Schumaker & Company

Philadelphia Gas Works

Final Stratified Management and Operations Audit Report

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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 2015 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 and EEO
- Chapter VII – System Reliability Performance & 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, since FERC Order 636, interstate pipelines are no longer permitted to act as merchants and sell bundled products.

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

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 weather conditions, 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 500 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.

Historically, a significant amount of natural gas has been transported for the Gulf regions of the United States to the East Coast via this pipeline network. With the development of the Marcellus Shale region in western Pennsylvania, Ohio, and West Virginia, East Coast and Midwest utilities are now able to become less dependent on the long haul transportation provided by the pipelines and be able to procure natural gas more locally. In the past couple of years, PGW has been able to procure a significant amount of Marcellus Shale gas while still maintaining a diverse supply base (both Marcellus Shale and Gulf gas sources).

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 management relationship of Philadelphia Facilities Management Corporation (PFMC) to PGW. 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 two-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 through 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 1,633 employees, used for the acquisition, storage, processing, and distribution of gas within the City of Philadelphia.

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 August 16, 2014 and continued through December 31, 2014. During the report development process, some later information (as of April 2015) was incorporated into the report.

During conduct of the review, our consultants allocated considerable time to interviewing PGW 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:

- *Meets expected performance level* – 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				
		Meets Expected Performance	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/ Security Infrastructure			X		
	Transportation & Fleet Management		X			
	Facilities & Property Management		X			
	Supply Chain			X		
	Risk Management & Safety		X			
	Legal Services		X			

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

Chapter	Function	Evaluative Ratings				
		Meets Expected Performance	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					
	Gas Supply		X			
	Field Operations			X		
	Business Continuity			X		
VIII	Customer Service			X		

D. Summary of Estimated Benefits

The audit produced 76 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	13	20	3
Phase II	16	19	5
Total	**29**	**39**	**8**

Benefits

The audit identified quantifiable cost savings of approximately $1,100,000 million in one-time savings and $8,376,400 to over $9,457,400 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 quantifiable one-time and annual costs savings is shown in *Exhibit I-4*.

Exhibit I-4
Summary of Benefits

	One-time Savings	Annual Savings
Improve cycle count accuracy levels to at least 90% and increase analysis on inventory turn rates (Recommendation III-19)	$1,100,000	$220,000
Improve the structure and processes of Board governance. (Recommendation IV-1)		$500,000
Explore alternatives for fulfilling internal audit requirements. (Recommendation V-5)		$1,467,440
Develop a mechanism for accounting for the carrying charges in the LNG sales pricing. (Recommendation VII-2)		$189,000 to $270,000
Continue to take steps to reduce PGW gas supply assets. (Recommendation VII-3)		$6,000,000 to $7,000,000
Total	$1,100,000	$8,376,400 to $9,457,400

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

			Implementation		
	Description	Page	Priority	Initiation Time Frame	Benefits
Executive Management					
II-1	Develop an organizational review and development process	30	Medium	6-12 months	Medium
II-2	Coordinate the procedures review process.	30	Low	0-6 months	Low
II-3	Reinstitute the Strategic Focused Organization or similar strategic planning process.	30	High	6-12 months	High
II-4	Develop a comprehensive Corporate Communications (business) plan.	31	Medium	6-12 months	Medium
External Relations					
II-5	Develop an External Relations communications plan.	34	Medium	6-12 months	Medium
Human Resources					
II-6	Expand the capacity of the Human Resources staffing function.	50	High	0-6 Months	Medium
II-7	Develop a comprehensive workforce plan.	50	High	6-12 Months	Medium
II-8	Perform a management compensation study (including incentive compensation) to assess compensation levels as compared to market and realign as deemed appropriate.	51	High	0-6 Months	Medium

Chapter III – Support Services

			Implementation		
	Description	Page	Priority	Initiation Time Frame	Benefits
Information Technology/Security Infrastructure					
III-1	Conduct a formal assessment study for adding a formal project management office (PMO) to the Information Services (IS) organization as soon as possible.	103	Medium	6-12 Months	High
III-2	Expand IS project management methodology documentation and review at least annually, and revise as appropriate.	103	High	0-6 Months	High
III-3	Develop comprehensive project plans and schedules by incorporating additional detailed information and data.	104	High	0-6 Months	High

			Implementation		
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
III-4	Configure the Accounts Payable system to allow electronic workflow, including approval of vendor invoices, and eliminate the need for sending paper invoices to the Accounts Payable group for payment processing.	104	Medium	6-12 Months	Medium
III-5	Implement use of systematic employee development plans for IS employees.	104	Medium	0-6 Months	Medium
III-6	Take actions to improve Help Desk performance to meet targets.	104	Medium	6-12 Months	Medium
III-7	Develop detailed policies and procedures involving IS chargebacks, not only during the budget cycle but also involving any changes in actual charges during the fiscal year.	105	High	0-6 Months	High
III-8	Perform disaster recovery tests semi-annually to adhere to established goals and objectives.	105	High	0-6 Months	High
III-9	Perform annual penetration testing and vulnerability assessments.	105	High	0-6 Months	High
Transportation and Fleet Management					
III-10	Periodically analyze outsourcing the Fleet function(s) to an outside contractor.	119	Medium	6-12 months	Medium
III-11	Conduct a post implementation audit of the new M5 system.	120	High	0-6 months	High
Facilities and Property Management					
III-12	Develop a comprehensive facilities plan.	132	Medium	6-12 months	Medium
Supply Chain Management					
III-13	Pursue additional vendor partnering opportunities.	146	Medium	12+ months	Medium
III-14	Develop and implement a Vendor Evaluation Program.	147	Medium	6-12 months	Medium
III-15	Develop a Supply Chain business plan that fully integrates into a PGW strategic plan.	147	Medium	6-12 months	Medium
III-16	Develop written procedures for all Supply Chain processes.	147	Low	6-12 months	Low
III-17	Perform an analysis on the value of outsourcing Supply Chain function(s).	147	Medium	12+ months	Medium
III-18	Integrate all systems used by Supply Chain.	147	High	12+ months	High
III-19	Improve cycle count accuracy levels to at least 90% and increase analysis on inventory turn rates.	148	Medium	12+ months	High $1.1 Million One-time $220,000 Annually

			Implementation		
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
Risk Management & Safety					
III-20	Enhance PGW's enterprise risk management (ERM) program	188	Medium	6-12 Months	Medium
III-21	Enhance PGW's risk management training programs.	189	Medium	6-12 Months	Medium
III-22	Develop a plan for making organizational changes and for enhancing reporting capabilities.	189	Medium	6-12 Months	Medium
III-23	Standardize any procedures, including numbering, developed by the Risk Management Department.	189	Low	12+ Months	Low
III-24	Fully implement the DriveCam initiative and increase the number of loss controls to address preventable motor vehicle accidents (PMVAs).	189	Medium	6-12 Months	Medium
III-25	Certify PGW's safety committees with the PA Department of Labor and Industry, Bureau of Workers' Compensation.	189	Medium	6-12 Months	Medium
III-26	Create a safety committee scorecard.	190	High	0-6 Months	High
III-27	Measure and report safety performance using standard industry benchmarks.	190	High	0-6 Months	High
Legal Services					
III-28	Perform a formal technology review, including systems and document management applications used by the Legal Services organization, to determine if changes would be beneficial and should be implemented in the near future.	203	Medium	0-6 Months	Medium

Phase II – Pre-Identified Issues Review

Chapter IV – Corporate Governance

				Implementation	
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
IV-1	Improve the structure and processes of Board governance.	218	High	12+ Months	High $500,000 Net Annually
IV-2	Strengthen ethics procedures and processes.	219	Low	0-6 Months	Low
IV-3	Revise the Internal Auditing Department reporting structure so that the Manager of Internal Audits reports directly to the Philadelphia Facilities Management Corporation (PFMC)Board's Audit Committee and no longer administratively to the Chief Financial Officer (CFO).	219	Medium	0-6 Months	Medium

Chapter V – Financial Management

				Implementation	
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
V-1	Adjust the bank reconciliation process so that reconciling items are cleared in a timely manner	273	Medium	0-6 Months	Medium
V-2	Employ the use of a process checklist for the closing of capital projects.	273	Low	0-6 Months	Medium
V-3	Develop a systematic plan and process to review fixed assets across PGW and determine which recorded assets are no longer in service and need to be removed from the records.	273	Medium	0-6 Months	High
V-4	Develop a systematic plan and process to review unclassified assets with the end goal of classifying those assets to the proper account	273	Medium	0-6 Months	High
V-5	Explore alternatives for fulfilling internal audit requirements.	274	High	0-6 Months	High $1.8 Million Annually
V-6	Create a new system and method to accumulate audit findings and recommendations that allows for retrieval based on different criteria	275	Low	0-6 Months	Medium

Chapter VI – Diversity and EEO

				Implementation	
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
VI-1	Leverage opportunities to increase diversity through retirements, workforce planning, and succession planning.	295	High	0-6 Months	High
VI-2	Integrate diversity as an overall business objective.	296	High	6-12 Months	High
VI-3	Develop specific procedures to improve Minority, Women, and Disabled Business Enterprise (MWDBE) subcontractor participation for the next five years and include revised internal, external, and subcontracting efforts in the next Annual Diversity Report	297	Medium	0-6 Months	Medium
VI-4	Update policies to ensure consistent and accurate communication of equal employment opportunity (EEO) and Supplier Diversity programs.	297	Medium	0-6 Months	Low

Chapter VII – System Reliability Performance & Other Related Operations

				Implementation	
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
Gas Supply					
VII-1	Take steps to plan for the retirements that could have a major impact on the ability to staff the Gas Control Center.	322	Medium	6-12 Months	Medium
VII-2	Develop a mechanism for accounting for the carrying charges in the liquefied natural gas (LNG) sales pricing.	322	Medium	6-12 Months	High $189,000 to $270,000 Annually
VII-3	Continue to take steps to reduce PGW gas supply assets.	322	High	6-12 Months	High $6 Million to $7 Million Annually
VII-4	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.	323	High	0-6 Months	Medium

Field Operations					
VII-5	Migrate all asset data into a single geospatial database.	381	Low	12+ Months	High
VII-6	Take corrective action to timely address the noted deficiencies in the portions of the Distribution Integrity Management Program (DIMP) that were deemed unsatisfactory.	382	Medium	0-6 Months	Medium
VII-7	Aggressively accelerate the replacement of high risk mains, specifically cast iron mains.	382	High	0-6 Months	High
VII-8	Integrate the corrosion work order database into Advanced Intelligent Mobile Solutions (AIMS).	383	Low	6-12 Months	Low
VII-9	Reduce the number of open leaks by outsourcing the excavation work and using PGW crews to make repairs.	383	High	6-12 Months	High
VII-10	Reconcile the output from the Main Replacement Program with the actual leak experience to validate its predicted outcomes.	383	Medium	0-6 Months	Medium
VII-11	Improve emergency response capability by conducting periodic drills, simulating potential emergency situations, and updating area segregation plans.	384	Medium	6-12 Months	Medium
VII-12	Develop a set of goals and reports for Field Operations and Planning and cascade them down through the organization to drive efficiency and operational and individual performance improvements.	384	High	12+ Months	High
VII-13	Update the system model design criteria.	385	Medium	0-6 Months	Medium
VII-14	Increase the number of qualified contractors to perform gas main installation work.	386	Medium	6-12 Months	Medium
VII-15	Implement financial controls on work performed by contractors.	386	Medium	0-6 Months	Low
VII-16	Determine the number and location of residential meters that may have the incorrect encoder receiver transmitter (ERT) protocol and implement corrective measures.	386	Medium	0-6 Months	Low
Business Continuity Planning					
VII-17	Develop and implement an expanded business continuity plan (BCP) schedule that includes tabletop exercises and live drills annually.	387	High	0-6 Months	High
VII-18	Develop and implement a sample plan framework for PGW departments to use when developing their BCPs.	387	Medium	0-6 Months	Medium

Chapter VIII – Customer Service

				Implementation	
	Description	**Page**	**Priority**	**Initiation Time Frame**	**Benefits**
VIII-1	Continue to institutionalize recent efforts to strengthen call center operations.	469	Medium	12+ Months	Medium
VIII-2	Budget and track costs separately for each District Office.	469	High	0-6 Months	Medium
VIII-3	Evaluate and implement alternative in-person customer service options.	469	High	6-12 Months	Medium
VIII-4	Develop a plan for enhancing customer systems, including use of mobile applications for making customer payments.	470	Medium	6-12 Months	Medium
VIII-5	Incorporate commercial/industrial accounts into PGW's risk-based collections process, including sending such accounts to collection agencies.	470	High	0-6 Months	High
VIII-6	Identify and address increasing customer disputes and PaPUC complaints.	470	High	0-6 Months	High
VIII-7	Place greater emphasis on decreasing the number and amount of over-90-day-old accounts.	471	High	0-6 Months	High
VIII-8	Identify and address why the number of customers being refunded their credit balances following closing has decreased from roughly 62% to 27%.	471	Medium	6-12 Months	Medium
VIII-9	Formalize communication protocol between PGW groups to readily identify and remediate underbillings for gas service.	471	High	0-6 Months	High

II. Executive Management and Human Resources

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

A. Executive Management

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

Background & Perspective

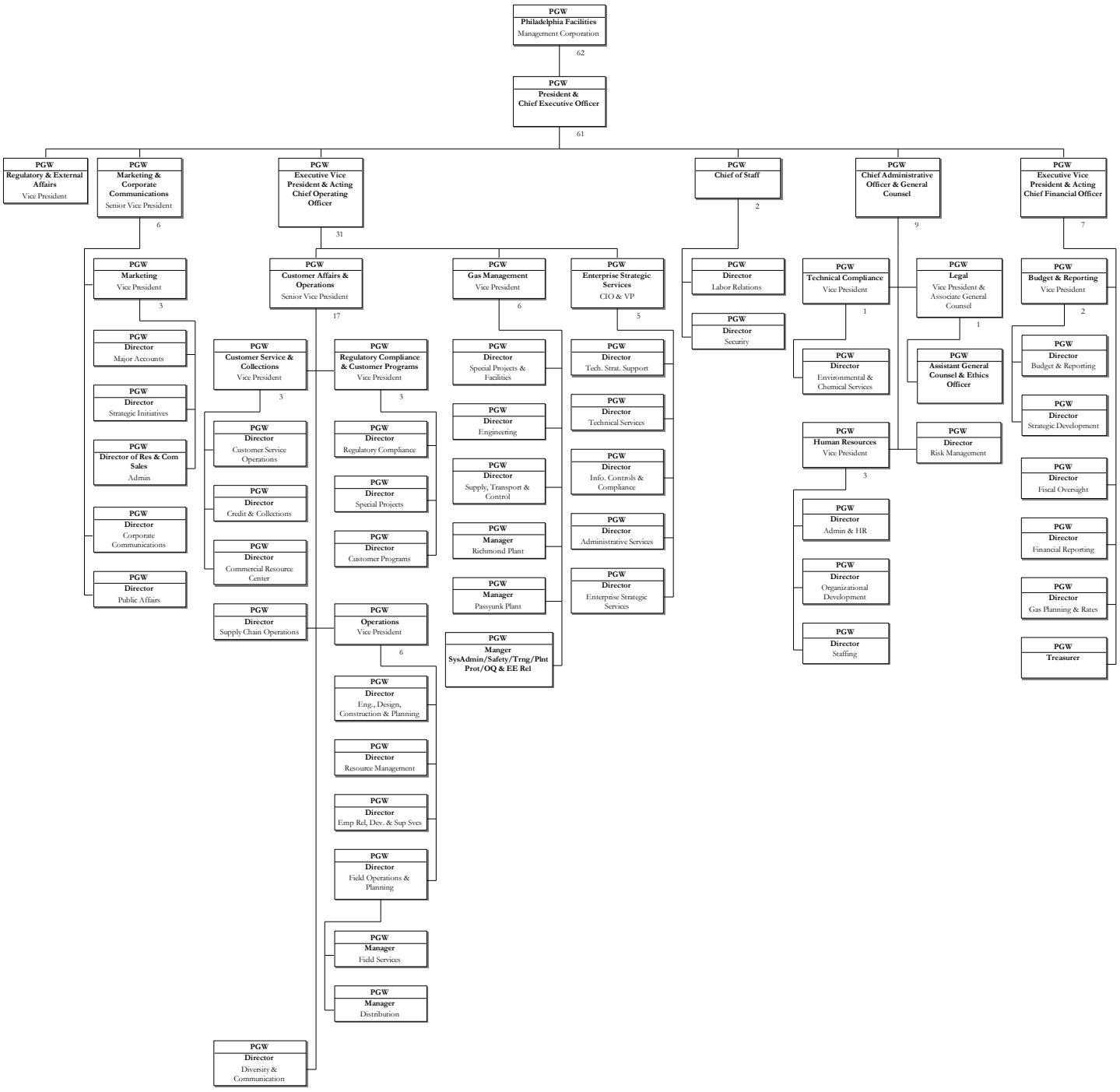
Organizational Structure and Planning

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 management relationships of Philadelphia Facilities Management Corporation (PFMC) to PGW. The PFMC is a non-profit corporation that was established for the specific purpose of managing and operating PGW. This includes providing oversight of senior management, specifically the Chief Executive Officer (CEO), the Chief Operating Officer (COO), the Chief Financial Officer, and other such personnel to PGW as deemed appropriate by the PFMC. The PFMC consists of seven members who are appointed by the Mayor of Philadelphia to two-year terms and can be reappointed. See *Chapter IV – Corporate Governance* for a more detailed discussion of the PFMC, including the reason it is temporarily at six members.

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 Act gives PGC responsibility for 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, 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. See *Chapter IV – Corporate Governance* for a more detailed discussion of the PGC.

PGW's organization is shown in *Exhibit II-1*.

Exhibit II-1
Philadelphia Gas Works Organization
as of December 31, 2014



Source: Information Response 1

Philadelphia Gas Works is led by the President and Chief Executive Officer (CEO). Directly reporting to him are the Executive Vice President and Acting Chief Operations Officer (COO), the Executive Vice President and acting Chief Financial Officer (CFO), the Chief Administrative Officer (CAO) and General Counsel, the Senior Vice President of Marketing and Corporate Communications, the Vice President (VP) of Regulatory Affairs, and the Chief of Staff.

The Acting COO has a Senior Vice President reporting to him who is responsible for customer service, field operations, and the support functions of supply chain and fleet operations (three Vice Presidents and two Directors). The Vice President of Gas Management (position was upgraded to Senior Vice President in first quarter, 2015) is responsible for gas supply, transportation, and engineering functions as well as the support function of facilities management. The Vice President of Enterprise Strategic Services and Chief Information Officer (CIO) has responsibilities for data-risk technical services.

The CAO and General Counsel is responsible for technical compliance (environmental and chemical services), legal, risk management, and human resources. The Executive Vice President and Acting CFO has responsibilities for treasury, budgeting and reporting, financial reporting, internal controls (fiscal controls), gas planning and rates, and strategic planning. The Chief of Staff is responsible for labor relations and security.

PGW has been trying to evolve toward a flatter organization with better spans of control. Succession planning drives the organization to some extent, although management has stated they are trying to avoid building an organization around the skills of the current personnel and make it more functionally driven. Management further states that cross-functional assignments are actively encouraged for management development.

One major change has been to move some business functions under the CFO (e.g., strategic planning). No more major changes are anticipated for the near future.

Management and Administrative Communications and Control

PGW makes use of three management-level committees to communicate and manage events and decisions. The Cabinet Committee includes all officers at or above the Senior Vice President level and some vice-presidents, which PGW refers to as Cabinet members.[2] The Senior Team Committee is chaired by the COO and includes all vice-presidents in addition to members of the Cabinet Committee. The Management Committee includes all manager-level personnel and above (total of 63 management personnel). The Cabinet Committee meets weekly and discusses major issues confronting PGW, such as the recent proposed UIL sale, as well as approving major decisions. The Senior Team meetings are held monthly for members to broadly discuss issues across PGW and to serve as a means of sharing important information. The Management Team meetings are mainly a forum for senior management (senior vice-presidents and above) to communicate important issues and decisions throughout the

[2] Cabinet members include President & CEO, Executive VP & COO, Executive VP & CFO, Chief Administrative Officer & General Counsel, Senior VP of Marketing & Corporate Communications, VP of Regulatory & External Affairs, Senior VP of Customer Affairs & Operations, Chief Information Officer & VP, and Chief of Staff (Senior VP of Gas Management subsequently added in 2015)

organization. Agendas are disseminated for the Management Team meetings and brief notes on topics discussed are maintained for Senior Team meetings. There are no other agenda or minutes kept for these meetings.

PGW makes use of a wide range of periodic management reports in managing the business. These include top-level management summary-level reports (e.g., Board Metrics Report, Commission Metrics Report, Departmental Variance Reports, Cost Savings Report, and Capital and Operating Budget and Five-Year Forecasts), financial reports (e.g., Statement of Income Narrative, Detailed Departmental Variance Reports by Sub-Account, Statement of Income Narrative, Debt Service Coverage Report, Environmental Remediation), personnel reports (e.g., overtime reports, fringe benefit rates, payroll variance reports, Personnel Summary Report), and operations and customer service reports (e.g., Healthcare Variance Report, A&G Construction Activity Report, and Monthly Variance Report, among others).

Although there is no documented Corporate Communications plan, PGW makes use of a wide range of methods to communicate with employees, which include:

- E-mail (Outlook)
  - Twice weekly PGW Pipeline email summarizing events, offers, meetings, etc. at PGW
  - Promotion and retirement announcements as requested by Senior Team
  - Departmental announcements
- Executive news and announcements
- SharePoint (Intranet)
  - A single Corporate Intranet site
  - Home for PGW policies and procedures
  - Each department has its own 'site' within SharePoint
- PGW In The News (daily e-mail sharing of PGW media coverage); a daily report of all media mentions of PGW, pulled from Meltwater (PGW's media monitoring service) and shared with PGW's management team
- Digital Billboards (dynamic screens located throughout PGW locations, displaying important internal communications content)
- Posters promoting charitable endeavors and other internal activities
- Fliers/leaflets distributed to employees to ensure they are aware of products and services (e.g. Parts & Labor Plan)
- Letters to home address
  - Regular HR letters updating benefits information and clarifying policies
  - Occasional executive messages on important topics
- Departmental, team, and functional meetings (e.g., monthly Management Team meetings)
- Internally produced video; PGW produces video to promote charitable drives, educate employees on safety topics, and share topical information and stories
- Social media
  - @MyPGW shares regular news and updates on Twitter

  - PGW Facebook runs simple questionnaires and shares news and updates
  - PhillyGasWorks channel on YouTube is PGW's online home for video
- PGW website (PGWorks.com); general corporate website, useful for sharing information with internal and external audiences
- Field Operations Newsletter (via print and AIMS); safety and operations focused newsletter, drafted and issued by Operations
- PGW Communications Network
  - Regular meeting of assigned representatives from each of PGW's functional areas
  - Participants share updates from their area, and bring corporate news back to share with their teams
- Screensaver messages and updates
- Blue Flame (internal newsletter) featuring internally sourced and drafted articles on a wide variety of topics of interest to PGW employees; produced up to seven times per year
- Broadcast phone messages
  - System that allows voice messages to be sent to every PGW phone, or specific subsets therein.
  - Used for major events, weather disruptions, etc.
- Executive Team Roadshow/visits
  - Periodic tour of all PGW locations by members of the PGW Cabinet
  - Executives share updates and field questions from staff.
- NotiFind Emergency Communication System for telephone alerts
- Short Message Service (SMS)/text messaging; all employees with a PGW-issued telephone can be sent individual or group texts
- Events (e.g., PGW Health Fair)
- Classes (e.g., Smith Safe Driving Seminar)
- Push-to-Talk; subset of Operations staff have push-to-talk handsets that can be used to share work, shift, and emergency information

The Corporate Communications function was recently (September 2014) separated as part of a restructuring into the Public Affairs and Corporate Communications departments, each reporting to a Director. Although these functions have been directed to develop a Strategic Plan for their respective areas (as of November, 2014), these plans are still in the process of being developed. Likewise, reporting structures and matrices are also still in development. Efforts to develop a Corporate Speakers Program and a database to track community group contacts is underway in Public Affairs. Initiatives are also being developed to increase customer profiling and proactive communications to outside parties and the public.

All advertising expenditures are budgeted through Corporate Communications instead of through the individual departments (change made in 2010). Corporate Communications' major efforts involve advertising support of seven major initiatives which include the following:

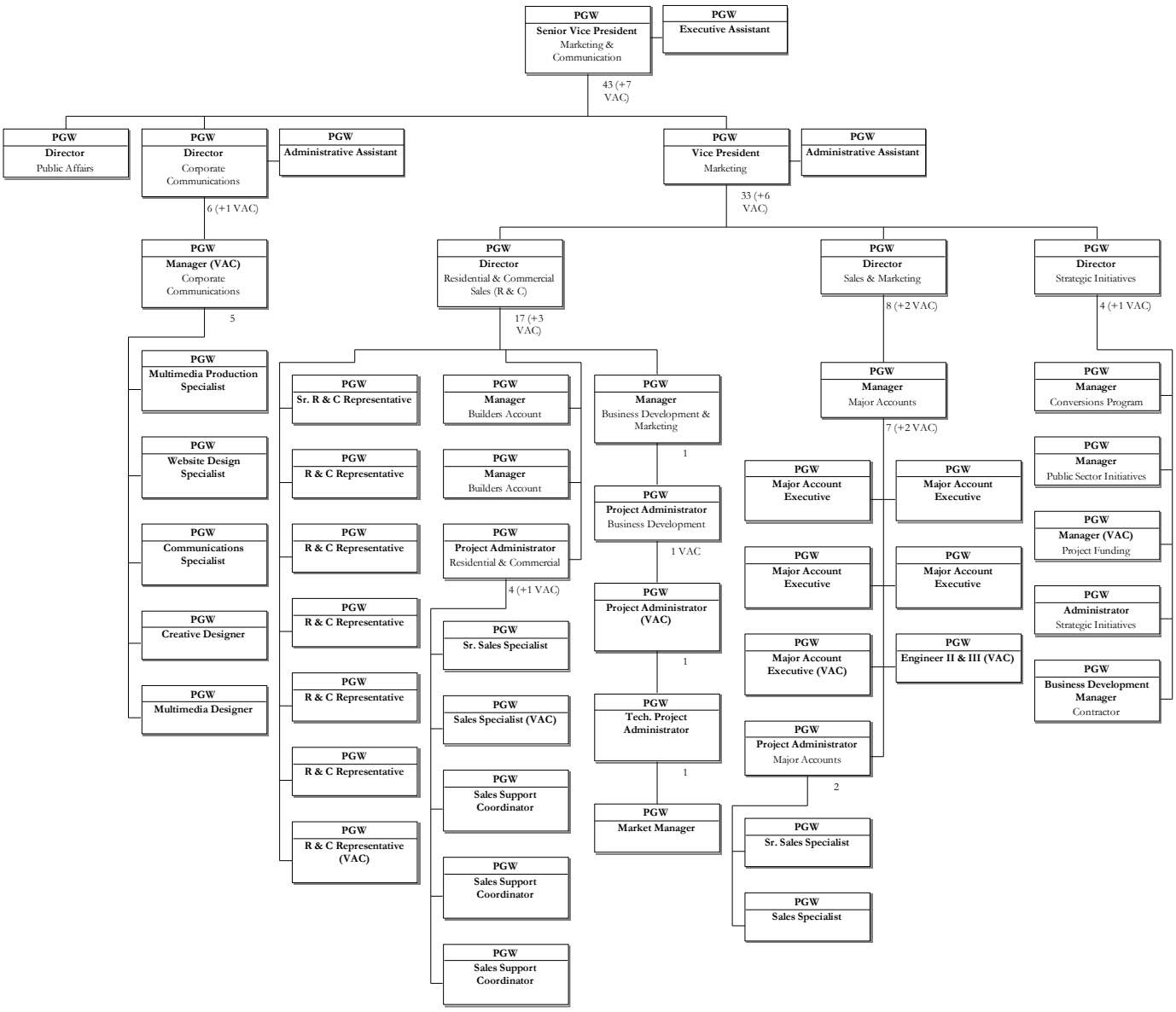
- *LIHEAP* (*Low-Income Home Energy Assistance Program*) – Educate customers on this grant program to assist them in paying gas bills (thereby increasing PGW revenues and reducing uncollectible levels).
- *Collections* – Outreach programs to customers in arrears or in danger of losing service to educate them on their options and to encourage them to contact PGW for assistance.
- *Conservation* – Promote more efficient use of energy to cut costs and promote a healthy environment. This campaign also highlights natural gas as a clean burning fuel, thereby encouraging fuel switching to the benefit of PGW.
- *Pipeline Safety* – Educate residents on the importance of gas safety and what to do in an emergency.
- *Parts & Labor Plan* – Market PGW's revenue-producing furnace and appliance maintenance plan for customers.
- *Advanced Marketing Campaign* – Support Marketing Department in their efforts (see *Marketing* section in this chapter).
- *Landlord Cooperation Program* – Work with landlords to assist in collection and shutoff activities.

Primary tactics used for these campaigns include direct mail, print and radio ads, TV ads, texting campaigns, and bus and subway ads, among other venues. Corporate Communications is in the process of developing some tools to measure the effectiveness of advertising efforts.

Marketing

The Marketing Department is shown in *Exhibit II-2*.

Exhibit II-2
Marketing Department Organization
as of December 31, 2014



Source: Information Response 1

The Vice President of Marketing reports directly to the Senior Vice President of Marketing and Communication. Reporting to him are Directors for Residential and Commercial Sales, Sales and Marketing (large commercial and industrial accounts), and Strategic Initiatives (PGW-wide programs to

expand sales in new areas). All three groups are assigned goals and metrics related to increased sales of gas. The Marketing Department annually updates its Five-Year Marketing Plan. The latest plan (as of December, 2014) is in a draft stage. An outside marketing study was also recently (May 2014) conducted on the market for natural gas vehicles and equipment in the Philadelphia area. It was performed by an outside, independent marketing firm.

PGW's Marketing Plan provides a lengthy discussion of PGW's efforts to increase gas sales and revenues. It includes a situational analysis centered on a Strengths Weaknesses Opportunities Threats (SWOT) analysis, market segment analysis (including market growth), demographic analysis (including customer behavior), market needs and trends, effects of regulation/deregulation, and competition. PGW's marketing strategy includes the department's mission and objectives as well as sales forecasts. Target markets are identified and goals are established to increase gas sales. Specific programs and steps are listed to achieve these goals (including break-even financial analyses). This plan also includes a section on contingency planning, a form of risk management for the Marketing Department.

Major strategic initiatives are underway in seeking natural gas sales opportunities related to compressed natural gas (CNG) / liquefied natural gas (LNG) (i.e., expanding the plant to sell CNG/LNG for uses in commercial fleets like trucks and ships), Combined Heat and Power (CHP) (steam conversions), fuel cells (devices that continuously change the chemical energy of a fuel, such as hydrogen, and an oxidant directly into electrical energy), and converting government buildings to gas. There has been some discussion held within PGW senior management about export marketing opportunities, but that is not actively being studied by the Marketing Department. PGW also has a program to finance conversions for large customers called the Commercial Industrial Customer Incentive Plan (CICIP).

All Marketing Department information is migrating from its legacy Goldmine database to the AIMS database.

PGW also belongs to a number of industry groups and works with PECO Energy Company (PECO) on joint areas of interest. The industry groups include (among others):

- *Association of Energy Engineers* – outreach, education, and information programs concerning development in the energy industry.
- *Alternative Fuels Renewable Energies Council* – a Corporate Leadership Council to promote advanced energy solutions and technologies.
- *American Gas Association* – gas industry group that shares marketing information and strategies.
- *American Public Gas Association (APGA) Research Foundation* – represents the interests of public gas utilities before Congress, federal agencies, and other energy-related stakeholders; information is disseminated about a variety of topics including technology and global markets.
- *Building Industry Association of Philadelphia* – promotes residential construction in Philadelphia.
- *Commonwealth Recycled Energy and Economic Development Alliance* – promotes combined heat and power projects.

- *Energy Solutions Center* – promotes energy efficient natural gas solutions.
- *Fleetseek* – integrated and searchable database of trucking fleets and organizations in North America.
- *Greater Philadelphia Chamber of Commerce* – promotes economic development.

Strategic Planning

At the time of the 2007 management audit conducted by Schumaker & Company, PGW had a Strategic Focused Organization (SFO) strategic planning process which was later abandoned in 2010. The last plan developed in 2009 under this process was the "PGW Today/PGW Tomorrow" plan, which focused on the period 2010 through 2014. Strategic planning functions have been subsequently assigned to the Financial organization under the direction of the Vice President of Budget and Strategic Development.

As of December 2014, there have been no formal written strategic planning guidelines since 2009. Departmental business plans consist of spreadsheets that break down requirements for personnel (full-time equivalent or FTE), one-time and annual operating and capital spending requirements, and one-time and recurring financial benefits. Although departments develop some matrices and performance indicators, they are not a part of the business planning documentation or process. Planning now centers around the financial forecasting and budgeting process described in more detail in *Chapter V – Financial Management*.

PGW is required to provide a monthly scorecard to the PFMC. The scorecard lists 23 metrics broken into different categories: customer (3 associated metrics), financial (7 associated metrics), internal process (12 associated metrics), and learning and growth (1 associated metric).

As part of PGW's operating budget approval process before the PGC, PGW was required to list annual benefits from the business transformation (BT) process. For fiscal years 2010 through 2015, seven BT areas (write-off reactivation, risk-based collections, landlord cooperation, lien system write-off, soft-off, operations resource management, and supply chain) have identified annual savings of over $20 million. PGW has requested that the PGC allow it to suspend reporting benefits from BT process because most of the benefits have already been realized and reported. Instead, PGW is proposing that a workshop be held to develop metrics on an ongoing basis. This workshop would include PGW, PGC, and the Public Advocate.

Findings & Conclusions

Finding II-1 A company-wide organizational evaluation process has not been performed on a regular basis.

There is no formal organizational review or development process although PGW's organization structure has been changing over the past several years. If an officer sees the need for organizational

changes, then they develop their rationale and take it to the Cabinet Committee for approval. Likewise, organizational changes involving more than one department will be discussed at Cabinet Committee meetings and will be approved by the CEO.

A comprehensive evaluation of the entire PGW organization has not been performed in the last five years. This has led to some unusual organizational relationships, for example:

- The Human Resources Department reports directly to the General Counsel. Normally, Human Resources reports directly to the CEO.
- Labor Relations reports to the Chief of Staff. Normally this function reports to Human Resources.
- The officer in charge of the Marketing and Communications functions carries a Senior Vice President title, where a Vice President title is more in line with this level of responsibility. Also, External Relations is split from Public Affairs and Corporate Communications when normally these functions should be organizationally combined. Furthermore, City Council relations are assigned to the Chief of Staff instead of to the Vice President of External Affairs.
- Internal Audit does not report directly to the PFMC Board Audit Committee.
- The Strategic Planning function resides in the Financial organization. In companies with robust strategic planning processes, this support function reports directly to the CEO, is often led by an officer-level position (typically a Vice-President), and is staffed by individuals on a management development track.
- The Corporate Secretary's role is split with the Director of Risk Management serving in that function for the PFMC Board Audit Committee;
- There are a number of one-on-one or one-on-two reporting relationships and several vacant positions that need to be addressed.

PGW's previous Strategic Focused Organization (SFO) process (last reflected in its 2010–2014 plan document) had an organizational review component to it as part of a larger strategic planning process. The SFO process has not been used in the past five years, so a company-wide organizational review process has likewise gone missing.

Finding II-2 Procedures are not centrally controlled and there are no requirements to periodically review and update them.

There is no company-wide database of procedures nor is there a corporate-wide index of policies and procedures, since The Policies and Compliance Department was eliminated in 2011. Each department is responsible for maintaining its own procedures. There is a template for developing procedures, but there are no written guidelines for writing or revising procedures or policies. The Human Resources Department aids other departments in this area as necessary. The process is as such: 1) The responsible department will write a draft of a procedure or revision (using the template) and send it to Human Resources (HR) for review and assistance; 2) The procedure or revision gets approved by department

management, goes to Legal for review, is then sent to the senior management group (all Vice-Presidents) for comments/changes, and finally goes to the CEO for approval. An index of Human Resources procedures is maintained in the HR Department and on the PGW intranet. There are no requirements to periodically review procedures. The Manager of Policies, Procedure, and Attendance was tasked with reviewing and updating 10 of the oldest policies and/or procedures over the course of the upcoming year, but that position had become vacant and has only recently been filled (first quarter, 2015).

Field Operations has taken a slightly different approach toward controlling procedures. Since 2006, there has been an active Field Operations Procedures Working Group (FOPWG) consisting of representatives from Field Services, Distribution, Field Operations, and Customer Services. The FOPWG Committee is responsible for the initiation, development, revision, implementation, and distribution of procedures within Field Operations. The FOPWG is also responsible for tracking and auditing all operations and maintenance procedures and technical standards as well as interfacing with other departments external to PGW (in the case of interdepartmental procedures). FOPWG meets roughly semi-monthly to address any procedures that need to be changed or updated. Any employee who notes a change of equipment or conditions that requires a procedural change, deletion, or addition will bring it to the committee's attention. A working group will be assigned to research and suggest changes, etc. The committee will review and send the results through the Director of Operations to the VP of Technical Compliance and, in some cases, the VP of Operations for approval. There are agenda and minutes kept of these committee meetings. There are also templates for procedures and tracking sheets for those procedures being reviewed/updated.

During the 2007 management audit, PGW's Policies and Compliance Department had a process whereby a manager was tasked with coordinating all company-wide procedures to ensure that indexes were properly maintained, that all new procedures followed the same protocol, and, most importantly, that all procedures were periodically reviewed and updated. The Policies and Compliance department was eliminated in 2011 and this process is no longer in place.

Now each department is responsible for maintaining its own procedures (most procedures apply to Human Resources and Field Operations). Whereas these departments maintain some protocols for developing and maintaining procedures and all procedural changes are still approved by upper management, there is no requirement to periodically review procedures. This could result in some procedures being inaccurate or out of date.

Finding II-3 The strategic planning process is not comprehensive.

The SFO process has not been utilized in the past five years. Planning now centers around developing capital and operating budgets and developing five-year financial forecasts. Although goals and metrics are still used across departments, with some monitored by the PFMC, these are not linked to a robust strategic plan. Likewise, departmental planning is uneven, with some departments developing detailed plans (e.g., Marketing) and others having no business plans beyond budget numbers.

Finding II-4 There is no comprehensive Corporate Communications plan.

Most of the efforts of Corporate Communications are devoted to publicizing ongoing operations, marketing, and customer service programs (the seven major initiatives). There is no overall plan to tie specific corporate communications efforts into PGW strategies and objectives. The recent presentation on "Message and Reputation Management" is a good start to develop this type of business plan, but to date, this effort is still highly conceptual.

Recommendations

Recommendation II-1 Develop an organizational review and development process. (Refer to Finding II-1.)

Conduct a PGW-wide organizational review to include analysis on spans of control, management layering, interactions and mutual support between functions, commonality of functions, strategic importance of functions, management development, and lines of reporting. Organizational changes should not be based primarily on the skills and experience of available managers. Shortcomings in this area should be addressed via management development processes. This review and development process can be paired with a robust strategic planning process and should be reviewed annually.

Recommendation II-2 Coordinate the procedures review process. (Refer to Finding II-2.)

Reinstitute the process whereby one manager in Human Resources is responsible for coordinating the development, review, and maintenance of all procedures company-wide. Institute best practices currently utilized in the departments for maintaining procedures across PGW. Require all procedures to be reviewed on at least a periodic basis, with the responsible manager ensuring departments keep current on all procedures. Each department should designate an individual who is responsible for procedural review.

Recommendation II-3 Reinstitute the Strategic Focused Organization or similar strategic planning process. (Refer to Finding II-3.)

Schumaker & Company recognizes that PGW has recently gone through a time of uncertainty as it attempted to navigate through the proposed sale to UIL Holdings Corporation (UIL). As of December 2014, with the announced rejection of the proposed sale by City Council, PGW is in a position to begin strategically planning again. Recommendations in the report to the City Council have created an atmosphere whereby positive management process changes and investments can be made provided they are supported by good strategic plans. A robust and comprehensive strategic plan will ensure that PGW is most effectively geared toward accomplishing long-term objectives in the most efficient manner. This plan will also enable PGW to better make its case to various outside parties to effect needed changes.

Each department should be required to produce a business plan, similar in format to the strategic plan that fully integrates with all PGW goals, objectives, and performance measures.

Recommendation II-4 **Develop a comprehensive Corporate Communications business plan. (Refer to Finding II-4.)**

PGW's Corporate Communications Department should develop a business plan that specifically identifies programs and activities tied to its strategic goals and objectives. Programs and activities should be further tied to resources (dollars, manpower, and support from other PGW departments) and include a full set of metrics.

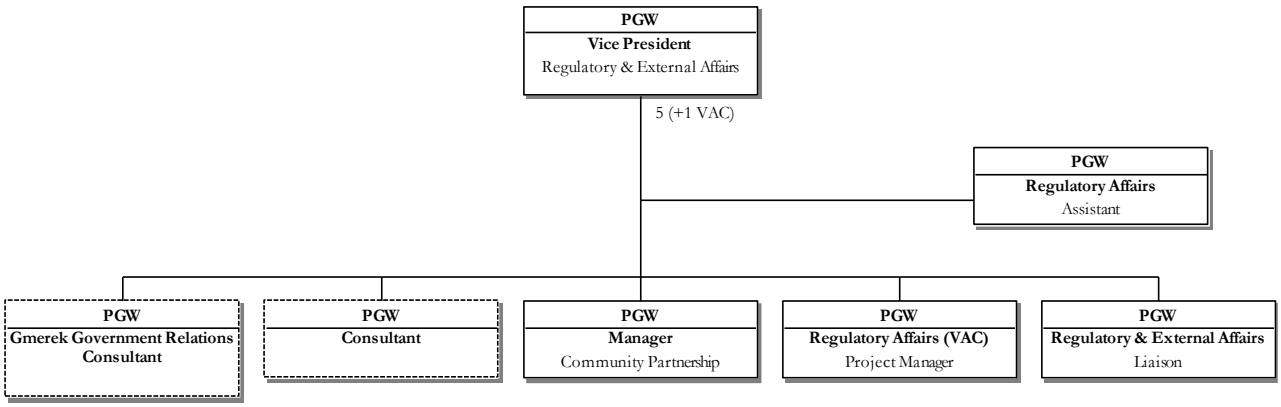
B. External Relations

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

Background & Perspective

The organization of PGW's Regulatory and External Affairs function is shown in *Exhibit II-3*.

Exhibit II-3
Regulatory and External Affairs Organization
as of December 31, 2014



Source: Information Response 1

The Regulatory and External Affairs activities are under the responsibility of a Vice President of Regulatory and External Affairs who also draws on one of the attorneys in the Legal Department for assistance. Recently, in February 2015, one of these attorneys was named Vice President of Regulatory and External Affairs, reporting directly to the CEO. PGW's public affairs activities fall under a separate organization to a Director who reports to the Senior Vice President of Marketing and Communication, as shown previously in *Exhibit II-2*.

Regulatory and External Affairs coordinates with all business units within PGW on regulatory and legislative issues and formulates PGW's position and responses. The Vice President of Regulatory and External Affairs is a member of the Cabinet and Senior Management Committees. Regulatory Affairs

interfaces with the City Council and state legislature (Harrisburg) and coordinates presentations to community groups. Most lobbying efforts come via PGW's association with and through industry groups (on issues of industry importance) such as the Energy Association of Pennsylvania (EAP) and the American Public Gas Association as well as through a long-time lobbyist in Harrisburg for PGW-specific issues and interests. The department will also participate in working groups with other utilities on specific issues. PGW has an outside counsel that specializes in legislative issues as well.

Current legislative proposals at local, state, or federal levels that might impact PGW include the following:

- Retail Market Investigation
  - The Pennsylvania Public Utility Commission (PaPUC) directed its Office of Competitive Market Oversight (OCMO) to move forward with an investigation into Pennsylvania's retail gas market, as well as seek comments on issues related to its investigation. The PaPUC directed OCMO to examine several specific issues involving retail gas competition. OCMO has been further directed to form working groups composed of natural gas distribution companies (NGDCs), natural gas suppliers (NGSs), and other interested parties to investigate potential changes or standardization of the use of capacity and storage assets; issues regarding system balance, tolerances, and penalties; amendments to creditworthiness requirements; issues regarding nondiscrimination in access points on distribution systems; accelerated switching timeframes for consumers; low-income customer shopping; enhancements to www.PAGasSwitch.com; expanded consumer education about shopping; purchase of receivables (POR) programs; joint NGDC – NGS bills; account number access mechanisms; migration riders; and electronic data protocols.
  - This investigation is anticipated to have a significant impact on PGW's choice program. The investigation will involve the collaborative efforts of commission staff, NGDCs, NGSs, and other interested parties. PGW has already participated by submitting comments with respect to more informal requests from the Commission to all Pennsylvania (PA) NGDCs. Additionally, PGW has participated in a two-day conference attended by PGW's Regulatory Affairs and Gas Management personnel, personnel from all of the other PA NGDCs, and PaPUC staff to provide staff with information about gas management and how it relates to administering Choice programs. It is anticipated that this investigation will continue with collaborative educational forums, working groups, and eventually rulemakings, which will require comments. This investigation will likely continue into 2016.
- House Bill 129
  - Requires natural gas distribution companies, such as PECO and PGW, to reduce natural gas consumption and demand 1% by 2018 and 3% by 2020; eliminate a 2% cap on allowable revenue that electric and natural gas distribution companies can spend on implementing energy efficiency and conservation programs; and allow electric and natural gas distribution companies to recover revenue decreased as a result of implementing energy efficiency and conservation programs.

- This bill modifies a current statute that is only applicable to electric distribution companies and extends a mandate for energy efficiency and conservation programs to natural gas distribution companies. The bill was recently introduced in 2014. PGW recently attended Democratic Policy Committee hearings related to this bill and will continue to monitor the progress of this bill internally and through the Energy Association of Pennsylvania (EAP).[3]

- Gas Competition Legislation 10 – House Bill 57
  - PGW and other PA NGDCs and NGSs negotiated the substance of this bill during the prior legislative session. PGW internally monitors the introduction of all bills and amendments and meets with relevant legislators when appropriate. Additionally, PGW collaborates with other PA NGDCs through EAP.

- Philadelphia City Council Special Committee on Energy Opportunities for Philadelphia.
  - An investigation into the potential to establish the City of Philadelphia and the region as an energy hub. The Special Committee's charge will include soliciting conceptual proposals, holding public hearings, and conducting research, all aimed at developing strategies for developing Philadelphia and the region as an energy hub. The scope of work shall include, but not be limited to, identifying strategies for enhancing Philadelphia Gas Works through such means as reforming its governance or entering into joint ventures and public-private partnerships. City Council hearings are ongoing. PGW will participate in these hearings, meet with relevant stakeholders, and provide information as needed.

- Natural Gas Line Extension Legislation – House Bill 214
  - PGW is currently exempt from this bill but it will continue to monitor any amendments to this bill in both the Senate and the House. During the prior legislative session, PGW was exempt from the Senate bill but was not exempt from the House bill. PGW worked collaboratively with other PA NGDCs via EAP in order to educate others about the impact of the bill on PGW and other NGDCs and provided suggested revisions to the legislation.

The new Vice President of Regulatory and External Affairs is currently in discussion with the CEO on the scope of his duties and what his new job description will be. No metrics for this function have yet been developed. This position is a member of the senior management team and presentations are given monthly on external affairs. The Vice President also meets weekly with the CEO and Chief of Staff and monthly with senior management.

Public Affairs has recently been elevated to a Director-level position. Public Affairs is in the process of expanding its function and is preparing a documented strategic game plan for presentation to the Cabinet or Senior Management Committee. This plan will include re-establishing the Corporate Speakers Program and re-establishing a database of community group contacts for periodic outreach.

[3] The Energy Association of Pennsylvania is a trade association whose members include the electric and natural gas utilities operating in Pennsylvania.

Specific programs will involve better customer profiling, more proactive external communications, and additional educational outreach. An annual Corporate Responsibility Report is expected to be developed and issued (September 2015) that tracks these efforts.

External Relations direct expenditures for the past five fiscal years have been minimal and declining from $646,000 in FY2010 down to $281,000 in FY2014. Virtually all of External Relations direct expenses go to labor ($176,000 in FY2014) and purchased services ($99,000 in FY2014). Purchased Services supports representation at the state and federal level.

PGW is prohibited from sponsorships and contributions. Corporate Communications partially mitigates this prohibition by advertising programs to encourage employee contributions (e.g., United Way campaign).

Findings & Conclusions

Finding II-5 **The External Affairs function does not have a comprehensive communications plan.**

Both the External Affairs and the Public Relations functions have recently been reorganized and have new department heads in place. These department heads (Vice President and a Director) are in the early stages of defining their roles and responsibilities within the PGW organization. Plans, goals/metrics, documentation, programs, and activities are now being developed but have not been documented or approved yet.

Some effective programs that were in place during the last management audit conducted in 2007 have been abandoned, specifically the Corporate Speakers Program and the community outreach effort. Furthermore, the contact responsibilities for City Council and other City agencies have been taken over by the Chief of Staff rather than the Vice President of Regulatory & External Affairs.

Recommendations

Recommendation II-5 **Develop an External Relations communications plan. (Refer to Finding II-5.)**

Both External Relations and Public Affairs should develop a joint document that encompasses all of their programs and activities with a focus on the importance of those programs and activities in supporting PGW's strategic plan. This plan should include specific goals and metrics, tied to specific programs and activities as much as possible, and should be tied into the groups' budget. This plan should be reviewed and updated annually.

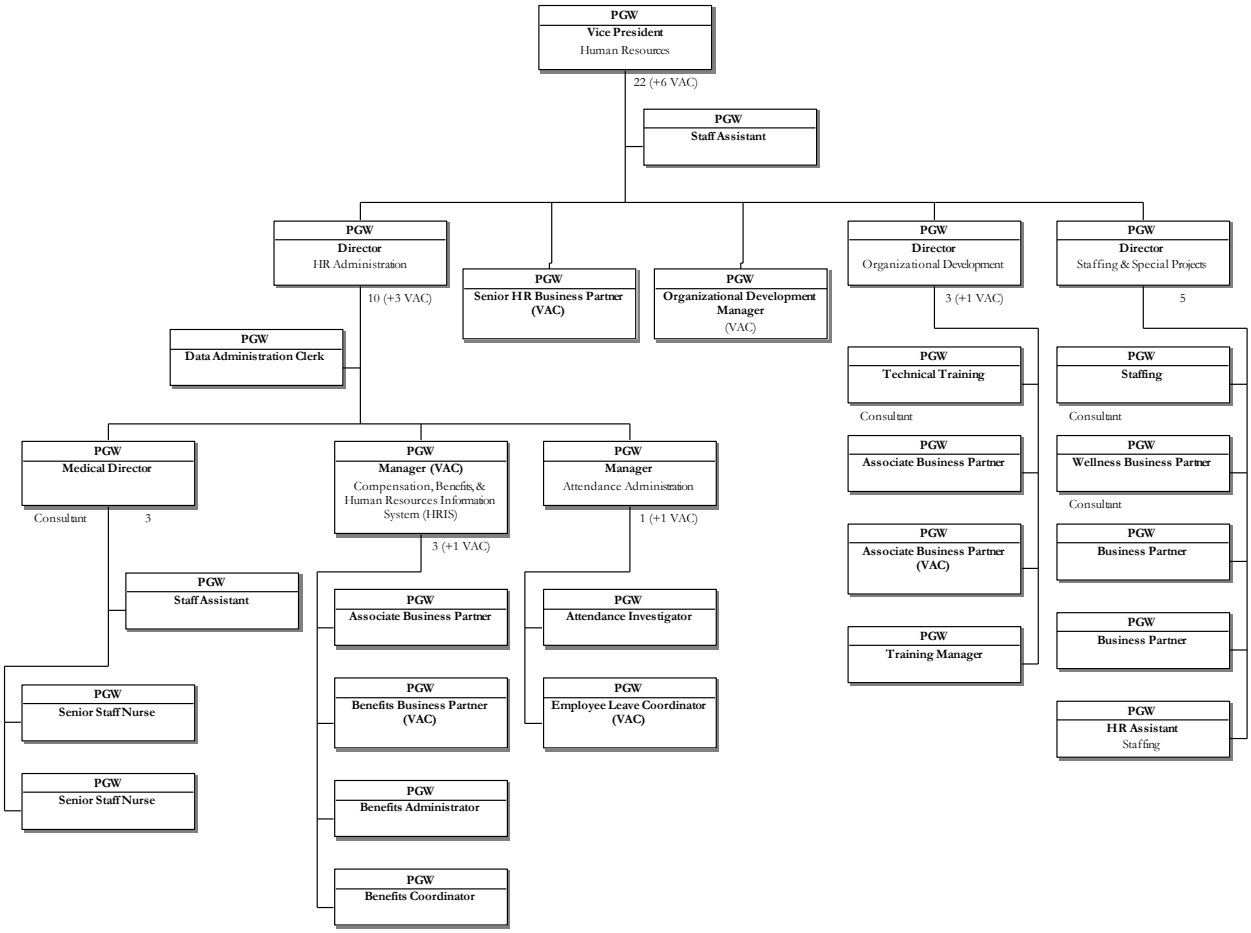
Responsibilities for contact with City Council and other City agencies should be transferred over to the Vice President of Regulatory and External Affairs.

C. Human Resources

Background & Perspective

Exhibit II-4 illustrates Philadelphia Gas Works' (PGW's) Human Resources (HR) organization.

Exhibit II-4
PGW HR Organization
as of September 15, 2014



Source: Information Response 1

HR Administration

The Director of HR Administration is responsible for compensation, deferred compensation benefits, time and attendance, pension plans, the corporate medical department, life insurance, and short- and long-term disability programs.

The Manager of Compensation, Benefits, and Human Resources Information System (HRIS) position has been vacant for some time. PGW is anticipating to fill this critical position. Currently, the Director of HR Administration oversees the benefits administration staff.

The Attendance Administration Manager is responsible for managing PGW's absence control programs, overseeing Family and Medical Leave Act (FMLA) determinations and compliance, daily reporting to departments, process monitoring, and enforcement of PGW's attendance tracking system and policy compliance.

The Attendance Investigator investigates and verifies employee absences, compiles critical attendance accounting reports/spreadsheets, generates recommendations for corrective actions and write-ups for absences, and coordinates all disciplinary actions with labor relations and departmental managers.

The PGW Medical Director has a broad range of responsibilities related to fitness for duty, medical case management, absence control occupational safety, and employee wellness. Specifically, these duties include:

- American with Disabilities Act (ADA) accommodations
- Disability evaluation
- Employee Assistant Program (EAP) interface
- Fitness-for-duty evaluations
- FMLA clearances
- Identifies and addresses safety concerns
- Job-specific pre-placement evaluations
- Medical Review Officer services
- Medical testimony as needed
- Member of safety and employee utilization committees
- Oversight of the professional activities of the Registered Nurses
- Regulatory examinations as required by Pipeline and Hazardous Materials Safety Administration (PHMSA) and Federal Motor Carrier Safety Administration (FMCSA)
- Respirator fitness evaluations
- Review of ancillary testing e.g. vision, hearing
- Substances-of-Abuse testing & Department of Transportation (DOT) reporting
- Supervisory Drug & Alcohol training
- Support of wellness & prevention efforts
- Triage for non-occupational conditions

Organizational Development

The Organizational Development (OD) group is primarily responsible for employee training and development. The group conducts training needs assessment, provides instructional design to address these needs, and often delivers the training. To assess training needs, the OD Business Partner meets with PGW Vice Presidents to discuss their business needs, although the group recognizes that "not

every problem is a training need." Armed with this information, the group is able to design and deliver customized programs when appropriate. Data from the employee performance evaluations is also used to identify training needs. The emphasis on in-house design and delivery of training has allowed PGW to reduce its training budget by 20%.

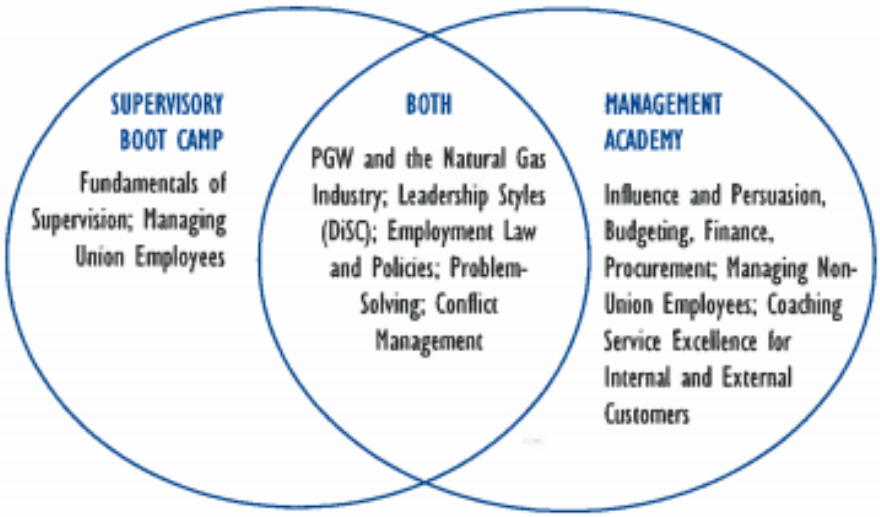
Key components of the PGW training program include a Supervisory Boot Camp. This course is designed to help employees transition from technical knowledge experts and high-performing employees to leadership roles. It covers PGW processes and business knowledge, including performance metrics. It also delves deeply into employment law and labor relations. In addition, the course covers leadership theory and practice. Sessions are taught by PGW senior managers, internal trainers, and outside consultants.

PGW also offers a Management Development course. This course is offered to select individuals who are identified through a selection criteria or are nominated by their Vice President. It offers an advanced perspective on key strategic leadership topics, including:

- How to attract, focus, and retain the most talented employees
- How to bring out the best in others
- How to coach for productivity and career development
- How to address performance issues clearly, legally, and ethically
- How to increase influence up, down, and across the organization

A graphic summary of the relationship of content in the Supervisory Boot Camp and Management Academy program is provided in *Exhibit II-5*.

Exhibit II-5
PGW Supervisory Boot Camp and Management Academy Content
as of December 31, 2014



Source: Information Response 256

The OD group, through a contract employee, also provides some technical training, including on Microsoft applications. Job-specific technical training is provided by operations.

The OD group also manages internal investigations related to discrimination and harassment complaints short of violence. (Violence investigations are handled by corporate security.) Employees can complete a confidential internal complaint form that initiates an investigation.

Over the last five years, no employee complaints made to external agencies (federal or state) have led to findings against PGW.

The Director of Organizational Development also chairs the employee utilization committee. This group reviews and provides direction or case management for employees who are out of work on short-term or long-term disability and who have returned to work with medical restrictions. This latter oversight includes temporary and permanent medical restrictions, permanent accommodations, full release to work without restrictions (following a medical leave), and medical separations. Other members of the group include the Human Resources Vice President, the Corporate Medical Director, the Director of Labor Relations, and the Safety Manager.

PGW provides light/transitional duty that is available for anyone who is released to work with a medical restriction. The organization makes sure that no one is at home for lack of light duty. These transitional-duty work assignments are essential work (not busy work). PGW will provide training or whatever support is necessary to help employees qualify for new job assignments, assuring successful placements.

Staffing

Within the Staffing and Special Projects area, the Director is responsible for staffing, performance management, wellness, and tuition assistance. This oversight includes recruitment and management of the selection process for managerial and hourly employees. She is also responsible for the performance management (objective setting and evaluation) system. All PGW employees, including represented employees, receive an annual evaluation.

The largest volume of work in this role is related to staffing. Two full-time PGW employees (business partners) one contract employee, and three college interns (not shown on the organizational chart) support this function. Their responsibilities include college recruitment, special recruitment to support diversity goals, and general advertising of positions. Applications are screened manually and all qualified candidates are given a face-to-face interview. Many positions require testing as well as interviews.

Special projects include the Corporate Wellness program. This program was implemented to ensure that employees are active and remain healthy and fully able to contribute. The program supports health and, as a result, lowers self-insurance costs. In addition, it helps reduce the use of sick and vacation time. The program is run by a contract employee.

Recruitment, Retention, and Succession Planning Programs

PGW offers a number of programs to support talent development, retention, and succession planning. This initiative includes established relationships with area colleges and vocational schools. It also includes a relationship with the Williamson Free School of Mechanical Trades. This three-year college in Media, PA offers admissions to 100 students each year, with special consideration given to financially disadvantaged students who might not otherwise be able to further their education. The school prepares students for careers in trades, machine tooling, painting, and power plant technology. PGW started attending Williamson's career fairs in 2010 and in 2013 looked to Williamson grads to fill instrument tech positions at the Passyunk and Richmond plants. These students proved to be of such high caliber that, with union concurrence, they were offered mid-level positons and not entry-level ones. Unfortunately, the competition for these graduates is intense and the first round of recruits turned PGW down. Subsequent efforts were successful and the first Williamson grad started with PGW in February 2014.

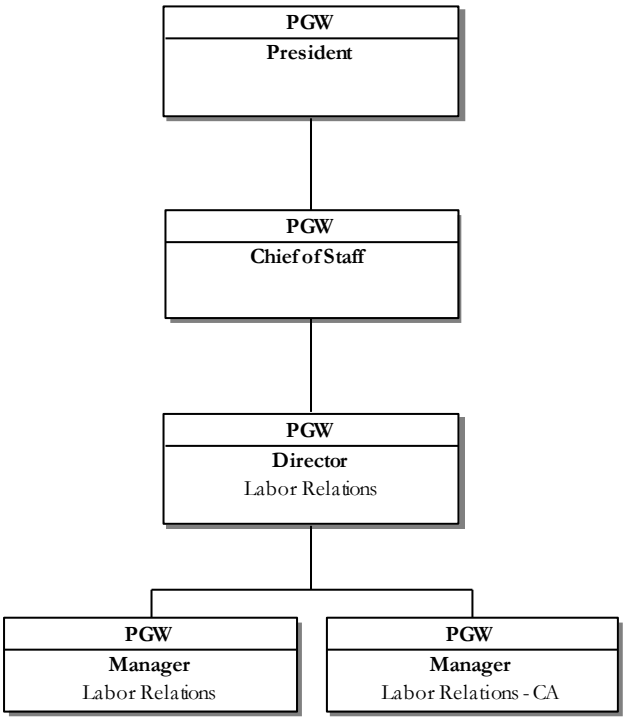
The leadership development programs discussed above are an integral aspect of PGW's retention efforts. As discussed, PGW also offers a Leadership Development Program (LDP) for high-potential employees. Approximately 60% of the employees who have completed this program have been promoted to higher-level positions at PGW. This is just one of the active training and development, education, and job rotation programs to aid in job readiness. PGW offers a six-week Supervisory Boot Camp for new frontline supervisors and a six-week Management Academy for new managers and directors.

For senior management, there is a quarterly top-level succession planning review that addresses risks in management team succession. Replacement plans are developed for positions with a high potential for becoming vacant.

Labor Relations

The Manager of Labor Relations reports to a Director, who in turn reports to the Chief of Staff reporting to the PGW President. The Labor Relations organizational chart is provided in *Exhibit II-6*. Subsequently, in 2015, the Manager, Labor Relations (Customer Affairs) now reports to both the Vice President of Customer Service and Collections and the Vice President of Regulatory Compliance and Customer Programs.

Exhibit II-6
PGW Labor Relations
as of December 31, 2014



Source: Information Response 1

Labor Relations handles discipline issues, grievances, arbitrations, and collective bargaining. PGW also has a Labor Council consisting of the Chief of Staff, the Director of Labor Relations, a Labor Relations Manager, and labor liaisons for various departments.

Currently, PGW has 14 active arbitrations. The organization cites a history of working through grievances and arbitrations and eventually arriving at some agreement short of arbitrator decision. Over the past three years, only three arbitrations have made it to an arbitration decision.

Labor Relations has been involved in addressing key PGW issues. PGW is applying progressive discipline for violations of safety rules and regulations. In addition, the organization has aggressively embraced technology to monitor driving behavior and strengthen accountability. Global positioning system (GPS) has been available in all PGW vehicles for some time but is now used to monitor equipment (and employee) positions. Drive cams have been installed on rearview mirrors that record both what is happening in front of the vehicle and what the driver is doing. These cameras can see if a driver is distracted (smartphone), not belted, or simply not paying attention. The system also employs an electronic gyroscope to capture events associated with a sudden movement of the vehicle. A new

timekeeping system requires employees to actually clock in and out and to account for all time off (through leave codes).

The collective bargaining agreement expired May 1, 2015, although PGW has negotiated and approved an agreement since then. Like many other companies, PGW is asking employees to make a contribution to healthcare costs. While a strike is not expected, PGW has made appropriate preparations in case of such an event.

During the prior Pennsylvania Public Utility Commission (PaPUC) management audit of PGW, Schumaker & Company noted that PGW divided its Human Resources (HR) function into two separate organizations, each led by a Vice President. One unit was titled Human Resources and the other Organizational Development. The Human Resources organization was responsible for labor relations, compensation, benefits, HRIS, medical, and transactions and recordkeeping. The Organizational Development unit was responsible for performance management, staffing, succession planning, the executive leadership development program, employee relations, equal employment opportunity (EEO) compliance, affirmative action and diversity initiatives, and staff training and development.

Since that time, PGW has combined most of these HR functions under a single Vice President with the exception of labor relations, which beginning in January 2014 was aligned under the Chief of Staff reporting to the President. PGW had viewed HR as taking a softer view of issues. In addition, the responsibility for labor relations was somewhat disbursed in PGW, a tendency which led to inconsistent policy application and associated judgments against PGW. Today, PGW sees its labor relations function as more aggressive and consistent.

Although this appears to be an acceptable organizational structure for PGW, it is unusual, especially in light of a history of organizationally divided HR functions. Schumaker & Company believes this has the potential to reduce HR's ability to develop integrated human resources strategies and functions on a strategic level, but lacking any direct evidence of dysfunction, we offer this as a comment and do not raise it to the level of a finding.

HR Technology

PGW's HR technology platform is ADP Enterprise HR, v5.03. ADP's Enterprise HR solution is the core technology at the center of its suite of comprehensive services. This technology foundation unites human resources, payroll, and benefits processes because it integrates data and consolidates reporting through one ADP gateway.

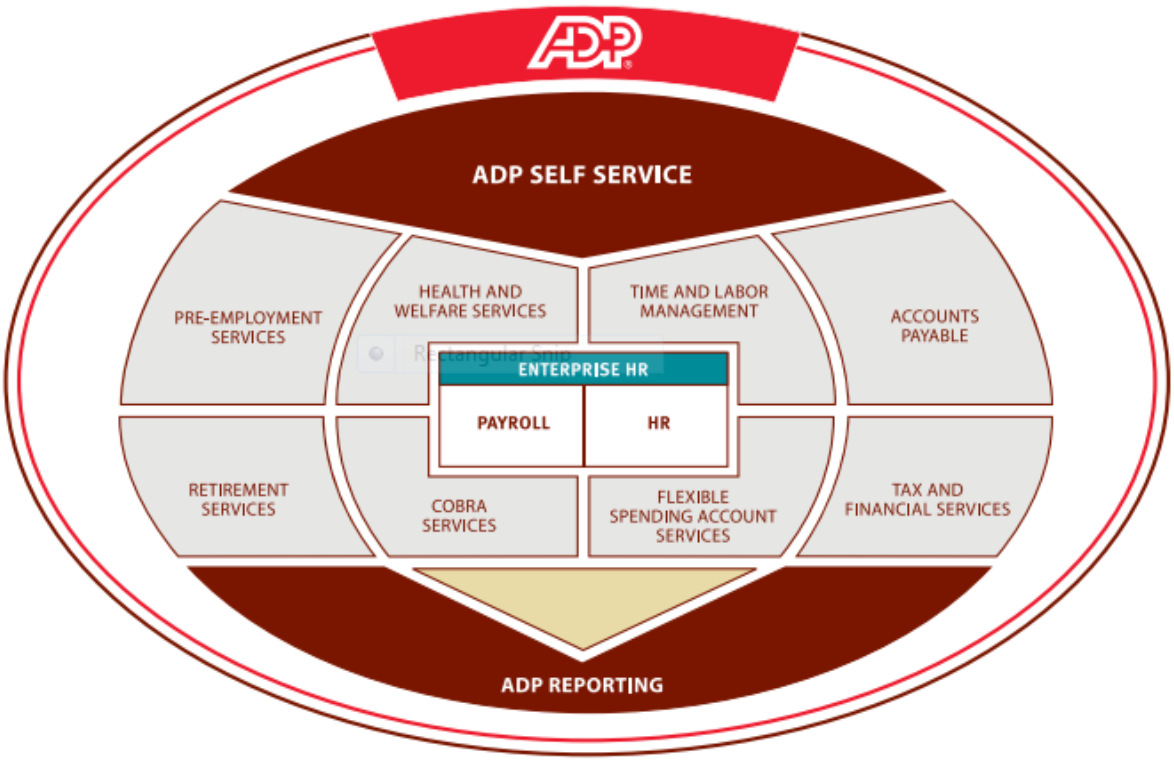
Modules within the system support critical HR functions, including:

- Human Resources Management
  - Recruitment
  - Performance Management
  - Multi-Level Strategic Reporting

  - Compliance Management
  - Compensation Management
  - Training and Development
- Payroll Processing
- Benefits Administration Services
  - Benefits Deductions Calculators
  - Information Tracking

A graphic representation of the system's functionality is provided by ADP and is reproduced in *Exhibit II-7*.

Exhibit II-7
ADP's Enterprise HR



Source: ADP

A minor upgrade of the system was underway during the current management audit. The 2013 upgrade included employee self-service and associated workflow. This functionality includes online access to pay advices (payroll statements) and the ability to make W-4 changes, see prior year wages, make changes to address and phone number, etc.

PGW implemented WorkForce EmpCenter time and attendance software in 2009. EmpCenter captures detailed time and attendance data and automates complex pay rules.

PGW implemented iCIMS in the fall of 2013 as a replacement to Neogov to support the staffing function. This system is used to collect external applications through PGW. On the backend, the system allows the staffing team to move through applications in a much more efficient manner. PGW is currently working on an internal application that will allow its employees to apply online for internally posted positions. Onboarding (new hire processing) is another feature offered by iCIMS, and PGW is working on implementation.

Finally, PGW implemented Cornerstone On Demand software in fiscal year (FY) 2014 to support performance management and succession planning and as a learning management system. The system provides evaluation tools to measure individual employee performance, to conduct 360-degree reviews, to develop competencies, and to track goal completion. In support of succession planning, Cornerstone tracks mission-critical skills, roles, and competencies and helps identify potential employees, resulting in a pool of talented resources that can be drawn upon as needed. Cornerstone also provides a centralized system, delivering instructor-led training (ILT), virtual e-learning, exams, certifications, and compliance content for training and development of employees.

The performance management system is scheduled to launch in early September 2015. PGW is launching new management team, supervisor, non-supervisor, and union-exempt performance evaluations. (Union employees have a separate evaluation process handled by Labor Relations.)

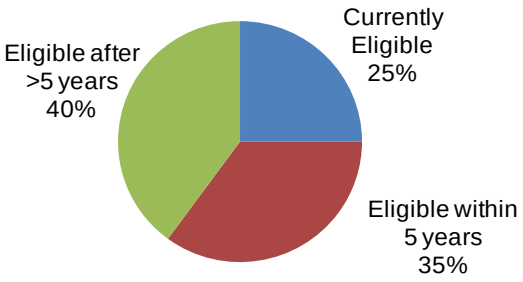
Findings & Conclusions

Finding II-6 **PGW has an exceptionally high number of employees who are currently or soon to be eligible for retirement.**

For some time now, the aging workforce has been recognized as a significant concern for utilities. Across the utility sector, about 15% of utility employees have the potential to retire or leave within the next five years. An additional 10% are ready to retire now. Collectively, about 25% of utility workers will likely retire in the next five years.

Schumaker & Company encounters aging workforce issues in nearly every utility it has reviewed, but PGW's aging workforce issues are especially acute. Today, 25% of PGW's workforce is eligible for retirement right now and an additional 35% will become eligible within the next five years (a total of 60% eligible to retire in the next five years). *Exhibit II-8* provides a graphic representation of employee retirement eligibility at PGW.

Exhibit II-8
PGW Retirement Eligibility
as of December 31, 2014



Source: Information Response 217

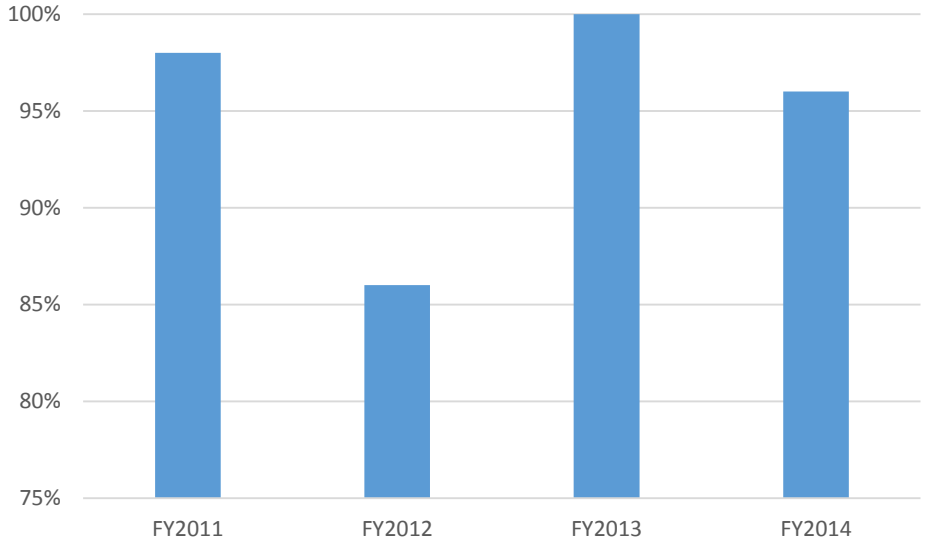
There are many job classifications where one-third or more of the employees are eligible to retire today. For example, one-third of Field Services Supervisors are eligible to retire today and all are eligible within five years. Although we would, obviously, expect senior management to be closer to retirement, we note that of PGW's 57 senior management positions (director and above), 24 (42%) are currently eligible to retire.

The aging workforce presents a significant operational risk to PGW in the coming years. PGW employees have often worked their entire careers for PGW and leave with an enormous amount of institutional knowledge. They perform complex, skilled work within highly specialized areas, requiring significant knowledge and skills that have been learned on the job. Institutional knowledge is often poorly documented. Recruiting replacement workers has become more difficult. Training them is expensive and younger workers tend to have higher turnover rates. If you add in the costs of pensions and other employer obligations to retirees, the challenges PGW faces only increases. While these issues are industry wide, they are intensified at PGW by the exceptional high level of retirement eligibility.

Finding II-7 PGW has a small recruitment staff.

Schumaker & Company recognizes that the PGW staffing function has performed well over the past four years. (Data is not available for FY2010.) Positions are regularly filled within the time-to-fill goal. This goal varies depending on position and market, but most positions are filled in 60 to 65 days. The percentage of open positions filled within goal (conditions) is presented in *Exhibit II-9*.

Exhibit II-9
Percentage of Hires Completed within Guaranteed Time-to-Fill Goal
FY2011 to FY2014



Source: Information Response 248

PGW reports that the volume of recruiting work is currently driven by many entry-level position openings. During the period of August 1 to September 30, 2014, PGW hired 108 people. Most of these hires were to fill customer service representative and entry-level laborer positions. This compares with 150 to 175 hires in an average year.

For entry-level positions, PGW reports that the biggest challenge is processing the high volume of applicants as opposed to finding qualified candidates. PGW offers face-to-face interviews to all applicants who meet the minimum qualifications.

Although the performance level of the staffing group has been very good, the high rate of retirement eligibility (as noted in *Finding II-6*) means that a significant number of PGW employees can leave the organization, so much so that there will not be sufficient internal talent to promote. This will force PGW to look externally for new employees. For management positions, significantly low compensation rates and no incentive compensation will put PGW at a disadvantage in recruitment. In fact, PGW reports that it is difficult to find mid-level to senior-level management candidates – especially with a union relations background. There is an ongoing challenge to find IT staff as well. (This was discussed extensively in the 2008 PaPUC Stratified Management & Operations Audit of PGW.)

The PGW staffing function has a Director, three staffing professionals, and three interns to fill PGW's staffing needs. Given the planning, recruiting, selection, and on-boarding work that PGW is likely to face in the near term, Schumaker & Company questions the ability of this small staff to meet these needs.

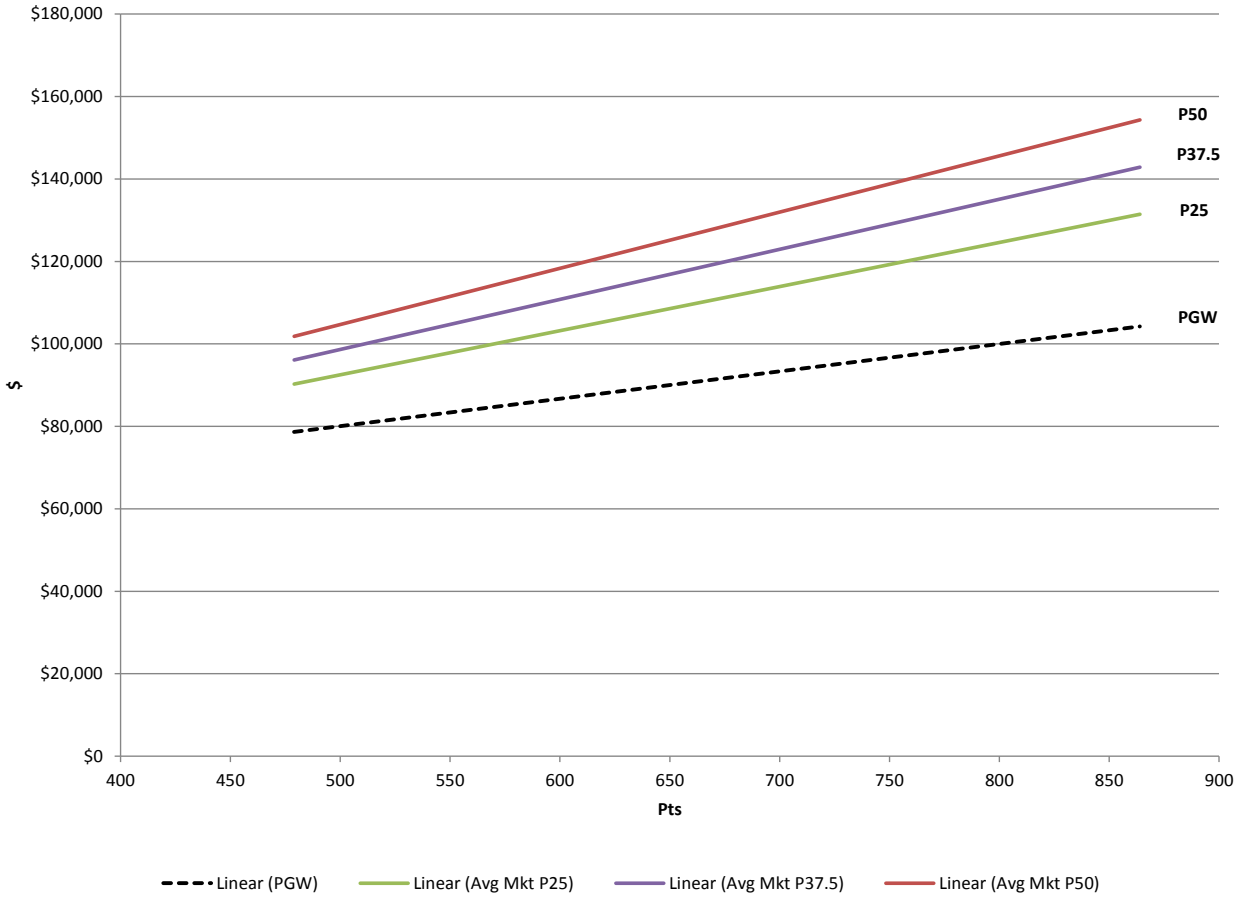
Finding II-8 Compensation for management-level positions is below market, making it difficult to attract talent.

The most recent compensation study for PGW was conducted in 2010 by Hay Group, a global management consulting firm. This study revealed that PGW compensation levels for exempt employees was well below market (i.e., around the 15th percentile for lower-level management and much lower for upper-level management).

Salary ranges were last adjusted in 2005 and even then were only applied to upper-level management positions. PGW has not implemented an incentive compensation system as was recommended by Schumaker & Company in the 2008 PaPUC Stratified Management & Operations Audit.

Exhibit II-10 is a chart from the 2010 Hay Group study comparing PGW compensation levels to comparable positions in the energy sector as rated using the Hay point system (the figures on the horizontal axis). The linear data represents the average pay within a percentile group. As such, the P25 line, is the average pay at the bottom 25th percentile of reported compensation. In every case, PGW's level of compensation falls well below the 25th percentile.

Exhibit II-10
PGW Exempt Employee Compensation versus Market
2010



Source: 2010 Hay Group Study, Information Response 314

Since the completion of the 2010 report, PGW reports that it is falling further behind the market on compensation.

Schumaker & Company believes that compensation rates this far below market make it difficult to attract and retain top talent. As was discussed in Finding II-6, 42% of PGW's 57 most senior managers are eligible for retirement immediately. PGW has reported difficulty in filling key positions. Most notable is the difficulty the organization has had in attracting and retaining the Director of Customer Affairs. The job has been filled twice in two years after lengthy searches. Finding IT professionals also remains a challenge. A sudden surge in retirements combined with difficulty attracting and retaining talent represents a continuity of operations risk for PGW.

Finding II-9 PGW does not have a workforce plan for hourly employees.

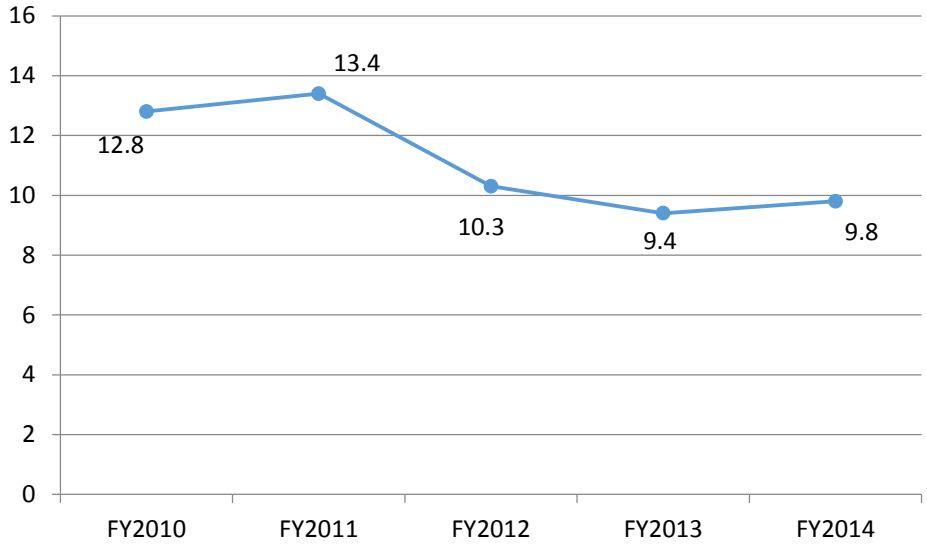
In the 2008 PaPUC Stratified Management & Operations Audit of PGW, Schumaker & Company recommended the organization undertake a comprehensive workforce plan to prepare for anticipated turnover. Subsequently, PGW has implemented a succession planning process for management positions, which is aimed primarily at identifying and developing high-potential internal candidates.

While these efforts are notable, it does not address the future needs of the non-exempt workforce. At present, the staffing function has adequately addressed employee turnover in the non-exempt workforce and appears to be able to attract qualified employees in spite of its significant challenges. However, Schumaker & Company is concerned this approach is more reactive in nature rather than proactive in which efforts related to turnover forecasts, assessment of future competency requirements, and comprehensive strategies to attract and retain the workforce of the future exist. (Again, Schumaker & Company recognizes that recruitment efforts are underway, as noted in the *Background & Perspectives* section of this report, but these efforts may not be adequate to address future needs.)

Finding II-10 PGW has reduced employee absences.

PGW's strong absence policy as well as its proactive wellness and work/life balance efforts appear to be having a positive effect. The average numbers of days absent per employee declined 27% from a high of 13.4 in FY2011 to 9.8 in FY2014.

Exhibit II-11
Average Days of Absence
FY2010 to FY2014



Source: Information Response 343

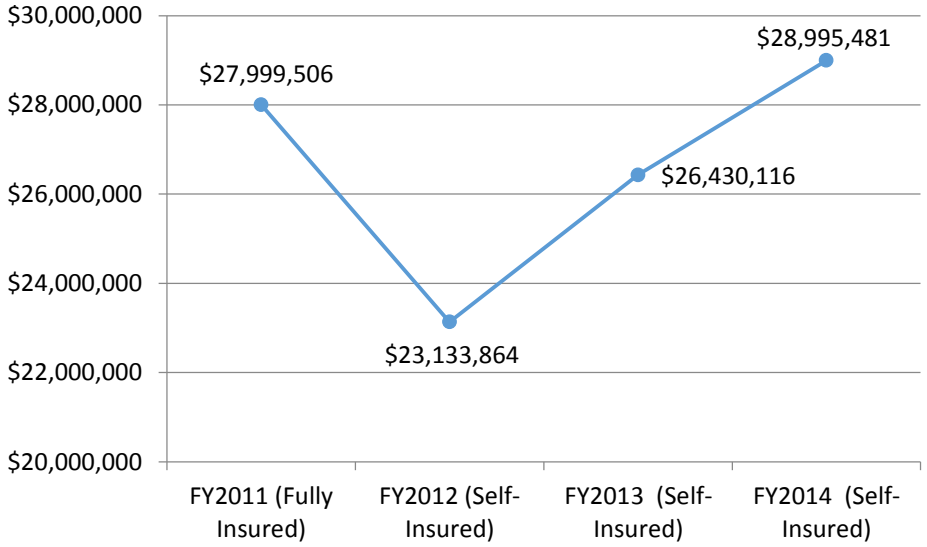
In the 2008 PaPUC Stratified Management & Operations Audit of PGW, Schumaker & Company recommended PGW address the root causes of absence. We have noted PGW's efforts as part of our fieldwork review to address this prior recommendation, including the establishment of an extensive wellness program, flexible work hours, work/life balance initiatives, and a more robust return-to-work program for employees who have medical work restrictions.

Finding II-11 PGW has done an effective job of managing healthcare costs.

PGW continues to do an effective job of controlling healthcare costs. In FY2011, PGW spent $28 million on a fully insured health insurance plan for its employees. In the following year, the organization switched to a self-insured plan. Expenditures declined 17.4% to just over $23 million. While fully insured plans in general have increased by about 30%, PGW's cost increases for its self-insured plan were only 4%.

The costs for PGW's FY2011 fully insured plan is compared to the self-insured plan costs for FY2012 – FY2014 in *Exhibit II-12*.

Exhibit II-12
PGW's Healthcare Plan Costs
FY 2011 to FY 2014



Source: Information Response 324

Similar cost control success can be seen in PGW's short-term and long-term disability (STD/LTD) insurance. In FY2013, PGW sought bids for its STD/LTD insurance. The incumbent insurer sought a 20% to 30% increase for non-union employees and more for union employees. The winning bid offered a comparable plan with just a 5% increase for STD and none for LTD. These rates are guaranteed for three years. This bidding process was a result of a collaborative effort between

management and union leadership in order to combine the previously separate plans for bidding purposes resulting in reduced costs through increased buying power.

Recommendations

Recommendation II-6 Expand the capacity of the Human Resources staffing function. (Refer to Finding II-6 and Finding II-7.)

PGW faces a potential near-term retirement surge and needs to have the capacity to fill open positions. Schumaker & Company believes it would be prudent for PGW to assign additional HR professionals to this function as a reasonable strategy to address this concern. In particular, PGW needs to improve its workforce planning efforts (see Recommendation II-7) and develop a talent pipeline for exempt positions. Alternatively, PGW may opt to outsource this work due to an abundance of vendors and consultants that offer these services. Either way, PGW must enhance its staffing functioning in advance of the likely turnover.

During a review of the initial draft of this report, PGW indicated that it has a mitigation plan in place in the event it will not be able to effectively handle recruitment. This plan is tied to the metrics of filling positions within a certain timeframe. In the event that the time to fill increases, PGW intends to reach out to identified third party staffing vendors to assist with the back office work of screening and offsite or onsite recruitment as needed. These third party vendors were identified and selected through a request for proposal (RFP) in 2002.

As a tactical response to increased demand for recruitment and selection, this is a good step, but it fails to address the strategic elements of this recommendation. Developing an actual plan, identifying the future talent needs of the company, forecasting turnover, building the talent pipeline, and aligning job specifications (and compensation) to the labor market remain as critical needs.

Recommendation II-7 Develop a comprehensive workforce plan. (Refer to Finding II-6 and Finding II-9.)

A workforce plan is more than a prediction of future turnover. It is a forecast of changing work demands and the future competencies PGW will require to meet the needs of advanced technology and other changes. An effective workforce plan is also a roadmap to address knowledge transfer as well as sustain key work processes and PGW operational systems.

In the 2008 PaPUC Stratified Management & Operations Audit, Schumaker & Company recommended that PGW develop a comprehensive workforce plan:

> 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.

We offer this recommendation again with even greater urgency.

Recommendation II-8 **Perform a management compensation study (including incentive compensation) to assess compensation levels as compared to market and realign as deemed appropriate. (Refer to Finding II-6 and Finding II-8.)**

Schumaker & Company appreciates that PGW remains a municipal utility and, as such, is unlikely to compensate employees at the level of investor-owned utilities. In addition, the organization, as a quasi-independent entity of Philadelphia City government, does not have complete control over compensation decisions. That said, PGW needs to make the case for compensation somewhat more in line with the market, including incentive compensation, in order to attract the talent it is likely going to need in the near future. This does not necessitate paying at the highest level, but instead, requires PGW to identify the appropriate percentile of market rates necessary to attract talent and to adjust compensation where necessary.

III. Support Services

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

- Information Technology (IT)/Security Infrastructure
- Transportation and Fleet Management
- Facilities and Property Management
- Supply Chain Management (purchasing, vendor selection, contract administration, and inventory management)
- Risk Management
- Legal Services

A. Information Technology/Security Infrastructure

Background & Perspective

Mission, Goals, & Objectives

The charter of Philadelphia Gas Works' (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, in alignment with industry best practices, in order to achieve operational excellence.*

The mission 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.*

The IS Department's goals include the following (actual results are shown later in *Exhibit III-15*):

- Maintain no more than 2% variance for the operating and capital budgets
- At least 80% of projects delivered on time and on budget
- 95% of Help Desk requests resolved with the first call
- No more than 20 open Help Desk tickets and none greater than 10 days old
- Average sick days per employee less than one
- No more than two days (on average) to fulfill system access requests
- 99.9% system availability
- 98% backup success rate
- Less than one unplanned critical system outage per month

- Average of three hours of training per employee per month
- 5% of employees actively training per month
- No more than 60 days (average) to select candidates for open positions
- Average of at least five candidates to consider per open position
- Average of at least three interviews per open position
- Average 90% of goals met per employee annually
- At least 80% of departmental goals met monthly
- Intern-to-employee ratio of at least 7%

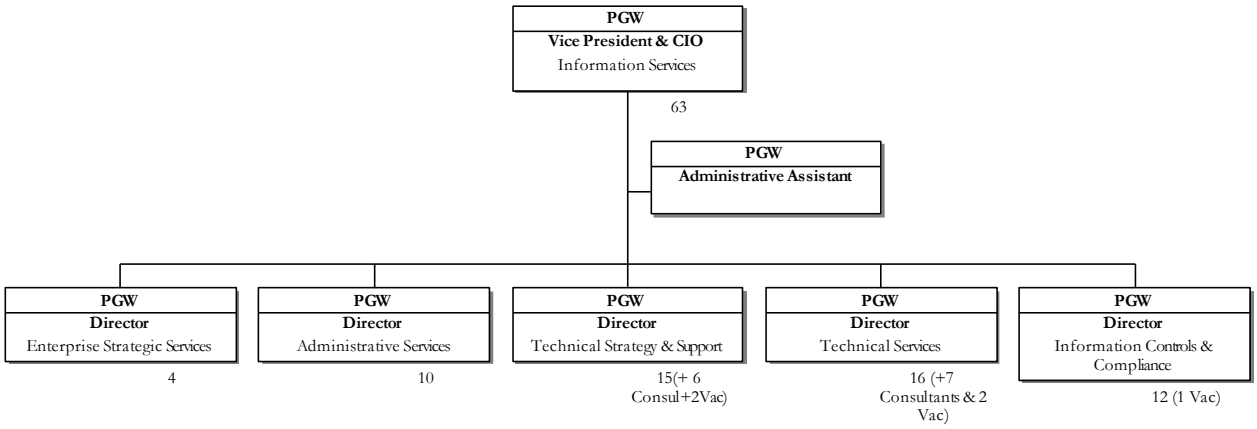
The IS Department's objectives include:

- Continuous improvement of online services for PGW customers
- Environmentally-friendly acquisition, usage, and disposal of technology equipment
- Promotion of paperless information exchange
- Improvement of employee efficiencies through training, incentives, and education
- Encouraging the leasing of computer equipment
- Selective outsourcing (Software as a Service (SaaS)
- Maximization of the value of current and future investments through standardization and virtualization technology
- Implementation of automated just-in-time inventory processes
- Discouraging the use of personal printers
- Participation in external events to promote PGW
- Establishment of service level agreements (SLAs) with all major IS customers and delivery of departmental services to meet or exceed them
- Continuous measurement of customer expectations and alignment of departmental performance accordingly
- Maximizing the use of existing tools and skillsets
- Proactively monitoring, assessing, and mitigating information and security risks based on industry best practices
- Implementation of a framework for innovation and continuous improvement
- Improving resource management through cross-training
- Increasing customer knowledge and awareness
- Increasing the technological competency of stakeholders
- Improving employee collaboration by implementing tools and solutions that enable employees to more effectively share knowledge

Organization/Roles & Responsibilities & Staffing Levels

Exhibit III-1 displays the Information Services organization, which is headed by a Vice President (VP) & Chief Information Officer (CIO). The IS organization maintains a total complement of 64 employees, including nearly half who maintain professional and technical certifications.

Exhibit III-1
Information Services Organization
as of September 30, 2014



Source: Information Response 46

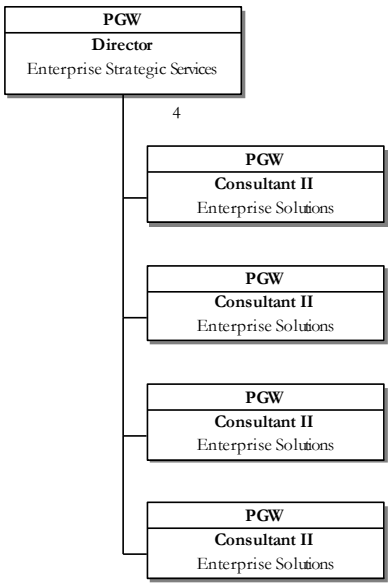
Five groups comprise the IS organization, which includes the following:

- Enterprise Strategic Services
- Administrative Services
- Technical Strategy & Support
- Technical Services
- Information Controls & Compliance

Enterprise Strategic Services

Exhibit III-2 illustrates the Enterprise Strategic Services (ESS) organization.

Exhibit III-2
Enterprise Strategic Services Organization
as of September 30, 2014



Source: Information Response 46

This group, which previously was part of a PGW-wide group that mostly managed technology projects, became part of the IS organization in September 2014 and currently includes only IS project managers (Consultant II level) for large IS projects. The CIO meets with this group every Tuesday to discuss project status reports. An example of a status report is provided in *Exhibit III-3*.

Exhibit III-3
Sample ESS Status Report
as of October 9, 2014

Project Plan Summary
Data Center Relocation

Project Management

Business Owner:
Business Project Manager:
ESS Project Manager:

Project Team:

Project Description

This project updates and relocates the old data center from Building 1800 to a new greener more efficiently designed data center in Building 800.

