%

Note: Customers include all metered customers



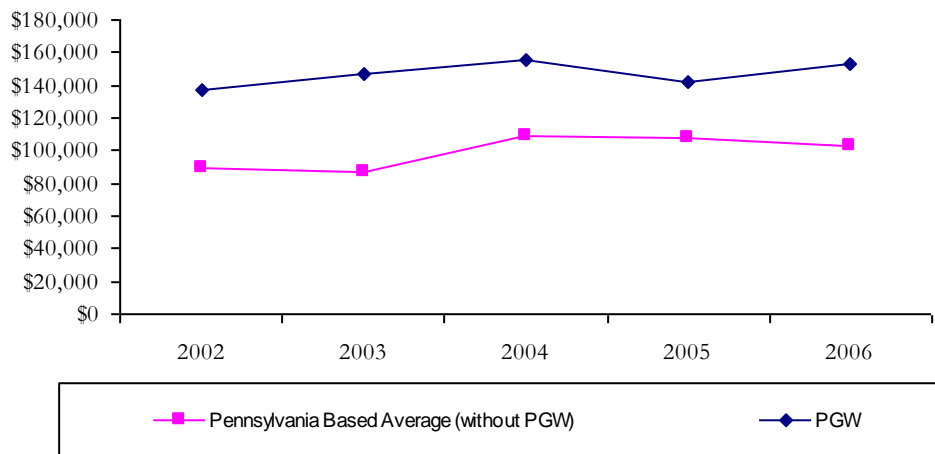
Source: Information Response 46

Administrative & General Expenses per One Thousand Customers

Exhibit A-33
Administrative & General Expenses per One Thousand Customers
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$137,431	\$146,797	\$155,718	\$142,266	\$152,818	2.69%
Columbia Gas of Pennsylvania	\$99,058	\$88,954	\$93,856	\$117,477	\$110,944	2.87%
Dominion Peoples (PNG)	\$33,520	\$53,023	\$47,912	\$47,163	\$43,180	6.54%
Equitable Gas Company	\$165,837	\$106,503	\$167,885	\$161,841	\$140,240	-4.10%
National Fuel Gas (NFG) - PA Division only	\$82,457	\$84,443	\$132,521	\$124,295	\$124,416	10.83%
PECO Energy Company	\$55,313	\$80,990	\$86,093	\$73,803	\$75,287	8.01%
UGI Utilities, Inc.	\$96,526	\$107,765	\$122,410	\$118,427	\$125,535	6.79%
Pennsylvania Based Average (without PGW)	\$88,785	\$86,946	\$108,446	\$107,168	\$103,267	3.85%

Note: Customers include all metered customers



Source: Information Response 46 and Company clarifications to information responses

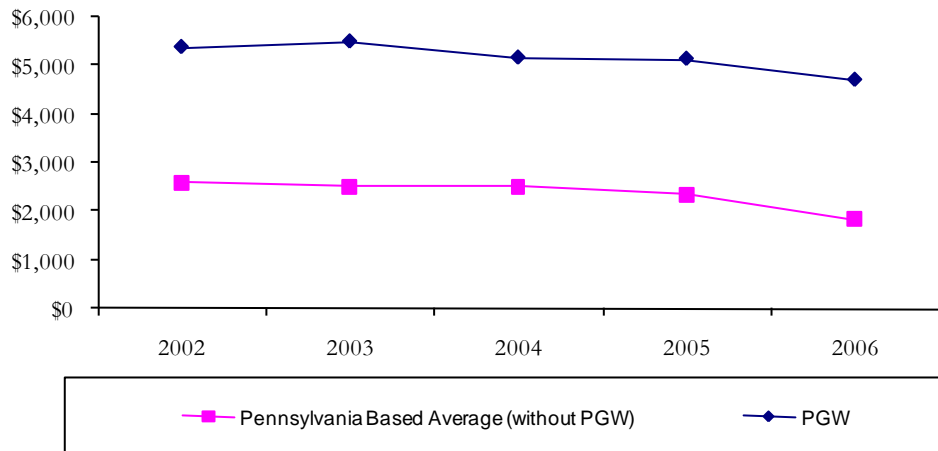
PGW was unable to identify why it compares unfavorably to other panel companies as it has not performed an assessment to compare PGW to the other utilities noted; however, *Chapter II – Executive Management & Human Resources*, *Chapter III – Support Services*, and *Chapter V – Financial Management*, which provide findings, conclusions, and recommendations regarding PGW’s operations in these areas.

Sales Expenses per One Thousand Customers

Exhibit A-34
Sales Expenses per One Thousand Customers
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$5,386	\$5,498	\$5,173	\$5,148	\$4,723	-3.23%
Columbia Gas of Pennsylvania	\$645	\$2	\$0	\$0	\$0	-100.00%
Dominion Peoples (PNG)	\$2,217	\$2,380	\$2,604	\$2,385	\$1,335	-11.92%
Equitable Gas Company	\$3,402	\$4,673	\$4,489	\$4,014	\$3,289	-0.84%
National Fuel Gas (NFG) - PA Division only	\$856	\$796	\$792	\$797	\$696	-5.03%
PECO Energy Company	\$5,047	\$3,868	\$3,305	\$3,082	\$2,043	-20.23%
UGI Utilities, Inc.	\$3,461	\$3,355	\$3,871	\$3,786	\$3,617	1.11%
Pennsylvania Based Average (without PGW)	\$2,605	\$2,512	\$2,510	\$2,344	\$1,830	-8.45%