Project Status Late

Start: 11/1/2011 **End:** 9/11/14 **Baseline Create Date:** 4/28/2014
Baseline End Date: 10/29/2014

Phases		Original Plan	Baseline	Actual
Planning & Design	Start	11/1/11		11/1/11
	End	12/27/12		7/11/2013
Acquisition & Preparation	Start	9/14/12		1/26/2014
	End	1/24/14		4/9/2014
Construction	Start	8/24/12	3/5/2014	3/5/2014
	End	9/4/14	8/25/2014	8/25/2014*
Room Commissioning	Start	8/22/14	8/26/2014	9/8/2014
	End	9/11/14	9/19/14	
System Commissioning	Start	9/5/14	9/22/14	
	End	9/11/14	10/29/2014	
Move IS Equipment	Start	10/1/14	11/2/2014	
	End	10/29/2014	11/30/2014	

BUDGET

	Planned	Spend to Date
Work Order	$ 4,274,434	$ 3,944,948

Accomplishments:

1. The IRC DX Units startup was performed successful on 10.7.14
2. The Electric Chiller startup was performed by the vendor on 10.8.14 for Facilities and Engineering personnel.

Next Steps:

1. The Thermax Chiller will be started up next week on Tuesday, Oct. 14th.
2. The fire system is scheduled for commissioning on Thursday, Oct. 16th.

Issues/Risks/Scope Changes

The actual move of IS equipment into the Data Center is dependent upon operating conditions. Therefore, PGW may need to wait until the spring season before moving critical IS systems.

Source: Information Response 260

As project managers, this group acts as a liaison among business units (BUs), developers, and quality assurance testers. It works with business units to decide what IS will be doing to move forward on specific projects. Some of these action items are identified through the capital budgeting process, in which a formal business case is developed. Others are determined through service requests or Help Desk calls, although if it requires less than 40 hours, it is not considered a project. In such cases, developers will handle these requests directly without ESS project management involvement.

For example, each week the Director of ESS and the Billing, Collections, and Customer Service (BCCS) Project Manager meet with the Customer Affairs business unit to manage production issues. In these meetings, project priorities are set up, including whether a project will be performed by a PGW developer or an outside contractor. Also involved in these meetings are quality assurance (QA) representatives. The ESS group does not hold regular meetings with business units involving the Advanced Intelligent Mobile Solutions (AIMS) and Oracle Financials systems. Such meetings are held on an ad hoc basis due to the small amount of activity.

Once a project has been completed by both developers and QA testers, a change management form is filled out and discussed as part of a weekly change management meeting. During this meeting, approvals are given for projects that can go live. There is also a post-production status discussion at the ESS weekly meetings, usually about a month after projects go live.

In addition, the ESS group meets at least weekly via conference call with the primary outside contractor to update PGW on the status of its work activities, although sometimes such discussions take place daily.

IS projects typically result from departmental business plans, which also involve steering committee input for major groups. Currently IS has four large projects underway, in addition to other smaller projects. Major projects currently underway include:

- *Purchase of receivables* (*POR*) *consolidated billing to replace dual billing by PGW and suppliers* – PGW is gathering requirements to complete over an 18-month time period based on a Pennsylvania Public Utility Commission (PaPUC) mandate. This first phase being undertaken is electronic data interchange (EDI), which has been started for one of the nine POR suppliers. Once implemented, PGW will own all of the receivables but will pay a discounted amount to suppliers for the gas commodity included in the consolidated billing. Discounts include a 2% administration fee plus a 1% to 4% uncollectible discount, depending on whether an account is a residential account (4%) or a commercial/industrial account (1%). Certain limitations exist regarding the POR program, such as if the amount of gas is greater than 5,000 thousand cubic feet (Mcf) for an individual customer (either residential or commercial/industrial) in a given billing cycle, then a discount can't be offered. PGW must pay suppliers by the 25th of the following month regardless of whether PGW has been paid by its customers. This project was originally supposed to be an 18-month project to be completed by August 2015; however, it got started later than expected. As a result, it will be less than 18 months in duration, unless an extension is requested. The requirements are being set and PGW expects to undertake screen development internally but have an outside vendor do the remaining programming activities. The Director of ESS expected the request for proposal (RFP) to be issued in December 2014, but didn't anticipate many bidders, because the project must be done in Natural language.
- *Supervisory Control and Data Acquisition* (*SCADA*) – The software will be upgraded or replaced because the existing SCADA system is old (as it was previously implemented in 2006); plus the control room will be moved as part of the data center consolidation/move project. The requirements for the software change are done, the RFP has been issued, three bids have been received, and scoring is currently in progress.
- *BCCS/AIMS modernization* – PGW is upgrading servers and databases as well as making a .NET infrastructure change. Much of this project includes regression testing as IS isolates the VLAN6 environment. The project also involves an AppWorx job scheduling upgrade. This project has been going on for more than one year, and the IS organization didn't make the early November 2014 scheduled completion date. It was expected to be completed in late January 2015 or early February 2015. Because that will be during the winter period, going live may be

delayed until later as it will require a 14-hour down period to do so. The following four phases are being undertaken to modernize BCCS, so IS can use virtualization:

- Small talk (graphical user interface (GUI)) upgrade (already completed)
- HP/UX platform move to Linux
- DB 9i to 11i (November 2nd completion expected)
- Rewriting GUI (Entire Access)

- *Data center consolidation/move from 1800 building to 800 headquarters building* – This move, along with the gas control center move, is part of the building consolidation efforts. It was supposed to be an 18-month project, including a new data center under construction. The move needs to be done once cooling and power failure testing has been completed. A start moving date of early December 2014 was anticipated, with expectations of completions by end of year 2014. However, the actual schedule included the following: construction was completed in December 2014, the room was commissioned in January 2015, mission critical IT equipment was moved in April 2015, and the last of the IT equipment moved by the end of May 2015. Card access will be used if entry is needed and access restricted. There will also be a control room outside the data center room.

Exhibit III-4 summarizes ESS' project portfolio summary showing schedule, budget, and time-to-complete progress by area.

Exhibit III-4
ESS' Project Portfolio Report Summary
Schedule, Budget, and Time-to-Complete Progress by Area
as of November 11, 2014

Schedule

	On-Time (Operating)	On-Time (Capital)	At Risk (Operating)	At Risk (Capital)	Behind Schedule (Operating)	Behind Schedule (Capital)	Total Projects in Progress
Customer	8	2	0	1	1	2	14
Operations	0	0	0	0	3	0	3
Other	2	2	0	0	0	0	4
Infrastructure	0	1	0	0	1	1	3
Totals	10	5	0	1	5	3	24

Budget

	Within Budget (Operating)	Within Budget (Capital)	At Risk (Operating)	At Risk (Capital)	Over Budget (Operating)	Over Budget (Capital)	Total Projects in Progress
Customer	9	5	0	0	0	0	14
Operations	3	0	0	0	0	0	3
Other	2	2	0	0	0	0	4
Infrastructure	1	1	0	0	0	1	3
Totals	15	8	0	0	0	1	24

Time to Complete

	Under Review (Operating)	Under Review (Capital)	Less than 4 Months (Operating)	Less than 4 Months (Capital)	Less than 7 Months (Operating)	Less than 7 Months (Capital)	7 Months or More (Operating)	7 Months or More (Capital)	TOTAL PROJECTS
Customer	20	3	2	2	2	0	5	3	37
Operations	0	0	0	0	0	0	3	0	3
Other	0	0	0	0	0	0	2	2	4
Infrastructure	0	4	0	0	0	0	1	2	7
Totals	20	7	2	2	2	0	11	7	51

Source: Information Response 410

Exhibit III-5 and *Exhibit III-6* provide details of ESS' project portfolio report.

Exhibit III-5
ESS' Project Portfolio Report
as of November 11, 2014
Page 1 of 2

Area	Budget Type	Initiative	Description	Start Date	End Date	Project Phase	Estimated Budget Cost	Actual Spending to date	On track	On Budget
Customer	Capital	Purchase of Receivable/Consolidated Billing	System/program to address gas deregulation	3/1/2014	8/31/2015	Requirements	$1,665,000	$35,876	On-Time	Within Budget
Customer	Capital	Complaint Management System Replacement	Implementation of Image Soft	5/6/2014	12/23/2014	Development	$352,742	$164,504	At Risk	Within Budget
Customer	Capital	Self Service IVR - Phase II	Add the ability for the customer to engage in specific activities utilizing the IVR. For example, Turn Offs, Meter Exchanges, Service Transfers and Appliance Orders.	6/10/2014	9/15/2014	Testing	$75,000	$68,000	Behind Schedule	Within Budget
Customer	Capital	Energy Sense	Rebate/Conservation Incentive Program	9/1/2014	8/31/2015	Development	$100,000	$15,000	On-Time	Within Budget
Customer	Operating	Collection on Undisputed Amounts	Interface with Image Soft	8/15/2014	12/23/2014	Development	$10,000	$1,500	On-Time	Within Budget
Customer	Operating	Resume Collection Activity	Pauses instead of Cancels a Collection Event. If the reason for the Pause status changes (Neg PAR Broken, End Date of Blocker, or Canceled Payment), the Collection Event will be reverted to its original status and Collection activity will resume where it left off.	9/24/2012	12/19/2014	Testing	$48,250	$42,000	On-Time	Within Budget
Customer	Operating	Credit Ttransfers on Unlinked accounts	Automate and Enhance the refund process for unlinked gas SA's with a credit balance	5/29/2012	12/15/2014	Requirements	$57,000	$27,290	Behind Schedule	Within Budget
Customer	Operating	Commercial My Account	Allow commercial customers to setup an online account for viewing their bill, and setting up E-Bill	6/18/2012	1/10/2015	Development	$19,195	$13,000	On-Time	Within Budget
Customer	Operating	LCP/CLNP Enhancements	LCP 2.5	11/4/2013	3/15/2015	Requirements			On-Time	Within Budget
Customer	Capital	PUC Super Screen	This will replace the PUC access to BCCS by allowing the PUC access to this superscreen which gives them the aibility to view only specific information about a customer.	5/15/2014	9/1/2014	Testing	$20,000	$15,000	Behind Schedule	Within Budget
Customer	Operating	CRP Recertification	CRP accounts with a Status of Active or Defaulted have to recertify by the 13 month from the CRP start date unless a LIHEAP grant payment is received which would then exted the deadline to 25 months from the CRP start date	5/15/2014	11/30/2014	Testing			On-Time	Within Budget
Customer	Operating	Cash Only and NSF Fee	Automate the creation of the NSF adjustment and modify the cash only indicator based on specific criteria	6/27/2014	9/30/2014	Testing	$4,000	$2,500	On-Time	Within Budget
Customer	Operating	Address Updates in BCCS	Automate the updating of the mail bill address in BCCS based on the NCOA report from Kubra	7/2/2014	9/30/2014	Testing	$4,000	$3,000	On-Time	Within Budget
Customer	Operating	Donates to Charity (UESF)	Enhance the process that is currently used when a customer donates to UESF. This includes an enrollment process, bill information and tracking.	6/15/2014	1/30/2015	Analyze			On-Time	Within Budget
Customer	Operating	CRP forgiveness	Modification on the methodolgy used to reduce the pre-program forgiveness.			Not Started				
Customer	Operating	Credit Reporting	Credit Reporting only on written off accounts			Not Started				
Customer	Operating	Enhancements to LMS	Enhancements to the LMS Application to improve our Liens Management Processes			Not Started				
Customer	Capital	Credit Denial Letters	Automation of Credit Denial Process			Not Started	$60,000			
Customer	Capital	Self Service WEB	Add the ability for the customer to engage in specific activities utilizing the WEB. For example, Turn Offs, Meter Exchanges, Service Transfers and Appliance Orders.			Not Started	$75,000			
Customer	Capital	LIHEAP Grant Application For CRP	Add new functionality to the processing of a LIHEAP grant for CRP customers. This project will affect the payment distribution of the grant.			Not Started	$115,000			
Customer	Operating	CRP Cure	Automatically calculate the amount a customer has to pay to get back on CRP			Not Started				
Customer	Operating	Medical Blockers	Systematically limit the number of Medical Blockers placed on an account.			Not Started				
Customer	Operating	Deposits	Removed 24-hold period from deposit language.			Not Started				
Customer	Operating	Deposits	Deposit interest rate will need to be modifed using a soft table.			Not Started				
Customer	Operating	Payment Application to Future Bills	All payments made by CRP customers that are in excess of their "asked-to-pay" amount will be applied to any missed monthly CRP charges. Payments in excess of the monthly CRP charges will be credited to future CRP bills.			Not Started				
Customer	Operating	Conservation Incentive Program	In order to stimulate CRP customers to reduce energy consumption, PGW will provide an incentive to CRP customers who achieve specific energy conservation.			Not Started				
Customer	Operating	Incentive Monitoring	PGW will run a query each April to compare gas consumption of CRP customers for the November to April period with usage during that same time period for the previous year.			Not Started				

Source: Information Response 410

Exhibit III-6
ESS' Project Portfolio Report
as of November 11, 2014
Page 2 of 2

Area	Budget Type	Initiative	Description	Start Date	End Date	Project Phase	Estimated Budget Cost	Actual Spending to date	On track	On Budget
Customer	Operating	Termination (Timing)	Friday terminations are prohibited. Can only termination Monday through Thursday.			Not Started				
Customer	Operating	CRP vs. Budget/PAR Yearly Analysis for LIHEAP Recipients	Whenever a customer receives a recertification waiver due to receiving and assigning a LIHEAP grant to PGW, the system will deetermiine based on a set criteria if CRP is still beneficial and if not a letter will be sent to the customer.			Not Started				
Customer	Operating	Stay-out Provision	Allow a PGW rep. to determine based on specific reasons if the customer cannot be on CRP. The rep. will then set an indicator based on this reason and the system will put a date that determines the amount of CRP stay out time.			Not Started				
Customer	Operating	Medical Reporting	A new report based on the medical blockers that are entered			Not Started				
Customer	Operating	Zero Income Biannual Recertification	Customers who are enrolled in CRP and their income is zero, must recertify twice a year to ensure that their financial condition hasn't changed. A new collection path will be required.			Not Started				
Customer	Operating	Zero Income on CRP Page	Modify system to accept zero income on the CRP page. Have system automatically populate min amount when zero is entered.			Not Started				
Customer	Operating	Dishonorable tender logic	New collection paths will be required if a customers electronic payment is later reversed and in some cases the shut off (56.96) will be the next event.			Not Started				
Customer	Operating	Termination	Added language which allows 3-day notices to be sent via email, text message or other messaging format only if the company receives consent from the customer that they affirmatively consent to receiving notification using a specific electronic messaging format for the purpose of termination.			Not Started				
Customer	Operating	Termination (Crisis Path)	Crisis- a termination notice is sufficient proof to demonstrate a crisis. The service does not have to be terminated.			Not Started				
Customer	Operating	Collection Reporting	Report annually residential accounts which accumulated 10,000 or more in arrears and shall demonstrate what efforts are being taken to collect the arrearage			Not Started				
Infrastructure	Capital	Data Center Relocation	Relocation of Data Center from bldg. 1800-5 to bldg. 800-1	11/1/2011	1/16/2015	Commissioning	$4,274,434	$4,475,551	Behind Schedule	Over Budget
Infrastructure	Capital	Voice over IP	Replacement of PGW's end of life legacy PBX with VOIP phone system	4/1/2013	8/20/2016	Vendor Presentations	$2,430,000		On-Time	Within Budget
Infrastructure	Operating	BCCS/AIMS Modernization (aims framework)	Server and DB Updates for BCCS and AIMS framework. This also includes APPWORX software upgrade.	11/26/2012	11/2/2014	Testing	$202,000	$188,500	Behind Schedule	Within Budget
Infrastructure	Capital	Desktop Virtualization Phase I	Phase 1 of 4 year program to reduce desktop replacement and maintenance costs by replacing desktop units with inexpensive terminals.			Not Started	$262,000			
Infrastructure	Capital	Replacement Server and Network Hardware	Continue migration to IBM blade and virtual infrastructure, replacement of dated tape, libraries, and legacy switches			Not Started	$170,000			
Infrastructure	Capital	Miscellaneous Software Additions	Additional software licenses to improve VMWare infrastructure and to support the use of hardware virtualization, improve backup capabilities and provide contingency funding.			Not Started	$95,000			
Infrastructure	Capital	Miscellaneous Server, Network and Hardware Additions	Tape Library and Contingency			Not Started	$75,000			
Operations	Operating	AIMS Data Integrity	5 Phases to redesign AIMS screens	10/1/2012	3/1/2014	Development	$494,000	$35,000	Behind Schedule	Within Budget
Operations	Operating	AIMS Corrosion Enhancements	New Corrosion System	7/1/2010	12/15/2014	Requirements	$250,000	$185,000	Behind Schedule	Within Budget
Operations	Operating	AIMS RPU Enhancements	This will automate the RPU processes that are manual today along with correcting current functionality.	10/1/2012	12/15/2014	Design	$220,000	$20,000	Behind Schedule	Within Budget
Other	Capital	SCADA Upgrade with Control Room Alarm System	Replacement or enhancement of existing system	5/26/2014	9/4/2015	RFP Process	$1,188,000	$23,898	On-Time	Within Budget
Other	Capital	Fleet Management System	Replacement or enhancement of existing system	1/2/2014	3/27/2015	RFP Process	$208,392	$440	On-Time	Within Budget
Other	Operating	GMS and Customer Choice Replacement		6/1/2014	8/15/2015	RFP Process	$1,035,000		On-Time	Within Budget
Other	Operating	ICIMS	Job Application/OnBoarding	9/16/2013	10/15/2014	On Hold	$31,750	$31,735	On-Time	Within Budget
Other	Capital	Digital Recording Upgrade	As a result of the relocation of the data center, it is necessary to reconfigure the existing hardware			Not Started	$43,000			

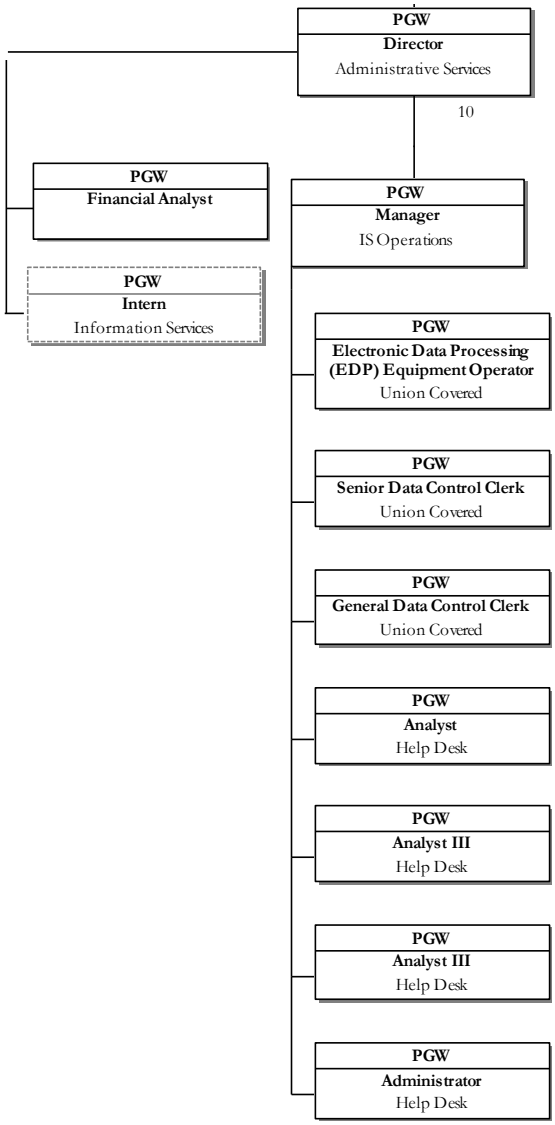
Source: Information Response 410

For example, two of the three Customer items behind schedule were supposed to be completed in September 2014. Of these, as of April 2015, the *Self-Service IVR Phase II* project was in QA test phase and scheduled to go live in May 2015, while development and testing of the *PUC Super Screen* project was completed and being deployed to the PaPUC.

Administrative Services

Exhibit III-7 illustrates the Administrative Services organization.

Exhibit III-7
Administrative Services Organization
as of September 30, 2014



Source: Information Response 46

This group's primary responsibility of supporting the IS organization encompasses managing the capital and operational budgets, procurement, human resources, and contract management for the IS organization along with ensuring departmental communications flows are always open and active, as follows:

- *Operations and capital budgets for the IS organization* – This group is responsible for coordinating development and monitoring of IS budgets, as described in further detail in the *Short-Range Planning* section of this chapter.
- *IS Help Desk* – In the spring of 2014, the IS Help Desk moved from the Technical Services group to the Administrative Services group. It provides services to IS users five days/week from 7:00 a.m. to 5:30 p.m. with emergency voicemail capability. Previously, the IS Help Desk used Remedy software for management of service requests; however, since early 2013 it has used GroupLink software (a web-based application). From PGW's perspective, it had essentially the same functionality but was less costly to operate. Since using GroupLink, the group has determined that it is faster and easier to use than Remedy. Any desktop support is outsourced to Integrated Support Strategies (ISS), an outside contractor. If possible, however, the Help Desk remotes into a user's desktop/laptop and resolves the issue. If the Help Desk cannot resolve the issue, then a ticket is submitted to ISS, which resides at PGW on a daily basis, for resolution. Besides Help Desk employees, the Manager of IS Operations also has three database (DB) controllers (EDP Equipment Operator, Senior Data Control Clerk, and General Data Control Clerk) who are responsible for parts/labor, Oracle, and printer toner/paper input and administration.
- *Human Resources (HR) liaison* – The Director of Administrative Services is a HR liaison for the IS organization regarding the following:
  - Personnel requisitions for open IS positions
  - Interviewing and selection of candidates
  - Reviewing of any testing done on behalf of PGW by outside agencies
  - Performance reviews
  - Review and approval of invoices/timesheets for consultants from outside agencies
  - Any other HR issues
- *Legal liaison* – This group is responsible for getting IS contracts/agreements, including letters of engagements, fully executed. The IS organization gets a Legal contract fact sheet, which is used to put the contractual limitations in Oracle Financials.
- *Procurement (processing payments)* – Approximately 99% of all IS invoices come directly to the Director of Administrative Services before going to the Accounts Payable group for payment processing. These invoices are input by this group after receipt. A paper copy is then taken to the Accounts Payable group, even if sent by e-mail message, so a receipt can be provided.
- *Payroll attendance* – PGW employees use their badges to swipe in/out of the Time & Labor Management (TLM) system. Each Monday morning, IS managers and supervisors are required to review and approve TLM time, although technically it is required by 10:00 a.m. on Tuesdays.

If time has not been approved by Tuesday at 10:00 a.m., then e-mail messages are sent every two hours. The TLM system is also used by employees to request vacation time, plus supervisors put in an employee's sick time.

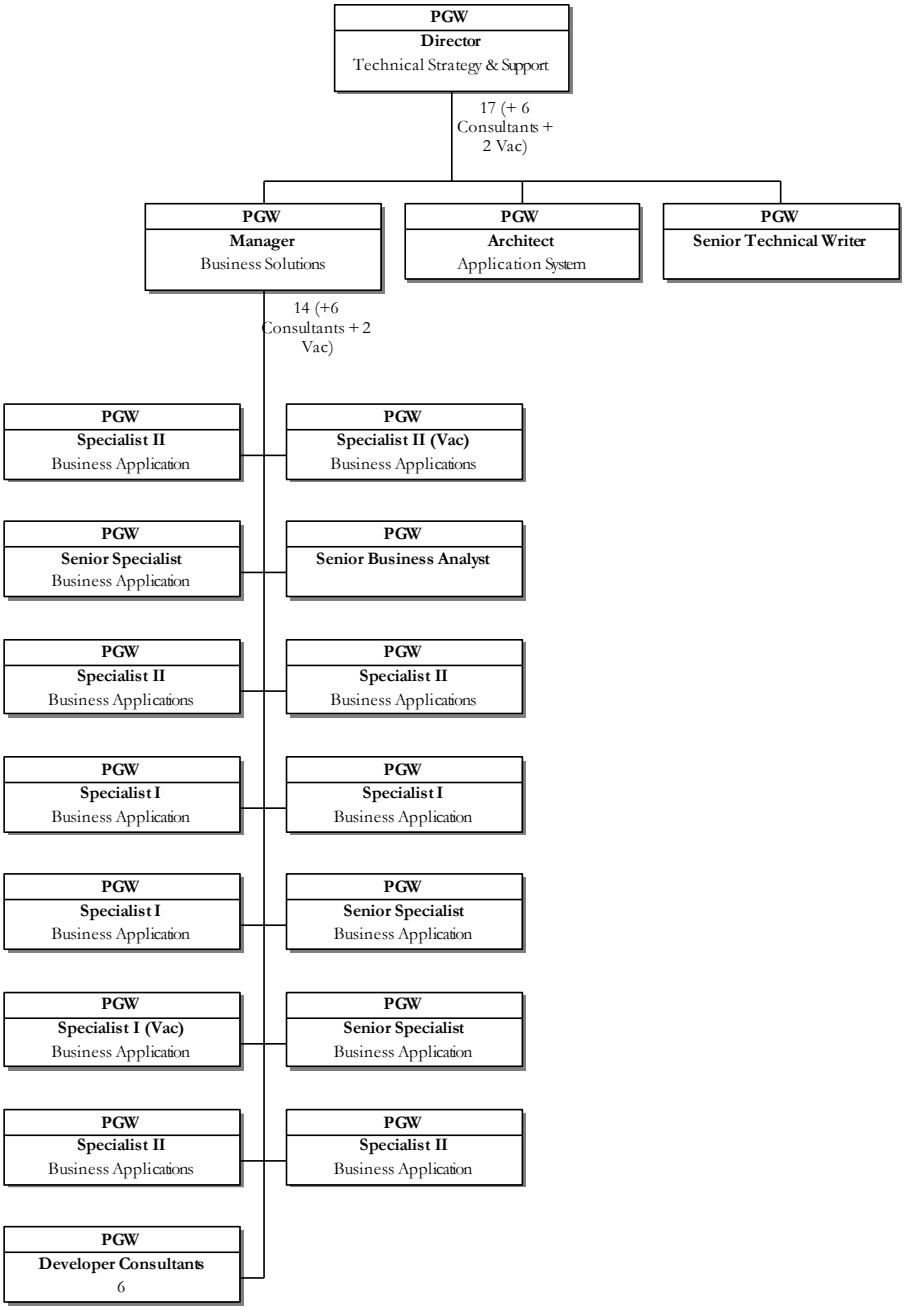
- *Building services/moving of cubicles* – The Director of Administrative Services is responsible for coordinating employee moves between cubicles (e.g., four new cubicles were recently added for IS Help Desk employees). The Director is also responsible for determining whose budget applies for space involved in these moves.
- *Audit liaison for the IS organization* – Whenever there's a PGW audit, the Director of Administrative Services coordinates responses to the PGW auditing coordinator or directly to the auditor, whichever is applicable. The use of SharePoint is now available for uploading information response files. For example, Generally KPMG LLP performs an annual IT audit. In 2014, the focus of this audit was application controls within BCCS and Oracle Financials, not general IT controls. Specifically, KPMG identified three IT deficiencies as part of its latest IT audit in 2014, including:
  - System access to credit a customer's bill, reducing the dollar amount owed for services, is restricted to authorized customer service personnel.
  - Posting access is restricted to a handful of employees who have logical reasons to be granted this authority.
  - System test work tests the input and accuracy of the customer responsibility program (CRP) discounts, weather normalization adjustments (WNAs), and senior citizens discounts.

In late 2014, all deficiencies had been remediated.

Technical Strategy & Support

Exhibit III-8 illustrates the Technical Strategy & Support organization.

Exhibit III-8
Technical Strategy & Support Organization
as of September 30, 2014



Source: Information Response 46

The primary responsibilities of the Technical Strategy & Support organization include:

- Applications development
- Architecture
- Technical writing

Essentially this group consists of one application systems architect, one technical writer, and the remaining staff are application developers reporting to the Manager, Business Solutions. Although this group is composed of primarily developers, it is sometimes difficult for the IS organization to hire developers, because PGW can't compete with market salaries. The IS organization is currently recruiting two developers (one .NET and one web), which has been difficult, according to IS management, especially during the failed PGW sale. Of the developers, roughly 50% have been with PGW for fewer than three years. So when developers become experienced, they often leave after three to five years at PGW to attain higher paying salaries. In the past two years, approximately seven developers have left. Having IS employees depart after only a few years is especially problematic with municipal utility organizations, because investor-owned utility organizations often pay higher salaries to such employees.

When the PGW sale was pending, the Director made sure his developers understood they not only performed coding but were also responsible for querying and reporting. This mindset aided in their ability to stay if UIL Holdings Corporation (UIL) purchased PGW.

The application developers typically hold the title of Business Application Specialists, because they not only code but are also responsible for supporting business clients. Major systems and applications supported by this group include:

- BCCS (developed in the mid-1990s/implemented in 1999; HPux server; Natural language; Oracle DB); upgrading Titanium server (emulating Unix on server) and Natural language upgrade, and in fiscal year (FY) 2016 moving to mainstream Linux; replacing middleware; reprogramming .NET and getting off small talk in future, probably by FY2017 to FY2018.
- AIMS (developed in 2004 and implemented at field service operations in 2005; developed in 2007 and implemented in 2009 for distribution); upgrading .NET framework 1.1 to 4.0.
- Oracle Financials
- Geographic information systems (GISs)
- SharePoint

Other recent "projects" not involving BCCS, AIMS, or Oracle Financials included:

- Customer complaint system changing from the old Epitome system to OnBase customization by EMIT Software, a Hyland Gold Partner

- Fleet management software (FMS) upgrade from M4 to M5 with a different vendor (AppWorx) than previously used.
- Integrated gas management system (IGMS) request for proposal (RFP)
- SCADA upgrade RFP
- POR/Choice RFP (part of FY2014 capital budget, so much be completed by end of August 2015)

In total, IS has roughly 85 active projects; however, IS management believes that there is not a lot of pent-up demand for IS services. That is why having a set of resources assigned to each systems works. The Director maintains a listing of what systems each Technical Strategy & Support employee supports, including the ones above and any others.

If a task is less than 40 hours, it is not considered a project, and the application developers manage such tasks themselves. For projects that are 40 hours or greater, the PGW project management methodology must be followed; however, the extent to which tasks are done depends on the size of the project (small, medium, or large). Mostly, the medium or large projects also have a project manager from the ESS group, and the large projects generally result from the capital budgeting process.

On development tasks, not only is an applications developer involved but a tester from the Information Controls & Compliance Quality Assurance (QA) group is as well, typically in all phases. Using a change management form, all tasks must go to the tester and to the end user before they can be put into production. Every Wednesday a change management meeting is held, during which items are reviewed before approval is given to go live. For emergencies, which must go live before approval can be given at the Wednesday meetings, the CIO must approve projects before they go live.

There are typically three different ways that this group receives requests for development activities, which include:

- Help Desk break/fix requests
- System/application service requests (mostly reports, which are typically under 40 hours)
- Projects (typically through budgeting or business plan activities)

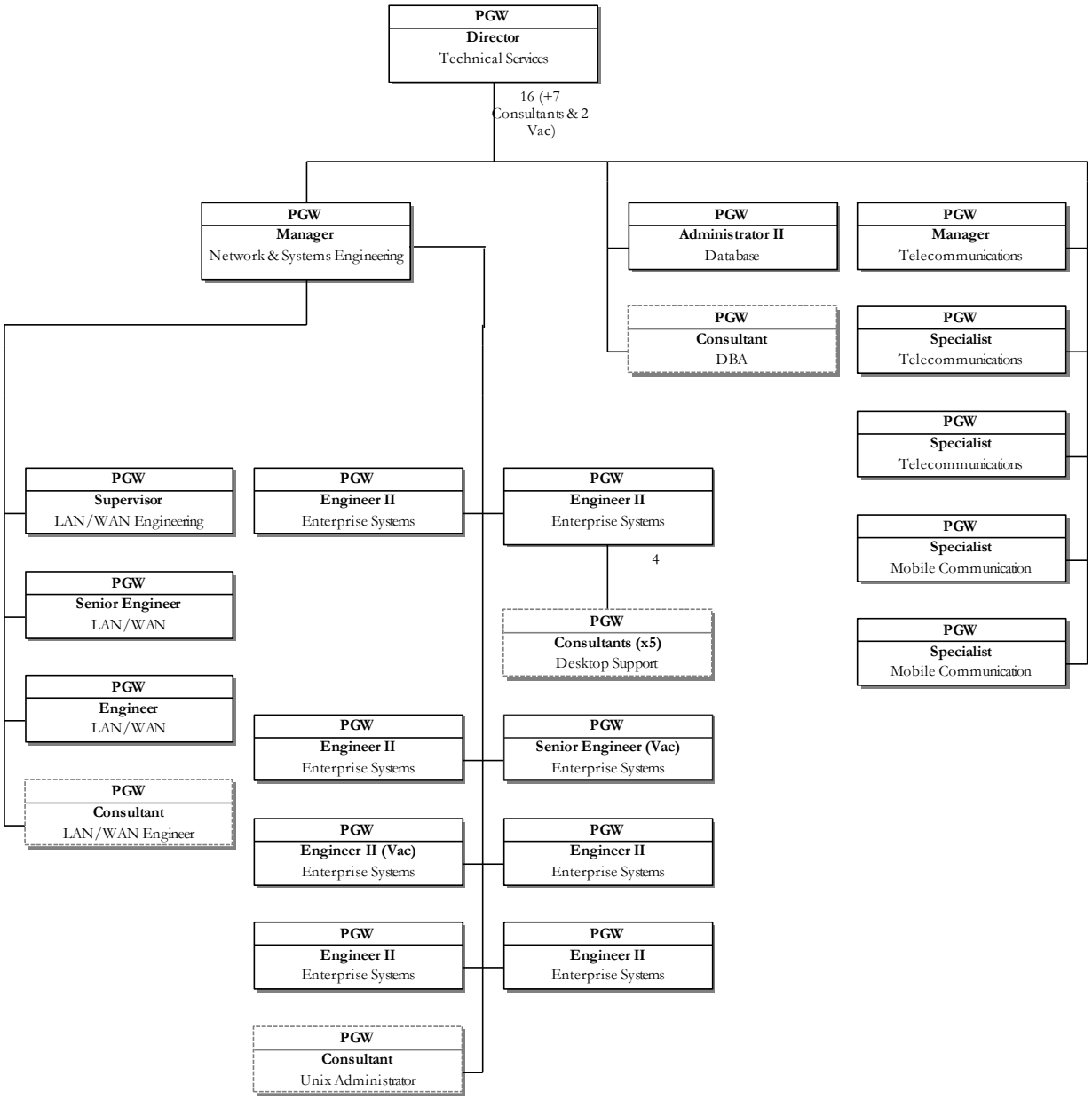
The prioritization of requests occurs through separate steering committee meetings involving IS users of the BCCS, AIMS, and Oracle Financials systems, because each system has a set of IS resources assigned to it. The BCCS steering committee meets monthly with the ESS group; however, the AIMS and Oracle Financials meetings are generally held on an ad hoc basis, because requests do not often occur (primarily because .NET framework activities have taken most of the respective developers' time).

The Technical Writer function is considered a role not a person, because the Technical Writer not only performs technical writing tasks but also manages outside contractors, if necessary.

Technical Services

Exhibit III-9 illustrates the Technical Services organization.

Exhibit III-9
Technical Services Organization
as of September 30, 2014



Source: Information Response 46

The Technical Services organization is responsible for providing a robust and reliable infrastructure to support computing, networking, and telecommunications. This group serves over 1,750 local and remote users in a wired and wireless environment both locally and remotely, of which roughly 1,200 are internal users and 550 are external (field) users. Its primary responsibilities include:

- Telecommunications/radio shop support, including telephones and mobile telephones – PGW now uses the City's radio network, which allows its workers to speak directly with the City's first responders.
- Local area network (LAN)/wide area network (WAN)/printer support, including laptops in field trucks that use Fast 8211 capability at the beginning of each day to download transactions and then automatically transfer that information to Verizon code division multiple access (CDMA) as trucks leave PGW's lot
- Servers support
- Desktop support (ISS consultants)
- Oracle database administrator support

Previously this group had the IS Help Desk (sometimes referred to as the Customer Contact Center, which was moved to the Administrative Services group in the Spring of 2014). Added was the Radio Shop, including mobile communications specialists, which previously was not part of the IS organization. PGW's desktop support has been outsourced to ISS consultants, although they report to this group and are dedicated full time to PGW support.

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). PGW has nearby primary and backup sites, or other SunGard sites, if necessary. PGW pays nearly $10,600 on a monthly basis for possible use of the facility. Plus if used, PGW also pays activation/usage fees.

Most servers are Hewlett Packard (HP) and Cisco unified computing system (UCS) servers; however, a few IBM servers still exist, although they will be going away in the future. To keep server prices low, PGW typically bids out all server needs; however, if a server is needed on an emergency basis, then IS uses 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 costs available to the state.) PGW typically replaces its Tier 1 servers every four to five years; however, other Tier 2 servers may last longer before being replaced. VMware is used for virtualizing servers. Approximately 80% of PGW's servers are virtualized.

Generally IS' infrastructure is client/server based, with only minimal items in the "cloud" for PGW use. As of November 2014, the IS Department is supporting the following platforms:

- Servers:
  - Windows Server 2003 (to be phased out by July 2015), 2008R2 and 2012 Standard, Enterprise and Datacenter editions (physical and virtual)
  - SUSE Linux Enterprise Server 10 and 11 (physical and virtual)
  - Novell Open Enterprise Server 11SP2 (physical and virtual)
  - Virtualization platform: VMWare ESX 5.x
  - HP/UX 11i
- Desktops: Windows 7.0 Enterprise 64-Bit

PGW is on a four-year cycle for replacing desktops and laptops, which means roughly 275 to 300 are replaced each year. Also, roughly two years ago, PGW upgraded to Windows 7.0 from Windows XP, primarily due to security concerns. PGW also moved to Microsoft Office 2010 at the same time, although it didn't upgrade Microsoft Access, because several operating departments were using the old version. Only executives can get both desktops and laptops; other 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 packages without IS' knowledge. Also, checkpoint security is used. In addition, an employee may log into only one computer at a time, unless an exception request has been approved due to the type of job performed by the employee. If the employee leaves his or her computer logged in and wants to log in to another computer, he or she must either log off the first computer or call into the Help Desk to have the first computer logged off. All laptops have virtual private network (VPN) roaming capability, although generally VPN access is limited to IS support employees. Currently only a limited number of tunnels are available, although more could be made available if necessary for business continuity purposes.

As of April 2015, the IS organization has prepared an RFP that addresses virtual desktop infrastructure (VDI) capability and six vendors have been invited to provide more detailed explanations of their proposals with a final selection expected in May 2015. Also, a voice over Internet protocol (VoIP) RFP was previously issued but was in limbo due to the pending PGW sale; however, a vendor was selected for the enterprise-wide VoIP project in January 2015.

According to IS management, the following are some of PGW's infrastructure-related plans for the near future:

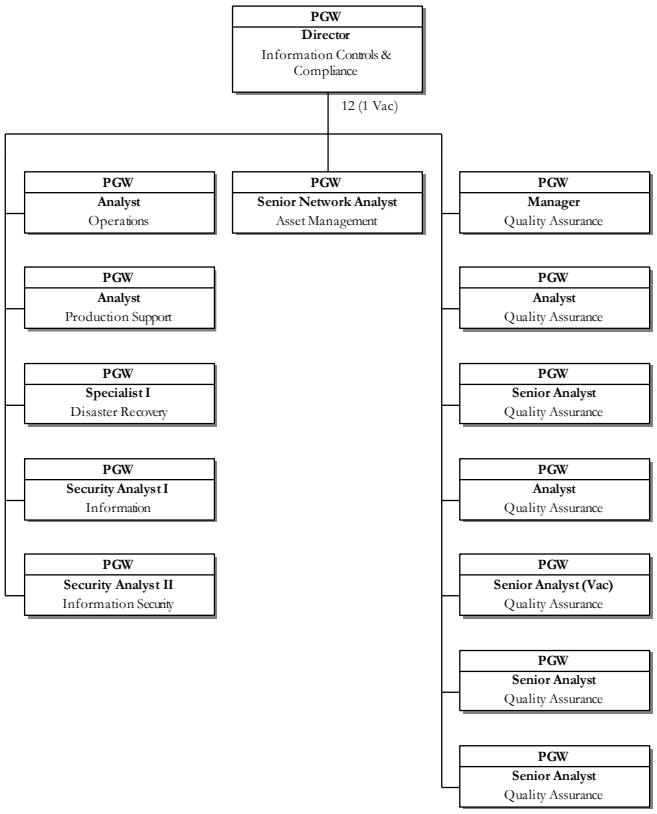
- *Virtualization*: Use virtual server technology wherever possible and dedicated physical servers only where absolutely necessary.

- *Finalize standardization on blade server technology*: Migrate all VMWare servers to blade center technology; use blades for all future new servers unless there is a requirement for a large number of peripheral component interconnect (PCI) cards or more than four processors.
- *Consolidation of operating systems*: Investigate implementation of the next generation CIS System on a platform other than HP/UX (preferred Suse Linux), migrate Oracle Financials to Suse Linux, and migrate Novell Netware to OES2 on Suse Linux, resulting in two base operating systems. Doing so will greatly reduce the number of required support skill sets and will streamline the deployment of new machines, resulting in improved time to market for the following new technology solutions:
  - Windows 2008 and above (either physical or virtual)
  - Suse Linux Enterprise Server 11 and above (with and without OES2, either physical or virtual)
- *VoIP*: The IS organization is currently planning a pilot VoIP program for PGW's Richmond and Passyunk plants. The implementation of this pilot will help to define a roadmap for an enterprise-wide VoIP deployment.

Information Controls & Compliance

Exhibit III-10 illustrates the Information Controls & Compliance organization.

Exhibit III-10
Information Controls & Compliance Organization
as of September 30, 2014



Source: Information Response 46

The Information Controls & Compliance organization is responsible for assuring a safe, secure, and reliable computing environment at PGW. The major functions of the Information Controls & Compliance organization are:

- *Disaster recovery* – The Disaster Recovery Specialist is responsible for coordinating disaster recovery activities, including:
  - Updating the discovery recovery plan each year
  - Updating test plans twice annually and conducting tests
  - Developing post-mortem reports, plus meeting with the Technical Services group to review test results
  - Data backup reports

- *Security* – Two Information Security Analysts (I and II) are involved in PGW's security activities, such as firewall intrusion prevention system (IPS), virus protection, and e-mail protection support. These individuals monitor alerts from these systems and address such alerts, as needed, to clean up any issues and to prevent similar issues in the future. These two IS employees are also responsible for developing, executing, and monitoring PGW's cyber security plan.
- *Quality assurance/testing* – The QA group is responsible for testing in-house and purchased applications for any PGW user departments. Its roles include performing the following tasks and providing assistance to user departments during user acceptance testing (UAT) activities:
  - Reviewing system requirements
  - Developing test plans
  - Developing test scripts
  - Testing
  - Ensuring that any defects are corrected
  - Signing off when appropriate
- *Production control* – PGW uses AppWorx for production scheduling activities. The Operations Analyst monitors alerts in AppWorx, notifies whomever is necessary, and then investigates what to do to address these alerts.
- *Backup tapes* – The Production Support Analyst is responsible for backup tapes. On a daily basis, all PGW server data is saved via backup tapes and stored offsite. Then enterprise data, such as shared folders, e-mail messages, and active directory information, is sent to SunGard so it is readily available in the case of a disaster event.
- *Moving code to test or to production* – The Production Support Analyst is also responsible for moving applications to the testing or production area, as necessary.
- *Asset management* – The Senior Network Analyst, Asset Management is responsible for IS asset management activities, including all IS equipment and PGW projectors, using ZENworks asset management software. All equipment is scanned for tracking purposes when acquired. The Senior Network Analyst then reviews equipment and dispatches it to an Enterprise Systems Engineer in the Technical Services group, who sends equipment to users when needed. PGW is also trying to upgrade audio/visual (A/V) equipment in Board rooms. The Senior Network Analyst is also responsible for disposing of all electronic equipment, in which currently underway is an RFP that has been issued.

This group is similar to the one identified during the last Stratified Management and Operations Audit in 2007; however, several changes have occurred in the last several years:

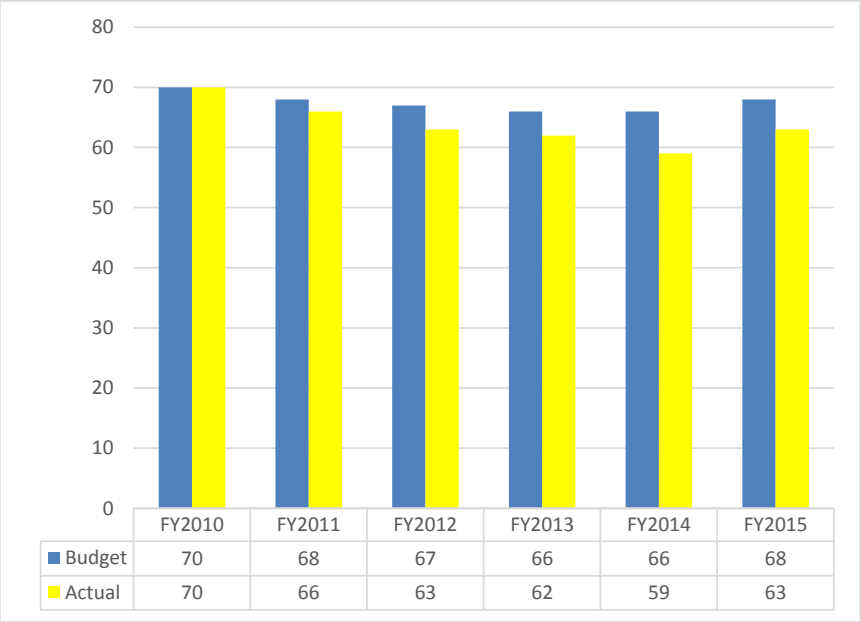
- It has added the Production Support Analysts, which were previously in the Technical Strategy & Support area, for which Operations Analysts serve as backup.

- The Senior Network Analyst, Asset Management is a new position; previously it was part of someone else's position in this group.

Staffing Levels

The staffing levels of the IS/Telecommunications organizations over the last five fiscal years (FY2010 to FY2014) and current year (FY2015) have generally been decreasing, as shown in *Exhibit III-11,* although FY2015 shows a slight increase.

Exhibit III-11
IS/Telecommunications Staffing Levels
FY2010 to FY2015



	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015
Budget	70	68	67	66	66	68
Actual	70	66	63	62	59	63

Source: Information Response 32

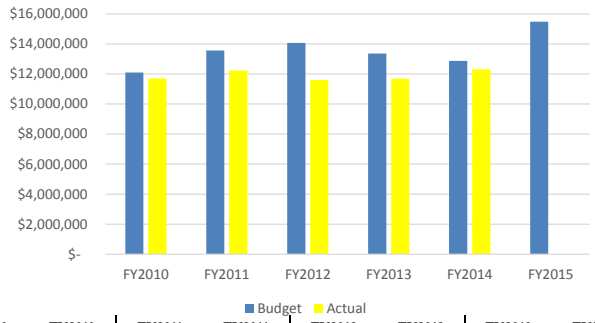
There are five vacant positions in the IS organization, which the CIO is trying to fill by focusing on job fairs.

Operating Expenses & Capital Expenditures

Operating Expenses

Exhibit III-12 illustrates the IS organization's actual and budgeted operating expenses from FY2010 to FY2014, plus its budgeted operating expenses for FY2015.

Exhibit III-12
IS Operating Expenses
FY2010 to FY2014



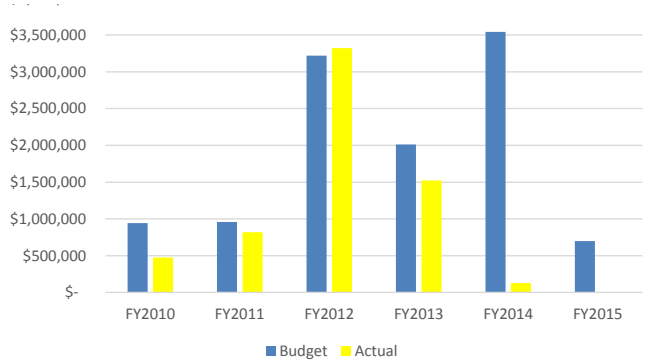
Expense	FY2010 Budget	FY2010 Actual	FY2011 Budget	FY2011 Actual	FY2012 Budget	FY2012 Actual	FY2013 Budget	FY2013 Actual	FY2014 Budget	FY2014 Actual	FY2015 Budget
Labor	**$ 4,560,000**	**$ 4,317,000**	**$ 4,366,000**	**$ 4,054,000**	**$ 4,285,000**	**$ 4,085,000**	**$ 4,173,000**	**$ 3,933,000**	**$ 4,418,000**	**$ 4,191,742**	**$ 4,624,000**
Expense of Employees											
Network & Systems	45,000	91,773	45,000	29,711	30,000	46,493	56,000	67,824	56,000	36,590	56,000
Telecommunications	8,000	1,579	9,000	1,375	8,000	6,087	9,000	5,344	9,000	6,027	9,000
Management & Administration	25,000	31,930	25,000	(16,223)	4,000	3,936	4,000	(20,617)	11,000	12,562	18,000
Customer Resources	28,000	3,324	18,000	24,079	12,000	6,247	3,000	3,552	-	3,351	-
Security & Recovery	28,750	4,627	28,000	23,211	30,000	14,474	30,000	42,824	34,000	30,179	50,000
Information Management	81,250	23,986	58,000	50,847	36,000	27,763	61,000	52,604	55,000	47,619	55,000
Enterprise Strategic Services	-	-	-	-	-	-	-	-	-	-	14,000
Sub-Total	**$ 216,000**	**$ 157,218**	**$ 183,000**	**$ 113,000**	**$ 120,000**	**$ 105,000**	**$ 163,000**	**$ 151,531**	**$ 165,000**	**$ 136,328**	**$ 202,000**
General Materials											
Network & Systems	50,000	723,614	716,000	776,959	783,000	742,352	461,000	319,587	300,000	260,047	300,000
Telecommunications	24,000	(73,842)	309,000	57,710	786,000	27,424	46,000	26,310	22,000	11,878	30,000
Management & Administration	27,000	(97,454)	32,000	16,500	22,000	8,865	22,000	20,103	30,000	18,208	22,000
Customer Resources	50,000	13,220	20,000	25,199	14,000	9,359					
Sub-Total	**$ 151,000**	**$ 565,538**	**$ 1,077,000**	**$ 876,368**	**$ 1,605,000**	**$ 788,000**	**$ 529,000**	**$ 366,000**	**$ 352,000**	**$ 290,133**	**$ 352,000**
Advertising	**$ 14,000**	**$ 14,569**	**$ 14,000**	**$ 12,674**	**$ 14,000**	**$ 13,647**	**$ 14,000**	**$ 13,816**	**$ 14,000**	**11,646**	**$ 14,000**
Dues & Subscriptions											
Network & Systems	2,800	-	2,000	280	3,000	473	2,000	590	2,000	300	2,000
Management & Administration	3,600	3,827	4,000	5,680	1,000	1,726	4,000	2,607	4,000	14,977	12,000
Customer Resources	500	-	1,000	819	1,000	75	1,000	-	1,000	150	-
Security & Recovery	2,000	-	2,000	995	4,000	1,283	2,000	2,549	2,000	747	2,000
Information Management	3,100	153	2,000	160	1,000	267	1,000	1,758	1,000	164	1,000
Enterprise Strategic Services	-	-	-	-	-	-	-	-	-	-	2,000
Sub-Total	**$ 12,000**	**$ 3,980**	**$ 11,000**	**$ 7,934**	**$ 10,000**	**$ 3,824**	**$ 10,000**	**$ 7,504**	**$ 10,000**	**$ 16,338**	**$ 19,000**
Purchased Services											
Network & Systems	838,000	915,715	1,113,000	1,073,696	1,236,000	1,263,663	1,305,000	1,300,034	1,185,000	1,143,220	1,052,000
Telecommunications	10,000	92,861	10,000	12,415	12,000	7,219	32,000	73,473	40,000	1,599	40,000
Data Circuits	319,000	411,919	342,000	414,548	496,000	389,028	495,000	310,506	424,000	398,188	405,000
Security & Recovery	390,000	127,259	360,000	254,102	973,000	226,435	880,000	335,434	458,000	194,530	321,000
Information Management	1,579,000	1,235,998	1,415,000	1,254,850	1,005,000	629,447	1,178,000	939,302	1,187,000	843,704	1,087,000
Management & Administration	55,000	134,223	95,000	108,979	52,000	67,043	57,000	64,348	64,000	73,921	73,000
Customer Resources	133,000	351,179	160,000	122,410	130,000	129,165	130,000	129,291	4,000	11,285	-
Enterprise Strategic Services	-	-	-	-	-	-	-	-	-	-	1,089,000
Sub-Total	**$ 3,324,000**	**$ 3,269,153**	**$ 3,495,000**	**$ 3,241,000**	**$ 3,904,000**	**$ 2,712,000**	**$ 4,077,000**	**$ 3,152,388**	**$ 3,362,000**	**$ 2,666,447**	**$ 4,067,000**
Equipment Leasing	**$ 180,000**	**$ 173,376**	**$ 233,000**	**$ 78,522**	**$ 220,000**	**$ 226,000**	**$ 260,000**	**$ 217,818**	**$ 297,000**	**$ 359,057**	**$ 613,000**
Maintenance of Software											
Network & Systems	1,832,000	1,082,536	2,164,000	1,795,601	1,652,000	1,589,234	1,761,000	1,721,932	1,848,000	1,852,291	1,591,000
Telecommunications	33,000	49,266	108,000	101,823	109,000	170,058	135,000	160,918	133,000	132,961	135,000
Security & Recovery	-	329,985	-	-	191,000	101,332	188,000	165,393	183,000	186,839	194,000
Management & Administration	-	-	-	-	35,000	20,394	11,000	59,982	11,000	(17,026)	21,000
Customer Resources	33,000	31,569	36,000	39,576	27,000	11,982	10,000	7,775	10,000	7,775	-
Enterprise Strategic Services	-	-	-	-	-	-	-	-	-	-	626,000
Sub-Total	**$ 1,898,000**	**$ 1,493,356**	**$ 2,308,000**	**$ 1,937,000**	**$ 2,014,000**	**$ 1,893,000**	**$ 2,105,000**	**$ 2,116,000**	**$ 2,185,000**	**$ 2,162,840**	**$ 2,567,000**
Equipment Maintenance											
Network & Systems	229,000	85,693	260,000	225,210	227,000	143,848	172,000	71,969	129,000	128,710	162,000
Telecommunications	358,000	448,804	512,700	447,790	418,000	335,615	508,000	477,031	553,000	551,226	859,000
Enterprise Strategic Services											200,000
Sub-Total	**$ 587,000**	**$ 534,497**	**$ 772,700**	**$ 673,000**	**$ 645,000**	**$ 479,463**	**$ 680,000**	**$ 549,000**	**$ 682,000**	**$ 679,936**	**$ 1,221,000**
Telecommunications	**$ 1,147,000**	**$ 1,174,075**	**$ 1,109,000**	**$ 1,242,000**	**$ 1,254,000**	**$ 1,292,000**	**$ 1,350,000**	**$ 1,177,765**	**$ 1,389,000**	**$ 1,336,553**	**$ 1,795,000**
Total	**$ 12,089,000**	**$ 11,702,763**	**$ 13,568,700**	**$ 12,235,498**	**$ 14,071,000**	**$ 11,597,934**	**$ 13,361,000**	**$ 11,684,822**	**$ 12,874,000**	**$ 11,851,020**	**$ 15,474,000**

Source: Information Responses 33, 332, and 499

Capital Expenditures

Exhibit III-13 illustrates the IS organization's actual and budgeted capital expenditures from FY2010 to FY2014, plus its budgeted capital expenditures for FY2015.

Exhibit III-13
IS Capital Expenditures
FY2010 to FY2014



Project	FY2010 BUDGET	FY2010 ACTUAL	FY2011 BUDGET	FY2011 ACTUAL	FY2012 BUDGET	FY2012 ACTUAL	FY2013 BUDGET	FY2013 ACTUAL	FY2014 BUDGET	FY2014 ACTUAL*	FY2015 BUDGET
Network & Hardware Additions	$ 114,000	$ 97,403	$ -	$ -	$ 118,000	$ 118,854	$ 86,000	$ 71,252	$ -	$ -	$ 57,675
Mics. Software Additions	$ 75,000	$ 64,129	$ 87,000	$ 79,613	$ 50,000	$ 49,615	$ 50,000	$ 25,898	$ -	$ -	$ 76,800
Network Security Hardware	$ 99,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Central Scanning Facility	$ 108,715	$ 79,300	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Desktop Replacements	$ 263,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Misc. Software Replacements	$ 25,000	$ -	$ 50,000	$ 40,995	$ 50,000	$ 18,281	$ 50,000	$ -	$ 50,000	$ 8,539	$ 153,600
Server & Hardware Replacements	$ 171,000	$ 154,454	$ 178,000	$ 123,759	$ 208,000	$ 247,785	$ 232,000	$ 142,070	$ 194,000	$ -	$ 179,946
Security Replacements	$ 86,000	$ 79,128	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Misc. Server, Network, & Hardware Addtions	$ -	$ -	$ 130,000	$ 82,930	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Security Software Additions	$ -	$ -	$ -	$ -	$ 166,000	$ 52,953	$ -	$ -	$ -	$ -	$ -
Replace SAN Storage	$ -	$ -	$ 237,000	$ 231,340	$ 235,000	$ 244,313	$ 230,000	$ 57,442	$ -	$ -	$ 230,700
Update Melita Outbound Dialer	$ -	$ -	$ 277,000	$ 260,447	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Network Backbone Upgrade	$ -	$ -	$ -	$ -	$ 412,000	$ 394,514	$ -	$ -	$ -	$ -	$ -
IVR Upgrade	$ -	$ -	$ -	$ -	$ 148,000	$ 219,432	$ -	$ -	$ -	$ -	$ -
eWorkforce Software Upgrade	$ -	$ -	$ -	$ -	$ 103,000	$ 151,848	$ -	$ -	$ -	$ -	$ -
Replace Radios	$ -	$ -	$ -	$ -	$ 1,729,000	$ 1,825,802	$ -	$ -	$ -	$ -	$ -
Data Center Relocation	$ -	$ -	$ -	$ -	$ -	$ -	$ 368,000	$ 370,383	$ -	$ -	$ -
Storage Virtualization	$ -	$ -	$ -	$ -	$ -	$ -	$ 647,000	$ 537,630	$ -	$ -	$ -
Oracle RAC Cluster	$ -	$ -	$ -	$ -	$ -	$ -	$ 350,000	$ 316,795	$ -	$ -	$ -
Acquisition of Network	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 86,000	$ 24,051	$ -
Software Licenses	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 95,000	$ 95,277	$ -
Desktop Virtualization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 280,000	$ -	$ -
Replace Telephone System	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,838,000	$ -	$ -
Totals	**$ 941,715**	**$ 474,414**	**$ 959,000**	**$ 819,083**	**$ 3,219,000**	**$ 3,323,398**	**$ 2,013,000**	**$ 1,521,470**	**$ 3,543,000**	**$ 127,867**	**$ 698,721**

Source: Information Responses 33, 332, and 499

When an awarded project exceeds $1 million as part of the procurement bidding process, the IS organization must present it to the Philadelphia Facilities Management Corporation (PFMC) Board and explain the vendor selection process. For example, an October 2013 RFP was issued for the "Replace Telephone System" project as shown in *Exhibit III-13*. It was technically behind schedule because PGW decided to wait and slow down the process due to the pending PGW sale at that time. Subsequent to the terminated PGW sale agreement, PGW in early 2015 had finished scoring proposals, had selected the vendor to award the project to, and had negotiated a contract with Avtex. Learning to support VoIP rather than the system being replaced will be part of the transitional efforts, which are expected to be completed within approximately a year and a half.

IS Performance Metrics

The Administrative Services group is responsible for coordinating completion of an IS metrics spreadsheet on a monthly basis. PGW has a base set of enterprise metrics that its management uses to monitor PGW's performance. The metrics are tracked monthly and are posted to PGW's Intranet. In support of PGW's enterprise metrics are roughly 23 IS metrics, as illustrated in *Exhibit III-14*. The IS organization has moved from 40 metrics during the prior Stratified Management & Operations Audit in 2007 to 23 in 2014. These metrics are more concise, because some that were previously considered metrics were simply raw data, which is now part of the calculations only. The IS organization also tries to use the performance metrics to change its results. Therefore, some have been eliminated, because IS always exceeded its target. That being the case, IS management did not want just a "pat on the back" target.

Exhibit III-14
IS Performance Metrics
FY2014

Description	Target
Financial	
Seek Highest Return and Lowest Cost	
Operating Budget Variance	(2%)
Capital Budget Variance	(2%)
% of On-Budget Delivery Projects	80%
Internal Process	
Done Right the First Time	
% of First-Call Resolution	95%
On Time the First Time	
% of Projects On Time	80%
Deliver Services Effectively	
Open Help Desk Tickets Stratified by Days (10, 20, 30, 40, 40+)	20 Tickets (Open 0–10 Days) No Tickets (Other Day Categories)
Average Year-to-Date (YTD) Sick Days Per Employee (Calendar Year) (Excluding Family and Medical Leave Act (FMLA))	0.957
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
Learning & Growth	
Develop Employees	
Average Training Hours per Employee	3/Month
% of Employees Actively Training	5%
Achieve Outstanding Job Fit	
Average Time to Select a Candidate	60 days
Average # of Applicants per Job	5
Average # of Interviews per Job	3
Average % of Goals Met per Employee	90%
Manage Performance to Goals	
% of Department Goals Achieved	80%
Intern Ratio to Full-time Employees	10%

Source: Information Response 41

At least once every month at the IS weekly leadership meetings, metrics are discussed, especially those with an "off-target" status.

Exhibit III-15 illustrates IS' performance metric results for 2014.

Exhibit III-15
IS' Performance Metric Results
FY2014

	Goal	Aug-14	Jul	Jun	May	Apr	Mar	Feb	Jan-14	Dec	Nov	Oct	Sep-13
Customer													
Financial													
Seek Highest Return and Lowest Cost													
Operating Budget Variance -	(2%)	0%	-11%	-12%	-15%	-22%	-23%	-27%	-20%	-33%	-32%	-33%	-45%
Capital Budget Variance (end of year) - Comparison to Forecast	(2%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% of On-Budget Delivery Projects	80%	100.00%	100.00%	100.00%									
Internal Process													
Done Right the First Time													
% First Call Resolution	95%	91.84%	95.96%	95.64%	95.89%	96.77%	96.01%	96.21%	95.75%	93.45%	93.45%	95.40%	95.05%
On-Time the First Time													
% of Projects On-Time	80%	76.00%	80.00%	84.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Deliver Services Effectively													
Open Help Desk Tickets Stratified by Days (10, 20, 30, 40+)													
Tickets (0 - 10 days)	20	10	19	31	21	18	26	20	18		13	14	14
Tickets (11 - 20 days)	0	3	2	2	2	4	0	2	4		0	3	0
Tickets (21 - 30 days)	0	0	0	0	0	1	0	0	0		0	0	0
Tickets (31 -40 days)	0	0	0	0	0	0	0	0	0		0	0	0
Tickets (40+ days)	0	0	0	0	0	0	0	0	0		0	0	0
Average YTD sick days per employee (Calendar Year)	0.957	3.3559	3.0667	2.7667	2.4068	2.1525	1.8814	1.2459	1.0000	0.8525	0.5806	0.4355	0.2381
Average Days to Grant System Access Rights	2	5.00	1.00	3.00	2.00	3.00	1.00	2.0	3.0		2.00	2.00	2.00
Infrastructure - % of Availability	99.9%	100.00%	100.00%	99.86%	99.90%	99.43%	100.00%	100.00%	100.00%	100.00%	99.96%	100.00%	100.00%
Operations - % of Availability	99.9%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.40%	99.79%	100.00%	100.00%
Customer - % of Availability	99.9%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Financial - % of Availability	99.9%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Back-up Success Rate by Server	98%	94.98%	97.84%	98.12%	98.94%	96.86%	98.87%	97.94%	97.25%	96.38%	95.17%	95.93%	94.00%
Number of Unplanned Outages (Critical Systems)	1	0	0	1	1	1	0	0	0	1	2	0	0
Learning & Growth													
Develop Employees													
Average Training Hours per Employee - Hours per month	3	2.2	1.3	2.9	2.6	3.1	2.2	0.5	0.8	0.8	2.4	2.5	1.2
% of Employees Actively Training	5%	15.25%	16.67%	15.00%	18.64%	11.9%	16.9%	6.6%	6.6%	8.2%	12.9%	25.8%	19.0%
Achieve Outstanding Job Fit													
Average Time to Select a Candidate	60	30.00	45.00	30.00	30.00	90.00	90.00	37.50	40.00	30.00	20.00	15.00	30.00
Average # of Applicants per Job	5	2.00	2.50	2.50	0.00	2.50	0.00	9.25	8.67	0.00	5.33	29.50	0.00
Average # of Interviews per Job	3	0.00	1.00	0.00	0.00	1.00	0.00	0.50	0.67	0.00	1.00	2.00	0.00
Average % of Goals Met per Employee (annual)	90%	0.00%	0.00%	0.00%	0.00%		87.74%						
Manage Performance to Goals													
% of Departmental Goals Achieved	80%	79%	88%	83%	82%	86%	86%	86%	76%	80%	95%	100%	90%
Intern Ratio to Full-Time Employees	10%	1.7%	1.7%	1.7%	1.7%	3.4%	3.4%	3.3%	3.3%	3.3%	3.2%	3.2%	3.2%

Source: Information Response 41

Those months highlighted in green indicate that IS achieved its targets, while red and yellow months indicate that it did not (red being lower performance than yellow).

Customer Service Survey

Since January 2012, PGW clients have submitted 3,033 surveys. On average, clients gave PGW a rating of 4.65 out of 5.00, which equates to roughly 93%, as shown in *Exhibit III-16*.

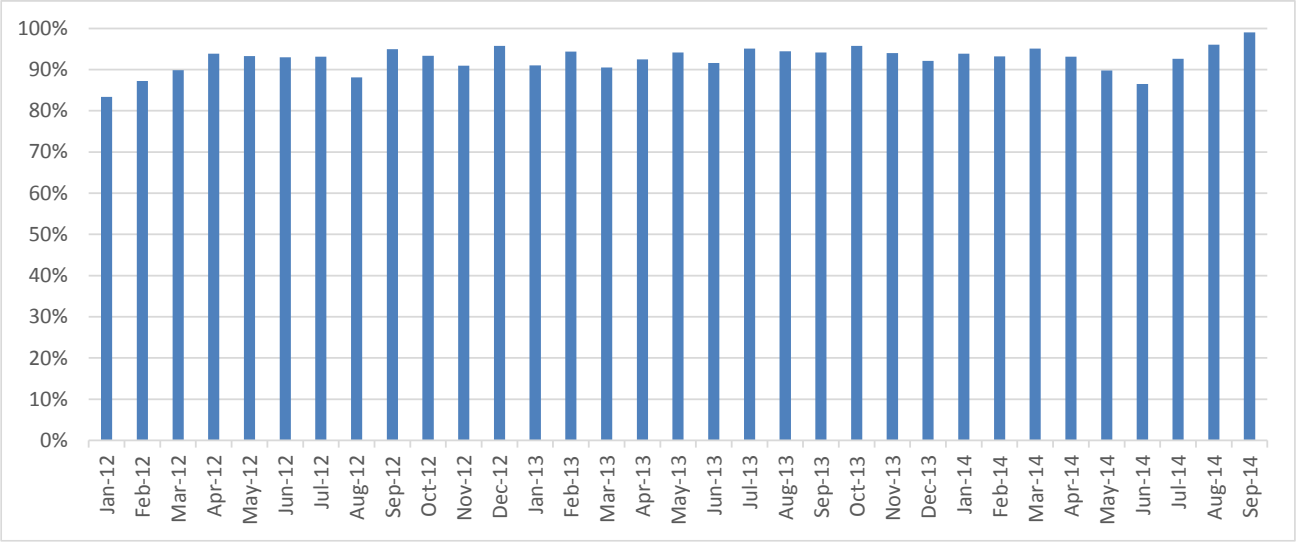
Exhibit III-16
IS' Customer Survey Results
January 2012 to September 2014

Created Date	Average Rating	Ticket Count #	% Percentage
Jan-12	4.17	6	83%
Feb-12	4.36	25	87%
Mar-12	4.49	140	90%
Apr-12	4.69	117	94%
May-12	4.66	134	93%
Jun-12	4.65	151	93%
Jul-12	4.66	143	93%
Aug-12	4.40	126	88%
Sep-12	4.75	99	95%
Oct-12	4.67	111	93%
Nov-12	4.55	99	91%
Dec-12	4.79	84	96%
Jan-13	4.55	116	91%
Feb-13	4.72	103	94%
Mar-13	4.52	82	90%
Apr-13	4.62	101	92%
May-13	4.71	99	94%
Jun-13	4.58	83	92%
Jul-13	4.76	98	95%
Aug-13	4.72	83	94%
Sep-13	4.71	82	94%
Oct-13	4.79	117	96%
Nov-13	4.70	100	94%
Dec-13	4.61	76	92%
Jan-14	4.69	101	94%
Feb-14	4.66	130	93%
Mar-14	4.75	81	95%
Apr-14	4.66	70	93%
May-14	4.49	84	90%
Jun-14	4.33	40	87%
Jul-14	4.63	57	93%
Aug-14	4.80	55	96%
Sep-14	4.95	40	99%
Total	**4.65**	**3,033**	**93%**

Source: Information Response 41
Average rating is in response to "Please rate your experience on a scale of 1 to 5, 1 being unsatisfactory, 5 being excellent."

Exhibit III-17 illustrates the percent rating trend by month.

Exhibit III-17
IS' Customer Survey % Rating Trend
January 2012 to September 2014



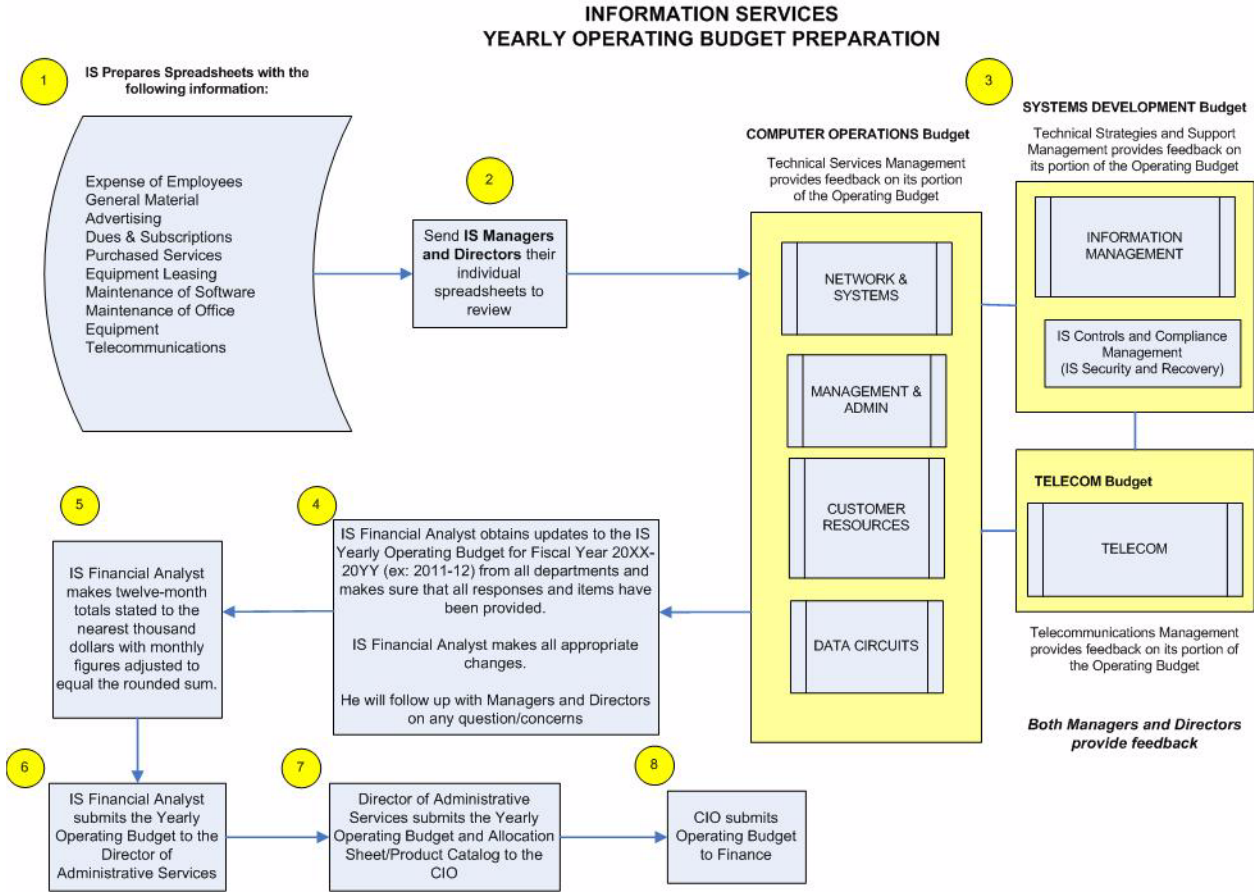
Source: Information Response 41

Business Planning

Short-Range Planning

The planning for the yearly operating budget takes place between mid-February and mid-March of each year, as illustrated in *Exhibit III-18*.

Exhibit III-18
Yearly Operating Budget Process
as of August 31, 2014



Source: Information Response 29

The process for the upcoming fiscal year starts in late January or early February with a kick-off memo from the Accounting/Budgeting group. The Financial Analyst in the Administrative Services group holds an IS Directors meeting to discuss actual/estimated figures for the current year plus any changes that may be occurring during the upcoming year. As a result of that meeting, a draft spreadsheet of budget figures by IS group and in total is compiled by the Financial Analyst. Subsequently, meetings take place involving the CIO, directors, managers, and project managers as part of the weekly IS leadership team meetings. Once there is a consensus within the IS organization, a draft operating budget package, along with a personal

analysis showing payroll hours and costs, is submitted to the Accounting/Budgeting group. Both items in this package show not only the upcoming budget figures but also actual/estimated figures for the current years. Also submitted is a budgeting summary document.

In March/April of each year, the Accounting/Budgeting group may have questions that IS may need to respond to. In April/May of each year, formal inquiries are made by the Philadelphia Gas Commission (PGC) and separate meetings with each department, including IS, are held to discuss the submitted budget.

Approval by PGC typically occurs in the June/July time period, once PGW makes any changes desired by the PGC. For FY2015, IS eliminated two positions for budget purposes, and then in September 2014, another position was eliminated. Subsequently, City Council must approve the operating budget.

One of the biggest recent changes was that all technology-related costs previously included in individual PGW departments were now included in the IS budget. Even though the relationship with vendors regarding such costs may be managed by the individual department, the IS organization now has a clear picture of all technology and associated costs within the PGW organization. This budgeting change also provides information that IS intends to use for trend and benchmarking of costs.

A similar process is used for the capital budget; however, the process starts in November of the current year, approximately three months before the operating budget process is started. A draft capital budget must be submitted to the Accounting/Budgeting group by the end of December. Usually the capital budget is approved by the PGC in the spring. Subsequently, as with the operating budget, City Council must approve the capital budget. For the IS organization, most capital items typically include server or software upgrades.

Refer to *Chapter V – Financial Management* for further discussion of PGW's operations and maintenance (O&M) and capital budget processes.

Long-Range Planning

The CIO annually pulls together a planning team consisting of the IS Directors and selected representatives from each section of the department. Through research and joint discussions, these individuals develop a five-year departmental business plan, which is submitted to PGW's Cabinet (top nine ranking Vice Presidents). All of IS' objectives included in the business plan are taken from PGW's pool of potential objectives. The short-range plans are typically project-oriented, while long-range plans tend to focus on the direction the IS organization should be taking.

The long-range plans were previously in narrative Word format, but now with the last plan, the format has changed to an Excel-based one. Now, information and data is included in the Excel version and is submitted to senior PGW management, who consolidates it for the whole PGW organization. Included in the Excel workbook are:

- Instructions
- Summary statistics
- Initiatives, which are typically segmented as one of the following categories:
  - Business-as-usual (BAU) work
  - New business (NB)
  - Change-to-business (CTB) categories (typically not IS, but those projects in other business unit plans)
- Goals
- Risks
- Initiative descriptions

IS goals are not identical to IS performance metrics, but they are linked to company-wide goals and objectives. The risks include a standard list from which IS can choose. If other risks are needed, then IS must contact Risk Management to have them added. Also identified with risks are potential impacts and mitigation efforts. The minimum and maximum dollar amounts included in the plan are not based specifically on vendor quotes, so they can easily change. An upgrade of Project Server is in progress to incorporate use of portfolio management for IS projects. This upgrade will allow the IS organization to track "wish list" items in the portfolio, then move to actual projects once they have been approved. It will also allow a quick dashboard, so as to help improve portfolio management.

Other

Additional themes were identified during this audit that IS management would like to incorporate into its activities. Some of the following themes that the CIO would like to incorporate into IS' activities include:

- Collaboration (SharePoint)
- Self-service
- Open source
- Mobile applications (apps)

The IS organization is also considering use of the City's "government as a service" capabilities; three months ago, the City made its first data release. For example, PGW is now using the City's radio network.

Externally versus Internally Hosted Systems and Applications

PGW uses SaaS to externally host the following systems/applications:

- *Workforce EmpCenter* – Employee time and labor management system
- *Cornerstone* – Employee performance reviews
- *Laborsoft, Inc.* – Grievance management system
- *ICIMS* – Applicant tracking system

- *Energy Worldnet* – Operator qualifications system
- *GEOLearning* – Learning management system
- *ACLARA* – Online gas bill analysis application for customer service representatives (CSRs) and consumers
- *ADP* – Payroll processing; employee self-service
- *IHS Dolphin* – Safety data sheets storage system
- *Detectent* (*SunGard*) – Usage at vacant properties
- *Kubra* – Bill print and online remittance processing service
- *ECIFM* – Electronic Data Interface solution that enables data exchange between PGW and alternate gas suppliers

PGW also uses internally hosted purchased solutions, including:

- *Billing, Collections, and Customer Service System* – Customer information system; originally purchased from SPL Worldgroup
- *Customer Complaint Management System* – Originally purchased from Epitome Systems; currently being replaced by an OnBase CMS-based solution
- *New Energy* – Internally hosted gas choice program management system

Additionally, PGW's IS Department uses approximately 12 to 13 onsite consultants for the following:

- Oracle database administration (DBA)
- HP-Unix
- Desktop support team, which also supports field laptops (three to four consultants)
- Senior Cisco Network Administrator
- Application Developers (six)

Other services that PGW purchases externally include:

- Vaulting and transportation for media (tapes) and documentation for disaster recovery
- Disaster recovery services
- BCCS application support

Policies and Procedures

PGW maintains policies and procedures for computer systems operations, maintenance, staffing, and installation and testing of hardware and software, as follows:

- Web Server Policy
- Virtual Private Network Policy
- Screen Saver Usage
- Safe Usage of Electronic Communication Devices
- Telecommuting Pilot Program Policy

- Online Privacy for Employees
- Password Policy for Technical Administrators
- Password Policy for End Users
- PC Installation on PGW Enterprise Network
- Remote Access Policy
- Firewall Policy
- Internet Usage Policy
- Electronic Mail Usage
- Data Center Access Policy
- Bring Your Own Device (BYOD) Policy
- IS Anti-Virus Policy
- Secure Software Application Design and Development Policy
- IS Project Development Methodology
- Developing Test Cases/Test Scripts for the Requirements-based Testing

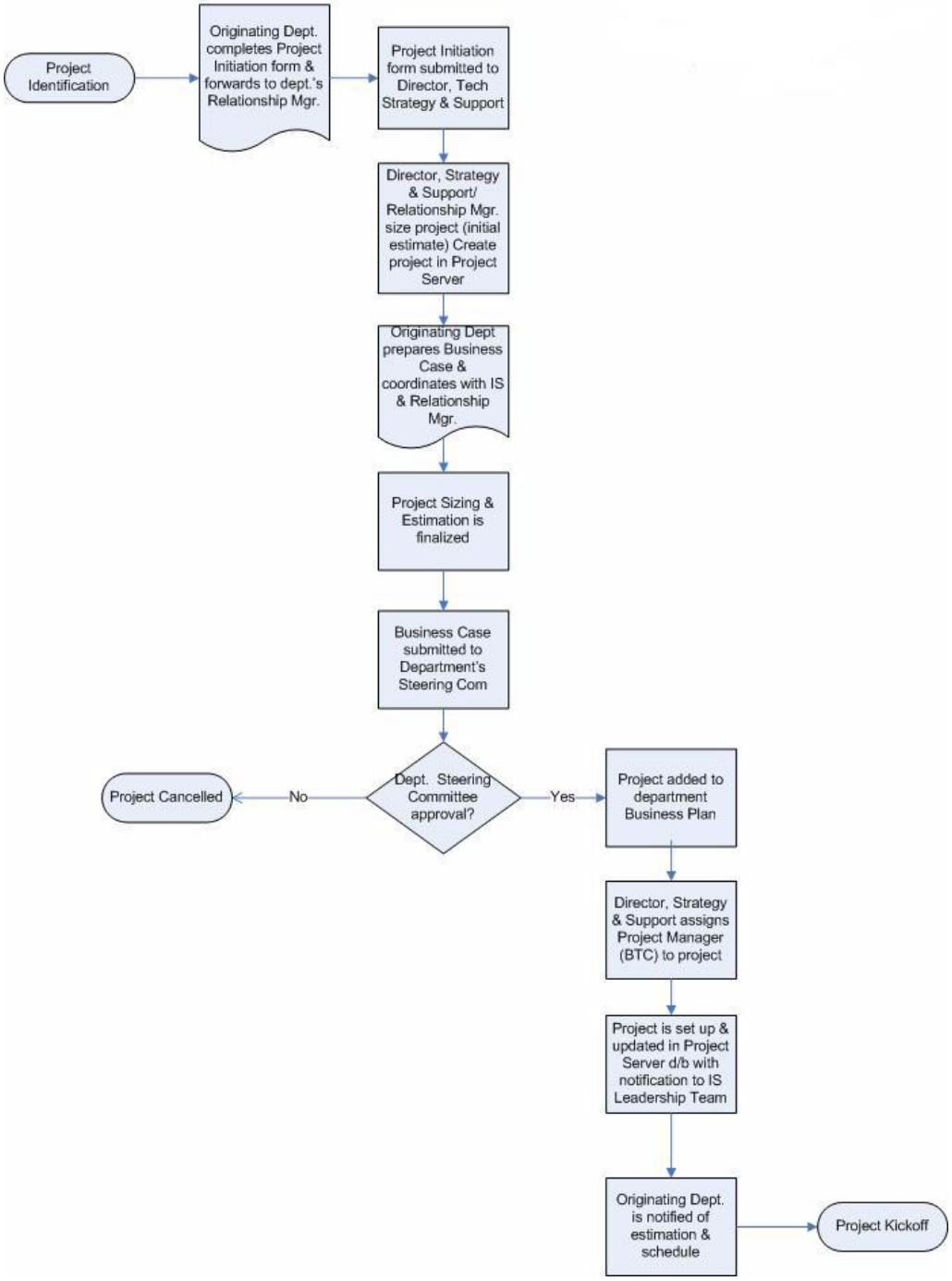
Once approved, policies are posted on the corporate Intranet. Procedures for many functions related to computer systems operations, as well as the maintenance and installation of hardware and software, are located in a shared folder. Sub-folders are secured as appropriate and contain documents that describe procedures for the various functions.

One of PGW's key processes is its *Project Development Methodology*. The purpose of this methodology, which is divided into seven phases or milestones, is to provide a template for successful design and implementation of new applications or enhancements to existing applications. It is to be followed when developing any medium ($50,000 to $100,000) or large (over $100,000) project. The seven major phases are:

- Initiation
- Analysis
- Design
- Build/Purchase
- Test
- Implementation
- Completion

Exhibit III-19 illustrates the project initiation workflow.

Exhibit III-19
Project Initiation Workflow
as of December 31, 2014



Source: Information Response 42

Exhibit III-20 displays PGW's project sizing guidelines. These guidelines were lowered from seven years ago, when the ESS project managers came into the IS organization in 2014. This change has also impacted what forms need to be completed, in which some were eliminated, some consolidated, and some changed.

Exhibit III-20
Project Sizing Guidelines
as of December 31, 2014

	Small	Medium	Large
Cost Total dollars including external labor. Capital and expenditure costs -- includes internal labor. Internal cost factor is estimated by using the company's productive rate at the end of the last fiscal year. The actual cost for external resources will be used whenever possible. These estimates are only used to facilitate planning.			
Total Dollars	< $50,000	$50,000 - $100,000	> $100,000
Time Measured in Hours			
Hours of Effort	< 200	200 - 400	> 400
Business Impact Evaluation of a project or project candidate'e effect, either 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 and regulatory agencies.	Low	Medium	High
Safety and Reliability: Considerations include disruptions of services, ability to responde to emergencies, age of environment, and regulatory requests.	Low	Medium	High

Source: Information Response 42

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, then 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 business unit project lead, an IS project lead, an applications developer, 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-21*.

Exhibit III-21
IS' Project Documentation Requirements
as of December 31, 2014

Initiation	Analysis	Design	Build	Test	Implement	Complete
DOCUMENTATION DELIVERABLES						
Project Initiation Request Form **Business Case** • Business Need • Benefits/Savings • Project charter • Scope • Objectives • Deliverables • Assumptions • Constraints • Risk Assessment • Team Roles / Responsibilities Matrix • RFP Process • Scoring Matrix **Project Charter** **Business Requirements**	**Project Plan** • Scope • Cost Estimate • Schedule • Project org. • Communication plan • Risk Mgt. • Resource Mgt. • Change Mgt. • Issues Mgt. **Project Roles & Responsibilities Matrix** **Requirements** • Functional Req. • JADS • Use Cases • Requirements Matrix **Development Environment Plan** **Training Approach** **Implementation Approach** **Documentation Plan**	**QA Environment Sheet** **Testing Approach or Acceptance Test Plan** • Test Scenarios • Scripts **Detailed Technical Specs** • Platform • Processing • Screens • Reports • Database • Programs • Interfaces • Security • Controls **Requirements Traceability Matrix**	**User Manual** **Migration Plan** **Training Plan** **Test Doc / Plan** (Final) **Update Detailed Technical Specs**	**Updated User Manual** **Updated Implementation Approach** **Test Results** **Test Reports**	**Finalize Implementation Plan** **Training Manual** **Maintenance and Support Plan** **Service Level Agreement** **Close Out Issues Log** **Reports** **Delivery of Project Documentation Per Documentation Table**	**Client Satisfaction Survey** **Project Completion Report** **Lessons Learned** **Project Sign-Off Document** **Recognition Report**
REVIEW / APPROVAL POINTS						
• **Project Approval**	• **Kickoff Meeting** • **Approval of Project Plan, Budget, Schedule**	• **Design** • **Review / Approval** (Business Dept.)	• **Code Review** • **Unit Test Accept.**	• **User Acceptance** • **DBA Authority to issue**	• **Formal acceptance or authority to implement (signoff)**	• **Lessons Learned Review**

Source: Information Response 42

The description of technology, systems, and applications initiation, development, and implementation processes, including major tasks for each of the phases, is discussed in summary form in the *Blueprint for Operations Excellence* of the IS organization. Along with its *Project 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.
- *Financial Management*: Its purpose is to provide a means for creating both capital and operational budgets, gaining approval for each, and tracking actual expenditures against the budget.

- *Data Management*: Its purpose is to provide a central point of management, control, review, and signoff for the assignment of data elements and the development of databases.
- *Hardware Standards*: Its purpose is to provide PGW business units with a consistent certified hardware platform that is compatible with the operating environment to establish reliable vendor relationships, competitive prices, and performance. This process includes benchmark testing and competitive product testing that results in a certification document.
- *Implementation Management*: Its purpose is to provide a standard and repeatable method for moving programs from the QA function to the production environment. The key components of this process are the sign-off document authorizing the move, the staging area, which is used to verify the completeness of the move, the version control repository, and the final sign-off validating that the move satisfied the customer's requirements.
- *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. The goal is to provide a smooth transition from the testing environment as a result of a thorough review, sign-off, and acceptance of the product, such that production control is responsible for insuring the product implementation is integrated into established production schedules with minimal disruption.
- *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. The key components are to review the contents of the project folder, to develop the project test plan, to develop test scripts, to run test scripts for integration and regression testing, to assist the client during user acceptance testing, and to document test results. Testing results are reviewed with the development team, operations, and the user, and then the client sign-off is obtained. Finally, the signed-off project and documentation are forwarded to the implementation management process.
- *Release Management*: Its purpose is to provide the mechanism for building and releasing software, in which the goal is to protect the live environment.
- *Resource Management*: Its purpose is to provide adequate resource availability for all projects through full-time PGW IS employees or selective sourcing.
- *Access Management*: Its purpose is to provide a uniform security control process for granting and restricting access based on the various needs of PGW's departmental employees, vendors, and contractors. The three key areas of security control systems are application security, network security, and physical access security, which consist of uniquely defined processes with strict approval and sign-off control documentation.
- *Security Incident Response:* Its purpose is to provide a contact and communications mechanism, including a calling tree, which describes a standard timeline for incident responses and assigns responsibilities for incident management and resolution.

Capacity Planning and Acquisition Methodologies

The IS Department uses various tools for system and capacity management, including:

- VMTurbo provides performance and capacity metrics for the entire virtual server environment.
- Hitachi Tuning Manager provides performance and capacity metrics for the entire storage environment.
- Nagios and Nagvis provide real-time and historical server availability and performance reporting.

The IS Department communicates with various business units during the annual capital budget preparation to anticipate any technology needs for the next fiscal year. These new requirements, combined with anticipated growth for the existing infrastructure and systems, lay the foundation for the annual IS capital budget. The acquisition of new equipment is done through a competitive bidding process in accordance with PGW's procurement rules, generally preceded by a technical evaluation.

Service Level Agreements

The IS Department currently has three service level agreements (SLAs) with its users, specifically:

- BCCS SLA (2011); provision and support of BCCS to Customer Affairs
- AIMS SLA (2011); provision and support of AIMS to Operations and Customer Affairs, including the following applications:
  - Resource management
  - Order generator
  - Dispatching
  - Field
  - Meter inventory
  - Reports
- Oracle SLA (2011); provision and support of Oracle Financials Software to Finance

The IS organization believes it needs SLAs for only these largest areas, because all other areas have standards included in the *Client Contact Center (C3) Roadmap* documentation, which describes the C3's mission, goals, services, and processes and the associated IS standards.

Disaster Recovery

Every four years, PGW issues an RFP to provide PGW with disaster recovery capabilities. Generally, SunGard has been awarded the bid to provide a backup location and associated equipment for PGW's annual disaster recovery testing activities. During these activities, IS runs core systems to make sure they can be restored within 48 hours.

As part of IS' daily backup process, the organization transports tapes of all PGW data to a nearby offsite location. Previously when performing its annual disaster recovery testing activities, these tapes were used during testing. Approximately two to three years ago, however, due to technology changes, PGW began sending selected data (shared drives, e-mail messages, and active directory information) directly to SunGard to enable faster disaster recovery, if an event occurs. Also, virtualization is now being used at SunGard.

PGW's target for disaster recovery is 48 hours. Disaster recovery tests are typically done twice annually. This calendar year (2014), however, no tests have been completed. What was to be the second test has been moved to next spring (2015), so the new BCCS can be used when conducting the test.

The IS organization also helps with PGW's business continuity planning activities by providing equipment, but the Manager of Corporate Preparedness is responsible for PGW business continuity planning activities, as described in the following section.

Findings & Conclusions

Finding III-1 **The IS organization's ability to find and keep staff has been limited in the past by its relatively low pay to market compensation, but has recently taken steps to address this issue.**

According to management, IS has often had difficulty in hiring selected staff, because PGW has not typically kept up with market salary levels. Occasionally in the past a market study has been done, according to IS management, but generally pay has still significantly been under market. As a means of addressing its relatively low pay, the IS organization recently began trying to get its salary ranges adjusted by having the Hay Group look at risk positions where it is currently paying too low. A progression schedule was instituted roughly a year ago for pay grades 4, 5, and 6 of risk positions, including database administrators, developers, network engineers, ESS engineers, and LAN/WAN engineers. The IS organization goes through special appraisals for these positions based on the employees' anniversary dates, starting at six months then moving to 12 months. An employee must get at least a three out of a five score to move ahead in the progression schedule. This process for the IS organization is based on a standard developed a couple years ago for PGW engineers. It was announced to all IS employees in a general meeting following which the CIO had one-on-one meetings with eligible employees. The CIO is also now working with the Human Resources Department to see if it can be expanded to pay grade 7.

Because IS pay is often lower than market levels, the CIO has attempted to get other amenities that make IS employees' work life better, such as improving the appearance of the workplace, replacing old chairs, etc.

Enterprise Strategic Services

Finding III-2 Formal project management office activities has no support of the ESS group.

A project management office (PMO) is a group or department within a business, agency, or enterprise that defines and maintains standards for project management within the organization. The PMO strives to standardize and introduce economies of repetition in the execution of projects. The PMO is the source of documentation, guidance, and metrics on project management execution of practices. When part of a PGW-wide group, the ESS group also included functions like a PMO for tracking and monitoring project management activities. Although the ESS group is not formally a PMO, the Director of ESS indicated that the group attempts to follow PGW's project management methodology (PMM), which is also referred to at PGW as its project development methodology, and use of standard forms for managing projects.

Finding III-3 PGW's project management methodology documentation is not sufficiently detailed, and although under revision, PGW's project management methodology documentation is not regularly reviewed.

Most of IS' processes are described in summary form in its *Blueprint of Operational Excellence* and *Project Development Methodology* documentation, but detailed guidelines do not exist. The *Project Development Methodology* documentation is generally more detailed, but it still does not provide sufficient examples so that an IS employee can easily understand how to implement what is discussed in this document.

In the past, the IS organization followed different subsets of tasks identified in the PMM documentation, depending on whether a project was considered small, medium, or large. Now the ESS group is trying to simplify PMM tasks so that all projects follow the same set of tasks, although at a different level of detail. For example, a small project's task listing may be five pages, while a large project's task listing may be 20 pages.

According to IS management, every couple of years the PMM documentation is reviewed; however, the *Blueprint for Excellence* document was dated September 2011 and the *Project Development Methodology* document was dated August 2010. In organizations that follow best practices, these types of documents are reviewed annually and are revised, as appropriate, but this is not regularly done at PGW.

Every year the Technical Writer in the Technical Strategy & Support group is assigned to review the *Project Development Methodology*, *Blueprint for Excellence*, and also the *C3 Roadmap* documentation and solicit changes; however, there have been no changes incorporated into these documents in recent years, as discussed above.

Finding III-4 The plans and schedules for all major ESS projects are not sufficiently detailed.

PGW provided project charters and project plan summaries for the following major ESS projects, except IGMS, in which only the project plan summary was provided.

- Data center relocation
- BCCS modernization
- Marketing AIMS upgrade
- POR/consolidated billing
- Global positioning system (GPS)/automated vehicle locator (AVL) system implementation
- Integrated gas management system implementation
- SCADA system upgrade
- Customer complaint management system (replacement of Epitome system)
- Fleet management system upgrade

A sample project plan summary for the data center relocation project is provided in *Exhibit III-22*.

Exhibit III-22
Sample Project Plan Summary
as of November 30, 2014

Project Plan Summary
Data Center Relocation

Project Management
Business Owner:
Business Project Manager:
ESS Project Manager:
Project Team:

Project Description
This project updates and relocates the old data center from Building 1800 to a new greener more efficiently designed data center in Building 800.

Project Status Late

Start: 11/1/2011 **End:** 9/11/14 **Baseline Create Date:** 11/10/2014
Baseline End Date: 1/16/2015

Phases		Original Plan	Baseline	Actual
Planning & Design	Start	11/1/11		11/1/11
	End	12/27/12		7/11/2013
Acquisition & Preparation	Start	9/14/12		1/26/2014
	End	1/24/14		4/9/2014
Construction	Start	8/24/12	3/5/2014	3/5/2014
	End	9/4/14	8/25/2014	8/25/2014
Room Commissioning	Start	8/22/14	8/26/2014	9/8/2014
	End	9/11/14	9/19/2014	9/22/2014
System Commissioning	Start	9/5/14	9/22/2014	9/29/2014
	End	9/11/14	12/15/2014	
Move IS Equipment	Start	10/1/14	12/16/2014	
	End	10/29/2014	1/16/2015	

BUDGET

	Planned	Spend to Date
Work Order	$ 4,274,434	$ 4,475,551

Accomplishments:
1. Punch list reviewed and updated on 11/12/14.
2. Determined new date for the flow test to be Dec. 8th.
3. Revised IS tasks to reflect order of moving equipment.

Next Steps:
1. New 7-HP P-13 pumps to be installed upon delivery.
2. Meet with SKAE to determine new commissioning dates on Wed. (11/19)
3. Update project plan to reflect new dates for Move IS Equipment phase.

Issues/Risks/Scope Changes

The actual move of IS equipment into the Data Center is dependent upon operating conditions. Therefore, PGW may need to wait until the spring season before moving critical IS systems.

11/7/2014 – Larger pumps will be shipped on Nov. 17th; earliest possible IT equipment move-in date will be in middle of December.

10/22/2014 - Project is currently $200,000 over-budget; Facilities is reviewing items charged to capital work order

Source: Information Response 409

The project plan and schedule shown above is essentially the same as the sample progress report provided earlier in the sample progress report (see *Exhibit III-3*), although it has been updated as it is "as of" roughly two months later. The information provided, however, was not sufficiently detailed to show the work breakdown structure (WBS) of these projects, which is typically included in a project schedule, such as that provided by Microsoft Project.

The summary results on *Exhibit III-4* indicate that ESS is generally within budget, but more than 35% of its projects are behind schedule. These projects are mostly BAU projects, so business units do not necessarily see deliverables as critical, according to IS management, which is considered a PGW culture challenge. The reason these projects get behind schedule is because of resource issues and the business unit/IS developing the plan too early, even before the vendor has been selected. The project may start later than anticipated or the vendor may come up with a schedule that is completely different from what was originally anticipated. Additionally, all Operations projects are currently on hold, because the business units are still developing requirements for IS to implement. There have been a lot of changes in scope due to the changes in business unit management and staff. For example, the AIMS modernization project, such as corrosion paper to screen, had requirements changes and was put on hold continuously due to personnel changes in the Distribution organization. In addition, IS changes occurred. For example, in the Customer Service area, the development of requirements is also taking longer to develop.

The lack of detail in the associated plans and schedules may contribute to the amount of projects being behind schedule, as shown on *Exhibit III-4*.

Administrative Services

Finding III-5 Approval of IS vendor invoices includes excessive amounts of manual processing.

As discussed previously, when receiving invoices, the Financial Analyst inputs the information and data into the Oracle Financials Accounts Payable system. A paper copy of the invoice is sent to the appropriate IS director for approval, and then Administrative Services sends the paper copy on to the Accounts Payable group for payment processing. Automated electronic workflow is not being used, although Oracle Financials is capable of doing it if it were configured properly. Approximately 99% of all IS invoices come directly to the Director of Administrative Services before going to the Accounts Payable group for payment processing. Although these invoices are input by the Administrative Services group to Oracle Financials, a paper copy is taken to the Accounts Payable group, even if sent by e-mail message, so a receipt can be provided.

Finding III-6 The staff in IS divisions has no systematic employee development plans.

Of the IS employees, on average each employee has taken approximately 6.75 technical training sessions in the past five fiscal years; however, the number of sessions has varied by employee. According to IS management, the staff in IS divisions have no formal development plans; therefore, IS management is

unable to properly monitor and address training requirements of its employees. As a result, some employees may be receiving sufficient training and others not, but the lack of plans makes it difficult for IS management to know if additional training is required for specific employees.

Finding III-7 **Help Desk response time metrics are generally met except medium severity level for contractors.**

Exhibit III-23 illustrates Help Desk metrics for January 2014 to October 2014.

Exhibit III-23
Help Desk Metrics
January 2014 to October 2014

SLA Response Time Summary Report
January 2014 to October 2014

Severity Level	Response Time	Count Missed	Count Overall	SLA Met
(1) Emergency	30 minutes	0	0	***
(2) High	1 hour	3	38	92%
(3) Medium	4 hours	781	5087	85%
(3) Medium Contractor	2 hours	395	1336	70%
(5) MDT	30 minutes	0	0	***
Combined Total		1179	6461	82%

Source: Information Response 335

Of the three categories where activities occurred (high, medium, and medium contractor), the result for the high category was good and the result for the medium category was reasonable; however, the result for the medium contractor was unsatisfactorily low. The contractor is ISS, which as described previously, is given tickets to resolve Help Desk issues, so ISS employees can handle when Help Desk employees cannot resolve the issue by remoting into the user's desktop/laptop.

Finding III-8 **PGW management was unable to provide adequate information as to how chargebacks (for allocating IS costs to user departments) are handled during the fiscal year following the initial budget development, or if the basis for allocations changes during the fiscal year.**

The procedures for processing chargebacks of IS costs to other PGW departments has changed in the last seven years. The IS organization now uses actual IS usage costs, not just device counts, to charge back costs. The first step IS takes is to calculate charges to individual departments based on IS usage costs, including costs involving purchased services, labor, maintenance of software and hardware, and printers/copiers, where they are able to identify items that can be directly charged to specific departments. Then any remaining IS costs are allocated to individual PGW departments based on the

count of devices in each department. In recent years, IS management estimates that roughly 45% is charged directly, with the other 55% being charged based on device count data.

The IS organization supplies each PGW department with computer and telecommunications (telecom) equipment and maintains records of technology assets, as follows:

- The IS Senior Network Analyst (Asset Management) maintains records of allocated non-telecom equipment, specifically desktops (PCs), laptops, and printers.
- The IS Telecommunications Manager in the Technical Services group maintains records of telecom equipment released to PGW departments, including radios, cellular phones, desktop telephones, and air cards.

The FY2015 IS Allocation Model, for example, assigns the IS Department's budgeted expenses to other PGW departments. The IS budget is allocated based on two different categories, *"actual"* and *"default"* expenses.

- *The "actual"* expenses are budgeted line items that are mainly used by a specific department and are charged directly to that department.
- The *"default"* expenses are budget line items that are shared by the entire company and cannot be attributed to any single department in particular.

The default expenses are calculated by multiplying the *"unit cost"* by the total number of technology devices assigned to a specific department. The unit cost is calculated by dividing the total default amount (total budget less *"actual"* expenses) by the total device count. The "*Overview"* tab provides a summary of the *"actual"* allocated expenses under the different budget areas (i.e., Maintenance of Software, Labor Resources, etc.) assigned directly to the various PGW departments. The *"Maintenance of Software," "Maintenance of Office Equipment," "Labor Resources,"* and *"Telecom"* tabs provide the detail information of the budget line items being assigned to specific PGW departments as an *"actual"* expense allocation.

The "actual expense allocations" are calculated separately for telecom (radios, cellphones, desktop telephones, and pagers) and non-telecom (PCs, laptops, and printers) items.

- The *non-telecom actual allocations* are expenses that can be identified as being used by a specific department. The non-telecom actual allocations are calculated by combining each department's copier, purchased services, maintenance of software, maintenance of office equipment, and labor resource allocations. These allocations are summarized on the "Overview" worksheet of the fiscal year's IS Spending Allocation spreadsheet and represent the actual allocations for each PGW department.
- The *telecom actual allocations*, on the other hand, are calculated based on the number of devices assigned to each department. The IS Telecom Manager provides the annual cost per device and the total number of devices used by each department. The devices are listed under the

following categories: cellphones, desktop phones, radios, and air cards. Each device count is multiplied by the annual cost of each device type. The costs are totaled and assigned to each department, where applicable.

The "default telecom and non-telecom allocations" are expenses that are used mainly by the entire PGW organization and cannot be attributed to any one individual department. The default allocations are calculated using the same method for both telecom and non-telecom expenses. To calculate the default cost per device, the following allocations are performed:

- Non-telecom default allocation:
  - Subtract the total actual allocations from the total IS Department budgeted amount, and then divide that result by the total device count, giving the default cost per device.
  - The default cost per device is then multiplied by the number of devices for each department to determine the default allocation.
- Telecom default allocation:
  - Subtract the total actual allocations from the total Telecommunications budgeted amount, and then divide that result by the total telecom device count, giving the telecom default cost per device.
  - The telecom default cost per device is then multiplied by the number of devices for each department to determine the default allocation.

Because users must now put in badges to swipe printers/copiers, count, not just number of devices, is currently used for charging costs.

According to IS management, 100% of all costs are to be charged out; however, the Administrative Services group develops a spreadsheet that is used only for developing individual departmental budgets. Then each quarter during a year, the Director of Administrative Services sends device count updates to the Accounting/Budgeting group. If personnel changes occur during the year, such as additions, transfers, retirements, or terminations, then the Director immediately sends an e-mail message with this information to the Accounting/Budgeting group. PGW, however, was unable to provide information regarding how the chargeback dollars might change based on this information being provided by the IS group to the Accounting/Budgeting group.

Technical Strategy & Support

Refer to Finding III-3 in the Enterprise Strategic Services *Findings & Conclusions* section.

Technical Services

None

Information Controls & Compliance

Finding III-9 **Disaster recovery tests conducted in 2013 yielded relatively minor issues, but testing for 2014 did not adhere to the goals of having tests performed twice annually.**

The last two disaster recovery tests were conducted on October 7–9, 2013 and December 9–11, 2013. The recovery activities for each exercise were divided into nine broad categories, in which each category was given a maximum score of 10 points. The results of each test are shown in *Exhibit III-24*.

Exhibit III-24
Disaster Recovery Tests
2013

	October 7–9, 2013			December 9–11, 2013		
Category	**Grade**	**Actual Score**	**Max Score**	**Grade**	**Actual Score**	**Max Score**
Iron Mountain Offsite Data Protection	Pass	10	10	Pass	10	10
Network Recovery	Pass	10	10	Pass	10	10
HP UNIX Server Recovery	Pass	10	10	Pass	10	10
Windows Server Recovery	Pass	10	10	Pass	10	10
Linux Server Recovery	Pass	10	10	Pass	10	10
Oracle Database Recovery	Fail	3	10	Pass	10	10
File/Print Server Recovery	Pass	10	10	Pass	10	10
Desktop Recovery and Support	Pass	10	10	Pass	10	10
Applications Testing	Pass	7	10	Pass	8	10
Overall		**80**	**90**		**88**	**90**

Source: Information Response 344

Highlights of the October 7–9, 2013 exercise were as follows:

- 72% of the high-level recovery objectives of this exercise were met.
- The BCCS, AIMS, Oracle Financials, e-mail, Living Disaster Recovery Planning System (LDRPS), and mobile reports were successfully restored and tested.
- The AppWorx scheduler was not recovered because archive logs were from September 28. Therefore, PGW couldn't recover the AppWorx scheduler from Thursday, October 3, 2013.
- The Retail Office application was recovered; however, the application tester was unavailable to test due to sickness.
- The mobile reports were recovered; however, the application tester was unavailable to test due to sickness.

- The Initial Recovery Team (IRT) successfully recovered 46 virtual machines that used 8.8 terabytes of space.
- 28 individuals from four departments took part in the exercise.

Highlights of the December 9–11, 2013 exercise were as follows:

- 98% of the high-level recovery objectives of this exercise were met.
- The BCCS, AIMS, e-mail, LDRPS, Retail Office, and mobile reports were successfully restored and tested.
- The AppWorx scheduler was not recovered, because the lightweight directory access protocol (LDAP) server was not properly set up.
- The Meter Reading and Oracle Financials applications were recovered but not tested, because the end users weren't available for the exercise.
- The IRT successfully recovered 57 virtual machines that used 9.1 terabytes of space.
- 21 individuals from the IS Department took part in the exercise.

In calendar year 2014, however, no tests were completed. What was to be the second test in 2014 has been moved to spring 2015, so the new BCCS can be included as part of the testing.

Finding III-10 PGW does not regularly perform penetration testing and vulnerability assessment projects.

The most recent penetration test/vulnerability assessment was performed in late 2011 by an outside contractor. The IS goal is to start doing them again in 2015 on an annual basis. In 2014, an RFP for penetration testing and vulnerability assessment projects was issued, and in January 2015, Securicon was awarded these projects. The RFP requirements also included cyber security testing, physical security testing, and security regarding PGW's data center move.

In the last vulnerability assessment performed in 2011, the outside contractor categorized deficiencies into high, medium, and low items. Several key deficiencies included:

- *Some shared folders were not legitimate.* – The QA Manager worked with the Director of Technical Services to mitigate this issue within a few weeks of the assessment completion. Every quarter these two groups meet to make sure all shared folders are legitimate.
- *Several security patches were missing.* – PGW patches Windows on a weekly basis. Also, PGW uses Microsoft Baseline Security Analyzer to scan Windows servers on a quarterly basis. Others are patched whenever there is a critical vulnerability patch review needed, which is typically done automatically.

- *Physical security issues exist, because some testers were able to get into PGW facilities by indicating that they were IS employees.* – Now PGW has developed procedures that require user departments at these operations facilities to call the IS organization to ensure that an IS employee is supposed to be at that particular location.

Finding III-11 The QA/testing activities performed by the Information Controls & Compliance QA group have become more robust than in prior years.

Currently the Information Controls & Compliance QA group is primarily involved with BCCS and AIMS modernization activities or BCCS production issues.

When a change management form comes through, it must be signed off by both QA and users following testing. PGW uses SharePoint to fill out change forms, and then workflow takes it to QA testers and UAT users for signoff.

Every two to three months, one to two items may come through as emergency/critical items that cannot wait until the following Wednesday (during the weekly change management meeting) to get approval to go live. In those cases, either the CIO or two directors must approve the item, so the "fix" can go live before the next meeting, although the matter is then discussed during the following meeting.

The QA group also makes sure that UAT documentation and results are being properly tracked.

The QA processes haven't really changed in the last seven years, but they now involve better documentation and communications.

The QA testers try to be involved in system activities as early as possible, typically during requirements gathering activities for major projects. Then while developers are coding, the QA testers begin developing test plans and scripts, so testing can begin as soon as the developers have turned over the application for QA testing.

Generally the QA group gets ad hoc testing requests weekly, which typically consist of open BCCS items. Prioritization is not really necessary for these ad hoc items, because one to two staff members are assigned to each application. AIMS is fairly stable with not as many issues as BCCS. The QA group is typically not involved much in Oracle Financials testing, but it monitors what user testers do. Other applications may involve QA testing, such as meter or gas supply applications. Selected QA employees are designated as "experts" for each application. If a QA employee leaves, then others are trained to become these "experts."

Recommendations

Enterprise Strategic Services

Recommendation III-1 **Conduct a formal assessment study for adding a formal PMO to the IS organization as soon as possible. (Refer to Finding III-2.)**

To ensure that standards are developed and adhered to by project managers within the ESS group or elsewhere in the IS organization through the following of appropriate project management policies and procedures, PGW should investigate the incorporation of a formal PMO into its organizational structure. A comprehensive plan, including benefits and costs, should be developed by the Information Services organization to determine when a PMO can be implemented. This PMO group should be primarily responsible for monitoring and tracking project management activities by routinely reviewing projects. For example, project managers should be required to submit progress/status reports every two weeks to the PMO, or on a weekly basis if BU management requires them more often. Typically included in these reports are upcoming events, milestones, issues, and progress against plan. The PMO should meet monthly with project managers to have a hands-on discussion of the tools used and to brainstorm how to make the process better. The PMO should also regularly report project results against standards to the CIO every month.

Recommendation III-2 **Expand IS project management methodology documentation and review at least annually, and revise as appropriate. (Refer to Finding III-3.)**

Most of IS' processes are described in summary form in its *Blueprint of Operational Excellence* and its *Project Development Methodology* documentation, but detailed guidelines do not exist. The *Project Development Methodology* documentation is generally more detailed, but it still does not provide sufficient examples.

The IS organization should incorporate detailed guidelines into its project management methodology documentation, including its *Blueprint of Operational Excellence* and its *Project Development Methodology* documentation. Specific examples should be incorporated into the *Project Development Methodology* documentation, so an IS employee can easily understand how to implement the methodology requirements.

Also, there is no centralized control of IS processes to ensure that this type of documentation is regularly reviewed and updated, as necessary. Each such document should be reviewed at least annually, and revised, as appropriate.

Recommendation III-3 **Develop comprehensive project plans and schedules by incorporating additional detailed information and data. (Refer to Finding III-4.)**

The IS project plans and schedules should be more detailed than those provided during the audit's fieldwork. Among the information and data that should be regularly incorporated is a work breakdown structure, plus a schedule showing actual results of individual tasks against a baseline schedule. The use of detailed plans and schedules, which should be shared with appropriate business units, would help IS management in addressing the issue that many business units do not view deliverables as critical. Such usage would also aid in making a culture change at PGW.

Administrative Services

Recommendation III-4 **Configure the Accounts Payable system to allow electronic workflow, including approval of vendor invoices, and eliminate the need for sending paper invoices to the Accounts Payable group for payment processing. (Refer to Finding III-5.)**

The Oracle Financials Account Payables system should be properly configured so that images of vendor invoices can be uploaded by the IS Financial Analyst. As a result, it would eliminate the need for paper copies to be sent to IS directors or the Accounts Payable group for approval. Instead, the images would be part of the Accounts Payable system. In addition, automated electronic workflow should be used for sending the images of these invoices to the IS directors and also to the Accounts Payable group rather than using a manual paper flow of documents.

Recommendation III-5 **Implement use of systematic employee development plans for IS employees. (Refer to Finding III-6.)**

The IS organization should implement a skills inventory database for IS employees that tracks professional development activities undertaken by them and associated management and technical skills held by them. This information could then be used by IS management to identify training and development activities that are necessary to improve the skills of IS employees. IS management must ensure that all IS employees have an individual development plan that incorporates professional development objectives in support of not only the employee but the IS group as well.

Recommendation III-6 **Take actions to improve Help Desk performance to meet targets. (Refer to Finding III-7.)**

The Administrative Services organization should perform a detailed investigation as to why medium severity-level Help Desk activities, especially those performed by contractors, are not meeting a level of at least 90%. Once the investigation is complete, specific actions should be taken. For those involving contractors, contractual requirements may need to be modified, including the possibility of penalties, when target statistics are not met.

Recommendation III-7 **Develop detailed policies and procedures involving IS chargebacks, not only during the budget cycle but also involving any changes in actual charges during the fiscal year. (Refer to Finding III-8.)**

Because neither the PGW IS organization nor the Accounting/Budgeting organization was able to discuss how changes in factors used in developing IS chargebacks might impact actual charges during the fiscal year, PGW should develop detailed policies and procedures documentation. This development should take place not only so PGW management can understand what happens but also so that information can be provided to auditors, when requested.

Technical Strategy & Support

Refer to *Recommendation III-2* for discussion of the need to routinely review and revise, as appropriate, project management methodology documentation, which is supposed to be done by the Technical Writer in this group.

Technical Services

None

Information Controls & Compliance

Recommendation III-8 **Perform disaster recovery tests semi-annually to adhere to established goals and objectives. (Refer to Finding III-9.)**

Although the IS organization has a goal of performing disaster recovery tests twice annually, in 2014, for example, none were actually performed. Starting in 2015, it should ensure that disaster recovery tests are performed semi-annually so as to properly prepare the IS organization in the event of a disaster or major technology issue.

Recommendation III-9 **Perform annual penetration testing and vulnerability assessments. (Refer to Finding III-10.)**

Given security concerns in any organization's technology environment in today's world, PGW should have a penetration testing/vulnerability assessment project performed at least annually. Because the time between the last two projects was over three years (late 2011 to early 2015), the IS organization has not given the proper focus to security in recent years. Therefore, going forward such projects should be performed on an annual basis.

B. Transportation and Fleet Management

This chapter addresses the Transportation and Fleet Management function of Philadelphia Gas Works (PGW). Specifically, this chapter reviews the processes for forecasting vehicle needs, acquiring and assigning vehicles (including standardization, lease/buy and replace/overhaul decisions, and engineering specifications), fuel purchasing and distribution, and fleet maintenance (e.g., planned/preventive, breakdown, and emergency).

Background & Perspective

The objective of Fleet Operations (FO) is to provide PGW with a cost-effective, high-quality fleet of vehicles and equipment necessary for the various business units to perform their functions. Fleet Operations strives to provide excellent customer service to the departments while acting as a custodian of corporate resources.

The major duties of the department include administration, vehicle/equipment maintenance, and vehicle/equipment purchase services. The department is also responsible for fleet management and control, vehicle trouble dispatching, planned/unplanned maintenance, state safety and emission inspections, and management of hazardous materials.

Organization & Staffing

The FO Department is responsible for the administration and management of the motor vehicle fleet, which includes development of the capital and operating budget, requisitions and payment obligations, administration of the Fuel Management System and the Fleet Management System, personnel utilization, department time-keeping, payroll and deviation reports, as well as vehicle inventory and process management to support various department activities. FO is also responsible for the titling, registering, and licensing of PGW vehicles and equipment necessary to meet Pennsylvania Department of Transportation regulations.

Fleet Operations provides technical support to the Supply Chain Department for vehicle and equipment recommendations and preparation of specifications, methods of cost-effective acquisitions and disposal of vehicles and equipment, utilization analysis, and fuel reporting and monitoring. FO maintains liaison with representatives from major and minor vehicle and equipment manufacturers and expedites PGW-wide vehicle and equipment rentals.

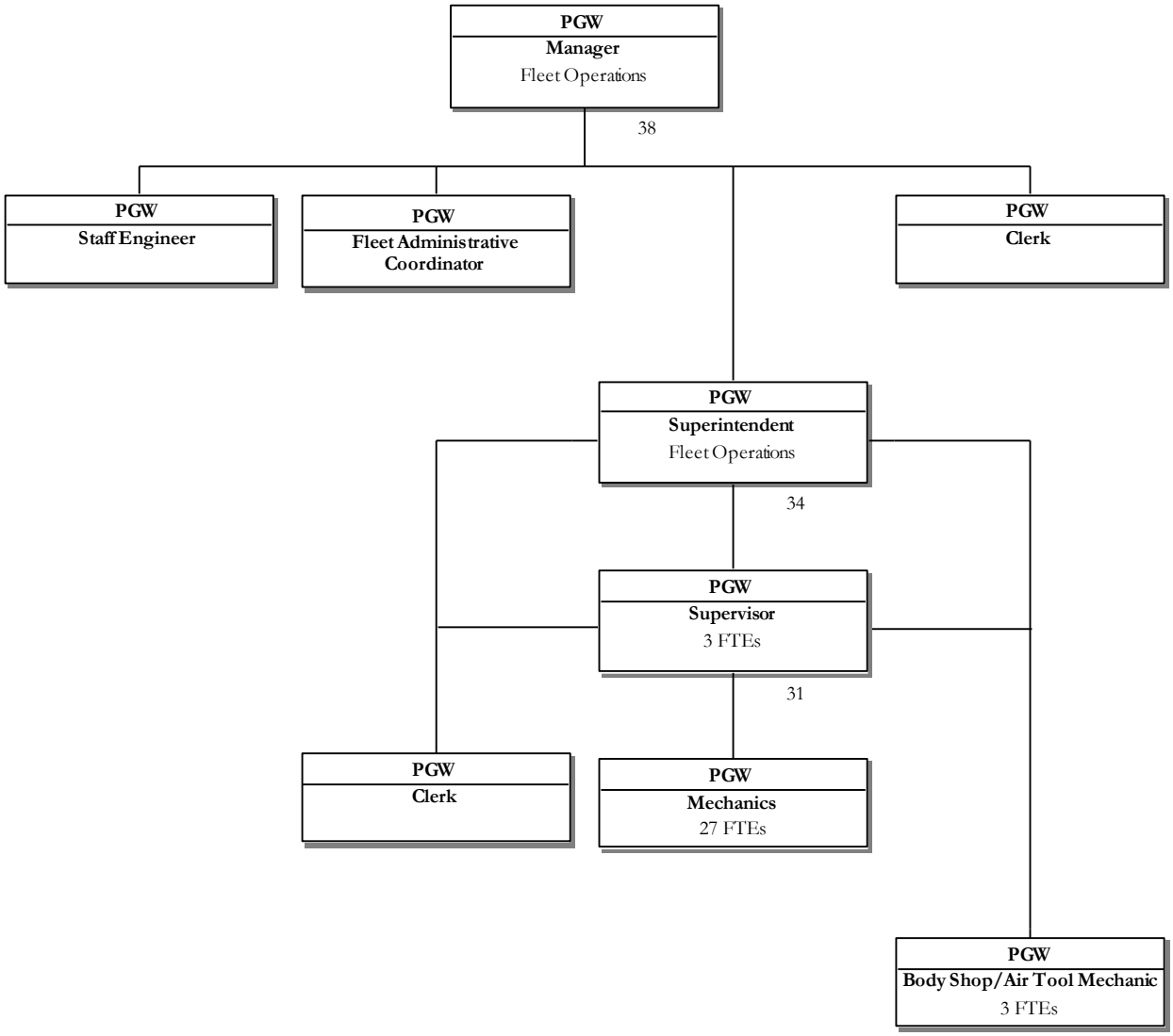
Fleet Operations is responsible for all vehicle and equipment maintenance, which includes state inspections, motor vehicle maintenance, and repairs to the fleet and equipment units classified as street machinery, including air compressors, backhoes, forklifts, welding units, tool carts, wagons, and trailers, at PGW's main garage and three outlying garages and one station. Various "Specialty Support Shops" (located within the garages) include tire repair, body shop, vehicle painting, pneumatic tool repair,

locksmith, and carpentry shops. FO also monitors and controls any repairs that are outsourced to various local vendors.

Organizations and Facilities

The Fleet Operations organization is shown in *Exhibit III-25*.

Exhibit III-25
Fleet Operations Organization
as of December 31, 2014



Source: Information Response 547
Note: Supervisory and mechanic staffing expressed as full-time equivalent (FTE) employees.

Fleet Operations is led by a Manager who reports directly to the Senior Vice President of Customer Affairs and Operations. Reporting to the Manager of Fleet Operations is a Staff Engineer, a Fleet Administrative Coordinator, a Clerk, and a Superintendent of Fleet Operations. Reporting to the Superintendent are a Clerk, three supervisors who are responsible for the 30 mechanics (bargaining-unit level employees), and three body shop/air tool mechanics.

The Manager of Fleet Operations is responsible for overseeing the development, implementation, and maintenance of practices and procedures for the Fleet Operations Department and performs a full range of managerial duties relative to personnel interviewing, selection, orientation, training, evaluation, counseling, and assignments. This core area includes the acquisition, maintenance, and disposal of PGW's transportation fleet of cars, trucks, vans, and construction equipment. The Manager of Fleet Operations is responsible for managing professionals and others responsible for carrying out the day-to-day duties and auxiliary services associated with fleet management. The Manager provides information and advice to PGW management on a variety of fleet technical, environmental, and governmental matters and on annual departmental budgeting and planning.

The Superintendent of Fleet Operations is responsible for ensuring the timely availability of vehicles and equipment as needed on a daily basis and for emergencies through the supervision of maintenance and repair schedules. This position is responsible for the Maintenance Program for vehicles and equipment, the readiness of new or leased vehicles and equipment, and a pool of non-assigned vehicles. The Superintendent ensures delivery of equipment to operating sites when necessary.

Supervisors are responsible for assigning and supervising the maintenance and upkeep of PGW's fleet of vehicles and equipment. Supervisors are also responsible for the work of the specialty shops that perform fleet and ancillary services in support of the operating and support groups. These services include tire repair, body shop, vehicle painting, air tool repair, locksmithing, carpentry, and support of various training functions in other departments. Daily responsibilities include scheduling daily work assignments for multiple shifts, assuring availability of parts, tools, and supplies for repair, and ensuring safe working conditions.

The Staff Engineer (a degreed engineer position) is responsible for a variety of functions related to the reduction of costs, the increase in departmental efficiency, record maintenance, specifications, analysis, and reports. The Staff Engineer will provide expertise for vehicle and equipment design, analysis, industry standards/guidelines, vendor capabilities, and testing. He provides engineering assessments and reviews vendor assessments of vehicle and equipment design. The Staff Engineer conducts inspections at supplier locations to verify acceptance of vehicles and equipment. The Staff Engineer is responsible for coordinating with the Fleet Manager, Superintendent, and Supervisors to ensure fleet optimization, appropriate utilization, and operation and maintenance of all vehicles. The Staff Engineer also coordinates procurement activities with the Supply Chain group.

Fleet Operations contracts out specialty and major repair work such as transmission work, major body work, overhauls, and warranty work. Outside vendors are also used for supplemental equipment and

vehicle rentals. Contracted services for the past five years have been steady (approximately $500,000 in FY2014), varying less than 10% in any given year.

All vehicle purchases are governed by a competitive bidding process through the Supply Chain Department (this process is described later in this chapter). Each vehicle bid has a lease versus buy solicitation component. In practice, since PGW has a policy of keeping vehicles throughout their useful lives, the present value analysis always favors the purchase option. PGW purchases vehicles in volume and through fleet dealers to get the best prices.

Staffing

Exhibit III-26 shows staffing levels by position for FY2010 to FY2014.

Exhibit III-26
Fleet Operations Staffing by Position
FY2010 to FY2014

Titles	FY2010	FY2011	FY2012	FY2013	FY2014
Manager	1	1	1	1	1
Executive Assistant/Fleet Administrative Coordinator	1	1	1	1	1
Supervisor, Technical Support	1	1	1	1	0
Work Planning Administrator	1	1	1	0	0
Staff Engineer	0	0	0	1	1
Superintendent	1	1	1	1	1
Supervisor	3	3	3	3	3
Clerk	2	2	2	2	2
Mechanic	26	25	25	26	27
Body Shop/Air Tool Technician	2	2	3	3	3
Radio Shop Technician	2	0	0	0	0
Total	**40**	**37**	**38**	**39**	**39**

Source: Information Response 436 and 767

Staffing has been stable over the past five years. The positions of Technical Support Supervisor and Work Planning Administrator have been eliminated (FY2014). The Staff Engineer position was created in FY2013. The Radio Shop Technician positions were transferred over to the Information Services Department in FY2011. The Executive Assistant position was replaced by the Fleet Administrative Coordinator position in FY2014.

Exhibit III-27 shows the amount of overtime incurred from FY2010 to FY2014

Exhibit III-27
Fleet Operations Overtime Hours Budget versus Actual
FY2010 to FY2014

Fiscal Year	Budget	Actual	Variance	Variance (%)
FY2010	8,194	7,381	813	10%
FY2011	7,761	10,865	–3,104	–40%
FY2012	7,928	6,856	1,072	14%
FY2013	7,916	9,614	–1,698	–21%
FY2014	7,916	13,257	-5,341	-67%

Source: Information Response 437 and 767

Overtime has varied over the past five years, but overall has been budgeted at around 10% of straight-time work hours, a reasonable amount. Overtime is highly dependent on weather and supporting operations in the field. Overtime is estimated and budgeted based on historical numbers and variances in planned workload, as reported by Field Operations. Unusually high levels of overtime hours in FY2011 FY2013/2014 were due to high levels of emergency work (FY2011) and unusually harsh weather (FY2013/2014). Overtime work hours are identified through timesheet reporting for payroll purposes but are reported the same as all work hours in the M4 system. As a result, analyzing overtime trends is cumbersome. Overtime work hours will be tracked separately from straight-time work hours in the new M5 system, currently under development.

At PGW, employees are eligible to retire with 30 years of service. Of the 30 mechanics and two union clerks, 13 are eligible to retire in the next couple of years and four had already indicated that they intend to retire in FY2014. Fleet Operations has been able to hire experienced mechanics in the Philadelphia area (many come from area dealerships) and has not had to conduct training for basic mechanic skills. Management expects this labor environment to continue into the foreseeable future.

Expenditures

Exhibit III-28 shows the Fleet Operations Department budget and actual operating expenditures for the past five years.

Exhibit III-28
Budget versus Actual Operating Expenditures
FY2010 to FY2014

Fiscal Year	Budget	Actual	Variance ($)	Variance % (of Budget)
FY2010	$9,028,000	$8,837,000	$191,000	2%
FY2011	$8,686,000	$9,267,000	–$581,000	–7%
FY2012	$9,943,000	$9,664,000	$279,000	3%
FY2013	$9,621,000	$9,830,000	–$209,000	–2%
FY2014	$9,551,000	$10,093,000	–$542,000	–6%

Source: Information Response 53-02

Operating budgets include costs for personnel, fuel, parts and small tools, towing, vendors and contractors, external training, and rentals. Operating expenses have been stable over the past five years, with variances mainly due to levels of overtime.

Exhibit III-29 shows Fleet Operations Department budget and actual capital expenditures for the past five years.

Exhibit III-29
Budget versus Actual Capital Expenditures
FY2010 to FY2014

Fiscal Year	Budget	Actual	Variance ($)	Variance % (of Budget)
FY2010	$3,052,000	$2,789,853	$262,147	9%
FY2011	$2,253,000	$1,824,891	$428,109	19%
FY2012	$952,000	$1,002,241	–$50,241	–5%
FY2013	$4,202,000	$1,355,780	$2,846,220	68%
FY2014	$3,944,000	$695,521	$3,248,479	82%

Source: Information Response 53-02

Capital budgets include large shop equipment, heavy equipment, and vehicles. Although most vehicles are purchased for use by other PGW departments (e.g., Operations), the capital costs will appear in the

Fleet Operations capital budget. FO is highly dependent on operating departments to plan their own vehicle needs, and planning horizons generally extend only two years in advance. Capital monies approved in a given fiscal year will often be spent over the course of the following two years. So, for example, capital dollars approved and budgeted in FY2014 will be spent out and reported as incurred through August 31, 2015. This accounts for the large variances between budgeted and actual capital monies for FY2013 and 2014.

Major Processes and Systems

Fleet Operations is in the process of replacing its automated Fleet Management System (M4) with the new M5 system. M5 is a completely new system and not merely an upgrade to the M4 system.

Processes

The need to purchase and replace vehicles is part of the annual budget planning process. Fleet size and composition is evaluated based on input from Field Operations on the volume and type of future workload. This evaluation is augmented by replace/repair evaluations performed on vehicles nearing their end-of-service life (and major damage, as appropriate). If the new vehicle or equipment is the same or similar to the previous vehicle, previous specifications will be used with minor modifications as necessary. If there are major specification changes, a committee comprising employees from Operations, Fleet, and Drafting will convene to develop new criteria, design, and (if necessary) drawings. When specifications are approved, requisitions are developed and forwarded through the normal bidding procurement process (conducted by the Supply Chain Department). This bidding process considers the cost of purchasing versus the cost of leasing. Bids of over $1 million are reviewed by PGW's Legal Department and the Philadelphia Facilities Management Corporation (PFMC) Finance Committee and approved by the PFMC Board.

Determining whether a vehicle should be replaced is basically a two-step process. The recently updated PGW Fleet Optimization Reassessment (December 2014) contains optimal lifecycle baselines for numerous vehicles and equipment. When a vehicle or piece of equipment reaches that threshold point (identified for disposal through the M4 system), a cost-benefit analysis is performed using operating cost data from the M4 system and the capital cost of the unit being analyzed. If the vehicle is to be replaced or retired, FO then completes a series of documented steps to remove the vehicle from the system. The vehicle is then towed to a public auction house for sale, with proceeds returned to PGW.

Fleet Operations has five main facilities (all in Philadelphia) as follows:

- *Main Garage* – North 9th Street
- *Belfield Facility* – 5138 Belfield Avenue
- *Castor Facility* – 8301 Castor Avenue
- *Porter Facility* – 2430 South 28th Street
- *Tioga Station* – 3300 East Venango Street

The main garage is capable of servicing all vehicle types in the fleet. This facility has 18 work bays of which 15 have lifts. There is also a wash bay and a welding bay. At this location preventive maintenance (PM), corrective, and emergency repairs are performed. Additionally, the body, tire, and air tool support shops are located at this site.

At the Belfield, Castor, and Porter sites PM, corrective, and emergency repairs are also performed. All of these facilities have two working bays with lifts and a wash bay. All vehicles except the largest trucks can be maintained at these sites (due to ceiling height restrictions).

Tioga Station does not have an in-ground floor lift and is mainly used as a staging area for street calls, PM, and minor repairs.

Work is assigned to specific facilities based on the size of that facility (mainly height restrictions), equipment and lift capability, and sometimes specific locations of the vehicle. Fleet Operations also maintains trucks that perform portable maintenance to vehicles and equipment in the field.

Exhibit III-30 shows the size and composition of PGW's fleet from FY2010 to FY2014.

Exhibit III-30
PGW Fleet Composition
FY2010 to FY2014

Category	Vehicle Description	FY2010	FY2011	FY2012	FY2013	FY2014	% Change
Car	Sedan	137	130	133	133	133	–2.9%
Small Truck	SUV	1	6	7	7	7	600.0%
Small Truck	Van-Mini	22	16	15	14	14	–36.4%
Small Truck	Van-Utility	219	220	219	219	218	0.5%
Small Truck	Van-Passenger	3	2	2	2	2	–33.3%
Small Truck	Pickup	92	95	95	97	97	5.4%
Small Truck	Small Cube Truck	8	8	10	9	7	12.5%
Small Truck	Mini Maintenance Truck	6	6	4	4	4	–33.3%
Small Truck	Welding Truck	8	8	8	8	8	0.0%
Large Truck	Large Cube Truck	2	2	2	2	2	0.0%
Large Truck	Maintenance Truck	83	83	81	81	80	–3.6%
Large Truck	Pressure Force	10	10	10	10	9	-10.0%
Large Truck	Dump Truck	18	18	17	17	17	–5.6%
Large Truck	Fuel/Tanker Truck	3	3	3	3	1	-66.7%
Large Truck	Stake Body/Platform	11	11	11	11	11	0.0%
Large Truck	Tow Truck	1	1	1	0	0	–100.0%
Large Truck	Vac Hoe Truck	7	7	7	7	7	0.0%
Large Truck	Hooklift/Tractor	2	2	2	2	2	0.0%
Large Truck	Fire Truck	1	1	1	1	1	0.0%
Large Truck	Aerial Lift Truck	2	2	2	2	2	0.0%
Equipment	Backhoe	20	20	20	20	20	0.0%
Equipment	Skid Steer Loader	10	10	10	10	10	0.0%
Equipment	Crane	1	1	0	0	0	–100.0%
Equipment	Forklift	6	6	6	6	6	0.0%
Equipment	Lifts	3	3	3	3	3	0.0%
Equipment	Compressor (Portable)	100	100	100	100	100	0.0%
Equipment	Gator	1	1	1	1	1	0.0%
Total Fleet		**777**	**772**	**770**	**769**	**762**	**1.9%**

Source: Information Response 438 and 767

All vehicles and equipment listed in this exhibit are owned by PGW. PGW rents vehicles on only a short-term basis for emergencies and unusual workloads. These rented vehicles include sedans and passenger vans (Enterprise) and aerial lifts (Hertz). Fleet size, in all categories, has remained stable over the past five years.

PGW is a qualified self-insurer for automobile coverage in the Commonwealth of Pennsylvania. PGW also carries $210 million in excess liability coverage above the self-insurance. Third-party property damage and bodily injury claims are administered in house by the Risk Management Department, pursuant to the Pennsylvania Political Subdivisions Municipal Claims Act. PGW does not provide first-party benefits to employee drivers/passengers.

Vehicle utilization is tracked through the M4 system and miles driven by specific vehicle are tracked on a monthly basis. Utilization numbers for each vehicle are reported through an automated system (Teologis) and miles driven over a specified period are expressed as a percentage of total miles driven by the entire fleet for that period. Fleet Operations analyzes these numbers annually to assist with planning for fleet sizes and future purchases and to reassign vehicles (e.g., mileage leveling of vehicles for better utilization and longer life due to more consistent maintenance).

Outstanding Work Reports (summary) are used to track downtime by individual vehicles. Availability is calculated as the number of vehicles available on a given day (averaged out over the month) compared to the number of vehicles in the fleet. Unavailable is defined as out of service due to maintenance, accidents, etc. (i.e., not directly related to utilization) and includes vehicles undergoing planned preventive maintenance checks.

Work orders to perform maintenance work on vehicles and equipment is generated from the M4 automated system. They include preventive maintenance, corrective maintenance, and emergency work. For PMs, a check list (Job Plan) documents all steps involved in performing the work, with check-offs for the mechanic performing the work. These Job Plans include information materials and specialty tools required, craft type (e.g., mechanic), and an estimated time (man-hours) to complete. M4 also creates summary-level PM Job Lists for each vehicle.

The M4 system generates a number of reports including:

- *Unit Inventory Reports* – listing of all vehicles with basic asset information
- *Employee Timesheets* – man-hours assigned to unit numbers and job codes
- *Labor Productivity* – a utilization report showing direct hours (i.e., physically working) versus indirect hours (e.g., training, break times)
- *Outstanding Work Report* – work by job started but not completed or closed out
- *Motor Pool Detail Report* – details on where motor pool vehicles are assigned and basic usage data
- *Repair By Reason* – listing of job orders with codes on reasons for work performed

All of these reports are detailed (e.g., by vehicle and job number) and are developed on an as-needed basis.

Exhibit III-31 shows a breakdown of man-hours by category of maintenance.

Exhibit III-31
Maintenance Man-Hours by Category
FY2011 to FY2014

Maintenance Type	FY2011	FY2012	FY2013	FY2014	Type Total
Preventive Maintenance	14,621	14,176	12,791	11,684	**53,272**
Corrective Maintenance	17,678	15,375	15,924	17,869	**66,846**
Emergency Maintenance	2,299	2,164	2,094	2,586	**9,143**
Year Total	**34,598**	**31,715**	**30,809**	**32,138**	

Source: Information Response 439 and 767

Maintenance work hours in all categories have been steady, gradually decreasing (less than 3% per year) over the past three years. Emergency maintenance accounts for only 7% of work hours (reasonable for a fleet operation of this size) and is highly dependent on weather and emergency field work loads. Preventive maintenance accounts for almost half (42%) of total work hours, which is also a reasonable amount for a fleet operation of this size.

Systems

Fleet Operations uses the Maximus M4 Fleet Management System for most of its fleet management needs. As mentioned earlier, PGW has recently contracted (January, 2015) with an outside vendor (AssetWorks) to develop a new Fleet Management System (M5). At this point, the vendor has proposed an extensive list of features for this new system. What this system will look like when it is finally implemented can't be evaluated at this time.

Reports generated by M4 include inventory reports, employee timesheets (with hours charged to specific work codes and units), a detailed labor productivity report, outstanding work orders and work order aging reports, and summary reports on reason for vehicle repairs.

An internal study to update a 2005 review of FO by the outside consulting firm of UMS Group, Inc. (asset management consulting) was completed in December 2014. This report covered the broad topics of PGW's current fleet, vehicle utilization, vehicle lifecycle and replacement, maintenance programs, and proposed initiatives. This report recommends replacing the aging M4 automated system with a more robust M5 system, which will enhance maintenance planning and scheduling among other improvements. It also recommends devoting more attention to vehicle utilization by rightsizing the fleet (through better analysis of peak demand, supply profiling, and possible expansion of contingency spare vehicles) and better vehicle lifecycling analysis leading to a Vehicle Replacement Strategy and a Vehicle Maintenance Strategy. M5 was originally scheduled to be fully implemented in the first quarter of 2014, but was delayed because of the UIL potential sale. Now M5 is scheduled to be completed by August 2015.

The Fleet storeroom is operated by the Supply Chain Department and primarily contains parts required for normal preventive maintenance and frequently used spare parts. Fleet identifies the parts that should be maintained in inventory and issues a request to Supply Chain to stock those items. Supply Chain maintains contracts with several vendors to provide these spare parts on an as-needed basis. On an ongoing basis, Supply Chain reviews the usage of inventory items and adjusts stocking levels based on usage and input from Fleet Operations. Supply Chain and Fleet Operations work together to identify and remove obsolete items from inventory. There are no formal partnership arrangements with vendors. Storekeepers are trained by Supply Chain on the specific nature of fleet-specific inventory and are experienced in their roles.

Exhibit III-32 summarizes FO metrics targets and results from FY2010 to FY2014.

Exhibit III-32
FO Performance Metrics Targets and Results
FY2010 to FY2014

	Fleet Availability	
	Target	**Average**
FY2010	95%	96.16%
FY2011	95%	95.87%
FY2012	95%	95.73%
FY2013	95%	95.73%
FY2014	95%	96.08%

Source: Information Response 440 and 767

The only metric FO measures is average fleet availability, which is tracked on a monthly basis. FO has indicated that it intends to increase the number of metrics tracked once it has installed the new M5 automated system.

There have been no internal audits of the Fleet Operations Department in the last five years. Fleet Operations personnel have visited the fleet operations of other utilities (specifically Washington Gas, PECO Energy Company, and DC Water and Aqua), but no changes have been made as a result of these visits nor have any write-ups or analyses of possible takeaways been developed.

Fuel purchasing is performed through the Supply Chain Department. PGW uses FuelForce as its Fuel Management System. FuelForce is an automated system operated by PGW but owned by an outside vendor (MultiForce), whereby fueling is tracked to vehicles and individual employees. FuelForce authorizes and controls dispensing of unleaded gasoline at the Montgomery, Castor, Belfield, and Porter garages with an additional diesel station at the Montgomery Garage. FuelForce automatically and continually records, stores, compiles, and reports transaction data on a 24-hour-a-day/seven-day-a-week basis. Reports include summaries and detailed fueling counts, fuel quantities, and fueling histories, among others. FuelForce operates only on PGW's server and can be accessed by Fleet Operations

personnel via personal computers. FuelForce has recently been updated with more robust broadband capabilities to ensure faster reporting.

There are also mobile fueling trucks and Sunoco stations throughout the city that are on contract to supply fuel to PGW vehicles. PGW is also building a CNG fueling station at the Montgomery complex. This includes a 25-horsepower natural gas compressor with two slow-fueling pumps (four vehicles can simultaneously fill in approximately two hours) and one fast fueling station, which can fill a vehicle from 0 to 3,600 pounds per square inch (psi) in less than five minutes.

Findings & Conclusions

Finding III-12 An outsourcing analysis of the Fleet Operations function has not been conducted.

One noticeable trend with utilities and city services is the potential for better service and lower costs by outsourcing selected services to private contractors, thereby allowing management to further focus on strategically important matters. Although PGW has outsourced some functions, such as custodial work, there has been no consideration of outsourcing more complex support functions such as Fleet Operations.

Finding III-13 Fleet Operations' maintenance, planning, and evaluation processes are too manual.

Fleet maintenance scheduling is overly manual, planning activities with field operations are informal, short-term (e.g., two-year horizon) reporting is ad hoc and not summarized into useful management reports, performance measurement (e.g., productivity) is limited, metrics are not well developed (only one is reported), and fleet systems (M4 and Teologis) lack technological capabilities (e.g., barcoding) and are not integrated with other PGW systems (e.g., Oracle).

Fleet Operations has begun addressing these issues by developing the M5 system—a new system and not an upgrade to the M4 system. The overall purpose of this new system is to increase automation/system functionality in all FO processes, especially better scheduling and forecasting. FO is also looking at developing a broader array of metrics once the system has been developed and implemented.

As mentioned earlier, the current schedule calls for the M5 system to be completed by August 2015. Detailed vendor and system requirements, however, have been developed that indicate some of the important functionality to this new system. These include (among other features):

- Ability for user to develop ad hoc management reports
- Use of multiple labor rates (e.g., overtime)
- Integration with other PGW systems and ability to export files

- Barcode entry on inventory and work performed and use of handheld entry devices
- Identification of warranty information on both replacement parts and original equipment and tracking the status of claims and reimbursements
- Robust security protocols
- User-definable dashboard with industry standard key performance indicators (KPIs)
- An alert function (based on predefined out-of-bounds conditions)
- More robust out-of-service and maintenance coding for use in troubleshooting and trend/root cause analysis
- More robust vehicle/equipment replacement analysis, maintenance estimating and productivity reporting, and asset documentation and reporting
- Unlimited interface with other PGW systems (e.g., Oracle, FuelForce)
- Ability to maintain audit trails
- More robust vehicle history records (e.g., maintenance cost history)
- Full tracking of units in the purchasing cycle
- Automatic planned maintenance scheduling and tracking and predictive maintenance analysis
- More useful summary-level management reports
- More robust tracking of individual employee information, capabilities, and training needs

Although the detailed system requirements present a good picture of the possible capabilities of the new system, the actual management processes will have to be developed during implementation. Other than the system requirements, there is no specific plan on what management processes and reporting will look like with M5.

Recommendations

Recommendation III-10 Periodically analyze outsourcing the Fleet function(s) to an outside contractor. (Refer to Finding III-12.)

This analysis should be performed after the Facilities Consolidation Study has been completed and PGW management has decided on the final facilities structure of Fleet Operations (e.g., centralized with new facilities or decentralized with facilities upgrades). This evaluation can be revisited periodically (e.g., every five years) as part of the larger strategic planning effort. Fleet Operations business plans should support and integrate with PGW's strategic plans.

Recommendation III-11 Conduct a post implementation audit of the new M5 system. (Refer to Finding III-13.)

This audit should be conducted approximately six months after M5 has been implemented. Within that timeframe, a full set of written procedures should be developed to describe new management processes, analyses, and reporting requirements. This audit could be performed by Internal Audit or by an outside firm with expertise in fleet management, accounting, and system design. This audit should not only test that procedures are being adhered to but also evaluate how effective the new system is and how well procedures support management functions. Such testing should include but not be limited to:

- Workload forecasting and estimating
- Productivity and performance measurement and analyses on improvement opportunities
- Interactions with other departments in planning vehicle and equipment needs (size and composition)
- Use of technologies to streamline maintenance activities (e.g., planning, estimating, reporting, failure analysis, scheduling, entering data)
- Defining and tracking (expanded) metrics (e.g., labor productivity)
- Ease and depth of analyses on lease/buy, replace/repair, and assignment of vehicles and equipment
- Ability to follow audit trails on costs and other resource uses

C. Facilities and Property Management

This section addresses Philadelphia Gas Works' (PGW's) facilities and property management and services.

Background & Perspective

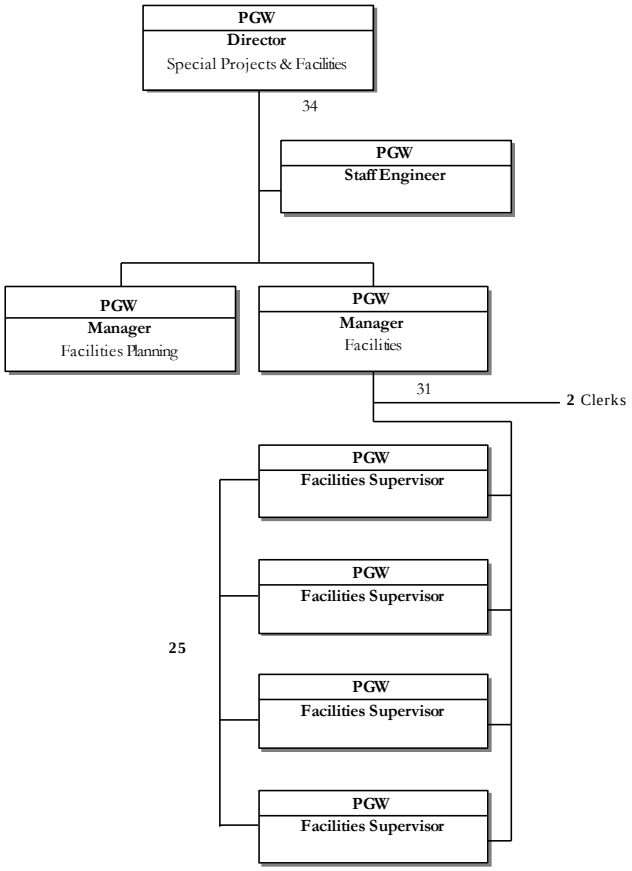
The PGW Facilities Department is responsible for the coordination and implementation of maintenance, cleaning, and providing a safe work environment for all offices and stations owned or operated by Philadelphia Gas Works.

The Facilities Department's mission is to ensure the efficient administration of facilities, including communication; emergency preparedness and business continuity; environmental stewardship and sustainability; finance and business; leadership and strategy; operations and maintenance; project management; quality; real estate and property management; and technology, for the employees and visitors occupying space within PGW facilities.

Organization & Staffing

Exhibit III-33 presents the organizational chart for PGW's Facilities Department.

Exhibit III-33
PGW Facilities Department Organizational
as of December 31, 2014



Source: Information Response 232

The Facilities function is located in the Gas Management organization. The function is headed by a Director of Special Projects and Facilities. Directly reporting to him are a Manager of Facilities, a Manager of Facilities Planning, and a Staff Engineer. Reporting directly to the Manager of Facilities are four Facilities Supervisors and two clerks. (Clerks are bargaining unit positions). Reporting to the Supervisors are bargaining unit positions consisting of Building Mechanics and Attendants.

The Manager of Facilities Planning is responsible for contracts, requests for quotes (RFQs), budget tracking and development, and project management. Two intern or co-op students from local colleges assist with energy analysis and facilities management projects. The Staff Engineer is responsible for providing estimating services, assisting with facilities project management, and serving as a backup supervisor.

Facilities Supervisors are responsible for providing guidance, technical support, and direction to hourly employees for building systems, equipment maintenance, and repair projects. They also oversee compliance to all government rules, regulations, and codes pertaining to all PGW-owned and -leased buildings, facilities, and properties. In addition, they are tasked with workforce planning, training, expense control, and other administrative duties as assigned. Union positions include Facilities Maintenance Leaders, Working Foremen, and Senior Building Mechanics. Facilities Maintenance Leaders are highly skilled mechanics who are capable of cross-functional duties and leading work groups as necessary. This position requires successful completion of testing and skills demonstration and can be assigned to any shift. Working Foremen are highly skilled mechanics who perform functional duties and lead work groups when necessary. This position is subject to callout from home. There are job descriptions for each of these positions that specify the respective essential functions as well as testing and skill demonstration requirements. In addition, there are budgeted positions for Building Mechanics and Mechanics Helpers.

When skill positions become vacant, the Facilities Department posts the vacancy within the department to gauge interest and capability of existing personnel to fill that position. If an existing employee expresses an interest in writing, management reviews his or her qualifications (including attendance, technical certification, and education criteria as listed in the job description and posting), and if the candidate is eligible, s/he will be moved into the position on a four-month probationary basis. During that time, management will perform an evaluation on the candidate's ability and performance. If no successful candidates come out of the Facilities Department, the posting is made PGW-wide, and if that effort is unsuccessful, the position will be posted outside PGW.

There are no specific written entrance test criteria for maintenance workers and attendants, but the Facilities Department is working with the union to develop some basic criteria, such as aptitude testing. There are no skills-related requirements for these positions; training is performed on-the-job. There are positions descriptions for all custodial and maintenance positions.

In general, there is limited formal training for maintenance personnel. Specific functional training is given in maintaining forklifts, high lifts, fire alarm and suppression systems, and boilers. Mechanics are encouraged to obtain offsite training and certifications. Likewise, skill positions (Building Mechanic on up) require progress toward and completion of (via trade school) certification in either building electrical systems, building air conditioning systems, or plumbing.

Staffing levels for the Facilities Department are shown in *Exhibit III-34*.

Exhibit III-34
Facilities Department Staffing Levels
FY2010 to FY2014

Facilities Department	FY2010	FY2011	FY2012	FY2013	FY2014
Union Employees	30	33	28	28	28
Non-Union Employees	7	7	7	7	7
Total	37	40	35	35	35

Source: Information Responses 235 and 670

Staffing has remained stable over the past five years with a decrease of two bargaining unit positions and no change in non-union positions. The Facilities Department budget calls for 28 union positions, of which there are now three vacancies (two Mechanics Helpers and one Building Attendant), and seven non-union/management personnel, of which there are no vacancies. These numbers do not include the two part-time intern/co-op students involved in analysis and assisting with projects.

Exhibit III-35 shows overtime expenditures for the Facilities Department for the past five fiscal years.

Exhibit III-35
Facilities Department Overtime Expenditures
FY2010 to FY2014
($ Thousands)

	FY2010	FY2011	FY2012	FY2013	FY2014
Overtime Expenditures	$186	$154	$176	$133	$122

Source: Information Response 236 and 670

The Facilities Department plans overtime levels based on historical averages adjusted for known projects, forecasted weather and seasonal trends. Overtime has varied mainly due to building system emergencies and severe weather events.

Exhibit III-36 shows expenditures for contracted services for the past five fiscal years.

Exhibit III-36
Contracted Services Expenditures
FY2010 to FY2014

	FY2010	FY2011	FY2012	FY2013	FY2014
Purchased Services	$1,418,327	$1,479,640	$1,811,209	$1,779,395	$1,891,132
Maintenance Contractors	$909,617	$579,203	$1,334,324	$832,535	$740,965
Total	$2,327,944	$2,058,843	$3,145,533	$2,611,930	$2,632,097

Source: Information Response 740

The PGW Facilities Department currently uses 69 contracts. All of these contracts are for materials and services on an as-needed basis, and there are no minimum purchase requirements. These services and materials cover a wide range of requirements such as landscaping, janitorial, trash removal, specialty and general maintenance (e.g., heating, ventilating, and air conditioning (HVAC), plumbing, asphalt, specialty controls, security, and fire alarm equipment), specialty cleaning (e.g., kitchen ducts and equipment), and general building materials (carpeting, cleaning supplies, and small tools).

Performing work and projects utilizing in-house resources or contractors is evaluated in two steps. Facilities management will make a determination whether the department has the necessary personnel resources to perform the work safely, efficiently, and expeditiously. In making this judgment, they evaluate whether the scope of work is outside of the normal tasks performed by in-house personnel and to what extent the necessary tools and equipment are available and whether maintenance personnel have the necessary skills and expertise. If a determination is made that the work could be accomplished in-house, management then performs an economic analysis using fully loaded employee hourly costs as well as estimates of hours, materials and contingency. This estimate is then compared to vendor bids to determine the least cost option. With implementation of the new work order system (discussed below), all contracted maintenance and service costs will be tracked and recorded alongside in-house work.

The only department function being outsourced is custodial (as employees retire). There are no further plans to outsource any other department functions.

PGW's major facilities are:

- 1800 Montgomery Avenue – 261,868 gross square feet of warehouse/storage, office space, call center, data center, and training offices
- 800 West Montgomery Avenue – 176,680 gross square feet of office space
- 1849 N. 9th Street – transportation buildings used for parking and vehicle repair. The buildings comprise 137,874 square feet, one 62,899 SF climate controlled building for office, field operations/repairs, and fleet vehicle work, and one 74,975 SF parking structure adjacent to it.

- 9th and Diamond Street – meter shop and office space comprising 26,907 square feet. One floor (8,969 square feet) is vacant.
- Four stations comprising 33,857 square feet
- Six customer service centers comprising 72,443 square feet
- Eight parking lots comprising 691,840 square feet

There have been no property acquisitions or disposals within the last five years.

In 2012, the Facilities Department developed an outline for a business plan that included a Vision and Mission statement and broad, general discussions on responsibilities, goals, risks, trends, opportunities, and initiatives.

PGW's space planning standards were last updated in 1986. Space planning was a part of a previous consolidation plan in 2006, but no action was taken due to the potential sale of PGW. Space planning is largely informal. There is no PGW Facilities Plan with any planning reflected in the annual capital budgeting and forecasting process. There is a space planning committee comprised of the Vice President of Gas Management, the Vice President of Human Resources and Organizational Development, the Chief Information Officer & Vice President of Information Services, and the Director of Facilities. This committee meets approximately every two months, but there are no agendas or minutes kept. These meetings regarding facilities issues are informal and unstructured. Space planning standards are to be considered in the upcoming FY2015 Building Consolidation Project (discussed below). Updating and applying these standards will be a part of the follow-on implementation phases.

PGW has been evaluating the usage of its buildings and properties over the past 10 years. In 2006, a facilities study was prepared by an independent firm for Philadelphia Gas Works, the Philadelphia Gas Commission, the Pennsylvania Public Utility Commission, and the City Council of the City of Philadelphia. This report provided a detailed physical inspection of PGW properties; a study of the previous regional economic trends, nearby neighborhood influences, and local market characteristics; a valuation of PGW properties; and a reconciliation of the results generated by those valuations. One of the recommendations from this study was to consolidate several PGW properties. This recommendation was not implemented.

PGW has issued a request for proposal (RFP) for an outside firm to update the previous study by performing a comprehensive building infrastructure condition analysis project for its Montgomery Complex. This complex consists of the four buildings located in the vicinity of 9th and Montgomery Avenue. These buildings are being considered for continued use or other options (e.g. lease, sale). The scope of work addresses the following areas:

- Infrastructure Condition – Age versus Life Expectancy
- Replacement and/or Repair Costs
- Evaluation of Building Systems

- Current Use of the Buildings

All major building systems (e.g., plumbing, electric, HVAC, fire protection, mechanicals, interior and envelope, and data/telecommunications wiring) will be considered in evaluating the use of facility through 2035. A building structural assessment is not in the scope of work. The scope does include identifying accurate capital and operating costs and reducing these costs where feasible, while ensuring compliance with building and occupancy codes. As of March 4, 2015, a consultant had been selected to perform this study and PGW is in the process of negotiating and awarding the contract. The task force that selected the consultant will be directly responsible for monitoring the study and the subsequent implementation efforts. This task force is comprised of the Vice President (VP) of Budgeting and Reporting, the VP of Gas Management, the VP of Strategic Initiatives, the Director of Facilities, the Director of Strategic Development, and the Project Manager of Strategic Development. This task force is reporting directly to PGW's CEO and COO. The contract for this study was awarded in March, 2015 and is scheduled to be completed by June 2015, with subsequent implementation steps to be scheduled afterward.

Major Processes and Systems

The Facilities Department is governed by the Facilities Department Policies and Standard Operating Procedures, last updated on September 19, 2014. This document includes specific procedures for a wide variety of cleaning, equipment, operation, and maintenance activities as well as safety/emergency/security and budgeting procedures. Personnel policies (e.g., vacation scheduling) are also included.

The committees that Facilities Management participates in are listed below:

- Risk Management Safety Committee
- Disaster Management
- Union Safety Committee
- Space Planning Committee

Maintaining and Repairing Major Equipment Systems

Maintenance and upkeep is handled by internal staff and contractors via service contracts. PGW has recently transitioned from an old work order system (MP2) to the same asset management system used in gas operations: INFOR-EAM Version 10 (INFOR-EAM or INFOR). This system identifies specific equipment and associated maintenance (preventive and corrective) tasks. Work orders and charges can be associated with specific equipment.

INFOR-EAM is an asset-based work management system that provides building and equipment maintenance reports and data collection. The INFOR-EAM modules include an asset tracker, a scheduler, a report generator, and a performance analyzer, which fortify the ability to forecast and manage maintenance schedules. The system streamlines the generation of work requests, plans, and

schedules while deploying assets, personnel, equipment, and other resources. Event and history tracking is used to monitor the overall performance of work activities and the optimization of equipment.

Users of INFOR-EAM have direct access to all key information on the work order, such as status, priority, tasks, and relevant documents. The work order provides a comprehensive checklist that collects both qualitative and quantitative data to ensure thorough completion of each work order. The work order function allows the user to enter information in appropriate drop-down boxes, which include type of maintenance and location of maintenance. The types of maintenance include corrective maintenance, corrosion control, calibration, capital, emergency, event, furniture moves, locksmith, preventive maintenance, project, renovations, routine maintenance, and safety. The various work order statuses include open, awaiting invoice, cancelled, carryover, closed, hold, ready for release, request, work complete, and ready for planning, track the progress of a work order. Completed work is automatically placed into an equipment history file specific to each piece of equipment.

The basic work order system steps are documented in the Facilities Department policies. Work order request forms (approved by submitting to the department's supervisor) can be submitted by either phone, fax, or e-mail. A facilities clerk will then input the information into the INFOR data system, where it will find its way into an open work orders list. Daily sheets are printed out for each mechanic who then use these sheets to record man-hours and the status of the job (complete or ongoing). The next day, the clerk inputs the update into the INFOR system. The INFOR System maintains approximately one year of data and the department is in the process of developing additional reporting capabilities (e.g. preventative maintenance findings).

Custodial Care of PGW Buildings and Properties

Almost all custodial work is contracted out. There are still some Custodians on staff, but as they retire, they are not being replaced and their workload will contractors. As mentioned earlier, no other departmental services are under consideration for outsourcing.

Other Functions of the PGW Facilities Department

PGW leases only one piece of property, a lot at Delaware Avenue and Tioga Street, to the Philadelphia Regional Port Authority. The rental amount is $235.00 per month. Managing leases is the joint responsibility of Facilities and the Legal Department.

There are currently no buildings that are completely unoccupied (no useable space); however, there are four buildings with unoccupied floors, as listed in *Exhibit III-37*.

Exhibit III-37
Buildings with Unoccupied Floors
as of October 31, 2014

9th & Diamond Street - Meter Shop		
Floor	**Use**	**Sq. Ft.**
3rd Floor	Vacant	8,969
North Philadelphia District Office		
Floor	**Use**	**Sq. Ft.**
2nd Floor	Vacant	12,347
South Philadelphia District Office		
Floor	**Use**	**Sq. Ft.**
2nd Floor	Vacant	4,168
West Philadelphia District Office		
Floor	**Use**	**Sq. Ft.**
2nd Floor	Vacant	6,370

Source: Information Response 237

There are no plans to attempt leasing out any of this space. PGW is awaiting the results of its ongoing Consolidation Study as discussed previously to determine the uses of system-wide buildings and facilities. The Director of Facilities is a member of the task force overseeing this effort and will be actively involved in subsequent implementation efforts.

The last internal audit on facilities was performed in 2010. Specific recommendations from this audit included:

- Document all Facilities Department processes and sub-processes within a formal policies and procedures format.
- Consider the replacement of the DataStream MP2 application and use of technically proficient personnel to assist in the Software Development Lifecycle (SDLC) process for the solution that is ultimately selected.
- Identify more comprehensive department goals and objectives – and should develop key performance indicators (KPIs) to measure the accomplishment of each.
- Develop KPI metrics to aid in the efficient and effective management of PGW Facilities.
- Develop reports on KPI metric performance; said metrics should be posted on the PGW Intranet.

In response, the Facilities Department updated its Policies and Standard Operating Procedures (completed in September, 2014), replaced the Data Stream MP2 work order system with a new system, INFOR-EAM Work Management System, and begun using this new work order system to develop better reporting capabilities and metrics. The Facilities Department expects to have a full set of metrics in place by September, 2015.

Expenditures

Capital Budget

Exhibit III-38 presents budget and actual capital expenditures for the past five fiscal years.

Exhibit III-38
Facilities Department Capital Budget
FY2010 to FY2014
($ Thousands)

	FY2010	FY2011	FY2012	FY2013	FY2014
Budget	$1,842	$3,540	$1,755	$8,015	$6,749
Actual	$1,802	$3,418	$1,675	$7,525	$7,646
Difference	$40	$122	$80	$490	$897
Variance %	(2.2%)	(3.4%)	(4.6%)	(6.1%)	13.3%

Source: Information Responses 241, 670 and PGW Draft Report Comments.

Capital budgets have varied over the past five years due to variability in approved large projects. The large increase in 2013 came from a number of large projects approved for that period: the West Philadelphia Customer Service Center Renovation, Relocation of PGW data center from the 1800 Building to the 800 Building, Resurfacing of Meter Shop 9th & Diamond Streets Parking Lot, 1800 Building Switchgear Replacement, and a New Call Center Training Room constructed in the 800 Building.

Operating Budget

Exhibit III-39 presents budget and actual operating expenses for the past five years.

Exhibit III-39
Facilities Department Operating Budget
FY2010 to FY2014
(% Thousands)

	FY2010	FY2011	FY2012	FY2013	FY2014
Budget	$8,465	$8,708	$9,388	$10,175	$9,782
Actual	$9,001	$8,508	$10,109	$8,873	$8,928
Difference	$536	($200)	$721	($1,302)	($854)
Variance (%)	6.3%	(2.3%)	7.7%	(12.8%)	(8.7%)

Source: Information Responses 242 and 670

Operating budgets have increased an average of 4% over the last five years, although actual operating expenditures have decreased since 2012. PGW signed a third-party electric procurement agreement in 2013 that has decreased utility costs, and it has underspent on maintenance contracts.

Findings & Conclusions

Finding III-14 The Facilities Department does not have a comprehensive facilities plan.

In the past several years, the Facilities Department has better documented its standard operating procedures and has enhanced its maintenance tracking systems, but the department is not responsible for some of the major functions that normally should be assigned and coordinated through it. For example, it is not responsible for coordinating the ongoing Consolidation Study and implementing the results. The Facilities Department also is not responsible for acquiring, disposing, and leasing out buildings and property or for space planning processes.

The ongoing Consolidation Study should provide a path for future planning of PGW's facilities and property needs, but a comprehensive facilities planning document has not been performed since 1986. Likewise, maintenance management upgrades and performance measures (KPIs) are still being developed through implementation of the INFO-EAM System.

Recommendations

Recommendation III-12 Develop a comprehensive facilities plan. (Refer to Finding III-14.)

In conjunction with the ongoing Consolidation Study, develop a comprehensive facilities plan. This plan should be developed and maintained by the Facilities Department and should fully tie in to future strategic planning efforts. This plan should act as a business plan for the department and should be periodically updated on the same schedule as PGW-wide strategic planning activities. In addition to regular business planning items such as budgets and manpower needs, this plan should include, but not be limited to, the following features:

- Specific responsibilities of the department to include (in addition to current responsibilities shown in the Facilities Department's Standard Operating Procedures): coordination and responsibility for implementing the results of the Consolidation Study; planning and processes for acquiring, disposing, leasing, and leasing out buildings and properties (to include lease versus buy analyses); and space planning and assignment activities
- Full set of performance measures or metrics
- Planning and analysis techniques and processes for evaluating in-house services versus contracted services
- Inventories of buildings and land holdings with up-to-date valuations
- More explicit maintenance performance reporting (with a direct link to maintenance management metrics)
- More explicit staffing qualifications and training requirements and programs – This is an area where metrics can be developed.
- Explicit support requirements and relationships with other PGW departments and key outside parties

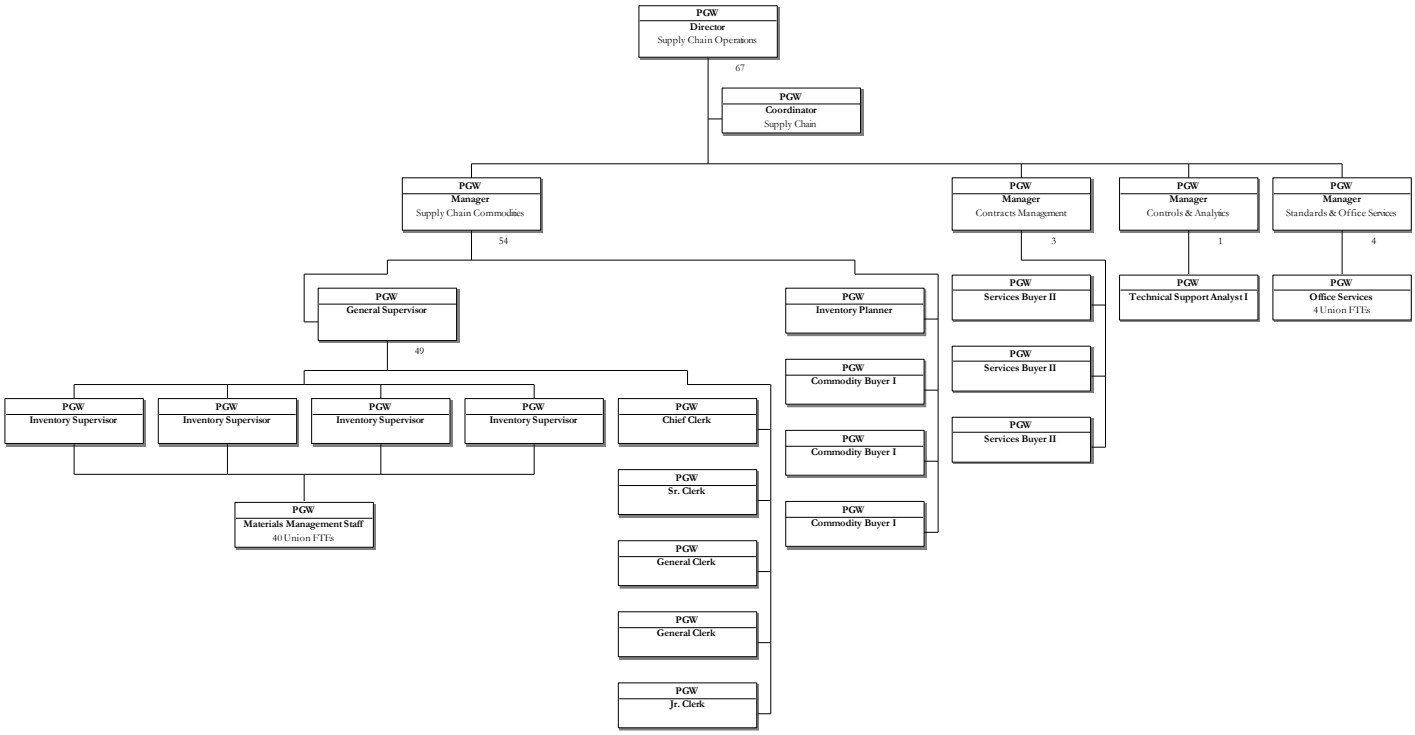
D. Supply Chain Management

This section addresses Philadelphia Gas Works' (PGW's) Supply Chain function, which includes Procurement and Materials Management functions.

Background & Perspective

Exhibit III-40 shows the Supply Chain Department's organization as of December 31, 2014.

Exhibit III-40
PGW Supply Chain Organization
as of December 31, 2014



Source: Information Responses 1 and 581
Note: Employee numbers are expressed as full time equivalent (FTE) employees.

The Director of Supply Chain Operations (Supply Chain) reports directly to the Senior Vice President Customer Affairs and Operations. Four managers and a Supply Chain Coordinator report to the Director of Supply Chain Operations. The Manager of Supply Chain Commodities is responsible for materials purchasing and the warehouses/inventory control. The Manager of Contracts is responsible for services purchasing. The Manager of Controls and Analytics and the Manager of Standards and Office Services provide office support.

Materials purchasing and inventory control come under the Manager of Supply Chain Commodities. In addition to his overall responsibilities for material supply, maintaining the warehouses, and maintaining outlier storerooms and fabrication/assembly areas, he is responsible for the Supplier Management Program (diversity), analysis and reporting of procurement performance, researching and communicating changes in commercial policies and government regulations, and personnel/professional development within the department. Reporting to this position are the following functions:

- *Inventory Planner* – plans and schedules demand forecasts and establishes min/max inventory levels, safety stock, and re-ordering points; ensures database integrity of the Oracle Financials System (inventory features and data) and works with buyers to develop sourcing strategies with vendors.
- *Commodity Buyer 1* – reviews and requests purchase orders (POs), develops requests for quotation, identifies need for contract renewal/renegotiation/termination, and performs other support functions as designated. This entry-level position works on purchase orders and other related documents up to $100,000 in value.
- *Inventory Supervisor* – oversees and coordinates operating conditions and procedural compliance for assigned storerooms to include safety, security, receipt/inspection/storage/issuance of material, and general oversight (on a rotating basis) of overflow storage facilities/outlying storerooms/tool repair facilities that operate on a 24-hour/7-day-a-week basis.
- *Sourcing Specialist* – a new position recently approved for the Supply Chain Department. This person will be responsible for identifying, developing, and qualifying new products and/or suppliers to meet PGW's long-term needs. These efforts will include complex and strategic sourcing agreements containing unique terms and conditions (e.g., vendor partnering).

The Manager of Contracts Management is responsible for the administration of all professional and service contracts within PGW, ensuring such services are performed in a cost-effective manner and within budget. This includes the maintenance, notification, and standardization of key contracting activities (e.g., payment terms, warranty, expiration, and evaluation). Reporting to this position are three Buyers II whose primary responsibilities include identifying suppliers and opportunities for lowering total cost of ownership (TCO) and creating requests for quote (RFQs). Buyers II, along with client departments, administer and negotiate large-dollar contracts, particularly with General Materials and Fleet Operations, Field and Construction Operations, and Gas Management Operations.

The Manager of Controls and Analytics is responsible for developing, tracking, and monitoring key performance indicators (KPIs) and other analysis data as well as overseeing all Supply Chain policies, procedures, and general governance activities. He is assisted by a Technical Support Analyst. The Standards and Office Services Manager, responsible for office service functions (e.g., postal, duplicating, stationery, etc.) is vacant and the Supply Chain Operations Department is considering combining that function with the Controls and Analytics section.

The total staffing for Supply Chain operations has remained steady for the past five years at 68 employees, with 20 in the purchasing and administration area and 48 in the warehouses.

In March, 2015, the Supply Chain Department went through a reorganization that incorporated the Fleet Department as part of Supply Chain. Fleet Management now reports directly to Supply Chain Commodities (renamed Fleet and Materials Management). Other changes include:

- The Director of Supply Chain Operations was promoted to VP of Supply Chain.
- The Manager of Supply Chain Commodities was promoted to Director of Fleet and Materials Management.
- The Manager of Contracts Management was promoted to Director of Contracts Management and Supplier Diversity. Commodity buyers now report to this position (formerly they reported to Supply Chain Commodities). The newly approved position of Sourcing Specialist will also report to this position. The Sourcing Specialist position was approved and it is currently moving through the hiring process. PGW anticipates the position will be filled by the end of FY2015 (August 31, 2015).
- The Manager of Controls and Analytics was assigned additional duties and is now the Manager of Controls, Analytics, and Office Services. Formerly, Controls & Analytics and Standards & Office Services were separate functions each reporting to a Manager.

There is no formal written charter for the Supply Chain Operations Department; however, a welcoming letter is given to each new employee that includes the mission, objectives, and responsibilities of the department. These items are further documented in the charter for the department's Continuous Improvement Program (discussed later in this section).

Major Processes

The Supply Chain Operations Department uses modules of PGW's financial package, Oracle E-Business Suite, as their primary software. In addition, Supply Chain uses Struxure to create and maintain item descriptions, standards, and catalogs. Struxure is an item management software application that is integrated with Oracle E-Business Suite. Item descriptions and standards are created using Struxure and then transferred to Oracle, and all item data is stored in the Oracle system.

The Oracle Inventory Management module provides functionality for:

- Inventory balances at each of the storerooms
- Material standards data
- Inventory receiving, tracking, & reporting
- Cycle counting & physical inventory
- Materials transactions
- Inventory lifecycle & turnover data
- Materials control

The Oracle Procurement module provides functionality for:

- Enforcement of purchasing policies
- Automated requisition & purchase order processes
- Automated approvals processing
- Tracking, receiving, & reporting
- Interface to payables

Struxure provides functionality for definition and classification of items (materials catalog and standards). Standards for each item are contained in the more than 22,000 online detailed item descriptions residing within the Item Master File in the Oracle E-Business Suite. Item descriptions and standards are developed using the Struxure software, which is used to manage, maintain, create, update, and search through item descriptions. An outside firm, with assistance from the Supply Chain Department's employees, recently reviewed and revised all inventory item descriptions. The purpose was to eliminate any duplicate and inactive item descriptions and to put all descriptions in a standardized format.

In 2012, an Access database was developed to assist buyers with tracking Requests for Quote (RFQs). This database also includes a module for tracking discrepant materials. This database is not integrated with any other automated systems.

Supply Chain provides training opportunities for employees in a variety of forms. Employees in the department work with their manager/supervisor to develop specific training and development plans as part of their annual performance review. The department also conducted four formal group training sessions for employees during 2013 and 2014 in the areas of quality auditing and the differences between public/municipal/government and private/public procurement.

The department is developing a formal training program for new employees, which will identify training requirements for all job positions within the department. Formal training modules have also been developed for inventory planners, buyers, clerks, and supervisors. Group training sessions are also planned for strategic procurement, sourcing, and category management. Training matrixes identify required training for each management employee in Supply Chain.

The Supply Chain Department has developed its own internal audit program outside the PGW Internal Audit function (which resides in the Finance Department). The Manager of Controls and Analytics is responsible for this program, which uses personnel within the department and from other areas of PGW who have received International Organization for Standardization (ISO) and other fundamentals training in internal auditing. Audits on 20 supply chain processes, organized into five main functional process areas (General and Administrative, Procurement, Materials Management, Standards and Office Services, and Pipe Shop) are conducted on an annual basis. Internal audit procedures are documented, written checklists are used, schedules and responsibilities are maintained, and follow-up actions are documented via corrective action forms. See *Chapter IV – Financial Management* for further discussion about internal audit activities.

The Director of Supply Chain Operations has certifications from the American Production and Inventory Control Society (APICS) and the Institute of Supply Management (ISM). Two other managers in the department are actively pursuing APICS certification (Production and Inventory Management and Supply Chain Professional). All buyers are members of ISM.

PGW's primary means of identifying and encouraging bidding by Minority, Women, and Disabled Business Enterprise (MWDBE) is through involvement in the organizations of the Eastern Minority Supplier Development Council and the Office of Economic Opportunity and through City Council–sponsored workshops on how to do business with the City of Philadelphia and in the State of Pennsylvania. PGW has indicated that it is exploring broader use of online sourcing tools to identify additional MWDBE suppliers. Also, a new position, Sourcing Specialist, was approved in fourth quarter of 2014 to further vendor sourcing efforts to include increasing MWDBE participation. MWDBE business activities are further discussed in *Chapter VI – Diversity and EEO*.

Materials planning with field operations is conducted through monthly and biweekly meetings. Monthly project planning meetings are attended by the Engineering, Design, and Construction Director, the Supply Chain Operations Director, the Capital Project Manager, the Contracts Management Manager, the Supply Chain Commodities Manager, service buyers, and an inventory planner. Topics discussed include: status updates on the progress of current construction projects; updates on contracts being finalized; status on pending approvals of projects (final drawings, bill of materials, expected planned start date, etc.); updates on new business projects (status, planning, and forecasting of new jobs) for anticipated materials usage; and timelines from planned start dates. This group will also review all ongoing and planned jobs to ensure all required materials are planned, on order, or in stock.

In addition, biweekly meetings are held in the field with the Field Services and Distribution Director, the Supply Chain Operations Director, the Field Services Operations Manager, the Contracts Management Manager, the Supply Chain Commodities Manager, a General Supervisor, the Inventory Planner, and Fleet representatives. These meetings focus on any short-term problems in the field and any steps that need to be taken to expedite materials to the field. Meeting notes are maintained for both the monthly planning meetings and the biweekly field operations meetings.

PGW has an agreement with one supplier to hold PGW-owned material. This vendor holds raw carbon steel pipe and Pritec-coated pipe in stock for PGW. This vendor submits a monthly inventory report to PGW where the information is reconciled with the on-hand inventory in PGW's Oracle system. Supply Chain is not involved in any electronic commerce activities with vendors but has stated that it plans to begin using Oracle's I-Procurement module for this purpose in 2015.

PGW's Supply Chain Department tracks four metrics that are reported to senior management via a scorecard: inventory turn ratio, Disadvantaged Business Enterprise (DBE) participation, savings tracker, and client satisfaction. These target levels have not changed appreciably over the past three years. The savings tracker is related to documenting savings achieved by the individual buyers. These savings generally materialize through procurement efforts related to the cooperative buying programs (COSTARS), identification of alternate materials (e.g., tools), and negotiated price reductions on

professional services as part of the contract award process. Supply Chain Department is also developing an order fulfillment rate (stock-out rate) metric to apply to the Tioga Station (where much of the construction work is staged).

Internally, Supply Chain also tracks metrics for fill order rate (orders/shortages), cycle count results (from Oracle) in total and by warehouse, inventory turns in total and by warehouse, obsolete inventory, grease truck statistics, shortages and critical shortages (distribution material), and on-time materials deliveries. These metrics are tracked via structured reporting formats on a monthly basis.

Reports that Supply Chain uses to monitor activities include:

- *Actual to Budget Variance* – cost variances by month
- *Discrepant Material Report* – receipt report documenting damaged material, wrong items received, or wrong quantity received
- *Expiring Blanket and Contract POs* – an alert report for buyers
- *Inventory Order and Issue Data* – monthly inventory levels and issue amounts (dollars), issue amounts by storeroom, and Supply Chain employee activity data (e.g., headcount, overtime, absence, Automated Information Management System (AIMS) order lines)
- *Overtime* (*OT*) *Actuals by % Fiscal Year* (*FY*) – payroll report covering all PGW departments
- *OT Actuals Weekly FY2015* – payroll report covering all PGW departments
- *Quality Audit Report* – audit checklists for use by departmental internal audits of processes and procedures
- *Stock Status Report* – items that drop below their defined minimum stocking levels
- *Supply Chain Projects* – status report on special projects within the Supply Chain Department

In addition to the Management and Procurement reports listed above, the Supply Chain Department uses several reports from its automated Oracle system for inventory management and control:

- *Cycle Count Entries and Adjustments Report* – by warehouse, per item physical inventory with adjustments
- *Cycle Count Listing* – by warehouse, per item format used to record cycle count results
- *Inactive Items Report* – listing of active stock items that have not been issued over a period of time (at least two years)
- *Inventory Value Report* – by item information listing quantity, cost per unit, extended value, planning method (e.g., min/max), and item status
- *Item Definition Detail* – item numbers and descriptions
- *ABC Assignments Report* – item descriptions by classification
- *Transaction Register* – detailed listing of each transaction (e.g., receipt, issue, cycle count adjustment)

- *PGW Inventory Quantity Below Report* – items that have gone below their minimum inventory levels with three months' average usage rate and ordering information and status
- *Overdue Vendor Shipments Report* – by vendor report with a line item summary of overdue items by PO number

These reports are generated on an as-requested/as-needed basis.

Supply Chain does not currently engage in electronic commerce activities with vendors. The department is planning to begin electronic commerce with vendors during 2015, using Oracle's I-Procurement module. Barcoding and other technologies have not yet been implemented, pending the results of the upcoming Facilities Consolidation Study.

Supply Chain uses city, state, and other government cooperative program contracts when they provide the best value. Some are used for one-time purchases while others are used on an ongoing basis. PGW is active with two co-op programs: PA COSTARS and the City of Philadelphia. Supply Chain personnel have also recently (October, 2014) visited two gas utilities and one vendor that manages inventory for a gas utility to learn how to better manage their inventory. Three more visits are planned for early 2015. The main focuses of these visits was to gain a better understanding of an integrated supply model. Specifically, using vendors to more actively manage inventories (e.g., vendors performing inventories, automatically reordering and reporting to management, maintaining free issue (bin) items). Supply Chain is evaluating implementation of these changes.

Types of Purchase Orders Used

Contract term limits are specified in the Philadelphia City Charter. Supply Chain is currently finalizing a vendor management procedure that specifies how vendors are qualified and evaluated. The procedure is expected to be completed by February 28, 2015. A vendor scorecard was developed and is being used to provide feedback to vendors on their performance.

Exhibit III-41 shows a five-year trend on purchase orders.

Exhibit III-41
Purchase Orders Produced by Type
2010 to 2014

PO Type	2010	2011	2012	2013	2014
Blanket PO	50	67	55	50	29
Blanket Release	1,757	1,844	1,890	1,835	2,061
Contract PO	229	124	155	196	167
Standard PO Against Contract	6,217	6,358	6,853	7,207	6,912
Standard PO	6,142	5,994	5,998	6,611	6,915

Source: Information Response 595

Blanket POs are generally used to procure recurring material items, although some services are covered by blanket POs. Contract POs are similar to blanket POs except they primarily apply to services with some used for vendors that supply a wide range of materials. In both cases, materials and services are provided and documented through releases against specific blanket/contract POs. Standard POs are generally used for one-time purchases. POs less than $500 (non-recurring items) do not have to be bid out; POs from $500 to $2,000 require verbal quotes (which can be handled within the user department); and POs from $2,000 to $10,000 require three written quotes; while POs over $10,000 require a formal bidding process (sealed bid) and review by the Competitive Contracting Committee. All purchases must be approved by the requesting department management, except purchases over $1 million (per contract or per vendor) must be approved by the Philadelphia Facilities Management Corporation (PFMC). Emergency purchases can be made (with approval of the department vice-president or designee) without going through the above approvals in instances when the safety of the public or PGW employees is threatened, continuity or safety of operation is jeopardized, a direct order from a regulatory body is received, or there is danger of serious financial impact. The process for emergency purchases is documented in procedures.

The numbers for blanket, contract, and standard POs reflect the year that the POs were placed and in most cases involve releases over multiple years. Supply Chain management annually reviews standard POs to determine if some of them should be more appropriately moved over to blanket/contract status. These analyses are not documented, but releases against blanket and contract POs have been gradually rising over the past five years.

Purchasing processes for commodities are documented in Commodities Purchasing Procedure, Discrepant Material Procedure, and Guidelines for Purchasing Using Government Cooperative Purchasing Programs.

Expenditures

Capital expenditures are accounted for in the operating departments. *Exhibit III-42* shows operating expenditures for the Supply Chain Department for the past three fiscal years.

Exhibit III-42
Operating Expenditures
FY2012 to FY2014

Fiscal Year	Budget	Actual	Difference	%
FY2012	$ 5,055,000	$ 5,094,309	$ (39,309)	(1%)
FY2013	$ 5,248,000	$ 5,021,883	$ 226,117	4%
FY2014	$ 5,306,000	$ 6,238,374	$ (932,374)	(18%)

Source: Information Response 596

In FY2010, Materials Management and Procurement were separate departments. In that year, their combined operating budget (minus allocated services from other departments) was $4,560,000 of which 93% was accounted for by labor costs. In FY2011 the two departments were combined into the Supply Chain Department, and FY2011 budget and actual numbers are not available. The numbers in the above table also reflect direct budget and actual figures and do not include allocated services (e.g., facilities management and information services). In FY2010 combined Materials Management and Procurement Departments had personnel levels of 67. These personnel levels have only gone up to 68 over the past five years despite the reorganization.

Supply Chain budgets have remained stable over the past five years, increasing on average less than 4% per year. The variance in actual to budget amounts in FY2104 was due to increased overtime to support field forces due to an unusually harsh winter. The budgeted numbers do not include any costs of materials (except general materials specifically used by the department).

Inventory

There are no written procedures for materials management and inventory control. Instead, the department developed a series of process flowcharts that describe in visual format the basic processes for materials management and inventory control. These processes include Supervisor tasks (daily, weekly, monthly, and annually), spot-checking storerooms and material tickets, conducting cycle counts, dispatching, managing timecards/equipment/schedules, determining stock status, ordering fuel/waste pickup, managing discrepant material, reporting daily attendance, and approving Oracle transactions, among other processes. There are also instruction documents (using screenshots) for storekeepers and stockhandlers to input data into the Oracle system.

Exhibit III-43 shows inventory by storeroom for the past five fiscal years.

Exhibit III-43
Inventory Values by Storeroom
FY2010 to FY2014

Month	Tioga	Montgomery	Passyunk Mini	Passyunk	Richmond	Stationary	Fleet	Total Less Spares	Spares	Total
FY2010	$1,895,928	$772,488	$34,907	$183,513	$170,273	$47,268	$300,531	$3,404,908	$3,279,014	$6,683,922
FY2011	$2,246,805	$863,936	$32,903	$189,583	$179,347	$62,223	$367,463	$3,942,260	$3,031,599	$6,973,859
FY2012	$2,675,658	$929,329	$34,389	$184,865	$184,284	$58,914	$368,487	$4,435,926	$3,179,037	$7,614,963
FY2013	$3,513,936	$1,076,715	$34,583	$195,187	$205,508	$45,557	$402,900	$5,474,386	$3,753,205	$9,227,591
FY2014	$3,695,429	$954,634	$30,460	$197,703	$208,760	$54,909	$428,606	$5,570,501	$3,597,731	$9,168,232

Source: Information Responses 597 and 763

Safety stock maintained for Field Operations, is included in the above numbers. Spares are emergency repair parts maintained for the gas plants and are tracked separately. Inventory levels at storerooms will

reflect the amount of work being performed in the field. Tioga station is a major staging area for operations construction work.

Exhibit III-44 shows PGW's calculations for its annual inventory turns by storeroom and in total for the past five years.

Exhibit III-44
Annual Inventory Turns Calculations
2010 to 2014

Storeroom	2010	2011	2012	2013	2014
Tioga	2.54	2.57	2.39	2.29	1.97
Montgomery	1.96	1.92	2.09	2.08	2.39
Passyunk Mini	3.16	1.9	2.23	1.12	1.59
Passyunk	0.34	0.33	0.27	0.34	0.36
Richmond	0.71	0.55	0.59	0.8	0.42
Stationary	2.64	2.32	1.78	1.73	1.83
Fleet	2.5	2.62	2.17	2.53	2.5
Total	2.21	2.21	2.14	2.08	2.01

Source: Information Response 760

Inventory turns are calculated using a 12-month rolling average of month-ending inventory values and the total cost of items issued from the storerooms. The calculation is annual cost of items issued divided by average inventory. For example, using Montgomery storeroom for FY2014:

- Total cost of items issued during the year = $2,296,868
- Average month-ending inventory value = $959,040
- Inventory turns is $2,296,868/$959,040 = 2.39

As mentioned earlier, Supply Chain has metric targets of maintaining total inventory turns of 2.2 or better (each warehouse has its own goal). Inventory analysis is informal and inventory turns are not analyzed by different classes or types of inventory.

Supply Chain is conducting cycle count inventories as well as full inventories. As mentioned earlier, cycle count accuracy is one of the department's internal goals (98% to 100%). Current cycle count accuracies are running approximately 80% system wide. Management has indicated inaccuracies are due to miscoding of transactions into the Oracle system, and they are setting up follow-up training to ensure that all transactions are recorded properly.

Exhibit III-45 shows overtime amounts for the past five fiscal years.

Exhibit III-45
Annual Overtime Data
FY2010 to FY2014

	Overtime Hours			Overtime Costs		
	Union	Management	Total	Union	Management	Total
FY2010			5,583			$239,572
FY2011	11,730	1,094	12,824	$503,296	$51,243	$554,539
FY2012	6,675	896	7,571	$294,878	$39,305	$334,183
FY2013	9,664	921	10,585	$434,439	$42,580	$477,019
FY2014	22,576	1,877	24,453	$1,062,090	$96,668	$1,158,758

FY2010 union/management breakdown is not available.
Source: Information Response 598

Overtime costs have been running less than 10% of labor costs except for 2014, when harsh weather caused an unusually high amount of operations callout work.

Exhibit III-46 summarizes the type of inventory held at the seven largest storerooms.

Exhibit III-46
Inventory Composition by Storeroom
as of December 31, 2014

Storeroom	Department	Types Of Materials
Tioga	Field Operations – Distribution	Pipe Valves, Fittings, & Couplings
Montgomery	Field Operations – Field Service Department (FSD)	Appliance Parts & General Materials
Passyunk Mini	Field Operations – Distribution	Pipe Valves, Fittings, & Couplings
Passyunk	Gas Processing	General Materials and Spares
Stationery	Supply Chain	Forms & Stationery
Richmond	Gas Processing	General Materials and Spares
Fleet	Fleet Equipment	Vehicle Parts & Equipment

Source: Information Responses 61 and 597

The results of the upcoming update to the facilities Consolidation Study may have an impact on the number, size, and uses of PGW storerooms. This study is an update to a study conducted by an outside consulting firm on PGW building and facility use system-wide. Four major improvement areas from the 2009 study were identified: operational efficiency, capacity utilization, capital and O&M expenditures, and monetization (selling/leasing) of current assets. Operational efficiencies in the Supply Chain were

particularly noted in terms of eliminating shipping and handling redundancies, location of warehouses to lower material movements and reduce inventory, and optimization of fleet performance via fuel performance, drive times, and shipments. One scenario from this study called for building a new centralized facility for material, fleet, and operations. The Consolidation Study now underway is further discussed in the *Facilities Management* section of this chapter.

In April 2014, there was an internal audit of the inventory management and in September 2014, an internal audit took place of Office Supply utilization. Recommendations from this audit included putting all inventory onto Oracle, installing security cameras in storeroom areas, conducting physical inventories to supplement cycle counts, addressing physical limitations at Tioga Station, consolidating storerooms, reducing same-day ordering at Tioga Station, automating storeroom processes, and increasing the number of metrics. The Supply Chain Department accepted or partially accepted all recommendations and has implemented, or is in the process of implementing, all recommendations.