Note: Customers include all metered customers



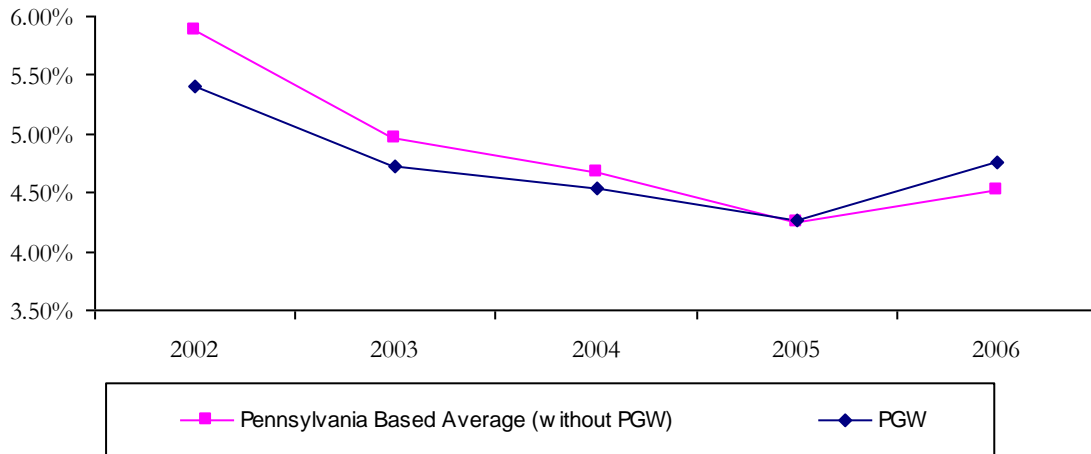
Source: Information Response 46 and Company clarifications to information responses

Distribution Expenses as Percentage of Customer Class Revenue

Exhibit A-35
Distribution Expenses as Percentage of Customer Class Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	5.40%	4.72%	4.55%	4.27%	4.75%	-3.13%
Columbia Gas of Pennsylvania	6.31%	5.09%	5.06%	4.35%	5.20%	-4.72%
Dominion Peoples (PNG)	7.03%	5.62%	6.00%	5.18%	5.51%	-5.91%
Equitable Gas Company	6.59%	5.91%	5.59%	5.44%	5.62%	-3.90%
National Fuel Gas (NFG) - PA Division only	5.08%	4.18%	4.02%	3.43%	3.43%	-9.35%
PECO Energy Company	5.49%	4.35%	3.51%	3.83%	4.11%	-6.98%
UGI Utilities, Inc.	4.76%	4.58%	3.89%	3.26%	3.27%	-8.96%
Pennsylvania Based Average (without PGW)	5.88%	4.96%	4.68%	4.25%	4.52%	-6.33%

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



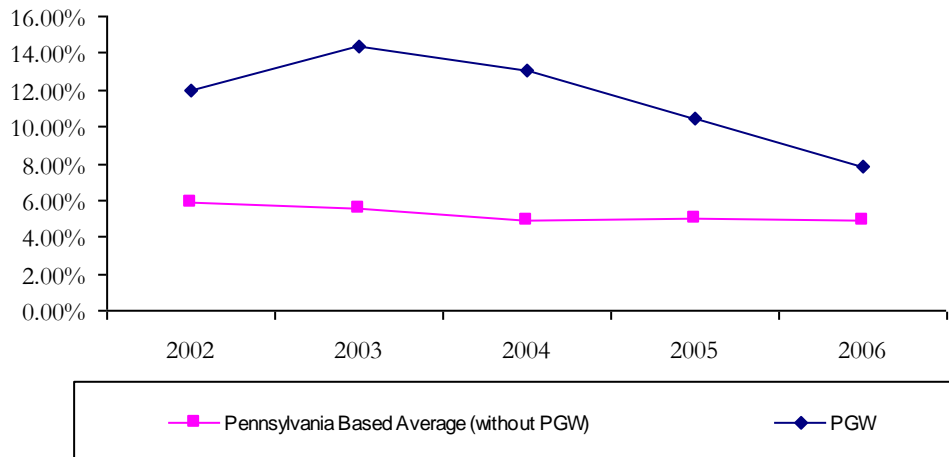
Source: Information Response 46 and Company clarifications to information responses

Customer Account, Services & Information Expenses as Percentage of Customer Class Revenue

Exhibit A-36
Customer Account, Services & Information Expenses as Percentage of Customer Class Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	12.01%	14.37%	13.04%	10.49%	7.83%	-10.15%
Columbia Gas of Pennsylvania	6.63%	7.88%	5.50%	6.39%	6.85%	0.80%
Dominion Peoples (PNG)	5.67%	4.41%	4.98%	4.54%	4.44%	-5.96%
Equitable Gas Company	6.36%	6.65%	5.51%	5.47%	4.22%	-9.76%
National Fuel Gas (NFG) - PA Division only	7.22%	5.72%	5.88%	6.75%	6.38%	-3.06%
PECO Energy Company	3.50%	3.27%	2.56%	2.69%	3.21%	-2.13%
UGI Utilities, Inc.	5.63%	5.22%	4.87%	4.27%	4.37%	-6.14%
Pennsylvania Based Average (without PGW)	5.84%	5.52%	4.88%	5.02%	4.91%	-4.23%

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



Source: Information Response 46 and Company clarifications to information responses