The Supply Chain Department has begun to address some key, broad technological issues, specifically in the areas of Business Intelligence software, new dispatching procedures, and I-Procurement. A project team (Business Intelligence) has just been named to address business requirements and to develop a project implementation plan. Conceptual requirements to this effort include procurement (analysis of purchases, vendor performance, and buyer workload), inventory (forecasting, monitoring inventory against plan, and monitoring a wide range of metrics), delivery (dispatching and delivery to site), and office services. All of these efforts are in their initial stages and we cannot yet judge their resulting impact on Supply Chain operations.

Findings & Conclusions

Finding III-15 There is little vendor partnering.

Supply Chain only has one vendor partnering agreement in place and that primarily deals with holding inventory. The department should actively seek to broaden these relationships with additional high-volume vendors. Informal planning with the Operations Department on upcoming projects goes out only six months to one year and this could limit the value of vendor partnering arrangements.

Finding III-16 There is no consistent vendor performance evaluation or program.

The Supply Chain Department does not have a documented vendor approved list, nor does it routinely perform vendor evaluations that feed into a vendor approval process. PGW is bound by City purchasing rules, which dictate that PGW must accept the lowest bid. Supply Chain does, however, solicit feedback from user departments via a Vendor/Contractor Performance Evaluation, which rates vendor performance as outstanding, satisfactory, less than satisfactory, or unacceptable. Vendors are rated over 14 different aspects, including quality cooperation and responsiveness, delivery, and compliance with labor and safety standards. These forms also solicit specific detailed narrative information on vendor performance. Supply Chain can then informally apply these ratings in selecting which three vendors will be allowed to bid on a given contract.

Although vendor evaluation forms are sent to organizations receiving services by a vendor, the results are not summarized into a vendor database and used as an explicit part of the bid process. Evaluating bids strictly on a least cost basis (as required by City rules) may not result in the best overall product or contract performance.

Finding III-17 Supply Chain conducts a considerable amount of analysis, but much of it is informal and not tied together into a business plan.

Materials planning with the Construction Department is informal and does not go beyond one year (often just six months). This limits Supply Chain's ability to plan out material needs far enough in advance to perform more effective buying (e.g. through vendor partnering or longer-term forecasts to vendors). Other areas where Supply Chain has performed informal analysis is inventory turns, reasons behind cycle count inaccuracies, annual reviews of slow moving and obsolete inventories, results of meetings with field personnel, potential improvements from field visits with other utilities, summary analysis on vendor performance, and analysis on reducing the number of vendors and lengthening the terms of contracts.

Like other departments, Supply Chain does not develop a business plan beyond budgeting activities. Many of their activities will be directly affected by the ongoing Consolidation Study (e.g. the effect of a centralized facility versus dispersed warehouses and the effect of co-locating with field and construction operations) and it is unclear the level of input or analysis the department will have in the final outcome.

Finding III-18 There is a lack of written procedures for all Supply Chain processes.

As mentioned earlier, there are only flowcharts and instructions on system screenshots to describe a number of materials management processes. There are no written procedures to give better detail to what should be expected from these processes.

Finding III-19 There has not been any evaluation on the outsourcing of any Supply Chain functions.

In recent years, more utilities have been considering outsourcing some of their supply management functions to private contractors. Given that Supply Chain processes are becoming more sophisticated and technologically based (which may require considerable investment for PGW), utilities are evaluating whether they have the manpower, technology, and funds to perform these functions in-house.

Finding III-20 Major contract work is still largely controlled through paper processes, and automated systems are not completely integrated.

Oracle and AIMS are not integrated. Output information from one system must be documented and then manually input into the other system. Much of project work is documented via paper and not input into either system. In addition, Supply Chain has developed its own Access database for buyers to better track their RFQs. This database is not integrated into any other system.

An example of this process is the accounting for materials to construction work orders. Distribution inspectors will request project materials via the AIMS system, which will print out a paper order ticket that is then faxed to the Tioga storeroom. Materials are then sorted, staged, and dispatched. The driver receives a copy of the order ticket and checks it for accuracy before delivery to the field. Information is then entered into the Oracle system.

Finding III-21 Cycle count accuracy levels are too low.

In response to a recent internal audit, the Supply Chain Department has committed to performing physical inventories in addition to its cycle counts. Cycle counting is a form of physical inventorying and was intended to replace the disruptive need to conduct full physical inventories. The current cycle count accuracy is approximately 80%, which is too low. Supply Chain actively tracks this metric and is taking steps to increase its performance in this area. Once cycle count accuracy gets above 90%, there should be no need for full physical inventories.

Finding III-22 Inventory turns are reported and evaluated in total only, not by class of inventory.

Supply Chain has a total inventory turn goal of 2.2 and warehouses have individual goals. This level of turn has been in place going back to at least 2007. Actual turn rates are now around 2.0. Although there should be other considerations to increasing turn rates besides just lowering inventory levels (e.g., service-level standards to the field), increasing inventory turnover to 2.5 is an achievable goal. This will require, among other steps, analyzing inventory on a more micro level (e.g., by subgroups of inventory) and more formal and forward-looking materials planning with operations.

Finding III-23 PGW is slow to embrace technologies in Supply Chain.

Barcoding, e-commerce (I-Procurement), and wireless handheld input devices are examples of established technologies for increasing procurement and materials management productivity and effectiveness. The Supply Chain Department has been evaluating these technologies but has yet to implement these features.

Likewise, visits to neighboring utilities have highlighted practices in materials management that could streamline warehouse operations and procurement (vendor stocking, inventorying, and use of bin items) but are still being evaluated.

Recommendations

Recommendation III-13 Pursue additional vendor partnering opportunities. (Refer to Finding III-15.)

Perform an analysis of potential vendors in PGW's system that would be candidates for a partnering arrangement and explore cost savings (for both parties) by involving vendors more in PGW's business

practices (e.g., materials planning), taking on specific tasks (e.g., holding inventory and guaranteeing service levels) and/or reducing purchasing costs (both material and PGW employee time). Vendors will also benefit from more consistent cash flow and will better serve PGW's interests as they learn more about PGW's business.

Recommendation III-14 Develop and implement a Vendor Evaluation Program. (Refer to Finding III-16.)

Supply Chain has already taken steps in this direction by recently (February 2015) developing a written Supply Chain vendor management process, but this document is still conceptual, in draft stage, and deals only with corrective action feedback to vendors. It does not explicitly call for a vendor database or to use vendor performance as an explicit part of the bid evaluation process. These two features should be incorporated into the vendor management process.

Recommendation III-15 Develop a Supply Chain business plan that fully integrates into a PGW strategic plan. (Refer to Finding III-17.)

Supply Chain should develop a written plan that incorporates all ongoing and planned efforts (to include costs and benefits) and their relationship to specific corporate goals and objectives. It should include all current and future metrics (scorecard and internal department) and should incorporate analysis on potential savings and service level increases from technological upgrades and other process improvements into the final results of the Consolidation Study.

Recommendation III-16 Develop written procedures for all Supply Chain processes. (Refer to Finding III-18.)

Written procedures will lend more detail and discipline to Supply Chain processes, provide a vehicle for making needed changes and updates, and provide a better audit trail (governance and identification of improvement opportunities).

Recommendation III-17 Perform an analysis on the value of outsourcing Supply Chain function(s). (Refer to Finding III-19.)

The analysis should focus on who can more efficiently and effectively provide the services given the technological, automation, and process improvements required of a modern supply chain management operation. For example, automation and technological improvements (perhaps already implemented by an outside vendor) might require considerable PGW investment. An outside vendor would likely also have experience in operating these systems such that PGW could begin realizing benefits earlier.

Recommendation III-18 Integrate all systems used by Supply Chain. (Refer to Finding III-20 and Finding III-23.)

With Information Services, develop a project plan and schedule to fully integrate Oracle, AIMS, FuelForce, M5, and any other automated Supply Chain automated activities (e.g., Buyers' Access

database). A major goal should be to streamline work processes such that paperwork and manual inputting is minimized. Consider the impact of other technology applications such as barcoding and I-Procurement as well as the automated/technological capabilities of potential partner vendors. Consider designing a new system if modifications to existing systems are too expensive and/or won't deliver the desired results.

Recommendation III-19 Improve cycle count accuracy levels to at least 90% and increase analysis on inventory turn rates. (Refer to Finding III-21 and Finding III-22.)

Document analyses on cycle count accuracies as a means of systematically addressing root cause problems. Supply Chain's goal of 98% to 100% is an achievable target. Break out inventory into more micro-level groups and determine steps that can be used to increase turns in each group. These steps should vary from group to group, but over time they will result in higher overall inventory turn rates. This analysis should include cost of material being turned over, not just number of issues. An average turn rate of 2.5 should be achievable in the short term (one to two years).

An increase of the turnover rate from 2.0 to 2.5 should result in a 20% reduction in inventory levels. In FY2014, PGW had an inventory level of over $9 million, of which $5.57 million was inventory less spares. A 20% reduction of inventory less spares would result in a one-time savings of approximately $1.1 million, with an annual savings of approximately $220,000 in inventory carrying costs.

E. Risk Management

Background & Perspective

This section provides a discussion of Philadelphia Gas Works' (PGW's) risk management and safety services.

Risk Management

Mission, Goals, & Objectives

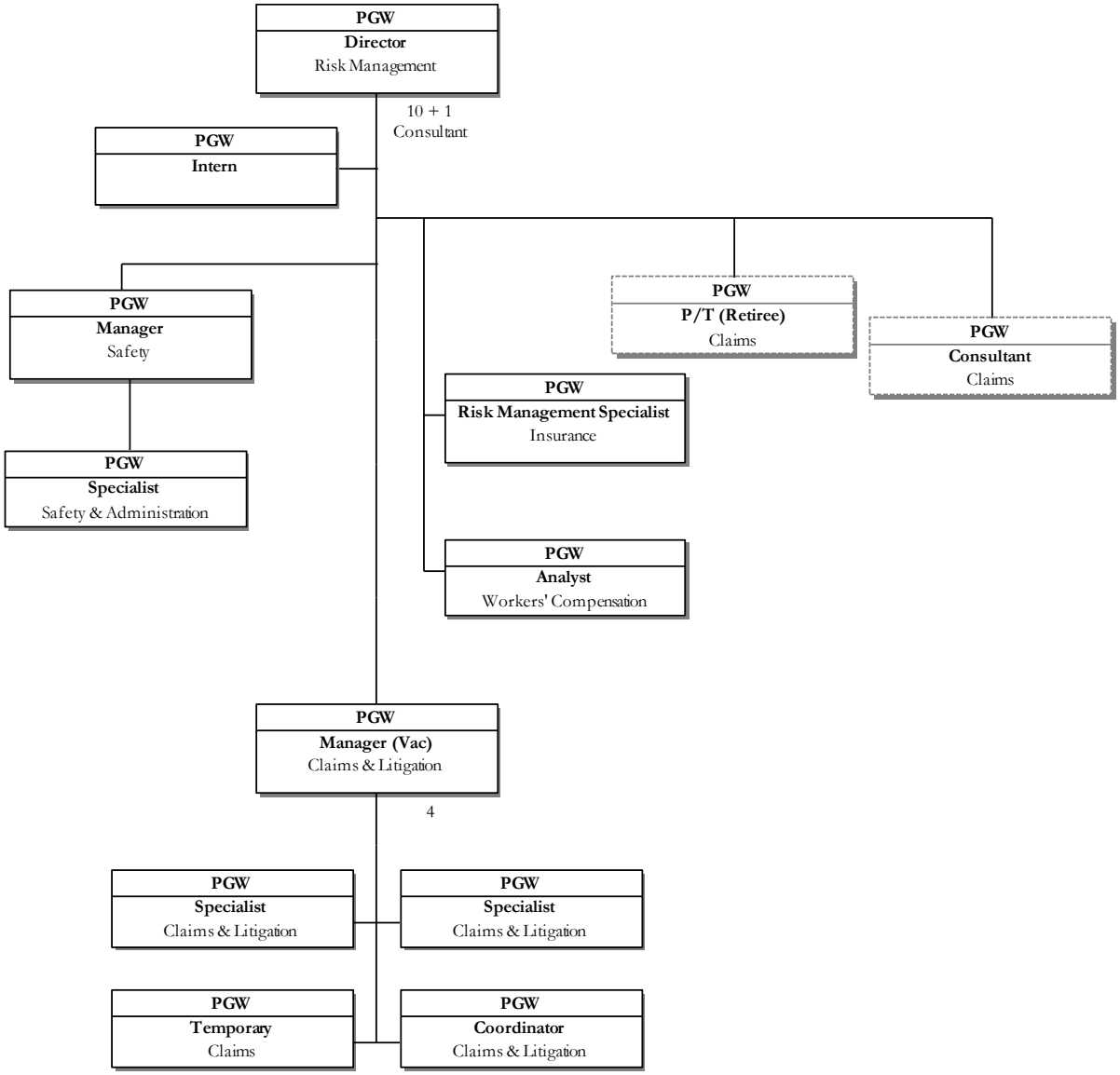
The missions of the Risk Management Department are to enhance employee and public safety and to protect PGW's assets through a proactive risk management program. Following are goals to fulfill those missions:

- *Workers' Compensation*: In fiscal year (FY) 2013 and FY2014, PGW exceeded the goal of obtaining lump sum settlements of open workers' compensation cases to reduce outstanding liabilities. The goal was set at five, and six cases were settled in each of the two years. Risk Management changed the goal of keeping total indemnity and medical costs below $2 million, because it was clear that a settlement initiative, with the resultant temporary increase in costs, was necessary to reduce liabilities on a long-term basis.
- *Claims and Litigation*: The goals in this area have been service oriented. Currently, adjusters are committed to returning claim telephone calls within two days to ensure proper customer service. Additionally, as the RiskMaster® system is being upgraded and the Claims and Litigation function is being revamped because of personnel changes, additional goals will be developed, such as the length of time in resolving claims.
- *Insurance*: The goal in this area is also service oriented. This goal, which has been met, is to provide insurance requirements for procurement documents within seven days 80% of the time.
- *Safety*: Specific statistics and goals are shown in the *Safety* section of this chapter.

Organization/Roles & Responsibilities

Risk management services are provided by the Risk Management Department, as shown in *Exhibit III-47*.

Exhibit III-47
Risk Management Organization
as of September 30, 2104



Source: Information Response 64
Dotted boxes represent outside consultants assisting the Risk Management organization

A summary of the responsibilities for each employee position is as follows:

- *Risk Management Director*: This position is responsible for the Risk Management organization.
- *Manager, Safety*: This position is responsible for the oversight of safety plans and programs that inform and educate employees, customers, and the general public concerning hazards and safeguards related to PGW activities, products, and services. This position supervises support staff that are responsible for ensuring the proper documentation, filing, and data entry of pertinent information as it relates to time management, scheduling, and employee development. This position is subject to after-hours calls regarding safety concerns, employee drug and alcohol concerns, and emergency situations. This individual also maintains working relationships with the Philadelphia Fire Department to increase its understanding of PGW's needs.
- *Safety & Administration Specialist*: This position is responsible for ensuring safe driving program initiatives are delivered in a timely manner, are monitored, and are properly documented and reported. This position also provides other in-house safety training, such as forklift and cardiopulmonary resuscitation (CPR)/automated external defibrillator (AED). In addition, the incumbent coordinates company-wide special events/campaigns, such as blood drives and charitable payroll deductions. This position also acts as the primary administrative support person, performing a variety of secretarial functions, as needed.
- *Manager, Claims & Litigation* (vacant): This position manages the day-to-day administrative functions of third-party and workers' compensation claims, including but not limited to investigations, data collection, strategy development, and settlement negotiations, to ensure prompt, fair, and equitable resolutions that limit PGW's liability. The incumbent is responsible for forecasting and proactive planning of liability fund management, limiting the potential for third-party liability claims and work-related claims by PGW employees. This position supervises a team of support staff who are responsible for ensuring the achievement of specific corporate goals through performance of the unit's day-to-day activities.
- *Claims & Litigation Specialists* (2): This position performs and coordinates a number of administrative functions that assist the Risk Management Department in receiving, processing, investigating, settling, and litigating third-party claims that would be charged to PGW's self-insured program.
- *Claims & Litigation Coordinator*: This position provides support for the daily administration and processing of general liability, automobile, and first-party claims by being the first point of contact for all claims intake via telephone or in person. This individual is also charged with ensuring claims information is accurately coded and entered into the claims electronic-tracking system.
- *Risk Management Specialist*: This position administers and supports risk management programs that anticipate and recognize evolving loss exposures to PGW and then treats such scenarios through the use of various techniques. The incumbent performs a variety of analyses,

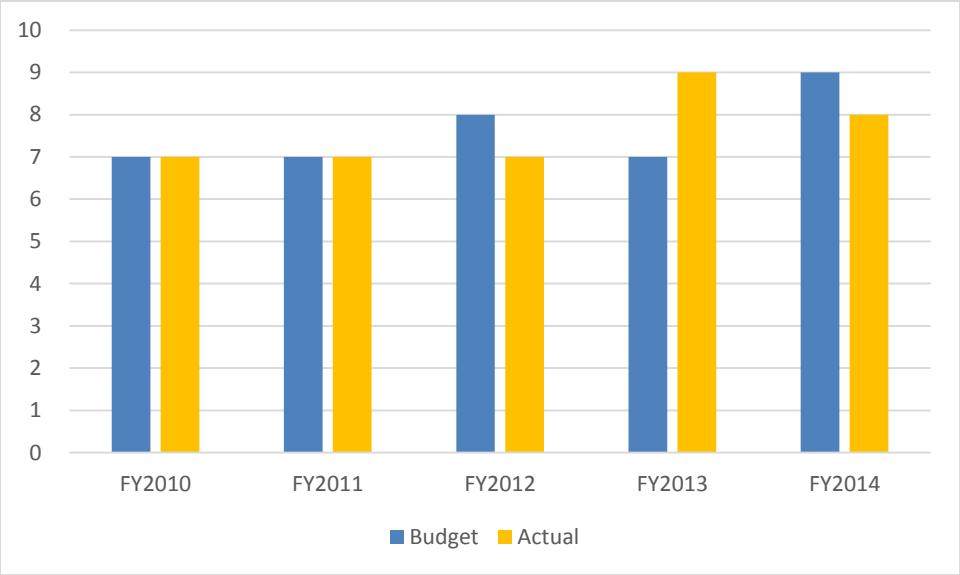
information processing services, and insurance liaison services, utilizing loss reduction methods designed to minimize the frequency and severity of loss.

- *Workers' Compensation Analyst*: This position is responsible for processing workers' compensation claims. The incumbent is the primary contact on all issues related to the filing and tracking of workers' compensation claims with the Medical Department, the third-party administrator, claimants, departments, independent medical facilities, and claim investigators. This position is directly accountable for ensuring that all claim matters are performed in the best interest of PGW and that workers' compensation claims are administered in accordance with Pennsylvania state law.

Staffing Levels

Exhibit III-48 illustrates the budget and actual staffing levels within the Risk Management organization from FY2010 to FY2014, which have ranged from seven to nine employees.

Exhibit III-48
Risk Management Staffing Levels
FY2010 to FY2014



Source: Information Response 74
* Assumed Safety Unit in FY2013

Processes

The Risk Management Department has not performed any 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 one of 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. This broker continuously monitors the financial solvency of insurance companies and advises PGW of any decline in insurers' ratings. These 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). The broker also provides annual benchmarking studies that provide what products—and their associated costs—are used by other organizations. PGW considers itself a relatively unique organization in comparison to other City departments or other gas utility organizations; therefore, PGW considers its challenges/risks and opportunities to determine coverage requirements.

When benchmarking, PGW and the broker do not perform a strict comparison between PGW and other entities. Because of PGW's hybrid nature as a natural gas utility and a governmental entity, its risk profile is more complicated and not subject to a direct comparison to other natural gas utilities. For example, according to PGW management, an investor-owned utility would require different Directors & Officers (D&O) limits because of greater risks to shareholder suits than PGW. Therefore, this type of benchmarking data is evaluated more for trends.

PGW's insurance coverage has been historically lower than other utility organizations and higher than most City departments. For example, PGW's D&O insurance coverage was recently increased due to:

- Pending PGW sale/liquefied natural gas (LNG) sale
- Closing of gap between fiduciary and D&O coverage differences

PGW monitors insurance market conditions and, when appropriate, competitively markets the insurance policies to alternative carriers. It also restructures programs as necessary to achieve the most cost-effective program. Each year, the Risk Management Department meets with the broker 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 excess fiduciary and property coverage) is provided through two energy industry mutuals. According to PGW management, those mutuals' pricing has traditionally been more favorable for PGW, and as mutuals, they provide member loss control services to reduce the industry's shared risk. Moreover, their coverage is also broader. For example, they provide pollution coverage 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 2012 for excess liability and frequently over the last several years for property.

The Risk Management Department provides an ongoing evaluation of PGW's insurance needs, resulting in increased limits and two new lines of coverage since the 2008 PGW Stratified Management & Operations Audit.

- In 2010, PGW purchased a five-year non-owned disposal sites policy, covering environmental risks resulting from offsite disposal going back to PGW's inception.

- In 2012, PGW added cyber liability coverage. (Since then there have been no major breaches and only two relatively minor internal breaches. In both cases, PGW, with the help of Beazley (PGW's insurance carrier for cyber liability coverage), took corrective action to both protect the customers exposed and discipline employees involved in the breach. Subsequently, PGW has increased its training, so employees better understand how to avoid these situations.)
- In 2013, the D&O liability limits were increased from $10 million to $30 million because of some increased risk.
- PGW has also diversified its excess liability coverage.

Significant Changes in the Past Five Years

According to PGW management, the Risk Management group has embarked on several new initiatives and has improved performance on the normal day-to-day claims and safety activities, including:

- *Joining of Risk and Safety* – Effective January 2012, the Safety unit, previously in Corporate Preparedness, was moved into Risk Management. This relocation has resulted in a new level of collaboration in safety and loss control, such as:
  - A standing weekly meeting is held with the Safety and Workers' Compensation units to review the prior week's injuries to ensure that claims are coded the same way for the various reports. These meetings also identify and address any safety issues arising from the injuries.
  - The Claims and Safety units now meet regularly on all accidents involving PGW vehicles. Safety needs to determine whether an accident is deemed "preventable," so it is essential that information is shared in a timely fashion.
- *Training for Loss Control and Prevention* – Risk Management performs in-house training involving CPR/AED/first aid, Smith System driving, and forklift use. Because the training is more flexible and PGW-based, it has resulted in lower costs and increased performance.
- *A Data-Driven Organization* – According to PGW management, the Risk Management Department is becoming a more data-driven organization. The RiskMaster® Claims Management system has been upgraded, and Risk Management is beginning to use the new comprehensive reporting program, Business Objects. In addition to training the Claims staff, the Safety staff is learning how to use this system to track losses and present data in support of loss control initiatives. The Safety staff now participates in meetings with the workers' compensation third-party administrator, AmeriHealth (previously known as CompServices), as well. As with the liability claims system, RiskMaster®, the Safety unit is working to use AmeriHealth's report-writing system to track losses, identify injury trends, and present data in support of loss control initiatives.
- *Improving Defense of Liability Claims* – RiskMaster® is now being used to store insurance certificates from PGW's contractors, consultants, and vendors. This is a key part of ensuring that PGW can hold those entities to their obligation of defending and indemnifying PGW in the event of a claim or loss related to their work.

- *Transforming the Claims Unit* – Recent personnel changes created an opportunity to transform the structure of the claims unit, specific job responsibilities, and the entire claims and litigation handling process. Previously, the Claims staff handled claims and other accounts receivables (OARs), and the Claims Manager provided litigation support. The Claims unit staff is getting more cross-training and all staff are working at a higher level. Previously, the Claims Manager was the only Risk Management employee who worked with in-house counsel on lawsuits for personal injury. Over the past few years, the senior claims adjusters have begun to handle those files, and now with the Claims Manager retired and working only 19 hours a week, they have responsibility for a large litigation caseload. They are able to use their years of experience in claims handling to provide quality litigation support. Much of the day-to-day claims work is done by to the Claims Coordinator and two temporary claims employees who are getting valuable PGW claims experience. This change in work allocation is part of Risk Management's succession planning efforts.

  With these personnel changes, it is critical that the Claims staff work efficiently. A large-scale review of the liability claims data in RiskMaster® revealed that there were many events and inquiries that were incorrectly entered as claims. This tendency resulted in an inflated claim count and created difficulty in claim and data management. As a result, a new procedure was instituted with a clearer definition of a claim and a method for tracking inquiries that would trigger some kind of service action to prevent a claim from occurring.

  A large part of claims work involves in-house discovery to determine whether PGW was responsible for an accident. To improve this process, Risk Management initiated a project in 2012 to transform Advanced Intelligent Mobile Solutions (AIMS) from a work management system geared toward Operations to a comprehensive reporting system providing critical support to Risk Management, Legal, Customer Service, and Operations. The original AIMS work management system created some challenges for the Claims staff in getting the necessary records and running reports documenting PGW's work or lack thereof. The project built multiple customized reports in AIMS, dramatically improving accuracy and efficiency. This project has yielded labor savings as well as avoided costs in claims and lawsuits.

- *Other Accounts Receivable* – Risk Management handles collection efforts against third parties who damage PGW infrastructure and other property. One major change is that these claims are now referred to in-house counsel very quickly, if initial claims efforts fail, instead of waiting until the statute of limitations expires. The Claims Coordinator is dedicated to this project and works closely with the in-house attorney. With Finance, the monthly OAR Committee meetings have resumed. There are several ongoing projects, including a large one to determine how best to collect the outstanding judgments that PGW has against third parties.

- *After Hours Drug and Alcohol Testing* – The testing rotation listing has been consolidated, so now the same person is called to determine whether an employee should be tested post-accident or incident or in the case of reasonable suspicion. Risk Management is charged with running the program.

- *Additional Responsibility* – Risk Management is now charged with tracking and handling the payment of fines for all cases involving parking tickets and red light cameras for employees in PGW vehicles. Risk Management has taken that information and transformed it into data that is useable in measuring employees' driving habits and abilities to support PGW's Safety efforts.

Some steps PGW is taking include:

- Educating doctors in its network, so they can help with early intervention
- Post-accident testing
- Post-injury testing
- Offering to put employees through rehabilitation

Current Activities

The Risk Management organization has historically been involved with:

- Claims and litigation
- Insurance and contracts
- Workers' compensation

The department is also now more involved in generalized risk management activities (which were started when Schumaker & Company performed the 2008 Stratified Management & Operations Audit). Also, the Internal Audit function uses risk-based modelling, which the Risk Management Director indicates has led to performing more audits related to best practices, not just compliance audits.

Claims and Litigation

The claims and litigation functions include liability, property, and personal injury claims as well as litigation support for lawsuits, which are 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 Manager, Claims and Litigation. To perform their investigations, the Adjusters rely primarily on PGW records, because they have access to all of PGW's operations/customer service systems. When investigations require fieldwork, Adjustors 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-49 illustrates the number (#) of general liability/auto, workers' compensation, and employment claims incurred each year and the dollars ($) paid each year from FY2010 through FY2014. The number of general liability and auto claims closed has decreased, while the number open has

increased. Because *Exhibit III-49 r*eflects claims on an incurred basis, the number of open cases will be higher and closed cases lower for more recent years.

Exhibit III-49
# of Claims and $ Amount for Claims Incurred and Paid by Fiscal Year
FY2010 to FY2014
(as of October 22, 2014)

General Liability and Auto

Fiscal Year	Claims (#)			Outstanding Reserve ($)	Paid ($)	Incurred ($)
	Total	Closed	Open			
FY2010	230	229	1	$ 15,000	$ 925,358	$ 940,358
FY2011	249	240	9	$ 155,000	$ 888,957	$ 1,043,957
FY2012	224	179	45	$ 750,000	$ 318,621	$ 1,068,621
FY2013	187	126	61	$ 1,048,885	$ 594,539	$ 1,643,424
FY2014	196	108	88	$ 638,417	$ 94,440	$ 732,857

Workers' Compensation

Fiscal Year	Claims (#)			Paid ($)						Outstanding Reserve ($)	Incurred ($)
	Total	Closed	Open	Medical	Expense	Compensation	Legal	Vocational	Total		
FY2010	198	195	3	$ 476,933	$ 74,730	$ 1,224,386	$ 104,822	$ 4,023	$ 1,884,895	$ 125,428	$ 2,010,323
FY2011	190	182	8	$ 1,059,871	$ 85,196	$ 1,189,332	$ 54,278		$ 2,388,677	$ 999,321	$ 3,387,998
FY2012	193	189	4	$ 428,409	$ 52,265	$ 293,046	$ 94,023		$ 867,743	$ 206,257	$ 1,073,999
FY2013	185	180	5	$ 399,195	$ 27,242	$ 215,948	$ 27,475		$ 669,860	$ 688,593	$ 1,358,453
FY2014	194	166	28	$ 562,908	$ 42,765	$ 409,859	$ 21,231		$ 1,036,763	$ 1,841,474	$ 2,878,237

Employment

Fiscal Year	Claims (#)			Paid
	Received	Paid	Open	
FY2010	5	1	4	$ 35,500
FY2011	9	2	6	$ 17,800
FY2012	6	N/A	6	$ -
FY2013	8	1	11	$ 20,000
FY2014	7	2	9	$ 49,053

Source: Information Responses 69, 122, and 352
(a) General liability claims were high in FY2013 because PGW paid $500,000 in one cap case.
(b) In FY2011, PGW had a big number of workers' compensation cases, such as those due to the Torresdale blast. In FY2014, PGW settled a lot of old cases, at least five to seven cases. PGW expected an uptick in FY2014 due to roughly 150 employees retiring, in which a few employees could then take advantage of workers' compensation payments.
(c) Employment claims typically result from internal complaint investigations (i.e., harassment, discrimination, termination, non-promotion, etc.); they exclude labor claims, because payment is done differently for each type (i.e., employment claims are paid out of the corporate settlement fund, and labor claims, if payment is made, are paid out of PGW's payroll system for back pay).

Because PGW self-insures liability and workers' compensation with excess coverage, as described later in *Exhibit III-50,* PGW management indicated that insurance claims are rare. PGW does have open active workers' compensation cases in which AEGIS, the excess carrier, has been making payments reimbursing PGW for its costs. However, all of those cases were incurred prior to September 1, 2009, the start of FY2010. In the past five years, PGW did receive a recovery of approximately $410,000 (net of the $100,000 deductible) for damage to the 1800 building caused by a broken 30" water main.

With regard to general liability claims, PGW's number of claims over the past five years has been decreasing. Meanwhile, the costs have stayed relatively stable, with a spike in FY2013 and a reduction in FY2014. The reduction is partly attributable to a change in the categorization method used in PGW's third-party tracking system, RiskMaster®. Certain events are no longer being entered as claims, but are instead tracked separately as customer complaints. Settlements, which typically involve slip/fall cases or automobile accidents, have generally come in below $100,000. During the past two years, additional training has been given to Adjusters, as litigation has changed. Also, a Claims and Litigation Committee 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 be a point of accountability for any loss prevention initiatives.

With regard to workers' compensation claims, overall, the number of claims has fluctuated, although the number of lost-time claims has increased. This uptick is primarily due to:

- *Aging workforce* – PGW's more experienced workers have a lower accident/injury frequency rate than their percentage in the PGW employee population; however, the injuries they do suffer tend to be more severe, requiring longer recovery time and often necessitating surgical intervention. Additionally, many of those injuries are difficult to prevent because they do not result from traditional accidents. PGW has been trying to mitigate this risk through a growing wellness program as well as incorporating stretching education into Operations training.
- *Influx of inexperienced workers* – An influx of new hires has resulted in more injuries that are typically cuts and bruises. PGW has been trying to address this issue through increased supervision and job training.
- *External factors, such as a possible sale/pending expiration of collective bargaining agreement* (*CBA*)*/benefit structure* – It is proven statistically that in times of uncertainty in the workplace, employees report more injuries and take more time off work. Securing the guarantee of a workers' compensation check can be seen as a good strategy compared to the uncertainty of an unemployment compensation check or a strike fund. PGW's pension system allows employees to retire at a relatively young age with a full pension. The effect of the aging workforce is magnified. An injury that earlier in a career would result in a quick return to work can instead become a lifetime benefit, because the employee retires instead of returning to light duty or his regular job. Thus, while many of the aforementioned factors are true nationwide, PGWs particular benefit structure and circumstances can magnify the impact of the aging workforce. PGW is attempting to address these risks by aggressive claims management, thorough investigations, and quality medical care.

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, which meets monthly to review all cases over 30 days, is considered aggressive in placing disabled

employees in alternative employment. PGW management indicated 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 previously in *Exhibit III-49*.

With regard to employment claims, in addition to a comprehensive training program through the Labor and Human Resources groups, according to PGW management, PGW has a very aggressive early intervention program to address, investigate, and resolve claims in this category. As a result, employment claims are sporadic, and there has never been any kind of trend in either direction.

Currently a wholesale audit of claims files is underway, in which the outside claims consultant is reviewing files. She is looking at all open cases to determine if each one really constitutes a "claim" or is just a "complaint" from outsiders. If deemed a complaint, the claims file is closed with no need for further action. This ongoing process has already successfully reduced the number of open claims to below 350. Risk Management has implemented a new process to ensure that only true claims are recorded as claims in RiskMaster®. A complaint intake form is used for cases which might not rise to the level of a claim, and it is referred to another PGW group (such as the Dispute Resolution Unit (DRU) group or the Customer Review Unit (CRU) group) for handling. In such cases the file does not go into the RiskMaster® database. Other cases are recorded as events in RiskMaster®. A new procedure ensures that these events are periodically reviewed and closed if no claim has arisen.

Claims typically include property damage and personal injury claims against PGW as well as affirmative litigation by PGW (when someone damages PGW property). There is a large inventory of affirmative action claims, so if it is not considered collectible, such a claim is closed out. In addition, PGW management indicates that PGW tends to sue faster now than in the past with regard to affirmative action claims because all present claims are going to litigation. A small inventory of claims now exists due to the wholesale audit of claims files. As such, the Risk Management Department is looking at adjustments to determine if they result in success or not.

According to the Tort Claims Act (Act), which was recently under challenge, 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 below:

- 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 a defense available under section 8541 (generally relating to governmental immunity) or section 8546 (relating to defense of official immunity).
- 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.

Because the challenge was unsuccessful, legislation is now pending.

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, PGW routinely prevails in employment cases and actually receives fees awarded against the plaintiffs in some cases. Generally the trend is increasing, with more dollars paid in the last few years.

In total, there are approximately 92 liability cases currently in litigation.

Insurance and Contracts

In October 2014 at the beginning of this audit, the Risk Management Director indicated that there have been three significant changes in the types of coverage since 2008, when Schumaker & Company performed the prior PGW stratified management audit:

- Directors & Officers insurance coverage has increased from $10 million to $30 million during the last two years, because there are additional risks, especially as PGW management believe that the potential PGW sale could lead to more litigation.
- PGW has disposal sites (including sites not necessarily previously owned called non-owned disposal sites by PGW) with a five-year insurance policy for clean-up costs related to offsite disposal of waste by PGW, which expires on September 1, 2015, although PGW anticipates renewing this policy.
- Cyber liability coverage (250 individuals for call center services and credit monitoring involving both first-party coverage that protects PGW against losses the firm sustains itself, like damage to data files, as well as third-party coverage, which protects PGW against lawsuits filed by parties who claim PGW injured them in some way) was added three years ago. This coverage is also required of any vendor having access to PGW's data. To date, there have been only minor

losses involving notifications to individual customers, if necessary. Moreover, PGW does not allow vendors in certain cases to access data.

The Risk Management Assistant (who had approximately 25 years' experience as an insurance broker before joining PGW 19 years ago) is responsible for PGW's insurance portfolio, as shown in *Exhibit III-50*.

Exhibit III-50
Types of PGW Insurance Coverage
FY2010 to FY2014
(Page 1 of 2)

COVERAGE	DESCRIPTION	INSURANCE COMPANY	POLICY TERM	AMOUNT OF COVERAGE	ANNUAL PREMIUM	EXPENSE PER DOLLAR OF COVERAGE
Casualty						
Liability			**Self Funded (a)**			
Excess Liability	First Layer-$35,000,000 Limit-Excess of insured's retention of $1,000,000 each occurrence. Excess of insured's retention of $1,000,000 any one claimant/$1,000,000 any one occurrence for Employment Practices Liability, includes terrorism and continuity credit Second Layer-$100,000,000 Limit-Excess of $35,000,000, which in turn is excess of the insured's retention of $1,000,000 each occurrence, including terrorism Third Layer-$50,000,000 Limit-Excess of $135,000,000, which in turn is excess of the insured's retention of $1,000,000 each occurrence, including terrorism Fourth Layer-$25,000,000 Limit-Excess of $185,000,000, which in turn is excess of the insured's retention of $1,000,000 each occurrence, including terrorism	AEGIS EIM ACE Bermuda XL	9/1/13-9/1/14	$210,000,000	$2,327,866	$0.0111
			9/1/12-9/1/13	$210,000,000	$2,126,980	$0.0101
			9/1/11-9/1/12	$210,000,000	$2,051,876	$0.0098
			9/1/10-9/1/11	$210,000,000	$1,976,060	$0.0094
			9/1/09-9/1/10	$210,000,000	$1,926,017	$0.0092
Workers' Compensation						
Workers' Compensation			**Self Funded (b)**			
Excess Workers' Compensation First Layer	Excess of insured's retention of $500,000 each accident or each employee for disease, including terrorism.	AEGIS	9/1/13-9/1/14	$35,000,000	$276,137	$0.0079
			9/1/12-9/1/13	$35,000,000	$248,329	$0.0071
			9/1/11-9/1/12	$35,000,000	$237,691	$0.0068
			9/1/10-9/1/11	$35,000,000	$230,769	$0.0066
			9/1/09-9/1/10	$35,000,000	$240,385	$0.0069
Excess Workers' Compensation Second Layer	Excess of $35,000,000 Excess of insured's retention of $500,000 each accident or each employee for disease, including terrorism.	Zurich American	9/1/13-9/1/14	Statutory	$136,668	N/A
			9/1/12-9/1/13	Statutory	$128,082	N/A
			9/1/11-9/1/12	Statutory	$126,426	N/A
			9/1/10-9/1/11	Statutory	$127,193	N/A
			9/1/09-9/1/10	Statutory	$132,568	N/A

Source: Information Response 67
(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.
Statutory coverage for workers' compensation in Pennsylvania has no limits.
Note that the premium of $150,000 listed for the non-owned disposal sites coverage is not included in the total premium for the 2013–2014 year, because the premium is for the term of the policy.

Exhibit III-50
Types of PGW Insurance Coverage
FY2010 to FY2014
(Page 2 of 2)

COVERAGE	DESCRIPTION	INSURANCE COMPANY	POLICY TERM	AMOUNT OF COVERAGE	ANNUAL PREMIUM	EXPENSE PER DOLLAR OF COVERAGE
Financial/Professional						
Professional Liability	Retention: $0 each Individual Claim; $100,000 Single Claim Corporate	AEGIS	9/1/13-9/1/14	$10,000,000	$49,576	$0.0050
			9/1/12-9/1/13	$10,000,000	$59,576	$0.0060
			9/1/11-9/1/12	$10,000,000	$45,039	$0.0045
			9/1/10-9/1/11	$10,000,000	$43,419	$0.0043
			9/1/09-9/1/10	$10,000,000	$43,419	$0.0043
Fiduciary Liability	Retention: $200,000	AEGIS	9/1/13-9/1/14	$15,000,000	$51,500	$0.0034
			9/1/12-9/1/13	$15,000,000	$51,500	$0.0034
			9/1/11-9/1/12	$15,000,000	$51,000	$0.0034
			9/1/10-9/1/11	$25,000,000	$70,000	$0.0028
			9/1/09-9/1/10	$35,000,000	$75,000	$0.0021
Excess Fiduciary	First Excess-$10,000,000 excess of $15,000,000 Second Excess-$10,000,000 excess of $25,000,000 Third Excess-$25,000,000 excess of $35,000,000	ACE American Zurich American EIM	9/1/13-9/1/14	$45,000,000	$68,811	$0.0015
			9/1/12-9/1/13	$45,000,000	$68,811	$0.0015
			9/1/11-9/1/12	$45,000,000	$68,811	$0.0015
			9/1/10-9/1/11	$35,000,000	$50,960	$0.0015
			9/1/09-9/1/10	$25,000,000	$32,200	$0.0013
Crime	Deductible: $100,000 ($1,000 for money orders & counterfeit currency and credit card forgery)	Zurich American	9/1/13-9/1/14	$5,000,000	$11,997	$0.0024
			9/1/12-9/1/13	$5,000,000	$12,350	$0.0025
			9/1/11-9/1/12	$5,000,000	$12,350	$0.0025
			9/1/10-9/1/11	$5,000,000	$13,000	$0.0026
			9/1/09-9/1/10	$5,000,000	$13,000	$0.0026
Directors & Officers Liability	Retention: $500,000 each claim (including defense), except no retention applies to non-indemnifiable loss		9/1/13-9/1/14	$10,000,000	$97,380	$0.0097
			9/1/12-9/1/13	$10,000,000	$73,575	$0.0074
			9/1/11-9/1/12	$10,000,000	$67,625	$0.0068
			2/28/11-9/1/11	$10,000,000	$76,540	$0.0077
			2/28/10-2/28/11	$10,000,000	$111,623	$0.0112
			2/28/09-2/28/10	$10,000,000	$111,623	$0.0112
Excess Directors & Officers Liability	First-Excess of $10,000,000, which is in turn excess of the insured's retention of $500,000 each claim (including defense), except no retention applies to nonindemnifiable loss Second-Excess of $20,000,000, which is in turn excess of the insured's retention of $500,000 each claim (including defense), except no retention applies to nonindemnifiable loss	US Speciality Zurich American	9/1/13-9/1/14	$20,000,000	$109,715	$0.0055
			9/1/12-9/1/13	$20,000,000	$99,741	$0.0050
			9/1/11-9/1/12	N/A		
			9/1/10-9/1/11	N/A		
			9/1/09-9/1/10	N/A		
Cyber Coverage	$250,000 (250 individuals for call center services and credit monitoring)	Beazley	9/27/13-9/1/14	$5,000,000	$89,138	$0.0178
			9/27/12-9/21/13	$5,000,000	$95,950	$0.0192
Property						
Property	All Risk Property-$75,000,000 Limit--30% participation All Risk Property-$30,000,000 Limit--12% participation All Risk Property-$95,000,000 Limit--38% participation All Risk Property-$50,000,000 Limit--20% participation	Liberty Mutual EIM AEGIS AIG	10/31/13-10/31/14	$250,000,000	$1,081,785	$0.0043
			10/31/12-10/31/13	$250,000,000	$1,048,214	$0.0042
			10/31/11-10/31/12	$250,000,000	$989,753	$0.0040
			10/31/10-10/31/11	$250,000,000	$989,753	$0.0040
			10/31/09-10/31/10	$250,000,000	$1,052,802	$0.0042
Environmental Coverage						
Non-owned Disposal Sites	Excess of $50,000 deductible; premium includes terrorism	Allied Word Assurance	8/31/10-9/1/15	$5,000,000	$150,380	$0.0301
				Total	$4,300,573	

Source: Information Response 67
(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.
Statutory coverage for workers' compensation in Pennsylvania has no limits.
Note that the premium of $150,000 listed for the non-owned disposal sites coverage is not included in the total premium for the 2013-2014 year, as the premium is for the term of the policy.

The 2008 financial crisis impacted insurance markets. PGW management stated that the crisis made it harder to obtain coverage because the underwriting process was more difficult with fewer options; however, PGW management believes that it has improved since then.

Regarding the various coverages:

- Determining the appropriate amount of property coverage has not been an issue because it is based on PGW's appraised values for insurance purposes. PGW periodically does full-scale appraisal for insurance purposes, and then in the intervening years, values are adjusted based on value trends. Most recently, PGW did a full scale appraisal in 2011. The next full-scale appraisal will likely be done in FY2016 or FY2017, depending on the results of the building consolidation review.
- Environmental coverage is typically compared to coverages carried by other utility organizations. PGW has limited environmental coverage, specifically carrying only sudden and accidental coverage in its excess policy and a separate non-owned disposal sites policy. PGW has budgeted for environmental coverage in the event of a large scale clean-up program (cost cap coverage) or a new development project, which might disturb the soil in a contaminated area (pollution legal liability).
- Liability coverage limits have sometimes been high given the $500,000 cap, but PGW believes such limits are valid because the cap may be changed. Additionally, the excess liability policy provides coverage for events not covered by the cap, such as the sudden and accidental coverage discussed above.

The Risk Management Department also reviews all procurement documents, such as RFPs and contracts regarding indemnification, setting insurance requirements, requiring cyber security measures when appropriate, 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.[4] Technically, a third-party environmental claim would have to be filed against PGW to trigger coverage under these policies. In recent years, however, 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 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. By the prior Stratified Management & Operations Audit, five insurers had 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. Since then, PGW has continued to receive small distributions from the insurance companies that participated in the buyback described above. To date, of the total recovery of $18.4 million, the law firms have received $3.2 million and PGW has received $15.2 million.

[4] 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 ceased operation in the early 1970s.

PGW continues to have some third-party environmental coverage through its excess liability coverage. In addition, in 2010, PGW purchased a five-year non-owned disposal sites policy providing $5 million coverage for clean-up costs related to offsite disposal of waste by PGW from its inception as a company. PGW expects to renew this coverage on September 1, 2015. PGW has been using these funds to engage in environmental remediation of its former manufactured gas plant sites. To date, however, PGW has had no claims associated with non-owned disposal sites. PGW has been able to obtain disposal coverage, according to PGW management, based on its good record of having no claims plus its reputation for taking remediation seriously. PGW management states that due to its aggressive programs, PGW has been able to get both new and historical coverage.

Workers' Compensation

PGW is self-insured and still has the same third-party administrator (AmeriHealth) as it did seven years ago during the 2008 PGW Stratified Management & Operations Audit (although it was previously called Comp Services). The Risk Management organization works with supervisors and employees to make sure that proper dollars are being provided to employees. AmeriHealth staff assigns and manages any litigation associated with workers' compensation to firms selected by PGW.

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. It has no limits and will pay whatever PGW's remaining outstanding obligations are under the Pennsylvania Workers' Compensation Act (known as statutory limits). 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, approximately seven years ago, PGW was down to somewhere in the environs of $6,000 to $8,000 per week (and actuarial analyses showed a downward trend). After actions were taken, PGW had two 2005 claims outstanding, two 2006 claims outstanding, and 14 2007 claims outstanding. Then at the end of FY2014, as shown in *Exhibit III-49*, PGW had 48 outstanding claims for all five fiscal years (FY2010 to FY2014).

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. According to PGW management, contributing factors include:

- Heavy nature of field service work (Operations/Distribution 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 condition.)
- Motor vehicle accidents (Philadelphia has a large proportion of unlicensed and uninsured drivers.); see discussions on PGW's DriveCam initiative to prevent motor vehicle accidents.
- PGW's aging workforce (A large portion of employees are currently or soon eligible for

retirement, as discussed in the *Human Resources* section of *Chapter II.*); this group has experienced the bulk of work injuries and has also been responsible for the bulk of the costs associated with such injuries. Experienced workers tend to have more severe injuries involving higher medical costs, while younger/new employees may have a higher frequency of accidents at lower medical costs.

- Pending PGW sale

Various PGW departments are now working together to make sure they are aligned with regard to new workers' compensation cases and are attempting to consistently follow PGW's policies. The following groups meet monthly as the Employee Utilization Committee to review all cases greater than 30 days out or longstanding long-term disability (LTD) cases:

- Human Resources/Organizational Development/Labor
- Risk Management/Safety
- Medical

Other departments, such as Operations, may attend these meetings if they have outstanding cases.

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 & Human Resources* 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.

In 2011, 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. According to PGW management, training is currently in process as part of its loss control activities to help employees help eliminate risks.

In 2011, a workers' compensation audit (accident and illness prevention program) was performed by the Pennsylvania Department of Labor and Industry, during which a preliminary rating of "inadequate" was assigned due to one deficiency discovered. This was followed by a final rating of "adequate" based on additional satisfying information provided by PGW for addressing noted deficiencies. The sole recommendation was that PGW needed to formalize its existing process into a formal blood-born pathogen policy.

PGW's loss prevention/control program has grown in recent years. Participation on the Claims & Litigation Committee, which meets monthly, involves the Risk Management, Finance, Legal, and Operations Departments. The Claims & Litigation Committee continues to review losses to identify trends, potential prevention, and mitigation strategies. It then champions the implementation of those

measures. Some examples include changing contractual language to increase risk transfer and changing the assignment of paving jobs to prevent "slip and fall" claims.

PGW management also believes that placing "Corporate Safety" in the Risk Management Department has increased cooperation and has created efficiencies in data-tracking and analysis. With the strong support of the Chief Administrative Officer (CAO) and Chief Operations Officer (COO), safety and loss prevention efforts have increased.

The Smith System driver training program, the gold standard in the industry, has expanded company-wide. Annual Safe Driving Days are held when union and management safety representatives (including some Vice Presidents) go onsite at the beginning of the shift to reinforce safe driving behaviors. A new discipline policy has been instituted for employees who experience repeated accidents, which includes in-house re-training, external re-training, and the installation of a DriveCam device.

Instead of following its historic practice of purchasing ergonomic chairs and modifying work stations for employees with repetitive stress problems on an ad hoc basis, the Risk Management Department worked with the Facilities Department to ensure that all of the new chairs are adjustable and to offer training in the use of chairs and work stations to prevent future claims. Risk Management/Safety actively supports the PGW Wellness Program, which is a key part of PGW's effort to help the aging workforce stay healthier, avoid future claims, and minimize injuries when they occur. Previously, PGW's wellness program was mostly for sedentary workers, but there are now mini-gyms at two gas plants and one station, which costs employees only $20 per year.

The Risk Management Director provides Risk Management 101 training on basic risk management principles. This individual also provides some PGW-specific training on injury and accident reporting, which is typically scheduled every two years. Risk Management also provides training to other departments on request.

The Risk Management Department has also offered automated external defibrillator (AED)/first aid training to the entire workforce. In addition, PGW has taken advantage of training from AEGIS, the energy industry mutual. In 2011, AEGIS provided two sessions on "investigating natural gas incidents and responding to natural gas incidents."

Finally, on a large scale, Risk Management/Safety continues to work with the Technical Compliance group on various company-wide emergency preparedness initiatives, which also serve as loss prevention measures. Together, the groups implemented a program for emergency response in the event of spills. The National Incident Management System (NIMS) has been expanded, and PGW's improved response is expected to mitigate potential injuries and damage.

Additionally, the Risk Management Department performs annual training (May) of Distribution foremen and supervisors to alert them to the impact of their work on lawsuits and claims against PGW and to educate them on ways to reduce the frequency and severity of such claims. Although this training did not occur in FY2014, it is currently ongoing in April/May 2015.

Systems

In October 2003, the Risk Management Department began using the RiskMaster® package for tracking and monitoring liability claims. Data from 1991–2003 timeframe was converted to RiskMaster®. Subsequently, PGW also began using RiskMaster® for tracking and monitoring labor and employment cases.

Once implemented, the Legal and Safety Departments also began using RiskMaster® and started looking at the same data; however, workers' compensation claims are handled through a third-party administrator and, therefore, are not tracked through RiskMaster®. Two upgrades to RiskMaster® had been done since 2007-2008, when the prior audit was performed, including use of the Internet with RiskMaster® to allow PGW staff to access RiskMaster® from any computer instead of having to install the system on individual machines with every new user. Although enhanced report writing was expected once the upgrades occurred, PGW management believes that the Risk Management group is not using the functionality to capacity. Another system upgrade must be performed and then additional training provided.

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.

Because the City of Philadelphia also uses RiskMaster®, PGW is able to informally network with other City departments to support the software package.

Operating Expenses

Exhibit III-51 displays operating expenses (direct Risk Management expenses versus expenses for allocated services from other PGW departments for FY2010 to FY2014 (actual to budget)) for the Risk Management Department.

Exhibit III-51
Risk Management Operating Expenses
FY2010 to FY2014

Actual					
	Actual FY2010	**Actual FY2011**	**Actual FY2012**	**Actual FY2013**	**Actual FY2014**
Expense Category					
Labor	$ 379,349	$ 415,637	$ 490,427	$ 567,765	$ 593,356
Expense of Employees	$ 877	$ 3,331	$ 7,922	$ 22,381	$ 11,951
General Material	$ 3,045	$ 3,002	$ 17,344	$ 25,143	$ 36,360
Postage	$ 259	$ 248	$ 187	$ 664	$ 1,353
Dues & Subscriptions	$ 1,772	$ 2,047	$ 4,029	$ 4,578	$ 2,570
Purchased Services	$ 739,930	$ 749,912	$ 719,185	$ 1,204,077	$ 965,342
Insurance	$ 3,606,877	$ 3,670,865	$ 3,856,645	$ 3,819,613	$ 4,323,449
Equipment Rentals & Leasing	$ 5,352	$ 5,586	$ 7,992	$ 10,329	$ 9,791
Appropriations to Reserve	$ 3,396,016	$ 2,229,328	$ 6,842,670	$ 2,130,994	$ 2,916,000
Maintenance Software	$ -	$ 35,365	$ 25,180	$ 26,930	$ 28,068
Sub Total	$ 8,133,477	$ 7,115,321	$ 11,971,581	$ 7,812,474	$ 8,888,240
Allocated Services					
Facilities Management	$ 92,455	$ 82,048	$ 116,505	$ 96,492	$ 108,936
Information Services	$ 119,846	$ 123,531	$ 136,747	$ 106,388	$ 98,523
Telecommunications	$ 9,960	$ -	$ -	$ -	$ -
Transportation	$ -	$ -	$ 8,022	$ 12,613	$ 12,761
Sub Total	$ 222,261	$ 205,579	$ 261,274	$ 215,493	$ 220,220
Total Expenses	**$ 8,355,738**	**$ 7,320,900**	**$ 12,232,855**	**$ 8,027,967**	**$ 9,108,460**

Budget					
	Budget FY2010	**Budget FY2011**	**Budget FY2012**	**Budget FY2013**	**Budget FY2014**
Expense Category					
Labor	$ 412,000	$ 438,000	$ 516,277	$ 578,000	$ 560,000
Expense of Employees	$ 4,000	$ 6,000	$ 15,000	$ 15,000	$ 25,000
General Material	$ 2,000	$ 2,000	$ 28,000	$ 43,000	$ 41,000
Postage	$ 1,000	$ 1,000	$ 1,600	$ 1,000	$ 1,000
Dues & Subscriptions	$ 2,000	$ 2,000	$ 7,000	$ 5,000	$ 5,000
Purchased Services	$ 847,000	$ 810,000	$ 937,000	$ 944,000	$ 1,047,000
Insurance	$ 4,245,000	$ 4,171,000	$ 4,237,000	$ 4,127,000	$ 4,572,000
Equipment Rentals & Leasing	$ 8,000	$ 6,000	$ 10,000	$ 5,000	$ 5,000
Appropriations Reserve	$ 3,457,000	$ 2,131,000	$ 2,280,000	$ 2,714,000	$ 2,916,000
Maintenance Software	$ 31,000	$ 30,000	$ 33,000	$ 25,000	$ 25,000
Sub Total	$ 9,009,000	$ 7,597,000	$ 8,064,877	$ 8,457,000	$ 9,197,000
Allocated Services					
Facilities Management	$ 91,000	$ 85,000	$ 100,499	$ 134,000	$ 124,000
Information Services	$ 121,000	$ 134,000	$ 166,999	$ 122,000	$ 117,000
Telecommunications	$ 9,000	$ -	$ -	$ -	$ -
Transportation	$ 1,000	$ 1,000	$ 9,625	$ 13,000	$ 13,000
Sub Total	$ 222,000	$ 220,000	$ 277,123	$ 269,000	$ 254,000
Total Expenses	**$ 9,231,000**	**$ 7,817,000**	**$ 8,342,000**	**$ 8,726,000**	**$ 9,451,000**

Source: Information Response 73
Appropriations Reserve is what PGW "thinks" it will pay based on payments in prior years, plus estimate for future years.

The major operating expense components are labor, purchased services (AmeriHealth workers' compensation, legal, state assessments, general workers' compensation expenses, and Marsh benchmarking), insurance, and appropriation to reserve. From FY2010 to FY2014, labor has been increasing, purchased services have been increasing, insurance has been relatively stable, and appropriations to reserve have been stable except for FY2012. The expenses for allocated services, a relatively small component of Risk Management's overall operating expenses, have remained fairly stable from FY2010 to FY2014.

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-52* illustrates those expenses in dollars and as a percentage of coverage by line of coverage.

Exhibit III-52
Annual Insurance-Related Administrative and External Services Expense as a % of Insurance Coverage
FY2014

Line of Coverage	Limits	Expenses	Percentage
Excess Liability	$210,000,000	$488,390	**0.23%**
Excess Workers' Compensation	$35,000,000	$1,909,145	**5.45%**
Professional Liability	$10,000,000	$87,890	**0.88%**
Property	$250,000,000	$122,890	**0.05%**
Fiduciary Liability	$15,000,000	$87,890	**0.59%**
Excess Fiduciary Liability	$45,000,000	$87,890	**0.20%**
Directors & Officers (D&O)	$10,000,000	$87,890	**0.88%**
Excess D&O	$20,000,000	$87,890	**0.44%**
Crime	$5,000,000	$87,890	**1.76%**
Cyber	$5,000,000	$87,890	**1.76%**
Non-Owned Disposal Sites	$5,000,000	$87,890	**1.76%**

Source: Information Responses 67
This chart was developed 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.

It should also be noted that workers' compensation medical costs of $1,032,755 were included in this calculation, a change from the prior audit.

Performance Metrics

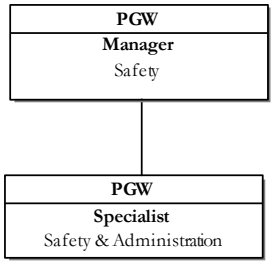
All performance metrics are safety oriented, including incidence rates, injury severity rates, and motor vehicle accident rates, as further discussed in the *Findings & Conclusions* section.

Occupational Health & Safety

Staffing Levels & Roles/Responsibilities

Exhibit III-53 illustrates PGW's corporate Safety organization, which is part of the Risk Management Department.

Exhibit III-53
PGW Safety Organization
as of December 31, 2014



Source: Information Responses 1 and 64

The PGW corporate Safety organization has a Manager of Safety and a Safety and Administration Specialist. The Manager holds an Associates in Occupational Safety and Health. Both have certifications through the National Safety Council, are Hazardous Waste Operations and Emergency Response (HAZWOPER) trained, and are Smith Driving System and CPR/AED certified trainers. Additionally, the Manager holds certification in Occupational Safety & Health Administration (OSHA) construction training. Along with the Director of Risk Management, the staff is all NIMS certified.

Individual departments also have Safety personnel. Field Operations has a Superintendent for Operational Qualification (OQ) and Quality who oversees safety efforts for the Field Services Division (FSD) and Distribution, along with a dedicated Training Supervisor. Gas Processing has a Project Manager for Health, Safety, Training, and OQ and a Project Manager for Health, Safety, and Plant Protection. Fleet, Facilities, and Supply Chain all have employees who work on safety as part of their general job duties.

Safety Committees

PGW has two company-wide safety committees, led by the Manager of Safety:

- Manager's Safety Committee
- Union Management Safety Committee

The above committees meet quarterly, during which minutes are taken. The Manager's Safety Committee reviews the actions and progress of the departmental safety committees. It addresses issues

such as proper personal protective equipment (PPE), new products, and policies and procedures. In addition, 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. It includes management, supervision, and safety coordinators from the Operations, Operations Support, Customer Services, Medical, Chemical Services, and Safety Departments.

PGW also has local safety committees composed of union and management employees in the following departments:

- Distribution
- Facilities
- Field Services
- Fleet
- Gas Processing (Richmond and Passyunk plants)
- Supply Chain

Members of the aforementioned committees received training from the Pennsylvania (PA) Department of Labor and Industry on effective safety committee leadership and participation. The committees are charged with identifying and evaluating hazards and with developing corrective actions. The committees utilize checklists and work orders to accomplish these objectives.

A review of the safety committees' agenda and minutes suggests that the committees are used as a communication vehicle for a wide range of safety and employee wellness topics. Committees discuss upcoming training and corporate programs, and review new company policies, safety equipment, and technology (such as safety phone apps). They also review safety statistics and incident reports.

The safety committees for Facilities, Supply Chain, and Fleet were added in 2014 and reflect PGWs goals to have all employees represented by a safety committee.

Safety Programs

Accident and illness prevention orientation and training is mandatory for all new employees at PGW. The Risk Management Department maintains appropriate training records. New employees receive training on fire prevention and protection, the emergency evacuation plan, motor vehicle and fleet safety, PPE, CPR, first aid, and accident prevention at work, on the street, and at home. Additional training is provided for specific work assignments and as needs are identified.

PGW has a corporate safety program as well as many departmental safety programs. Examples of specific programs and initiatives include: Safe Driving, AED and First Aid Training, Forklift Training, Evacuation Initiative, and Ergonomic Evaluation and Procurement. Additionally, corporate Safety personnel support the Emergency Operations Center, hazardous materials (HAZMAT) response, and other company-wide safety and environmental issues. Finally, the corporate Safety personnel also

represent PGW at the American Gas Association (AGA), the Governor's Occupational Safety & Health Conference, and the Energy Association of Pennsylvania.

The corporate Safety organization also is in charge of PGW's Safety Incentive Program. Each year, the largest departments with the greatest safety risks set goals for the number of lost time (employee) injuries and PMVAs. The departments that meet their goals are then recognized with a small award, a certificate, and a reception. In 2012, recognizing that many employees with stellar safety records were not being honored, Safety launched the Individual Safety Award, which recognizes all employees who perform physical work and who have gone five years without a lost-time injury and a preventable motor vehicle accident. This award is now given annually to employees who meet the safety criteria in the prior year.

Injuries and Vehicle Accidents

Injuries and vehicle accidents are climbing at PGW due to:

- Many inexperienced workers with less than five years of experience
- Constraints of an aging workforce in which employees may be more susceptible to injury

PGW has made aggressive efforts to reduce preventable motor vehicle accidents. (See Finding III-31 and *Finding III-32*.) Some of the ways that injuries and vehicle accidents are being addressed include training by supervisors, safety audits, and NovaCare instruction videotapes. PGW reports that most vehicle accidents are due to distractions, of which more than 80% involve hitting fixed objects. In response, PGW has implemented a DriveCam program in which two cameras are constantly filming: one filming the driver and one filming what the driver sees. Tapes are kept only if acceleration or deceleration occurs. It is suspected that cellphones or daydreaming may be the cause of most of these distractions and this program will give clear evidence of these behaviors to the company.

Other training changes include:

- Drug and alcohol testing occurs for everyone at an accident scene, not just decision makers.
- Coverage under the Tort Claims Act is up to $500,000, so it must be spent correctly. Examples include letting the court distribute it or making upfront payments if the parties desire.
- Business cards are handed out at major accident scenes.
- Modifications are made when field workers enter buildings.

As discussed previously, PGW does safe driving (defensive) training. The current driver training sessions involve both classroom training and in-vehicle training. It takes place on a company-wide basis, even if the employee is not a company driver.

PGW's policies state that employees who no longer have driver's licenses are to report that fact to management. Every month, PGW gets a monthly report from the City that provides verification from

the Pennsylvania Department of Transportation (PennDOT) that all PGW drivers who live in Pennsylvania have valid licenses. If an employee has not informed PGW that their license has been lost or suspended they may face termination. 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 (PMVAs). PMVAs as defined by the American Gas Association (AGA) are "any motor vehicle accident where the operator of the vehicle failed to do everything reasonable to avoid the accident." Each week the Manager of Safety (now part of the Risk Management Department) consults with the Risk Management Director to review the previous week's accidents. Documents reviewed include 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 Manager of Safety makes the determination as to whether the accident was preventable. At the next Managers' Safety Committee meeting, the Manager of Safety will then discuss specific cases as warranted, will review overall accident statistics, and will identify any trends. In addition, drug testing at the PGW medical office occurs when the driver is, or is possibly, at fault.

Safety & Loss Prevention/Control Expenditures

Exhibit III-54 illustrates PGW's expenditures for safety and loss prevention/control activities for the past five years.

Exhibit III-54
Safety & Loss Prevention/Control Expenditures
FY2010 to FY2014

	FY2010	FY2011	FY2012	FY2013	FY2014
Safety First Stickers	N/A	$9,000	$10,000	$9,000	$10,000
Smith System Driver Training	$10,000	$28,000	$17,000	$8,000	$10,000
Contractor Drug and Alcohol Monitoring	$6,000	$6,000	$6,000	$6,000	$6,000
Outside Driver Retraining	N/A	N/A	N/A	$1,000	$2,000
Eye Protection	$39,000	$39,000	$32,000	$24,000	$27,000
Driver Training Presentations	$3,000	$3,000	$7,000	$6,000	$3,000
NovaCare	$15,000	$7,000	$0	$7,000	$0
Smith System Driver Training Materials	$9,000	$3,000	$3,000	$3,000	$3,000
Coyne First Aid	$6,000	$3,000	$6,000	$8,000	$4,000
Safety Awards	$4,000	$6,000	$4,000	$7,000	$4,000
Training and Memberships	$4,000	$4,000	$4,000	$4,000	$4,000
DriveCam	N/A	N/A	N/A	N/A	$9,000
Ergonomic Chairs	$2,000	$2,000	$2,000	$2,000	$2,000
Total	**$98,000**	**$110,000**	**$91,000**	**$85,000**	**$84,000**

Source: Information Responses 601

The trend in PGW's safety/loss prevention costs has been decreasing for many reasons, including:

- Use of training from Commonwealth groups
- Increased Safety Committee training
- Shifted fork lift, Smith System driving, first aid, and other training in-house, since it was cheaper
- Use of eye protection whether needed or not
- Use of NovaCare spent wisely among workforce
- Use of DriveCam group in 2015 (RFP to be issued soon)

Also, each employee who has no incidents is given a token reward, plus a certificate, and PGW receives free loss control services through its energy industry mutual, AEGIS.

Findings & Conclusions

Risk Management

Finding III-24 The PGW enterprise risk management program is still being developed even though it was initially started in the mid-2000s.

In 2007-2008, when Schumaker & Company performed the prior Stratified Management & Operations Audit, PGW's Enterprise Risk Management (ERM) program was in its infancy. At that time, PricewaterhouseCoopers, 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 2008, the Risk Management Director and PGW's President were ranking those risks, with input from senior vice presidents and vice presidents. It was also discussed in Finance's quarterly internal control meetings. The next phase was to set goals and formalize action plans, after which the Risk Management Director intended to 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 & Human Resources*), ranking the SFO's 13 major risk categories and developing action plans. The structure divided risks into 13 overarching risks, which were to be ranked and weighted for a total of 100%. The details of this next phase were still being developed and a formal proposal was expected to be presented to PGW's Board (Philadelphia Facilities Management Corporation (PFMC)) by the middle of 2008; however, according to PGW management, progress in 2008 slowed down. That is because the Risk Management Department had also been given the task of identifying all of PGW's external reporting requirements and incorporating this information into the ERM program activities.

PGW still tracks risks, but typically the ERM program looked at the similar historical risks, so PGW management was not necessarily content with the substance included in its risk lists. Also involved is the Human Capital Committee with the Risk Management organization (Risk Management Director, Safety Manager, and Risk Management Specialist) in generalized risk management activities.

PGW is currently in the process of reviving its formal ERM program. In 2012, Marsh performed an analysis of PGW's risks and made recommendations on improving the program. Marsh also provided training to PGW vice presidents on ERM and quantifying risks. This process revealed the same basic set of risks that PGW was continuing to address. The formal ERM process has not been developed in two years; however, the Risk Management organization is expecting to begin working on it in the early part of 2015.

According to PGW management, the ERM program's risk register has become embedded in PGW's business planning process, with the risk inventory included so that departments consider their budget and activities in terms of risk mitigation. Specific risks are assigned to individual departments, in which management ranks them in their own department plus identifies how initiatives reduce risks; however, no formal mitigation plan has been developed.

There is a Marsh working group that is involved in identifying risks. This group typically includes the Risk Management Director, Vice Presidents (VPs), and Directors, although it now includes more departments. The Risk Management Director meets annually with VPs on a staggered basis, as needed. There are typically 100 risks, with which Marsh is helping to quantify in terms of both frequency and severity. The Risk Management organization has also joined a Marsh ERM roundtable group of its private and public sector clients. This roundtable meets quarterly to share strategies, identify roadblocks, and brainstorm solutions. According to the Risk Management Director, PGW aggressively attempts to determine what should be done to mitigate risk.

The Risk Management Director is also involved in two associations (the Pennsylvania Self-Insurers' Association and the Greater Philadelphia Executive Claims Council) as a means of obtaining information for making decisions regarding how strategies are addressed. The Safety Manager attends Environmental Protection Agency (EPA) and AGA conferences.

Additionally, PGW now uses a risk-based auditing model to select audits for each year. This Internal Auditing (IA) process follows the ERM process with vice presidents being interviewed to discuss their top risks. The Director, Financial Reporting & Oracle Administration along with the Manager, Internal Auditing meet with the Cabinet members to discuss their concerns within PGW. In addition, the IA Department creates a list of audits to perform during the next fiscal year. It then combines the list that was created along with the Cabinet's concerns and assesses the risk based on the risk assessment model. Once the audits are determined, the IA Department meets to discuss the potential audits with its Co-Source vendor, the Ascent Group, to see which areas of expertise lie within the department. Once determined, the proposed audits are presented to the Audit Committee for approval. When the Board approves the audit plan, it does so knowing that the proposed audits address significant, quantifiable risks.

Finding III-25 PGW management only receives basic risk management training.

The Risk Management Director provides basic Risk Management 101 (RM101) training annually to PGW management. Approximately two years ago, it became mandatory for all PGW management. RM101 training provides a background in basic risk management principles and identifies typical risks, as well as some PGW-specific training on injury and accident reporting. RM101 defines the risk management processes and techniques that management and employees should be using to meet obligations. Presentations are tweaked for each session, which are part of the Human Resources mandatory training curricula, to personalize the instruction and improve participation. PGW is also considering providing more comprehensive levels of training to all PGW management.

Finding III-26 PGW's Risk Management Department actively participates in numerous PGW committees, as well as AGA and other committees.

Among the committees in which the Risk Management organization participates are:

- PGW Committees:
  - Employee Utilization Committee (Human Resources (HR) committee reviewing employee absences)
  - Human Capital Committee (Legal committee)
  - Union Management Safety Committee (addresses department-specific and company-wide safety issues from a union management perspective)
  - Management Safety Committee (addresses department-specific and company-wide safety issues)
  - Distribution Safety Committee (Union Management department committee)
  - Field Services Safety Committee (Union Management department committee)
  - Fleet Safety Committee (Union Management department committee)
  - Gas Processing Safety Committee (Union Management department committee)
  - Field Operations Procedures Writing Group
  - Supply Chain Safety Committee (Union Management department committee)
  - Claims and Litigation Committee (addresses tort liability and workers' compensation issues)
  - Competitive Contracting Committee (Supply Chain committee in which any department must present if it expects to go out for an RFP, during which the Risk Management Director can assess if risk coverage is required)
  - Wellness Committee (HR committee)

- AGA Committees:
  - Risk Management Committee
  - Safety Committee
- Other:
  - Marsh Enterprise Risk Management Working Group (a group of employers joined to improve their ERM programs)
  - Energy Association of Pennsylvania (EAPA) Safety Committee
  - Citizens for Fire Prevention Committee (PFD)
  - Pennsylvania Self-Insurers' Association (Board) (an education and advocacy group for employers that self-insure their workers' compensation liability)

Such involvement in committees ensures that the Risk Management Department is aware of risks that are happening around the PGW organization.

Monthly meetings are also held by the Chief Operating Officer regarding safety; therefore, PGW has increased NovaCare/training and alcohol/drug testing with the Wellness Committee also getting involved.

Finding III-27 Selected Risk Management changes have not yet been addressed.

Some changes that the Risk Management Director would like to see implemented include:

- Investigations being conducted by the Risk Management organization
- Part-time retiree helping to get records, indicating why PGW is not liable
- Building up capabilities for enhanced report writing and data analytics; recently added *Business Objects* tool within RiskMaster® system – These systems are hosted by RiskMaster®. One of the ways that has enhanced usage by field operations has been through the uploading of pictures.

Finding III-28 Procedural documentation developed by the Risk Management Department is formatted differently whether encompassing corporate-wide procedures or not.

With regard to formal policies and procedures, the Risk Management Department has issued internal documentation regarding: internal workers' compensation activities, claims processing and assignments, setting up a record resume, explosion claims setup, claims intake processing, setting up new lawsuits, closing lawsuits, and setting reserves for bodily injury and property damage claims. In addition, the department has issued corporate-wide documentation for reporting on-duty injuries (#796), accidents involving company-issued vehicles (#797), damage to public or private property (#798), and public personal injuries (#799).

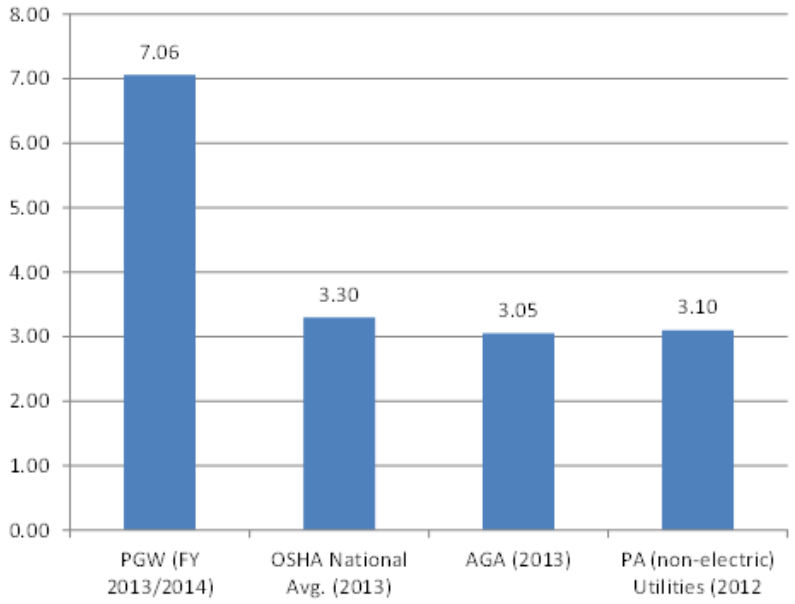
Corporate-wide procedures are numbered, while internal Risk Management procedures are not numbered. A similar formatting, with numbering for both types, would make these procedures easier to manage.

Occupational Health & Safety

Finding III-29 PGW's safety incidence rates compare negatively to industry benchmarks.

The incidence rate is the number of employee injuries and illnesses that are considered OSHA recordable (injuries and illnesses that would be required to be recorded on the OSHA 300 log) standardized to a per 100 equivalent full-time workers rate. *Exhibit III-55* displays PGW's safety incidence rate for FY2014 (September 2013 to August 2014), as compared to industry benchmarks.

Exhibit III-55
PGW Incidence Rate Comparison
FY2014



Source: Information Response 380, Bureau of Labor Statistics, AGA, AGA Engineering Technical Note 2013 Natural Gas Utility and Transmission Industry Occupational Injury and Illness Statistics

Many factors are likely contributors to PGW's higher incidence rate. Schumaker & Company's review of PGW's injury reporting suggests that PGW does a good job of reporting even minor injuries. Consistent and comprehensive reporting will have a negative effect on the incidence rate, but is essential to effective safety management.

In addition, PGW has an aging workforce (discussed extensively in the *Human Resources* section of *Chapter II – Executive Management & Human Resources*). PGW's more experienced workers have a lower

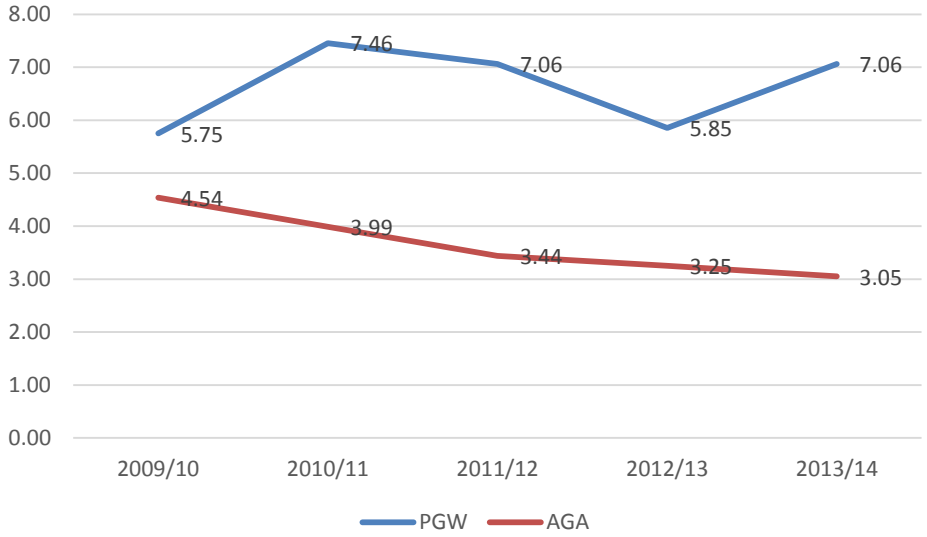
accident/injury frequency rate than the percentage in the PGW employee population as a whole. The injuries they do suffer, however, tend to be more severe, requiring longer recovery time and often necessitating surgical intervention. Additionally, many of their injuries are difficult to prevent because they do not result from traditional accidents. With an aging workforce such as PGW's, more injuries may result from the natural effects of aging and may be worsened by the effects of cumulative trauma resulting from many years of physical labor. PGW has been addressing this risk through the growing Company Wellness Program. It has also been incorporating stretching education into Operations training.

At the same time, PGW is hiring more new employees than in past years. An influx of new hires has resulted in more injuries, such as cuts and bruises. PGW is working to address this issue through increased supervision and job training.

Finally, it should be noted that the AGA safety benchmarks are developed from a relatively small sample (116 companies) and, perhaps more importantly, are dominated by companies that do little or no construction work within their peer group (very large local distribution companies). PGW reports the lowest amount of construction work performed by external contactors (15%). Of the 10 companies in this peer group, six report contracting out more than 80% of their construction work.

While these factors provide some context for considering PGW's incidence rate, the fact remains that the incidence rate is higher than that of peer organizations. Perhaps more troubling is that this tendency is not reflective of a bad year but rather is consistent with PGW's safety performance over the past five years. *Exhibit III-56* displays the PGW incidence rate trends for FY2010 to FY2014 against AGA statistics.

Exhibit III-56
Incidence Rate Trend
FY2010 to FY2014



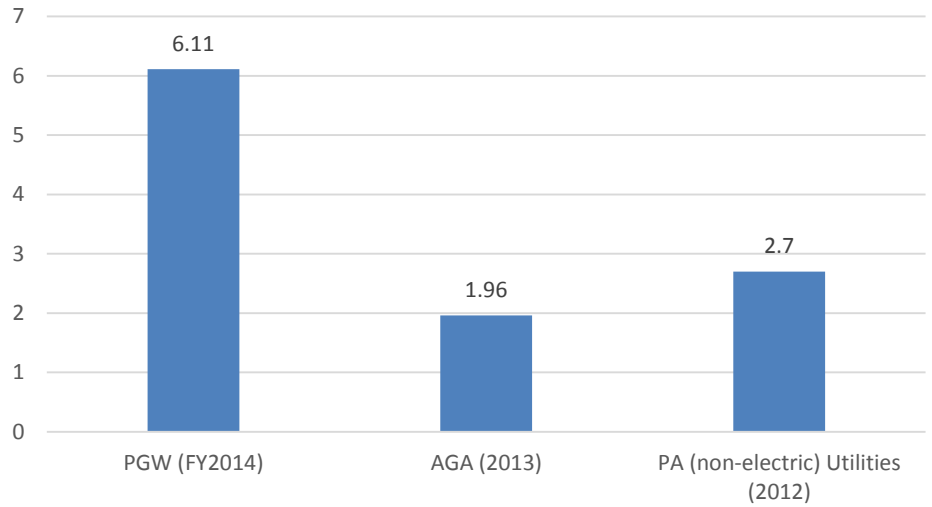
Source: Information Response 380 and AGA statistics (PGW statistics are based on fiscal years and AGA statistics on calendar year).

PGW's incidence rate has averaged 6.64 over the last five years. While the AGA benchmark average incidence rate has declined 33% over the same period, PGW's rate has remained relatively stable and well above average.

The incidence rate is the broadest measure of safety performance based on all OSHA reportable illnesses and injuries, excluding first-aid-only cases. Although an important safety indicator, as we mentioned above, a high incidence rate may reflect aggressive reporting of minor injuries. The days away, restricted, and transferred (DART) measures cases with lost workdays and provides insight into more severe injuries. Here again, PGW's safety performance compares unfavorably to the benchmark.

Exhibit III-57 displays PGW's DART rates for FY2014, as compared to industry benchmarks.

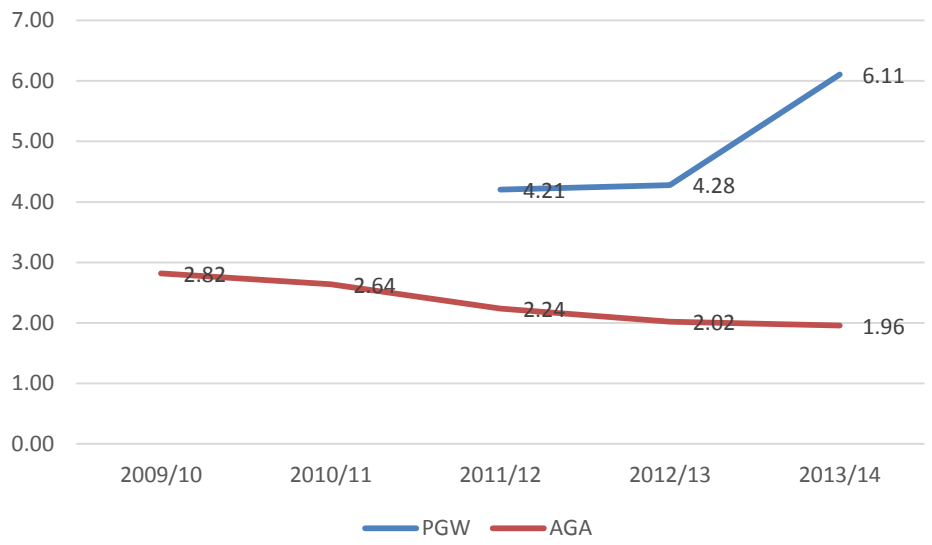
Exhibit III-57
PGW DART Rate Comparison
FY2014



Source: Information Response 380, AGA, AGA Engineering Technical Note 2013 Natural Gas Utility and Transmission Industry Occupational Injury and Illness Statistics

DART rate statistics are not available for the years prior to 2011. PGW's DART rate took a jump in 2013/2014. It is unclear if this was just a bad year (the DART rate is volatile because it is based on fewer injuries and can bounce up based on one or very few severe injuries) or if it reflects a trend. Certainly, the aging workforce issue at PGW is reflected in this figure. *Exhibit III-58* displays PGW DART trends for FY2012 to FY 2014, as compared to AGA DART trends for 2009/10 to 2013/14.

Exhibit III-58
DART Trends
FY2012 to FY2014

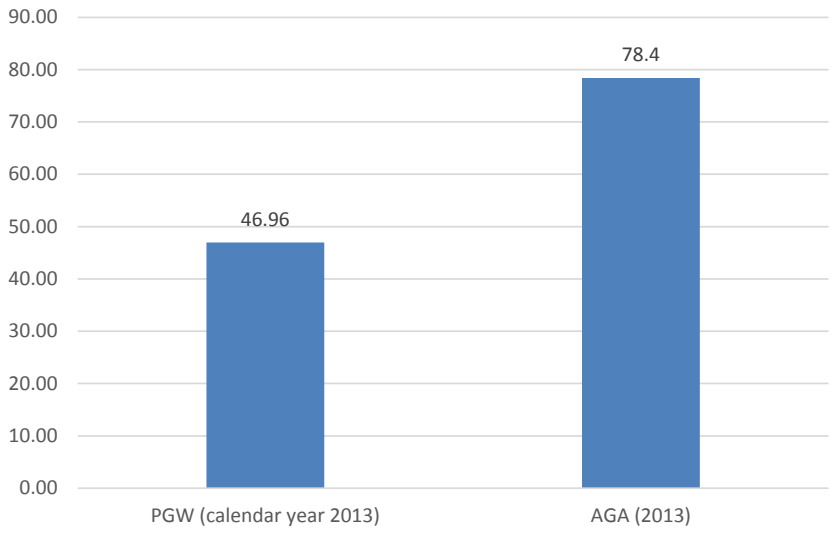


Source: Information Response 380, AGA, AGA Engineering Technical Note 2013 Natural Gas Utility and Transmission Industry Occupational Injury and Illness Statistics (PGW statistics are based on fiscal years and AGA statistics on calendar year)

Finding III-30 PGW's injury severity rate compares favorably to industry benchmarks.

The DART rate discussed above measures the incidence of lost time injuries (by definition, the more severe cases). It is, nonetheless, still a frequency measure. In contrast, the DART severity rate looks at the amount of lost time (days away, restricted, and transferred). Here PGW compares favorably to the AGA industry average. *Exhibit III-59* displays PGW and AGA DART severity rates for 2013 compared to industry benchmarks.

Exhibit III-59
DART Severity Rate Comparison
2013



Source: Information Response 388, AGA, AGA Engineering Technical Note 2013 Natural Gas Utility and Transmission Industry Occupational Injury and Illness Statistics

Taken together, it is apparent that PGW experiences more frequent lost-time accidents but, on average, has less lost time. This is consistent with the aging workforce theory in that cumulative trauma may require periodic rest, rehabilitation, and restricted duty, but workers typically return to work. This is in opposition to catastrophic injuries that produce extended periods away from work, and if the employee eventually returns, he or she may have extensive work restrictions.

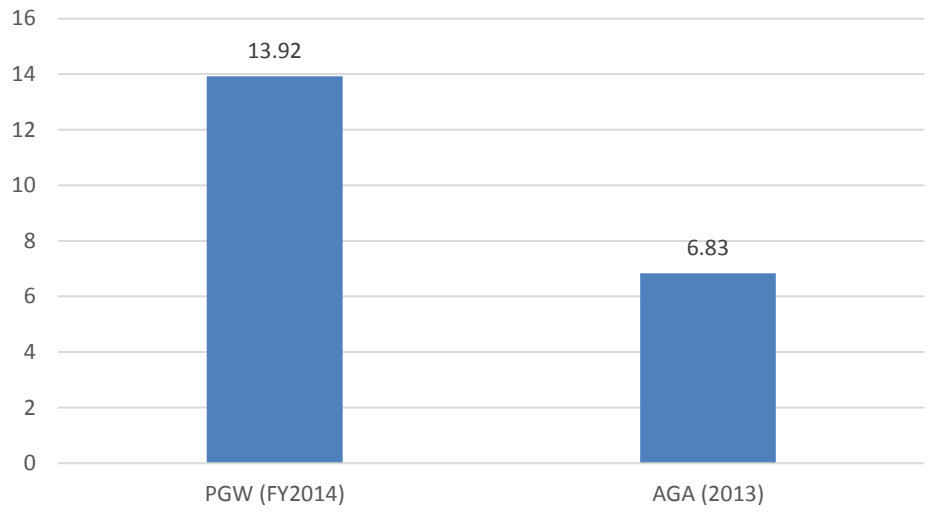
It may also reflect aggressive case management. PGW's Employee Utilization Committee is discussed in the *Human Resources* section of *Chapter II – Executive Management & Human Resources*.

Finding III-31 PGW's motor vehicle accident rate compares unfavorably to industry benchmarks.

A significant area of concern for companies with large fleets and a large number of employees driving company-owned vehicles is the accident rate. A standard metric for this issue is the preventable motor vehicle accident. This statistic is based on motor vehicle accidents where the operator of the vehicle failed to do everything reasonable to avoid the accident. It standardizes incidents to 1,000,000 miles driven and provides a consistent comparison for differing fleet sizes.

Exhibit III-60 displays PGW's PMVA rate for FY2014, as compared to AGA's PMVA rate for 2013.

Exhibit III-60
PGW PMVA Comparison
2013/2014

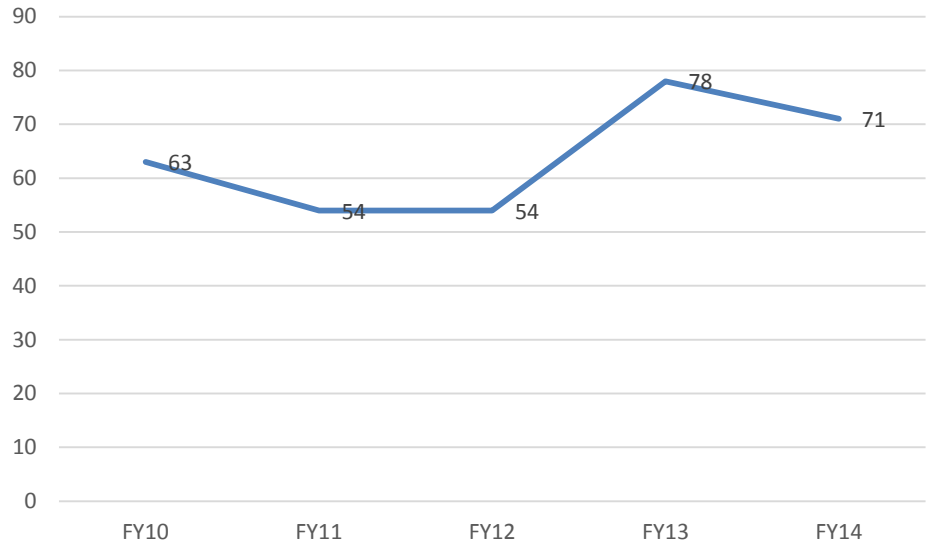


Source: Information Response 388, AGA, AGA Engineering Technical Note 2013 Natural Gas Utility and Transmission Industry Occupational Injury and Illness Statistics

Here again, PGW's safety performance is below the industry average. In addition, it appears to be on a relatively upward trend. *Exhibit III-61* displays PGW's PMVA trend from FY2010 to FY2014. Note that this chart provides actual number of preventable motor vehicle accidents (not standardized rate as

provided in the previous chart). PGW does not report the PMVA accident rate in its senior management reports, only the number of accidents.

Exhibit III-61
Preventable Motor Vehicle Accidents
FY2010 to FY2014



Source: Information Responses 380 and 389

Finding III-32 **A high frequency of preventable motor vehicle accidents in recent years has caused PGW to implement an aggressive policy to reduce such accidents.**

In December 2013, PGW launched a comprehensive driver safety program, which includes a trial dashboard camera program with a company called DriveCam. This program is designed to encourage safe driving performance and reduce at-risk driving behaviors. It also helps to both identify problematic PGW driver behaviors in some cases and disprove liability in others. PGW's program currently involves approximately 40 vehicles that are assigned to employees who had a preventable motor vehicle accident after mid-January 2014. When triggered, the DriveCam camera captures video inside and outside the vehicle. The exception-based system saves data only when a sudden shift in the vehicle's g-force occurs, such as from hard braking, swerving, excessive speed, or an actual collision. Once triggered, a 12-second video is uploaded, consisting of eight seconds before and four seconds after the triggering event. The Smith System–trained driving coaches in each department review the uploaded videos and then meet with the employee drivers. In addition to using the data to target individual employees, PGW has been using the trends identified to improve driver training company-wide.

The cameras have also revealed specific violations of PGW rules: no seatbelt, using an electronic communication device while driving, and smoking in a company vehicle. The departments have been

dealing with disciplining employees for these offenses as a separate piece from the coaching to improve driving behaviors.

PGW has successfully negotiated with the union to finalize an amended Preventable Motor Vehicle Accident Policy that has changed the method for assigning cameras and set parameters for the length of time cameras remain in employees' assigned vehicles.

PGW has implemented many efforts to assure safe driving and reduce motor vehicle accidents. These initiatives include:

- Pre-hire review of driving histories and monthly driver's license checks
- Smith System driver training (mandatory for driving positions and open company-wide)
- Post-accident interviews and in-house training
- Offsite third-party training of employees, if warranted
- Frequent safe driving communications through the monthly Field Operations newsletter, Advanced Intelligent Mobile Solutions (AIMS) announcements, and emergency communications blasts
- Annual safe driving event (union/management partnership)
- Annual individual and departmental safety awards that provide incentives for safe driving
- Consideration of safety in new vehicle purchases by the PGW Vehicle Committee
- Occasional safe-driving presentations by outside professionals

Finding III-33 **PGW has a comprehensive safety committee structure but the committees are not certified by the PA Department of Labor and Industry, Bureau of Workers' Compensation and may not fulfill all of the duties specified in the certification requirements.**

Effective workplace safety committees are a proven tool in reducing workplace injuries and illnesses. They are instrumental in producing significant savings for employers as well. The Pennsylvania Department of Labor and Industry recognizes the importance of labor management–certified committees for workplace safety in detecting and correcting workplace hazards.

As noted in the background discussion of this section, PGW has a comprehensive safety committee structure covering all employees. A review of committee minutes suggests that the committees are an effective employee involvement and communication tool and are actively involved in reducing workplace hazards. That said, the departmental committees may not be engaging in the more advanced work specified in the PA Safety Committee certification requirements. The PA Department of Labor and Industry has a 30-point checklist for safety committee certification. Most of these items are evident in PGW's safety committee activities. Among the items Schumaker & Company did not see evidence of are:

- Does the safety committee make written recommendations to improve the workplace safety and health program?
- Has the safety committee established procedures to help the safety committee inspection team find and identify safety and health hazards?
- Does the safety committee conduct workplace inspections? (Inspections are recommended on a monthly basis.)

The evaluation criteria also includes the degree to which the safety committee recommend ways for the employer to eliminate or correct hazards and unsafe work practices in the workplace. PGW offered several examples of this, including the company-wide and department-specific committees regularly make recommendations in this area, such as Circle of Safety vehicle stickers, reducing the size of bags of cold patch and grit, and designing a new process for loading salt onto trucks.

PGW has implemented safety committee training through the Department of Labor and Industry. In 2013, members of the PGW Union Management Safety Committee attended a PA Department of Labor and Industry Safety Committee training workshop to evaluate the appropriateness of the training for PGW. As a result, in June of 2013, the PA Department of Labor and Industry conducted two safety training programs. The first was Workplace Safety Committee Training. The second was Accident Investigation, Reporting, and Prevention. PGW has scheduled a repeat of these courses and other PA Department of Labor and Industry programs for June 11, 2015.

Finding III-34 PGW's internal safety goals and scorecards are based solely on occurrence.

PGW bases its corporate safety goals on cumulative occurrences without regard to relative frequency (standardized metrics) and severity. *Exhibit III-62* summarizes PGW's safety performance and goals for FY2010 to FY2014. PGW also tracks leading indicators, such as number of inspections and frequency of safety committee meetings, but these metrics are currently not part of the overall corporate safety goals.

Exhibit III-62
PGW Corporate Safety Goals and Performance
FY2010 to FY2014

Year	PMVAs	Injuries	Total	Goal
FY2010	63	101	164	
FY2011	54	131	185	
FY2012	54	126	180	
FY2013	78	104	182	170
FY2014	71	126	197	170

Source: Information Response 377

Departmental safety scorecards include the following statistics:

- Injuries
- Personal Protection Equipment (PPE) Injuries
- Preventable Motor Vehicle Accidents
- Stationary Object Motor Vehicle Accidents
- Red Light Violations
- Safety First Violations
- Safety Violation Not Wearing Hard Hat
- Safety Violation Not Wearing Safety Glasses
- Safety Violation Not Wearing Steel-Tipped Boots
- Safety Violation Improper Clothing/Altered
- Total Safety Occurrences

These are all good measures, but without standardized metrics, severity rates, and industry benchmarks, they give a limited view of safety performance.

Recommendations

Risk Management

Recommendation III-20 Enhance PGW's ERM program. (Refer to Finding III-24.)

Enterprise risk management has been defined as a process "brought about by an entity's Board of Directors, management, and other personnel, applied in strategic 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." Although started in in the mid-2000s, it has not been fully developed. 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 risks 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. It will also help to ensure that risks PGW 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 and should implement changes as soon as possible. It may also wish to create a formal committee that will work closely with the Risk Management Director in taking the next steps to integrate ERM into the strategic planning process.