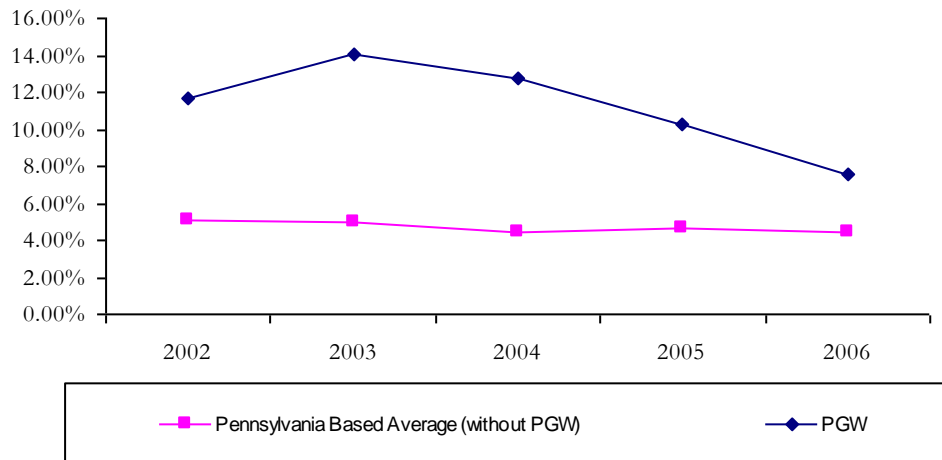
The overall decrease in PGW expenses associated with Customer Account, Services and Information Expenses is attributable to a decrease in PGW's bad debt expenses.

Customer Account Expenses as Percentage of Customer Class Revenue

Exhibit A-37
Customer Account Expenses as Percentage of Customer Class Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	12.01%	14.37%	13.04%	10.49%	7.83%	-10.15%
Columbia Gas of Pennsylvania	6.63%	7.88%	5.50%	6.39%	6.85%	0.80%
Dominion Peoples (PNG)	5.67%	4.41%	4.98%	4.54%	4.44%	-5.96%
Equitable Gas Company	6.36%	6.65%	5.51%	5.47%	4.22%	-9.76%
National Fuel Gas (NFG) - PA Division only	7.22%	5.72%	5.88%	6.75%	6.38%	-3.06%
PECO Energy Company	3.50%	3.27%	2.56%	2.69%	3.21%	-2.13%
UGI Utilities, Inc.	5.63%	5.22%	4.87%	4.27%	4.37%	-6.14%
Pennsylvania Based Average (without PGW)	5.84%	5.52%	4.88%	5.02%	4.91%	-4.23%

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



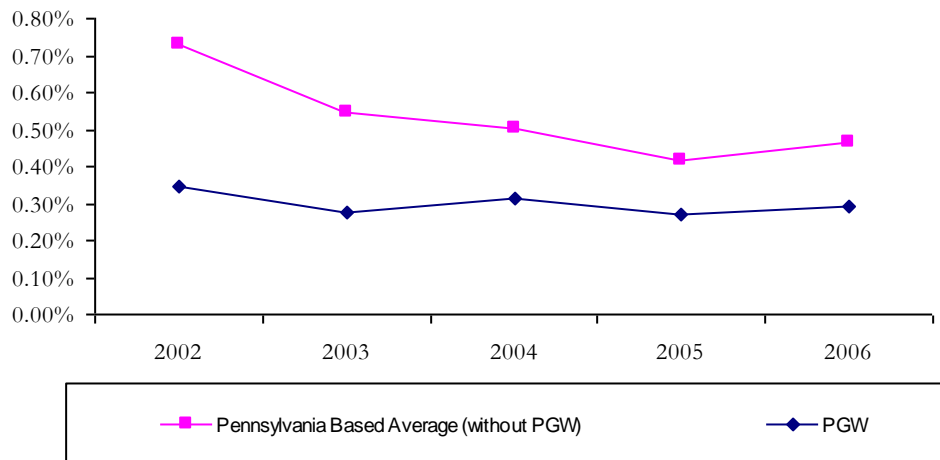
Source: Information Response 46 and Company clarifications to information responses

Customer Service and Information Expenses as Percentage of Customer Class Revenue

Exhibit A-38
Customer Service and Information Expenses as Percentage of Customer Class Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	0.35%	0.28%	0.32%	0.27%	0.29%	-4.05%
Columbia Gas of Pennsylvania	0.58%	0.35%	0.34%	0.28%	0.32%	-13.62%
Dominion Peoples (PNG)	0.93%	0.49%	0.43%	0.25%	0.20%	-31.64%
Equitable Gas Company	0.41%	0.26%	0.28%	0.27%	0.27%	-9.35%
National Fuel Gas (NFG) - PA Division only	1.62%	1.47%	1.34%	1.19%	1.25%	-6.22%
PECO Energy Company	0.04%	0.03%	0.02%	0.02%	0.20%	50.15%
UGI Utilities, Inc.	0.79%	0.67%	0.63%	0.48%	0.54%	-9.40%
Pennsylvania Based Average (without PGW)	0.73%	0.54%	0.50%	0.41%	0.46%	-10.62%

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



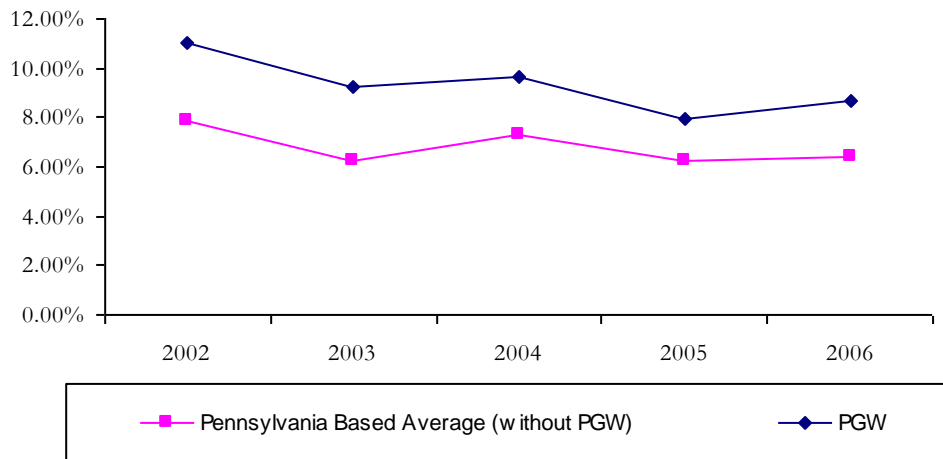
Source: Information Response 46 and Company clarifications to information responses

Administrative & General Expenses as Percentage of Customer Class Revenue

Exhibit A-39
Administrative & General Expenses as Percentage of Customer Class Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	11.03%	9.23%	9.66%	7.93%	8.70%	-5.76%
Columbia Gas of Pennsylvania	10.06%	6.78%	6.89%	7.33%	7.91%	-5.85%
Dominion Peoples (PNG)	3.79%	4.34%	3.70%	3.05%	3.06%	-5.26%
Equitable Gas Company	13.78%	7.38%	10.97%	9.42%	8.63%	-11.05%
National Fuel Gas (NFG) - PA Division only	7.61%	6.39%	9.21%	6.91%	7.28%	-1.10%
PECO Energy Company	4.50%	5.75%	5.37%	4.27%	4.50%	-0.02%
UGI Utilities, Inc.	7.42%	6.93%	7.53%	6.35%	6.95%	-1.64%
Pennsylvania Based Average (without PGW)	7.86%	6.26%	7.28%	6.23%	6.39%	-5.06%

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



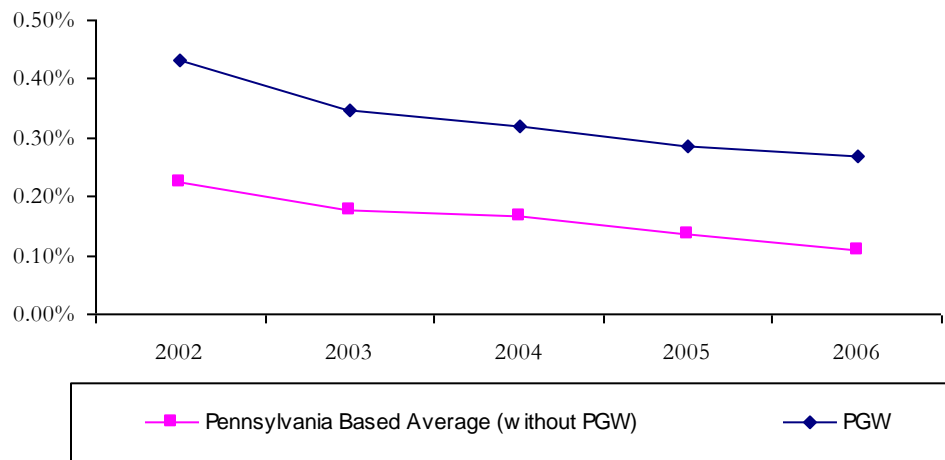
Source: Information Response 46 and Company clarifications to information responses

Sales Expenses as Percentage of Customer Class Revenue

Exhibit A-40
Sales Expenses as Percentage of Customer Class Revenue
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	0.43%	0.35%	0.32%	0.29%	0.27%	-11.18%
Columbia Gas of Pennsylvania	0.07%	0.00%	0.00%	0.00%	0.00%	-100.00%
Dominion Peoples (PNG)	0.25%	0.19%	0.20%	0.15%	0.09%	-21.67%
Equitable Gas Company	0.28%	0.32%	0.29%	0.23%	0.20%	-8.02%
National Fuel Gas (NFG) - PA Division only	0.08%	0.06%	0.06%	0.04%	0.04%	-15.26%
PECO Energy Company	0.41%	0.27%	0.21%	0.18%	0.12%	-26.17%
UGI Utilities, Inc.	0.27%	0.22%	0.24%	0.20%	0.20%	-6.87%
Pennsylvania Based Average (without PGW)	0.23%	0.18%	0.17%	0.14%	0.11%	-16.47%

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



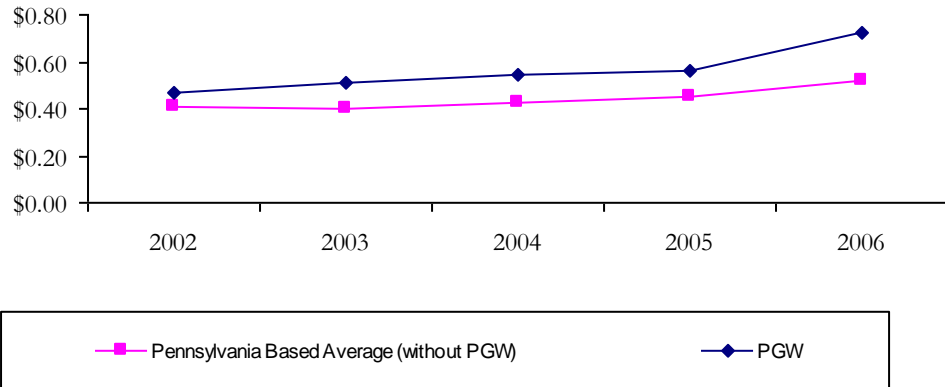
Source: Information Response 46 and Company clarifications to information responses