Recommendation III-21 **Enhance PGW's risk management training programs. (Refer to Finding III-25.)**

To enhance PGW's ERM program and to make sure that it is fully implemented, the Risk Management Director, in conjunction with Human Resources, needs to enhance PGW's risk management training programs beyond RM101 activities.

Recommendation III-22 **Develop a plan for making organizational changes and for enhancing reporting capabilities. (Refer to Finding III-27.)**

A comprehensive plan, including benefits and costs, should be developed by the Risk Management organization addressing each of the three items previously discussed that the Director would like to implement. Such a plan could then be used to develop PGW's FY2016 budget, depending on results achieved.

Recommendation III-23 **Standardize any procedures, including numbering, developed by the Risk Management Department. (Refer to Finding III-28.)**

Standardization of procedural documentation, including number of all types of procedures regardless of whether they are corporate-wide or department focused, should be implemented by the Risk Management organization so as to help promote better management involving development and revision of such procedures. Each procedure should be reviewed annually and revised, as appropriate.

Occupational Health & Safety

Recommendation III-24 **Fully implement the DriveCam initiative and increase the number of loss controls to address PMVAs. (Refer to Finding III-32.)**

Activities taken to date regarding PMVAs are reasonable, although PGW should continue to aggressively implement the DriveCam initiative and increase the number of loss controls to address PMVAs, because currently PGW still has a high frequency of such accidents. Additional proactive steps should be developed.

Recommendation III-25 **Certify PGW's safety committees with the PA Department of Labor and Industry, Bureau of Workers' Compensation. (Refer to Finding III-33.)**

Workplace safety committees play an important part in workplace accident- and illness-prevention efforts, and they are essential to achieving continuous improvement in a safety program. The Pennsylvania Department of Labor and Industry certification program provides a systematic approach to establishing, implementing, and certifying workplace safety committees. These committees are an essential tool for reducing both incidence and severity of injuries and illnesses.

Recommendation III-26 **Create a safety committee scorecard. (Refer to Finding III-29, Finding III-30, Finding III-31, Finding III-32, Finding III-33, and Finding III-34.)**

However many safety committees PGW decides to support, it is important to have a way to evaluate committee effectiveness and to offer support for performance improvement. At a minimum, a scorecard should be produced quarterly. Such a scorecard will provide safety committees with important feedback and an *apples-to-apples* comparison across the organization. *Exhibit III-63* provides a sample safety committee scorecard:

Exhibit III-63
Sample Safety Committee Scorecard Elements

Element	Metric(s)
Meeting frequency	♦ Number of safety committee meetings held during the period
Participation level	♦ Percent of members present at meetings
Record keeping	♦ Agenda and minutes submitted ♦ Hazard Identification and Risk Assessment reports
Training	♦ Hours of safety training per employee
Hazard identification	♦ Number of hazards identified ♦ Number of recommendations for remediation made ♦ Percent of recommendations for remediation implemented
Safe work duration	♦ Number of days since a lost work accident
Policy compliance	♦ Number of safety violations (by type)
Performance	♦ Incidence rate ♦ DART rate ♦ Severity rate ♦ Preventable motor vehicle accident rate

Source: Schumaker & Company Experience

Recommendation III-27 **Measure and report safety performance using standard industry benchmarks. (Refer to Finding III-34.)**

Calculating safety performance measures and widely sharing that information is essential to building safety awareness. Every work group should know its statistics and be conscious of how its behavior and work practices affect safety performance

PGW tracks and reports accident incidents. Schumaker & Company believes that PGW should track and report standard industry measurements (incidence, DART, severity, and PMVA). Using comparisons to AGA and Commonwealth of Pennsylvania benchmarks is also a useful tool for helping employees understand safety performance as it relates to motivating improvement.

F. Legal Services

Background & Perspective

Mission, Goals, & Objectives

The Legal Department's mission, goals, and objectives are to:

- Provide vigorous and successful advocacy of the interests of Philadelphia Gas Works (PGW) in litigation and pre-litigation matters
- Aggressively defend PGW in liability cases
- Help PGW balance business interests with municipal requirements
- Protect and maximize the corporate and financial interests of PGW in the negotiation and consummation of all contractual, commercial, financial, and real estate transactions
- Enhance and support PGW's collections efforts
- Support PGW's 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), Federal Energy Regulatory Commission (FERC), the City of Philadelphia (City), as PGW's owner and regulator, and other regulatory bodies
- Provide sound and practical legal advice to the Board and management team

The Legal Department's strategic plan to accomplish this mission is to:

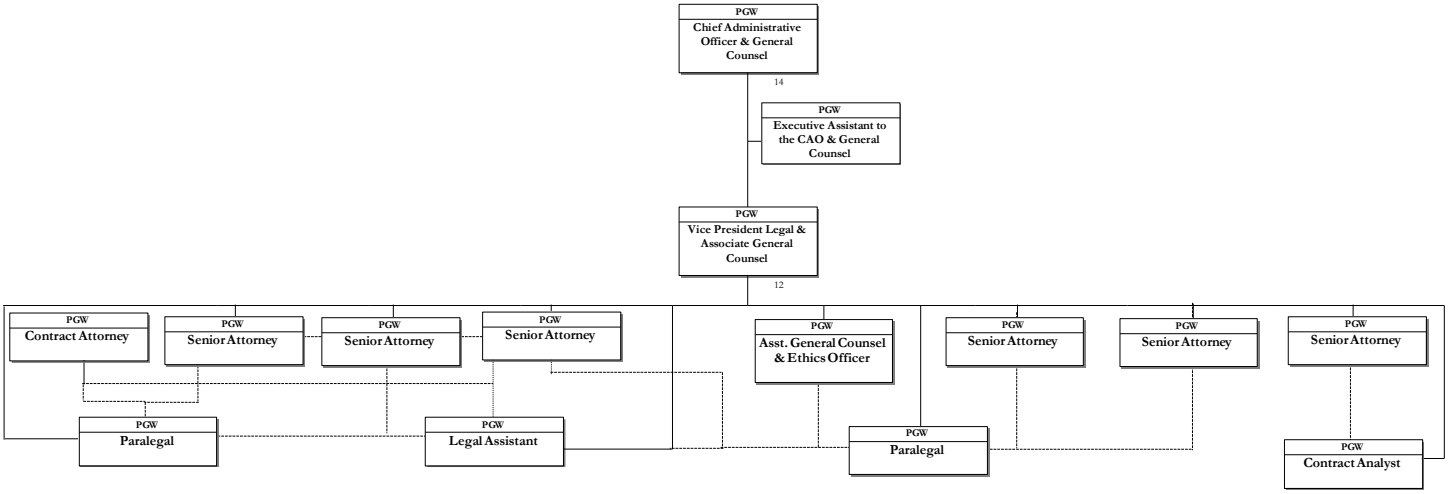
- Maximize the use of in-house counsel that is familiar with PGW's business, practices, and history, whenever possible
- Effectively partner with outside counsel when necessary
- Maintain an open-door, informal relationship with PGW management employees
- Work collaboratively with each department to understand its business functions and concerns
- Conduct outreach to the departments through training, meetings, one-on-one counseling, and written materials
- Collaborate on PGW process improvements, both informally and through policy/procedure changes
- Prepare and/or review all legal documents, including litigation and commercial materials
- Attend enterprise and department meetings

- Identify areas of risk to decrease potential corporate liability
- Review Board materials and provide advice regarding Board interactions
- Review PGW publications
- Remain up to date on current legal standards and requirements through continuing legal education and other legal educational materials
- Assist and advise management with respect to business opportunities and impediments that have the potential to impact PGW's ability to meet its goals and goodwill expectations

Organization/Roles & Responsibilities

Exhibit III-64 illustrates the Legal Department's organization. It is headed by PGW's Chief Administrative Officer (CAO) and General Counsel (GC).

Exhibit III-64
Legal Services Organization
as of December 31, 2014



Source: Information Response 77

The Legal Services organization has positions for 10 attorneys, including the CAO/GC, the Vice President (VP) & Associate General Counsel (Associate GC), the Assistant General Counsel and Ethics Officer, six senior attorneys, and one contract attorney, plus five support staff (two paralegals, one legal assistant, one executive assistant, and one contract analyst).

The CAO/GC reports to the President & Chief Executive Officer (CEO). In addition to the Legal Services organization, the Human Resources (HR), Technical Compliance, and Risk Management organizations report to the CAO/GC. The HR responsibilities were included based on the legal connections that HR requires. (See *Chapter II – Executive Management & Human Resources* for a detailed

discussion of HR functions, *Chapter III – Support Services* for a detailed discussion of risk management functions, and *Chapter VII – System Reliability Performance & Other Related Operations* for a detailed discussion of technical compliance functions, including business continuity planning.)

The Legal Services organization is primarily responsible for:

- Commercial/transactional matters
- Litigation
- Regulatory legal matters
- Administrative/miscellaneous legal matters, including data charts for recurring work areas showing count by matter type

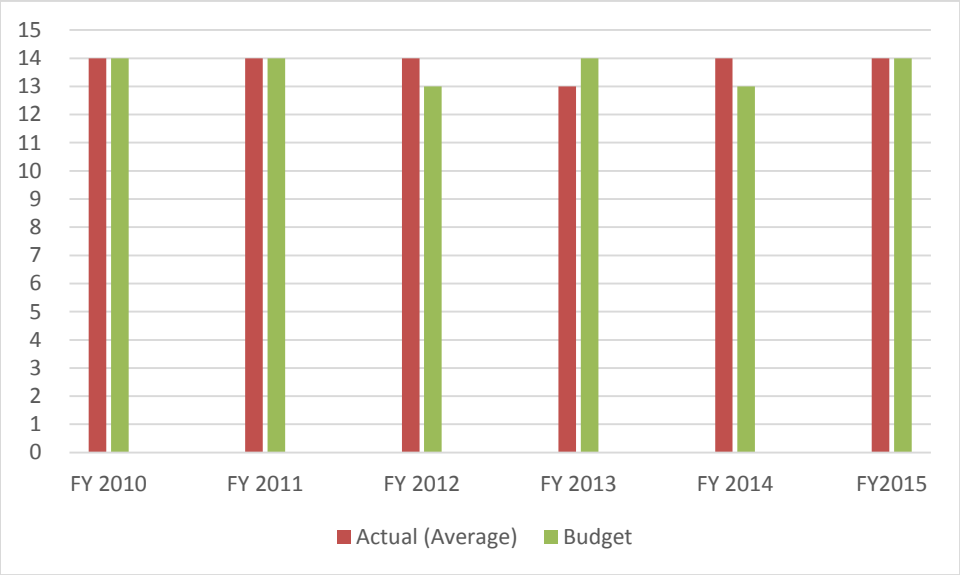
The Legal Services organization is organized into five principal practice areas:

- The *Collections Practice Area* is responsible for providing legal guidance with respect to collecting money owed to PGW, which can involve bankruptcy, real estate, municipal liens, enforcement of monetary judgments, and sheriff sales.
- The *Corporate Practice Area* handles all corporate, commercial, environmental, financing, tax, procurement, and real estate matters involving PGW.
- The *Labor and Employment Practice Area* provides counsel and represents PGW in state and federal court and in local agencies, in cases involving employment, suspension, demotion, and termination. It also represents PGW in unemployment compensation matters and selected arbitrations, and it conducts training on PGW policies and procedures concerning employment and ethics.
- The *Litigation Practice Area*, in conjunction with the Risk Management Department, handles claims against PGW. It also investigates, adjusts, and settles claims for damages to PGW.
- The *Regulatory Practice Area* provides formal and informal legal advice on the interpretation of the law regulating PGW operations and finances. In addition, it advises with respect to compliance matters, and it represents PGW in consumer, rate, gas cost, regulatory, and other matters before the PaPUC and PGC.

Staffing Levels

Staffing levels over the past five years have been relatively stable, as shown in *Exhibit III-65*.

Exhibit III-65
Legal Department Staffing Levels
FY2010 to FY2015



Source: Information Response 84

There have been no major organizational structure changes in the last seven years (since 2007 during the prior stratified management audit); only one person has left and one person has been added. The Associate GC, however, expects to be required in the next three to six months to begin hiring again due to retirement and/or promotion of a few employees.

Although there has not historically been a lot of turnover/retention issues or case workload backlogs, one of Legal's concerns, especially going forward in time, is under-market pay for attorneys and paralegals. 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. Legal management has successfully thus far attracted attorneys to PGW and retained them by focusing primarily on lifestyle, work style, and dedication to public service issues rather than compensation.

Use of External Counsel to Supplement Legal Services Staff

PGW typically uses external counsel for specialized issues, such as pension/deferred compensation, taxes, environmental, etc. PGW currently has a $225/hour limit on external counsel rates which has been in effect for at least eight years, but PGW is currently getting pushback from some of these law

firms regarding hourly rates. As a City of Philadelphia asset, and therefore subject to City requirements, PGW requires discounted rates that are the lower of the City's standard rates (shown in *Exhibit III-66*) or 80% of the external counsel's regular rates. For example, if a partner with fewer 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-66*. Consequently, one law firm chose to no longer conduct business with PGW last year due to the City's limits on external counsel rates.

Exhibit III-66
City/PGW Standard Attorney Rates
as of December 31, 2014

Type	# Years' Experience	Hourly Rate
Partner	≥ 5	$225
	< 5	$200
Associate	≥ 5	$170
	< 5	$155

Source: Interview 23

Based on its informal monitoring of the marketplace, PGW Legal management considers these rates to be generally low.

Operating Expenses

Internal Expenses

Exhibit III-67 displays the internal Legal Department actual costs, excluding outside counsel services, for FY2010 to FY2014.

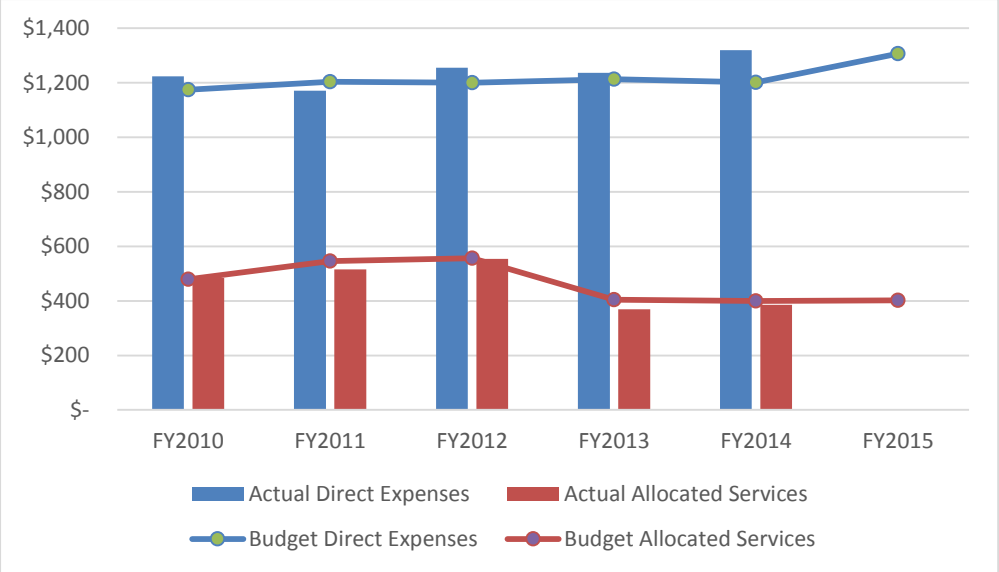
Exhibit III-67
Internal Legal Department Costs
($ Thousands)
FY2010 to FY2014

	ACTUAL				
Payroll-Labor Reconciliation	**Actual FY2010**	**Actual FY2011**	**Actual FY2012**	**Actual FY2013**	**Actual FY2014**
Base Wages	$ 959	$ 898	$ 918	$ 900	$ 975
Overtime	$ 4	$ 4	$ 5	$ 8	$ 7
Total Payroll	$ 963	$ 902	$ 923	$ 908	$ 982
Total Operating Labor	**$ 963**	**$ 902**	**$ 923**	**$ 908**	**$ 982**
Expense Category					
Labor Total	$ 963	$ 902	$ 923	$ 908	$ 982
Expense of Employees	$ 14	$ 18	$ 12	$ 23	$ 18
General Material	$ 17	$ 16	$ 21	$ 14	$ 17
Postage	$ 5	$ 5	$ 7	$ 6	$ 2
Dues & Subscriptions	$ 37	$ 43	$ 45	$ 45	$ 46
Purchased Services	$ 177	$ 177	$ 232	$ 225	$ 241
Equipment Rentals & Leasing	$ 11	$ 10	$ 15	$ 15	$ 14
Maintenance Office Equipment	$ -	$ -	$ -	$ -	$ -
Sub Total	$ 1,224	$ 1,171	$ 1,255	$ 1,236	$ 1,320
Allocated Services					
Facilities Management	$ 311	$ 277	$ 340	$ 199	$ 187
Information Services	$ 154	$ 239	$ 214	$ 170	$ 198
Telecommunications	$ 19	$ -	$ -	$ -	$ -
Fleet Operations	$ -	$ -	$ -	$ -	$ -
Sub Total	$ 484	$ 516	$ 554	$ 369	$ 385
Total Expenses	**$1,708**	**$1,687**	**$1,809**	**$1,605**	**$ 1,705**

Source: Information Responses 84 and 296

Exhibit III-68 graphically illustrates actual versus budget costs for the same timeframe.

Exhibit III-68
Internal Legal Department Costs
($ Thousands)
Actual versus Budget
FY2010 to FY2014



Source: Information Responses 84 and 296

Outside Counsel Expenses

Exhibit III-69 displays PGW's actual outside counsel expenses for FY2010 to FY2014.

Exhibit III-69
Outside Counsel Expenses
FY2010 to FY2014

	FY2010 ACTUAL	FY2011 ACTUAL	FY2012 ACTUAL	FY2013 ACTUAL	FY2014 ACTUAL
FERC Matters (A&G)	$ 70,029	$ 74,053	$ 123,880	$ 176,068	$ 105,787
Special Legal (A&G)	$ 170,326	$ 177,353	$ 214,004	$ 245,739	$ 213,173
Workers' Compensation (Risk Management)	$ 97,806	$ 108,934	$ 113,088	$ 158,723	$ 134,872
PaPUC (A&G)	$ 527,227	$ 132,613	$ 166,423	$ 206,371	$ 128,155
Total	**$ 865,389**	**$ 492,953**	**$ 617,395**	**$ 786,901**	**$ 581,987**

Source: Information Responses 76, 296, and 580
A&G=administrative and general
"Special Legal" typically includes items such as budget proceedings; taxes and revenue; labor and benefits, including pensions; environmental; special projects; and other general items.

Exhibit III-70 illustrates these outside legal expenses by type and firm for FY2010 to FY2014.

Exhibit III-70
Outside Counsel Expenses by Type and Law Firm
FY2010 to FY2014

	FY2010 ACTUAL	FY2011 ACTUAL	FY2012 ACTUAL	FY2013 ACTUAL	FY2014 ACTUAL
FERC Matters - Law Firms					
McCarthy Sweeney	$ 102,384	$ 74,053	$ 123,880	$ 165,750	$ -
Archer & Greiner	$ -	$ -	$ -	$ -	
Jennings Strouss & Salamon PLC	$ -	$ -	$ -	$ -	$ 85,787
Miscellaneous or Accrual	$ (32,355)	$ -	$ -	$ 10,318	$ 20,000
Total	**$ 70,029**	**$ 74,053**	**$ 123,880**	**$ 176,068**	**$ 105,787**
Special Legal - Law Firms					
Dasent - Budget Proceedings	$ 65,363	$ 62,163	$ 51,188	$ 67,106	$ 41,513
Archer & Greiner - Taxes & Revenue	$ -	$ -	$ -	$ -	$ 10,102
Ballard Spahr - Labor, Benefits, & General	$ 28,655	$ 58,604	$ 93,451	$ 80,017	$ 82,487
Grant Lebowiz - Employment Labor	$ 14,889	$ 428	$ -	$ -	$ -
Manko, Gold, Katcher & Fox - Environmental	$ 25,796	$ 1,110	$ -	$ 8,862	$ 473
Duane - Pension, Benefits, & Special Projects	$ 65,482	$ 44,000	$ 61,500	$ 78,000	$ 78,000
Cozen & O'Connor - Taxes & Revenue	$ 10,047	$ 11,049	$ 7,865	$ 11,754	$ 599
Employment Labor	$ -	$ -	$ -	$ -	$ -
Miscellaneous or Accrual	$ (39,905)	$ -	$ -	$ -	$ -
Total	**$ 170,326**	**$ 177,353**	**$ 214,004**	**$ 245,739**	**$ 213,173**
Workers' Compensation - Law Firms					
Kelly, Monaco & Naples	$ -	$ -	$ 9,294	$ 44,338	$ 29,964
Naulty, Scariamazza & McDevitt	$ 41,576	$ 40,041	$ 33,333	$ 41,026	$ 60,505
Sand & Saidel	$ 3,430	$ 1,228	$ 1,179	$ 459	$ -
Denise Smyler	$ 2,838	$ 4,444	$ 10,666	$ 5,412	$ 1,416
Chartwell (Hearing Loss)	$ 12,216	$ 15,667	$ 7,141	$ 25,517	$ 5,988
Ruth Pearson	$ 34,097	$ 16,763	$ 37,961	$ 39,077	$ 23,651
Schaff & Young	$ 2,825	$ 19,599	$ 13,514	$ 2,894	$ 12,280
Duca & Prim	$ 825	$ 355	$ -	$ -	$ -
McElhatton	$ -	$ 10,837	$ -	$ -	$ -
Cipriani & Werner	$ -	$ -	$ -	$ -	$ 1,068
Total	**$ 97,806**	**$ 108,934**	**$ 113,088**	**$ 158,723**	**$ 134,872**
PaPUC - Law Firms					
Cozen & O'Connor - Regulatory	$ 8,393	$ -	$ -	$ -	$ -
Eckert, Seamans, Cherin & Mellott - Regulatory	$ 6,550	$ 110,839	$ 162,800	$ 206,371	$ 128,155
Eckert, Seamans, Cherin & Mellott - Rate Case	$ 512,284	$ 21,774	$ 3,623	$ -	$ -
Total	**$ 527,227**	**$ 132,613**	**$ 166,423**	**$ 206,371**	**$ 128,155**
Legal Budget Categories					
FERC Matters (A&G)	$ 70,029	$ 74,053	$ 123,880	$ 176,068	$ 105,787
Special Legal (A&G)	$ 170,326	$ 177,353	$ 214,004	$ 245,739	$ 213,173
Workers' Compensation (Risk Management)	$ 97,806	$ 108,934	$ 113,088	$ 158,723	$ 134,872
PaPUC (A&G)	$ 527,227	$ 132,613	$ 166,423	$ 206,371	$ 128,155
Total	**$ 865,389**	**$ 492,953**	**$ 617,395**	**$ 786,901**	**$ 581,987**

Source: Information Response 76 and 296

The amount of external legal work charged in FY2014 was down because additional time was spent on the failed PGW sale, and the City (not PGW) used some of these same firms for extensive legal work regarding the sale. For example, because the City used the Ballard Spahr law firm in the failed PGW sale to UIL Holdings Corporation (UIL), and Ballard Spahr is one of PGW's external counsel, the firm was not used as much by PGW as expected, because much of the same outside attorneys' time was devoted

to sale work. Although the City was the "driver" regarding the PGW sale, and it used an outside consultant firm for assistance, the Legal Department was still involved in assisting with many of the data requests. Also PGW had a formal data room, in which parties could review PGW documents. The Associate GC reviewed all PGW documents for confidentiality purposes before being released to the data room. The CAO/GC and the Associate GC were also involved in giving a presentation to finalist candidates.

Exhibit III-71 lists the types of services under contract with existing external counsel firms for PGW legal services and the FY2014 not-to-exceed (NTE) contract amounts by type (totaling approximately $817,000 for all types of legal services).

Exhibit III-71
Types of Services under Contract with Existing External Counsel Firms and NTE Contract Amounts as of December 31, 2014

FERC Matters	$120,000
Special Legal	$377,000
Workers' Compensation	$120,000
PaPUC	$200,000
Total	**$817,000**

Source: Information Response 82
Worker's compensation firms are formally engaged by AmeriHealth, which manages PGW's programs to help reduce PGW's liability, and not PGW, as costs are billed through AmeriHealth. Refer to the *Risk Management* section of the *Support Services* chapter for further discussion.

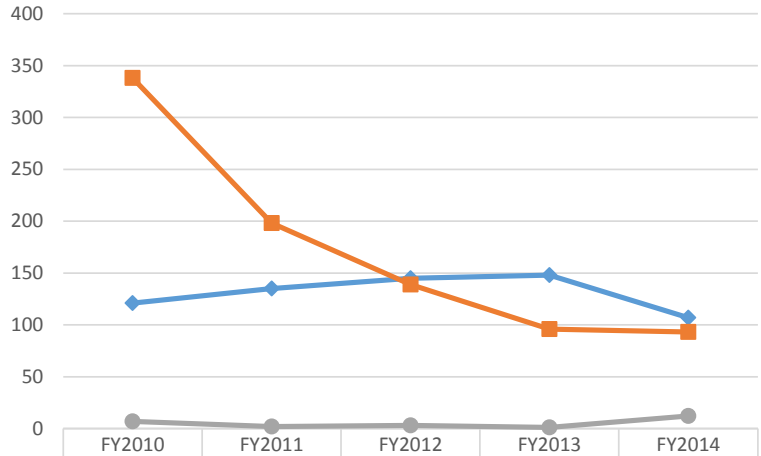
The NTE contract amounts for each firm are typically based on historical usage, plus expectations for future usage. Only rarely does actual usage go beyond the NTE limits, because generally PGW is not spending up to the NTE limits. Based on Section 17-1400 of the City Code, amounts paid to vendors via amendments cannot be greater than 20% of the original contract or $25,000. If work requires the figures to extend beyond these amounts, then PGW generally must issue another request for proposal (RFP). In only one or two instances has PGW obtained a waiver to not reissue an-RFP, as counsel changes in those cases were considered by PGW and City Legal to be detrimental. According to PGW management, the Legal Services organization attempts to use in-house counsel, if possible, rather than external sources.

The amounts paid to external firms for work is typically fairly stable, although amounts may change more frequently for labor, employment, or regulatory work.

Management Synopsis of Active Cases

The number of active legal cases has varied by year, although in total they have been decreasing from 466 at FY2010 year-end to 212 at FY2014 year-end.

Exhibit III-72
Active Legal Cases at Fiscal Year-end
FY2010 to FY2014



	FY2010	FY2011	FY2012	FY2013	FY2014
Litigated Tort Claims	121	135	145	148	107
PaPUC Customer Complaints	338	198	139	96	93
Major Miscellaneous	7	2	3	1	12

The Major Miscellaneous category includes liens, discrimination, and commercial suits
Source: Information Response 729

As of September 2014 month-end, there were 141 active civil action cases pending in local courts (municipal and common pleas courts) where PGW is a party. Of these, PGW was the plaintiff in 44 cases and was the defendant in 97 cases. The cases where PGW was the plaintiff typically involved claims for damage to PGW property, such as third-party line hits. The overwhelming majority of cases where PGW is 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. PGW is also presently the defendant in federal court in one (as yet uncertified) class action and four discrimination lawsuits. The class action lawsuit seeks damages and other remedies for landlords who have been liened due to occupants' unpaid gas usage.

Also, there were 11 bankruptcy cases where PGW was actively involved as a creditor litigant, 123 active PaPUC formal consumer complaints where PGW was the respondent, four PaPUC administrative proceedings involving construction, one PGC matter involving PGW's 2015 budget filing, one PGC Pension Committee appeal, and six unemployment compensation cases.

In addition, there were 78 open workers' compensation cases. Of those, 25 cases were in active litigation, with many involving the PGW's attempt to suspend, modify, or terminate benefits. PGW continues the settlement initiative to end older cases and resolve newer cases earlier. Over the last two years, PGW settled 12 workers' compensation cases for $723,000, yielding over $1.4 million in long-term savings. Refer to the *Risk Management* section of the *Support Services* chapter to see the historical levels of workers' compensation claims for fiscal year-ends.

According to PGW management, PGW continues to rely on in-house litigation counsel whenever possible. According to Legal Services management, this approach has been particularly effective in prosecuting and defending claims.

Processes & Systems

Processes

Each month, the Associate GC provides a report to the CAO and General Counsel. This report summarizes issues and actions for all matters handled by the Legal Department, in addition to providing data charts for recurring work categories.

Based on the City's (anti) pay-to-play ordinance (Section 17-1400 of the City Code), which requires public website posting of professional contracting opportunities over $32,000, PGW issues RFPs for external counsel firms. These contracts must go through a formal proposal process that is administered by the PGW Procurement organization. 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.

PGW issued RFPs in 2013 and in 2014 for different services, largely because of expiring contracts. In FY2013, RFPs for environmental, tort, labor and employment, PGC regulatory, and FERC regulatory categories were issued. Then in FY2014, RFPs for taxation, public utility commission/regulatory, and pension and benefits were issued.

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. PGW users who wish to issue an RFP explain what they need. (Prior documentation is made available to committee members.) Committee members include:

- Procurement (chair)
- General Counsel
- Associate General Counsel
- Contracts Administrator
- All other attorneys in the Legal organization who practice commercial law
- HR/Labor
- Risk Management/Security
- Information Services
- Finance
- Liquefied Natural Gas (LNG) Plant Manager

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.

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 proposed rates, subject matter experience, professional reputation, and capacity to provide services requested. All contracts for outside counsel work are passed through the CAO/GC to the Philadelphia Facilities Management Corporation (PFMC) Board and finally to the City Solicitor, who has final signoff. The City Solicitor often has a tenure of two to three years, but may remain for longer periods.

Systems

Among the systems used by the Legal organization are:

- A Microsoft Access contract management system (CMS) and electronic scanning of paper files in conjunction with CMS
- RiskMaster®, a case management system for tort claims, in which data entry is done by Risk Management employees but data is shared with the Legal organization; not a legal management system
- An Epitome Systems database for tracking PaPUC complaints
- Interrogatory system
- Microsoft applications, including Word, Excel, Access, and Outlook

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Findings & Conclusions

Finding III-35 PGW's Legal Services organization does not currently use a formalized legal management system.

The Legal Services organization continues to use the same contracts and litigation systems as seven years ago in 2007, although the Associate GC would like to use a more formalized legal management system. The Associate GC intended to issue an RFP to acquire and implement a more integrated and formal legal management system (contracts and litigation) prior to the announced PGW sale, but deferred to do so pending the outcome of the proposed sale. That is because if purchased by UIL, the Legal Services organization would most likely have changed its system to that of UIL. The Associate GC has also expressed concern about implementing a system with extensive administrative requirements, so she would be trying to balance functionality with administrative requirements.

Recommendations

Recommendation III-28 **Perform a formal technology review, including systems and document management applications used by the Legal Services organization, to determine if changes would be beneficial and should be implemented in the near future. (Refer to Finding III-35.)**

The Legal Services Associate GC and Risk Management Director intend to review off-the-shelf (OTS) options, because the existing claim management system, RiskMaster®, is geared toward risk management and itself has no advanced litigation modules. Because of PGW's size (much smaller than an 800-person law firm), it does not desire a legal management system that requires substantial administrative oversight to manage the work. Because the PGW sale is no longer pending, a technical review, including systems and document management applications used by the Legal Services organization, should be done to determine what future plans would be most beneficial to PGW.

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. It will also cover the Philadelphia Gas Commission (PGC) interfaces with external and internal auditors and PGW senior management, as well as actions to comply with the requirements of local and state governance requirements. Although PGW is not required to abide by the Sarbanes-Oxley (SOx) Act, 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 so they might appropriately apply to PGW.

A. Background & Perspective

Philadelphia Gas Works is subject to the governance authority of the PFMC, 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 PFMC dated December 29, 1972 (Management Agreement), the Philadelphia Home Rule Charter, and Natural Gas Choice and Competition Act. PGW and PFMC governance is further defined through the Nonprofit Corporation Law (15 Pa.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
Major Oversight Responsibilities for Philadelphia Gas Works
as of December 31, 2014

Party	Responsibilities
The City of Philadelphia	Owns PGW assets
Philadelphia Facilities Management Corporation	Manages and operates PGW and its assets
Mayor	Appoints all members of PFMC Board of Directors (BOD)
	Appoints two members of the PGC
City's Director of Finance	Reviews PGW's operating and capital budget and makes recommendations to City Council
	Approves PGW short-term loans and commercial paper financing for form and extent
City Solicitor	Legal advisor for both PGW and the PGC
City Council	Approves PGW capital budgets
	Appoints two members of the Gas Commission
	Approves PGW financing
City Controller	Member of the PGC
	May audit PGW's books
Philadelphia Gas Commission	Approves PGW's operating budget and forecast
	Reviews PGW's capital budget and makes recommendations to City Council
	Reviews PGW's gas purchase contracts and makes recommendations to City Council regarding approval
	Reviews PGW's real estate acquisitions and makes recommendations to City Council regarding approval
	May audit PGW's books
	Exercises powers not specifically granted to the PFMC in the Management Agreement
Pennsylvania Public Utility Commission	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 441 and PGW response to draft report

Philadelphia Facilities Management Corporation

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 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 (Chief Executive Officer (CEO), Chief Operations Officer (COO), Chief Financial Officer (CFO), and such other personnel as deemed appropriate by the Company); 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 supplier 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), and gas pressure); financial management (accounting methods, operating and capital budget and forecast, and temporary financing and financial statements); insurance, eminent domain, and other items. Although mention is made in the Management Agreement of PGW having a Board of Directors, governance in this agreement, in practice, is shared with the PGC, whose members are appointed by the Mayor and City Council and are aided by the City Solicitor and the City's Director of Finance.

The PFMC Board consists of seven members, all appointed by the Mayor, although they are currently operating with only six members (three of whom are City employees) following one of the board member's resignation at the end of August 2013. It is unknown when the current vacancy will be filled. Two of the Board members have served since 2008, with three members appointed in 2012 and one appointed in 2013. The six members represent considerable experience in public finance, education, and community leadership. There are no internal PGW members on the Board. There are no other formal selection policies, practices, or criteria for members of the Board. In addition, there are no restrictions (e.g., retirement age, tenure, etc.) for membership; however Board members serve two year terms.

The makeup and activities of the PFMC Board of Directors are documented in the by-laws, which were last updated in 1991. Regular meetings of the Board are held a minimum of six times per year to include an annual meeting to elect Board officers (i.e., Chairman, Vice-Chairman, and Treasurer). Each member of the Board has full access to all records, personnel, and information related to the PFMC's responsibilities to oversee PGW and any of its own activities.

The PFMC Board has four committees: Finance, Audit, Business Development, and Workforce Development. The latter two committees have been inactive due to the UIL Holdings Corporation (UIL) sale process which transpired during much of 2014. In December 2014, UIL rescinded its sale purchase agreement after failing to receive the necessary approvals. Only the Audit Committee has a charter to guide its activities and responsibilities. During the past five years, Board meetings have concentrated on updates to the PGW scorecard, a set of metrics focused on capital/financial data, customer satisfaction goals, and resolutions approving contracts. PGW senior management are present at all Board meetings and have given presentations on safety, customer service issues (e.g. collections),

the PaPUC biennial report (JD Power Consumer Index and various customer statistics), and specific operational issues.

The PFMC Audit Committee is responsible for assisting the full Board by providing oversight of financial reporting, risk management, internal control, compliance, and ethics. This committee has specific oversight responsibilities for the external and internal audit processes. There are three Board members on this committee, none of whom have any daily management functions within PGW. Meetings are held at least quarterly and are attended by PGW representatives from Internal Audit, Risk Management, and Finance, as well as by the CEO, COO, and CFO. The external auditor and members of PGW senior management may also attend. During the past year, the Audit Committee has focused on reviewing the status of internal auditing activities and reports from the external auditor on financial/accounting matters and risk management. At one meeting, the PGW Ethics program was addressed through a presentation update.

The Finance Committee, which is comprised of the same three members as the Audit Committee, usually meets monthly to approve resolutions on contracts. The Finance Committee is also responsible for making recommendations to the whole Board on capital and operating budget submissions and budget amendments.

The Workforce Development Committee and the Business Development Committee were formed in July, 2013 (three PFMC Board members serve on each committee) and have only met once (March, 2014). Both of these committees are currently inactive.

Philadelphia Gas Commission

In addition, governance is also exercised by the Philadelphia Gas Commission. The PGC, governed by the Management Agreement and the Philadelphia Home Rule Charter, consists of five members: two members appointed by the Mayor, two members appointed by the City Council, and the City Controller. PGC members are appointed to four-year terms. 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 CEO, COO, and 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).

The PGC members are currently comprised of two council members, the City Controller, and two mayoral appointees with accounting, tax, and treasury experience.

Other Applicable Laws and Legislation

PFMC is bound by the Commonwealth of Pennsylvania's Nonprofit Corporation Law. In general, this law requires non-profit 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 Choice and Competition Act gives the PaPUC 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, 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. In addition, they are bound 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 from time to time 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, 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's 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 municipal utility such as PGW.

Board members on the PFMC receive no compensation for their service and in essence must be willing to serve as a public servant (PFMC expenses are further discussed in *Chapter V – Financial Management*). Members of the PGC may receive compensation as fixed by the City Council.

Audits

Since 2003, PGW's financial audits have been conducted by KPMG, LLP. KPMG does some minor work on bond issues, but it does no consulting or tax work for PGW. 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 audits for a five-year period, with an option to extend the contract in subsequent years. Initially KPMG performed PGW's audits for the five-year period spanning 2003 through 2007, then extended the KPMG contract for one final year in accordance with its renewal rights under the agreement. Then in 2009 and again in 2013, PGW issued another request for proposal for an external auditor, which was awarded to KPMG both times. Although KPMG has been PGW's external auditor since 2003, audit partners are rotated every four to five years.

The Internal Auditing group is part of the Finance group. The Manager of Internal Auditing reports to the Director of Financial Reporting and Oracle Administration, who in turn reports up to the Executive Vice President and Acting Chief Financial Officer. The CFO reports directly to the President and CEO of PGW. Currently the Internal Auditing Department is composed only of the Manager, a contract employee starting in January 2015 (who may fill one of the vacancies), and an Internal Audit intern who currently works two days each week. Since March 2003 all internal audits have been performed by an outside auditing firm. As of early January 2015, the Internal Auditing Department had two budgeted Internal Auditor positions, which have not yet been filled, and is planning on expanding that request to three positions. Additional personnel in the Internal Audit Department will allow more audits to be conducted internally. Currently, there is one remediation audit planned for the Internal Audit

Department and three additional audits that are to be conducted by Ascent, an Internal Audit contractor, which is also advising PGW's Internal Audit personnel. Internal Audit will attempt to hire the open positions internally, rather than externally, because this is the most expedient method to fill the vacancies.

All Internal Audit staff are credentialed with certifications in public accounting or internal audit. There is no information technology internal audit specialist at this time. The current internal audit contractor can be called upon to provide that specialty.

Because Internal Audit reports administratively to the EVP & Acting CFO, any internal audits of the Finance or Accounting groups are currently being conducted by the Internal Audit contractor, Ascent.

The Manager of Internal Auditing attends PFMC Audit Committee meetings where the status of internal audits is discussed on a regular basis. These meetings are also attended by the Director of Financial Reporting & Oracle Administration, the Executive Vice President & Acting Chief Financial Officer, and the Chief Executive Officer. There were no indications that the PFMC Audit Committee held any executive sessions with the Manager of Internal Auditing.

Internal Auditing activities are discussed in more detail in *Chapter V – Financial Management*, including *Finding VI-6* and *Recommendation VI-5* alternatives for fulfilling internal audit requirements.

Internal Controls and Risk Management

Internal control functions are located in the Finance Group. Although financial control responsibilities are shared widely within the department, much of the process comes under a Director of Financial Reporting & Oracle Administrator. Reporting to the Director are Managers of Oracle Administration, Financial Reporting, and Internal Auditing. Internal control is evaluated annually by PGW's external auditor, KPMG, as part of its overall assessment on the preparation and fair preparation financial statements free from material misstatement. In its assessment, KPMG did not find any material internal control weaknesses and gave the opinion that PGW's financial statements present fairly, in all material respects, the respective financial position of PGW. This topic is further discussed in *Chapter V – Financial Management*.

The Enterprise Risk Management (ERM) Program has been in development since 2008. Initially addressed as part of the Strategic Focused Organization (SFO) effort, it has recently been revived under the Director of Risk Management, who reports directly to the Chief Administrative Officer and General Counsel. As part of this effort, PGW hired an outside consulting firm to make recommendations to improve the program and provide training to PGW Vice Presidents in ERM. The Risk Management organization are also participants in several industry groups (as discussed in *Chapter III – Support Services - Risk Management)* and a roundtable group to discuss relevant issues and develop risk management programs and procedures. Although there is not yet a formal ERM program in place, individual departments and external and internal auditing address risk issues in the course of their budgeting activities and audits. In addition, the Audit Committee of the PFMC Board has been charged in a

recently developed charter to oversee the implementation of an ERM Program at PGW. This topic is more thoroughly discussed in *Chapter III – Support Services - Risk Management*.

Business Transformation

In November 2006, PGW initiated a program called business transformation (BT). During the first phase of this program, 13 different areas, opportunities, or initiatives were identified as having significant cast and service impacts. These initiatives identified approximately $140 million in projected five-year benefits (2009 through 2014) to PGW at an upfront cost of $30 million. Although by 2014 the business transformation process was completed, PGW reports savings results in a monthly scorecard to the PFMC. These recent efforts are discussed in *Chapter II – Executive Management and Human Resources*.

Ethics

PGW's Ethics Program is defined in the "Ethics and Conflict of Interest Compliance and Policy Program" in the Human Resources Department's Personnel Policies and Procedures. This directive and policy sets forth standards required in the State Ethics Act as well as additional ethical standards prescribed by PGW. The PGW Ethics Policy applies to all non-union PGW executives, managers, and employees, regardless of their position.

This 36-page document discusses the broad expectations concerning honesty, integrity, and loyalty as well as specific activities and transactions concerning handling cash and bank accounts, use of corporate credit cards, maintaining confidential information, acceptance of discounts, wrongful or illegal conduct on company time, claiming expense reimbursement, misuse of company time, engaging in conflicting outside employment, unauthorized use of PGW assets, maintaining accuracy of records, unauthorized use of software and computers, engaging in political contributions and activities, and unauthorized use of copyrighted materials.

Specific requirements involving actual, potential, or perceived conflicts of interest are addressed and include disclosures of relationships that could constitute a conflict, soliciting/offering and accepting gifts and preferential treatment, soliciting/accepting future employment and honorariums, and guidelines on contracts and employment, among other issues.

The obligation and process for reporting and investigating ethics violations include multiple organizational reporting points (including a designated PGW Ethics Officer, who is an employee of the Legal Department) as well as a confidential hotline.

Although the State Ethics Act and the Ethics Policy do not apply to bargaining unit personnel, any ethics violations by bargaining unit employees are typically handled under the PGW Corporate Discipline Policy. This discipline policy (last updated in April 2012) states that disciplinary actions for certain violations of PGW policies may result in discharge from employment for the first offense (depending on the seriousness of the offense). Work rule violations are clearly documented and

categorized by minor, major, or dischargeable offense. The disciplinary process and removal of discipline from the employee's records (in cases where no further violations occur within a period of time depending on whether it is a minor or major offense) are also detailed. This policy applies to both union and non-union employees to a certain extent, specifically (a) the penalties and disciplinary processed described therein, however, apply only to union-represented employees, and (b) non-union employees are subject to all discipline, including discharge, not prohibited by applicable law.

Ethics expectations are further reinforced through PGW's Code of Conduct. This brief policy (last updated in May 2008) affirms PGW's expectations that all employees act with the highest degree of integrity and professionalism in conducting PGW business. This policy reinforces items listed in the ethics policy and includes: treatment of customers, employees, public officials, etc.; confidentiality of information; harm or damage to personnel or PGW property; conflicts of interests; and sexual harassment. Procedures for reporting violations (from employees and supervisors) and possible disciplinary action are also covered.

Each new employee is given a packet of Human Resources procedures, which includes the Anti-Harassment/Sexual Harassment Policy, the Corporate Discipline Policy and the Ethics and Conflict of Interest Policy, among others. All new employees are asked to review these policies and to sign a letter acknowledging they have received them. New employees must also sign a letter stating they have read and understand PGW's corporate expectations, which include ethical behavior.

Every two years, all employees subject to the Ethics Policies are required to attend formal ethics training via presentations. The most recent training session focused on conflict of interest and actual instances of employee misconduct that resulted in termination. There is a sign-in sheet for these presentations, which are maintained in the Human Resources Department and are available on the Intranet. There are also ad hoc ethics discussions at management team meetings. Ethics topics are also addressed ad hoc through PGW employee communication vehicles such as Blue Flame, the Company newsletter.

Ethics is also a subject at the training PGW conducts for those taking on supervisory responsibilities. The Supervisor Boot Camp presentations include topics concerning specific ethical situations and consequences whereby employees have lost their jobs, have stolen time (e.g. falsifying time records, performing personal work on PGW time, etc.), and have engaged in theft. They also cover special treatment, confidentiality, and misrepresentations.

In the past three years, there have been no violations of the Ethics Policy that have resulted in any investigations. A number of questions have been raised regarding whether specific activities and actions constitute, or could constitute, ethical violations. In all cases, these questions resulted in written opinions and the resulting action being taken. In no case was disciplinary action taken.

Although ethics is not a topic at every PFMC Board meeting, the General Counsel of PGW attends each meeting and is available to discuss ethics issues. The Ethics Officer is also made available to PFMC Board meetings as necessary, although he has attended only three meetings in the past eight years.

Although disclosure of any potential conflict of interest is required under the Ethics Policy, annual submissions of disclosure forms are not required of all employees. The State Ethics Act (specifically the State Ethics Commission Statement of Financial Interests) only requires individuals who are "public officials" and "public employees" to file annual statements of financial interests. At PGW, employees who hold the title of Vice President and above are considered public officials and file annual disclosure statements. PGW employees are considered public employees if they are in a position to recommend and/or take official action concerning contracting or procurement; inspecting, licensing, regulating or auditing any person; administering or monitoring any grants or subsidies; planning or zoning; or in general any position where their official action has a greater than de minimis economic impact. PGW's Legal Department has issued a memorandum to executives and managers further interpreting how these requirements translate to PGW. PGW's list of public employees is reviewed and modified annually by the Ethics Officer and the Director of Administration (in Human Resources) to reflect any changes during the previous year. All PGW employees subject to the State Ethics Act file their annual disclosure statements with PGW's Legal Department, which also follows up to ensure that all necessary statements are filed annually.

B. Findings & 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 are fairly narrow. There is considerable experience with some members in public finance and community/education leadership; however, there are no PFMC members who have the desired level of experience with private sector finance and auditing, gas operations, or customer service. Likewise, there are no members who have senior-level utility management experience.

PFMC directors and PGC members receive no board compensation for their service (PGC members who are City employees only receive compensation for their City positions), which could hinder recruitment of future directors and members. The Chief Executive Officer of PGW 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. However, broad oversight responsibilities also reside with the PGC. Therefore, because the PFMC is a private non-profit corporation with a Board of Directors and PGC members have broad oversight responsibility, PGW actually has two de facto boards. As noted earlier, much of the PGC's original responsibilities evolved around its rate-making functions and responsibilities. But the rate-setting and customer complaint functions, previously handled by the PGC,

have been transferred to the Pennsylvania Public Utility Commission. 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 maintain two distinct Boards of Directors. PGC expenses borne by PGW are budgeted at approximately $800,000.

The PGC has no committee structure. The PFMC has two active committees: Finance and Audit. (The Business Development and Workforce Development Committees are inactive as discussed previously.) The Audit Committee is the only committee that has a charter to define its roles and responsibilities. The minutes for the PFMC and the Finance and Audit Committees are not detailed enough to give an adequate picture on the depth and range of Board discussions. Members of the Finance Committee generally hold meetings via telephone.

In Schumaker & Company's experience in the private utility sector, and especially with the advent of Sarbanes-Oxley, the roles and responsibilities of Boards of Directors typically have become much more clearly defined, with very detailed 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 are clearly documented.

Schumaker & Company consultants are familiar with public entities in the utility and non-utility industry. None of these other entities operates with two separate Boards in the manner as PGW.

Finding IV-2 Ethics procedures and processes are not properly documented.

The Ethics hotline is the Ethics Officer's business line. There is no independent, confidential means for reporting ethics violations. In the past, PGW had a separate internal ethics hotline that was rarely used. The manner in which allegations are logged and investigated is somewhat informal. The Ethics Officer, a designated position in the General Counsel's office, works with Security (headed by the Chief of Staff), HR, and other departments as needed to investigate and resolve ethics complaints. Most such complaints are ultimately found to be due to labor issues and are not really ethical in nature. The Ethics Officer does not maintain an allegations log. Allegations that are considered ethics matters result in a memorandum that is electronically maintained by the Ethics Officer in individual folders.

Although PGW has a substantive, documented ethics policy, investigations on allegations are too informal, disjointed and undocumented. Although there is an advertised ethics hotline, this telephone line is just that of the Ethics Officer and not an independent, outside line. Paperwork on ethics investigations resides with the Ethics Officer; however, investigations that pertain to corporate discipline are maintained in Labor and, in some instances, Security.

The Code of Conduct policy requires violations, which may include ethical violations, to be reported to either the Vice President of Human Resources or the Office of the General Counsel. This policy does not specifically direct that violations be reported to the Ethics Officer. Likewise, the hotline is not

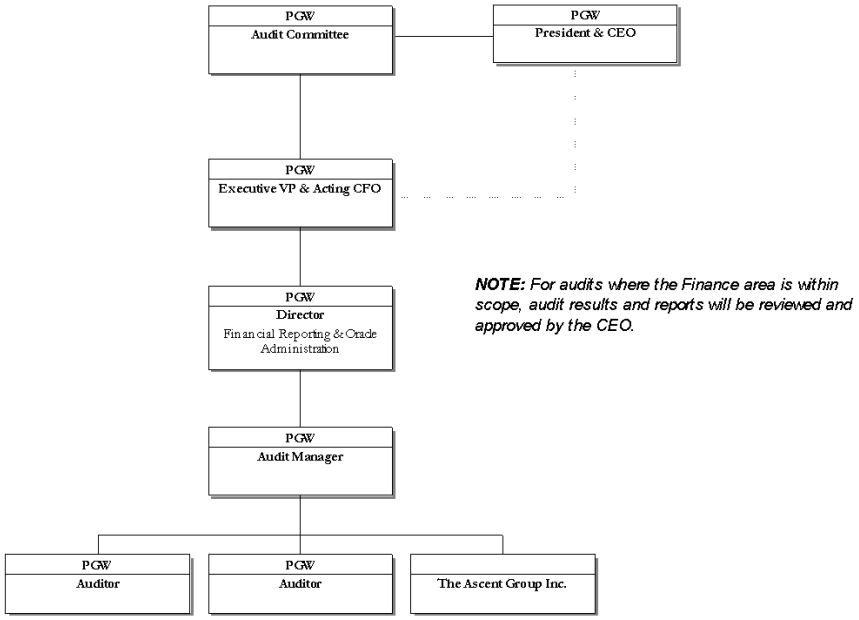
included in this policy. The Vice President of Human Resources should not be a reporting point for ethics violations.

Finding IV-3 Internal Audit's reporting structure as reported to the Audit Committee does not ensure independence.

Two different reporting structures for the PGW Internal Audit team have been presented to Schumaker & Company through interviews and information responses.

In the September 2013 Audit Committee meeting, the organizational structure for the Internal Audit Department was shown, which was prior to the addition of the current Internal Audit Manager. The structure had been reviewed and confirmed by KPMG as an acceptable reporting structure, aligned with corporate governance practices. This organization was presented at the January 2014 Audit Committee meeting using the slide shown in *Exhibit IV-2*.

Exhibit IV-2
Internal Audit Organization as presented to the PGW Audit Committee as of January 2014

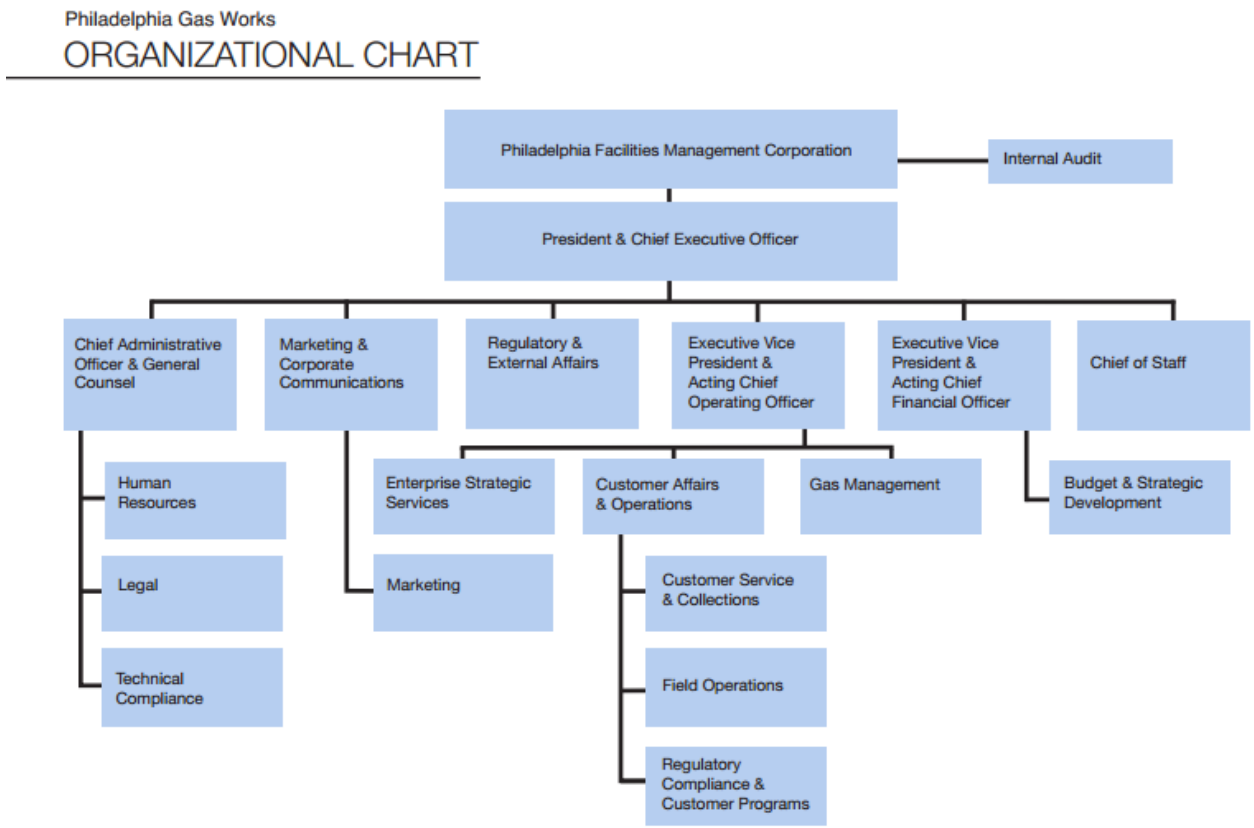


Source: Information Response 293-002, Page 7

Exhibit IV-2 shows the presentation made to the Audit Committee and is the same structure shown in the Internal Audit Policies and Procedures. This is the structure discussed through most of the interviews; however, the PGW Comprehensive Annual Financial Report (shown below in *Exhibit IV-3*) for the fiscal years ending August 31, 2014 and August 31, 2013 displays a structure that is more in line with common practices in which an Internal Audit Department reports directly to the Audit Committee,

and not through the EVP & Acting CFO. This organizational structure would facilitate more independent reporting. Follow up with the Director, Financial Reporting and Oracle Administration indicated that the initial presentation to the Audit Committee showing the Internal Audit function reporting through the EVP & Acting CFO has not been corrected.

Exhibit IV-3
Organizational Chart from PGW's Comprehensive Annual Financial Report
2013



Source: Information Response 623

Therefore, in summary, it is not clear where in the organization the Manager of Internal Auditing directly reports. According to PGW organizational charts, the Manager of Internal Auditing reports up through the Finance Department, two layers below the CFO. According to PGW management and as reflected in the Internal Audit Charter, the Manager of Internal Audit has a direct reporting line to the PFMC Audit Committee with only administrative reporting going to the Finance Department. The Audit Committee charter mentions the Committee's responsibilities to oversee the independence of the Internal Auditor, but it stops short of specifying functional reporting. The Internal Audit charter mentions that internal auditing reports functionally to the PFMC Audit Committee, but a subsequent organizational chart shows Internal Auditing reporting functionally up through the Finance organization.

Additionally, the Manager of Internal Auditing reports too low in the organization and is too dependent on outside auditors. The Manager of Internal Auditing does attend and regularly report on the status of internal audits to the PFMC Audit Committee, but also in attendance are her direct reports going up three levels in the organization. The PFMC Audit Committee does not regularly meet with the Internal Audit Manager in executive session.

C. Recommendations

Recommendation IV-1 Improve the structure and processes of Board governance. (Refer to Finding IV-1.)

The duties and responsibilities of the PFMC and the PGC should be combined into one Board of Directors. This combined Board should have approval authority over operating and capital budgets among other governance responsibilities.

This combined Board should be expanded to at least nine directors which includes the CEO and COO of PGW as inside directors. The remaining directors should be independent. The Chairman of the Board should also be an independent director. Independent directors should be selected by the combined Board based on a formal set of director criteria that includes, at a minimum, education, experience, age, and a demonstrated ability to put in the time and effort to be an effective director as well as a demonstrated ability to be independent of PGW management. Directors should represent a wider range of experiences, including gas operations, utility operations, customer service, and financial auditing, among others. Directors should serve staggered four-year terms to increase overall Board experience and continuity, although procedures should be in place to remove a director who is not adequately performing his duties. Board members should be paid to attract qualified individuals.

The Board and all Board committees should have detailed charters expressing their roles, responsibilities, and major processes and should have the expressed financial support to hire outside expertise as necessary to assist in their oversight role. The Board and its committees should meet at least quarterly (regular monthly meetings are not necessary), and agendas and minutes should contain enough detail to accurately reflect the level of discussion on issues brought before the Board (to include any dissenting opinions). There should be only one secretary to the Board, who should also serve as secretary to all committees. The Board and its committees should make use of regular executive sessions to discuss issues and topics without the CEO and COO present and to provide a confidential forum for sensitive information from the Chief Ethics Officer, Manager of Internal Auditing, and others as appropriate. All Board members should be expected to attend all meetings (including committee meetings) in person (not by telephone).

Cost savings would approximate $500,000 annually, as PGC expenses borne by PGW are budgeted at approximately $800,000, less roughly $300,000 to pay stipends to five Board members.

Recommendation IV-2 Strengthen ethics procedures and processes. (Refer to Finding IV-2.)

The ethics hotline should be maintained by an outside, independent agency. This independence should be clearly publicized to all PGW employees. Procedures should specifically require ethics allegations be reported to the Chief Ethics Officer (not simply to a department). The Chief Ethics Officer should maintain a log of all communications and allegations with resolutions and, as necessary, investigations and follow-up actions. Other parts of the PGW organization (e.g., Security) can assist with investigations and resolutions, but the Chief Ethics Officer should be responsible for these efforts and should maintain all of the appropriate documentation. A report on ethics should be a regular agenda item for Board meetings, and the Chief Ethics Officer should attend meetings and be available for executive session with the Board or Audit Committee.

The Chief Ethics Officer should report, at a minimum, directly to the General Counsel. Directly reporting to the CEO or the Board of Directors, with administrative reporting to the General Counsel and Corporate Secretary, would further strengthen this position's role and visibility.

Recommendation IV-3 Revise the Internal Auditing Department reporting structure so that the Manager of Internal Audits reports directly to the PFMC Board's Audit Committee and no longer administratively to the CFO. (Refer to Finding IV-3.)

The Internal Auditing function should directly report to the Chair of the Board Audit Committee and should only administratively report to the CAO and General Counsel, CEO, or COO, not through the CFO organization. All organizational charts, procedures, and position descriptions/charters should explicitly reflect this reporting relationship. Furthermore, the Manager of Internal Auditing should meet regularly with members of the Audit Committee in executive session.

The changes in reporting relationships stemming from SOx, SEC, and NYSE rules have been established by corporations to emphasize the importance of establishing and maintaining Internal Auditing's independence. As a result, the Manager of Internal Auditing is required by these rules to report functionally to the Audit Committee; however, these rules do not provide guidelines regarding who the Manager of Internal Auditing should report to on administrative matters. According to a February 2013 Journal of Accountancy article, the Board of Governors of the Federal Reserve System (Federal Reserve) issued a January 2013 Supplemental Policy Statement (2013 Supplemental Policy Statement) as a result of the 2008 financial crisis on the 2003 Policy Statement on the Internal Auditing function and its outsourcing to promote objectivity in the function. The 2013 Supplemental Policy Statement states in part:

> "Internal audit is an independent function that supports the organization's business objectives and evaluates the effectiveness of risk management, control, and governance processes. The 2003 Policy Statement addressed the structure of an internal audit function, noting that it should be positioned so that an institution's board of directors has confidence that the internal audit function can be

> impartial and not unduly influenced by managers of day-to-day operations. Thus, the member of management responsible for the internal audit function should have no responsibility for operating the system of internal control and should report functionally to the audit committee. A reporting arrangement may be used in which the Chief Audit Executive (CAE) is functionally accountable and reports directly to the audit committee on internal audit matters (that is, the audit plan, audit findings, and the CAE's job performance and compensation) and reports administratively to another senior member of management who is not responsible for operational activities reviewed by internal audit. When there is an administrative reporting of the CAE to another member of senior management, the objectivity of internal audit is served best when the CAE reports administratively to the chief executive officer (CEO). If the CAE reports administratively to someone other than the CEO, the audit committee should document its rationale for this reporting structure, including mitigating controls available for situations that could adversely impact the objectivity of the CAE. In such instances, the audit committee should periodically (at least annually) evaluate whether the CAE is impartial and not unduly influenced by the administrative reporting line arrangement. Further, conflicts of interest for the CAE and all other audit staff should be monitored at least annually with appropriate restrictions placed on auditing areas where conflicts may occur." (Emphasis added)

The article, according to the President and CEO of the Institute of Internal Auditors (IIA), further states although CAEs in United States (US) companies typically report administratively to the CFO, there are inherent risks in this reporting relationship.

Moreover, this reporting relationship trend over the past 10 years has lessened, as more CAEs now report to the CEO and, in some cases, administratively to the General Counsel, Chief Risk Officer, or Chief Operating Officer. The IIA President also noted that, although this administrative reporting relationship is not required by IIA standards, he anticipates the model whereby the CAE reports administratively to the CEO to become more widely adopted.

Schumaker & Company recommends that the Manager of Internal Auditing report administratively to senior management other than the CFO, so there is not actual or perceived relationships to the Accounting and Finance organizations. The existing reporting relationship results in the potential risk of influence, or at least the appearance of influence on the Internal Auditing function with regard to what activities are undertaken and the scope or timing of these activities.

It is also not clear that the reporting structure for Internal Audit is clearly understood at PGW, with contradictory documents being provided and confirmed in interviews. To ensure independence, Internal Audit should report directly to the Audit Committee. Having internal PGW personnel and the Audit Committee consistently apprised of the actual reporting structure would be a first step along the path.

Other recommendations on expanding the Internal Auditing capabilities are contained in *Chapter V – Financial Management*.

V. Financial Management

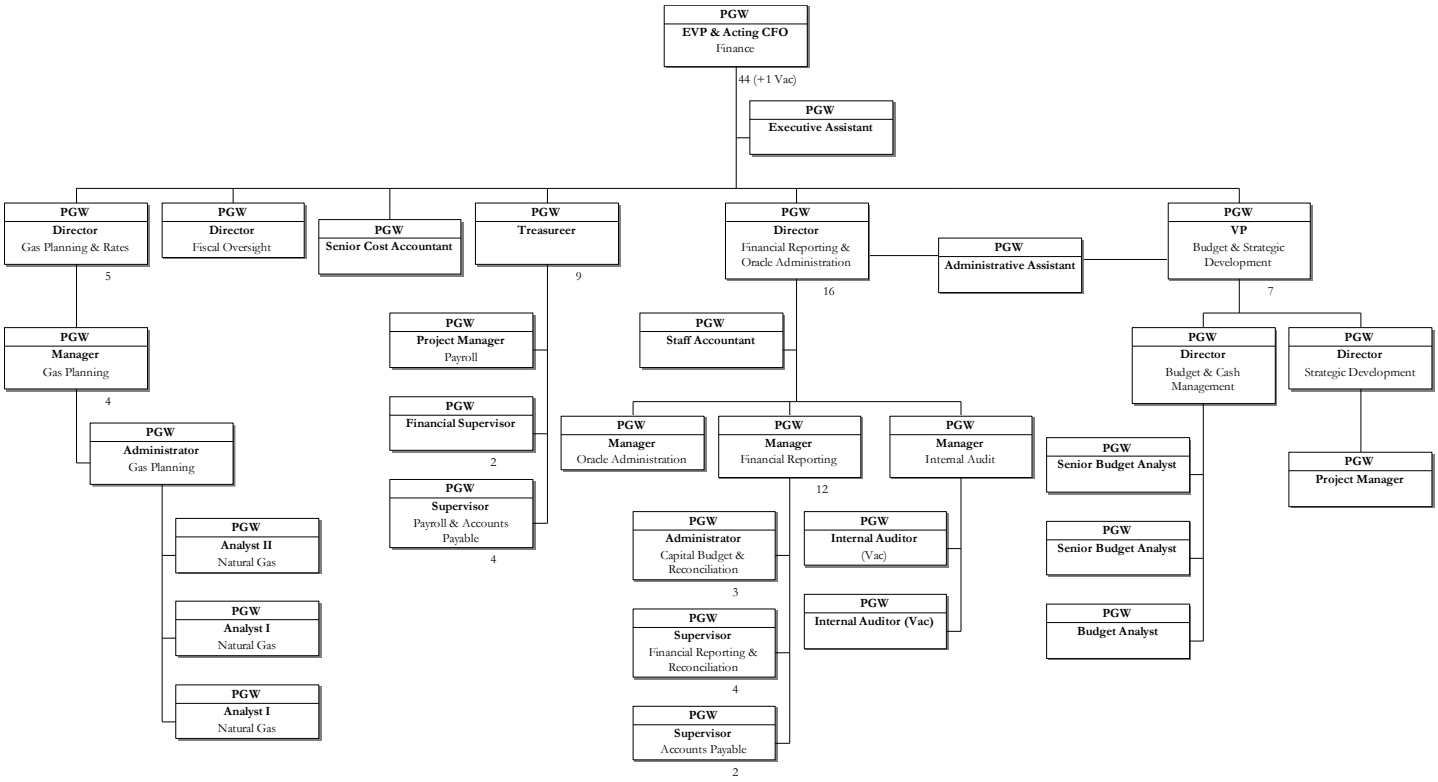
A. Background & Perspective

Organization & Staffing

Organization

Financial management functions to support PGW are provided by members of the Finance Organization. The organization of these areas is shown in the organizational chart in *Exhibit V-1*. The Finance area is headed by an Executive Vice President (EVP) & Acting Chief Financial Officer (CFO), who reports directly to PGW's President and Chief Executive Officer (CEO).

Exhibit V-1
Finance Organization
as of October 2014



Source: Information Response 1

The EVP & Acting CFO is responsible for several areas, including Gas Planning & Rates, Fiscal Oversight, Treasury, Financial Reporting and Oracle Administration, and Budget and Strategic

Development. The EVP & Acting CFO is supported by a Director – Fiscal Oversight, Senior Cost Accountant, and an Executive Assistant. The Senior Cost Accountant works on special projects focused on the gas area and fiscal oversight review projects. One of the EVP & Acting CFO's direct reports, the Director of Financial Reporting and Oracle Administration, is responsible for capital accounting, accounts payable, financial reporting, Oracle administration, and internal audit. This Director has five direct reports: Manager - Oracle Administration, Manager – Financial Reporting, Manager – Internal Audit (Administrative), one Staff Accountant and a shared Administrative Assistant. Another direct report to the EVP & Acting CFO, the Treasurer, is responsible for payroll, retiree payroll, portions of accounts payable, and some general ledger reporting. Reporting to the Vice President (VP) of Budget and Strategic Development are a Director of Budget and Cash Management and a Director of Strategic Development, as well as a shared Administrative Assistant. Another direct report to the EVP & Acting CFO, the Director of Gas Planning & Rates, is responsible for estimating gas demand and expense requirements for the budget and forecast filings for the PGC, managing PaPUC regulatory filings including the 1307F Gas Cost Recovery (GCR) filing, the quarterly GCR filings and the development of Interruptible sales rates and margins. Gas Planning & Rates is not covered in this chapter (see *Chapter VII – System Reliability Performance & Other Related Operations*), although as the Director is a direct report to the EVP & Acting CFO, it is mentioned in this section.

Staffing Levels

Staffing levels over time are illustrated in *Exhibit V-2*.

Exhibit V-2
Staffing Levels
Calendar Year End 2009 through 2013, plus August 31, 2014

Job Title / Department	Non-Union/Union	2009	2010	2011	2012	2013	2014 (Aug)
Internal Audit							
Director - Internal Audit Strategy & Planning	Non-Union			1	1		
Director - Internal Audit	Non-Union	1	1				
Acting Director - Internal Audit	Non-Union			1	1		
Manager - Internal Audit	Non-Union					1	1
Internal Auditors	Non-Union	1	1	0	1	2	1
Sub-total		**2**	**2**	**2**	**3**	**3**	**2**
Accounting & Reporting							
Controller	Non-Union	1	1	1			
Director - Financial Reporting & Oracle Administration	Non-Union					1	1
Manager - Financial Reporting	Non-Union	1	1	1	1	1	1
Oracle Administration Manager	Non-Union	1	1	1	1	1	1
Sr. Cost Accountant	Non-Union	1	1	1	1	1	1
Staff Accountant	Non-Union	1	1	1	0	1	1
Administrative Assistant	Non-Union	1	1	1	1	0	0
Sub-total		**6**	**6**	**6**	**4**	**5**	**5**
Accounts Payable							
Supervisor - Accounts Payable	Non-Union	1	1	1	1	1	1
Accounting Assistant	Union	2	2	2	2	2	2
Sub-total		**3**	**3**	**3**	**3**	**3**	**3**
Capital Budget & Reconciliation							
Administrator - Capital Budget & Reconciliation	Non-Union	1	1	1	1	1	1
Accounting Assistant 1A	Union	2	2	2	2	2	2
Accounting Assistant 2A	Union	1	1	1	1	1	1
Sub-total		**4**	**4**	**4**	**4**	**4**	**4**
Financial Reporting & Reconciliation							
Supervisor - Financial Reporting & Reconciliation	Non-Union	1	1	1	1	1	1
Accounting Assistant 1A	Union	1	1	1	1	1	1
Accounting Assistant 2A	Union	1	1	1	1	1	1
Accounting Assistant 3A	Union	2	2	2	2	2	2
Sub-total		**5**	**5**	**5**	**5**	**5**	**5**
Total		**20**	**20**	**20**	**19**	**20**	**19**

Source: Information Response 460 and PGW Draft Report Comments; response excludes Gas Planning, Treasury, Director – Fiscal Oversight, and VP, Budget & Strategic Development personnel

General Financial Overview

Financial Statements

The financial statements of Philadelphia Gas Works (PGW) for the past five fiscal years (FY2010–FY2014) were audited by KPMG, LLC, a firm of licensed Certified Public Accountants (CPAs). These audits were conducted in accordance with auditing standards generally accepted in the United States of America and with the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States. KPMG provided its unqualified opinion that the financial statements "presented fairly, in all respects, the financial position" of PGW for each of these fiscal years ending August 31st and the related "changes in financial position, and its cash flows." A summary of PGW's Statements of Revenue and Expenses for the last five fiscal years (FY2010–FY2014) is shown in *Exhibit V-3,* with balance sheet comparisons for the same time period shown in *Exhibit V-4*.

Exhibit V-3
Summary of Revenues and Expenses
FY2010 to FY2014
($ Thousands)

	FY2010	FY2011	FY2012	FY2013	FY2014	% Change FY2010 - FY2014
REVENUES						
Gas Revenues	742,342	749,268	628,387	675,154	736,138	-0.84%
Other Operating Revenues	16,890	17,011	16,596	18,317	22,998	36.16%
Total Revenues	759,232	766,279	644,983	693,471	759,136	-0.01%
OPERATING EXPENSES						
Operating Expenses before Depreciation	624,116	602,725	510,163	532,969	596,593	-4.41%
Net Depreciation	38,478	38,915	40,175	41,042	41,657	8.26%
Total Operating Expenses	662,594	641,640	550,338	574,011	638,250	-3.67%
OPERATING INCOME	96,638	124,639	94,645	119,460	120,886	25.09%
INTEREST and OTHER INCOME	5,301	4,348	4,659	1,147	3,597	-32.14%
INTEREST EXPENSE	71,123	75,682	69,544	59,965	59,965	-15.69%
NET INCOME (excess of revenues over expenses)	30,816	53,305	29,760	60,642	67,348	118.55%
NET POSITION						
Beginning of the year[1]	243,619	274,435	304,185	315,945	358,587	47.19%
Distribution to the City of Philadelphia	(18,000)	(18,000)	(18,000)	(18,000)	(18,000)	0.00%
Grant back of distribution from the City of Philadelphia	18,000	0	0	0	0	-100.00%
NET POSITION, END of YEAR	274,435	309,740	315,945	358,587	407,935	48.65%

[1] During FY2013, PGW implmented GASB Statement No. 65, Items Previously Reported as Assets and Liabilities, that amends or supersedes the accounting and financial reporting guidance for certain items previously required to be reported as assets or liabilities. The objective is to either properly classify certain itmes trhat were previously reported as assets and liabilities as deferred outflows or resources or deferred inflows or resources or recognize certain items that were previously reported as assets or liabilities as outflows of resources (expenses) or inflows of resources (revenues). This change was retroactive to FY2012.

Source: Information Responses 85, 86, and 621 and PGW's Comprehensive Annual Report for the fiscal years ended August 31, 2012, August 31, 2013, and August 31, 2014.

Exhibit V-4
Balance Sheets
FY2010 to FY2014
($ Thousands)

	FY2010	FY2011	FY2012	FY2013	FY2014	% Change FY2010 - FY2014
ASSETS						
Utility Plant, net	1,094,009	1,111,078	1,125,650	1,154,987	1,193,552	9.10%
Restricted Investment Funds	284,813	236,966	199,969	155,155	111,729	-60.77%
Current Assets						
Accounts Receivable	92,173	98,925	81,997	97,749	101,457	10.07%
Other Current Assets	212,397	226,902	183,851	197,363	204,944	-3.51%
Total Current Assets	301,570	325,827	265,848	295,112	1,611,682	434.43%
Unamortized bond issuance costs[1] [2]	27,066	24,585	17,417	15,736	14,136	-47.77%
Unamortized losses on reacquired debt	70,873	62,039				N/A
Other Assets and Deferred Debits	22,925	30,640	30,996	33,097	37,528	63.70%
TOTAL ASSETS	1,801,256	1,791,135	1,639,880	1,654,087	1,663,346	-7.66%
DEFERRED OUTFLOW of RESOURCES						
Accumulated fair value of hedging derivatives	25,906	25,360	34,712	12,059	18,879	N/A
Unamortized losses on reacquired debt[2]			53,241	44,868	37,051	N/A
TOTAL DEFERRED OUTFLOWS of RESOURCES	25,906	25,360	87,953	56,927	55,930	N/A
TOTAL ASSETS and DEFERRED OUTFLOWS of RESOURCES	1,827,162	1,816,495	1,727,833	1,711,014	1,719,276	-5.90%
FUND EQUITY and LIABILITIES						
Fund Equity						N/A
Total Long-term Debt	1,224,987	1,166,992	1,086,502	1,033,976	980,749	-19.94%
Current Liabilities						
Current Portion of Long-term Debt	42,537	50,549	30,545	52,406	53,227	25.13%
Other Current Liabilities	95,229	91,336	88,396	88,614	98,100	3.01%
Total Current Liabilities	137,766	141,885	118,941	141,020	151,327	9.84%
Other Liabilities and Deferred Credits	189,974	197,878	206,445	177,431	179,265	-5.64%
TOTAL FUND EQUITY and LIABILITIES	1,552,727	1,506,755	1,411,888	1,352,427	1,311,341	-15.55%
NET POSITION						
Excess (deficiency) of Net Invesment in Capital Assets	(2,706)	15,869	97,442	112,660	159,576	N/A
Restricted (debt service)	114,004	114,634	111,131	111,100	111,729	N/A
Unrestricted[2]	163,137	179,237	107,372	134,827	136,630	N/A
TOTAL NET POSITION	274,435	309,740	315,945	358,587	407,935	N/A
TOTAL LIABILITIES and NET POSITION	1,827,162	1,816,495	1,727,833	1,711,014	1,719,276	-5.90%

[1] For FY2014, FY2013 and FY2012 this category indudes only bond issuance costs.

[2] During FY2013, PGW implmented GASB Statement No. 65, Items Previously Reported as Assets and Liabilities, that amends or supersedes the accounting and financial reporting guidance for certain items previously required to be reported as assets or liabilities. The objective is to either properly dassify certain itmes trhat were previously reported as assets and liabilities as deferred outflows or resources or deferred inflows or resources or recognize certain items that were previously reported as assets or liabilities as outflows of resources (expenses) or inflows of resources (revenues). This change was retroactive to FY2012.

Source: Information Responses 85, 86, and 621; and PGW's Comprehensive Annual Report for years ended August 31, 2012, August 31, 2013, and August 31, 2014

Gas Revenues and Total Revenues have remained steady since FY2010, with FY2014 Total Revenues 0.01% less than those in FY2010. Operating Expenses have decreased approximately 4% over the same period, with the result being a 25% increase in operating income. The most significant factor related to the decrease in Operating Expense was a $50 million reduction in the cost of natural gas, a decrease of 14% from natural gas costs in 2010. Coupled together with a decrease in Interest Expense of almost 20%, this enabled PGW to record an increase in Net Income of over 100% for the past five-year period and an increase in their Net Position at the end of FY2014 compared to year end FY2010 of approximately 49%. Interest Expense decreases were due primarily to PGW's lower principal debt balances, a swap termination payment made in FY2012, defeasance of bonds, and refunding of fixed rate bonds at lower interest rates.

The impact of implementing Governmental Accounting Standards Board (GASB) 65 was that certain debt issuance costs are expensed rather than recorded as an asset and, therefore, are not amortized over the life of the debt. This resulted in the beginning net assets as of September 1, 2011, being reduced by $5.6 million. Also, unamortized losses on reacquired debt of $44.9 million as of August 31, 2013 and $53.2 million as of August 31, 2012 were reclassified from assets to deferred outflows of resources.

Payments to the City of Philadelphia

The City of Philadelphia (City) and the Philadelphia Facilities Management Corporation (PFMC) executed an agreement on December 29, 1972 concerning the management and operations of PGW pursuant to the directions of City Council Bill No. 455. The initial agreement, which has been amended by ordinance numerous times over the past 42 years (most recently by Bill No. 100006 on March 17, 2010), authorized the PFMC to "manage and operate all the property, real and personal, collectively known as the Gas Works for the sole and exclusive benefit of the City." Section VI of this agreement required the Gas Commission to fix and set rates and charges adequate for PGW to "make base payments to the City in the aggregate annual principal amount of $18,000,000."

In 2004, with PGW facing cash flow problems, the City forgave the payment, and no payment was made. For the following six years (2005–2010), PGW made the payment, and the City granted the payment amount back to PGW. In light of PGW's improving financial condition for the past four years (2011–2014), PGW made the payment, and the City retained the payment (i.e., the grants back to PGW ceased).

PGW also makes payments to the City of Philadelphia for services provided by several of its departments. Payments to the City for departmental charges and the required payment over the past five years are shown in *Exhibit V-5*.

Exhibit V-5
Payments to the City of Philadelphia
FY2010 to FY2014
($)

Vendor Name/Payment Description	FY2010	FY2011	FY2012	FY2013	FY2014	Change FY2010 - FY2014	Reason for Charges/Payments
Charges from City Departments							
Housing Authority	21,364				218,742	197,378	Reimbursement for closed accounts and properties that had been sold
Law	676	338	4,419	686	744	68	Legal and Gas Commission Expenses
License & Inspections	950	6,600	2,325	3,900	150	-800	Licenses/Permits
Parking Authority	222		41,739	18,505	20,302	20,080	Parking Fees/Tickets
Public Health	3,515	2,105	6,500	3,510	2,275	-1,240	Air Pollution Licenses and Permits
Public Property	51,899	43,914	47,906	43,914	39,922	-11,977	Gas Commission Rent
Police	22,190	253,850	104,575	134,312	292,886	270,696	Police Traffic Control
Water	5,982		3,800	150	3,401	-2,581	Wastewater Discharge, Liability Case, Manhole Service, etc.
Water Revenue	334,097	457,666	468,352	665,139	722,344	388,247	Water & Sewer Services
Miscellaneous	13,206	14,682	4,559	79,072	129,908	116,702	Radio Maintenance, Software Maintenance, Advertising, Purchased Services, Permits, etc.
Total Department Charges	454,101	779,155	684,175	949,188	1,430,674	976,573	
Distribution to the City of Philadelphia	18,000,000	18,000,000	18,000,000	18,000,000	18,000,000	0	Required by City/PFMC Agreement
Grant Back of Distribution from the City of Philadelphia	-18,000,000	0	0	0	0	18,000,000	Management Agreement
Net Payments to the City of Philadelphia	454,101	18,779,155	18,684,175	18,949,188	19,430,674	18,976,573	

Source: Information Responses 91, 658, and 733

Payments to the City for departmental charges have increased by almost $1 million over the past five years due mainly to increased water & sewer service costs, use of City of Philadelphia Police for traffic control and reimbursement of payments to the Housing Authority. The City granted back to PGW the $18,000,000 payment for 2010.

Payments to the PFMC

The agreement between the City of Philadelphia and the PFMC calls for PGW to pay a management fee to the PFMC "equal to the actual cost … of managing the Gas Works" with a not-to-exceed limit of the maximum payment amount in FY2000 ($800,000), adjusted to reflect the percentage change in the Consumer Price Index for All Urban Consumer (CPI-U)" since FY2000. The U.S. city average CPI-U has increased by approximately 37% since FY2000, which would yield a maximum limit for a management fee for FY2014 in excess of $1 million. The details of the PFMC expenses paid by PGW in the form of management fees for the past five fiscal years are shown in *Exhibit V-6*.

Exhibit V-6
Payments to the PFMC
FY2010 to FY2014
($)

Payment Description	FY2010	FY2011	FY2012	FY2013	FY2014	Change FY2010 - FY2014	Reason for Payments
Salaries	394,358	450,144	350,629	509,754	396,461	2,103	CEO Compensation
Employee Benefits							
Group Life Insurance	491	245	0	0	0	-491	CEO Benefits
Associated Hospital Insurance	11,576	7,288	1,755	3,000	3,000	-8,576	CEO Benefits
Total Employee Benefits	12,067	7,533	1,755	3,000	3,000	-9,067	
Social Security and Medicare Taxes	11,439	17,822	11,956	14,494	13,051	1,612	Taxes on Salaries
Audit Fee	5,000	5,000	5,000	5,000	5,000	0	Annual Audit Fee
Invoices	0	0	152,227	0	0	0	Executive Search Fee for COO and CFO Positions
Total Payments to PFMC	422,864	480,499	521,567	532,248	417,512	-5,352	

Source: Information Response 629

Expenses of the Philadelphia Gas Commission (PGC)

The PGC is a City of Philadelphia commission that is responsible, along with the City of Philadelphia Administration and the Philadelphia City Council, for overseeing PFMC's management and operation of PGW. The PGC is comprised of five Commissioners - two appointed by the Mayor of Philadelphia, two appointed by the Philadelphia City Council (currently these are two City Council members), and the City of Philadelphia Controller. The five-member PGC is supported by an administrative staff comprised of five PGC employees. PGW pays the staff salaries and benefits of the employees of the PGC and all of the other expenses of the PGC. Over the past five years total annual expenses for the PGC have averaged over $760,000, approximately 84% of which were for salaries and benefits of employees and purchased services (primarily the costs of outside consultants and the Public Advocate).

Interest Rate Swap Agreements

In 2006, the City entered into a fixed-rate-payer, floating-rate-receiver interest rate swap to create a synthetic fixed rate for PGW's Sixth Series Bonds. This swap was used to hedge interest rate risk for these bonds. An interest rate swap is a financial derivative that companies use to exchange interest rate payments with each other. In this case, the City was required to pay a fixed rate of 3.6745% to a counterparty and, in return, receive a variable rate equal to 70% of the one-month London Interbank Offered Rate (LIBOR). LIBOR is a benchmark rate that some of the world's leading banks charge each other for short-term loans. The swaps have a maturity date of August 1, 2031.

In August 2009, the City terminated approximately $54.8 million of the notional amount of the swap, issued fixed rate refunding bonds related to that portion, and kept the remaining portion of the swap to hedge the Eighth Series variable-rate refunding bonds backed with letters of credit. PGW paid a swap termination payment of $3.8 million to the counterparty to partially terminate the swap. All of the terms of the swap, other than the principal, remained the same. The principal amount in the swap confirmation was revised to reflect the principal amount of the Eighth Series B Bonds. In September 2011, during a remarketing of the underlying variable rate bonds with new letters of credit, the City terminated $29.5 million of the swaps, paying a $7.0 million swap termination fee. The remaining notional amounts of the swaps were adjusted to match the reallocation of the underlying bonds. As of August 31, 2014, the swaps have a combined negative fair value of approximately $38.8 million. Because the combined fair value is negative, the City is not exposed to credit risk.

Pension Fund Costs

The City sponsors a single employer defined benefit pension plan, the Philadelphia Gas Works Pension Plan (the Pension Plan) to provide pension benefits for all of PGW's employees. In December 2011, the Pension Plan was amended by Ordinance and a new deferred compensation plan was authorized by Ordinance as well. Newly hired employees have an irrevocable option to join either a new deferred compensation plan created in accordance with Internal Revenue Code Section 401 or the existing defined benefit plan. The defined contribution plan provides for an employer contribution equal to 5.5% of applicable wages. The defined benefit plan provides for a newly hired employee contribution equal to 6.0% of applicable wages. The Ordinance did not affect the retirement benefits of active employees, current retirees and beneficiaries, or terminated employees entitled to benefits but not yet receiving them. The Pension Plan covers all employees and provides for retirement payments for vested employees at age 65 or earlier under various options, which includes a disability pension provision, a preretirement spouse or domestic partner's death benefit, a reduced pension for early retirement, various reduced pension payments for the election of a survivor option, and a provision for retirement after 30 years of service without penalty for reduced age. In accordance with Resolutions of the PGC, Ordinances of City Council, and as prescribed by the City's Director of Finance, the Pension Plan is being funded with contributions by the Company to the Sinking Fund Commission of the City. Management believes that the Pension Plan is in compliance with all applicable laws.

PGW's annual covered payroll at the end of FY2014 was $104.1 million. At September 1, 2014, the beginning of the last actuarial valuation's Plan year, the Plan consisted of 2,343 retirees and beneficiaries currently receiving benefits as well as terminated employees entitled to benefits (but not yet receiving them). It also included 1,140 vested participants (over 5 years seniority) and 251 non-vested participants (under 5 years seniority), for a total membership of 3,734.

The normal annual pension contribution, the amortization of the unfunded balance, and the annual required and actual contributions for the past four fiscal years are shown in *Exhibit V-7*.

Exhibit V-7
Annual Pension Cost
FY2011 to FY2014
($ Thousands)

Fiscal Year	Normal Cost	Amortization of the Underfunded Balance	Annual Required Contributions (ARC)	Contributions
FY2011	8,499	14,098	22,597	22,597
FY2012	8,171	15,801	23,972	23,972
FY2013	8,782	14,832	23,614	23,614
FY2014	8,533	15,988	24,521	24,521

Source: Information Responses 621 and 623

PGW's annual pension costs are equal to its annual required contributions (ARC). The ARCs were established based on an actuarial study using the projected unit credit method. The actuarial asset value is equal to the value of the fund assets as reported to the City with no adjustments. The unfunded actuarial accrued liability is being amortized over a 20 year open amortization.

PGW's funding policy for its Pension Plan assumes that the rate of periodic employer contributions, expressed as percentages of covered payroll, will be sufficient to accumulate assets to pay pension benefits when they are due. The actuarial value of assets, the actuarial accrued liability, the unfunded actuarial accrued liability, the funded ratio, the covered payroll, and the unfunded actuarial accrued liability of covered payroll for the past five years are shown in *Exhibit V-8*.

Exhibit V-8
Pension Funding Status
FY2010 to FY2014
($ Thousands)

A	*B*	*C*	*D*	*E*	*F*	*G*	*H*
Fiscal Year	Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accured Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio (%)	Covered Payroll	UAAL as a % of Covered Payroll
				(D - C)	*(C / D)*		*(E / G)*
FY2010	September 1, 2009	355,499	519,773	164,274	68.4%	106,003	155.0%
FY2011	September 1, 2010	381,975	533,630	151,655	71.6%	106,125	142.9%
FY2012	September 1, 2011	421,949	572,190	150,241	73.7%	106,308	141.3%
FY2013	September 1, 2012	437,780	585,632	147,852	74.8%	106,000	139.5%
FY2014	September 1, 2013	462,691	623,612	160,921	74.2%	104,123	154.5%

Source: Information Responses 621

Other Post-Employment Benefits (OPEB)

PGW's OPEB Plan offers a single employer-defined-benefit healthcare plan that provided healthcare and life insurance benefits to approximately 2,053 retirees and their beneficiaries and dependents in FY2014. The annual covered payroll, which was substantially equal to total payroll, was $115.2 million as of August 31, 2014.

On December 19, 2008, The Pennsylvania Public Utility Commission (PaPUC) awarded PGW an extraordinary rate increase of $60 million annually and directed PGW to file a rate base case no later than December 31, 2009. In compliance with this order, PGW filed a supplement on December 18, 2009, proposing changes in rates, rules, and regulations calculated to produce $42.5 million in additional annual revenues to provide funding for PGW's OPEB. This petition was combined with PGW's revised Demand Side Management (DSM) program, and the PaPUC initiated an investigation into the lawfulness, justness, and reasonableness of the proposed changes.

Formal complaints to the proposed changes were received from the Office of Consumer Advocate (OCA), Office of Small Business Advocate (OSBA), Tenant Union Representative Network and Action Alliance of Senior Citizens of Greater Philadelphia (TURN, et al.), Philadelphia Industrial and Commercial Gas Users Group (PICGUG), Philadelphia Housing Authority (PHA), and eight residential customers. Petitions to intervene in the proceedings were granted to the Retail Energy Supply Association (RESA) and the Clean Air Council (CAC). On May 19, 2010, a Joint Petition for Settlement (Settlement) was agreed to and signed by PGW and the Joint Petitioners (OTS, OCA, OSBA, PICGUG, TURN et al., CAC, RESA, and PHA). The eight consumer complainants were given the chance to join in the settlement, remain silent, or object. All of the complaints by the Joint Petitioners or the consumer complainants were deemed to have been satisfied by the PaPUC settlement order adopted July 29, 2010.

In the Settlement, PaPUC approved an incremental rate increase to fund PGW's OPEB liability, resulting in surcharges to customer bills of $16 million annually in lieu of the $42.4 million originally requested. PGW was allowed to maintain the $60 million extraordinary rate relief authorized by the Extraordinary Rate Order and was required to contribute the $16 million derived from the surcharge and an additional $2.5 million annually to PGW's OPEB Trust (Trust) for the years 2011 through 2015. The Trust was established in July 2010 to receive this annual $18.5 million contribution from PGW and to accumulate assets for the OPEB Plan. This amount is designed to fund the unfunded actuarial accrued liability (UAAL) and $3.5 million annually, which represents a 30-year amortization period for the net OPEB obligation of $105.5 million as of fiscal year end (FYE) 2010. The Trust is classified as a fiduciary fund with assets held for the exclusive benefit of PGW retirees and future retirees. The Trust is managed by five Trustees:

- City of Philadelphia Director of Finance
- PGW's Chief Financial Officer
- PGW's Chief Administrative Officer
- Chair of the Finance Committee of the PFMC
- President of the Union representing the majority of PGW's bargaining unit employees

The amount paid by PGW for retiree benefits in FY2014 was $44.4 million, consisting of $24.3 million in healthcare expenses, $1.6 million in life insurance expenses, and $18.5 million contributed to the Trust. The difference between the annual OPEB cost (AOC) and PGW's contributions resulted in a decrease in the OPEB obligation of $7.3 million. PGW's annual OPEB cost, the percentage of annual OPEB cost contributed to the plan, and the net OPEB obligation for the last four fiscal years are shown in *Exhibit V-9*.

Exhibit V-9
Annual OPEB Cost and Contribution
FY2011 to FY2014
($ Thousands)

Fiscal Year	Annual OPEB Cost	% of Annual OPEB Cost Contributed	Net OPEB Obligations
FY2011	45,691	91.3%	109,448
FY2012	46,105	96.5%	111,067
FY2013	40,235	105.0%	109,060
FY2014	37,090	119.6%	101,788

Source: Information Response 85 and FY2014 Audited Financial Report

A schedule presenting the OPEB funding status and contributions made by PGW over the past four fiscal years is shown in *Exhibit V-10*.

Exhibit V-10
OPEB Funding Status
FY2011 to FY2014
($ Thousands)

A	*B*	*C*	*D*	*E*	*F*	*G*
Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accured Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a % of Covered Payroll
			(*C* - *B*)	(*B* / *C*)		(*D* / *F*)
August 31, 2011	17,886	485,722	467,836	3.7%	106,125	440.8%
August 31, 2012	38,860	443,982	405,122	8.8%	106,308	381.1%
August 31, 2013	61,796	436,527	374,731	14.2%	110,120	340.3%
August 31, 2014	90,838	450,289	359,451	20.2%	115,174	312.1%

Source: FY2014 Audited Financial Report

The Trustees determined the investment allocation strategy, which governs how the Trust invests its assets. This allocation strategy compared to the actual portfolio allocation as of September 30, 2014 is shown in *Exhibit V-11*.

Exhibit V-11
Trust Allocation Strategies
as of September 30, 2014

	Allocation Strategy			Portfolio
Portfolio Categories	**Allocation Target %**	**Min - Max Range**	**Recommended Range**	**Allocation % at 9/30/2014**
Domestic Equity	40.0%	35 - 45%	37.5 - 42.5%	41.8%
International Equity	25.0%	20 - 30%	22.5 - 27.5%	27.6%
Fixed Income	30.0%	25 - 35%	25 - 30%	28.1%
Commodities	5.0%	0 - 10%	2.5 - 7.5%	2.5%
Total	100.0%			100.0%

Source: Information Responses 473 and 475

As of the end of FY2014, the percentage of the Trust's assets assigned to each of the categories was within the Recommended or Minimum/Maximum range, complying with the strategy selected by the Trustees.

Demand Side Management Program

On February 11, 2010, the PaPUC granted PGW's request to consolidate its petition for approval of its Demand Side Management program with its request to increase base rates in Docket No. R-2009-2139884 (the same docket that addressed the OPEB annual payment amounts discussed above). In the Settlement terms concerning the OPEB annual payments, PGW was allowed to implement its five-year DSM program that specified that the annual DSM budget would not exceed 1% of PGW's total projected gross intrastate operating revenue and that the DSM program costs would be recovered through an automatic adjustment clause. PGW agreed not to make a claim for lost revenues during the two-year period after the PaPUC approval of the Settlement. Additionally, after the initial implementation plan through FY2011, PGW was to make a filing with the parties to the proceeding and the PaPUC four months prior to the end of each implementation year. The parties would be allowed to comment on future plans and budget, and PGW would seek to coordinate its DSM program with other programs in its service territory.

The goals of PGW's DSM program are to reduce gas costs for all customers and to strengthen PGW's contribution to the community. The Program is composed of three residential programs—enhanced low-income retrofits, residential equipment rebates, and comprehensive residential retrofit incentives—and three commercial programs: commercial and industrial retrofits, commercial and industrial equipment rebates, and high-efficiency construction incentives. PGW plans to invest $41 million in present value 2009 dollars in these areas over the five-year life of the DSM program, with 86% focused on the residential programs. It is estimated that customers will benefit from $47 million in present value 2009 dollars total resource savings through reductions in gas consumption and efficiency increases over the next 20 years. The focus on low-income customers (63% of spend) is designed to reduce the gas use of residential customers in the customer responsibility program (CRP). The CRP is a low-income payment assistance program available to low-income residential customers with gross income at or below 150% of the federal poverty level.