Distribution Expenses per MCF

Exhibit A-41
Distribution Expenses per MCF
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$0.46	\$0.51	\$0.54	\$0.57	\$0.72	11.56%
Columbia Gas of Pennsylvania	\$0.70	\$0.65	\$0.71	\$0.70	\$0.87	5.53%
Dominion Peoples (TPNG)	\$0.33	\$0.34	\$0.40	\$0.40	\$0.43	6.84%
Equitable Gas Company	\$0.39	\$0.42	\$0.43	\$0.51	\$0.56	9.17%
National Fuel Gas (NFG) - PA Division only	\$0.43	\$0.42	\$0.46	\$0.51	\$0.58	7.58%
PECO Energy Company	\$0.35	\$0.32	\$0.30	\$0.37	\$0.43	4.96%
UGI Utilities, Inc.	\$0.24	\$0.25	\$0.24	\$0.23	\$0.24	0.04%
Pennsylvania Based Average (without PGW)	\$0.41	\$0.40	\$0.42	\$0.45	\$0.52	6.10%

Note: MCF includes MCF for metered and unmetered sales.



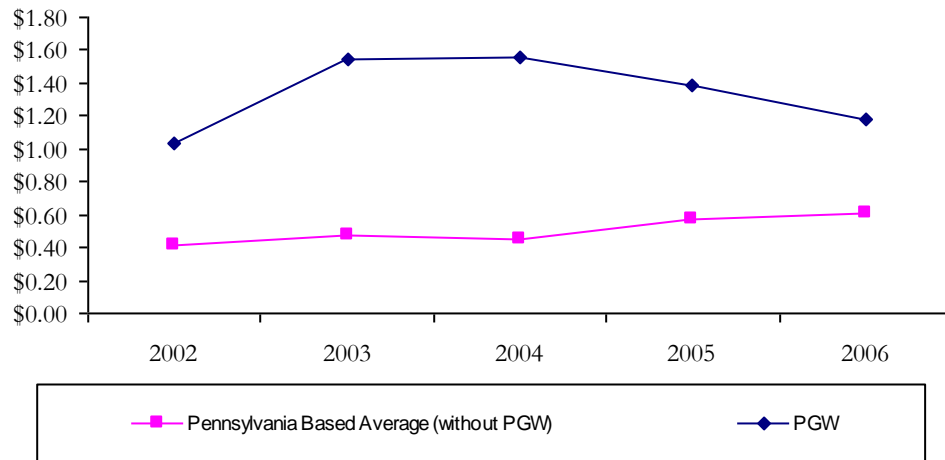
Source: Information Response 46 and Company clarifications to information responses

Customer Account, Services & Information Expenses per MCF

Exhibit A-42
Customer Account, Services & Information Expenses per MCF
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$1.03	\$1.55	\$1.55	\$1.39	\$1.18	3.48%
Columbia Gas of Pennsylvania	\$0.74	\$1.01	\$0.77	\$1.04	\$1.15	11.65%
Dominion Peoples (PNG)	\$0.27	\$0.27	\$0.33	\$0.35	\$0.35	6.75%
Equitable Gas Company	\$0.38	\$0.47	\$0.42	\$0.52	\$0.42	2.54%
National Fuel Gas (NFG) - PA Division only	\$0.61	\$0.57	\$0.68	\$1.01	\$1.07	15.08%
PECO Energy Company	\$0.23	\$0.24	\$0.22	\$0.26	\$0.34	10.44%
UGI Utilities, Inc.	\$0.29	\$0.29	\$0.30	\$0.30	\$0.32	3.12%
Pennsylvania Based Average (without PGW)	\$0.42	\$0.47	\$0.45	\$0.58	\$0.61	9.80%

Note: MCF includes MCF for metered and unmetered sales.



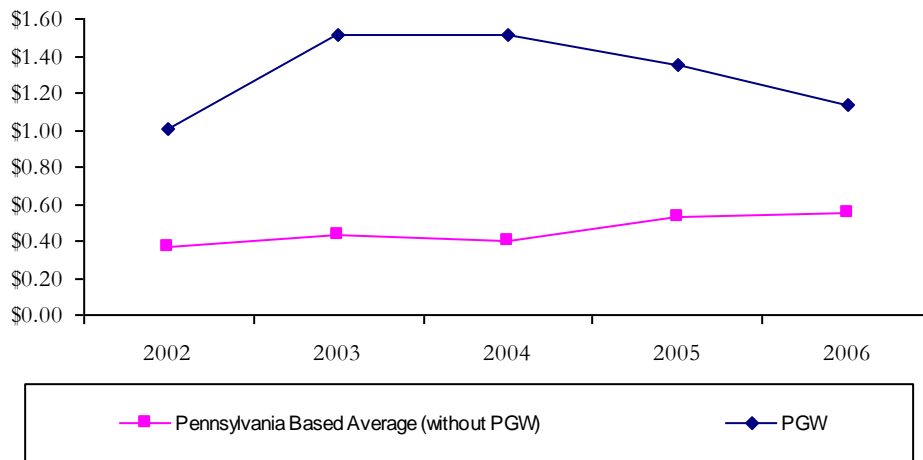
Source: Information Response 46 and Company clarifications to information responses