An internal audit of this program in the latter part of FY2013 concluded that, at the mid-point of the five-year program, spending goals would have to be reduced to $50.3 million and savings would have to be reduced to $65 million. Failure to achieve planned goals was attributed to high customer rejection rates in the CRP and low customer demand for market-driven incentives. The audit report gave the program an overall audit result rating of satisfactory based on the effective administration processing of the program and its rebates.

A more complete discussion of PGW's DSM program is contained in *Chapter VIII – Customer Service*.

Credit Ratings

PGW is rated on its 1975 general ordinance bonds (revenue bonds) and its senior 1998 general ordinance bonds (revenue refunding bonds) by Fitch Ratings (Fitch), Moody's Investors Service (Moody's), and Standard & Poor's Ratings Services (S&P). The most recent reports from these rating agencies either affirm rates and outlooks that have been in place for some time or improve on them. PGW's credit ratings on its debt as assigned by these three credit rating agencies over the past five years are shown in *Exhibit V-12*.

Exhibit V-12
Credit Ratings
FY2010 to FY2014

	Fitch		Moody's		S&P	
Year	**Rating[1]**	**Outlook**	**Rating[1]**	**Outlook**	**Rating[1]**	**Outlook**
2010	BBB- / BBB	Stable	Baa2 / Baa2	Stable	BBB+ / BBB+	Stable
2011	BBB+ / BBB	Stable	Baa2 / Baa2	Stable	BBB+ / BBB+	Stable
2012	BBB+ / BBB	Stable	Baa2 / Baa2	Stable	BBB+ / BBB+	Stable
2013	BBB+ / BBB	Stable	Baa2 / Baa2	Stable	BBB+ / BBB+	Stable
2014	BBB+ / BBB	Stable	Baa2 / Baa2	Positive	A- / A-	Stable

[1] First rating is for 1975 General Ordinance Bonds; second rating is for 1998 Senior General Ordinance Bonds.
Source: Information Responses 88 and 303

The rationale given by each of the credit rating agencies in its assessment of PGW varies, but some of the most commonly repeated positive or negative drivers were as follows:

- Positive Drivers:
  - Large distribution system with diverse customer base
  - Sound or acceptable financial metrics/strong 1.5 time rate covenant meeting bond ordinance requirements
  - Strong management team
  - Supportive rate regulation/constructive relationship with regulators
  - Reduced reliance on debt funding
  - Low natural gas prices
  - Aggressive collection strategy
- Negative Drivers or Challenges:
  - Low-income population with collection difficulties
  - Stagnant customer base with above-average unemployment
  - Above-average retail sales compared to peers
  - Mutual interdependence with the City of Philadelphia
  - Service territory subject to open competition
  - Moderately high debt levels

Investments and Borrowings

Pursuant to the provisions of certain ordinances and resolutions of the City, PGW is allowed to sell short-term notes to either provide additional working capital or pay the costs of certain capital projects. In 2013, two bills were signed concerning PGW's short-term debt policy. One bill authorized PGW to sell short-term notes for the purpose of providing additional working capital. The principal amount of these notes plus interest could not exceed $150,000,000 outstanding at any time. The second bill, constituting the 12th supplemental ordinance to the General Gas Works Bond Ordinance of 1998,

authorized PGW to sell short-term notes in a principal amount, not to exceed $120,000,000 outstanding at any time, to pay the costs of certain capital projects and other project costs. Both of these types of notes are supported by the same irrevocable letters of credit and a subordinated security interest in PGW's revenues. A new Series G and a new sub-series of the tax-exempt commercial paper program were instituted on August 14, 2014, concurrently with the expiration of Series F. Under the new credit agreement, the commitment amount was increased from $60,000,000 to $120,000,000. The expiration of the credit agreement is August 14, 2017.

PGW has two letter of credit agreements, one with PNC for $70 million and the other with J.P. Morgan for $50 million, for the purpose of financing capital projects or working capital. This is a tax-exempt commercial paper (TXCP) program and was approved through a City ordinance in December 2013. PGW, however, has not used commercial paper to fund working capital needs since May 2009. PGW has been without short-term debt for six years. Alternatively, the amount of internally generated funds (IGF) used for capital has increased from $10 million to $36.1 million, not including the Distribution System Improvement Charge (DSIC) of 5% of non-gas revenues (which can be increased with PaPUC approval) at the end of FY2014. PGW does not have any outstanding bank loans.

PGW uses City of Philadelphia Gas Works Revenue Bonds to finance capital expenditures to the extent that PGW does not have internally generated funds for this purpose. The bonds are generally categorized into term and serial bonds with maturities from one to thirty years. On occasion, these bonds are refunded when economically possible. The City of Philadelphia guideline is that the 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-13*.

Exhibit V-13
Long-Term Debt
as of August 31, 2014

Class and Series of Obligations	Maturity Date (Fiscal Year)	Interest Rates	8/31/2014 Balance ($ Thousands)
4th Series	2032	4.00% - 5.25%	77,825
17th Series	2026	4.00% - 5.38%	101,160
5th Series	2034	4.00% - 5.25%	106,310
5th Series A-2	2035	Variable[1]	30,000
18th Series	2021	5.00% - 5.25%	27,050
19th Series	2024	5.00%	14,450
20th Series	2015	2.00% - 5.00%	2,725
7th Series	2038	4.0% - 5.00%	179,685
7th Series Refunding	2029	5.00%	28,360
8th Series A	2017	4.00% - 5.25%	37,905
8th Series B	2028	Variable[2]	50,260
8th Series C	2028	Variable[2]	50,000
8th Series D	2028	Variable[2]	75,000
8th Series E	2028	Variable[2]	50,260
9th Series	2040	2.00 - 5.25%	138,895
10th Series	2026	3.00% - 5.00%	46,035
TOTAL LONG-TERM DEBT			1,015,920

[1] As of August 31, 2014, the interest rate was 0.03%
[2] As of August 31, 2014, the interest rate was approximately 0.04%

Source: Information Response 621

PGW has a mandatory debt service coverage ratio of 1.5 times debt service on both its 1975 and 1998 revenue bonds. Over the past five years, PGW has consistently exceeded this required ratio. Debt service coverage for each of PGW's long-term debt obligations is shown in *Exhibit V-14*.

Exhibit V-14
Debt Service Coverage Calculation
FY2010 to FY2014
($ Thousands)

Debt Service Coverage Calculations	FY2010	FY2011	FY2012	FY2013	FY2014
Funds Available to Cover Debt Service	189,092	186,095	150,867	168,189	175,817
1975 Ordinance Bonds Debt Service	30,101	30,691	31,754	30,163	28,592
Debt Service Coverage - 1975 Bonds	6.28	6.06	4.75	5.58	6.15
Net Available After Prior Debt Service	158,991	155,404	119,113	138,026	147,225
1998 Ordinance Bonds Debt Service	65,095	72,274	67,874	47,668	69,749
Debt Service Coverage - 1998 Bonds	2.44	2.15	1.75	2.90	2.11
Net Available After 1998 Debt Service	93,896	83,130	51,239	90,358	77,476
1998 Ordinance Subordinate Bond Debt Service	1,986	1,988	0	0	0
Debt Service Coverage - Subordinate Bonds	47.28	41.82	N/A	N/A	N/A

Source: Comprehensive Annual Report for years ended August 31, 2013 and 2012 and Information Response 747

The percentage of long-term debt represented in total capitalization has steadily decreased over the past five years, primarily as a result of normal debt principal payments and a defeasance of principal. PGW's total debt and its debt to total capital ratio for the past five years are shown in *Exhibit V-15*.

Exhibit V-15
Debt to Total Capital Ratio
FY2010 to FY2014

	FY2010	FY2011	FY2012	FY2013	FY2014	**% Change FY2010-FY2014**
Long-Term Debt						
Revenue Bonds	1,225.0	1,167.0	1,086.5	1,034.0	980.7	-19.9%
Current Portion of Revenue Bonds	42.5	50.5	30.5	52.4	53.2	25.2%
Total Long-Term Debt	1,267.5	1,217.5	1,117.0	1,086.4	1,033.9	-18.4%
Debt to Total Capital Ratio	82.2%	79.7%	78.0%	75.2%	71.7%	

Source: Information Responses 85 and 621, and Comprehensive Annual Report for years ended August 31, 2013 and August 31, 2012

PGW's use of capital funds is allocated based upon the contribution to meet PGW's strategic goals, including the maintaining of a safe and reliable infrastructure, as well as implementation of specific projects that improve customer service, reduce cost, or provide a positive economic return. The limited availability of capital funds has required PGW to focus its capital spending on its most critical needs. In determining spending priorities, PGW states that all investment opportunities are identified for consideration in order to compete for limited capital funds.

PGW does not have a long-term investment program for operating funds. The City of Philadelphia manages the Sinking Fund for the revenue bonds. These investments are generally long-term investments. PGW also has a Capital Improvement Fund consisting of the net proceeds of a revenue bond sale. PGW's bond proceeds are actively managed by a third-party financial advisor working under the direction of the City of Philadelphia Treasurer's Office personnel.

PGW's investment policy is determined by the City of Philadelphia's investment policy. This policy determines the amount and percentage of funds available for investment that should be placed in federal funds, commercial paper, money market accounts, etc. The City also determines what companies can manage these funds—Wells Fargo, Morgan Stanley, and Blackrock are the current companies as of the end of calendar year 2014. PGW's cash management team will select the company with whom to invest from the list of acceptable companies as determined by the City.

The City of Philadelphia's investment policy establishes guidelines for the administration and management of all City of Philadelphia investments, including all operating, capital, debt service, and debt service reserve accounts of the City's General Fund, Water Department, Aviation Division, and PGW. This investment policy does not govern investments of the City's Municipal Pension Fund or PGW's Retirement Reserve Fund, the OPEB Trust, or the PGW Workers' Compensation Reserve Fund. All investments covered by this policy must conform to all legal requirements, including applicable provisions of the City Code and City bond resolutions. The City of Philadelphia Investment Committee, consisting of the City's Director of Finance, the City Treasurer, and a representative from the Water Department, the Aviation Division, and PGW, is responsible for reviewing, updating, and approving the elements of this policy.

Investment objectives stated in this policy include (in order of priority): 1) preservation of principal; 2) maintenance of liquidity; and 3) return on investment. PGW has experienced no write-offs related to investments for the past five years. Authorized and suitable investments are listed along with percentages of total portfolio allowed for each. These are shown in *Exhibit V-16*.

Exhibit V-16
Authorized Investments
as of September, 2014

Authorized Investment Instrument	Percent of Portfolio Allowed	Percent of Portfolio per Issuer	Percent of Outstanding Securities per Issuer
U.S. Government	100%	100%	NA
U.S. Treasury	100%	100%	NA
Repurchase Agreements	25%	10%	NA
U.S. Agencies and Instrumentalities	100%	33%	NA
Money Market Mutual Funds	25%	10%	3%
Commercial Paper	25%	3%	3%
Corporate Bonds	25%	3%	3%
Commonwealth of PA & Subdivisions	15%	3%	3%
Banker's Acceptances and Certificates of Deposit	15%	3%	3%
Collateralized Mortgage Obligations and Passthrough Securities	5%	3%	3%

Source: Information Response 89

PGW's cost of capital averaged 5.2% over the past five years, reflecting the fact that PGW has had only long-term financing during that period, with no short-term borrowing either through the commercial paper market or short-term notes. A schedule detailing PGW's cost of capital calculations is shown in *Exhibit V-17*.

Exhibit V-17
Cost of Capital
FY2010 to FY2014

Fiscal Year	Item	Daily Outstanding Balance	Interest Expense	Interest Rate
FY2010	Revenue Bonds	$1,113,187,272	$60,220,923	5.410%
FY2011	Revenue Bonds	$1,211,487,578	$64,434,727	5.319%
FY2012	Revenue Bonds	$1,094,697,497	$56,452,320	5.157%
FY2013	Revenue Bonds	$1,089,083,750	$53,647,474	4.926%
FY2014	Revenue Bonds	$1,051,010,833	$51,182,657	4.870%
Total 5 Years	**Weighted Average**	**$5,559,466,930**	**$285,938,101**	**5.143%**

Source: Information Response 93

Write-Offs

PGW's annual customer account write-offs averaged approximately $36 million over the past five fiscal years. The last full fiscal year of data shows a 65% reduction in net write-offs over a five-year period (FY2010–FY2014). A schedule of PGW's customer account net write-offs over the past five fiscal years is shown in *Exhibit V-18*.

Exhibit V-18
Customer Account Net Write-Offs
FY2010 to FY2014
($ Thousands)

Year	Write-Off Amount	% Change from Prior Year
FY2010	54,990	-7.5%
FY2011	39,765	-27.7%
FY2012	38,401	-3.4%
FY2013	29,028	-24.4%
FY2014	38,056	31.1%
5-Year Average	40,048	

Source: Information Response 625

Additional discussion of gross customer write-offs is contained in *Chapter VIII – Customer Service.*

Cash Management

The Treasurer reports directly to the EVP & Acting CFO and is responsible for cash management activities at PGW. Reporting to the Treasurer are work groups responsible for payroll, retiree payroll, cash disbursements, and cash receipts.

Payroll

PGW has a weekly payroll for active employees and a monthly pension payroll for retirees, all of which are processed by a third party, Automatic Data Processing (ADP). Pay categories that are paid weekly consist of approximately 1,100 union employees and 500 non-union employees in the following categories (all of which are processed together): 1) executives and PGC personnel; 2) management personnel; 3) non-union, overtime eligible personnel; 4) non-union, overtime ineligible personnel; and 5) union personnel. Pensioners are paid monthly.

Approximately 1,600 employees have their pay directly deposited into their bank accounts. This direct deposit has been (unofficially) mandatory since 2011. A small number of employees are paid via bank pay cards. Personnel are assigned a default account to which their time would normally be collected. There is a time clock system in place, with employees clocking in at their computers or at time clocks with their PGW badge. Timesheets are approved in the Time & Labor Management (TLM) system by department managers and supervisors; there are approximately 100 of these supervisory staff. Approvals can be performed offsite (often done over the weekend by managers and supervisors). If the regular approving manager or supervisor is not available, a backup time approver is available. Payroll clerks will review the pay files in TLM and then load them into ADP. Paper timesheets are still used by some departments. The Field Service Department (FSD) uses paper timesheets that are then input by timekeepers. Timekeepers will also verify that the clock-in and -out times on the timesheet are

compatible with the clocked-in and -out times of the employee in the time clock system. Pay on Friday is for the week just ended. Pay is deposited to employee bank accounts or bank card accounts on Friday. If there is a problem with the deposit, employees can receive a paycheck.

Cash Disbursements

The Cash Disbursement work group is responsible for the payments related to payroll and accounts payable (A/P) processes. The first part of each week is devoted primarily to processing payroll payments. The latter part of the week is split between processing payments for payroll and A/P. This section oversees the A/P disbursement process and input into the Oracle financial system for these results. There are several different modes of paying vendors, including:

- *Paymode (Bank of America)* – approximately 200 enrollees are in this system; PGW will receive a list of vendors being paid and the amounts, with the total amount transferred to Bank of America.
- *Automated Clearing House (ACH)* – paid through Wells Fargo the next day
- *Wire* – paid the same day through Wells Fargo
- *Green Dot vendors* – Payments are first processed through Oracle and then paid.
- *Red Dot vendors* – Payments are paid first and then processed through Oracle (tax payments, healthcare premiums, etc.).
- *Check payments* – The number of A/P checks being written to vendors is down since the 2007 audit (150–160 per week versus 200–250 per week in 2007). The number of customer refund checks is approximately 150–180 per week. Another layer of review has been added that has reduced the number of checks that must be voided due to inability to locate the payee. Checks for less than $20,000 are machine-signed; checks for $20,000 or more are hand-signed. PGW now prints its own checks from blank stock on a special printer. The check stock is controlled and secured on the fourth floor in a locked cabinet with the keys in a locked safe.

Approximately 1,640 employees are paid on a weekly basis. A file of all payroll activity comes from the TLM system. Timesheets from the previous week must be approved by 12:00 p.m. on Monday. The Supervisor, Payroll & Accounts Payable will ensure that all timesheets were approved and will follow up with supervisors and managers for any timesheets that have not been approved. Employees can access their own pay records for the past three years through the IPay program (ADP self-service module).

Checks are run on Tuesdays and Thursdays and are mailed, usually, the next day. There are approximately 400 checks cut each week, including both refunds to customers and regular A/P. Checks over $20,000 require two signatures and are signed manually. Checks are not preprinted but rather are printed as they are processed through a special printer controlled by the Treasury function. The Financial Supervisor and the Supervisor, Payroll & Accounts Payable and two supervisors have access to the check stock and printing process.

Cash Receipts

The primary responsibility of the Cash Receipts work group is to oversee cash operations, making certain that cash availability is sufficient to cover cash requirements.

Cash receipts for gas payments are received by PGW in several ways:

- Mail receipts via a third-party provider of remittance processing services
- Electronically – AutoPay, PGW's website, and interactive voice response (IVR)
- PGW district offices
- Authorized agents
- Online bill payment services
- Wire payments and ACH payments processed through a bank

Wells Fargo Bank handles all of the ACH payments, while Bank of America handles all other payments. PGW utilizes Kubra, a unit of the Hearst Corporation, for its merchant credit card service, with seven different categories of credit cards as well as a pay-by-phone system that directly credits money to the Bank of America account. There are also wire transfers, which are generated by the Philadelphia Housing Authority, the City of Philadelphia, any federal/state government contract, and several other commercial customers.

The culmination of the payment process ends with the cash receipts entering PGW's Billing, Collections, and Customer Service (BCCS) system. On a daily basis, BCCS is automatically updated with the cash receipts for gas payments from the various systems. BCCS interfaces with Oracle via reports run daily. The journal entries are reviewed and posted to Oracle Financials. Each operating day, a Daily Cash/Check Transmittal Sheet is prepared by each district office describing whether its deposit was currency/coin or checks, and daily transactions and deposits to the bank from all methods of gas revenue payments are summarized based on BCCS reports. Transmittal sheets are balanced to the Daily Cash Report. If there are any discrepancies, phone calls seeking clarification or corrections are made to the appropriate district offices. The Daily Cash Transmittal Reports are used to create the monthly Cash Book, which is a culmination of the daily activity that is being recorded. The Cash Book is prepared on a daily basis and is produced monthly in report form, which is then given to the Bank Reconciliation area in the Accounting and Reporting Department. Treasury checks the transaction sheets and debits or credits the appropriate cash accounts based on the information provided.

Treasury also handles the petty cash accounts. The safe containing cash and other security-sensitive items is maintained in the locked cash office. No unauthorized employees are permitted to enter this office space. If miscellaneous cash is received, it is prepared for deposit with a deposit slip and is sealed in a deposit bag. Any miscellaneous checks received are scanned and sent to the bank electronically and are recorded in Treasury. After being recorded, the cash is put back in the vault for pickup by Brinks Security. The scanned checks are placed in an envelope and sealed. Each envelope is marked with relevant information about the deposit and date and is locked in a lockbox. All scanned checks are kept for 30 days and are then destroyed via shredding.

ACH payments and wire transfers from Wells Fargo and Bank of America are downloaded and forwarded to the Customer Affairs Department for processing, and the customers' records are updated. The third-party provider of remittance processing services (TransCentra) sends a daily file with all non-sufficient funds (NSF)/bounced checks processed at TransCentra's facility. Any NSF/bounced checks that were presented at the district offices are retrieved electronically directly from Bank of America's online banking portal. Treasury and mail receipts confirm the total amount retrieved from the Bank of America online banking portal and the daily file sent by TransCentra each month prior to recording journal entries.

Bank Accounts

Active bank accounts are discussed and reconciled in monthly meetings. Treasury Department personnel review bank statements and general ledger balances each month. Accounting Department personnel complete monthly bank reconciliations. Both departments meet, review, and discuss reconciling items on a regular basis. Differences are addressed and necessary adjustments are made in a timely manner. The year-end balances in all of the bank accounts and temporary investments at the end of each of the past five fiscal years are shown in *Exhibit V-19*.

Exhibit V-19
Cash & Temporary Investments
FY2010 – FY2014
as of August 31

	FY2010	FY2011	FY2012	FY2013	FY2014
1st California Bank - Paycards	$0	$0	$0	$20,000	$0
Wells Fargo (Secondary)	($66,205)	($19,107)	($19,107)	($19,107)	$0
Wells Fargo	$6,437,324	$117,679	$394,262	$6,601,873	$1,178,695
PNC	($39,693)	($2,548)	($2,548)	($2,548)	$0
US Bank	$0	$0	$0	$0	$2,000
Blackrock	$13,900,000	$6,000	$6,000	$6,000	$256,000
Travelers Checks on Hand	$20,250	$10,300	$6,900	$4,400	$0
Bank of America Customer Refund Payment	($941,629)	($858,462)	$0	$0	$0
Bank of America Accounts Payable	($2,989,290)	($3,536,139)	$0	$0	$0
Bank of America Mail & DO Receipts	($61,016)	($100,846)	$0	$0	$152,412
Bank of America Credit Card & Vendor Receipts	$30,736	$30,028	$70,898	$56,502	$79,876
Bank of America - Active Payroll	($60,039)	($32,060)	$0	$0	$0
Bank of America - Retirement Payroll	($48,550)	($59,321)	$57,352	$0	$0
Bank of America - Flex Spending	$21,873	$20,029	$34,198	$35,903	$25,484
Bank of America Legal Payments/Court Filings	($1,046)	($2,632)	$0	$0	$0
Bank of America Master Account	$801,689	$1,772,732	$628,718	$1,263,234	$1,597,596
Petty Cash	$41,450	$40,725	$40,925	$39,850	$39,850
Expenses Advanced to Employees	$7,672	($4,451)	$5,244	$9,248	$16,567
Expenses Advanced to Employees M/C	($1,325)	$3,654	$2,922	$8,677	$15,152
Money Market Investment	$0	$16,600,000	$9,400,000	$8,700,000	$9,750,000
Rep Agreements/Broker Investments	$62,000,000	$91,400,000	$65,200,000	$84,209,095	$92,620,137
Total Cash and Temporary Investments	$79,052,201	$105,385,581	$75,825,764	$100,933,127	$105,733,769

Source: Information Response 94

Cash Forecasting

The Treasury Department and the Director of Budget and Cash Management project cash receipts and disbursements on a daily through monthly basis. Weekly, a meeting that includes the CFO, Director of Budget and Cash Management, the Financial Supervisor, and the Treasurer, is held to review PGW's cash position and projections.

The Treasury Department and the Director of Budget and Cash Management work together to develop the cash budget or forecast for the upcoming fiscal year. In addition, they develop a five-year cash projection. The forecasts are based on prior years' actual monthly trends, along with any foreseen additional revenue or expenditures. The cash budget is reviewed periodically by both departments, and modifications are made to the cash forecasts reflecting any changes that have occurred or are anticipated to occur that differ from the original cash budget. These adjustments include sensitivity analyses based on various assumptions and/or scenarios.

Accounting and Property Records

Accounting

Organization

As shown in *Exhibit V-1*, the Director, Financial Reporting and Oracle Administration heads the Accounting Department, including Property Records and Internal Audit. Reporting to the Director are the Manager of Financial Reporting, the Manager of Oracle Administration, the Manager of Internal Audit, a Staff Accountant, and a shared Administrative Assistant. The Manager of Financial Reporting is responsible for the majority of the accounting work at PGW. His direct reports are the Administrator, Capital Budget and Reconciliation; Supervisor, Financial Reporting and Reconciliation; and the Supervisor, Accounts Payable. The Manager of Financial Reporting has worked in various areas at PGW, including the accounts payable, general ledger, capital spend, fixed assets, and financial statements areas. The Supervisor, Accounts Payable has two employees processing bills. The Supervisor, Financial Reporting and Reconciliation is responsible for general ledger and bank reconciliations. The Administrator, Capital Budget and Reconciliation is responsible for the control and maintenance of the capital assets of PGW.

The Director, Financial Reporting and Oracle Administration is supported by a Staff Accountant and shares an Administrative Assistant with the VP of Strategic Development. The Staff Accountant's responsibilities include working with the external auditor, KPMG, with a focus on the schedules prepared specifically for the audit and the coordination of those schedules. When audit preparation and audit support work is not required, the Staff Accountant works primarily on reporting projects, such as annual reports for the PaPUC, American Gas Association (AGA), and similar projects. The Staff Accountant is cross-trained in the accounts payable function and will perform that work if the Accounts Payable Supervisor is not available. The Staff Accountant also supports the operating budget process in addition to handling other miscellaneous accounting projects.

Reconciliations

Reconciliations are prepared by the staff in the Financial Reporting and Reconciliation area. The staff prepares reconciliations for all 14 bank accounts, which are then reviewed by the Supervisor of the Financial Reporting and Reconciliation. Bank reconciliations are due 45 days after month end for all 14 active bank accounts. Resolution of issues discovered through the bank reconciliation process can be resolved at a subsequent time. Thirteen of the bank accounts are reconciled to the current period. One account has all reconciling items listed that comprise the difference between the cash ledger and the bank activity. For details on this list account, see *Finding V-1*. This bank account includes district office, treasury bank activity, and customer bounced checks as examples of the wide variety of activities associated with this account. The account is handled by several areas and personnel at PGW, adding to the difficulty in the reconciliation process. Currently, biweekly meetings are held to discuss the account reconciliation issues with this account. Many items have required reconciliation over the past few years (343 as of August 31, 2014: 16 items from FY2012, 118 from FY2013, and 209 from FY2014). Completion of this project is planned for the first quarter of 2015.

Under discussion is separating this one account into several ledger accounts, as it contains activity from many disparate sources, such as the PGW Treasury area and PGW district offices. As there are already 14 active cash accounts, however, adding more accounts to track and reconcile separately may only add to PGW's reconciliation difficulties.

As mentioned previously, meetings are held every two weeks to discuss the unresolved reconciliation items for this account. Attendees at this meeting include the Director, Financial Reporting and Oracle Administration; the Treasurer; the Supervisor, Payroll & Accounts Payable, the Financial Supervisor, and, on occasion, the EVP & Acting CFO. In the fourth quarter of 2014, unreconciled items older than two years were netted together and written off, totaling approximately a $5,000 debit to cash. The Supervisor, Financial Reporting and Reconciliations believes that the reconciled items were created when an initial transaction was documented in the "register" and then changed before transacted with the bank but not changed in the register. Additional work is being done in this area to isolate cause and then institute corrections.

Other reconciliations are performed monthly and reviewed quarterly for accounts such as prepaid accounts. The reconciliations take the form of "lead sheet" analysis, where a worksheet is compiled with the book balance and then the individual detail that makes up that balance is listed and described. Specific staff members are assigned to certain accounts. At month-end December, April, July, and August, reconciliations are submitted to the Senior Cost Accountant after review by the respective supervisor. In other months, the assigned staff member will reconcile the account, but the reconciliation is not formally sent to the Senior Cost Accountant, the reconciliation is reviewed by the respective supervisor. All reconciliations show the detail in the account at a specific point in time as opposed to showing only the change in the balance from month to month, listing only additional items, not all items that comprise an account balance. Listing all detail is more appropriate for account analysis. Account reconciliations are also performed for zero account balances and negative balance accounts.

Unclaimed Property (Escheat)

The Supervisor, Financial Reporting and Reconciliation, performs the annual unclaimed property (also called escheat) work. This activity starts with analyzing the cash activity for outstanding checks that meet the escheat criteria. The escheat criteria varies by state and in Pennsylvania includes any check not cashed in five years, except for payroll checks, which are escheatable in two years. Refund checks, mostly to customers, are subject to the five-year rule and comprise the majority of this list. There can typically be 1,000 of these unclaimed checks by the end of a given year. PGW's bank removed these older checks in the past from the outstanding list for PGW but recently attached a $5 fee per check for this service. The supervisor stopped using the service at that time, as the total fee was significant; however, the fee was renegotiated by the Treasurer and checks continued to be removed at no cost to PGW. This allows all escheated checks to be removed from the bank account listing and, therefore, the PGW reconciliation reports. The Manager, Oracle Administration has been instrumental in getting listings of escheated checks to the Supervisor, the lead in this assignment, with addresses appended. The address detail (from another Oracle module) was not readily available and this streamlined the escheat process greatly.

Month-End Close

The accounting month is to be closed by the 15th calendar day of the new month, at the latest, and the financials are released as final on that day. For the August close (the fiscal year-end close), the accounting records are to be final closed six weeks after August 31st. Accounts payable stays open longer than it does for monthly closes to capture the last payables of the fiscal year that are physically received in the new fiscal year. During the close process, Oracle interfaces are run, accounts are reviewed, manual entries as required are input, and internal reviews of financial statements are conducted (i.e., variance review). Also double checked at year end are total liquefied natural gas (LNG) sales and accruals. Blanket work orders are reviewed, closed, and distributed to plant-in-service.

To facilitate this process a month-end close checklist is maintained by the Staff Accountant, which is updated as tasks are finished. The Staff Accountant works closely with the Manager, Financial Reporting on this monthly task. The checklist is detailed with the task description and the responsible department and individual, with the due date and a spot to notate when a task is complete. A picture of the first page of this checklist is shown in *Exhibit V-20*.

Exhibit V-20
July Month-End Closing Schedule (First Page)
July 31, 2014

ID	Summary	Action Description	Responsible Departments	Assigned To	Due Date	Expected Completion Date	Actual Completion Date	Status Open Closed	Time Due	Status Date	Comments
1	A/P Close Reminder Email	Email	Accounting	Accounts Payable	28-Jul-14	28-Jul-14	28-Jul-14	Closed	2:30 PM		
2	TLM all timesheet labor accounts and hours entered and corrected for the month must be completed at 11:00 A.M.	TLM	All Departments	All Timekeepers & Approvers	28-Jul-14	28-Jul-14	28-Jul-14	Closed	11:00 AM		
3	Labor Rate	ADP/Excel	Treasury	Payroll	30-Jul-14	30-Jul-14	30-Jul-14	Closed	4:30 PM		
4	Departmental completion of Vehicle Data Input System (VDIS) entries.	VDIS	User Departments	User Departments	30-Jul-14	30-Jul-14	30-Jul-14	Closed	4:30 PM		
5	Run PGW Alert Detail report (Labor hours cannot exceed clock time) May 2014	Workforce/ TLM	Accounting	General Ledger	30-Jul-14	30-Jul-14	31-Jul-14	Closed	4:30 PM		
6	Run Non-Union Wage file / Last wage file for accounting period	TLM	Accounting /TLM	Labor Administrator	31-Jul-14	31-Jul-14	30-Jul-14	Closed	4:30 PM		
7	Run Union Wage file / For Monthly wages of Union Employees	TLM	Accounting /TLM	Labor Administrator	31-Jul-14	31-Jul-14	4-Aug-14	Closed	4:30 PM		
8	Import Transportation M-4 Journal Entry (JE) into Oracle	M-4	Transportation / Accounting	Transportation / Accounting	31-Jul-14	31-Jul-14	4-Aug-14	Closed	4:30 PM		
9	Accounting department will schedule to run the Stores Labor & Expense process in Oracle at 11:55 P.M.	Oracle PGWINTF	Accounting	Capital	31-Jul-14	31-Jul-14	31-Jul-14	Closed	11:55 PM		
10	Reclass Environmental Account - Other	Oracle / Excel	Budget	Budget Analyst	1-Aug-14	1-Aug-14	1-Aug-14	Closed	1:00 PM		
11	Accounting department will schedule to run the Create Accounting - Cost Management (PGW ACCOUNTING INVENTORY USER)	Create Accounting - Cost Management	Accounting	General Ledger	1-Aug-14	1-Aug-14	1-Aug-14	Closed	6:00 AM		
12	Accounting department will schedule to run the Journal Import process in Oracle General Ledger. Import monthly Stores Labor & Expense and Inventory journals.	Oracle General Ledger	Accounting	General Ledger	1-Aug-14	1-Aug-14	1-Aug-14	Closed	10:00 AM		
13	A/P Close	Oracle Accounts Payable	Accounting	Accounts Payable	1-Aug-14	1-Aug-14	1-Aug-14	Closed	2:30 PM		
14	Weighted Average Cost of Gas (WACOG) RATE	Oracle General Ledger	Budget	Budget	1-Aug-14	1-Aug-14	1-Aug-14	Closed	2:30 PM		
15	Bad Debt Entry	Oracle / Excel	Accounting	General Ledger	1-Aug-14	1-Aug-14	1-Aug-14	Closed	4:30 PM		
16	Gas Cost Rate (GCR) Entry	Oracle / Excel	Accounting	General Ledger	1-Aug-14	1-Aug-14	1-Aug-14	Closed	4:30 PM		
17	Natural Gas Estimated Purchased	Oracle	Gas Supply/ Accounting	Gas Planning / General Ledger	1-Aug-14	1-Aug-14	1-Aug-14	Closed	4:30 PM		
18	Natural Gas Estimated Storages	Oracle	Gas Acquisition / Gas Supply / Accounting	Gas Planning / General Ledger	1-Aug-14	1-Aug-14	1-Aug-14	Closed	4:30 PM		
19	Import 101 / 104 Labor From TLM	TLM / Journal Entry Labor Online (JELO) / Oracle	I.S / Accounting	Labor Administrator	1-Aug-14	1-Aug-14	5-Aug-14	Closed	4:30 PM		
20	102 Allocation Process	JELO / Oracle	I.S / Accounting	Labor Administrator	1-Aug-14	1-Aug-14	5-Aug-14	Closed	4:30 PM		
21	800 Allocation Process	JELO / Oracle	I.S / Accounting	Labor Administrator	1-Aug-14	1-Aug-14	5-Aug-14	Closed	4:30 PM		
22	VDIS	VDIS / JELO / Oracle	I.S / Accounting	Labor Administrator	1-Aug-14	1-Aug-14	5-Aug-14	Closed	4:30 PM		

Source: Information Responses 99 and 764

As shown in *Exhibit V-20*, information for the close is gathered from around the Financial and Operations area and is coordinated using the month-end checklist tool. An example of some of the data gathered is below:

- Journal entries are posted in the Financial and Treasury areas.
- Treasury journal entries are posted and reviewed by the Manager, Financial Reporting.
- Gas revenues are reviewed by the Senior Cost Accountant.
- Gas utilization is reviewed.
- Capital journal entries are determined and input.

A first draft of the financial statements is prepared after the close on the eighth day. At this time, the financial statements and budget-to-actual reports are created along with other supporting statements used for analysis during the close process.

Using the reports and supporting statements, multiple people are involved in the analysis process to verify the financial statement data before the accounting records are final closed for the month or year. Involved in this process is the VP, Budget and Strategic Development and the Director, Budget and Reporting, who give the statements and supporting reports a more detailed and analytical look. The Director, Financial Reporting and Oracle Administration performs a higher-level or reasonableness review of the financial package and, through this process, will drill down to details to resolve any questions/concerns that occur. If answers aren't readily available through normal lookup procedures, then other personnel in the Accounting Department will be asked to help with the resolution. The Manager, Financial Reporting uses budget reports to verify income statement and balance sheet information. The VP, Budget and Strategic Development uses variance reports with 10% or $10,000 variances (over or under) to review the month-end and year-end financial statements. If issues are discovered through this process, such as missing accruals (insurance billings and natural gas purchases are the usual ones), then journal entries are used to include those details in the financial statements.

Monthly close meetings are scheduled by the Manager, Financial Reporting to review the financials before the accounting records are final closed. Before the meeting is called, the Manager, Financial Reporting will review the numbers in order to be comfortable with the statements in their current form. The meeting allows for other eyes on the data and prompts discussion regarding the financials. There are no minutes or agendas for this meeting, and the attendees are listed below. Not all attendees make it to all meetings, but if there are critical issues in an area, the Manager, Financial Reporting will confirm availability and attendance of an individual for a specific meeting:

- Manager, Financial Reporting
- Director, Financial Reporting and Oracle Administration
- Director, Budget and Reporting
- Senior Cost Accountant
- Staff Accountant
- Senior Budget Analyst
- Financial Supervisor
- Supervisor, Financial Reporting and Reconciliation

Before the meeting, the Manager, Financial Reporting will use prior month-to-date and year-to-date financial and budget reports for comparison purposes. Unexplained variances are researched further and are brought before the meeting if they are unable to be resolved. The Manager, Financial Reporting will also review Gas Utilization and Gas Revenues Reports. All unexplained variances are brought before the meeting for resolution or for further research.

Other supporting reports are created and reviewed in a similar fashion to the financial statements by the same team. When the financial statements and supporting reports are finalized, a standard financial package is created for release to the Philadelphia Gas Commission. This package includes:

- Statement of Income for the month-to-date and year-to-date, with current year, prior year, and budget details
- Balance Sheets for the current year ended and prior year ended
- Natural Gas Price Volume Analysis with budget comparison
- Payroll Expenses for the current year by month with budget comparison
- Capital Expenditures for the current year by month with budget comparison
- Capital Spending by month, by area
- Gas Storage and Other Material Inventory Levels
- Gas Inventory Storage Volumes and Dollars
- Inventory Value by Sub-Inventory and Category
- Gas Sales and Revenues, "A-1 Report" for the month, "A-2 Report" for the year to date, and with budget data
- Social Cost Index
- Total Customer Billings and Receipts, rolling 24 month collection report
- Budget of Cash Receipts and Disbursements
- Sale/Utility Merger Operating Expenses

Accounts Payable

The Supervisor, Accounts Payable has been with PGW for five years in this position. The Supervisor has approximately 17 years in the accounts payable field. This position reports to the Manager, Financial Reporting and has two staff.

The workflow in the Accounts Payable area starts with the mail being opened and split alphabetically between the two clerks, excluding the larger vendors. The larger vendors are distributed as assigned by the Supervisor to the two staff. Once a large vendor is assigned to a staff member, it stays with that specific staff member for future processing, allowing for relationships to develop and any specific needs with that vendor to be realized and accommodated. A three-way match is performed with the invoice received in the mail, the purchase order, and the receiving documentation in Oracle. If all documents are not available, follow up is performed to obtain the missing documentation. The daily work is batched, using a manual batch process. When all three documents are available and matched, the package is grouped for review, batching, and validation by the Supervisor. The Supervisor reviews the total, the discount taken (if available), the correct vendor, etc. After review, the Supervisor validates the batched group, runs the accounts payable register report, and proofs this report against an adding tape run of all invoices being processed. When proofing is complete, the batch goes to Treasury for payment processing.

If a purchase order is not in place, the invoice will be scanned and sent to the individual or department responsible for purchase order creation and approval. Invoices are not processed without authorized purchase orders.

A review of processing statistics from 11 months of data in 2008 and 2014 shows that an average of 134 invoices were processed each day in 2014, compared to an average of 117 invoices per day in 2008. As shown in *Exhibit V-21*, this is a 15% increase in average productivity over the past six years. The month of December in 2008 and 2014 is excluded from this analysis, because the limited activity in these months due to vacations and holidays would skew the data.

Exhibit V-21
Average Daily Processing Volumes in Accounts Payable
2008 and 2014
(January – November)

	2008	2014	Increase	% Increase
January	118	130	12	10%
February	113	123	10	9%
March	92	160	68	74%
April	121	130	9	8%
May	118	126	8	7%
June	119	133	14	12%
July	123	138	15	12%
August	126	144	18	14%
September	135	138	3	2%
October	125	135	10	8%
November	101	118	17	17%
Total	**1,291**	**1,475**	**184**	14%
Average	**117**	**134**	**17**	15%

Source: Information Response 555

This daily volume will vary based on locksmith vendors submitting invoices. There can be as many as 300 invoices per locksmith vendor. Locksmith vendors replace locks broken to gain access to a location if a gas leak is suspected. Volumes peak in December because most vendors keep their books on a calendar-year basis.

The Supervisor indicates that the practices and work ethic of the current staff, not overtime effort, are responsible for this efficiency improvement. Flexibility of timing for this process is such that an unforeseen circumstance can be handled with the normal bill processing schedule. Bills are received in five days and are processed in 10–15 days, which still leaves several days to pay the bills within the normal 30-day terms, even with unforeseen events. Because of this, staff and supervisor schedules can be held to eight hours, or a normal work day, and required work can still be completed in a timely manner.

During month-end close, the last batch is processed on the last day of the month and sent to Treasury, who posts the batch. The Accounts Payable Supervisor reviews month-end reports, investigating and resolving problems with unaccounted-for transactions in a short timeframe. Once the Administrator, Capital Budget & Reconciliation closes the project work, the Accounts Payable Supervisor closes accounts payable in Oracle. The next step is to open the next month, determine outstanding unaccounted-for transactions, and begin to resolve those items so they will be cleared by the following month.

Discounts are tracked in Oracle by Accounts Payable. The payment terms are input and changes are tracked by Procurement, but tracking those discounts and ensuring they are applied is Accounts Payable's responsibility.

Oracle Accounting Software

Oracle modules currently in use at PGW are:

- Fixed Assets
- General Ledger
- Inventory
- Accounts Payables
- Projects
- Purchasing

The modules in use have remained the same for many years, and no changes are anticipated at this time.

Property Records

Organization

The Administrator, Capital Budget and Reconciliation is responsible for the capital asset accounting and reports to the Manager of Financial Reporting, as shown in *Exhibit V-1*. The Administrator, who effectively supervises this area, has been with PGW for approximately 29 years, all in Accounting and for the most part in capital assets with some time in Accounts Payable. In addition, the Administrator has been supervising the property records area for five years. The Administrator has three direct report staff and has access to six other staff who report to the Supervisor of Financial Reporting and Reconciliation and the Supervisor of Accounts Payable. Currently, the staff in the Accounting area can be rotated to any tasks under these three supervisors.

Physical Inventory Count Special Project

Inventory cycle counts (standard Oracle method for inventory quantity verification) are performed on an ongoing basis. Currently, however, a series of physical counts is being performed at plants and inventory locations to verify that the ongoing Oracle methodology is working properly. A full physical count is anticipated to be performed in the next two months. The Manager, Oracle Administration will help by creating reports from Oracle to assist in this process.

Property Records/Capital Project Accounting

After capital projects are approved via the budgeting process, they are sent to the Accounting and Reporting Department. Approval is communicated on a project-by-project basis using the work order authorization (WOA) form, a four-copy form of which the first copy is sent to the Capital section of the Accounting and Reporting Department. This copy of the form starts the accounting for the specific

projects and must contain the necessary approvals before the project can be opened. Opening a project consists of inputting the data to Oracle as an open project and allowing costs to be accumulated to that project. The Administrator of the group responsible for this activity compares the work order information to the budget category and the project detail information received from the Budget and Strategic Development Department, the department that obtains the approval for all capital projects. The comparison includes type (i.e., additions and replacements), dollar amount, approvals, and project balance. Distribution projects (also called "main in ground") have size and pressure in the description and include a sub-account for easier identification. Projects opened with the WOA can accumulate labor, material, contractor costs, and other costs in Oracle to the specific project. If the comparison shows a difference in the documented WOA amount and the project budget, the project is examined more closely. If the WOA amount is less than the budget, costs are allowed to accumulate. If the WOA exceeds the budget, then no costs can be accumulated in Oracle until the variance is resolved. Possible variances could be due to scope adjustment or project amendment.

Once a project is entered into Oracle and is accumulating charges, those charges are compared at least monthly to the budget for that project by the Administrator of Capital Budget and Reconciliation. As project charges are accumulated, the supporting documentation for that project (invoices, transfers, etc.) is filed in the capital budget area with the WOA, by project. It is decided when a work order is opened what costs will be allowed into which work orders—the types of expenses, specific employees, etc. Expenses and employees outside what is expected will not be processed to that work order. Work orders and costs are reviewed by the VP, Budget and Strategic Development, who is expecting to see specific spending levels. When spending does not occur as expected, additional detail will be examined.

Throughout the construction phase of a project, budget-to-actual analysis is conducted during the monthly closing process. A monthly budget analysis and over or under variance are documented and filed with project cost materials. Ongoing project files, with supporting documentation for expenditures for each project, are kept on clerks' desks, and closed projects are stored in drawers and kept in the department for several years. Documentation is standardized for all projects.

Several reports are used for ongoing analysis of the capital projects. Two of these reports, the Capital Spending Report, by department, and the Capital Expenditures Report are used monthly and are saved to the PGW network so that others can use them. These reports are shown as examples in *Exhibit V-22* and *Exhibit V-23*. Another report used for ongoing analysis is the Budget Category Status Report. All these reports are stored on a shared drive so they are accessible to those who use them.

Exhibit V-22
Capital Spending
FY2014
($ Thousands)

Department	Sep-13	Oct	Nov	Dec	Jan-14	Feb	Mar	Apr	May	June	July	Aug-14	Total
Gas Processing													
Actual	12	190	210	85	109	125	1,514	259	(735)	1,988	(370)	1,963	5,350
Budget	324	339	358	341	361	394	422	415	466	758	1,714	900	6,792
Difference	(312)	(149)	(148)	(256)	(252)	(269)	1,092	(156)	(1,201)	1,230	(2,084)	1,063	(1,442)
Distribution													
Actual	3,034	4,918	5,712	3,392	3,509	7,602	3,270	1,251	4,430	4,634	4,500	15,516	61,768
Budget	5,608	5,228	5,374	5,176	5,177	5,180	6,015	5,683	6,604	7,395	7,327	7,271	72,038
Difference	(2,574)	(310)	338	(1,784)	(1,668)	2,422	(2,745)	(4,432)	(2,174)	(2,761)	(2,827)	8,245	(10,270)
Field Services													
Actual	238	647	654	457	183	537	453	333	532	399	428	532	5,393
Budget	328	333	310	507	482	302	477	552	451	357	494	375	4,968
Difference	(90)	314	344	(50)	(299)	235	(24)	(219)	81	42	(66)	157	425
Fleet													
Actual	(8)	-	-	320	(32)	-	99	1,222	59	-	287	286	2,233
Budget	-	-	1,210	-	-	-	1,000	740	-	1,208	318	944	5,420
Difference	(8)	-	(1,210)	320	(32)	-	(901)	482	59	(1,208)	(31)	(658)	(3,187)
Facilities													
Actual	(250)	352	125	249	388	122	240	178	382	510	1,264	4,086	7,646
Budget	591	591	742	99	87	673	643	796	1,102	908	332	185	6,749
Difference	(841)	(239)	(617)	150	301	(551)	(403)	(618)	(720)	(398)	932	3,901	897
Info. Technology													
Actual	-	-	-	-	-	125	24	-	-	109	142	283	683
Budget	5	306	32	205	-	263	36	72	45	1,445	904	280	3,593
Difference	(5)	(306)	(32)	(205)	-	(138)	(12)	(72)	(45)	(1,336)	(762)	3	(2,910)
Other													
Actual	(54)	58	10	6	21	4	-	(34)	16	5	197	29	258
Budget	410	561	533	55	221	106	435	227	525	851	751	854	5,529
Difference	(464)	(503)	(523)	(49)	(200)	(102)	(435)	(261)	(509)	(846)	(554)	(825)	(5,271)
Total													
Actual	2,972	6,165	6,711	4,509	4,178	8,515	5,600	3,209	4,684	7,645	6,448	22,695	83,331
Budget	7,266	7,358	8,559	6,383	6,328	6,918	9,028	8,485	9,193	12,922	11,840	10,809	105,089
Difference	(4,294)	(1,193)	(1,848)	(1,874)	(2,150)	1,597	(3,428)	(5,276)	(4,509)	(5,277)	(5,392)	11,886	(21,758)
To-Date Difference	(4,294)	(5,487)	(7,335)	(9,209)	(11,359)	(9,762)	(13,190)	(18,466)	(22,975)	(28,252)	(33,644)	(21,758)	

Source: Information Response 288 and PGW Draft Report Comments

Exhibit V-23
Capital Expenditures
FY2014

Months	Actual	Monthly Budget	Difference	Actual	Cumulative Budget	Difference
September 2013	$2,971,969	$7,266,000	($4,294,031)	$2,971,969	$7,266,000	($4,294,031)
October	6,165,064	7,358,000	(1,192,936)	9,137,033	14,624,000	(5,486,967)
November	6,710,650	8,559,000	(1,848,350)	15,847,683	23,183,000	(7,335,317)
December	4,509,432	6,383,000	(1,873,568)	20,357,115	29,566,000	(9,208,885)
January 2014	4,177,672	6,328,000	(2,150,328)	24,534,787	35,894,000	(11,359,213)
February	8,514,962	6,918,000	1,596,962	33,049,749	42,812,000	(9,762,251)
March	5,600,027	9,028,000	(3,427,973)	38,649,776	51,840,000	(13,190,224)
April	3,209,269	8,485,000	(5,275,731)	41,859,045	60,325,000	(18,465,955)
May	4,684,224	9,193,000	(4,508,776)	46,543,269	69,518,000	(22,974,731)
June	7,645,448	12,922,000	(5,276,552)	54,188,717	82,440,000	(28,251,283)
July	6,447,910	11,840,000	(5,392,090)	60,636,628	94,280,000	(33,643,372)
August	22,694,754	10,809,000	11,885,754	83,331,382	105,089,000	(21,757,618
Total	$83,331,382	$105,089,000	($21,757,618)	$83,331,382	$105,089,000	($21,757,618)

Source: Information Responses 288 and 759

Budget-to-actual variances, where the actual spend is less than budget, are common. Review of the above two exhibits shows that the majority of the variances reflect actual expenditures less than budget. The reasons for actual spend consistently being less than budget are several and are listed below:

- Delays in starting projects
- Limited or restricted operating seasons with weather delays; weather causing additional problems (leaks) that have priority over items in the capital budget
- Using five-year average of costs to estimate the budget cost for smaller, routine capital expenditure work
- Conservative estimates
- Changes in economic conditions developing since the budget was created
- Gross budget numbers used in developing the budget, which do not include possible reimbursements

When the work is completed on a project, the PGW department manager associated with the project signs off on the fourth copy of the WOA and submits it to the Capital section of the Accounting and Reporting Department. If the fourth copy of the form is not available, the VP of Budget and Strategic Development will write a memo documenting the close of the project and will send the memo to the Capital section of the Accounting and Reporting Department, authorizing the close of the work order. With that documentation, the project is closed in Oracle.

If the project is more straightforward, such as the purchase of one or more vehicles, then the project can be closed relatively quickly with the documentation of the vehicle identification number (VIN) and a PGW-assigned number.

If the project is a construction project or a more involved project, the work order project is closed in Oracle, and then the property clerks organize all the supporting documentation for its charges and compare the total to the work order by journal entry, noting any variances. Accounting clerks then complete an analysis of labor, materials, contracts, and other costs to verify that the charges to the project match the work order total. They then note that the charges are properly classified to the project and that charges are congruent with expected activity. The total charges to the work order are then summarized on the Closing Report, a report summarizing total costs for a specific work order. The Operations Department sends a memo to the accounting clerks in the Accounting and Reporting Department to inform them to stop the application of overhead and additional funds used during construction (AFUDC) on the work order. If costs are later identified for a project that has been closed, the charges are validated and the project is re-opened specifically to include the additional charges.

Before the asset is placed in service, the property clerks in the Accounting and Reporting Department review the project activity when the work order is complete. If there are any major deviations between the budget and actual amounts, the department manager is made aware of the situation and is required to explain the deviation in detail before the asset is placed in service. The explanation is not documented formally.

The final steps in the closing process are the posting and closing of all Oracle projects to fixed assets. At this point, the amount in Construction Work in Progress (CWIP – 107 Account) related to the project activity is swept into Property, Plant, and Equipment Unclassified (106 Account), where it begins depreciation but is not considered a fixed asset and classified until properly analyzed. PGW starts the depreciation of a capital project as soon as it is transferred into the unclassified account, even though the amount capitalized for each project is subject to change based on the review by the accounting clerk against documents and the Oracle file. Once that review is complete, the asset is reassigned to a classified status account (101 Account). PGW records any changes in value as a result of the review and depreciates the asset based on the new cost. Projects are kept open approximately 90 days after the closing (active but closed) to record all expenses (bills received after a project is closed) and to make adjustments based on analysis of supporting documentation.

There is a detailed procedure documenting how to appropriately close capital work in Oracle. This procedure is comprehensive with accompanied screen shots and text describing how it should be completed.

A factor affecting the closing of a project is that a project can accumulate expenditures for only two years, starting at its approval date. Capital expenditures by project are budgeted for two years maximum, and past the close of the second fiscal year of PFMC approval, no more can be spent on that particular project. Closed projects can be reopened to pay bills received late for approved projects. In this situation, the bill and project are subject to additional scrutiny to determine and confirm validity.

Review of the PGW Budget Category Status List Report shows activity by project for a year (2012, 2013, or 2014) and the status of that project—either closed, open, or inactive, as shown in *Exhibit V-24*. Reports from 2014 and the prior two years were obtained and analyzed for the number of projects that were closed but still accumulating charges. That analysis shows that a small percentage of projects are closed and accumulating charges. Of those projects, some of the charges were noted to be negative (possibly credits or adjustments), which according to the Supervisor of this area denotes adjustments recorded as the project is being reviewed during the close procedure.

Exhibit V-24
Closed Capital Projects, with Charges or Adjustments
2012 to 2014
(Calendar Year-End)

	2012	2013	2014
Total Projects	846	906	732
Open	700	592	611
Closed	138	306	111
Inactive	8	8	10
Closed Projects With Charges	10	24	14

Source: Information Response 571

A final step in the close process is to stop AFUDC from accumulating. It is stopped manually when the CWIP project is closed. To ensure that this is done appropriately, a closed/active project that has AFUDC charges associated to it will fail import to Oracle. With that fail, the project will be reviewed, and AFUDC accumulation will be adjusted so that it is accurate. Even though the process to cease AFUDC accumulation is manual, Oracle will not take AFUDC for closed/active projects, safeguarding that stoppage of AFUDC charges occurs appropriately.

Fixed Asset Inventory

The Administrator, Capital Budget and Reconciliation and three assistants control the capital project accounting process and therefore the fixed asset inventories, by department. It is understood that a physical fixed asset inventory has been completed for transportation (fleet) and gas processing.

Over the past three years (2012 through 2014), there has been a departmental review of fixed assets that has taken the form of a fixed asset inventory. This effort is being led by the Administrator of the Capital Budget and Reconciliation group. Fleet had been initially targeted and the list of vehicles that physically exist has been reviewed and compared to those vehicles that have been recorded in the capital records. Vehicles that had been discovered to no longer exist but recorded in the records were removed. Field Operations will conduct a similar review for meters.

Changes in Capitalization Policy at PGW

Within the last five years, PGW increased the minimum value of a capital asset from $400 to $5,000 and from a one-year life to an asset with a three-year life. This change is reflective of the amount of time needed to track capitalized assets and depreciate them over time. With the amount of time required for this process, larger amounts are determined to be an appropriate threshold for capitalization. Further, under state law, assets financed with the proceeds of revenue bonds must have a probable useful life of at least five years. Additionally, computers are no longer capitalized if they do not meet the threshold for capitalization. This change was made five years ago; therefore, all computers under the old policy should now be retired.

Budget Management, Reporting, and Controls

The responsibility for planning and organizing both the operating budget and the capital budget rests with the VP, Budget and Strategic Development, who reports directly to the EVP & Acting CFO. Reporting to the VP, Budget and Strategic Development is the Director, Budget and Cash Management, who is responsible for developing and managing both the capital budget and forecast and the operating budget and forecast.

Operating Budget

The operating budget process starts in February with a kickoff letter to all members of the management team and ends with the operating budget being filed for approval with the PGC in May (by Memorial Day). Subsequent to the filing of the Operating Budget, PGW is required to file the Five-Year Forecast within approximately forty-five days of the budget filing. Beginning in June, the PGC Hearing Examiner will conduct informal discovery sessions. Public Hearings will be held in July by the PGC Hearing Examiner to address PGW's Operating Budget. The Public Advocate, PGW staff, and union representatives will participate in these hearings. A Recommended Decision will be rendered by the Hearing Examiner with proposed adjustments in August and the PGC will meet in September to approve PGW's Operating Budget.

The operating budget and the five-year forecast will incorporate the requirements identified in departmental business plans. Including goals and objectives from department business plans allows the operating budget preparation process to be a mechanism of measuring the performance of departmental attainment of stated goals. Departmental business plans are to be updated to reflect a change to business initiatives or a change in departmental objectives or organizational structure. All departmental costs and personnel levels must be fully justified in writing, incorporating a critical review of all operations and activities. Assumptions provided to departments in preparing their budgets include temperature (degree days), labor rates, gas sales, capital spending levels, and inflation factors to be used to estimate the cost of materials and other expenses. The operating budget calendar is shown in *Exhibit V-25*.

Exhibit V-25
Operating Budget Completion Schedule
FY2015

Budget Step	Completion Date
Submit Personnel Analysis, Including Detail of Union and Non-Union Requirements	March 14, 2014
Approval of Personnel Levels - Cabinet	March 21, 2014
Payroll Budget Developed Based Upon Approved Business Plans	March 28, 2014
Submit Fiscal Year 2015 Service Departments' Operating Budgets	April 4, 2014
Submit Fiscal Year 2015 Departmental Operating Budgets	April 11, 2014
Submit NG Revenues and Expenses FY2014 Estimate and FY2015 Budget	April 18, 2014
Departmental Budget Review Meetings	April 15 -17, 2014
Present Proposed Operating Budget - Cabinet	May 6, 2014
Present Proposed Operating Budget - PFMC Finance Committee	May 13, 2014
Present Proposed Operating Budget - PFMC Board & City's Finance Director	May 19, 2014
File Proposed Operating Budget - Philadelphia Gas Commission	May 23, 2014
Submit natural gas (NG) Revenues and Expenses Forecast Years 2016 through 2020	June 18, 2014
Submit Disadvantaged Business Enterprise (DBE) Participation Targets FY2015 and the Prior Fiscal Year	July 7, 2014
Present Proposed Operating Five-Year Forecast - Cabinet	July 8, 2014
Present Proposed Operating Five-Year Forecast - PFMC Finance Committee	July 15, 2014
Present Proposed Operating Five-Year Forecast - PFMC Board & City's Fin. Director	July 21, 2014
File Proposed Operating Five-Year Forecast - Philadelphia Gas Commission	July 25, 2014

Source: Information Response 106

Capital Budget

The capital budgeting process is initiated in September with a kickoff letter, which includes all assumptions to be used, to all members of the management team. Timing is different from the operating budget, which starts its process with a kickoff letter in February. This earlier start for the capital budget allows PGW to get the proposed or preliminary budget to the Board of the PFMC by the end of the calendar year, to the PGC by January, and to the City Council in the April/May timeframe. A capital budget workshop in which capital issues are discussed is held around the Thanksgiving timeframe. A major component in the development of the capital budget is the number of miles of main replacement required, along with the cost per mile. As part of the budget process, five years of

capital expenditures will be forecast. Prior to the end of year five, six years of capital budget spending will have been approved. Capital projects are prioritized by:

- Safety (cost/benefit analysis not needed)
- Reliability (cost/benefit analysis not needed)
- Load growth
- Enforced relocations
- Business improvement

Three major reports are prepared to assist in managing the capital budget. The monthly Departmental Spending Report provides a comparison between monthly spending and the monthly budget estimate. A second spending report compares actual monthly and total capital spending by individual line item to the approved line item. Lastly on a quarterly basis, a forecast is prepared with updated spending projections. Budget amounts can be moved around within a department with a budget revision. The Quarterly Capital Budget Forecast is sent to PGC and PGW management. The capital budget calendar is shown in *Exhibit V-26*.

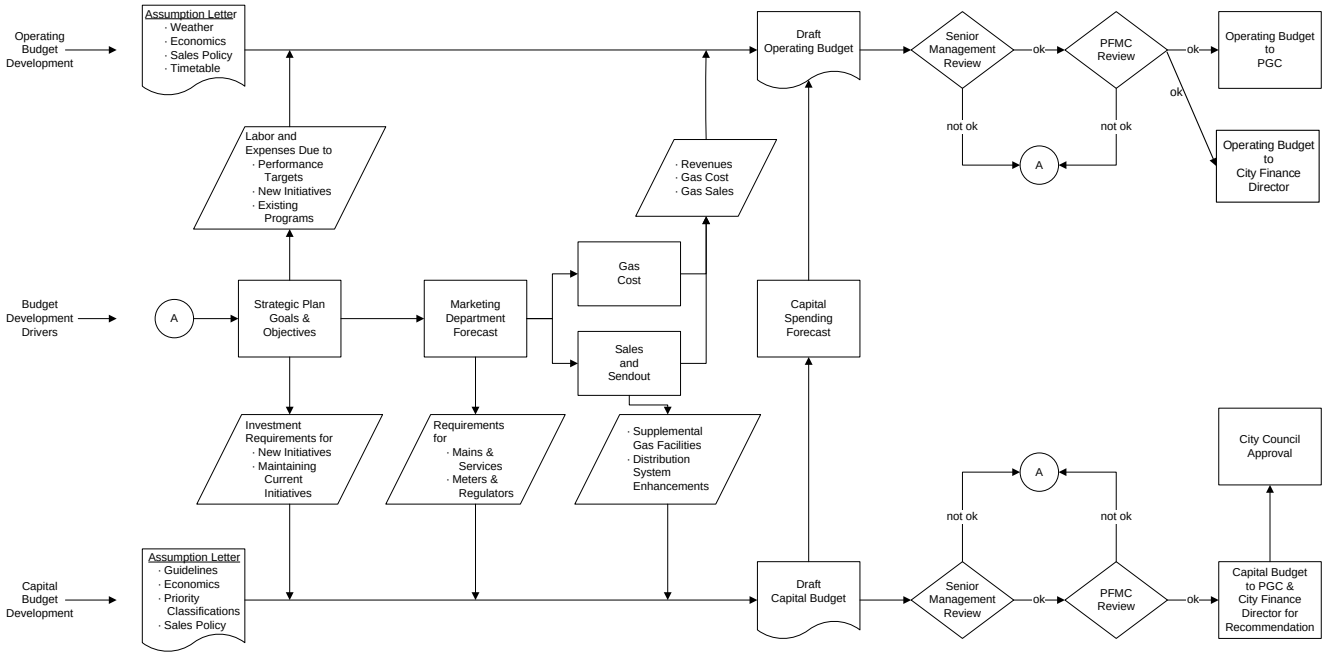
Exhibit V-26
Capital Budget Calendar
FY2015

Budget Step	Completion Date
Marketing Forecast of New Load Additions and Estimate of Metering Requirements Forwarded to Appropriate Departments	October 21, 2013
Request for Engineering and/or Estimating Services	October 21, 2013
Building Furniture Office Requirements Submitted to Facilities	October 21, 2013
Fleet Requirements Submitted to Fleet Operations	October 21, 2013
Customer Service Estimate of Collection-Related Service Renewals to Distribution	October 21, 2013
Departmental Capital Budget and Forecasts Forwarded to Budget for Consolidation	November 25, 2013
Capital Budget Workshop	Week of November 19, 2012
FY2015 Capital Budget Workshop	First Week, December 2013
Capital Budget Review by Cabinet Team and Budget Approval for Submission to PFMC	December 3, 2013
Present Capital Budget to PFMC Finance Committee	December 10, 2013
Revised Forecast of 2013 Capital Spending	December 10, 2013
Present Capital Budget to PFMC Board for Approval	December 17, 2013
Present Proposed Capital Budget and Forecast to Gas Commission and City Finance Director	January 2, 2014
Present Proposed Capital Budget and Forecast to City Council for Approval	May 29, 2014
Approved	June 12, 2014

Source: Information Response 106

The budget planning process for both the operating budget and the capital budget is shown on *Exhibit V-27*.

Exhibit V-27
Budget Planning Process
FY2014



Source: Information Response 107

Periodic operating and capital budget reports prepared by PGW's Budget and Strategic Development Department, together with the frequency and a brief description, are as follows:

- *Departmental Variance Reports* – monthly; sent to all departments and senior managers; contains budget compared to actual; usually available around the 15th to 17th of the next month
- *Departmental Detail Payables Reports* – monthly; sent to all departments; supports the Departmental Variance Report; data is by vendor
- *Statement of Income Narrative* – monthly; explains variances from budget
- *Operating Budget and Five-Year Forecast* – annual; sent to all departments and management
- *Healthcare Variance Report* – annual; healthcare expenses by insurance carrier or type of healthcare provider for active employees and retirees
- *Administrative and General (A&G) Construction Additives* – annual; calculation of rates to be used
- *Degree Day History* – monthly; number of degree days

- *Environmental Remediation Adjustment* – annual; long-term and short-term liabilities; $ booked on balance sheet; sent to auditors
- *Debt Service Coverage Report* – details of the debt service series for the 1975 and 1998 revenue bonds
- *Board Metrics Report* – monthly; operating metrics sent to management and board
- *Detail Departmental Variance Reports by Sub-Department* – monthly; further detail of the Departmental Variance Report
- *Overtime Reports* – weekly; variance between budget and actual overtime and monthly summaries
- *Price Volume Report* – monthly; sent to PGC, reporting deviation in natural gas prices
- *Capital Budget and Five-Year Forecast* – annual; sent to all departments and management
- *A&G Monthly Variance Report* – monthly; variances by components of actual administrative and general expenses compared to budget
- *Fringe Benefit Rates* – annual; calculation of fringe benefit rates (currently, approximately 50% for employees; 70% if including cost of retirees)
- *Weather Normalization Adjustment* (*WNA*) *Revenue Report* – annual; report of revenue realized from the WNA clause charge added to the customer invoices
- *Injuries and Damages Adjustments* – annual; report of injuries and damages; sent to auditors
- *Compensated Absence Report* – annual; included on balance sheet and sent to auditors
- *Commission Metrics Report* – monthly; operating metrics report sent to Gas Commission
- *Detail Departmental Variance Reports by Sub-Account* – further detail by sub-account; similar to Detail Departmental Variance Reports by sub-department
- *Cost Savings Report* – monthly; details of operating expenses; sent to all departments and senior management
- *Payroll Variance Reports* – monthly; reconciles payroll to labor dollars
- *Net Cost of Fuel Report* – monthly; reports net cost of fuel expense
- *Soft-Off Utility Variance Report* – monthly; report of all customer soft-off activity
- *Collection Statistics* – 20-Year History Report – monthly; reports monthly activity for past 20 years, reflecting collection trends (currently includes 24 years)
- *Gas Cost Rate* (*GCR*) *Adjustment* – monthly; the surcharge amount charged to customers monthly for the GCR adjustment, reflecting increases or decreases in natural gas costs and other costs
- *Normalize Expenses Adjustment* – annual; report of expense amortized over five-year to seven-year period
- *Personnel Summary Report* – monthly; reports actual full-time equivalents (FTEs) compared to budget by department

Internal Audit

As discussed in *Chapter IV – Corporate Governance,* PGW's Internal Auditing function is staffed by a manager with no staff. There are two budgeted positions, possibly three in the future, for auditors, but these positions have not been filled yet. Most internal auditing work is performed by an outside contractor. Likewise, the scope of internal audits is limited and does not include substantive reviews of major financial processes. See *Chapter IV – Corporate Governance* for additional details regarding the reporting structure of the Internal Audit organization.

Audit Process

Audit Selection and Risk Analysis

The audit selection and risk analysis process is clearly documented in the Internal Audit Policies and Procedures Manual dated June 2014. To begin the scoping process, the Director, Financial Reporting and Oracle Administration along with the Manager, Internal Auditing (IA) meets with the upper-level management (Cabinet members[5]) to discuss their concerns within PGW. (Internal audit projects and scope are ultimately presented by the IA Manager and approved by the Audit Committee, at the conclusion of this process.) In conjunction with this initial discussion, Internal Audit creates a list of potential audits to perform during the next fiscal year and analyzes them based on risk using an Internal Audit Risk Assessment Model Factors system. This model exists in an Excel format and has ten risk factors, ranked low, medium and high. Each potential audit is scored and total risk points are assigned. Based on this quantitative analysis and then qualitative inputs, an audit list for the year is finalized. Although the process is sound and documented in narrative format in the Internal Audit Policies and Procedures, the risk template itself is not shown. PGW areas analyzed for risk are:

- Contract Compliance
- Project Management
- Procurement Operations Audit-Contract
- Gas Procurement & Reconciliation
- Cast Iron Main Replacement
- Tuition Reimbursement
- User Access (IT)
- Accounts Payable
- Senior Citizen Discount
- Human Resources (HR) Operational
- Employee Healthcare
- Risk Management – Open Claims and Other Accounts Receivables (OARs)
- Flex Spending

[5] Cabinet members include President & CEO, Executive VP & COO, Executive VP & CFO, Chief Administrative Officer & General Counsel, Senior VP of Marketing & Corporate Communications, VP of Regulatory & External Affairs, Senior VP of Customer Affairs & Operations, Chief Information Officer & VP, and Chief of Staff (Senior VP of Gas Management subsequently added in 2015)

- Corporate Communications Operational Effectiveness
- Distribution System Improvement Charge (DSIC) – Capital Projects
- Asset Management (IT)
- Capital Projects
- Payroll – Timekeeping
- Gas Transportation
- Information Services (IS) Project Management
- Cash Management – Treasury
- IS Security
- Other Accounts Receivables (OARs)
- Business Continuity Plan (BCP)
- Lien Process – Collections
- Distribution Crew

Few audits regarding Supply Chain activities are performed by the Internal Audit function, as the Supply Chain Department has developed its own internal audit program, as discussed in *Chapter III – Support Services,* although Internal Audit is unaware of Supply Chain's audit program. The Supply Chain Manager of Controls and Analytics is responsible for this program, which uses personnel within the department and from other PGW areas who have received International Organization for Standardization (ISO) and other fundamentals training in internal auditing. Audits on 20 supply chain processes, organized into five main functional process areas (General and Administrative, Procurement, Materials Management, Standards and Office Services, and Pipe Shop) are conducted on an annual basis. Internal audit procedures are documented, written checklists are used, schedules and responsibilities are maintained, and follow-up actions are documented via corrective action forms.

Once the audits are selected and the audit list for the year is finalized, Internal Audit meets to discuss the potential audits with PGW's internal audit contractor, Ascent, to determine which areas selected for audit are the best match for the expertise of the PGW Internal Audit or the expertise of Ascent. Once determined, the proposed audits are presented to the Audit Committee for approval.

The results of the Audit Department planning were presented to the Audit Committee, as shown in *Exhibit V-28*. Each audit planned to be conducted in FY2015 and listed for the committee was described to the Audit Committee with rationale for the audit, audit scope, and risks addressed.

Exhibit V-28
Audit Plan for Current Fiscal Year
FY2015

Internal Audits – PGW Team
1. Accounts Payable Process
2. Payroll and Timekeeping
3. Distribution System Improvement Charge (DSIC) / Capital Projects
4. Risk Management Open Claims / Other Accounts Receivables (OARs)
5. Procurement Operational Effectiveness
6. Tuition Reimbursement
7. Weather Normalization Adjustment (WNA)
Routine – Conducted Audits
8. Expense Reports
9. District Office Customer Payment Process
10. Petty Cash
11. Management Progress / Audit Recommendations Remediation Assessment

Source: Information Response 293-007

Audit Process

The audit process at PGW conforms to Institute of Internal Audit standards and kicks off after the list of audits for the year is approved by the Audit Committee. At this point, Internal Audit meets for brainstorming sessions and general discussion on each of the approved audits. For each planned audit, a specific work program is created. Work program creation starts with the previous work program as a beginning point. Upon completion of the work program, a planning meeting is held with the audit team, followed by a kickoff meeting with the department to be audited, which includes initial data requests. After the audit of the department has reached its halfway completion point, the department under audit will receive a status update and findings and recommendations to date will be discussed. After work is completed, the report is finalized for review with the management team of that department and a closing meeting is conducted, usually one week later. Management responses are reviewed by the team for appropriateness before release to management for their review of the report in its current form. With that review, management will "accept," "partially accept," or "reject" any audit recommendation. When a recommendation is rejected, there is usually a reason stated (e.g., lack of resources) to qualify the rationale.

An audit report is truly finalized with presentation to the Audit Committee and their approval and a summary report issued later to the PFMC which often results in questions being raised by both parties and then resolved.

The Audit Committee will review findings and recommendations, approve and finalize reports, and approve audits. Internal Audit keeps reports as open (with management comments) until approved by the Audit Committee. Internal Audit tracks management comments and disposition. The Internal Audit findings/recommendations and management comments are discussed by the Audit Committee. The Director, Financial Reporting and Oracle Administration presents Ascent audits to the Audit Committee, and the Manager, Internal Audit presents PGW internal audit reports to the Audit Committee. Four to five audits are discussed during one presentation. These audit reports are not released (not considered final) until Audit Committee approval.

Internal Audit Tools

As described above, a risk assessment tool for quantitative factor analysis is used to select audits. Internal Audit also uses software for data sampling and manipulation. This software is used as a data analysis tool, allowing the analysis and simplification of data to spot trends. The software can also be used to join databases.

Audit Committee Activity

There are five Audit Committee meetings per year, occurring quarterly with an additional meeting in August. The July Audit Committee meeting focuses on the following fiscal year planning. Audit Committee meeting attendees from PGW are the Director, Financial Reporting and Oracle Administration; the Manager, Internal Audit; the EVP & Acting CFO; the CEO; and the Manager, Risk.

Audit Committee presentations for executive sessions include Audit Committee and external auditors, currently KPMG. KPMG meets with the Audit Committee initially at the July session and presents plans for the upcoming annual audit. At the December session, KPMG presents the annual audit results, including closing activities and findings.

Internal Audit Contractors

PGW has used a subcontractor for internal audit work for several years. In 2013 and 2014, this subcontractor was the Ascent Group. Previous contractors included Grant Thornton and PricewaterhouseCoopers (PwC).

Ascent has considerable utility experience and performs internal audit work from fieldwork through report writing. Most notably for PGW, the team members from the Ascent Group have not changed during an audit; their staff has been very consistent over the last three to five years. This consistency has made the supervision and coordination of the internal audit work much easier for PGW. The first year with PGW, Ascent focused on customer activities, followed by operations and customer activities in the second year and various other audits in FY2015 including human resources, information services,

procurement, corporate communications, gas transportation, cast iron main replacement and risk management. Five team members from the Ascent Group are being assigned to PGW in 2015, one with an information services specialty.

Ascent has helped structure the Internal Audit Department at PGW and provides ongoing guidance regarding work papers and audit processes. PGW assists with the audits assigned to Ascent, going to kickoff meetings and serving as PGW subject matter experts for Ascent. Ascent attends closing meetings with the department or area being audited but does not attend Audit Committee meetings.

PGW's internal audit reports for the last five years are summarized in *Exhibit V-29*.

Exhibit V-29
Internal Audit Reports
FY2010 to FY2014

PGW Internal Audit	Internal Audit Contractor
FY2014	
Credit Refund Compliance Audit Return Mail Audit Soft-Off Operational Effectiveness Audit Weather Normalization Audit	Back Office Effectiveness Audit Parts and Material Inventory Control Management Audit Unaccounted-For Gas Audit Write-Off Management Effectiveness Audit
FY2013	
PA One Call Compliance Audit Bank Account Reconciliation Audit Expense Account Compliance Audit Operator Qualification Compliance Audit	Call Center Operational Effectiveness Audit NPSO (Non-Payment Shutoff) Operational Effectiveness Audit Demand Side Management Operational Effectiveness Audit Landlord Cooperation Program Operational Effectiveness Audit Service Order Scheduling & Appointment Operational Effectiveness Audit Universal Services Operational Effectiveness Audit
FY2012	
Information Technology Infrastructure Library Assessment Follow-Up Audit Ineligible Dependent Insurance Audit BCCS (Billing System) Adjustment Audit	PGW's Talent Management Program PGW's Meter & Installation Replacement Program – Effectiveness Audit PGW's Business Continuity Program – Effectiveness Assessment PGW's Transmission Pipeline Integrity Management Plan
FY2011	
None	PGW's Network Vulnerability Remediation Assessment PGW's Collection Rate Validation Process PGW's Business Continuity Program – Design Effectiveness PGW's Meter Installation & Replacement Program PGW's Enterprise Risk Management Framework PGW's Advertising Audit PGW's Balance Scorecard Audit
FY2010	
None	Fire Prevention Audit Facilities Audit BCCS System Interface Audit Talent Management

Source: Information Responses 100 and 114

Ongoing Education

Training is and has been conducted for PGW Internal Audit using one outside organization, the Michael Ira Sobol (MIS) Training Institute. The Manager of IA has worked with this group so that the training can be tailored to the specifics of the IA background, organization and current set up. This group has been very flexible with its training for PGW, bringing the training to PGW to be conducted onsite. The Director, Financial Reporting and Oracle Administration, is pleased with training to date and has plans for future training.

The next round of onsite MIS training is expected to include the new Internal Audit staff. This training course is planned to last three days and will be customized to fit PGW's internal audit needs.

B. Findings & Conclusions

Finding V-1 **One active bank account has not been reconciled for a considerable period of time.**

One of the nine bank accounts at PGW has not been fully reconciled since September 2012. The reconciliation as it exists has all reconciling items listed that comprise the difference between the cash ledger and the bank activity, but these items are not resolved, only listed and then carried forward to the next reconciliation. This particular bank account includes district office and treasury bank activity, and customer bounced checks as examples of the wide variety of activities associated with the account. The account is handled by several areas and personnel at PGW, adding to the difficulty in the reconciliation process. Currently, biweekly meetings are held to discuss the account reconciliation issues with this account. The items listed as reconciling items go back to 2012 and show 16 different items from that year, 118 items from 2013, and 209 for the eight months ended August 2014, totaling 343 outstanding items. Completion of this project is planned for the first quarter of 2015. The reconciliation process at PGW allows for reconciling items to be listed, but those items do not need to be resolved on an ongoing, timely basis.

Finding V-2 **A checklist is not being used in the routine closing process for capital projects.**

The capital project closing procedure is a multiple-step process that is conducted each time a capital project is closed. Best practices have processes such as these using a checklist to be sure all steps are conducted before the task is considered complete and the list is made available for review. This would give the Property Clerk a systematic list to use to perform his or her task and documentation to sign off when complete. It also would give the reviewer a starting point for his or her review. The checklist also answers the first basic question: Have all tasks been completed?

Finding V-3 Retiring assets are not being removed in a consistent or timely manner from financial records as associated replacement assets are being added.

Currently, there is not a good system in place to match new capital replacement assets with the associated retiring asset. Although a new asset can be noted as a replacement asset on the WOA form, there is no information on the form identifying the asset that is being replaced and retired. Without that information, Capital Accounting cannot trace back through the Capital Accounting records and find and remove the retiring asset from the Capital Accounting records.

Without this link, new capital assets are being brought onto the accounting records and the associated retired asset is not being removed in a consistent or timely manner. This tendency allows for the total capital asset account balance to be overstated. In the case of PGW, overstated capital assets is not the issue it might be at other typical return-on-investment type companies, as PGW is currently regulated by the PaPUC under a cash flow methodology designed to allow PGW to recover its reasonable and prudent operating expenses and generate cash flow sufficient to meet its debt service requirements. Consequently, PGW's base rates are neither comprised of depreciation or rate of return components unlike a rate of return company.

Finding V-4 The balance in the Unclassified Assets account has been increasing significantly over time.

Total classified and unclassified in-service plant assets have increased, as shown in *Exhibit V-30*. The amount of unclassified assets as a percent of total plant has been increasing since FY2009 from 14% to 18% in FY2014. In dollars, total unclassified assets have increased from $250 million in FY2009 to $372 million in FY2014. Total plant has been increasing as well from $1.75 billion to over $2 billion in 2014. Review of the unclassified asset issues shows that this is not a rolling number. In other words, unclassified projects are made up of the same projects, year after year. A possible scenario would be that all of the fiscal year 2012 unclassified projects were classified in the next fiscal year and another set of new unclassified projects is created in fiscal year 2013. The list of projects and unclassified dollars changes very little year over year, except that the number of unclassified projects increases. Because PGW's rates are not set based on return on investment, this increase in the unclassified asset account will not affect rates. However, any delay in proper accounting for major categories of assets is still a matter of concern.

Exhibit V-30
Unclassified Plant Analysis
FY2009 to FY2014

	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Total - Classified	1,503,432,051	1,531,269,121	1,555,051,666	1,575,795,147	1,592,611,034	1,645,301,897
Total - Undassified	250,864,818	263,007,803	301,251,672	318,333,321	358,935,117	372,931,604
Total Plant	1,754,296,869	1,794,276,924	1,856,303,338	1,894,128,468	1,951,546,151	2,018,233,501
Increase Undassified year over year		12,142,985	38,243,869	17,081,649	40,601,796	13,996,487
Undassifed as a % of total	14%	15%	16%	17%	18%	18%

Source: Information Response 599

Finding V-5 **Internal Audit's use of an outside contractor to conduct audits may not be the most cost-effective solution.**

PGW has contracted with Ascent, an external contractor, to conduct audits that augment the work done by its own Internal Audit staff. Ascent charged an hourly rate of $200 for 2,000 hours of work, totaling $400,000 in fiscal year ended 2013, to conduct six internal audits for PGW. At an average of 333 hours per audit (2,000 hours/6 audits), this cost breaks down to almost $67,000 per audit. Through the interview process, we understand rates and hours remained similar through the FY2014 work. Based on the descriptions of the Ascent work and PGW comments, PGW has been pleased with Ascent's efforts and professional performance; however, the cost per hour and per audit is significant and worthy of further review as to options for PGW's Internal Audit program.

Finding V-6 **The current method of accumulating Internal Audit findings and recommendations does not lend itself to retrieving that data in various sorts.**

Currently, an Excel-based system with a front-end developed in-house is being used to accumulate audit findings and recommendations and their disposition. The front end of this system does not allow for the use of the usual Excel search function to find details regarding oldest audit finding or all open comments. With that lack of capability, PGW is transitioning from the current Excel-based, front-end-driven system that accumulates all internal audit findings, recommendations, and remediation efforts. The current system, for example, does not lend itself to sorting to find the oldest outstanding comment. With the current front-end interface in place, it is impossible to sort-by date. Without the ability to sort by date, an aging report cannot be generated and oldest recommendations can get lost among more current recommendations. Currently, to find the oldest audit recommendation, a report of all recommendations needs to be created and then reviewed and sorted manually to determine the oldest record. If the current system remains in place, ongoing analysis cannot be done to determine outstanding issues by age. In such a situation it would be easy to lose track of the most the critical audit findings. Included in the 2015 audit plan is an audit of management progress/audit recommendations remediation assessment, as shown previously in *Exhibit V-28*.

C. Recommendations

Recommendation V-1 **Adjust the bank reconciliation process so that reconciling items are cleared in a timely manner. (Refer to Finding V-1.)**

The bank reconciliation process at PGW has all reconciliations performed timely and systematically, but listed reconciling items are not resolved. Without resolution, the reconciling items will continue to exist and will show as reconciling items going forward until resolution is determined and recorded. The reconciliation process should be expanded to include the resolution of reconciling items. This last step will remove the reconciling item from the list of reconciling items and will render the accounting books and records up to date with the resolution of these items. The reconciling items are being called out, but they are not being resolved at the same time.

Recommendation V-2 **Employ the use of a process checklist for the closing of capital projects. (Refer to Finding V-2.)**

Currently, PGW does not use checklists for closing capital projects. The Administrator (lead of the department) has enough longevity in the department that such a checklist is not critical to the process today. But retirement, termination, new hires, or simply to have a starting point for clerks that close the projects, a checklist would enable the closing process to happen systematically and consistently over time.

Recommendation V-3 **Develop a systematic plan and process to review fixed assets across PGW and determine which recorded assets are no longer in service and need to be removed from the records. (Refer to Finding V-3.)**

PGW has plans in place to conduct a study across PGW to determine which assets exist and which have been retired but are still recorded. Although the fixed asset inventory process has started with some areas within PGW having conducted fixed asset inventories, a systematic process needs to be set up so that each physical asset fixed inventory conducted gives PGW the greatest accuracy in answering the question: Which assets in the accounting records no longer physically exist? The goals should be to review the largest amount of fixed assets by area and to ensure that the total capital asset amount is reflective of the true capital assets at PGW.

Recommendation V-4 **Develop a systematic plan and process to review unclassified assets with the end goal of classifying those assets to the proper account. (Refer to Finding V-4.)**

To address the increasing unclassified asset issue, PGW plans to conduct an analysis of its unclassified fixed assets (accounted for in the Federal Energy Regulatory Commission (FERC) 106 Account in January 2015. Through the capital project closing process, the Accounting and Reporting Department will analyze the asset's supporting documentation and determine that the project is complete.

Subsequent to this step, the asset will be classified and assigned to a classified status (FERC 101). A plan going forward will be developed for the Accounting and Reporting property clerks to identify and prioritize the unclassified assets for review and subsequent transfer to the classified FERC Account 101. To facilitate and support this process, the staff will hold monthly status meetings to identify issues and to address the progress of this classification process. This process will be part of the normal routine until the unclassified assets balance is reduced to a nominal amount.

Recommendation V-5 Explore alternatives for fulfilling internal audit requirements. (Refer to Finding V-5.)

PGW should consider alternatives for conducting internal audits. Currently, an outside contractor is used to augment PGW's Internal Audit resources; however, this is a relatively expensive solution, with the cost of an additional 2,000 hours of audit time costing approximately $400,000. In FY2013, this was the total cost to conduct six audits—almost $67,000 per audit. The same amount of expenditure would pay for five additional internal auditors ($53,900 base salary plus 51.6% for benefits = $81,712 per auditor; $81,712 × five auditors = $408,560). Assuming that each new auditor would have 1,840 hours available to conduct internal audits (2,080 hours less 80 vacation hours less 160 training hours = 1,840 hours), the total number of additional internal audit hours acquired would be 9,200 hours. Based on the number of hours required by the outside contractor for an average audit in 2013 (2,000 hours divided by six audits = 333 hour per audit), the number of audits that could be conducted by this new audit staff could be 28 (9,200 hours divided by 333 hours per audit = 28), rather than the six internal audits purchased in 2013. Conducting 28 audits with the outside contractor would cost PGW $1,876,000 (28 audits X $67,000 per audit), whereas using internal resources the cost would be approximately $408,560, an annual savings of $1,467,440.

PGW has stated that it would like to increase its Internal Audit staff and that the relationship with the outside internal audit contractor is a short-term answer to help fulfill its internal audit requirements. Based on the calculations shown above, it seems that PGW should expedite its efforts to acquire its Internal Audit staff in order to operate in a more cost-effective manner. The amount of money currently spent on an outside contractor would buy training as well as personnel to round out the Internal Audit Department. This would allow PGW's resources to be used internally for the PGW Internal Audit Department on a forward-going basis as opposed to being spent for specific internal audits and ad hoc training.

Additionally, PGW should consider using the Internal Audit Department as a general management training program. Promising new hires to PGW could be funneled through the Internal Audit Department to gain management and PGW-specific utility experience over a several-year period that would pay benefits in the longer run for most of the other operating departments.

As described earlier in this chapter, the Supply Chain Manager of Controls and Analytics uses personnel within the Supply Chain Department and from other PGW areas who have received ISO and other training in internal auditing to audit 20 supply chain processes. These personnel, or personnel within PGW with similar experience and training, could be utilized to staff the additional staffing necessary for

the Internal Audit Department to fulfill its internal audit requirements. However, if any of these individuals perform Supply Chain audits in the future when part of the IA function, it will be necessary to disclose this fact of their prior involvement with the Supply Chain function, so as to provide disclosure with regard to potential impairment when reporting audit results.

Recommendation V-6 **Create a new system and method to accumulate audit findings and recommendations that allows for retrieval based on different criteria. (Refer to Finding V-6.)**

Currently, the Internal Audit Department is using an Excel-based program to accumulate findings and recommendations. This system is limiting in that the data cannot be retrieved using various search criteria, such as age of the audit finding and recommendation. The Director, Financial Reporting and Oracle Administration is aware of the limitations and is currently working to find alternatives.

VI. Diversity and EEO

This chapter addresses diversity and equal employment opportunity (EEO) programs at Philadelphia Gas Works (PGW) for both employees and suppliers. The relevant functional entities for diversity and EEO include the Organizational Development Department and the Supply Chain groups. The Organizational Development Department is a function of Human Resources. The Supply Chain organization within PGW includes the Purchasing, Materials Management, and Fleet Departments.

A. Background & Perspective

PGW's affirmative action and diversity commitment is evidenced by a range of policies and practices. PGW provides professional development opportunities and work life programs that aid in attracting a diverse workforce. While primary responsibility for the affirmative action and diversity programs resides within the Organizational Development (OD) function, accountability extends to all managers.

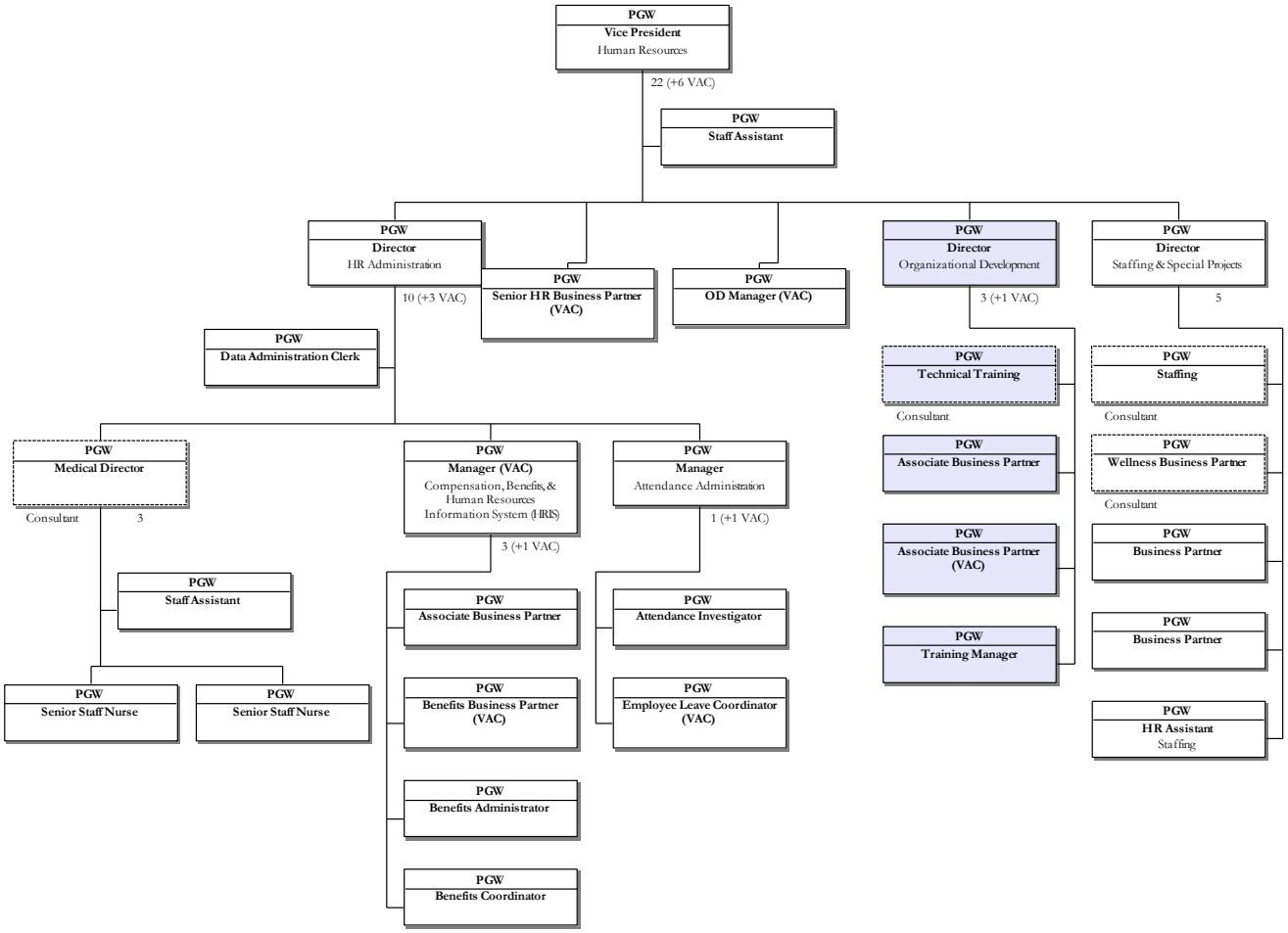
Employee Diversity

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 the Vice President (VP) of Human Resources and reports to the Chief Administrative Officer and General Counsel. Functions of the OD Department include:

- Oversight of all internal discrimination complaint investigations
- Performance management tracking for diversity
- Succession planning
- Needs assessments with business units
- Training for corporate and non-technical operations staff

Exhibit VI-1
Organizational Development Organization
as of December 31, 2014



Source: Information Response 1

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 also voluntarily prepares, but is not required to file, Equal Employment Opportunity Commission (EEOC) reports (EEO-1 reports). PGW is subject to the required Pennsylvania Public Utility Commission (PaPUC) management audits and submits annual diversity reports to the PaPUC.

PGW uses Berkshire Associates BALANCEaap® Affirmative Action software for AAP tracking and reporting. The Berkshire software supports the preparation of an Office of Federal Contract Compliance Programs (OFCCP)-compliant AAP and associated reports.PGW updates utilization data monthly and reports utilization annually in the AAP and in PUC diversity reports. Although the

software has capabilities to conduct various types of personnel analyses for adverse impact, PGW does not routinely use the software for that purpose.

PGW determines which job groups adequately represent the minority and female labor force through a utilization analysis, comparing the relevant workforce availability to the actual percentage of minorities and females employed by PGW in each job group. This analysis is used to set annual affirmative action goals. The analysis examines the availability of the minority and female labor force in a two-step process based on the relevant geographic recruitment area for each specific job group. The first step is the determination of availability within the relevant geographic labor force for each job group. The majority of job groups, with the exception of management, are based upon availability in the City of Philadelphia (City), which reflects the PGW marketplace.

The second step in the availability analysis is determining the percentage of incumbent staff available to be promoted, transferred, or trained. The external and internal percentages are weighted to determine overall minority and female workforce availability for each job group. Once the availability has been established for each job group, the actual percentage of minorities and females in each job group is compared to the calculated percentage of available minorities and females in the labor force.

Underutilization is defined as "having fewer minorities or women employed by PGW in a particular group than would reasonably be expected by their availability." There are four accepted methods used to calculate underutilization for OFCCP-compliant AAPs. PGW uses a combination of the *two standard deviations rule* and the *binomial test* as described in its 2013 AAP.

> *Philadelphia Gas Works has compared the representation of minorities and women in each job group with their representation among those identified in the availability analysis as available for employment in the job group. Where actual representation was less than the calculated availability, PGW conducted a statistical test to determine whether the difference was greater than could reasonably be expected. Where the job group was of a sufficient size to analyze using the two standard deviation test, PGW applied that methodology. Where the use of the two standard deviations test was not appropriate, PGW used the exact binomial methodology.*

PGW encourages workforce diversity through the use of benchmark targets established through its affirmative action program. Diversity hiring goals are specified in staffing service level agreements (SLAs) that are provided to hiring departments. Every job requisition indicates a utilization level, and underutilized positions are given special consideration in recruitment and selection. Currently, PGW does not generate or provide reports to managers to keep them apprised of their progress toward the attainment of goals. PGW's utilization performance is discussed in *Finding VI-2*. Additional components of PGW's compliance-oriented affirmative action efforts are discussed in *Finding VI-3*.

PGW has a formal complaint policy and procedure in place that is provided to all employees. The OD Department is responsible for tracking and responding to all discrimination complaints. Between 2010 and 2014, 33 employees used PGW's internal complaint process to resolve their issues. Only two complaints resulted in probable cause findings and the remaining cases were dismissed with no cause.