Customer Account Expenses per MCF

Exhibit A-43
Customer Account Expenses per MCF
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$1.00	\$1.52	\$1.51	\$1.35	\$1.14	3.25%
Columbia Gas of Pennsylvania	\$0.67	\$0.96	\$0.72	\$0.99	\$1.09	12.86%
Dominion Peoples (PNG)	\$0.22	\$0.24	\$0.30	\$0.33	\$0.33	10.33%
Equitable Gas Company	\$0.35	\$0.45	\$0.40	\$0.49	\$0.39	2.51%
National Fuel Gas (NFG) - PA Division only	\$0.47	\$0.43	\$0.53	\$0.83	\$0.86	16.10%
PECO Energy Company	\$0.22	\$0.24	\$0.22	\$0.26	\$0.31	8.98%
UGI Utilities, Inc.	\$0.25	\$0.25	\$0.26	\$0.26	\$0.28	3.67%
Pennsylvania Based Average (without PGW)	\$0.37	\$0.43	\$0.40	\$0.53	\$0.55	10.53%

Note: MCF includes MCF for metered and unmetered sales.



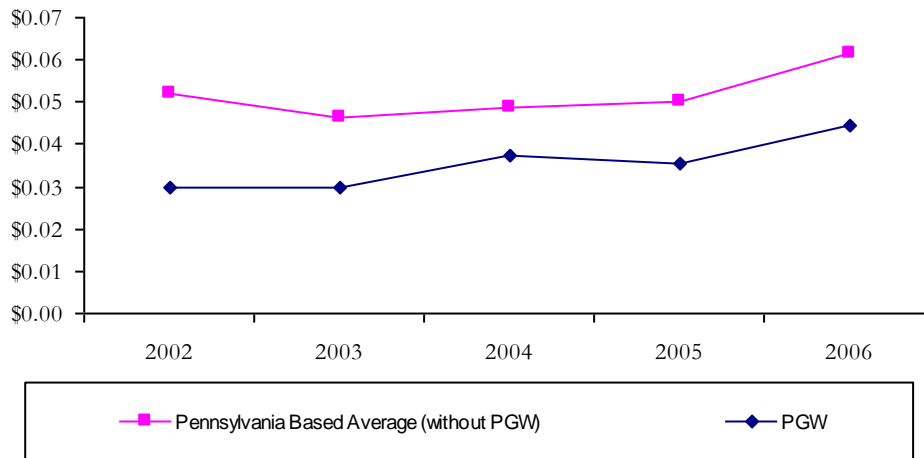
Source: Information Response 46 and Company clarifications to information responses

Customer Service and Information Expenses per MCF

Exhibit A-44
Customer Service and Information Expenses per MCF
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$0.03	\$0.03	\$0.04	\$0.04	\$0.04	10.51%
Columbia Gas of Pennsylvania	\$0.06	\$0.04	\$0.05	\$0.04	\$0.05	-4.33%
Dominion Peoples (PNG)	\$0.04	\$0.03	\$0.03	\$0.02	\$0.02	-22.40%
Equitable Gas Company	\$0.02	\$0.02	\$0.02	\$0.03	\$0.03	3.01%
National Fuel Gas (NFG) - PA Division only	\$0.14	\$0.15	\$0.15	\$0.18	\$0.21	11.33%
PECO Energy Company	\$0.00	\$0.00	\$0.00	\$0.00	\$0.02	69.43%
UGI Utilities, Inc.	\$0.04	\$0.04	\$0.04	\$0.03	\$0.04	-0.47%
Pennsylvania Based Average (without PGW)	\$0.05	\$0.05	\$0.05	\$0.05	\$0.06	4.20%

Note: MCF includes MCF for metered and unmetered sales.



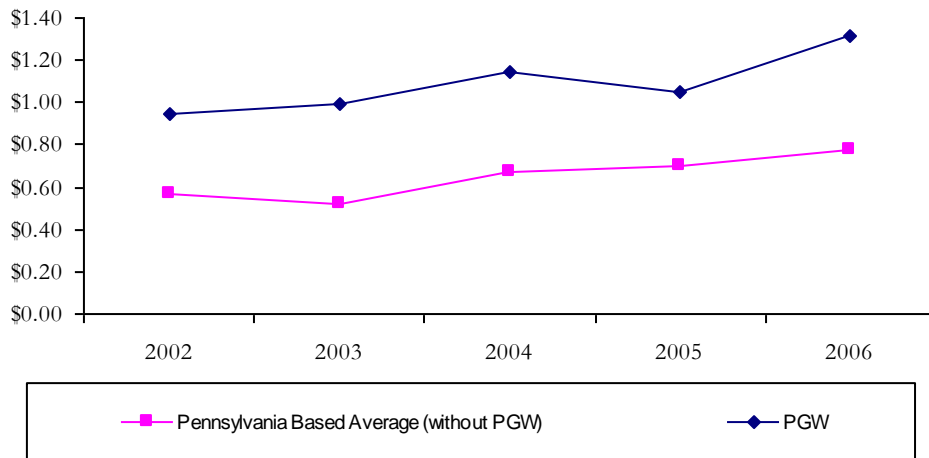
Source: Information Response 46 and Company clarifications to information responses

Administrative & General Expenses per MCF

Exhibit A-45
Administrative & General Expenses per MCF
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$0.95	\$0.99	\$1.15	\$1.05	\$1.32	8.54%
Columbia Gas of Pennsylvania	\$1.12	\$0.87	\$0.97	\$1.19	\$1.32	4.28%
Dominion Peoples (PNG)	\$0.18	\$0.26	\$0.24	\$0.24	\$0.24	7.55%
Equitable Gas Company	\$0.82	\$0.52	\$0.84	\$0.89	\$0.86	1.07%
National Fuel Gas (NFG) - PA Division only	\$0.64	\$0.64	\$1.06	\$1.03	\$1.22	17.40%
PECO Energy Company	\$0.29	\$0.42	\$0.46	\$0.41	\$0.47	12.82%
UGI Utilities, Inc.	\$0.38	\$0.38	\$0.46	\$0.44	\$0.52	8.07%
Pennsylvania Based Average (without PGW)	\$0.57	\$0.52	\$0.67	\$0.70	\$0.77	7.77%

Note: MCF includes MCF for metered and unmetered sales.