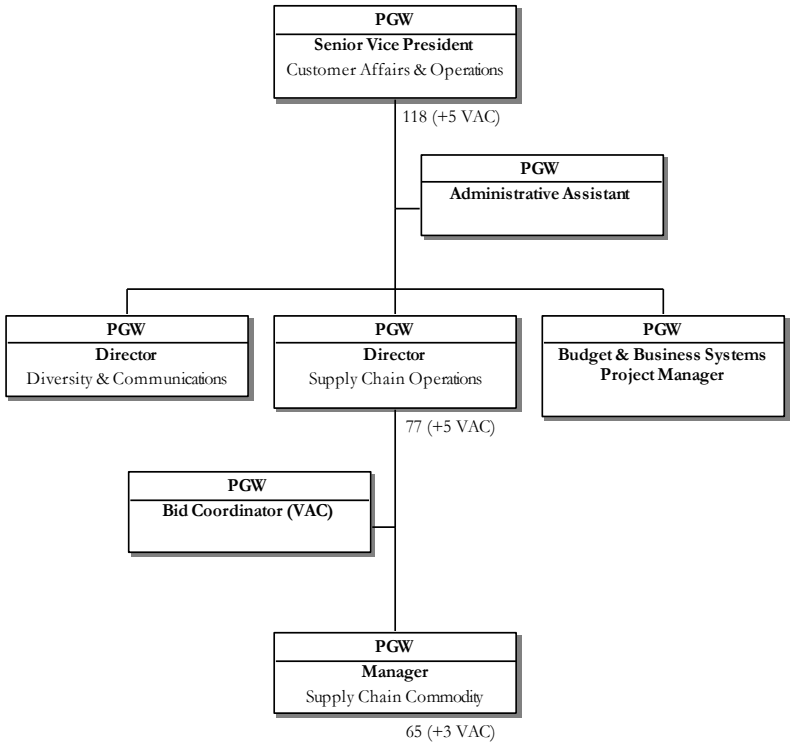
Between 2010 and 2014, 36 external complaints were filed with the federal EEOC, the Philadelphia Commission on Human Relations (PCHR), or the Pennsylvania Human Relations Commission (PHRC). Of these, 24 (67%) were either withdrawn or the allegations of the complaint were not substantiated. No probable cause findings were issued by any external agency during the four-year period. Nine complaints are still pending a decision. For the same period, seven lawsuits were filed alleging discrimination. Of these, five were dismissed with prejudice and two are still pending an outcome.

Supplier Diversity

Organization & Staffing

All Supplier Diversity activities are performed by the PGW Supply Chain organization, as shown in *Exhibit VI-2*. Supply Chain is an integration of the Purchasing, Materials Management, and Fleet Departments.

Exhibit VI-2
Supply Chain Organization
as of December 31, 2014



Source: Information Response 1

PGW completed a Supply Chain Initiative to integrate the activities of Procurement, Material Management, and Fleet Department functions in FY2010. The Director of Diversity and Communications position was then created to strengthen internal and external Minority, Women, and

Disabled Business Enterprise (MWDBE) outreach, to identify new MWDBE suppliers, and to serve as a conduit for information on the procurement process and policies. This new position reports to the Senior Vice President of Customer Affairs & Operations.

Supplier Diversity Functions

The Supply Chain Organization is responsible for the purchasing/acquisition of materials and services in support of PGW operations. This section is also responsible for outreach efforts to increase procurement opportunities and dollars spent with MWDBE firms. The Diversity and Communications Director works closely with Supply Chain on establishing a contract goal for each procurement, conducting outreach efforts, and preparing monthly Philadelphia Facilities Management Corporation (PFMC) board updates.

PGW forged partnerships with organizations such as the African American Chamber of Commerce of PA, NJ, and DE; the Eastern Minority Supplier Development Council (EMSDC); and the Office of Economic Opportunity (OEO) of the City of Philadelphia to make significant improvements in business participation from the previous five years. PGW also continued to post all professional service opportunities on its website to broaden access to vendors in various segments of the business community. PGW's business participation is discussed in *Finding VI-4*and *Finding VI-5*.

The Director of Diversity and Communications plays an integral role in the budget review process by engaging in dialogue with client groups to ensure MWDBE spending objectives are incorporated prior to final approval. MWDBE participation ranges of total project costs are set for service and construction projects as part of the capital and operating budget process. The Director of Diversity and Communications works with Supply Chain personnel to establish participation ranges in request for quote (RFQ) and request for proposal (RFP) solicitations. Vendors are required to either submit MWDBE participation forms with responses or request a reduction waiver if they are unable to meet the suggested ranges.

The Director of Diversity and Communications has the fundamental responsibility of identifying new MWDBE suppliers. In addition to the OEO registry, a partial list of organizations PGW will reference for MWDBE certification includes:

- Pennsylvania Unified Certification Program
- National Minority Supplier Development Council
- Women's Business Enterprise National Council
- U.S. Department of Transportation Office of Small & Disadvantaged Business Utilization
- New Jersey Department of the Treasury Minority and Women Business Enterprise (MWBE) Certification
- Delaware Department of Transportation Disadvantaged Business Enterprise (DBE)Program

Diversity Purchases Data

The data discussed in this section addresses PGW's utilization of Minority, Women, and Disabled Business Enterprises. MWDBEs are defined as City of Philadelphia OEO-registered contractors as well as contractors who are certified with other agencies but have not registered with OEO. *Exhibit VI-3* illustrates the dollar amount and percentage of PGW prime and subcontractor spend for MWDBE contractors from FY2009 to FY2013.

Exhibit VI-3
Summary-Level MWDBE Contractor Spend*
FY2009 to FY2013

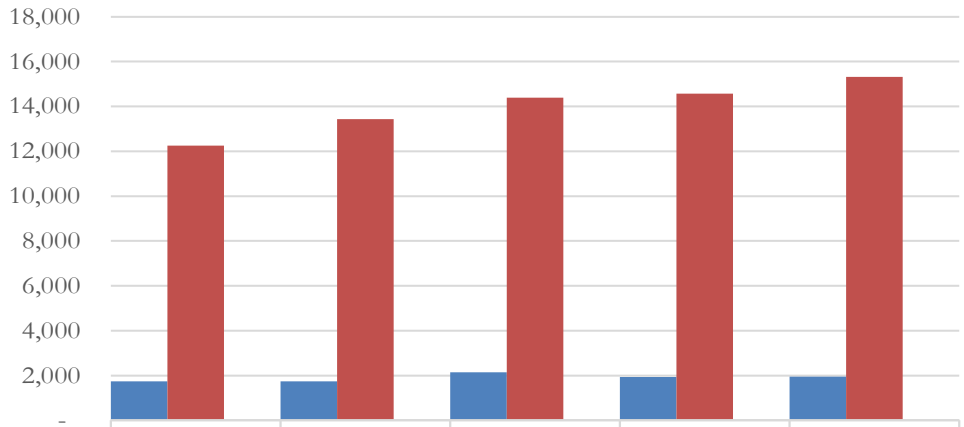
	FY2009	FY2010	FY2011	FY2012	FY2013
Asian Contractors	$2,769,720 4.22%	$1,546,110 2.05%	$2,231,647 2.72%	$505,425 0.58%	$535,676 0.50%
Black/African American Contractors	$2,114,635 3.22%	$1,215,892 1.61%	$811,702 0.99%	$1,540,955 1.77%	$1,202,866 1.13%
Disabled Contractors	$0 0.00%	$0 0.00%	$0 0.00%	$0 0.00%	$0 0.00%
Hispanic Contractors	$185,253 0.28%	$141,916 0.19%	$1,005,806 1.23%	$1,300,231 1.49%	$864,600 0.81%
Native American Contractors	$0.00 0.00%	$0.00 0.00%	$18,729 0.02%	$74,010 0.09%	$53,584 0.05%
Women Contractors	$2,151,984 3.28%	$3,967,421 5.25%	$5,561,108 6.78%	$5,843,413 6.72%	$6,453,599 6.07%
Minority Subcontractors	$664,976 1.01%	$1,960,846 2.59%	$1,955,466 2.38%	$2,038,883 2.34%	$1,351,744 1.27%
Women Subcontractors	$111,418 0.17%	$1,058,882 1.40%	$885,034 1.08%	$1,477,916 1.70%	$579,281 0.54%
Total MWDBE Spend **Total MWDBE Spend%**	**$7,997,986** **12.19%**	**$9,891,067** **13.09%**	**$12,469,492** **15.21%**	**$12,780,832** **14.69%**	**$11,041,349** **10.38%**

Source: Information Response 119
*Excludes single source vendors

Exhibit VI-4 shows a comparison between both the number and value of contracts PGW awarded to MWDBE contractors compared to the total contract awards from FY2009 to FY2013.

Exhibit VI-4
Number of Contracts and Value for MWDBE and Total Spend
FY2009 to FY2013

Number of Contracts



	FY2009	FY2010	FY2011	FY2012	FY2013
Total MWDBE Contracts	1,747	1,747	2,142	1,928	1,945
Total Contracts	12,249	13,430	14,398	14,574	15,315
Percent	14.3%	13.0%	14.9%	13.2%	12.7%

Value of Contracts

	FY2009	FY2010	FY2011	FY2012	FY2013
Total MWDBE Spend	$7,997,986	$9,891,067	$12,469,492	$12,780,850	$11,041,350
Total Spend	$65,619,229	$75,567,963	$82,007,439	$87,004,523	$106,384,475
Percent	12.2%	13.1%	15.2%	14.7%	10.4%

Source: Information Responses 119 and 124

B. Findings & Conclusions

Finding VI-1 PGW has various formal policies and procedures in place that support diversity objectives.

An organization's culture and commitment to diversity are communicated through the development and implementation of formal policies and procedures. These practices provide the framework for an effective diversity program.

Philadelphia Gas Works has a number of policies currently in place that support diversity and are worthy of note. These policies recognize and appreciate the unique characteristics of PGW's workforce. In addition, they communicate the organization's commitment to an inclusive working environment and are fundamental to attracting and retaining a diverse workforce. They include:

- *Code of Conduct Policy, Number #003-20*: This policy requires the highest degree of integrity and professionalism of its employees and consultants in the performance of PGW business and specifically states that one of its guiding principles is non-harassment or mistreatment because of age, race, sex, color, ethnic heritage, national origin, sexual orientation, disability, religion, or other legally protected status.
- *Employee Affinity Groups, Number #004-3*: This policy was developed to support PGW's diversity strategy of attracting, recruiting, and retaining highly qualified employees by providing a formalized vehicle for career development and professional networking.
- *Equal Employment and Affirmative Action, Number #005-15*: This policy provides zero tolerance for discrimination against employees and applicants in all of PGW's employment policies and practices.
- *Anti-Harassment/Sexual Harassment, Number #005-21*: This policy provides a detailed process for the elimination of harassment and intimidation in the workplace, including the responsibilities of the Chief Executive Officer, managers and supervisors, and the Office of EEO/AA Compliance.
- *New Hire Corporate Orientation Program, Number #005-28*: One of the guiding principles of the orientation program is to provide employees with an understanding of the PGW culture, its values, and its diversity.
- *Alternate Work Schedules, Number #005-31, Telecommuting Pilot Programs, Number 005-32, and Compressed Work Week Schedules, Number #005-33*: These policies provide flexible work options to address work-life balance issues and the diverse needs of PGW's workforce.
- *Domestic Partnerships, Number #001-11*: This policy provides for the equal treatment regarding leave and benefits of employees who are members of same-sex domestic partnerships.

- *Americans with Disabilities Act, Number #005-14*: This policy provides equal employment opportunity for applicants and employees who can perform the essential functions of the job with or without a reasonable accommodation.

Finding VI-2 Minorities and women continue to be underutilized in several job groups at PGW.

Data presented in PGW's EEO-1 reports and the annual Affirmative Action Plans provides details on the underutilization of specific job groups. The job group data from 2013 (the latest available data) was analyzed and compared with the 2006 data presented in the 2008 Stratified Management and Operations Audit of PGW.

Exhibit VI-5 and *Exhibit VI-6*display the PGW job groups, highlighting both the number and percentage of minorities and women within the PGW workforce and underutilization using the *two standard deviations rule* and the *binomial test*, as presented in PGW's 2013 AAP (the most recent data available). Comparing 2013 data to 2006 data, the utilization of minorities and women at PGW across job groups shows slow but incremental improvement in diversity.

The job groups determined by PGW in the 2013 AAP to be underutilized are highlighted with a red "Yes" in both *Exhibit VI-5* and *Exhibit VI-6*. Job groups that are underutilized but where improvement has occurred between 2006 and 2013 are noted in blue percentages.

Exhibit VI-5
Comparison of PGW Minority Utilization 2013 and 2006
as of November 1, 2013

Job Group	Minorities				
	Number	PGW Percentage 2013	PGW Goal 2013	Underutilized? PGW	PGW Percentage 2006
Officers	7 of 17	41.18%	none	No	16.67%
Directors	**8 of 36**	**22.22%**	**39.84%**	**Yes**	33.33%
Administrative Managers	**14 of 39**	**35.90%**	**43.00%**	**Yes**	34.21%
Technical Managers	13 of 35	37.14%	none	No	17.50%
IT Managers	3 of 6	50.00%	none	No	14.29%
Administrative Supervisors	19 of 37	51.35%	none	No	57.89%
Technical Supervisors	**25 of 74**	**33.78%**	**40.77%**	**Yes**	20.73%
Administrative Professionals	**23 of 56**	**41.07%**	**60.59%**	**Yes**	31.82%
Technical Professionals	31 of 73	42.47%	none	No	42.11%
IT Professionals	20 of 33	60.61%	none	No	51.35%
Traditional Technicians	**28 of 95**	**29.47%**	**43.66%**	**Yes**	21.30%
Administrative Technicians	**41 of 68**	**60.29%**	**62.92%**	**Yes**	46.30%
Sales	3 of 9	33.33%	none	No	37.50%
Customer Contact Clerks	99 of 124	79.84%	none	No	80.70%
Clerks	11 of 20	55.00%	none	No	60.95%
Secretaries	16 of 25	64.00%	none	No	59.38%
Field Clerks	**4 of 14**	**28.57%**	**48.72%**	**Yes***	36.54%
Skilled Clerks	55 of 84	65.48%	none	No	55.47%
Skilled Craftsman I	**62 of 176**	**35.23%**	**48.15%**	**Yes**	26.87%
Skilled Craftsman II	**67 of 150**	**44.67%**	**48.58%**	**Yes**	34.13%
Semi-Skilled Operatives I	177 of 375	47.20%	none	No	53.47%
Semi-Skilled Operatives II	7 of 19	36.84%	none	No	38.89%
Semi-Skilled Operatives III	**24 of 67**	**35.82%**	**46.31%**	**Yes**	37.18%
Services	4 of 6	66.67%	none	No	77.78%

**PGW determined that there were no opportunities for hiring in this job group.*

Source: Information Response 115 and 2008 PGW Stratified Management and Operations Audit Report

In 2013, 10 of PGW's 24 job groups were underutilized for minorities; therefore, 2014 goals were established. When compared to their utilization in 2006, the percentage of minorities increased in seven of the 10 underutilized job groups, as noted in blue percentages. The three job groups where the percentage of minorities in the PGW workforce decreased include Directors, Field Clerks, and Semi-

Skilled Operatives III. PGW indicated that there were no hiring opportunities available in the Field Clerk group.

Exhibit VI-6
Comparison of PGW Female Utilization 2013 and 2006
as of November 1, 2013

Job Group	Female				
	Number	PGW Percentage 2013	PGW Goal 2013	Underutilized? PGW	PGW Percentage 2006
Officers	6 of 17	35.29%	none	No	22.22%
Directors	**7 of 36**	**19.44%**	**30.54%**	**Yes**	16.67%
Administrative Managers	**17 of 39**	**43.59%**	**58.70%**	**Yes**	36.84%
Technical Managers	5 of 35	14.29%	none	No	15.00%
IT Managers	1 of 6	16.67%	none	No	14.29%
Administrative Supervisors	**18 of 37**	**48.65%**	**62.40%**	**Yes**	44.74%
Technical Supervisors	**1 of 74**	**1.35%**	**41.63%**	**Yes**	2.44%
Administrative Professionals	36 of 56	64.29%	none	No	54.55%
Technical Professionals	14 of 73	19.18%	none	No	19.30%
IT Professionals	**11 of 33**	**33.33%**	**28.56%**	**Yes**	35.14%
Traditional Technicians	4 of 95	4.21%	none	No	1.85%
Administrative Technicians	**24 of 68**	**35.29%**	**52.60%**	**Yes**	40.74%
Sales	5 of 9	55.56%	none	No	37.50%
Customer Contact Clerks	89 of 124	71.77%	none	No	42.11%
Clerks	**8 of 20**	**40.00%**	**72.10%**	**Yes****	52.38%
Secretaries	24 of 25	96.00%	none	No	100.00%
Field Clerks	1of 14	7.14%	none	No	1.92%
Skilled Clerks	48 of 84	57.14%	none	No	49.22%
Skilled Craftsman I	**1 of 176**	**0.57%**	**1.92%**	**Yes****	0.00%
Skilled Craftsman II	**2 of 150**	**1.33%**	**2.52%**	**Yes****	0.96%
Semi-Skilled Operatives I	5 of 375	1.33%	none	No	1.22%
Semi-Skilled Operatives II	1 of 19	5.26%	none	No	0.00%
Semi-Skilled Operatives III	**0 of 67**	**0.00%**	**7.82%**	**Yes****	1.28%
Services	**0 of 6**	**0.00%**	**14.56%**	**Yes**	16.67%

***PGW determined that there were limited opportunities for hiring in this job group.*

Source: Information Response 115 and 2008 PGW Stratified Management and Operations Audit Report

Of the 24 job groups, 11 were underutilized for females in 2013 and PGW established 2014 goals for these job groups. While still underutilized, improvement in the percentage of females occurred in five underutilized job groups since 2006, as noted in blue. Decreases in the proportion of females in

underutilized job groups include Technical Supervisors, IT Professionals, Administrative Technicians, Clerks, Semi-Skilled Operatives III, and Services. PGW indicated that there were limited hiring opportunities for females in Clerks and Semi-Skilled Operatives III job groups.

Although incremental progress has been made in hiring and promoting minorities and females, as *Exhibit VI-5*and *Exhibit VI-6* illustrate, diversity has not been achieved in nearly half of the positions. Additionally, female workers have not progressed in the blue collar categories. The lack of diversity of women in the semi-skilled and skilled groups can be attributed to the union labor structure, low or no representation of females in the feeder groups, and the general lack of control that PGW management has over hiring in these job groups.

Exhibit VI-7 highlights the four new underutilized job groups in 2013 that were not underutilized in the 2006 data provided in the 2008 Stratified Management and Operations Audit report. There are four job groups that were identified as underutilized in 2006 that are no longer listed as underutilized: Administrative Supervisors met the minority goal; Traditional Technicians met the female goal; and Technical Managers met both the minority and female goals.

Exhibit VI-7
Underutilized Job Groups
as of November 1, 2013 (2013 Affirmative Action Plan)

Job groups with minority underutilization	Percent Minority	Job groups with female underutilization	Percent Female
Directors	22.22	Directors	19.44
Administrative Managers	35.90	Administrative Managers	43.59
Technical Supervisors	33.78	**Administrative Supervisors**	48.65
Administrative Professionals	41.07	Technical Supervisors	1.35
Traditional Technicians	29.47	Administrative Technicians	35.29
Administrative Technicians	60.29	Clerks	40.00
Field Clerks	28.57	Skilled Craftsman I	0.57
Skilled Craftsman I	35.23	Skilled Craftsman II	1.33
Skilled Craftsman II	44.67	Semi-Skilled Operatives III	0
Semi-Skilled Operatives III	35.82	**Services**	0

New underutilized job groups since 2008 PGW Stratified Management and Operations Audit Report

Source: Information Response 115 and 2008 PGW Stratified Management and Operations Audit Report

Despite progress in some job groups, *Exhibit VI-8* shows that the overall employment mix at PGW by race and gender has remained relatively unchanged between FY2010 and FY2013.

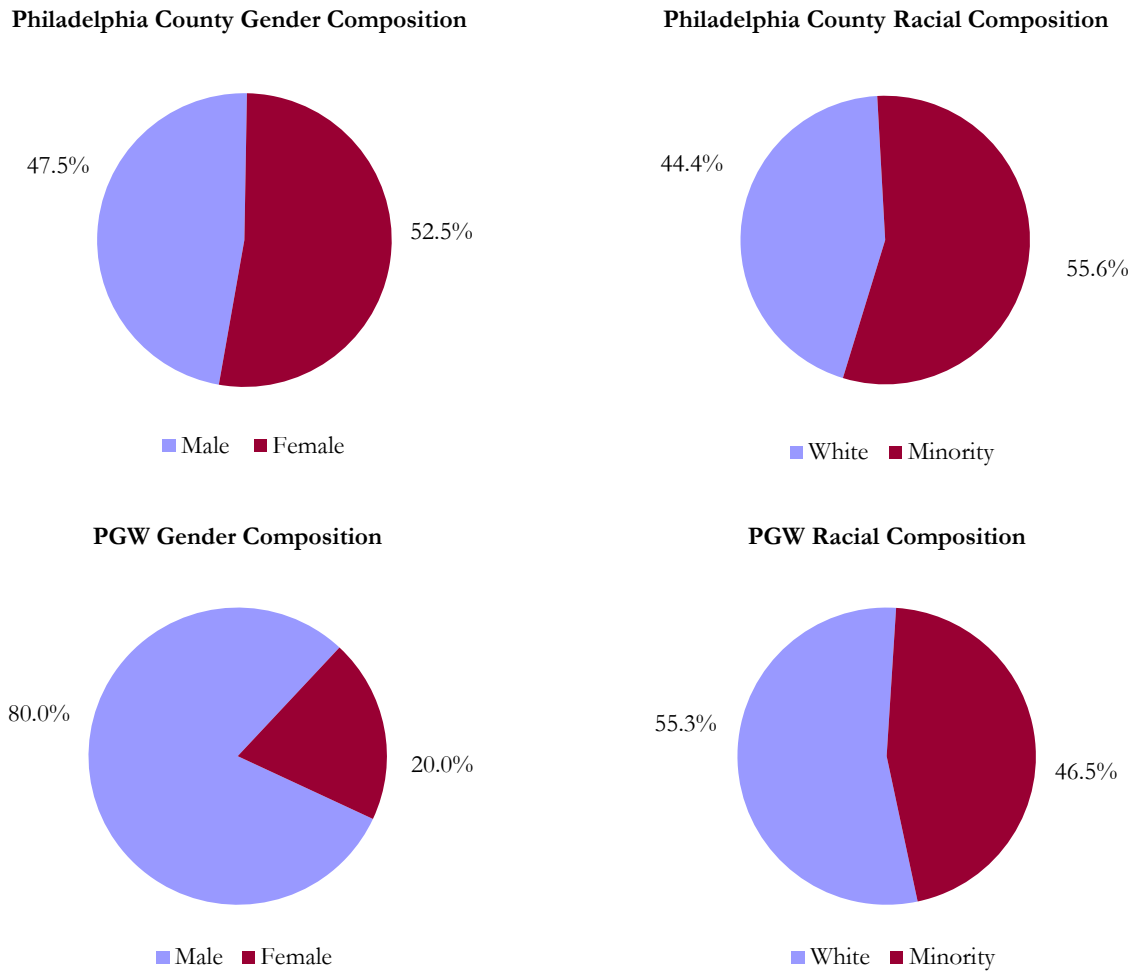
Exhibit VI-8
PGW Employment Mix by Race and Gender
FY2010 to FY2013

Employment Data	FY2010	FY2011	FY2012	FY2013
Asian (Male)	1.6%	1.7%	1.5%	1.5%
Black/African American (Male)	23.2%	23.4%	23.6%	23.5%
Native Hawaiian/Pacific Islander (Male)	0.0%	0.0%	0.0%	0.0%
White (Male)	47.6%	47.1%	46.9%	47.1%
Hispanic (Male)	7.3%	7.0%	6.8%	7.3%
2 or more races (Male)	0.2%	0.5%	0.6%	0.5%
Asian (Female)	0.3%	0.5%	0.5%	0.5%
Black/African American (Female)	10.3%	10.3%	10.9%	10.7%
Native Hawaiian/Pacific Islander (Female)	0.0%	0.1%	0.1%	0.1%
White (Female)	7.0%	7.0%	6.6%	6.4%
Hispanic (Female)	2.3%	2.3%	2.3%	2.3%
2 or more races (Female)	0.2%	0.0%	0.1%	0.0%
PGW Total	**100%**	**100%**	**100%**	**100%**
Minority	45.5%	45.8%	46.4%	46.5%
Female	20.2%	20.3%	20.5%	20.0%

Source: Information Responses 115 and 124

PGW's primary marketplace is the City of Philadelphia and the majority of employees are recruited from within Philadelphia. *Exhibit VI-9* shows the most recent Philadelphia gender and racial composition based on 2013 census data compared to the composition of the PGW workforce. The proportion of the female workforce (20%) at PGW is less than the overall female labor force (52.5%) in Philadelphia. The minority workforce (46.5%) at PGW is also less but is closer to mirroring the Philadelphia minority labor force (55.6%). This high-level comparison further demonstrates that PGW could be doing more to promote diversity in the workplace.

Exhibit VI-9
Philadelphia County Labor Force Composition Compared with PGW Workforce Composition
2013



Source: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_1YR_S2301&prodType=table and Information Responses 115 and 124

Furthermore, by October 31, 2019, the percentage of PGW's workforce reaching retirement-eligibility will approach approximately 42%. These projected retirements could provide an opportunity to close the gap in both the gender and racial composition in the PGW workforce and to target specific job groups which have been consistently underutilized.

Finding VI-3 Diversity as a comprehensive PGW-wide initiative has not been fully implemented.

PGW has developed and implemented a strong affirmative action program. PGW uses the annual Affirmative Action Plan as the benchmark to ensure that there is employee diversity within the organization. Annual goals are set in the AAP and PGW tracks achievement toward meeting these goals. In addition to goal-setting, PGW focuses its training and recruitment endeavors toward addressing minority and female underutilization. Training efforts include mandatory EEOC training and leadership training. PGW also targets its recruitment efforts by advertising job openings in minority and female trade magazines, particularly those directed toward engineering and other skilled professionals. Recruitment also frequently occurs at universities, trade schools, and public sector career fairs. The results of these efforts are evident in the utilization analysis discussed in *Finding VI-2*.

Despite the strength of the Affirmative Action Plan, PGW continues to be compliance oriented and has not yet implemented a comprehensive diversity program that is part of its business strategy. When asked about an overall PGW diversity strategy, the Company indicated that there is no formal diversity program or plan; there is only a review of utilization to benchmark targets. A comprehensive diversity strategy must start with the organization's leadership and should be tied to organizational performance. The development of diversity as a business strategy is discussed in *Recommendation VI-2*.

Finding VI-4 PGW has fostered strong alliances with Supplier Diversity stakeholders to attract more diverse firms to participate in its procurement opportunities.

PGW significantly increased its MWDBE participation compared to the previous five years through alliances with the City of Philadelphia Office of Economic Opportunity, the Eastern Minority Supplier Development Council, and Chambers of Commerce.

Exhibit VI-10 illustrates the variances between MWDBE contractor spend for the first five-year review period (i.e., 2003 to 2007) and the current five-year period (i.e., 2009 to 2013). The median for the first five-year period was 6.65% and the current review period median is 13.09%, which represents a 197% increase in MWDBE contractor spend. The median percentage is commonly used, as opposed to the average, when evaluating overall MWDBE participation because the median removes high or low percentage outliers.

Exhibit VI-10
MWDBE Spend Five-Year Comparison
2003 to 2007 Versus 2009 to 2013

Participation From the Period 2003 to 2007	Percent MWDBE as a Percent of Total Spend	Participation From the Period 2009 to 2013	Percent MWDBE as a Percent of Total Spend	Percent Five-Year Change
2003	5.93%	2009	12.19%	206%
2004	6.65%	2010	13.09%	197%
2005	6.06%	2011	15.21%	251%
2006	7.89%	2012	14.69%	186%
2007	8.80%	2013	10.38%	118%
Average	7.07%	Average	13.11%	186%
Median	6.65%	Median	13.09%	197%

Source: Information Response 119 and 2008 PGW Stratified Management and Operations Audit Report

Disabled, as defined in the Pennsylvania Public Utility Commission's Guidelines for Annual PUC Diversity Filing instructions, includes those businesses whose owners are disabled as defined by the American with Disabilities Act. This classification can also include agencies that employ 51% or more persons with a disability (i.e., a vocational rehabilitation agency or school for the blind). The PUC uses the terminology "persons with a disability business enterprise." The City OEO uses the term "Disabled Owned Business Enterprise." PGW has adopted the City OEO policies and uses the term "Disabled Owned Business Enterprise" in its own policies. The terms "persons with a disability business enterprise," as used by the PUC, and "Disabled Owned Business Enterprise," as used by OEO and PGW, are used in this report interchangeably depending on the agency being discussed.

There were no persons with a disability business enterprise contractor utilization during the five-year Annual PUC Diversity Filing review period, despite the improvement in overall MWDBE participation on PGW contracts. Further external development with Disabled Owned Business Enterprise advocacy groups, such as the US Businesses Leadership Network (USBLN), is needed to increase participation of Disabled Owned Business Enterprises. The Director of Diversity and Communications expressed that PGW uses online subscriptions, such as ThomasNet.com, to find specific industry firms in certified categories traditionally used by PGW. This search includes veteran-owned and service-disabled veteran-owned businesses.

Finding VI-5 **PGW's diverse business participation at the subcontractor level remained relatively constant during the five-year review period and lower than direct spend levels.**

Improvements are needed in PGW's subcontracting program due to low MWDBE participation at the subcontractor (second-tier) level. The procurement method for MWDBE participation is traditionally through RFQs and RFPs. MWDBE participation ranges of project costs are included in solicitations

and are evaluated by Supplier Diversity. Vendors are required to submit MWDBE participation forms with each response or they can request a reduction waiver when participation ranges are not met.

PGW includes contract forms on the vendor diversity page of its website. Bidders on solicitations with MWDBE participation are required to submit a Solicitation and Commitment Form to be deemed responsive to the bid. Bidders who are unable to meet participation ranges may submit a Request for Waiver/Reduction of Participation Form. The bidder must show that good faith efforts were made to meet participation ranges in order to be granted a waiver or reduction.

PGW's diversity MWDBE achievements are not publicized, which decreases transparency of MWDBE utilization and subcontract opportunities for the business community. PGW does not include a breakdown of MWDBE participation in past years nor does it highlight MWDBE participation in the commodities and services advertised online. There is a one-line statement for MWDBEs to contact the Director of Diversity and Communications if they can provide any of the services or commodities shown on the website.

PGW has made significant strides to increase MWDBE participation since the last review period. The vendor diversity page on PGW's website includes a list of the types of commodities and services purchased and procured through competitive selection procedures. PGW also noted in its Annual Diversity Reports that it began including information on current procurement opportunities on its website.

Finding VI-6 EEO and Supplier Diversity policies are outdated and not consistently communicated.

PGW has a number of formal policies and procedures that support diversity objectives. For an effective diversity program, these practices need to be clearly articulated and consistently communicated within and outside the organization. A review of PGW's official policies found in its manual and on its website noted the following discrepancies:

- *Equal Employment Opportunity and Affirmative Action Policy, Number #005-15*: This policy states that PGW is committed to providing equal employment opportunities to all applicants and employees in a number of protected areas. The policy specifically includes race, color, religion, gender, age, national origin, marital status, sexual orientation, and *disability status as a covered veteran or other military status*. This language is not consistent with the definition of disability as described in policy number #005-14, which indicates that a person is disabled if he or she has a physical or mental impairment that substantially limits one or more of his or her major life activities.
- *Equal Opportunity Employer Policy*: The Equal Opportunity Employer Policy found on PGW's website, as of December 31, 2014, cites the various protected areas covered under the policy. These protected areas are referenced three times within the same document but the protected areas vary. The policy also includes political affiliation and membership or non-membership in a labor organization as an additional area of protection. Not only is the information

inconsistent with the official written policy, but the version on the website does not use the most updated or generally recognized terminology, such as disability in place of handicap or sexual orientation in lieu of sexual preference.

- *Internal Complaint Form*: The Internal Complaint Form, which is to be completed by the person alleging discrimination, does not include all of the protected areas covered under PGW's Equal Employment Opportunity and Affirmative Action Policy.
- *Minority Business Enterprise (MBE)/Women Business Enterprise (WBE) Participation Policy, Number D-1007*: The Participation Policy presented on the PGW website is not up to date with the current City of Philadelphia MWDBE participation policy or the current City of Philadelphia antidiscrimination policy. The procurement page on PGW's website includes a listing of contract forms. The PGW MBE/WBE Participation Form is part of the list of forms on the website. The PGW form was last revised in 2007 and references the City of Philadelphia Minority Business Enterprise Council Antidiscrimination Policy – Disadvantaged Minority, Women, and Disabled Owned Business Enterprises. The City OEO was created in 2008 to replace the Minority Business Enterprise Council (MBEC). Under Executive Order number 3-12, Mayor Michael Nutter created a new Antidiscrimination Policy relating to the participation of Minority, Woman, and Disabled Businesses in City contracts advertised and/or opened on or after September 4, 2012.

  PGW should update its MWDBE Participation Policy with the City of Philadelphia's current antidiscrimination policy so that it clearly communicates, internally and externally, the differences between Disadvantaged Business Enterprise and Disabled Owned Business Enterprise. The City's antidiscrimination policy makes a distinction between disadvantaged and disabled owned businesses. A Disabled Owned Business Enterprise is defined in the City's policy as a business at least 51% owned by a person who has a physical or mental impairment that substantially limits one or more of his or her major life activities, such as caring for oneself and/or performing manual tasks (e.g., walking, seeing, hearing, speaking, breathing, learning, and performing physical work). A disadvantaged business is defined as a for-profit small business, which is owned and controlled by a socially and economically disadvantaged individual as defined in Title 49 Code of Federal Regulations Part 26 and is certified in accordance with those federal regulations. The City's policy acronyms include Disadvantaged Business Enterprise (DBE) and Disabled Owned Business Enterprise (DsBE). A clear description of each certification type will further clarify PGW's interest in DsBE outreach and participation in contract opportunities.

- *PGW Minority Participation Program, Attachment D*: Known generally as Attachment D, this document is attached to any RFQ that has a substantive DBE opportunity. The Minority Participation Program differs in format when compared to the MBE/WBE Participation Policy, Number D-1007 provided on the PGW website, which is available to all potential vendors and the general public. Attachment D contains similar outdated information regarding certification as Policy Number D-1007 and does not include the antidiscrimination policy. PGW should have one consistent document that clearly communicates its Participation Policy and

incorporates the most current City of Philadelphia policies. The revised document should be disseminated on both the website and in all bid documents.

- *PGW Vendor Diversity Web Page*: The PGW web page dedicated to vendor diversity requires clearer guidance for acceptable certifications and registry in the City of Philadelphia Office of Economic Opportunity directory to increase diverse business inclusion. PGW should clearly communicate internally and externally the differences between DBE and DsBE. The vendor diversity page notes, "PGW is committed to encouraging the growth of companies with certification as Minority, Women and Disadvantaged Business Enterprises. Every year, we actively seek vendor and subcontractor participation among MBE, WBE and DBE companies as a reflection of our overarching goals and cultural responsibilities in a rapidly progressing society. The Small Business Administration and the City of Philadelphia can provide certification for these vendors, where applicable." The Small Business Administration has a federal-level certification process and does not provide the type of certification prescribed on the PGW web page. The former City of Philadelphia MBEC certified businesses under the former administration, but it was replaced by the Office of Economic Opportunity. OEO no longer certifies MWDBE firms and currently serves as only a resource for certified vendors through a registration directory. Once the revised Participation Policy is adopted, the PGW vendor diversity web page should be updated with clearer guidance for acceptable certifications and registry in the City of Philadelphia Office of Economic Opportunity directory to increase business inclusion in all categories.

C. Recommendations

Recommendation VI-1 **Leverage opportunities to increase diversity through retirements, workforce planning, and succession planning. (Refer to Finding VI-2.)**

PGW has a succession planning process in place and tracks the number of employees eligible to retire. The succession plan does not include diversity as an objective. In October of 2019, over 40% of PGW employees are projected to become eligible for retirement. The high number of projected retirements provides PGW with a unique opportunity to increase workforce diversity, particularly in job groups that have proven difficult for PGW to reach parity. PGW should capitalize on these opportunities and plan for both diversity in hiring and promotion in light of eligible retirements.

By integrating diversity as a core value in its succession planning, PGW can close the gap in minority and female representation in job groups where diversity has been a challenge. Part of this process should include the evaluation of past efforts to recruit for these positions and the results of such efforts. This evaluation may help to inform future recruitment strategies.

AAP goals for semi-skilled and skilled labor positions have consistently been difficult to achieve, particularly for women. Although the lack of progress can be attributed to the union structure, PGW

management should focus on increasing the number of females in the feeder groups and on identifying and using recruitment sources, such as schools and training programs, which include a high percentage of women.

Recommendation VI-2 Integrate diversity as an overall business objective. (Refer to Finding VI-3.)

PGW needs to take a comprehensive approach to diversity that takes the organization beyond a focus on compliance. Including diversity as a business strategy will increase PGWs competiveness in attracting the best candidates and the most qualified vendors. It will also assist PGW with employee retention. This can be achieved by implementing one or more of the following initiatives:

- Developing a diversity strategy that is supported and promoted by the CEO and integrating the strategy in all business practices.
- Developing systems to communicate, monitor, and measure progress toward the diversity strategy –Cost-effective methods could include PGW's existing employee Intranet, website, and newsletter to communicate diversity success stories.
- Creating an employee diversity council – Schumaker & Company recommended this step be taken in the 2008 PGW Stratified Management and Operations Audit. While the formation of affinity groups is a step in the right direction, a diversity council would include members representing all levels of the organization and would provide input in PGW's development of a diversity strategy.
- Creating an executive diversity council to provide high-level visibility for diversity within the organization
- Participation in the National Utilities Diversity Council or any other related council to benchmark progress with other utility companies around the country – Lessons learned and best practices can also be garnered from involvement with a national diversity interest group.
- Developing cost-effective approaches to provide diversity training
- Using data collected from employee surveys to assess the current diversity environment and to gauge ongoing progress
- Developing a diversity competency and incorporating this competency into its annual performance management process – Schumaker & Company also recommended this in the 2008 Stratified Management and Operations Audit report.

Recommendation VI-3 **Develop specific procedures to improve MWDBE subcontractor participation for the next five years and include revised internal, external, and subcontracting efforts in the next Annual Diversity Report. (Refer to Finding VI-5.)**

Since 2006, PGW has nearly doubled its MWDBE vendors' participation in contracts. Yet the percentage of participation in PGW contracts is only 13%, well below the City of Philadelphia's overall MWDBE contract participation of 28%. PGW can take steps with little cost burden to effectively improve MWDBE participation in its Supplier Diversity program.

Internal efforts should include:

- Developing substantial and verifiable short-term, mid-term, and long-term plans for the utilization of MWDBEs by product and service category as encouraged in 52 Pa. Code § 69.806 Minimum Improvement Levels and engaging all departments in the planning phases

External efforts should include:

- Increasing outreach efforts to the Disabled Owned Business community and supporting organizations to develop spend targets based on availability in the local market area
- Updating the vendor diversity webpage to include information on Disabled Owned Business Enterprises and acceptable types of certification – PGW should also use any pertinent information from the annual disparity studies conducted by the City to increase disabled business participation.

Subcontracting efforts should include:

- Developing a subcontracting program as encouraged in 52 Pa. Code § 69.807 Subcontracting Program to include, but not be limited to, incorporating subcontracting statements in solicitations, collecting subcontracting plans on contracts above specified thresholds, and undertaking additional monitoring procedures
- Updating contracting forms that are in accordance with the City's current antidiscrimination policy – Contractor good faith efforts should be evaluated thoroughly to emphasize PGW's commitment to subcontracting opportunities for MWDBEs. Monitoring procedures should also be established to the greatest extent possible to verify that MWDBEs are participating at acceptable levels as prescribed in the adopted policy.

Recommendation VI-4 **Update policies to ensure consistent and accurate communication of EEO and Supplier Diversity programs. (Refer to Finding VI-6.)**

PGW should review all policy and program documents for consistency. PGW policies and procedures need to be updated and revised to include currently accepted language and the most recent federal, state,

and local policies regarding diversity. Internal and external documents must be consistent so that the communication of these polices is comparable for both internal and external audiences.

All updated policies and procedures should be disseminated internally to the PGW workforce and externally to customers, vendors, and the general public as appropriate. PGW should update its website to provide customers, bidders, vendors, potential employees, and the general public with the most relevant information.

VII. System Reliability Performance & Other Related Operations

We have organized this review into two work plan areas:

- *Gas Supply Management* – Procurement and management of the gas supply
- *Field Operations* – The design and condition of PGW's distribution facilities are a measure of its service flexibility, its provision for customer safety, and its corporate 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 other 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 such 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.; 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
- The trend of full-time equivalent (FTE) employees (and contractors)
- 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 demand forecasting/load research, gas procurement, storage, gas transportation, system operations, gas control, and liquefied natural gas (LNG).

Our review focused on Philadelphia Gas Works' (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 establish the criteria for the request for proposal (RFP), evaluate the replies, and select suppliers based on the RFP's requirements, the supplier's reliability, 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

Gas Management Organization

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*. The Gas Management's vision is:

> To provide competitively priced natural gas supply to our customers under all operating conditions.

Gas Management's vision reflects the area's core values to PGW—through all the varied activities that are encompassed within the departments, the key concept is reflected within the vision. The organization strives to provide data, contain costs, and purchase products (i.e., natural gas, capacity, storage, etc.) so that whether it's the warmest day in July or the coldest day in January the customer will be able to use PGW's services. The Gas Management Business Plan is a part of the PGW 2010–2014 Business Plan.

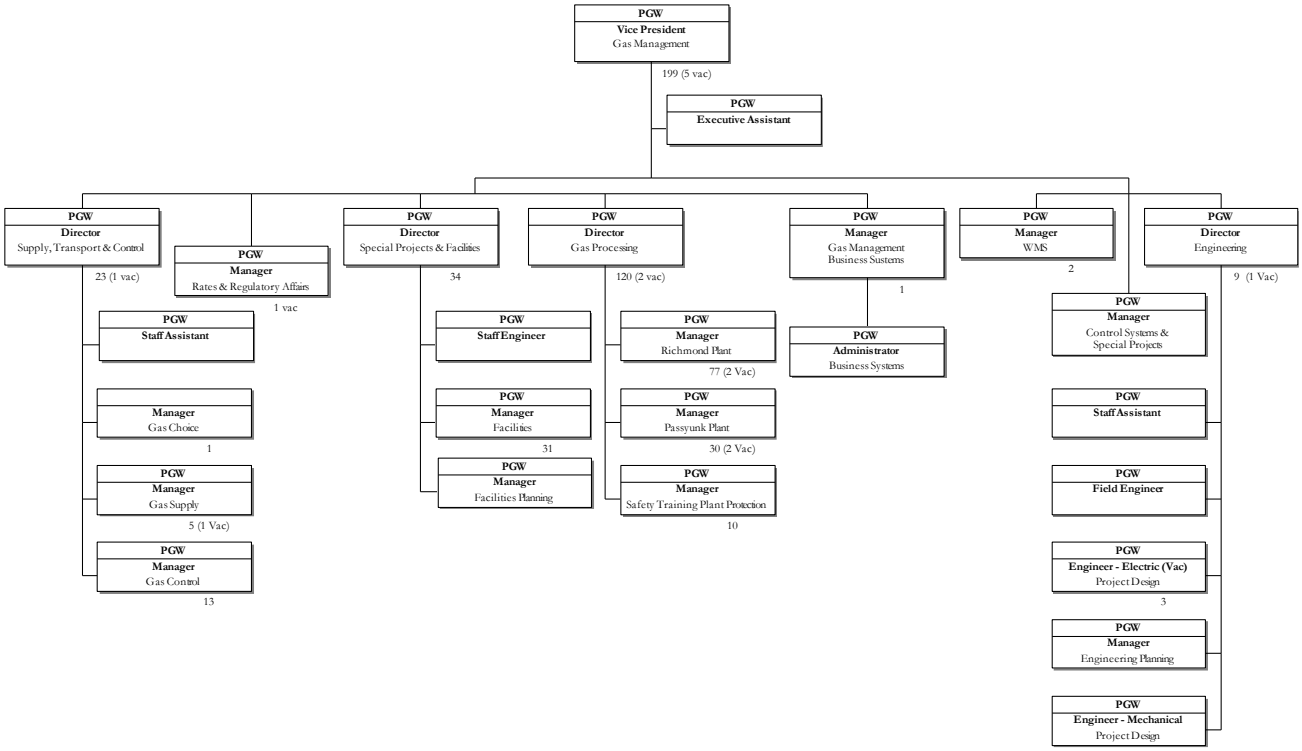
Gas Management reports on the following metrics:

- Availability of the LNG Plants
- Maintenance Costs – LNG Storage
- Quarterly GCR Rate
- Capacity Release, Off-System Sales, LNG Sales Volume Revenue
- Operating Costs of Facilities

All metric details can be found in the PGW corporate metrics scorecard.

As of December 31, 2014, 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, 2014



Source: Information Response 1

All gas supply activities are managed by PGW staff. At the time of our audit, PGW did not use any asset management arrangements (where someone else manages PGW's storage for a price). PGW has used some asset management arrangements in the past that resulted in 1st-year savings of $600,000, 2nd-year savings of $500,000 savings, and 3rd-year savings of $50,000. PGW had placed 1.5 Bcf from a 3.2 Bcf storage field in asset management. Once the savings dropped in year three, however, PGW management determined they could gain just as much performing capacity release.

PGW does not permit financial hedges; only physical hedges are permitted. Simply put, a physical hedge is the buying of gas supply in real time or in advance at a set price, with the expectation that the buyer will actually take the natural gas for either consumption or storage. Financial hedges do not involve the taking of natural gas but use the buying and selling process to attempt to realize a financial benefit.

Gas Processing

Approximately 120 employees are tasked with the operations of the two LNG plants and the nine metering and regulating stations. There are some positions that had gone unfilled, especially with the advent of PGW's potential sale, that are now being reevaluated for backfilling. Most of these personnel

are located at the LNG facilities, both Richmond and Passyunk, although they may travel to the various gate station locations to fulfill their duties. They are responsible for operations, maintenance, capital improvements, regulatory compliance, training, and safety initiatives. This Gas Processing Department is made up of operators, mechanics, technicians, gas engineers, and training and safety personnel. This group operates and maintains PGW's gas plants and gate stations to ensure safe and economic operation of these facilities. It also manages the receipt of gas into the PGW system from the aspect of line pressure adjustment and oversees 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. Staff are 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. They are also responsible for all capital improvements. Projects are evaluated to determine if they should be performed by PGW personnel or contracted out. The request for quote (RFQ) and request for proposal (RFP) process, the evaluation, the selection process, and oversight of the winning bidder are the responsibilities of this group working in conjunction with the Engineering Department. 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. In addition, there are approximately 10 staff members who are dedicated to safety and plant protection.

Supply, Transportation, and Control

The Supply, Transportation, and Control Department is divided into three sections and is responsible for the operating and administrative sides of PGW:

- *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 customer's 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. 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) system, Gas Control monitors line pressures. 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.

- *Gas Supply* – 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. Gas Supply 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 CHOICE[6] programs. This 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. In addition, Gas Supply is responsible for the nomination and confirmation of all gas that flows through PGW's city gates. This is done on a 24/7 basis 365 days per year. This section is also 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. This process entails the tracking of natural gas volumes as well as verification of pipeline tariff rates and natural gas prices. 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, and gas accountants and employees who administer the end-user transportation programs. The Gas Supply section acquires all gas supply, including peaking services, to meet PGW's projected peak-day and seasonal requirements of firm sales customers who use the distribution system. 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 sufficient gas is 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. The general responsibilities of the Gas Supply section 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 Pennsylvania Public Utility Commission (PaPUC) filings, to track pipeline rates, to track matters of interest to PGW at the FERC level, and to have 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.

Since the 2007 Management Audit review, the responsibility to manage all PaPUC regulatory gas filings has been transferred to the financial area of PGW. The Financial Department gathers all pricing data that is itemized in the GCR filings and Philadelphia Gas Commission (PGC) budget filings. All requests for reports to serve in-house PGW requirements as well as report filings for the PaPUC fall under the responsibility of this group.

[6] / CHOICE programs allow the end customer to choose a separate gas supplier.

There are two other groups within the Gas Management organization.

Special Projects and Facilities

Within the last year, the Special Project and Facilities area was recently moved into the Gas Management organization to take advantage of the maintenance management system (i.e., INFOR) that was installed at the gas processing plant. INFOR is being implemented to manage all maintenance activities associated with PGW facilities. This group is discussed in more detail in *Chapter III – Support Services*.

Engineering Department

The Engineering Department is responsible for engineering associated with the gas plants and facilities—not distribution. There are approximately 15 outside engineering consultants that PGW uses on an annual basis. These 15 contracts are re-evaluated every four to five years with four years of renewal available. Approximately 60% to 70% of engineering work is done by outside engineering consulting firms. AutoCAD Lite is used for the department's engineering drawings. This group uses an outside engineering consultant for production drawings, etc. and design.

The group is organized into:

- *Project Design Engineering Electrical* – three personnel
- *Project Design Engineering Mechanical* – three personnel
- *Engineering Planning* – one person
- *Field Engineer* – one person

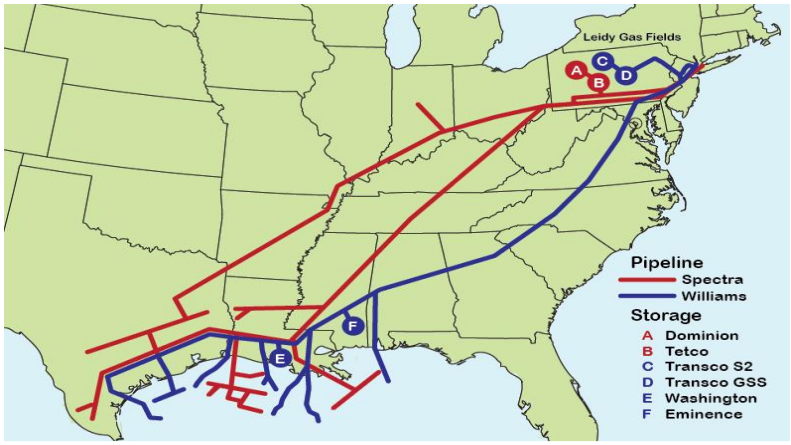
Department Meetings

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 take place that are not discussed in this section.

Distribution System

The ability to move interstate pipeline gas into a Natural Gas Distribution Company's distribution system is a physical constraint that must be addressed in all gas procurement decisions. A schematic of PGW's relative position to interstate pipelines is shown in *Exhibit VII-2*.

Exhibit VII-2
Interstate Pipelines Supplying Gas to PGW
as of June 30, 2014

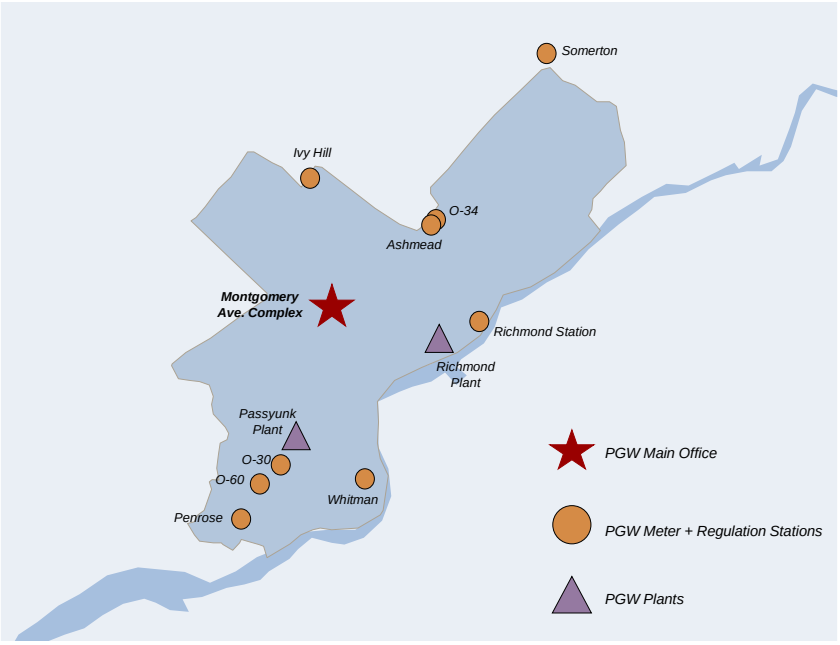


Source: Information Response 217 – Kickoff Presentation

Historically, PGW has obtained most of its gas supply from the Gulf and transported that gas supply across interstate pipelines on a year-round basis. During lower periods of consumption, these gas supplies had been fed into the distribution system, storage fields, and/or liquefied at the LNG facility. During periods of high consumption, all of these resources might be requested to meet the distribution system's needs. On a high-consumption day, PGW does not have the ability to import all of its natural gas needs through its metering stations. PGW has nine metering stations (i.e., city gates) around its distribution systems, as shown in *Exhibit VII-3*. PGW has the ability to import approximately 450,000 decatherms (dths) (or 436,500 Mcf)[7] of natural gas during a design-day event. PGW's design day is currently around 700,000 dths (or 679,000 Mcf), which means the difference must be obtained from its LNG facilities (i.e., Richmond and Passyunk Plants).

[7] / The industry uses both thousand cubic feet (Mcf) and decatherms (dth) in referring to capacity. One dth equals approximately 970 cubic feet of natural gas. One Mcf equals 1,000 cubic feet of natural gas. Therefore, the conversion rate is 1.031 dths/Mcf or 970 Mcf × 1.031 dths/Mcf =1,000 dths.

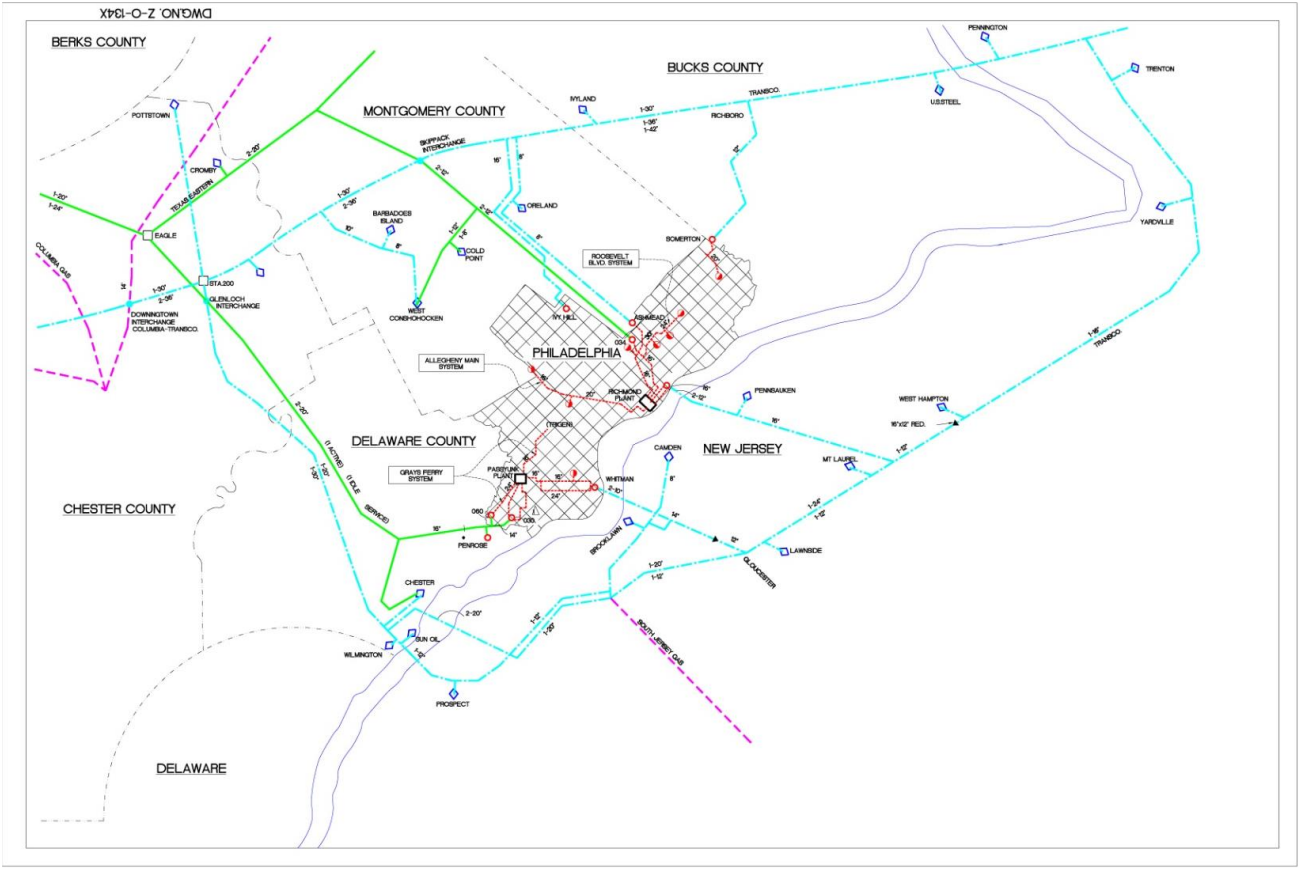
Exhibit VII-3
Service Territory Key Infrastructure
as of June 30, 2014



Source: Information Response 217

The local PGW pipeline supply is shown in *Exhibit VII-4*. PGW takes its supply off lateral pipelines that extend from the main interstate pipelines: Spectra Energy Gas Transmission or Spectra (formerly Duke Energy Gas Transmission or Texas Eastern) and Williams Gas or Williams (formerly Transco). These laterals pose a restriction or constraint on the amount of gas that can be delivered into the PGW distribution system, or more specifically the 450,000 dths limit (or 436,500 Mcf) as discussed previously.

Exhibit VII-4
Local PGW Pipeline Supply
as of June 30, 2014



Source: Information Response 217

LNG Facility

PGW operates two LNG facilities as follows:

- *Richmond Plant* – a 4.04 billion cubic feet (Bcf) storage facility that has the ability to liquefy and vaporize natural gas. Its liquefaction capability is 16,000 Mcf/day. The liquefaction process, however, requires 100,000 Mcf per day to operate, which results in 16,000 Mcf being converted to liquid and the remainder being discharged into the distribution system as a part of the liquefaction processes operating gas. The plant can vaporize at a maximum rate of 563,000 Mcf/day.
- *Passyunk Plant* – a storage (253,000 Mcf,) and vaporization facility. LNG is delivered to this plant from the Richmond Plant in cryogenic trailers (i.e., trucked). The plant can vaporize at a maximum rate of 90,000 Mcf per day. This plant provides a source of injection at the southern part of PGW's distribution system.

These facilities are used as vaporizers during periods of high demand. 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 provides multiple functions, including design-day gas requirements, daily peaking, and system pressure support during periods of high demand as well as 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, to provide and maintain LNG storage, and to re-process gas removed from LNG storage. Gas is received at nine gate stations that Gas Processing operates and maintains, although only one of those stations served by Williams provides gas to the LNG facility.

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 2.1 Bcf in any one season, although additional injections might be possible via truck delivery for emergency situations. The design daily withdrawal is 463,000 Mcf per day from the Richmond Plant over an eight to nine day period at maximum withdrawal levels, and 45,000 Mcf per day from the Passyunk Plant over a five to six day period at maximum withdrawal levels. Should a winter ever require the withdrawal of all 3.9 Bcf of usable inventory, it would not be possible to refill the LNG tanks during the following nine months with the current liquefaction system. As was the case during the last management audit, 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 Bcf. PGW is continuing to investigate the expansion of the liquefaction capacity at the Richmond LNG for sales of LNG.

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.

Gas Supply Portfolio

PGW's current gas planning strategy for meeting the system's supply requirements is to use a portfolio approach in both contract structures and pricing. 95% of PGW's load is residential. PGW's supply portfolio is split into three distinct categories:

- *Summer Only Supply Contracts* – contracts for gas supply from April to October at a fixed amount per day
- *Winter Only Supply Contracts* – contracts for gas supply from November to March at a fixed amount per day

- *Swing Contracts* – contracts for gas supply on a year-round basis at a variable amount per day that can be elected on a day-by-day basis if necessary

Contracts are bid on an annual basis and gas suppliers are selected based on the evaluated cost of that supply delivered to the PGW city gates. This annual bidding process affords PGW the ability to change its supply portfolio on an annual basis. In the past couple of years, PGW has been able to procure a significant amount of Marcellus Shale Gas while still maintaining a diverse supply base (both Marcellus Shale and Gulf sources gas sources).

First, PGW enters into summer and winter supply contracts. These summer and winter supply arrangements provide gas supply that fills approximately 47% of PGW's daily firm transportation entitlements on both Spectra and Williams pipelines.

The Spectra and Williams pipelines represent the only interstate pipeline facilities with physical connections to the PGW service territory. These supply contracts also recognize pipeline receipt and delivery rights. By sourcing supply in this manner, PGW not only ensures security of supply from the pipelines but can also take advantage of varying basis-differentiated pricings in the market. These contracts all contain the ability to set the price for upcoming months or to have the pricing default to an agreed-upon market index.

Second, the swing contracts are used for an additional 28% of supply, which is priced at the "gas daily midpoint" for each day of usage. These contracts allow for daily changes in volume. The operational flexibility of these contracts allows PGW to increase or decrease gas supply to meet variations in send-out requirements.

Third, the company uses two pipeline storage services on Williams as an additional source of supply. These storage services do not contain bundled transportation and therefore are moved to the city gates within PGW's firm interstate pipeline capacity. These services represent 25% of supply at a fixed price. PGW will again release capacity for a one-year period totaling 35,000 dths (33,950 Mcf) as it did last year (2013 – 2014). These capacity releases have 24-hour recall rights in their terms and conditions and are split between the two interstate pipelines that service PGW. If the need should arise to recall this capacity, PGW would do so and use its unbundled storage to fill the Spectra portion (20,000 dths) (19,400 Mcf) and depend on market-based prices to fill the Williams portion (15,000 dths or 14,550 Mcf)).

Additionally, PGW utilizes bundled storage and LNG to meet operational requirements and to select least cost supply. Specifically, once design winter send-out requirements are met, PGW may use bundled storage and LNG inventories to displace higher-priced supply based on the current market conditions.

PGW can acquire a maximum of approximately 467,000 Mcf via the main city gates on a cold winter day if deliverability from storage fields are at 100%. Of this total, Marcellus Shale production via Williams and Spectra (Market Area 2) can be obtained as follows:

- Roughly 70,000 Mcf per day Appalachian (or Marcellus Shale)
  - 20,000 Mcf baseload on Williams Zone 6, non NY
  - 20,000 Mcf via Equitrans (Equitable Gas or EQT)
  - 30,000 Mcf out of Market Area 2 on Spectra

PGW's also uses a portfolio approach to address system supply and storage refill in the traditional non-peak season. The Gas Supply area uses the gas cost recovery (GCR) filing as a template in an attempt to purchase gas volumes for both system supply and storage refill below the projected cost, when possible. Some proportion of the supply, however, will always be subject to spot market pricing either daily or monthly due to the constant need to purchase gas to meet send-out variations that are inherent in a residential firm heating load. PGW seeks to recoup demand charges for its firm transportation through the Federal Energy Regulatory Commission (FERC) approved capacity release mechanisms.

PGW also enters into the incremental off systems sales market to generate additional revenue when it is economically advantageous to do so. PGW has subscribed to various gas publications (e.g., Gas Daily), two technical market analysis publications, and various natural gas supplier publications in order to both understand and attempt to chart where the market is moving. The Gas Supply department has real-time access to the New York Mercantile Exchange (NYMEX) natural gas trading floor for forward purchasing needs.

The Gas Supply department holds weekly meetings to discuss the gas market as well as daily strategy sessions to verify market and operational conditions.

Gas Transportation Portfolio

As discussed previously, PGW is served by two gas transmission interstate pipelines:

- *Spectra Energy Gas Transmission*
- *Williams Gas Pipeline*

This transportation portfolio is summarized in *Exhibit VII-5*. PGW uses these contracts on a year-round basis to move gas into its distribution system or into storage fields based on demand.

Exhibit VII-5
PGW Gas Transportation Portfolio
as of December 31, 2014

Company	Contract	dths/day
Williams	FT1	165,212
Spectra	CDS	75,000
Spectra	FT1	36,000
Spectra	FT1	23,822
Williams	PS-FT	1,967
Total		302,001

FT1 – a firm year-round transportation contract
CDS – Comprehensive Delivery Service –a firm year-round transportation contract
PS -FT – a peaking service firm transportation contract for December, January, and February

Source: Information Response 217

Capacity Release Program

PGW pays approximately $50 million per year in firm capacity charges. Based on gas purchases, there may be capacity that is not needed to move the gas at various points in time during the year – in particular if PGW purchases gas located closer to its city gates (i.e. Marcellus Shale gas) so upstream capacity could be released. The capacity release process is a two-step process:

- *Step 1* – Gas buyers send out an e-mail to pipeline members to get a quote on capacity
- *Step 2* – Capacity is posted on the pipeline bulletin board with the most advantageous price obtained above. Others are then allowed to bid on the capacity.

PGW posts this capacity on the pipeline for other entities to bid, obtain, and use (subject to a 24-hour callback provision). This release program has allowed PGW to obtain credits of $8 million to $14 million per year to offset its firm capacity cost, as shown in *Exhibit VII-6*.

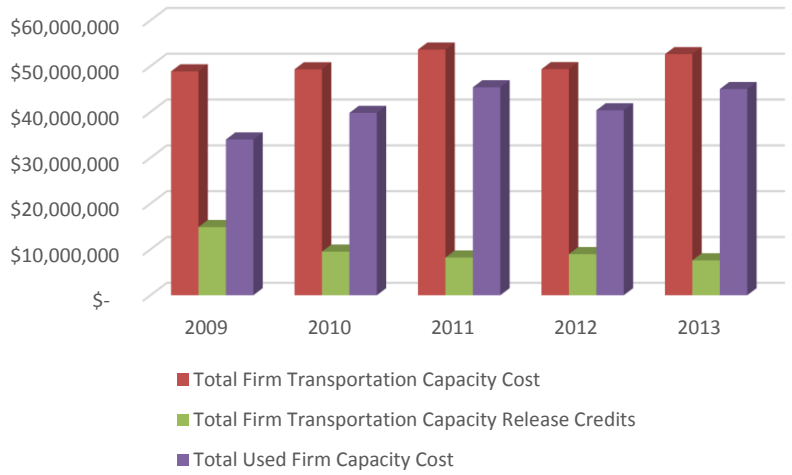
Exhibit VII-6
Firm Capacity Release Results
2009 to 2013

	2009	2010	2011	2012	2013
Total Firm Transportation Capacity Cost	$ 48,869,121	$ 49,311,734	$ 53,617,253	$ 49,343,432	$ 52,617,571
Total Firm Transportation Capacity Release Credits	$ 14,878,486	$ 9,516,204	$ 8,233,091	$ 8,977,204	$ 7,618,316
Total Used Firm Capacity Cost	$ 33,990,635	$ 39,795,530	$ 45,384,162	$ 40,366,228	$ 44,999,255

Source: Information Response 408

This information is graphically shown in *Exhibit VII-7*.

Exhibit VII-7
Firm Capacity Release Results
2009 to 2013



Source: Information Response 408

PGW expends significant effort to solicit its suppliers and to obtain maximum rates for its pipeline capacity, although those maximum rates are still typically less than what PGW had to pay in the first place. PGW places its unused or excess capacity up for public bid on the interstate pipeline's bulletin boards. PGW has released 43,822 dths per day for a continuous 12-month period with recall rights. Consequently, PGW is able to estimate its usage with sufficient accuracy so that capacity not used and placed up for public bid is within acceptable tolerances.

During the 2007 management audit, PGW was often able to capture maximum rates, and even when maximum rates were not obtained, the Company was able to capture a transportation rate between 15 cents and 30 cents per dth – with 30 cents being approximately the maximum rate that PGW could obtain. However in 2013 - 2014, PGW pays approximately $0.50 to $0.62 per dth for this capacity but is able to only capture approximately $0.05 to $0.25 per dth through the capacity release program. Although PGW has been releasing approximately the same amount of capacity in each of the last five years, the amount captured per dth of capacity has been decreasing, probably due to the relative value of long haul transportation with the advent of the Marcellus Shale production. In short, the advent of Marcellus Shale gas has made some of the long haul capacity from the Gulf less valuable on the open market.

Storage Contracts

PGW has both bundled and unbundled storage contracts as shown in *Exhibit VII-8*.

Exhibit VII-8
Bundled and Unbundled Storage Contracts
as of December 31, 2014

Bundled Storage Contracts

Company	Contract	MDG (dths/d)
Spectra	SS1	64,965
Williams	GSS	61,657
Spectra	GSS TE**	34,047
Williams	S2	5,191
Spectra	FTS-2	4,998
Total		170,858

Bundled Storage Contract Deliverability

Company	Contract	MDG (dths/d)
Spectra	FTS-7	7,788
Spectra	FTS-8	25,708
Total		33,496

Unbundled Storage Contract

Company	Contract	MDG (dths/d)
Williams	Eminence***	113,187
Williams	WSS***	35,115
Total		148,302

**GSS TE is delivered on FTS-7 and FTS-8.
***Transportation travels on FT1 and PS-FT contracts.
SS1 Storage Service contract
Source: Information Response 217

PGW continues to stay 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.

Gas Measurement

Gas is measured at the gate stations by both the gas transportation supplier and PGW. A weekly report (the seven-day report) is issued showing the gas transportation companies' data and the amounts that PGW measured. Usually no variance is reported because any issues are typically identified on a daily basis and corrections are made the next day or in the reporting. Gas measurement is within a 2% variance, which is within acceptable limits.

Supplier Financial Strength

The financial strength of gas suppliers is evaluated annually. Gas Supply sends all natural gas suppliers who have signed a North American Energy Standards Board (NAESB) contract with Philadelphia Gas Works to its Customer Resource Center (CRC) for an Expedia credit review. If any supplier per the Expedia report is deemed unsatisfactory and PGW is dealing with this supplier at the time, the report is presented to the Vice President for review. With the aid of the Legal Department, a plan of action toward the supplier will then be developed. PGW does not distinguish between long-term, short-term, or spot suppliers; all suppliers are reviewed.

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. NAESB (North American Energy Standards Board) provides for cover standard (a contract provision that addresses what happens in the event that one party fails to fulfill its obligations), which simply stated is that if either side defaults, then 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.

Gas Forecasting

Gas forecasting is predominately within a 5% band, rarely falling outside a 10% band. Both of these percentages 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. PGW accurately tracks the historic usage on the PGW system. The annual loss of load and annual growth are projected with sufficient accuracy, and PGW determines geographically where the gas should enter its system. That way, the Gas Control and Gas Supply Departments can accurately forecast long-term and short-term requirements.

Sufficient computer systems are in place to monitor system pressures from a safety point of view, although the current SCADA system is in the process of being upgraded. 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.

Findings & Conclusions

Finding VII-1 PGW has implemented an effective computerized maintenance management system at the LNG facility.

All maintenance activities are managed via the INFOR maintenance management system that is used at the LNG plant and as of 2014 in the process of being installed in the Facilities area – PGW department

responsible for maintenance of PGW office facilities. The earlier version of INFOR (called DataStream version 7.9) was installed in Gas Processing in the 2007 timeframe. DataStream was bought by a third party and was renamed INFOR. As of early 2015, PGW is running EAM INFOR version 10.1.2. Oracle is the backend database engine. Both LNG plants (Richmond and Passyunk) now use the application. All maintenance is identified, planned, and scheduled using INFOR. The application has different screens for work orders, parts, materials, equipment, etc. The system shows that for the Gas Processing plants approximately 60% of all work orders over the last year (12-month rolling average) were preventive maintenance work orders and the remaining 40% were corrective maintenance work orders. During the initial implementation of INFOR (in the 2013-2014 timeframe), the numbers were reversed (i.e., 40% preventive and 60% corrective). One of the goals of effective maintenance management is to strive to increase the amount of preventive work in order to reduce the amount of corrective work. The implementation of INFOR appears to have made this possible at the LNG plants. Due to the more recent implementation in the Facilities area, the start center screen also shows that the Facilities area is currently at 40% preventive and 60% corrective. Ideally, those numbers should similarly change as the system is used.

Finding VII-2 **PGW has increased it staffing of gas controllers to ensure that two controllers are on duty each shift, year round; however, the area could see a reduction due to retirements.**

There are currently 11 gas controllers in the Gas Control function; five are senior gas controllers and six are regular gas controllers. Two or three gas controllers are on duty during the winter operation periods, depending on the size of the forecasted load; therefore, vacations are not permitted during the winter. Over the last three fiscal years (FY2012 to FY2014), the amount of overtime in the area has increased, as shown in *Exhibit VII-9*.

Exhibit VII-9
Gas Control Overtime Hours
FY2012–FY2014

Season	Regular Hours	Overtime Hours	Overtime Percentage
FY2012 (2011 to 2012)	24,124	2,936	12.2%
FY2013 (2011 to 2013)	21,447	3,256	15.2%
FY2014 (2013 to 2014)	18,113	3,655	20.2%

Source: Information Response 341

The job requires 24-hour coverage every day of the year. Gas Control has multiple senior controllers who are eligible to retire at any time so PGW must continue to plan for these potential retirements.

Finding VII-3 PGW has increased its portion of Appalachian (or Marcellus Shale) gas in its supply portfolio.

In the past ten years, new natural gas production has developed in the Marcellus Shale area of Pennsylvania, Ohio, and New York (although New York has yet to permit fracking for natural gas). This gas supply is geographically closer to the PGW service territory, which results in less need to transport the gas long distances as is the case for Gulf Coast supply – which until a few years ago had been PGW's predominate source of supply. In addition, in the last couple of years, this gas supply has been competitively priced such that there is not only less transportation involved, but also a lower acquisition cost. With some limitations, PGW does have some access to Marcellus Shale gas through its existing transportation network. In short, there is some availability for Marcellus Shale gas on both Spectra and Williams, with Spectra being able to transport more Marcellus Shale gas that Williams. In addition, due to the piping configuration, all gas to the gas processing plant arrives on the Williams pipeline.

As previously discussed, PGW can import roughly 467,000 Mcfs to the main city gates on a cold winter day if all storage withdrawals are at 100% It can obtain Marcellus Shale gas via Texas Eastern and Transco Station 195 (Market Area 2) as follows:

- Roughly 70,000 Mcf per day Appalachian (or Marcellus Shale)
  - 20,000 Mcf baseload on Transco
  - 20,000 Mcf via EQT
  - 30,000 Mcf out of Market Area 2 on Texas Eastern

As a result, PGW has increased its use of Marcellus Shale gas from 0% in 2012 to 32.6% by volume in 2014, as shown in *Exhibit VII-10*. Marcellus Shale gas is also, at this time, a cheaper source of natural gas which has resulted in roughly a $7.9 million dollar savings in gas purchase costs for PGW. This usage also frees up portions of long-haul capacity that can be released into the market for additional savings.

Exhibit VII-10
Gas Supply Portfolio
Gas Year 2010 season to 2014 season

2014 through September	Total	Gulf Volumes	Marcellus Shale
Gas Volumes Purchased	39,510,586	26,635,134	12,875,252
Cost	$ 171,971,911	$ 121,306,676	$ 50,665,235
Percentage of Volumes	100.00%	67.41%	32.59%
Percentage of Cost	100.00%	70.54%	29.46%
Price Per Mcf	$4.3526	$4.5544	$3.9351
2013	Total	Gulf Volumes	Appalachian
Gas Volumes Purchased	50,811,682	47,139,535	3,672,147
Cost	$ 185,639,797	$ 172,318,309	$ 13,321,488
Percentage of Volumes	100.00%	92.77%	7.23%
Percentage of Cost	100.00%	92.82%	7.18%
Price Per Mcf	$3.6535	$3.6555	$3.6277
2012	Total	Gulf Volumes	Appalachian
Gas Volumes Purchased	45,764,073	45,764,073	-
Cost	$ 148,633,365	$ 148,633,365	$ -
Percentage of Volumes	100.00%	100.00%	0.00%
Percentage of Cost	100.00%	100.00%	0.00%
Price Per Mcf	$3.2478	$3.2478	N/A
2011	Total	Gulf Volumes	Appalachian
Gas Volumes Purchased	53,475,102	53,475,102	-
Cost	$ 148,633,365	$ 148,633,365	$ -
Percentage of Volumes	100.00%	100.00%	0.00%
Percentage of Cost	100.00%	100.00%	0.00%
Price Per Mcf	$2.7795	$2.7795	N/A
2010	Total	Gulf Volumes	Appalachian
Gas Volumes Purchased	52,079,655	52,079,655	-
Cost	$ 226,373,521	$ 245,002,977	$ -
Percentage of Volumes	100.00%	100.00%	0.00%
Percentage of Cost	100.00%	108.23%	0.00%
Price Per Mcf	$4.3467	$4.7044	N/A
2009	Total	Gulf Volumes	Appalachian
Gas Volumes Purchased	55,461,269	55,461,269	-
Cost	$ 318,009,252	$ 318,009,252	$ -
Percentage of Volumes	100.00%	100.00%	0.00%
Percentage of Cost	100.00%	100.00%	0.00%
Price Per Mcf	$5.7339	$5.7339	N/A

Source: Information Response 406

There is the potential to buy more Marcellus Shale gas for its portfolio based on the pricing obtained during the procurement processes. PGW could strive to obtain additional Marcellus gas of upwards to 60% of its portfolio, which might further reduce natural gas cost by an additional $6 million to $7 million annually based on past pricing experience. However one must recognize that:

- PGW still needs to maintain a diversified portfolio of supply – meaning both Marcellus Shale Gas and Gulf gas. Diversification of supply is one way of providing better assurance of certainty of gas supply and affords PGW the opportunity to achieve better pricing from a multitude of suppliers.
- With the currently interstate pipelines that PGW receives its gas, the Richmond LNG facility is served by an interstate pipeline that has little to no access to Marcellus Shale gas. Therefore, PGW will need to continue to procure Gulf gas for the plant.

Finding VII-4 PGW has been able to sell excess LNG inventory to realize some financial benefits to PGW ratepayers.

PGW maintains 4.3 Bcf of LNG storage capacity; however, it only requires (as of year-ending 2014) approximately 2.0 Bcf to meet its peak customer demands. Although PGW has been selling any LNG storage levels in excess of 2.0 Bcf it can liquefy between only 1.5 to 2.0 Bcf annually due to its current equipment capabilities. Thus, if PGW were to experience a cold winter that required the use of 2.0 Bcf or more to meet customer demand, it would be able to liquefy only 1.5 to 2.0 Bcf that amount before the next winter heating season would begin. Therefore, natural gas sales carry some risk of uncertainty (i.e., if a cold winter exhausts 2.0 Bcf for customer demand and another 2.0 Bcf has been sold through the sales program, there conceivably might not be LNG available for sale the next season because the recovery rate is currently only 2.0 Bcf per season).

PGW had contracted for significant sales of LNG as shown in *Exhibit VII-11*.

Exhibit VII-11
LNG Contracted Sales Levels
Gas Year 2014 Season to 2016 Season

Year	Volume
2016	1.5 Bcf
2015	1.4 Bcf
2014	1.2 Bcf

Source: Information Response 217, Pages 28

However, the last couple of colder than normal winters forced PGW to curtail sales of LNG at the contracted levels. Nonetheless, starting in April, 2013, PGW has been able to sell the volumes shown in *Exhibit VII-12*.

Exhibit VII-12
LNG Sales
Gas Year 2013 Season to 2015 Season

Year	Volume
2015	0.5 Bcf
2014	1.05 Bcf
2013	0.24 Bcf

Source: Information Response 217, Pages 29 and PGW comments on task report

These sales have resulted in revenue to PGW customers of:

Price = WACOG (Weighted Average Cost of Gas) + SSC (Sales Service Change) Demand Cost + Liquefaction & Truck Loading Fee

This has resulted in:

- Approximately $6.5 million of total margin over the three-year period
- Approximately $2.25 million in total demand costs credited back to GCR projected over the three-year period (SSC)
- Approximately $8 million in commodity costs credited back to GCR project over the three-year period (WACOG)

It is important to note that the SSC is composed of the full cost of the demand charge and some other items. In contrast, when PGW releases capacity to other parties it recovers only a small portion of the demand charge whereas in the case of LNG sales it is recovering the entire demand charge.

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.

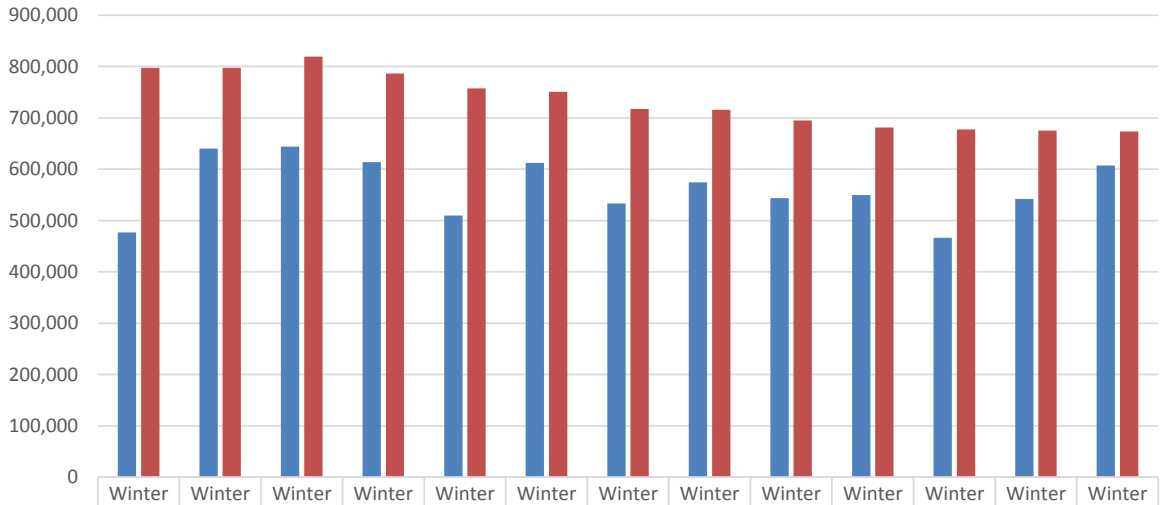
Finding VII-5 The costs for carrying the inventory at the LNG plant have not been considered in assigning costs to LNG sales.

In the case of the LNG plant, gas supply is procured and held in advance of sales to the end customer. If PGW is borrowing dollars to fund this inventory or is using internal generated dollars, there should be a carrying cost associated with this inventory. Interest costs are not flowed through the Weighted Average Cost of Gas or the Sales Service Charge. As discussed in *Finding VII-4*, there was approximately $8 million in commodity costs credited back through the GCR mechanism. This is approximately $2.7 million per year. One could compute a carrying cost at anywhere from 7% to 10%, which would result in $189,000 to $270,000 in additional dollars that could be credited back through the GCR mechanism to benefit PGW ratepayers directly.

Finding VII-6 PGW's peak-day requirements and total gas volume sales have been slowly declining over the last decade.

It is important to recognize these facts within the context of gas supply decision-making. *Exhibit VII-13* compares the peak day to the design day in each of the last 13 winter seasons. PGW has come close to meeting its design day only in the 2014 winter, which was a colder than normal winter. Even if a longer view is considered, PGW has exceeded 700,000 dths as peak day in only three of the past 30 years.

Exhibit VII-13
Peak-Day Design Compared to Historical Experience
2002 to 2014



	Winter 2002	Winter 2003	Winter 2004	Winter 2005	Winter 2006	Winter 2007	Winter 2008	Winter 2009	Winter 2010	Winter 2011	Winter 2012	Winter 2013	Winter 2014
Peak Day Dths	477,058	640,371	643,989	613,596	509,560	611,992	533,349	574,126	543,835	549,808	466,478	542,095	607,062
Design Day Dths	797,273	797,201	819,192	786,523	757,639	750,971	717,269	715,708	694,858	681,182	677,548	675,304	673,531

Source: Information Response 647 and Previous Management Audit Information Response 412

Gas sales have remained relatively flat, as shown in *Exhibit VII-14*.

Exhibit VII-14
Gas Sales
FY2010 to FY2014

Mcf	FY2010	FY2011	FY2012	FY2013	FY2014
Total Gas Sales - Budgeted	51,350,513	50,478,267	51,232,617	49,188,849	46,825,999
Total Gas Sales - Actual	45,839,984	49,018,878	38,537,263	45,635,672	49,629,580
Variance	5,510,529	1,459,389	12,695,354	3,553,177	-2,803,581

Source: Information Response 647

This tendency is probably attributable to several items, specifically:

- *Economic conditions* – i.e., business closures and downsizing
- *Energy efficiency* – anything from furnace replacements to insulation, new energy efficient construction, etc.
- *Businesses moving off the PGW gas supply and on to transportation only* (i.e., buying their own gas supply)

This increase in gas transportation can be seen in *Exhibit VII-15*.

Exhibit VII-15
Gas Transportation
FY2010 to FY2014

Mcf	FY2010	FY2011	FY2012	FY2013	FY2014
Budget Total Firm Transport	2,804,947	2,898,891	2,950,544	3,222,596	3,934,293
Budget GTS Transport	19,548,273	21,777,640	23,556,759	24,180,980	24,369,183
Budget Transport	22,353,220	24,676,531	26,507,303	27,403,576	28,303,476
Actual Total Firm Transport	2,304,758	2,668,409	2,483,290	3,427,275	4,087,164
Actual GTS Transport	20,831,117	22,604,465	21,889,716	23,055,474	25,270,740
Actual Transport	23,135,875	25,272,874	24,373,006	26,482,749	29,357,904

GTS – Gas Transportation Service
Source: Information Response 647

Finding VII-7 **PGW does not have an enterprise computer system for managing gas supply and gas transportation.**

We examined the computer system used in 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. Another 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 again be manually inputted into the group's own system. Some of the data is forwarded directly to Gas Planning & Rates, where it is manually entered into this department's system.

Although the computer system has been adequate to manage the Gas Planning & Rates responsibilities, source data is required to be manually inputted due to interface incompatibilities between systems from other departments.

Consequently, PGW was in the process during the course of the management audit fieldwork of making a selection for obtaining an enterprise computer system.

Recommendations

Recommendation VII-1 **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-2.)**

In to the face of the current just-adequate 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 approximately two years to train. The mix of employees currently on staff consists of five senior controllers and six 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 staffing problem. Additional members are eligible to retire over the next three years. It is not being suggested that PGW add staff to its overall staffing levels. Rather, it is being recommended that PGW transfer existing staff and responsibilities into this department so that coverage is provided. Furthermore, overtime has been increasing in the last three years.

Recommendation VII-2 **Develop a mechanism for accounting for the carrying charges in the LNG sales pricing. (Refer to Finding VII-5.)**

As discussed in *Finding VII-5*, gas supply is procured and held in advance of sales to the end customer. Interest costs are not flowed through the WACOG or the SSC. As shown in *Finding VII-4*, there was approximately $8 million in commodity costs credited back through the GCR mechanism. This is approximately $2.7 million per year. One could compute a carrying cost at anywhere from 7% to 10%, which would result in $189,000 to $270,000 in additional dollars that could be credited back through the GCR mechanism to benefit PGW ratepayers directly.

Recommendation VII-3 **Continue to take steps to reduce PGW gas supply assets. (Refer to Finding VII-6.)**

Like many gas utilities, PGW has been experiencing a gradual reduction in the need for various gas assets (i.e., pipeline capacity, storage capacity, and LNG capacity). Years ago PGW's design day requirements were as high as 819,000 dths per day, as shown in *Exhibit VII-13*. Even if a longer view is considered, PGW has exceeded 700,000 dths as peak day in only three of the last 30 years. Similarly, total gas sales (Measured in Mcf or dths) are gradually declining. As discussed in *Finding VII-6*, there are several reasons to expect that this trend will continue. Therefore, PGW has been reducing some of its gas assets, in particular:

- The elimination of PGW's Equitrans storage
- Reductions in demand charges and other costs via LNG sales
- Releasing capacity, although this has not yielded the benefit that it did in the past

We have no specific recommendations regarding specific assets that could be released or repurposed; however, the ability to purchase additional Appalachian or Marcellus Shale gas (which might yield an additional savings of $6 million to $7 million annually based on past pricing experience) and ongoing LNG sales are the most likely possibilities at this time.

Recommendation VII-4 **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-7.)**

There currently exists a significant degree of manual input in the Gas Supply group as existed during the 2007 Management Audit, which is time-consuming and lends itself to human error. 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.

B. Field Operations

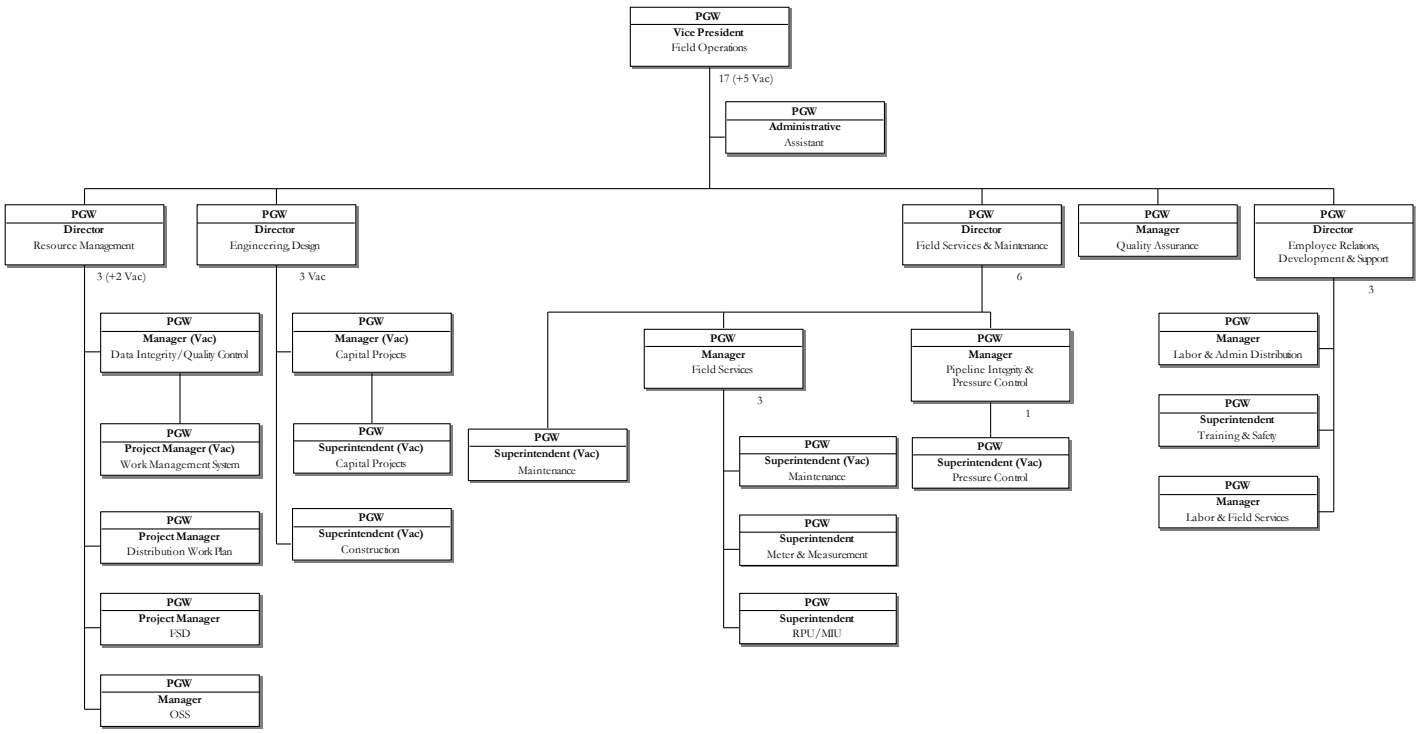
Background & Perspective

At the end of our field work, PGW started a reorganization of Field Operations. We have incorporated the latest organization charts and revised some of the text to the best of our ability but there may still be some inconsistences between the text and organization charts.

Organization

The Field Operations organization, shown in *Exhibit VII-16*, is responsible for the operations and maintenance of PGW's gas distribution system.

Exhibit VII-16
Field Operations Department
as of December 31, 2014



RPU is the Revenue Protection Unit and the MIU is the Meter Investigation Unit
Source: Information Response 387

There are four major groups as discussed below:

- *Engineering Design, Construction and Planning* – This group is responsible for engineering design work related to the gas after it leaves the city gates or Liquefied Natural Gas Facilities. Work includes but is not limited to the Main Replacement Program, new business additions, contractor bid packages, design of enforced relocations, and maintenance of all the main plots in AutoCAD. The department's staff is composed of approximately 37 personnel consisting of engineers, drafters, technicians, and estimators.
- *Resource Management* – This group develops and implements long- and short-term plans for distribution, focusing on process improvement, main replacement, and data integrity. The Automated Information Management System (AIMS) is supported by this group as is the Main Replacement Program (MRP). The group consists of approximately 10 personnel.
- *Employee Relations, Development and Support* – This group is responsible for payroll administration, labor and employee relations, training, and safety. The group consists of 36 personnel.
- *Field Service & Maintenance* – This group is responsible for field operations, maintenance, construction, paving, and other related functions. Maintenance, Field Services, and Pipeline Integrity & Pressure Control. There are approximately 748 total personnel in the *Field Service & Maintenance* group.

Field Force Staffing Levels

Field Force staffing levels are shown by fiscal year (FY) in *Exhibit VII-17*. These numbers represent the entire head count in the Field Operations organization including the Vice President of Field Operations. They do not include unfilled vacancies. It can be seen that the staffing levels are relatively constant. The number of management personnel was 125 in FY2010 and remains the same in FY2014, whereas the number of bargaining unit personnel shows an increase of 17 from FY2010 to FY2014 16 of the 17 was attributed to an increase of nine Pipe Mechanics and seven Compressor Operators. This increase is attributed to the increased workload driven by the accelerated Main Replacement Program. Overtime over the past five years averaged 15.8% for Distribution, which is reasonable. Staffing does not appear to be an issue at this time although PGW has a significant number of employees currently eligible for retirement, as discussed in *Chapter II – Executive Management and Human Resources*.

Exhibit VII-17
Field Force Staffing Levels
FY2010 to FY2014

		FY2010	FY2011	FY2012	FY2013	FY2014
Field Service Department						
	Management	53	50	55	53	52
	Union	312	310	312	318	311
	Total FSD	**365**	**360**	**367**	**371**	**363**
Distribution Department						
	Management	72	70	70	69	73
	Union	396	404	399	396	414
	Total Distribution	**468**	**474**	**469**	**465**	**487**
Total Field Operations		**833**	**834**	**836**	**836**	**850**

Source: Information Response 139

Capital Spending

The Field Operations and Planning Department's capital spending has ranged from $60.4 million in FY2010 to $78.8 million in FY2014. The Distribution Department makes up approximately 83% of the budget in FY2014 and 91% in FY2015. Therefore, Distribution's budget is the major driver behind the Field Operations budget, and it is forecasted to grow from approximately $78 million in FY2016 to $81.2 million in FY2020. The capital expenditures and forecast for the Distribution Department for the 11 years spanning FY2010 to FY2020 is shown in *Exhibit VII-18*.

Exhibit VII-18
Distribution Capital Expenditures and Forecast
FY2010 to FY2020

Fiscal Year	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	% Increase
Main Replacements	$12,144,200	$14,551,800	$13,317,700	$19,534,600	$30,098,300	$32,270,000	$37,867,000	$38,277,000	$36,846,000	$39,095,000	$39,513,000	225
Somerton Station MAOP project				$1,876,000	$25,800							
Main Additions	$2,111,600	$2,447,900	$3,405,500	$3,408,400	$3,356,700	$3,262,000	$3,340,000	$3,420,000	$3,505,000	$3,593,000	$3,683,000	74
Enforced Main Replacements	$4,747,000	$4,377,000	$7,145,100	$5,983,200	$7,979,200	$7,947,000	$8,511,000	$7,403,000	$7,097,000	$7,274,000	$7,456,000	57
Clamping and Encapsulations	$2,226,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
Service Replacements	$16,872,100	$16,101,900	$16,247,400	$17,001,900	$16,872,100	$18,412,000	$18,828,000	$19,280,000	$19,762,000	$20,256,000	$20,762,000	23
Service Additions	$4,721,800	$6,266,800	$5,299,000	$5,306,700	$4,884,400	$6,671,000	$6,831,000	$6,995,000	$7,170,000	$7,350,000	$7,531,000	59
Valves and Pressure Regulating Equipment	$283,200	$124,300	$247,500	$1,263,000	$424,100	$1,305,000	$702,000	$719,000	$737,000	$756,000	$775,000	174
Customer Metering and Regulator Installations	$352,100	$359,200	$908,400	$637,300	$391,100	$562,000	$575,000	$589,000	$604,000	$619,000	$634,000	80
Tools and Equipment	$244,700	$75,500	$209,000	$465,000	$1,172,600	$1,232,000	$1,231,000	$1,172,000	$907,000	$919,000	$891,000	264
Total	$43,702,700	$44,304,400	$46,779,600	$55,476,100	$65,204,300	$71,661,000	$77,885,000	$77,855,000	$76,628,000	$79,862,000	$81,245,000	86

Source: Information Responses 138 and 532

PGW's main replacement expenditures increased by 86% or $17.6 million from FY2012 to FY2014 levels. This increase in expenditures is primarily attributed to PGW's Long-Term Infrastructure Improvement Plan (LTIIP) that allows approximately $22 million in DISC eligible property to be placed into service in addition to its baseline program of 18 miles funded through base rates in FY2012 from FY2013 through FY2017. However, excluding the increased LTIIP spending, PGW's spending mirrors the inflation rate.