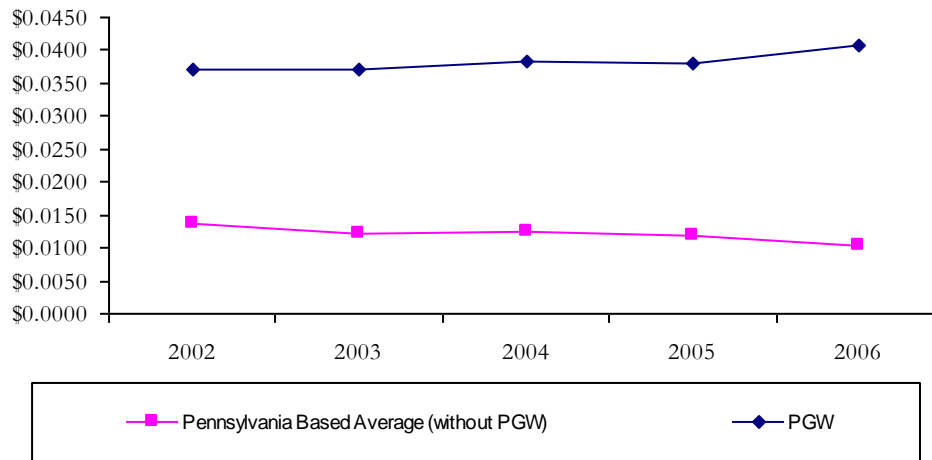
Source: Information Response 46 and Company clarifications to information responses

Sales Expenses per MCF

Exhibit A-46
Sales Expenses per MCF
as of December 31, 2007

	2002	2003	2004	2005	2006	Compound Growth/Loss
Philadelphia Gas Works (PGW)	\$0.0372	\$0.0372	\$0.0382	\$0.0380	\$0.0407	2.29%
Columbia Gas of Pennsylvania	\$0.0073	\$0.0000	\$0.0000	\$0.0000	\$0.0000	-100.00%
Dominion Peoples (PNG)	\$0.0118	\$0.0118	\$0.0133	\$0.0120	\$0.0074	-11.08%
Equitable Gas Company	\$0.0168	\$0.0229	\$0.0224	\$0.0220	\$0.0201	4.52%
National Fuel Gas (NFG) - PA Division only	\$0.0067	\$0.0060	\$0.0064	\$0.0066	\$0.0069	0.60%
PECO Energy Company	\$0.0265	\$0.0200	\$0.0176	\$0.0171	\$0.0128	-16.68%
UGI Utilities, Inc.	\$0.0136	\$0.0120	\$0.0146	\$0.0141	\$0.0149	2.31%
Pennsylvania Based Average (without PGW)	\$0.0138	\$0.0121	\$0.0124	\$0.0120	\$0.0103	-6.96%

Note: MCF includes MCF for metered and unmetered sales.



Source: Information Response 46 and Company clarifications to information expenses

B. Glossary

A.

Item	Acronym	Description
accounts payable	A/P	
affirmative action	AA	
affirmative action plan	AAP	
American Gas Association	AGA	
automated call director	ACD	
automated clearinghouse	ACH	
Automated Computer Aided Drafting	AutoCAD	
Automated Data Processing	ADP	
Automated Information Management System	AIMS/AIMS2	
automated meter reading	AMR	
automated time management system	ATMS	
automatic external defibrillator	AED	

B.

Item	Acronym	Description
Bank of America	BOA	
Billing Collection & Customer Service	BCCS	
billion cubic feet	Bcf	
Board of Directors	BOD	
British thermal unit	BTU	
Bureau of Consumer Service	BCS	
Business Technology Consultant	BTC	
Business Transformation	BT	
business transformation	BT	
Business Transformation Initiative	BTI	



Item	Acronym	Description
Business Transformation Steering Committee	BTSC	
business unit	BU	

C.

Item	Acronym	Description
calendar year	CY	
Cannot Get In	CGI	
Chief Executive Officer	CEO	
Chief Financial Officer	CFO	
Chief Information Officer	CIO	
Chief Operating Officer	COO	
Cincinnati Gas & Electric Company	CG&E	
code division multiple access	CDMA	
commercially-off-the-shelf	COTS	
compressed natural gas	CNG	
continuing property records	CPR	
contract management system	CMS	
corrective maintenance	CM	
Credit & Collections	C/C	
customer assistance program	CAP	
Customer Contact Center	C3	
Customer Responsibility Program	CRP	
Customer Review Unit	CRU	
customer service center	CSC	
customer service representative	CSR	

D.

Item	Acronym	Description
database administrator	DBA	
decatherms	DTH	
Delaware Department of Transportation	DelDot	
Department of Transportation	DOT	
disabled-owned business enterprise	DBE	
Dispute Resolution Unit	DRU	
Distribution Integrity Management Program	DIMP	

E.

Item	Acronym	Description
electronic data interchange	EDI	
electronic funds transfer	EFT	
end of year	EOY	
Energy Insurance Mutual	EIM	
enterprise resource planning	ERP	
enterprise risk management	ERM	
Enterprise Steering Committee	ESC	
equal employment opportunity	EEO	
Equal Employment Opportunity Commission	EEOC	
Expert Agent Selection	EAS	

F.

Item	Acronym	Description
Federal Energy Regulatory Commission	FERC	
Field Services Department	FSD	
file/print	F/P	
financial size category	FSC	



Item	Acronym	Description
fiscal year	FY	
Fixed Utility Services	FUS	
Fleet Operations	FO	
Flexible Spending Account	FSA	
free-is-good	FIG	
full-time equivalent	FTE	

G.

Item	Acronym	Description
gas cost recovery	GCR	
Gas Industry Standards Board	GISB	
Gas Processing Department	GPD	
General Counsel	GC	
general ledger	G/L	
geographic information system	GIS	

H.

Item	Acronym	Description
heating, ventilation, and air conditioning	HVAC	
Human Resource Information System	HRIS	
Human Resources	HR	

I.

Item	Acronym	Description
Information Services	IS	
Information Systems Audit and Control Association	ISACA	

Item	Acronym	Description
information technology	IT	
instruction set architecture	ISA	
integrated voice response	IVR	
Internal Audit	IA	
International Customer Management Institute	ICMI	
International Swaps & Derivative Association	ISDA	

J.

Item	Acronym	Description

K.

Item	Acronym	Description
key performance indicator	KPI	

L.

Item	Acronym	Description
Landlord Cooperation Program	LCP	
liquid natural gas	LNG	
Living Disaster Recovery Planning System	LDRPS	
local area network	LAN	
local distribution company	LDC	
long-term disability	LTD	
Low Income Home Energy Assistance Program	LIHEAP	



M.

Item	Acronym	Description
Main Replacement Prioritization	MRP	
Materials Management Department	MMD	
Medical Review Officer	MRO	
Meter Investigation Unit	MIU	
minority business enterprise	MBE	
Minority Business Enterprise Council	MBEC	
Minority Supplier Development Council	MSDC	
minority/women business enterprise	M/WBE	
thousand cubic feet	Mcf	

N.

Item	Acronym	Description
National Association of Securities Dealers	NASD	
National Association of Women Business Owners	NAWBO	
Natural Gas Approved Standardized Buy/Sell Agreement	NASBY	
New Jersey Department of Transportation	NJDot	
New York Stock Exchange	NYSE	
non-payment shutoff program	NPSO	
not-to-exceed	NTE	

O.

Item	Acronym	Description
Office of Federal Contract Compliance Program	OFCCP	
operations and maintenance	O&M	

Item	Acronym	Description
Operations Systems Support	OSS	
Organizational Development	OD	
overtime	OT	

P.

Item	Acronym	Description
Parts and Labor Plan	PLP	
payback period	PBP	
payment arrangement	PAR	
Pennsylvania Department of Transportation	PennDOT	
Pennsylvania Human Relations Commission	PaHRC	
Pennsylvania Public Utility Commission	PaPUC	
performance improvement plan	PIP	
personal computer	PC	
Philadelphia Commission on Human Relations	PCHR	
Philadelphia Facilities Management Corporation	PFMC	
Philadelphia Gas Commission	PGC	Same acronym as purchased gas costs
Philadelphia Gas Works	PGW	
Philadelphia Housing Authority	PHA	
Philadelphia Human Rights Commission	PHRC	
preventive maintenance	PM	
Pricewaterhouse Coopers, LLC	PwC	
project management office	PMO	
Project Management Professional	PMP	
Public Utility Commission	PUC	
purchase order	PO	
purchased gas costs	PGC	Same acronym as Philadelphia Gas Commission
Purchasing Management Association of Philadelphia	PMAP	

Q.

Item	Acronym	Description
quality assurance	QA	
quality-of-service isolation	QoS isolation	

R.

Item	Acronym	Description
request for proposal	RFP	
request for quote	RFQ	
Return Material Authorization	RMA	
Revenue Protection Unit	RPU	

S.

Item	Acronym	Description
Sarbanes-Oxley Act	SOX	
Securities and Exchange Commission	SEC	
Senior Vice President	SVP	
separate trading of interest and principal securities	STRIPS	
service level agreement	SLA	
Small Business Administration	SBA	
Source of Authority	SOA	
Southeastern Pennsylvania Transportation Authority	SEPTA	
storage area network	SAN	
Strategic Alignment Score	SAS	
Strategic Focused Organization	SFO	
Supervisory Control and Data Acquisition	SCADA	

Item	Acronym	Description
Supply Chain	SC	

T.

Item	Acronym	Description
tax-exempt commercial paper	TXCP	
third-party administrator	TPA	
Transcontinental Pipeline	Transco	

U.

Item	Acronym	Description
unaccounted-for gas	UAG	
Underground Facilities Database	UFD	
uninterruptible power supply	UPS	
United States Department of Transportation	USDOT	
Utility Emergency Service Fund	UESF	
Utility Workers Union of America	UWUA	

V.

Item	Acronym	Description
Vice President	VP	
virtual machine	VM	



W.

Item	Acronym	Description
wide area network	WAN	
women business enterprise	WBE	
workers' compensation	WC	

Y.

Item	Acronym	Description

Z.

Item	Acronym	Description
zero balance account	ZBA	