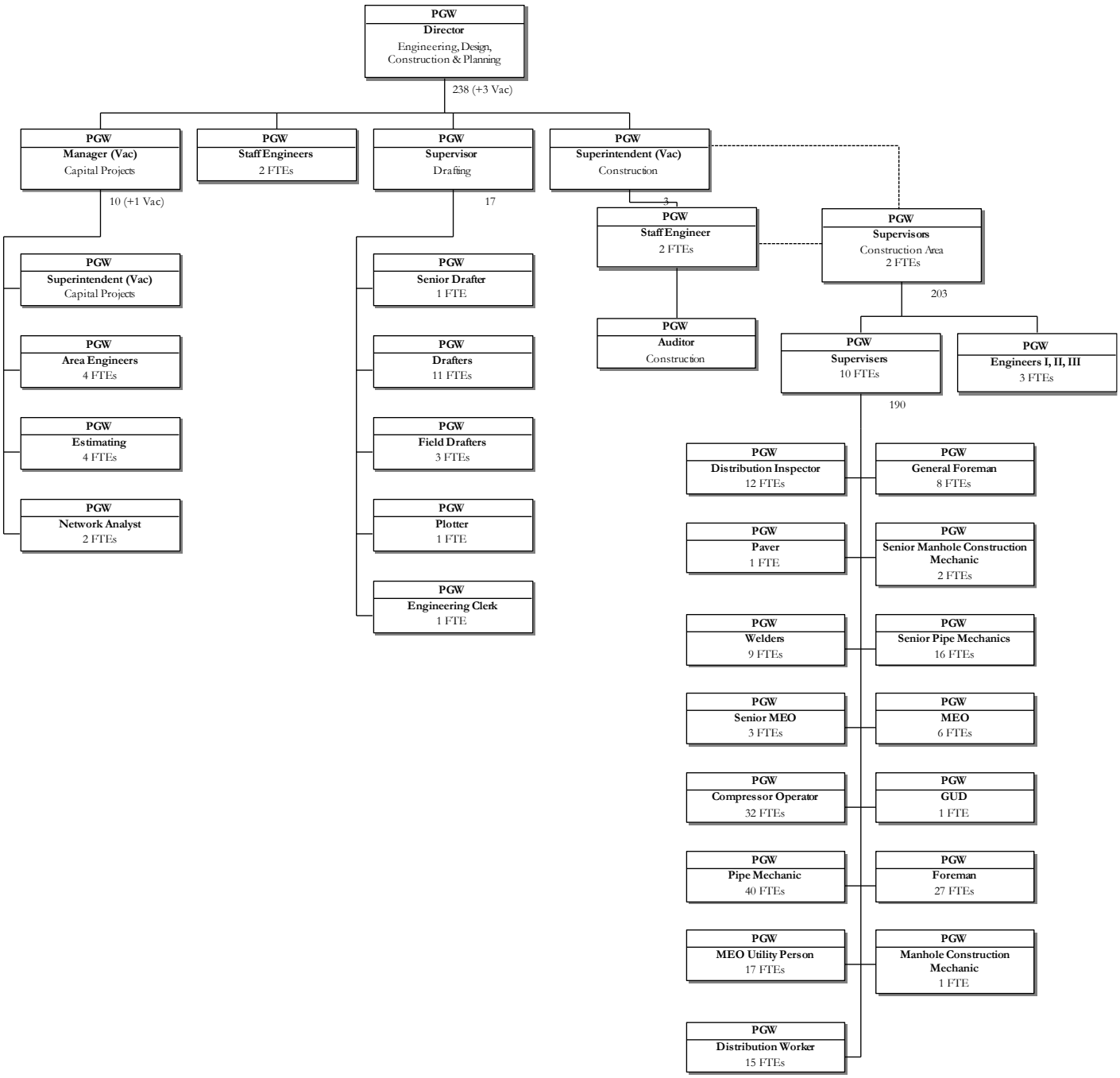
Engineering Activities

There are two Engineering Departments at PGW: one for liquefied natural gas (LNG) and city gates and the other for the distribution network. The LNG and gas plants Engineering staff is discussed in the Gas Supply section.

Engineering Design and Construction Planning

The Engineering Design, Construction, and Planning group is organized as shown in *Exhibit VII-19*.

Exhibit VII-19
Engineering Design, Construction, and Planning Organization
as of December 31, 2014



Source: Information Response 387

The planning group's staff is approximately 38 personnel consisting of engineers, drafters, technicians, and estimators. The organizational chart shows three group leaders: Senior Project Manager, Manager of Capital Projects, and Supervisor Drafting.

The Drafting Section is within the Manager of Capital Projects' jurisdiction. Presently, it consists of one plotter, 11 drafters, three field drafters, two senior network technicians, one engineering clerk, and three estimators. The group prepares all plans, estimates, and drawings for all capital work such as main replacement, new business, enforced relocations, etc.

The group also prepares as-built drawings for all pipe installations except for LP services less than two inches in diameter. As-built drawings are prepared in AutoCAD. Completed and approved drawings are then passed on to a perpetuator who updates the Detailed Main Maps (DMMs). As-built drawings for pressure mains are updated first, while all other assets are updated within 10 business days. All system modifications are reviewed by the modeling group (the two senior network technicians). AutoCAD is not linked to a geographic information system (GIS) database such as ESRI. The system model and the Main Replacement Program do not use the same model. Moving the main and service records to a GIS platform would allow all systems to share the same data. PGW has the desire to do this relocation; however, present conversion costs are an impediment. Productivity in the group is measured using a variety of metrics. Some of the measures are as follows: cost per foot by type of job by drafter; total hours by type of job by drafter; hours spent sick; and vacation training, etc. by drafter. Overall productivity guidelines are defined in a memorandum dated 4/17/2007 between PGW and Gas Works Employee Union Local 686.

Main Replacement

The material composition and changes to PGW's pipe distribution system from 2009 to 2013 (calendar years) are shown in *Exhibit VII-20*. Of note is that the miles of cast iron pipe have decreased by 81 miles over this time period. It should also be noted that while the total miles of main have remained relatively constant, the composition is gradually shifting to plastic mains.

Exhibit VII-20
PGW Main Composition
CY2009 to CY2014

	2009	2010	2011	2012	2013	2014	Change in Miles	% System 2009	% System 2014
Miles of Cast Iron Pipe	1,582	1,562	1,542	1,524	1,501	1,473	-109	52%	49%
Miles of Steel Protected Pipe	491	490	491	488	492	491	0	16%	16%
Miles of Steel Unprotected Pipe	500	499	497	496	493	487	-13	17%	16%
Miles of Ductile Iron Pipe	135	134	134	133	132	132	-3	4%	4%
Miles of Plastic Pipe	321	334	365	385	404	440	119	11%	15%
Total	**3,029**	**3,019**	**3,029**	**3,026**	**3,022**	**3,023**	-6	100%	100%

Source: Information Response 159

It should be noted, however, that PGW's system, when compared to other similar utilities, has a much higher percentage composed of cast iron and a much lower percent composed of plastic.

Various groups throughout PGW serve as key participants in administering and executing the Main Replacement Program (MRP). Resource management runs the MRP, which is discussed under the Resource Management section of this report. The output of the Main Replacement Program is a priority listing of mains to be replaced based on risk and consequence. Engineering groups work together to select the mains to be replaced, taking into consideration forced main relocation projects, other geographical considerations, and financing available. The projects are then drawn up and bid packages are assembled and sent to the Procurement group for bidding.

The current Long Term Infrastructure Improvement Plan (LTIIP), which was approved by the Pennsylvania Public Utility Commission (PaPUC) on April 4, 2013, increased the annual replacement goal from 18 miles of cast iron pipe to 25 miles. This increase of seven miles per year through fiscal year 2017 (as shown in *Exhibit VII-21*) equates to approximately 1.4% of PGW's cast iron system. Based on achieving its LTIIP goal of 25 miles of cast iron replacement, it will take approximately 60 years to replace all of the cast iron pipe. PGW's base replacement efforts as shown in *Exhibit VII-21* targeted cast iron less than eight inches in diameter whereas the accelerated plan also targets larger diameter mains. The cast iron replacement plan is defined in the LTIIP and is supported by a study entitled "Benchmarking Analysis, Risk Analysis and Model, Replacement Analysis and Computerized Main Prioritization and Ranking Program," prepared by Advantica in June 2012. Other Engineering studies support the plan as well.

There are two components that contribute to the 25-mile target, specifically:

- *Prudent main replacement* – These are mains that the Engineering Department determines need to be replaced based on ranking from the MRP.
- *Enforced main replacement* – These main replacements are driven by work projects that are performed by Pennsylvania Department of Transportation (PennDOT), the Philadelphia Water Department, and other utility projects. It is estimated that approximately four miles per year would be enforced replacement.

Exhibit VII-21
LTIIP Cast Iron Main Replacement Program
Approved as of April 2013

Long Term Infrastructure Improvement Program Annual Schedule, Quantities, and Expenditures						
	Five Year Period - FY 2013 to FY 2017					
Quantities	FY 2013 (miles)	FY 2014 (miles)	FY 2015 (miles)	FY 2016 (miles)	FY 2017 (miles)	Total (miles)
Current Baseline Program						
8" & smaller LP/IP	18.00	18.00	18.00	18.00	18.00	90.00
Accelerated Program						
12" HP	1.84	2.16	2.04	2.04	2.50	10.58
30" HP	1.45	1.70	1.86	1.78	1.38	8.17
8" & smaller LP/IP	2.97	3.04	2.97	2.97	3.01	14.96
Abandonment for Non-Use	2.08	0.00	0.00	0.00	0.00	2.08
Accelerated Totals	8.33	6.90	6.87	6.79	6.89	35.78
Yearly Totals	26.33	24.90	24.87	24.79	24.89	125.78
Expenditures						
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Total
Regular station/Valve Work	$ 2,500,000	$ 1,270,000	$ 500,000	$ 500,000	$ 500,000	$ 5,270,000
12" HP	$ 6,785,800	$ 8,139,600	$ 7,832,651	$ 7,989,304	$10,001,673	$ 40,749,028
30" HP	$ 7,782,600	$ 9,311,580	$10,399,838	$10,174,862	$ 8,059,790	$ 45,728,670
8" & smaller LP/IP (Additional)	$ 3,131,600	$ 3,278,820	$ 3,267,510	$ 3,335,833	$ 3,438,537	$ 16,452,300
Abandonment for Non-Use	$ 1,800,000	$ -	$ -	$ -	$ -	$ 1,800,000
Yearly Totals	$22,000,000	$22,000,000	$22,000,000	$22,000,000	$22,000,000	$ 110,000,000

Source: Information Response 330-003 LTIIP

New Business Design

New business is handled within the Capital Projects group. New customers that will have a demand over 1,000 cubic feet per hour (ft^3/hr) go to the Network group for modeling and assessment of their impact on the overall network. Work orders are prepared in the Advanced Intelligent Mobile System and are sent to the Distribution Department for execution. Progress is monitored in AIMS.

Corrosion

The department consists of nine employees including the General Supervisor Corrosion Control. Seven of the nine employees are certified National Association of Corrosion Engineers (NACE). The two non-certified employees are new and are working towards becoming certified.

There are 3,300+ large cathodically protected systems that are tested annually and 1,900 shorter systems (less than 100 feet) that are tested once every 10 years in accordance with Federal Pipeline Safety Regulations 49 CFR 192.459. There are also approximately 12,000 individually protected steel services.

PGW has 493 miles of coated unprotected steel main and 492 miles of coated and protected steel main. The leaks per mile on the steel mains are relatively low compared to its cast iron mains and can be seen in *Exhibit VII-48*. Therefore, PGW does not believe that it needs to install cathodic protection on the unprotected steel main at this time.

Work is managed through an Access database. Each month "work orders" for the following month are printed out. The work orders for the main systems are actually cover pages of folders with information on each test station, past readings, etc. All other work orders are printed from Access, Technicians complete the work orders, and if an operational irregularity is found, a second work order is produced and corrected by the technicians or by Distribution, Field Services, or Pressure Force personnel, if excavation is required. All irregularities are to be corrected within 12 months. When each work order is completed, the Access database is updated, and if appropriate, the AIMS database is updated as well if completed by Distribution, Field Services, or Pressure Force. PGW plans to migrate from the Access database to AIMS in the future, although no target data has been set for the migration.

Stray currents that affect underground structures are discussed at monthly meetings held by the City-wide electrolysis committee. Members include Amtrak, Conrail, Colonial Pipeline, Philadelphia Electric Company (PECO), PGW, Philadelphia Water Department (PWD), Southeastern Pennsylvania Transportation Authority (SEPTA), CORRPRO (a consulting company specializing in corrosion), among others.

Service Line Valve Installations

The lack of a service valve can be an issue when attempting to shut off a service for any reason if access to the premises is not possible. To the best of my knowledge there have not been any incidents caused by a lack of a service valve. It is primarily an issue when the need arises to shut off a service for nonpayment. PGW's service valve policy requires service valves to be installed on all services with inside meter sets. In addition, when a service is renewed and/or reconnected to a premise that previously did not have a service valve and the meter is inside, a service valve is installed. During the time period spanning FY2011 to FY2014, an average of 5,500 service valves were installed each year. Currently, approximately 359,000 services, or 75.4% of PGW's services, have service valves.

Network Modeling

There are two senior network technicians within the Engineering, Design, Construction and Planning Department who maintain and keep current the network model of the distribution system. The network model is based on the Advantica Synergy model and includes all mains, all three-inch and larger services, and all high-pressure services. The network model is used to model flow rates and pressures throughout the PGW system under different scenarios. Changes in the distribution system and any major customer loads are made to the model monthly. Major new loads over 1,000 ft^3/hr must be added manually. All loads under 1,000 ft^3/hr have not been updated since 2009 when the link between the customer system and the model was discontinued. PGW is working to re-establish the link by converting its databases for these systems from CAD to a full GIS-based system, which will enable PGW to re-establish the link

between the customer system and network model and allow the Company to use actual customer loads. PGW plans to perform this work in 2016. In the meantime, PGW takes actual pressure readings using transmitters and recording gages throughout its distribution system on "experience days" (days with very low temperatures) and compares actual pressures with pressures indicated by the model to ensure the distribution system is operating within acceptable tolerance levels. However, adjustments to the model are made when necessary but are modeled first to analyze any impact the change would have on the distribution system. In addition, PGW utilizes pressure transmitters at system low points for real-time monitoring.

PGW network design parameters are based on a -5 hour, 0 day specification. This specification is determined by the Winter Load Committee and has not been evaluated for some time. The mission of the committee is to establish the ground rules necessary to determine the supply and deliverability required to meet maximum demand created by worst-case temperature conditions and failure scenarios. Its aim is also to ensure the distribution system can meet maximum demand. The Winter Load Committee needs to review the current ground rules for the design day planning document and update using the latest design day temperature and load profile forecast. The purpose of this procedure will be to determine the present or proposed method of operation and the maximum capabilities of existing plant facilities. Consideration is given to design day gas send-out requirements, potential supply problems inclusive of LNG, and logistics of supply transportation and plant maintenance problems. Load studies are performed annually. No five- or 10-year studies are being performed at this time since the system loads have been in decline.

PGW' records show that negative five-degrees has been reached four times in the last 50 years. The last instance was in 1994. PGW has re-established the Winter Load Committee and plans to re-examine the design parameters for the system. PGW does have interruptible gas customers, however, it's believed that these interruptible customers have only been interrupted once in 2004 during the last 20 years. Overall, the system is very robust from a capacity standpoint due to declining loads and very conservative design criteria. In fact, there is no need for manual intervention such as interrupting the interruptible customers to maintain pressures at a negative five-degree/hour day or a three-degree/hour day with the loss of a gate station, with the exception of adjusting pressures.

Distribution Integrity Management Plan (DIMP)

PGW's DIMP was reviewed and inspected by the PaPUC's Gas Safety Division on behalf of the Pipeline and Hazardous Materials Safety Administration (PHMSA) on December 10, 11, & 12, 2012. The results show that six of the 42 questions asked received an unsatisfactory rating from the PHMSA certified inspector. They are as follows:

- *Question 7*: Does the plan contain written procedures to identify additional information that is needed to fill gaps due to missing, inaccurate, or incomplete records?
- *Question 8*: Does the plan list the additional information needed to fill gaps due to missing, inaccurate, or incomplete records?

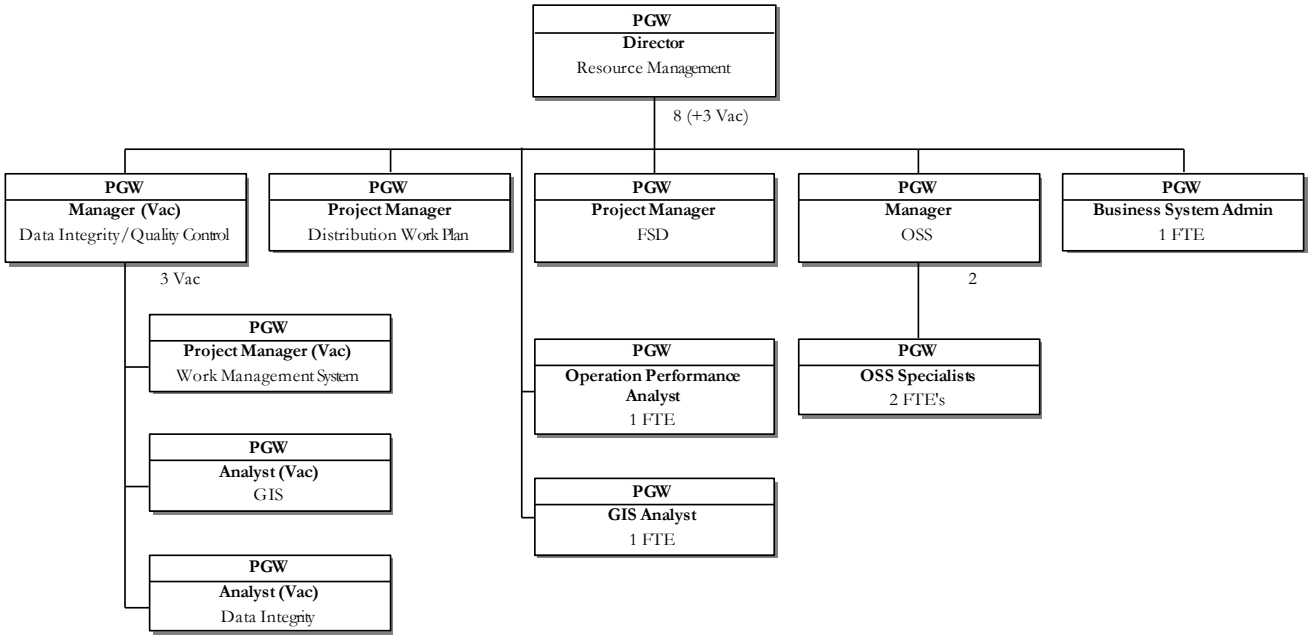
- *Question 19*: Do the written procedures consider, in addition to the operator's own information, data from external sources (e.g., trade associations, government agencies, or other system operators, etc.) to assist in identifying potential threats?
- *Question 40*: When measures are required to reduce risk, do the written procedures provide how their effectiveness will be measured?
- *Question 42*: Does the documentation provided by the operator demonstrate implementation of the element "Measure Performance, Monitor Results, and Evaluate Effectiveness"?
- *Question 43a*: Do the written procedures for periodic review include a frequency of review based on the complexity of the system and changes in factors affecting the risk of failure, not to exceed five years?

This issue will be addressed in the *Findings & Conclusions* and *Recommendations* section of this report.

Resource Management

The Resource Management group, as shown in *Exhibit VII-22*, develops and implements long- and short-term plans for distribution, focusing on process improvement, main replacement, and data integrity. The group operates the Main Replacement Model, supports AIMS, and develops ad hoc reports for work management and budgeting.

Exhibit VII-22
Resource Management Organization
as of December 31, 2014



Source: Information Response 387

Main Replacement Model

The cast iron Main Replacement Model (MRM) is a product of DNV GL, formally Advantica. It has replaced the Navigant system in 2010 that was previously used for this purpose. The MRM is relatively new and has been in place for about five years. All cast iron mains, by size and pressure, and historical leak data by type (break, joint, external force, etc.) have been loaded into the model, which is based on a GIS platform. Only cast iron main is presently modeled in the MRM, in that cast iron is a significant portion of PGW's system and it experiences higher leak and break rates per mile. The MRM, through several algorithms, calculates the condition and risk associated with each segment of pipe. Typically segments are separated by different sizes of pipe, pipe material, vintages of pipe, etc. They are logical points of separation and can be of varying length but must be contiguous. Condition is the likelihood of a leak occurring on a particular segment. Risk is the likelihood of an incident occurring due to a leak on a segment. Incidents are leaks resulting in injury, death, fire, or explosion as defined by the Pipeline and Hazardous Materials Safety Administration (PHMSA) Risk is calculated based on the number and type of leaks, the size of the pipe, and the pressure. Weighting factors are assigned to pipe size, pressure, and type of leak. Distance to structures and depth of the pipe are also factored in. The risk score and condition score are then given weights. For example, the overall ranking of segments may be calculated, weighting risk at 70% and condition at 30%. Multiple runs of the model are made using different risk and condition rankings for low pressure, intermediate pressure, and 12-inch high pressure.

The current configurations of PGW's Cast Iron Mains Replacement Prioritization model are as follows:

Exhibit VII-23
Cast Iron Main Replacement Prioritization Model
as of December 31, 2014

	Condition	Risk	FFW Indicator*
12" and larger HP	95%	5%	0%
8" and Smaller (LP/IP)	15%	75%	10%

Source: Information Response 611
*The Front Foundation Wall (FFW) indicator is a function of service length and accounts for how close a pipe is to a building. A pipe closer to a building receives a higher score since proximity increases the potential for an incident

Approximately 75% of the cast iron main inventory currently resides in the 8" and smaller low- and intermediate-pressure category. The primary difference between the risk and condition calculations is that risk factors into proximity to structures by using service length, whereas condition does not. Due to PGW's urban operating environment, the mains in this category tend to run close to dwellings and other structures. The current allocation allows PGW to target the mains closest to structures while still incorporating performance history. Additionally, the FFW Indicator gives added weight to the segments where readings were previously found at the front wall of a structure.

Conversely, by running the model in the 12" and larger high-pressure category with 95% condition, PGW will be able to address the mains that are most frequently repaired, while still having some level of risk being addressed in the calculation. As discussed above, the risk parameter factors proximity to buildings by using the service lengths, the majority of which are attached to the low- and intermediate-pressure systems; therefore, this measure would not give an accurate distance from the high-pressure system to the building. PGW does not believe that placing a high percentage on risk would be beneficial due to these current limitations.

The MRM produces a priority ranking of cast iron segments for replacement for each of the two runs (i.e., LP/IP and HP). The resulting outputs are analyzed and a main replacement plan based on available funding for the year is developed and passed on to Engineering. The system can also produce graphs that predict leaks and incidents for various time periods based on the model run and the planned footage to be replaced each year.. The system, can produce various model runs using different scenarios of risk, condition and footage. Both PGW and Schumaker & Company have found that the system is a major improvement from the past Navigant model, as it takes into consideration both the condition of the pipe and the risk associated with a leak or break.

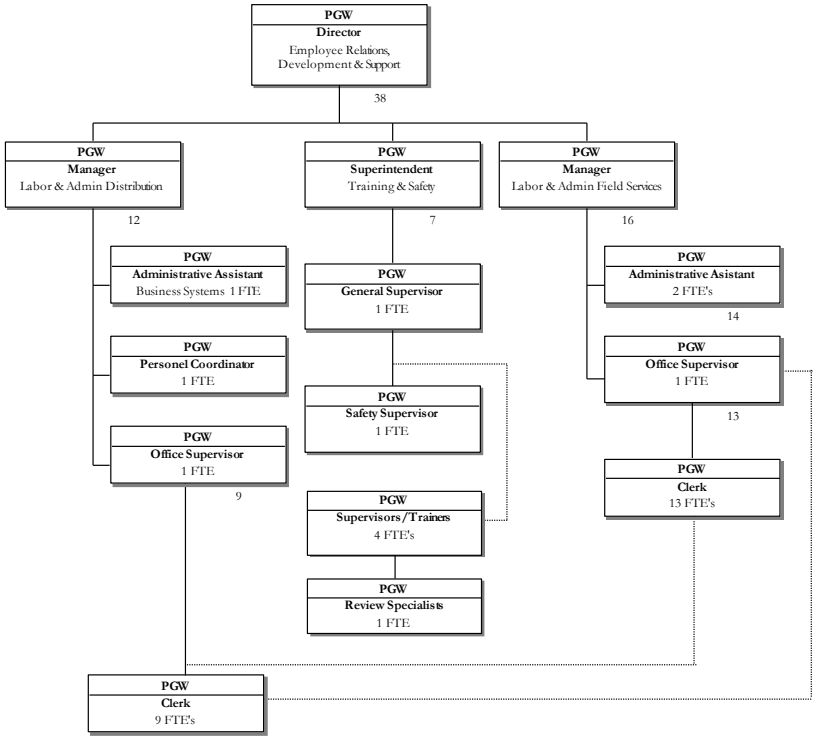
AIMS Support and Data Integrity

Resource Management supports the AIMS application in the field, troubleshoots problems, works on implementing upgrades, and acts as liaison between Information Technology (IT) and the operating groups. The group develops work management ad hoc reports from AIMS and budgeting ad hoc reports from the Oracle financial system. The generation of performance metrics is not centralized within this group, which presents issues on data integrity and consistency. The group is working to centralize this function. Asset data does not reside in a single database. For example, main data is in AutoCAD and ESRI, service data is in AIMS, and valve data is in an Oracle database. Preference would be to have it all in one database; ideally a GIS database that would be a single source for all asset data and that would improve data integrity.

Employee Relations, Development and Support

The Employee Relations, Development and Support group is responsible for payroll administration, labor and employee relations, safety training, technical training, operator qualification, attendance tracking, and workload and manpower scheduling for the Field Services Department (FSD). Payroll administration, labor relations, and attendance tracking are not covered in this section but discussed in more detail in *Chapter II – Executive Management and Human Resources*. This group, as shown in *Exhibit VII-24*, consists of 36 personnel.

Exhibit VII-24
Employee Relations, Development and Support Organization
as of December 31, 2014



Source: Information Response 387

Employee Relations, Development and Support is responsible for approving all of the time and labor timesheets for union employees. These documents are processed electronically. The group is also responsible for scheduling all of the shift work, vacations, and staffing of all union employees. This task is handled through weekly meetings with the operating groups. The group provides the available manpower by shift and classification to the AIMS scheduling module. Employee attendance records are monitored and corrective action is taken when required. In addition, calls are made to field dispatch alerting the dispatchers that an employee who is scheduled to work will not be reporting in. Dispatchers will then reallocate work planned for the individual to other technicians.

Training is primarily conducted at the training center at the Passyunk plant with the exception of meter reading, which is conducted in the meter shop, and Commercial Driver's License (CDL) training, which is contracted out to a third-party provider. PGW employees and Contractors are trained and qualified in electrofusion for main and service work. Training is tailored to specific job classifications and is provided when an employee is promoted or moves into a specific classification. FSD technicians are trained on troubleshooting and basic schematic reading. The group puts together a basic troubleshooting manual covering common appliances and troubleshooting. Refresher training is provided annually for leak investigation, compressor school, and safety training. Training is also given

periodically for new material, reviewing recent incidents and other material when needed. Remedial training for driving is provided as needed.

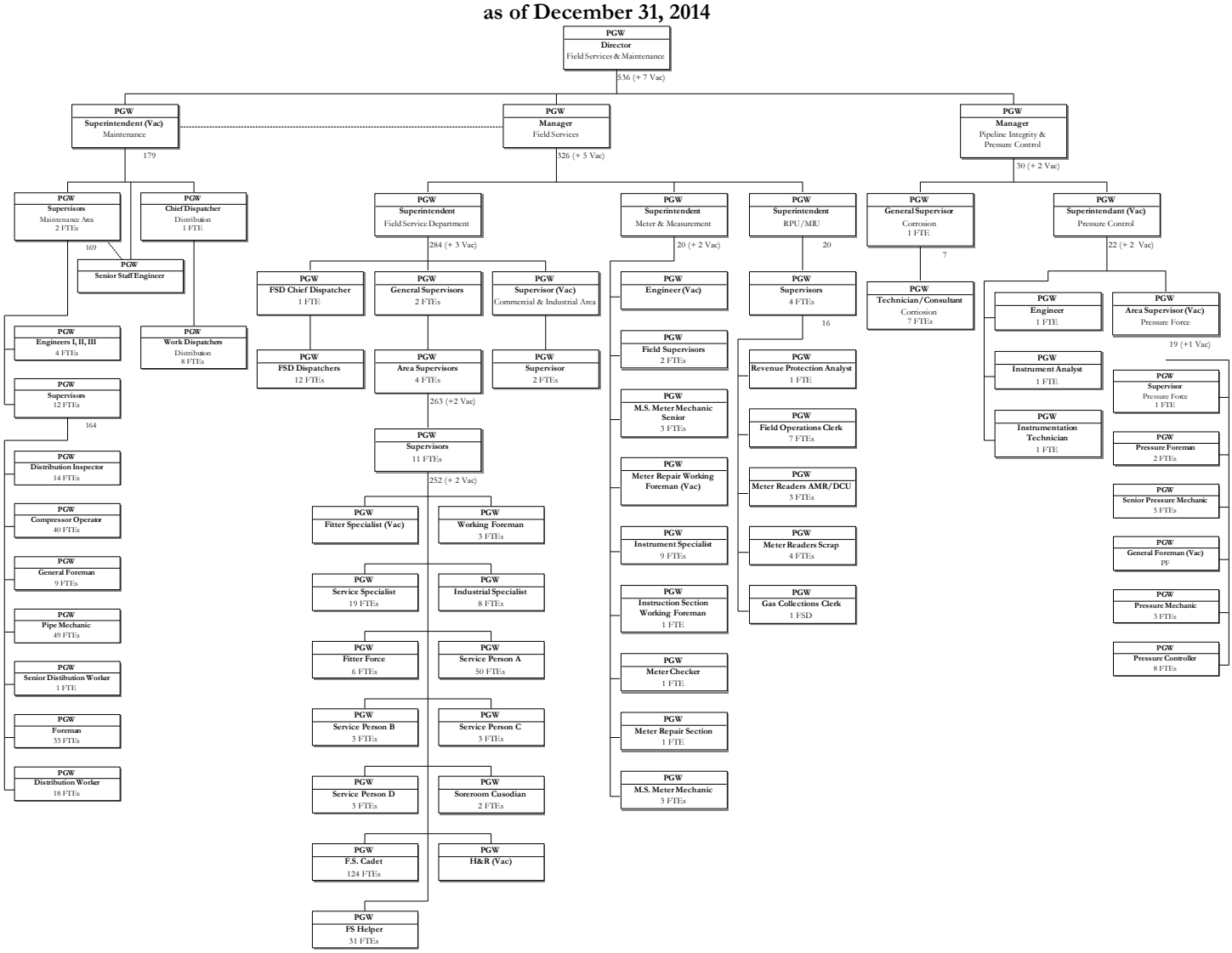
New non-IT technology, tools, equipment, etc. is evaluated by this group albeit utilizing an informal process.

Safety and quality control audits of FSD technicians are conducted by this group. Eight safety audits are required per employee each quarter. Four Quality control audits are done each quarter for each FSD technician by this group and four are conducted by the technician's supervisor.

Field Operations and Maintenance Organization

Field Operations and Maintenance organization is responsible for field operations, maintenance, construction, leak response, appliance repair, and other related functions. This function is divided into three main groups: Maintenance, Field Services, and Pipeline Integrity and Pressure Control. The organization is shown in *Exhibit VII-25*.

Exhibit VII-25
Field Services and Maintenance Organization
as of December 31, 2014



Source: Information Response 387

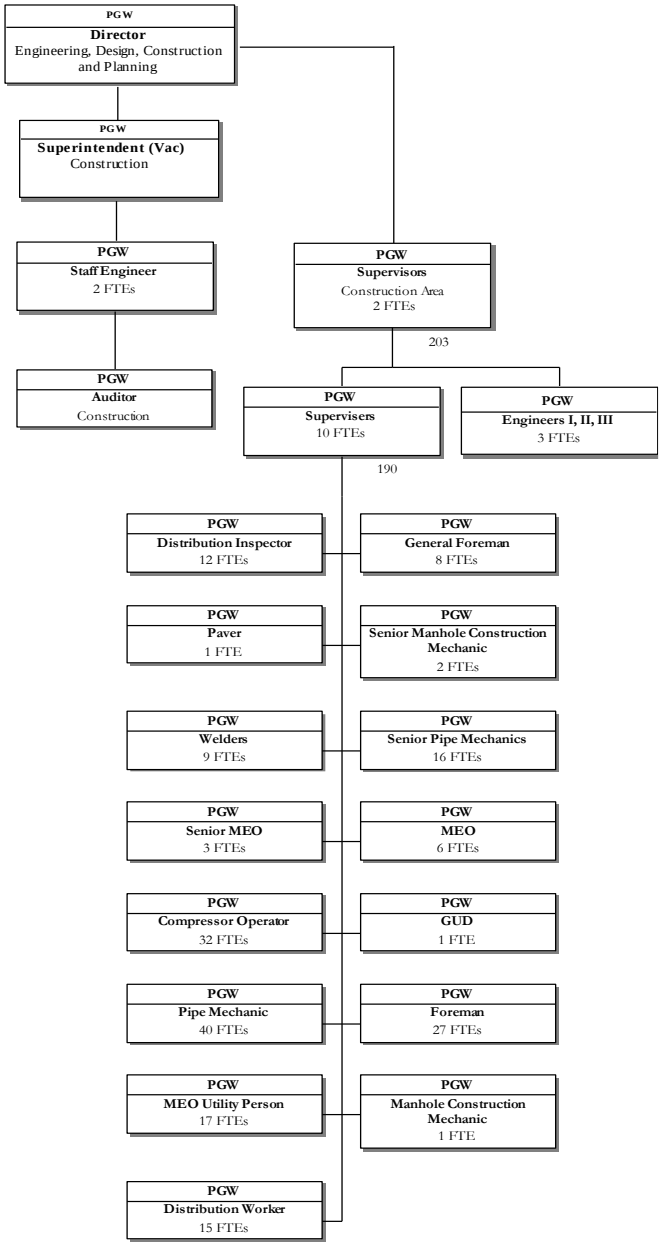
Maintenance – This group is headed by a Superintendent. Maintenance is responsible for main and service replacements, and new business installations. Maintenance is responsible for dispatching all survey work, the PA One Call program, abandonment of service, and leak repairs. There are approximately 11 supervisory and management personnel in Maintenance These two groups share the 357 bargaining unit personnel assigned to Construction based on workload.

Field Services Department – The primary areas of responsibility for this group are first responders for emergencies and leaks, pressure control, meter shop, appliance Parts and Labor Program, turning on and turning off gas for customers, and revenue protection.

Construction

Construction supervises approximately 27 in-house crews and 12 to 19 contractor crews. The organization is shown in *Exhibit VII-26*.

Exhibit VII-26
Construction Organization
as of December 31, 2014



Source: Information Response 387

Construction crews work out of four stations: Tioga, Castor, Belfield, and Porter. In-house and contractor crews are supervised by five to six roving supervisors. A typical crew working on main replacement consists of three men: a working foreman, a pipe mechanic, either a compressor operator or a laborer. The crew may be augmented by an equipment operator depending on the job. Equipment operators can work alongside the crew members if not operating the excavation machine. Three-man crews are used for service replacement consisting of a foreman, a pipe mechanic, and either a compressor operator or a laborer. Two-man crews are primarily used to do service abandonments with the vacuum excavator. All vehicles are global positioning system (GPS) equipped and their location is viewed by management. Contractors are primarily used to augment PGW crews on main installations. Contractors, however, can do all construction work as long as it does not involve working on live gas. At the end of Schumaker & Company's field work, contractors were not permitted to work on live gas due to the current labor agreement which was in the process of being negotiated.

Crews are scheduled to provide round-the-clock, seven-days-a-week coverage. The bulk of the crews work 7:00 a.m. to 3:30 p.m. Monday through Friday on varied schedules and staggered start times. Construction and maintenance crews are interchangeable. There is a rotation schedule that moves crews from construction to maintenance. In addition, there is a winter schedule (put into effect when weather and work type dictate) that heavily weights the number of crews working in maintenance for leak repair. The shifting of manpower can be done anytime. The Maintenance and Construction groups meet every Wednesday to make adjustments as workload dictates.

Material is ordered through AIMS and is sent to Procurement. Most of the time it is delivered to the jobsite. In some instances, it may be delivered to the station. Material availability and delivery are good. Trucks carry high-volume fittings, etc. that are available in bins at the stations.

Construction inspectors monitor contractor work for contract and standards compliance. One inspector is assigned to one job at a time, the exception being if the contractor is just doing excavation work. Then inspectors may supervise several jobs at a time. Contractor bids are unit-cost bids and inspectors are responsible for tracking units. Inspectors also fill out a quality control form for all contractor work to monitor compliance with PGW standards and the contract's specifications. These forms are reviewed by supervision and management, and feedback is provided to the contractor when necessary.

Contractors also perform all permanent paving. The quality of all paving is monitored by quality control checks performed by Penoni Engineering, who on a quarterly basis samples paving by taking core samples and measuring both thickness and strength.

All work is planned and dispatched through AIMS. Work can originate from the call center, new business, Engineering, and other sources. The three Staff Engineers in the department schedule work, assign work to stations, and audit completed work in AIMS. Area Supervisors assign work through AIMS to construction and maintenance crews. Emergency work is dispatched directly to crews through AIMS to the crews and monitored for arrival time. Working foremen use AIMS extensively in the field. Not only are all work orders received and completed in AIMS, but they capture all completion data

relevant to the job as well. Such data includes leak readings, material information, time on job, and any comments deemed necessary. AIMS also allows the foremen to access construction manuals, non-confidential customer information, and drawings of existing facilities. Drafters are sent out to all jobs that affect the configuration of the infrastructure to prepare as-built drawings. This is done for contractor work as well as PGW work. Foremen, inspectors, and contractors do not prepare as-built drawings. Every completion record is 100% audited by an employee every day. There are no "productivity" reports or measures in use. Productivity measurement is left up to supervision and their knowledge of how long a job should take.

The Area Supervisors conduct eight field safety check list reviews a month for both construction and maintenance crews. A comprehensive check sheet is used for the audit. It is a thorough and complete audit that checks the gas tester, the fire extinguisher, the air systems, work area protection, personal protective equipment, etc. During field visits, trucks observed were neat, clean, and well equipped for the work performed. In addition, there are weekly and monthly safety meetings with the crews.

Contractor Management

Contractors are deemed qualified to perform work at PGW if they meet the general requirements specified by the Procurement Department and have demonstrated the ability to perform the work. New contractors are given a test job and are monitored with regard to skill, safety, and proficiency by PGW personnel. They are evaluated, and if their performance is deemed satisfactory, they are added to the bidders' list.

Presently, there are only four qualified and approved contractors available to do gas main work. Four bids are sent out for each bid package. Two to three responses are typical. The low bidder gets the work. The contractors on the bid list have a longstanding relationship with PGW. It has been very difficult to introduce new contractors to the list. PGW would like to have additional contractors on the list and is presently formulating strategies to accomplish this objective.

There are two basic types of bid specifications: an annual unit-price bid (Blanket or C contract) and a drawing and unit-price bid (D contract). C contracts are used for small jobs and emergencies, D contracts for all other work. Approximately 90% of all work contracted out is under D contracts. Rarely are lump sum contracts used. 100% of all contracted work is estimated prior to the job being bid. All prices received from contractors are compared to the estimate and variances are reconciled before starting the job.

All work to be contracted out is planned, designed, and estimated approximately one fiscal year ahead of when the work is to be performed. PGW is presently working on the 2016 bid packages. The bids are sent out and awarded prior to the start of the fiscal year so work can be scheduled and completed within the fiscal year.

Contract work is monitored by a PGW field inspector who tracks the units that are completed and ensures that the work is done according to the contract. The contractor is paid as work is completed.

10% of the contract price is held back until the field inspector completes his/her final inspection and completion report for both the pipe and paving.

Minor change orders are handled and approved by the field inspector, while significant change orders are handled and approved by a combination of the following employees; Distribution Inspector, Engineer, and Distribution Supervisor. There is no set policy as to what constitutes a minor or significant change order. There is no set policy for reviewing jobs that vary from the estimate by a set +/– percent.

Field inspectors prepare a quality control inspection report for every job. If there are no issues, the report is filed. If there are issues or violations, the report is sent to the contractor's management to address and correct them. Customer complaints are handled by the field inspector and if significant, are recorded on the quality control report.

As shown in *Exhibit VII-27*, contractors install the majority of new mains and replacement mains.

Exhibit VII-27
Mains Installed by PGW and Contractors
FY2014 & FY2013

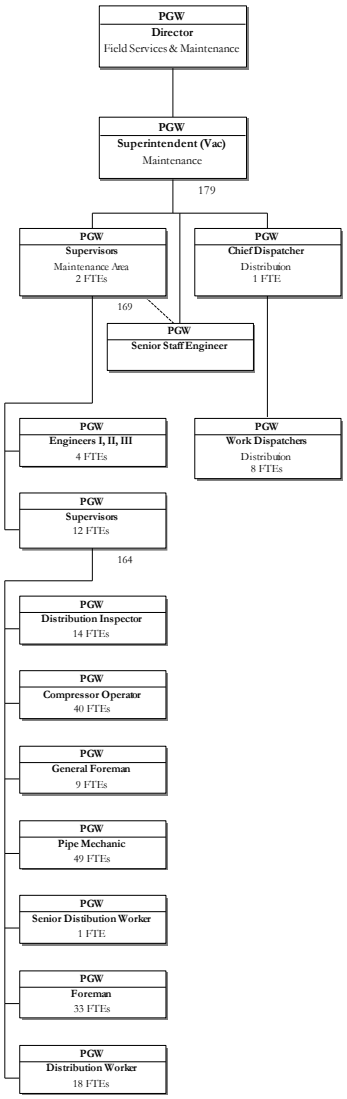
Main & Service Report FY 2014	12 MONTHS TO DATE	
	2013	2014
MAIN WORK		
Main Additions Installed (Feet):		
Installed by PGW	10,175	5,251
Installed by Contract	17,015	10,029
Total Main Additions	**26,900**	**15,280**
Prudent Main Replacement Installed (Feet):		
Installed by PGW	11,688	12,663
Installed by Contract	71,582	94,746
Total Prudent Main Replacement	**83,270**	**107,409**
Enforced Relocation Work (Feet):		
Installed by PGW	3,356	3,227
Installed by Contract	13,580	39,120
Total Enforced Relocation	**16,936**	**42,347**
Total Main Replacement (Feet)	**100,206**	**149,756**
Total Cast Iron Main Abandoned (Feet)	**114,925**	**144,057**
Total Main Abandoned (Feet)	**136,568**	**170,304**

Source: Information Response 420 Main and Service Report

Maintenance Section

The Maintenance Section is responsible first responder leak investigation, leak management and repair, leak surveys, and mark-outs. The department typically has approximately 150 personnel and fields approximately 35 crews per day, depending on workload and time of year. The group's organization is shown in *Exhibit VII-28*.

Exhibit VII-28
Maintenance Organization
as of December 31, 2014



Note: The employees in the middle are shared between O&M and D&C. Both groups have small dedicated staffs O&M (17) and D&C (11) shown on the extreme right and left
Source: Information Response 387

The Maintenance crews work out of four stations: Tioga, Castor, Belfield, and Porter. Typically, four crews perform joint encapsulation, five crews do large repairs, five crews work on service abandonment using the vacuum excavator, and the remaining crews are assigned to leak response and repair. Crews work 24x7, 365 days per year on varied schedules and staggered start times, depending on workload and time of year. Crews also rotate between the Distribution & Construction group and the O&M group depending on workload. Weekly meetings are held between the two groups to allocate crews. All vehicles are GPS equipped and can be tracked by supervisors, dispatchers, and managers.

Initial response to leak orders is typically performed by FSD personnel except in an emergency. During emergencies, a supervisor and a crew (typically three employees) are immediately dispatched. Leak response and investigation procedures are clearly spelled out in Bulletin #212, (Field Bulletins are official PGW procedures) issued in September 2012. Leak work orders are dispatched through AIMS or in emergencies via telephone backed up by AIMS. Once a work order is received, the first responder (FSD technician) determines if it is a "work immediate" or "safe to hold" leak. "Work immediate" leaks are covered by repair crews as soon as they can be dispatched. "Safe to hold" leaks are rechecked within 72 hours by a two-man crew that classifies the leak. Dispatchers set and determine the frequency in which to conduct rechecks and scheduled accordingly. Recheck schedules are performed on the following intervals: 15 days, 30 days, six months, or one year. Leaks in the recheck schedule average about 2,600 to 3,200 at year end. Two full-time crews are assigned to recheck work. Leak recheck procedures are clearly spelled out in Bulletin 327, issued in June 2014. Contractors are not used for leak repair and are seldom used for leak excavation.

Leak surveys consist of surveying all roadways once a year using an optical methane detector; walking surveys every three years covering services using portable leak detection equipment; center city every six months; all parade routes as needed; all high-pressure cast iron semi-annually; all 12-inch high-pressure cast iron every two months; and the top 600 segments identified by the Main Replacement Model every 20 days during frost periods. The leak survey schedules are shown in *Exhibit VII-53*. Leak survey geography sometimes overlap hence some mains get surveyed multiple times during the year through different surveys. All fresh leaks discovered are assessed by dispatch to determine if they are a duplicate of a previously reported leak. All leak surveys and leaks are recorded in AIMS by type of survey and in GIS. PGW is currently considering a new software product by VeriTrack to better manage its leaks. VeriTrack is a GIS-based real-time system that will allow checking for duplicates as they are found.

The number of main and service leaks reported over the last five years are shown in *Exhibit VII-29*.

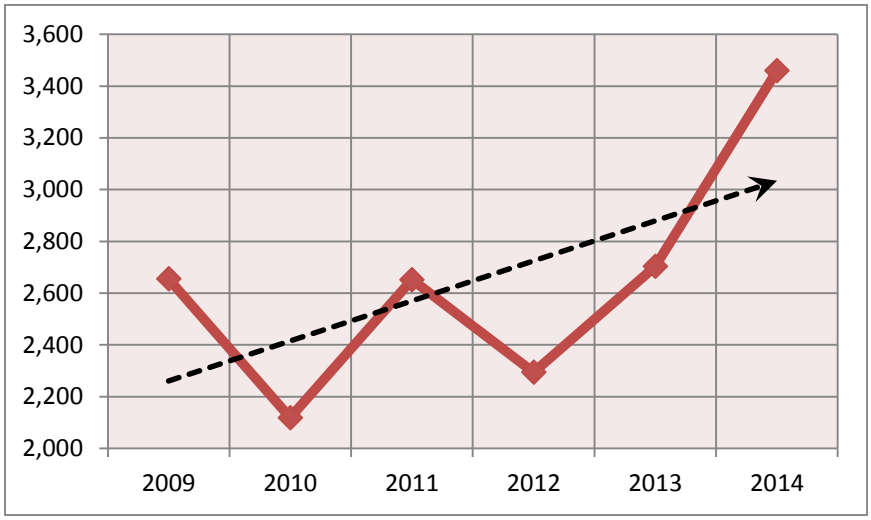
Exhibit VII-29
Number of Reported Main & Service Leaks
CY2009 to CY2014

	2009	2010	2011	2012	2013	2014
Main Leaks	2,655	2,119	2,652	2,294	2,703	3,460
Service Leaks	4,133	3,433	3,893	3,170	3,713	3,682
Total Leaks	6,788	5,552	6,545	5,464	6,416	7,142

Source: Information Response 145

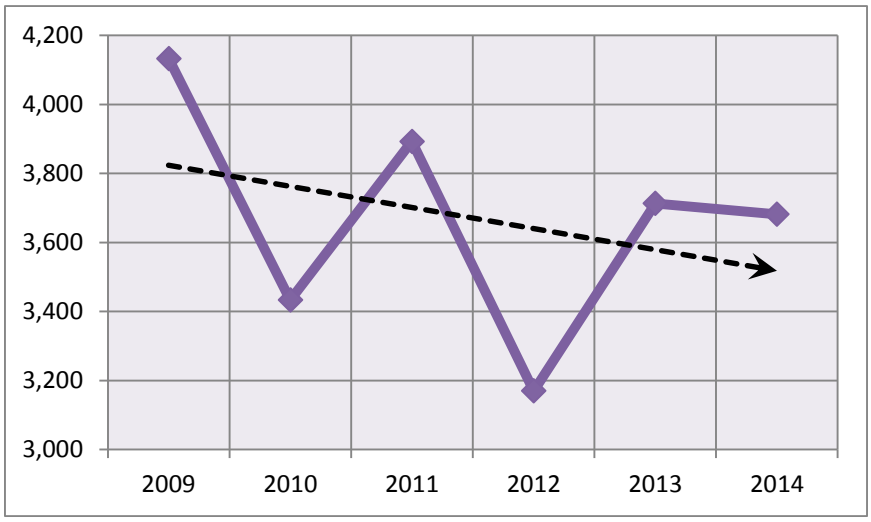
The trend in main and service leaks can be seen in *Exhibit VII-30* and *Exhibit VII-31,* respectively.

Exhibit VII-30
Main Leak Trends
CY2009 to CY2014



Source: Information Response 145

Exhibit VII-31
Service Leak Trends
CY2009 to CY2014



Source: Information Response 145

Damage Control Program

The damage prevention program is managed by the Damage Control group which is part of Maintenance. PGW is a member of the Pennsylvania (PA) One Call system. PGW actively participates in and sponsors contractor awareness events in the Philadelphia area. PGW's policy is: "Upon receipt of notice of excavation, demolition, or blasting, the location of pipeline facilities shall be determined and an inspector shall be dispatched to the work site as required, in order to mark the location of the pipeline facilities. On major construction projects or where important pipeline facilities may be affected, a supervisor shall determine the need to assign a full-time inspector or watchman during the period of construction." Mark-outs have increased from about 38,000 to 50,000 over the last five years. The number of damages increased from 68 to 84, as shown in *Exhibit VII-32* during the same time period; however, the hit rate (Hit rate is the number of damages per 1,000 tickets) has improved. PGW's hit rate of 1.68 damages per 1,000 tickets in an improving trend and places PGW in the top quartile of a peer panel of gas utilities. The third-party damage statistics can be seen in *Exhibit VII-32*. The PA One Call system takes calls for mark-outs and sends work orders to PGW. All work orders are managed in AIMS. Although there are few repeat offenders, serious violations are reported to the Commonwealth of Pennsylvania's Labor and Industry group that enforces the mark-out requirements.

Exhibit VII-32
Reason for Facility Damage
CY2009 to CY2014

Reason for Facility Damage
(Third Party Damages)

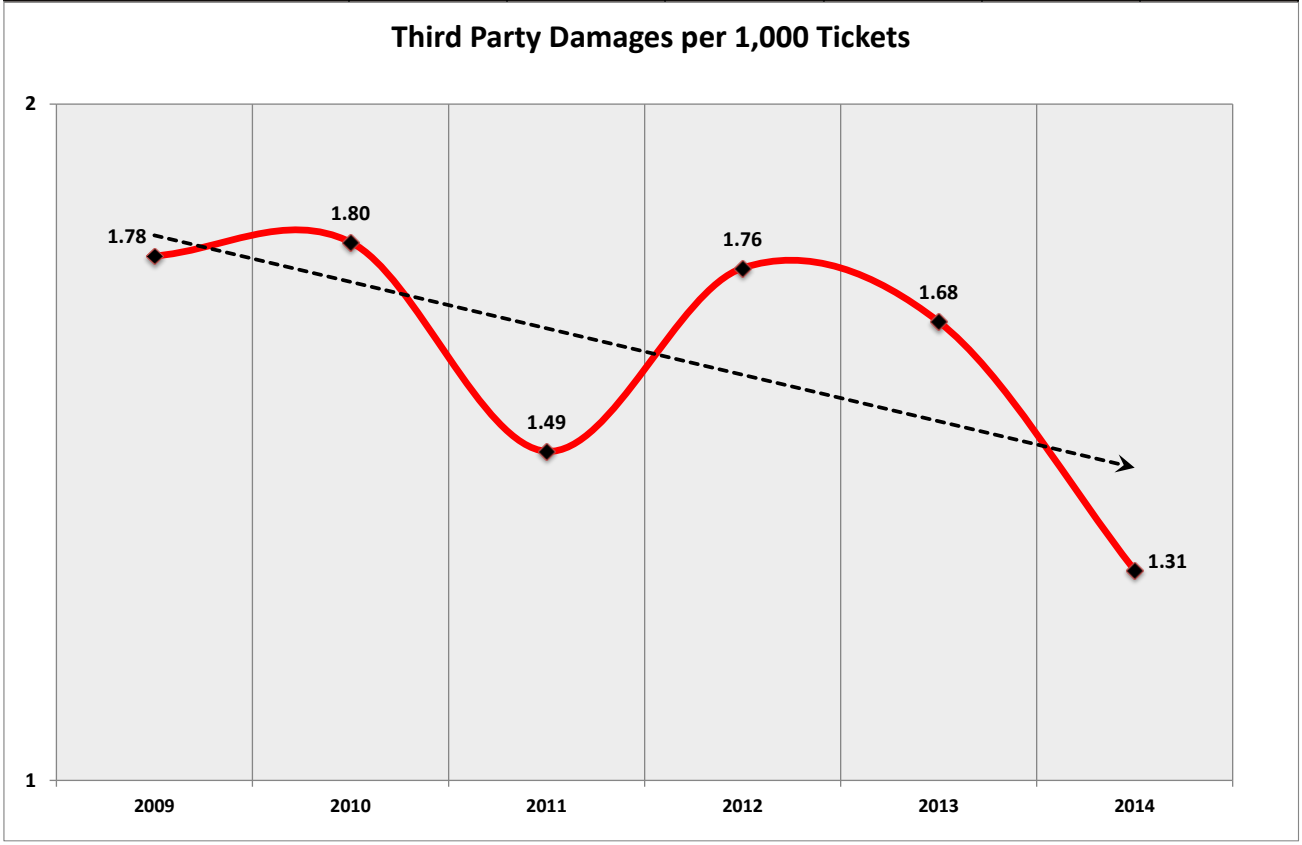
Reason for Damage	2009	2010	2011	2012	2013	2014
Mapping Errors	4	11	10	8	11	7
Line Not Marked	0	2	4	6	2	3
Line Marked Incorrectly	0	1	1	1	1	2
Excavator Failed to Expose	30	29	21	26	32	37
No Locate Requested	14	11	14	17	20	10
Insufficient Notification	1	2	3	3	0	0
Deliberate	1	1	2	1	2	0
Natural Forces	0	0	0	0	0	0
Excavator Error	10	10	7	6	11	5
Other	8	9	7	7	5	8
	68	**76**	**69**	**75**	**84**	**72**

Source: Information Response 151

Exhibit VII-33
Third-Party Damage Statistics
CY2009 to CY2014

Third Party Damages vs Number of POCS Tickets

Calendar Year	2009	2010	2011	2012	2013	2014
Main damages	18	26	14	21	21	23
Services damages	50	50	55	54	63	49
Total Damages	**68**	**76**	**69**	**75**	**84**	**72**
# POCS Requests	38,300	42,321	46,415	42,674	50,050	54,924
Damages per 1,000 notices	**1.78**	**1.80**	**1.49**	**1.76**	**1.68**	**1.31**



Source: Information Response 151

Costs of mark-outs have averaged about $23.50 each over the last five years. The cost per mark out is comparable to other major North East Utilities. The table in *Exhibit VII-34* also shows the amounts billed and collected over the last five years.

Exhibit VII-34
Third-Party Damage Billing and Collections
FY2010 to FY2014

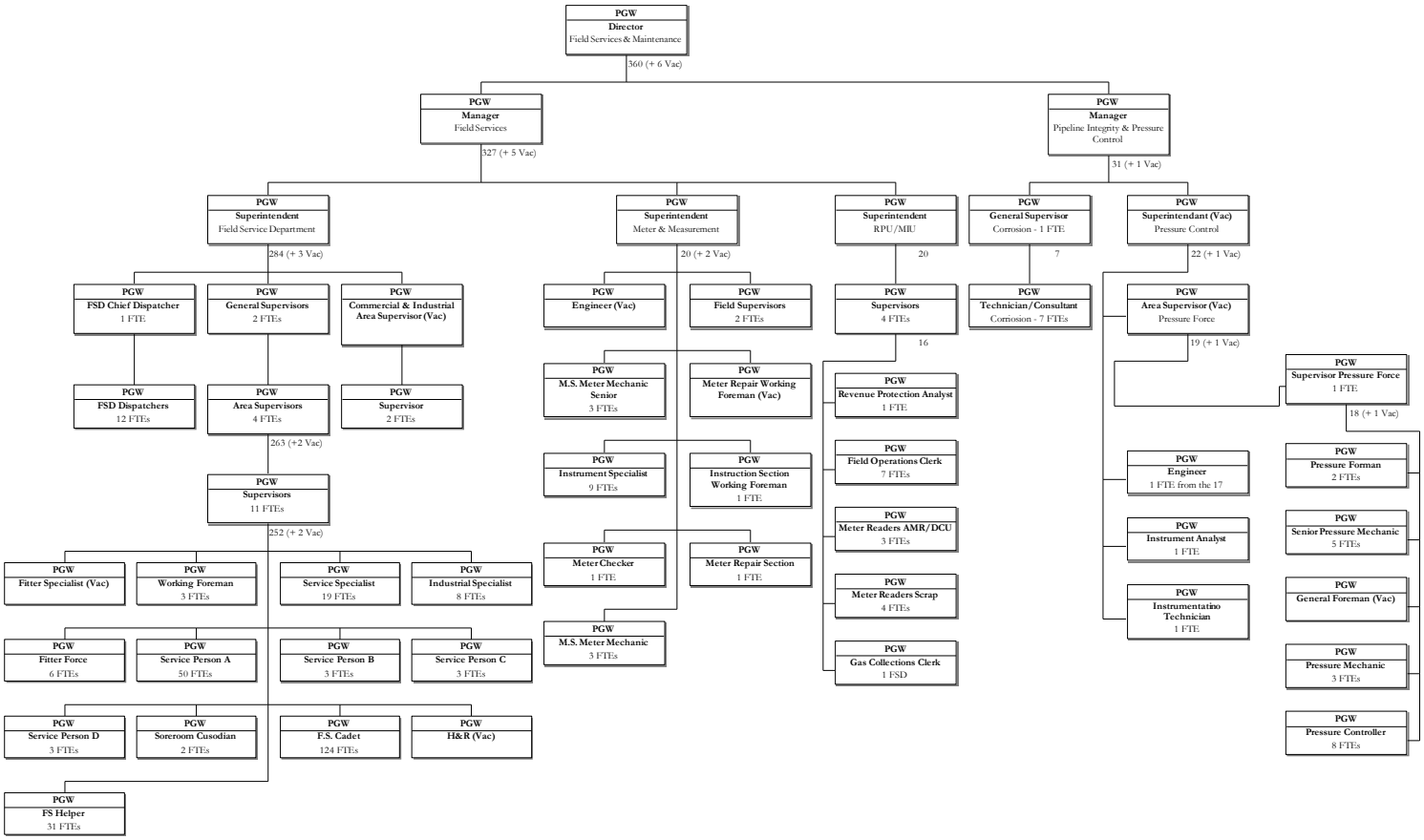
Fiscal Year	Billed	Received	% Collected
2014	$248,951	$75,688	30.4%
2013	$220,057	$85,797	39.0%
2012	$122,399	$62,449	51.0%
2011	$136,287	$64,787	47.5%
2010	$177,977	$88,126	49.5%

Source: Information Response 608

Field Services Department

The Field Services Department is a subgroup of Field Operations. There are four groups in Field Operations. They are: Field Services (FSD, Meter and Measurement, RPU and MIU) and Pressure Control, plus a Senior Staff Engineer. The primary areas of responsibility for these groups are first responders for emergencies and leaks, pressure force, meter shop, appliance Parts and Labor Program, turning on and turning off gas for customers, and revenue protection. The organization is shown in *Exhibit VII-35*.

Exhibit VII-35
Field Services Department
as of December 31, 2014

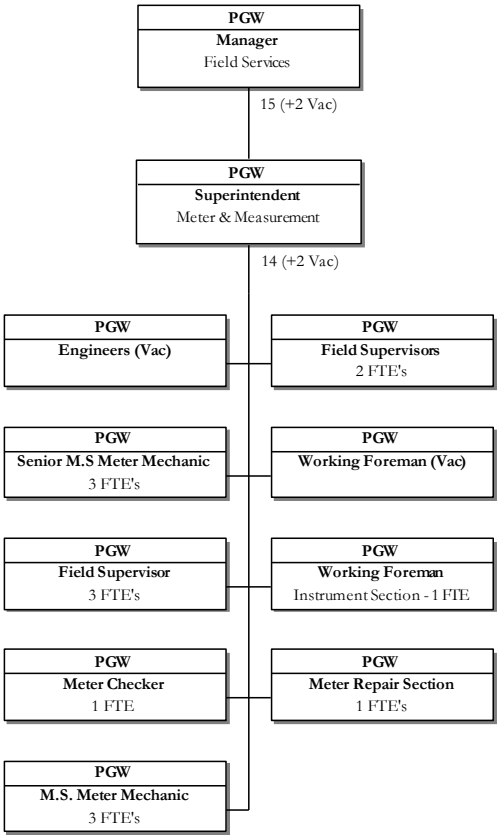


Source: Information Response 387

Meter and Measurement

The meter shop is located at 9th and Diamond. All personnel report to that location. There are 28 employees in the department: 11 instrumentation technicians, five management personnel, and 10 repair technicians filling seven different classifications from meter checker to working foreman. The group organization is shown in *Exhibit VII-36*.

Exhibit VII-36
Meter and Measurement Organization
as of December 31, 2014



Source: Information Response 387

The Meter and Measurement group receives and sample checks new meters. It also tests and reconditions meters brought in for the 20-year change program. Meters are changed every 20 years due to the expected battery life of the (ERT). This is the life expectancy of the current batteries. Reconditioning of meters consists of testing for accuracy and adjustment if necessary, pressure testing, installing a new ERT, and painting. Meters older than 35 years (about 40%) are scrapped. The group also tests meters brought in for suspected tampering and billing complaints.

New and reconditioned meters are placed in inventory using barcoding. Physical meter inventory reconciliations are made weekly in the meter shop. When a meter is issued its status in the inventory system (AIMS) is changed to "in transit." When delivered to a station, its status is changed to "at station." When issued to a technician, it is changed to "on truck." And lastly when installed, the technician enters the meter reading and number on the AIMS work order so it is tied to a physical address and an account. Inventory reconciliation is made in the field annually. All meter installations are validated by a supervisor by comparing the paper meter documents completed by the technician with the AIMS data. All meter deliveries are made by Procurement.

The Meter group is also responsible for maintaining the Metrotech meter-reading system. This is a real-time measurement system with telemetric monitoring for large and interruptible transportation gas customers. Presently, there are over 600 customers on this system.

The meter shop personnel also perform the scheduled preventive maintenance and inspections. Telemeter equipment gets inspected once a year. All compensation devices for pressure and temperature get checked for non-interruptible customers annually and quarterly for interruptible customers. Usage for interruptible customers is also monitored on a daily basis. All turbine meters are speed-checked every year (code requires checks every two years). Pre-1990 rotary meters get an oil change every two years, while newer meters' oil is changed every five years. Differential pressure checks are made on all rotary meters every 10 years.

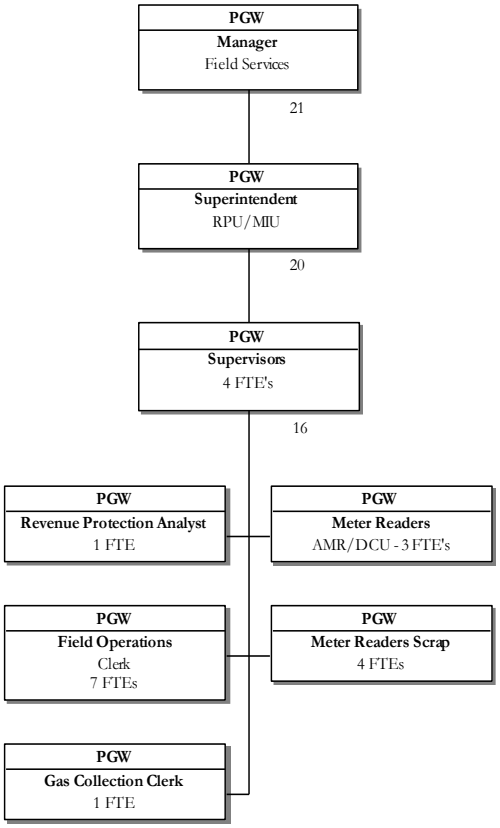
All vehicles are GPS equipped and their locations are monitored by the Superintendent of Meter and Measurement.

RPU

RPU is responsible for meter reading, shut-offs for non-payment, and theft investigations. The group consists of 18 employees, as shown in *Exhibit VII-37*. Meter reading is done using the ITRON automated meter-reading system and the Metrotech system. Metrotech reads approximately 600 very large user accounts. All other meters are read by the ITRON system. The Metrotech system is the responsibility of the meter shop. The ITRON system reads at 99.7% success rate (that means that for every 1000 meters queried 997 are successfully read) and is operated by PGW personnel. Productivity is measured on a daily and weekly basis, with every meter-reading cycle having a productivity target.

There are two types of theft of service: active theft and inactive theft. Active theft is where gas is being stolen at a meter that is associated with an active account. Inactive theft is where usage is being registered at a meter not associated with an active account; in other words it has been shut off and the meter shows usage. Investigations for inactive theft take priority over active theft for safety reasons. Customers had to turn themselves on and may have done so in an unsafe way. Active theft investigations are used to fill in work for FSD technicians when time allows. Active investigations are worked by the RPU after inactive investigations are covered. *Exhibit VII-38* shows theft investigation activity from 2011 through 2014.

Exhibit VII-37
RPU & MIU Organization
as of December 31, 2014



Source: Information Response 387

Exhibit VII-38
Theft Investigation Activity
2011 through 2014

	Total Number of Investigations Attempted	Total Number of Investigations resulting in Theft billing	Percentage of Accounts Resulting in Billings	Amount Billed
Aug-11	393	92	23%	$83,131.79
Sep-11	376	71	19%	$235,177.91
Oct-11	265	51	19%	$175,683.30
Nov-11	174	27	16%	$65,404.35
Dec-11	145	43	30%	$97,738.86
2011 Total:	***1353***	***284***	**21%**	***$657,136.21***
Jan-12	256	73	29%	$330,091.59
Feb-12	417	193	46%	$524,897.80
Mar-12	528	237	45%	$611,293.53
Apr-12	294	105	36%	$307,387.57
May-12	368	121	33%	$311,220.19
Jun-12	407	122	30%	$295,007.68
Jul-12	275	95	35%	$176,610.95
Aug-12	114	76	67%	$204,813.57
Sep-12	47	30	64%	$124,942.04
Oct-12	40	17	43%	$57,198.09
Nov-12	29	16	55%	$31,832.57
Dec-12	94	8	9%	$9,412.66
2012 Total:	**2869**	**1093**	**38%**	***$2,984,708.24***
Jan-13	201	44	22%	$106,726.92
Feb-13	197	57	29%	$171,003.05
Mar-13	244	49	20%	$135,235.85
Apr-13	80	32	40%	$83,692.92
May-13	83	25	30%	$60,846.13
Jun-13	222	61	27%	$135,671.23
Jul-13	220	53	24%	$90,523.70
Aug-13	118	32	27%	$40,339.04
Sep-13	192	68	35%	146.035.14
Oct-13	167	47	28%	$99,299.95
Nov-13	57	17	30%	$39,021.40
Dec-13	102	39	38%	$71,393.02
2013 Total:	***1883***	***524***	**28%**	***$1,033,753.21***
Jan-14	70	37	53%	$105,233.45
Feb-14	94	50	53%	$128,043.82
Mar-14	164	49	30%	$144,149.81
Apr-14	266	85	32%	$248,483.49
May-14	273	94	34%	$293,243.71
Jun-14	140	52	37%	$150,415.68
Jul-14	47	24	51%	$38,235.55
Aug-14	241	86	36%	$182,800.73
Sep-14	54	13	24%	$58,478.33
Oct-14	86	49	57%	$84,806.16
Nov-14	19	15	79%	$46,938.74
Dec-14	63	37	59%	$95,359.66
2014 Total:	***1517***	***591***	**39%**	***$1,576,189.13***

Source: Information Response 627

RPU field technicians are volunteers from the Field Services Department. They are fully trained first responders and appliance repair technicians. If insufficient volunteers are available, staffing is filled following union rules using the junior FSD technician. Once assigned to RPU, technicians do not perform appliance work or leak response. Due to workload or emergencies, however, the dispatchers may assign FSD work to RPU technicians. This is a very advantageous and flexible arrangement. Shut-

off work is performed Monday to Friday on the day shift. If anything does come in outside normal working hours, it is worked by the FSD technicians. Productivity is measured daily using AIMS reports and through supervisor monitoring of employee locations using GPS.

Credit and Collections initiates shut-offs for non-payment. 10-day notification letters are sent to delinquent customers, followed by a three-day notice left at the customer's premises. If necessary, Credit and Collections issues a shut-off order through AIMS to the RPU group. The orders are collated by zip code in AIMS and are dispatched in bulk (35 orders per day normally) by an analyst in the RPU group through AIMS to technicians for completion. The RPU group does not perform turn-on orders. These orders are handled by the Field Service Technicians assigned to field operations. 80% of the shut-offs are done at the curb. There is no call ahead and no money is collected in the field. Customers must pay in full before a turn-on order is issued.

Meters/ERTs are equipped with anti-tampering switches that record "tilt" and "magnetic interference." Tilting and tipping the meter is associated with meter removal and physical tampering with it. The magnetic switch records instances of magnetic interference. If a magnet is placed on top of the ERT, it slows/stops the ERT from recording and causes it to transmit false readings. Only the ERT is affected, though. The meter index still functions and is not affected by the magnet. It continues to record the actual usage so when tampering is detected, the actual usage can be billed for. Tamper switch changes are recorded as they happen and are reported monthly with the meter readings.

PGW has been using Detectant, a firm that analyzes monthly meter reading data for abnormalities in usage for approximately five years. Detectant uses several methods to flag accounts for further PGW analyst review. Among these are usage drops in consumption over time, reduced winter consumption, zero consumption, and using PGW tamper data (including detection of frequent tamper events) to find usage drops immediately following the tamper event. Once flagged, PGW analysts review the accounts for mitigating factors to determine whether an investigation should be performed based on the totality of the information. Abnormalities are scored and a report is sent to PGW on a daily basis to investigate for possible theft. The annual value of Detectant's contract is $72,000 and is more than paying for itself. During the summer months, most abnormalities are investigated with in a day or two in winter, due to workload, they are all not covered because of insufficient resources and a small backlog (a couple hundred orders) may develop. This tendency can be seen in *Exhibit VII-38*. Approximately 80% of theft investigations are due to Detectant's work. As a practice, PGW does not send out letters to its customers letting them know that it has electronic methods to detect theft.

Unaccounted-for Gas

PGW's unaccounted-for gas shown in MCF (1000 cubic feet of gas) has declined considerably over the last five years in both the gross unaccounted for as a percentage of total send-out and after adjustments, as seen in *Exhibit VII-39*. These calculations are reported to the Department of Transportation (DOT) annually.

Exhibit VII-39
Unaccounted-for Gas
2010 to 2014

		2010	2011	2012	2013	2014
Unaccounted - For as a % of Total Sendout	%	**2.91**	**3.31**	**3.19**	**2.02**	**1.39**
Estimated Gas Adjustments						
- Maintenance and Construction	MCF	3,971	4,346	3,853	4,736	607
- Gate station bleeds	MCF	7,743	7,743	7,743	7,743	7,743
- Meter accuracy	MCF	(87,179)	(181,845)	(140,690)	(187,509)	0
- Correction for 6" w.c.	MCF	545,378	659,734	440,827	729,630	739,960
- Third party damage	MCF	0	0	0	0	0
- Utility Usage	MCF	22,546	0	0	0	350,974
- Theft of service	MCF	33,512	41,831	37,193	31,785	0
Total Estimated Gas Adjustments	MCF	**525,971**	**531,810**	**348,926**	**586,385**	**1,132,339**
DOT Reported Unaccounted-For Gas (Net)	MCF	**1,571,846**	**2,033,842**	**1,718,342**	**906,561**	**390,320**
Unaccounted-For Gas as a % of Total Sendout after Adjustment	%	**2.2**	**2.6**	***2.7***	**1.2**	**0.49**

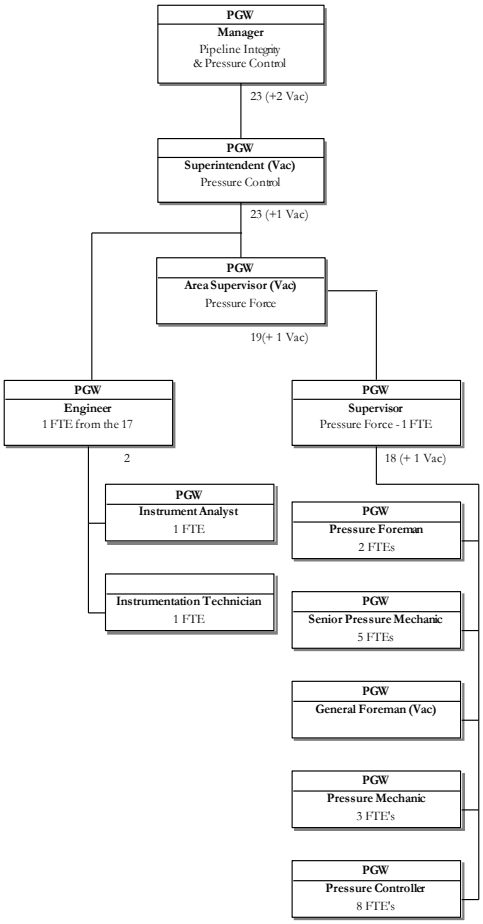
Note: 2014 UAG reflect adjustments made by PaPUC staff in how UFG numbers are calculated hence meter accuracy and theft of service has been reduced.
Source: Information Response 606 – 2014 numbers adjusted to agree with PaPUC UFG Report 5/11/15

It should be noted that at the last management audit in 2008, the estimate for theft of service gas was 84,298 Mcf. This number has been reduced by approximately one half to the 31,785 Mcf number shown for 2013. Some of this decrease can probably be attributed to stricter implementation of the Soft-Off Program. The increasing negative adjustment in meter accuracy was explained that as meters age, they tend to run fast. In 2014, the average meter was running 0.6% fast (within the accepted tolerance), which is the basis for the calculation. Maintenance and construction increased due to a new method introduced by PGW for calculating loss of gas due to leakage and construction activities. Lastly, the large adjustment for utility usage in 2014 has been recently removed from Estimated Gas Adjustments.

Pressure Force

The Pressure Force is responsible for all pressure control equipment outside of the gate stations, including critical valves (3,017), district regulators (201), SCADA for pressure monitoring points (77), seven remote terminal units (RTUs) for remotely operated district stations (seven 150 pounds per square inch gage (PSIG) to 35 PSIG regulator stations located outside of the gate stations), recording gages (280), and large industrial regulator sets (448). This group also conducts exposed piping on bridge inspections (86) and vented casing inspections (11). Lastly, the group works with Maintenance and Construction (M&C) to throttle valves or manage pressure in the system during emergencies or planned work. Work is split 50/50 between unplanned and scheduled work. The group organization is shown in *Exhibit VII-40*.

Exhibit VII-40
Pressure Force
as of December 31, 2014



Source: Information Response 387

All required inspection schedules are detailed in the pressure control manual. AIMS is used as the asset management database for the Pressure Control group. All schedules are managed through AIMS, which generates work orders for scheduled work due. District regulators (201 in the system) are inspected every three months and overhauls are scheduled every 10 years. Critical valves (3,017) in the system are inspected and operated annually. Regulators are equipped with pen-and-ink mechanical charts that are changed weekly. These mechanized documents will be converted to electronic charts in FY 2016-2017 that will transmit readings on a set cycle and send alarms should the actual pressure move above or below set limits. The Instrument Control group is responsible for their maintenance.

Work is executed by fielding approximately nine crews daily. Crews are either two or three employees, depending on the job. There are six union classifications within the group. They are pressure controller, pressure mechanic, instrument technician, senior pressure mechanic, pressure foreman, and general pressure foreman. These personnel are supervised by three supervisors, two for valves and

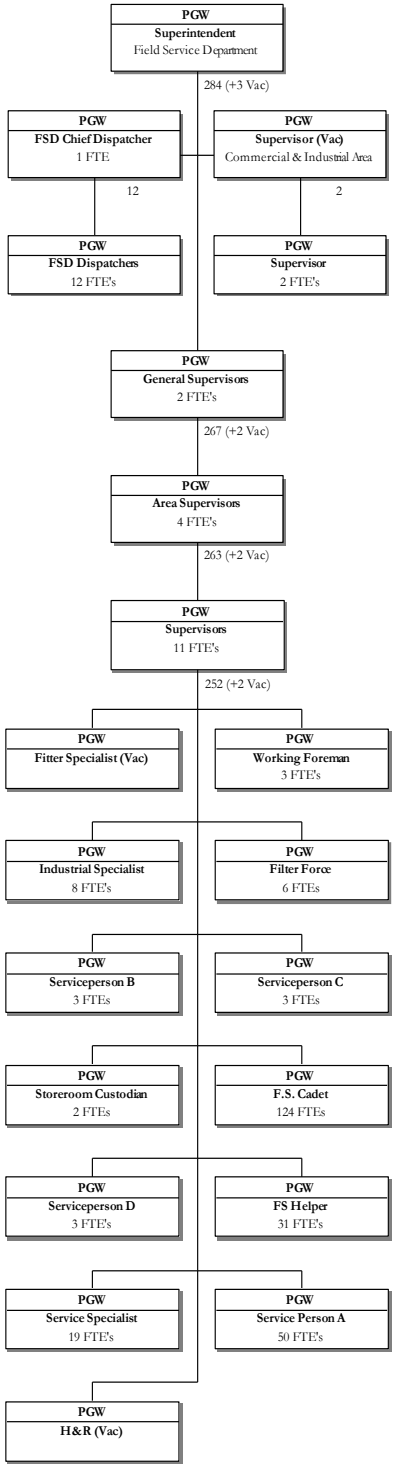
regulator crews and one for instrumentation. There is no formal productivity system. Productivity reports are work in progress and are not available yet. All trucks have GPS, which is used by management to monitor employee work locations for emergency response.

$600,000 is budgeted annually for valve replacement, and $300,000 is budgeted for replacing obsolete regulators. There is no formal program. Replacement is done on an as-needed basis, driven by the inspection and maintenance programs described above as well as capital projects that affect Pressure Force structures and is left up to the discretion of the Pressure Control and Planning groups. Schumaker & Company does not feel that a more formalized program is needed.

Field Services Department

Field Services Department (FSD) personnel are tasked with being first responders to leaks and emergencies, turning on and turning off gas service, setting and removing meters, and servicing certain gas appliances through PGW's Parts and Labor Program. The FSD organization is shown in *Exhibit VII-41*. Work is performed on a 24x7 basis, 365 days per year. Technicians work out of five stations: Montgomery, Tioga, Castor, Porter, and Belfield.

Exhibit VII-41
Field Services Department Organization
as of December 31, 2014



Source: Information Responses 374 and 387

Work falls into two categories: scheduled work and emergent work. Scheduled work is of a non-emergency nature and is prescheduled with customers on a day where manpower is available. Appointments are made with the customer within three appointment windows, 8:00 a.m. to noon, noon to 4:00 p.m., and 4:00 p.m. to 8:00 p.m. Same-day work consists of emergency work and leak work as well as any work that needs to be addressed on the day the customer calls in. *Exhibit VII-42* gives a breakdown of the volumes of work orders completed by type of work.

Exhibit VII-42
FSD Completed Work Orders by Type
FY2010 to FY2014

Job Type	Fiscal Years (September 1 - August 31)				
	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Bill Paid Turn Ons	20,996	16,647	15,262	15,037	15,820
Gas Leak Trouble Orders	32,491	36,166	34,340	34,921	43,509
Residential Turn-Ons	31,762	30,040	26,877	24,470	28,474
New Sets (Installs)	2,300	2,481	2,085	1,957	2,148
Residential Shut Offs	16,069	14,771	10,886	11,102	10,217
Rebuilds	6,195	6,390	6,769	7,603	8,583
PLP Appliance Orders	25,375	27,154	24,382	24,376	25,191
Meter and AMR Exchanges	33,418	28,433	29,014	25,768	35,754
Other Orders*	72,862	96,603	121,772	134,375	133,056
Grand Total	241,468	258,685	271,387	279,609	302,752

*Includes field collection and revenue recovery work and all other miscellaneous orders

Source: Information Response 600

Leak call response rates in adherence to PUC Gas Safety guidelines are to be completed within 60 minutes. PGW's leak response rate is shown in *Exhibit VII-43*.

Exhibit VII-43
Leak Response Rate to Leak Calls
FY2010 to FY2014

Fiscal Year	Total Leaks	Leaks over 60 Minutes	% Leaks over 60 Minutes
2010	32,596	1,048	3%
2011	35,866	980	3%
2012	34,340	455	1%
2013	34,921	747	2%
2014	**43,509**	**2,220**	**5%**

Source: Information Response 607

The leak response rate, while not meeting the goal of less than 60 minutes, has a general trend toward meeting the goal with the exception of 2014, which was an exceptionally difficult winter. It was one of the coldest winters on record in the history of Philadelphia. It was also the snowiest winter on record in Philadelphia. In addition, there was a dramatic increase in foreign odor calls. Foreign odor calls were approximately 40% higher in 2014 than each of the previous four years as shown in *Exhibit VII-44*. Foreign odors in the atmosphere can effect large geographic areas and typically generate a large amount of leak calls in a short period of time making it very difficult to reach all calls within 60 minutes

Exhibit VII-44
Foreign Odor Calls
FY2010 to FY2014

Fiscal Year	Foreign Odor Calls
2010	4,183
2011	4,454
2012	4,074
2013	4,654
2014	6,629

Source: Information Response 607

Benchmark data of 22 gas utilities (three not including PGW) in 2013 reflects a median gas leak response rate of 98.6%. PGW's performance during the same time period was 97.75%. While 100% attainment is desirable, PGW's performance is comparable to its peers.

Leak calls averaged about 36,000 per year over the last five years, which is 20% of the total volume of work handled by the FSD. Turn-on orders must be covered within three days with the exception of turn-on orders for non-payment (services that were shut off for non-payment and the customer then pays the bill). These are required to be turned on within 24 hours. Heating calls during the non-heating season (March 1st through Nov. 30th) are covered within three days; during the heating season they are covered within one day. The response time for heat calls is required by the Parts and Labor Program (PLP) plan.

There are five classifications of technicians: working foreman, specialist, technician A through D, cadet, and helper. Working foreman, and specialist can perform all work. A-technicians can do everything but air-conditioning, cadets are in training and perform work as they are trained and qualified, and helpers "ride along" for security after hours.

There are areas in the City where two men work together for safety reasons after hours. Helpers are assigned as the second man. Helpers work the night shift Monday–Friday starting at 17:00 hours, and weekends and holidays starting at 16:00 hours. Any technician may call for assistance at any time where a second person is needed for safety.

Work is planned each day using the AIMS system. Daily work is estimated by the system using historical work order data that is contained in the system's database. Using this data work is estimated for each day by shift for both scheduled and emergent work. Technicians' availability is provided from resource planning through the resource management model staffing report. This automated report automatically populates the workload planning model with technicians' availability each day by shift. Using historical workload, a number of technicians are set aside for emergent work. This work consists of emergency work, leak response, and no-heat calls (in winter). The remainder of technicians are made available for appointments. Working a month ahead, the planning module in the AIMS system provides call takers with four-hour windows (8:00–12:00, 12:00–4:00, and 4:00–8:00). Customer appointments are made during these windows based on the estimate of technicians available for scheduled work for each shift on any given day of the month. The day before the work is to be assigned, the system "racks" the work in each technician's AIMS queue as assigned by shift, location, and skill levels according to zip code. Technicians are assigned specific territory tied into zip codes so the allocations can be made. Around 11:00 p.m., the next day's work is placed in the dispatch queue. A working dispatcher then reviews the work assignments, makes adjustments if there were changes in available manpower, or may move work between stations or technicians depending on external factors such as the actual work being different from the model and requiring some adjustment in assignments. Dispatchers work staggered and overlapping shifts, with a maximum of four and a minimum of one working at any given time. They dispatch work only to FSD personnel. They are assigned to dispatch work by geographic area. The work is then assigned to technicians. Last-minute changes can be made by the dispatchers should someone call in sick, etc. All work is completed in AIMS by the technicians and the AIMS database is updated. Same-day technicians are given one or two orders to start the day. They are then assigned work as it comes in if scheduled work does not materialize as planned. Technicians are moved to same-day work. If same-day work does not materialize, fill-in work such as zero-use meter investigations and soft-off shutoff notices are used as fill in. The system works well and requires little human intervention, which allows field supervisors to spend time supervising and not having to be involved in work planning and scheduling.

Technicians must sign on to AIMS within 10 minutes of the start of their shift to receive their work. Dispatchers monitor assignments and make changes when necessary. Technicians are required to call ahead of arriving at a job. If they receive no answer, they go on to the next job. They stop at the customer's location within the appointment window, however, to leave a card, even if the customer does not respond to the phone call. All work is managed through AIMS. AIMS is a user-friendly, intuitive system that manages work orders, associates time, and provides access to repair manuals. It allows the technicians to view work order history at the address, PLP information, the meter number, customer address, contact information, and the appointment window. When a job is completed, the technician enters work performed by code, validates meter number, verifies hazard tag information, enters leak data if appropriate, and leaves any pertinent comments. Technicians work alone with the exception of working in the two-man areas and when doing large (over two inch) meter sets or setting five or more meters at the same location. In such instances, two men are assigned.

Performance goals for the FSD are leak response within 60 minutes, appointments kept 92% of the time, a Cannot Get In (CGI) rate under 5 %, and an order completion rate of seven orders per day. These goals are not kept by individual technician but rather as an aggregate for the group. Actual performance for FY2014 is 95% of leaks responded to in 60 minutes, appointments kept 95.6% of the time, a CGI rate of 7%, and an order completion rate of 5.9 orders per day. There are performance standards for technicians that were negotiated with the union. Supervision is provided by General Supervisors, Area Supervisors, and Field Supervisors, who report to the Manager of Field Operations. Field Supervisors work out of their assigned station and supervise a group of technicians; Area Supervisors are assigned one to a station and have the responsibility for managing the station; and General Supervisors (2) cover the entire service territory, assist the Area Supervisors, and handle union issues. All trucks have GPS, but only the dispatchers and General Supervisors have access to it. Recurring/repeat orders are tracked and reported through AIMS. These orders are handled on a case-by-case basis.

Parts and Labor Program (PLP)

PLP covers heating systems (HH), automatic water heaters (AWH) and air-conditioners associated with forced warm air heating. PGW completes approximately 25,000 parts and labor orders per year, which is approximately 10% of its work. Ranges and ovens are not covered. The PLP has a guaranteed 24-hour response rate during the time period of December 1st through April 15th. If PGW fails to respond within 24 hours, the customer can call a private contractor to make the repair, with PGW obligated to pay the bill which rarely happens. PGW's compliance rate for the time period September 2013 to August 2014 was 99.5%. Financially, the Parts and Labor Program pays for itself and actually generates revenue for PGW, as shown in the recent studies in *Exhibit VII-45*.

Exhibit VII-45
Analysis of Parts and Labor with Fringe Benefit Calculation

FY2012 and FY2013

ANALYSIS OF PARTS & LABOR
WITH FRINGE BENEFIT CALCULATION

FY 2013	HH (80.55%)	RANGE (0%)	AWH (8.14%)	DRYER (2.44%)	ELECTRIC A/C (8.88%)	TOTALS
FSD Expenses	$ 3,297,670		$ 294,957	$ 88,363	$ 326,457	$ 4,007,447
Customer Activities Expenses	$ 122,639	$ -	$ 12,393	$ 3,709	$ 13,514	$ 152,255
Marketing Labor Expenses	$ 91,029		$ 9,198	$ 2,753	$ 10,030	$ 113,010
Total Expenses	$ 3,511,338		$ 316,548	$ 94,825	$ 350,001	$ 4,272,712
Total Revenues	$ 4,548,201	$ -	$ 752,713	$ 264,953	$ 559,304	$ 6,125,171
NET PROFIT/ (LOSS)	$1,036,863	$0	$436,165	$170,128	$209,303	$1,852,459
NET PROFIT/ (LOSS) AS A PERCENTAGE	22.8%		57.9%	64.2%	37.4%	30.2%

FY 2012	HH (80.41%)	RANGE (0%)	AWH (8.05%)	DRYER (2.67%)	ELECTRIC A/C (8.87%)	TOTALS
FSD Expenses	$ 3,283,584	$ -	$ 295,330	$ 95,643	$ 325,808	$ 4,000,365
Customer Activities Expenses	$ 129,364	$ -	$ 12,944	$ 4,294	$ 14,277	$ 160,879
Marketing Labor Expenses	$ 91,452	$ -	$ 9,151	$ 3,035	$ 10,092	$ 113,730
Total Expenses	$ 3,504,400	$ -	$ 317,425	$ 102,972	$ 350,177	$ 4,274,974
Total Revenues	$ 4,760,438	$ -	$ 801,356	$ 213,200	$ 578,067	$ 6,353,061
NET PROFIT/ (LOSS)	$1,256,038	$0	$483,931	$110,228	$227,890	$2,078,087
NET PROFIT/ (LOSS) AS A PERCENTAGE	26.4%		60.4%	51.7%	39.4%	32.7%

Source: Information Response 626

Soft-Off Program

PGW's Soft-Off Program is defined as an account transfer process such that when a customer leaves a premise and requests a shutoff, PGW chooses to leave the gas on, transfer the account to PGW's care (referred to as user without contract), and monitor the usage via AMRs. If usage exceeds the PGW-determined thresholds and has exceeded a reasonable time period in soft-off status, PGW will contact the property occupant to inform him or her how to apply for gas service. If an application for service is not made, PGW will begin procedures to physically disconnect service. This program has resulted in a significant benefit to PGW, as shown in *Exhibit VII-46*. The program was designed to avoid multiple trips to a premise by a technician to shut off gas and then have to return the next day or so to turn it back on again. In addition, customers were not always available when the technician arrived resulting in multiple trips for either shutting off the gas or turning it on. The savings result from PGW avoiding to make field visits to physically shut off and turn on gas service.

Exhibit VII-46
Soft-Off Benefit Calculation
FY2014

Benefit Calculation	FY2014
Cost of Having Program	$1,946,574
Cost of Not Having Program	$3,450,203
Cumulative Benefit	$1,503,629
% less cost of not having program (Goal = 25%)	43.6%
Change in Cumulative Benefit from Prior Month	$204,278

Source: Information Response 613

Business Continuity Planning

The Manager of Corporate Preparedness resides in the Technical Compliance organization, which reports to the Chief Administrative Officer (CAO) & General Counsel. Also in this two-person group is a contractor position. Previously this position was filled by an individual who worked with Philadelphia Gas Works (PGW) for roughly a year, but that person recently left the assignment. Plans exist to fill the contractor position by the end of June 2015. PGW also has a consultant (BDA Global), which is a professional resource that augments PGW's ability to plan, design, execute, and analyze its business continuity program.

PGW has a business continuity plan (BCP), including emergency response activities (as discussed in this section), a disaster recovery plan (as discussed in *Chapter III – Support Services – Technology*), a cyber security plan (as discussed in *Chapter III – Support Services – Technology*), a physical security plan (as reviewed as part of the *Field Operations* section of this chapter). Also refer to *Finding 0-6* in the *Field Operations* section of this chapter for a discussion of the lack of live drills to simulate emergencies.

Unlike disaster recovery in the Information Services (IS) organization, the focus of the Corporate Preparedness group is the business side of the PGW organization in managing its business continuity plan, including emergency response activities. This plan is an ongoing program to ensure prudent reduction of risks and, following a major disruption, to resume key business operations before unacceptable impacts and losses are incurred. The fundamental goals of PGW's BCP are to:

- Protect human life
- Minimize disruption of service to customers
- Minimize financial loss
- Ensure a timely resumption of operations
- Protect the organization from legal ramifications
- Preserve public confidence

The Corporate Preparedness group helps departments build a BCP by giving them a framework for developing a recovery plan that is developed, tested, and held in readiness for use in the event of a major

disruption of business operations. The departments are then responsible for including content, as follows:

- PGW organization
- Emergency response notification and escalation procedures
- Team call lists
- Alternate facilities and resources
- Recovery time objectives (RTOs) and priorities
- Detailed recovery procedures (or tasks), as:
  - "Script" for recovery
  - Steps for resuming specific function or supporting recovery
  - Sequence of events
  - Assignment to any or all team positions
  - Up to 255 lines of text—but keep it simple!
  - Unique identification of each task
- Recovery resources

The implementation of PGW's BCP currently has three major scenarios:

- Loss of gas supply and how individual departments react
- Corporate campus interruption, initially with critical functions then eventually all functions
- Pandemic/loss of employees and maintaining safety

One of the things that Corporate Preparedness has done is simplify the structural framework to make it more consistent among departments, even though the content varies by department.

PGW uses an off-the-shelf package, the Living Disaster Recovery Planning System (LDRPS), which it also used during the 2007 Stratified Management & Operations Audit. PGW currently uses LDRPS Version 10 (for the last three to four years), while some companies still use only Version 9. The newer version is similar in functionality but has a slightly different database structure. The user interface for LDRPS is similar to Microsoft Office (with tabs), but a future update will make the interface more like Facebook. Every week Corporate Preparedness updates the employee directory in LDRPS, so telephone and email information is up to date in the event of a disaster. Also, the Manager of Corporate Preparedness always visits SunGard's disaster recovery offsite facility (PGW contracts with SunGard to provide a disaster recovery facility, as further discussed in *Chapter III – Support Services – Information Technology*) to verify that LDRPS is running properly during disaster recovery tests.

PGW uses an incident command system (ICS), a systematic tool used for the command, control, and coordination of PGW's emergency response. ICS is a subcomponent of the National Incident Management System (NIMS), a comprehensive, national approach to incident management that is applicable at all jurisdictional levels and across all functional disciplines for PGW's BCP activities. The Manager of Corporate Preparedness maintains a listing of required training sessions according to job title by department. Of use has been online classes, including ICS 100 (introduction to an incident

command system describing the history, features/principles, and organizational structure of ICS, plus explaining the relationship between ICS and NIMS), ICS 300 (resources for personnel who require advanced knowledge and application of ICS), and ICS 700 (overview of NIMS, including a consistent nation-wide template to enable all government, private-sector, and nongovernmental organizations to work together during domestic incidents) for managers and supervisors. The Manager of Corporate Preparedness has taken a series of many ICS online courses to help in improving PGW's BCP. On the same day as a tabletop exercise/live drill, a "hot wash" meeting is conducted with participants to review lessons learned. After action reports (AARs), which notes deficiencies and corrective actions to be taken, are to be developed after each exercise and disseminated to executive management.

PGW has an emergency operations center (EOC) which is used during tabletop exercises/live drills/events where PGW management can meet to manage activities. There are laptops, telephones, hot spots, etc. in a moveable cart. In the event that no computers are available for 48 hours (disaster recovery timeframe), PGW has employees use yellow cardboard stock or other non-technology options for doing business.

During the next disaster recovery test, key PGW employees will take tours of the offsite facility (in groups of 15 employees at a time) so they are aware of their reporting locations when BCP live drills begin in their respective departments.

PGW also serves as a participant when the City of Philadelphia activates its emergency operations center for events, such as a major snowstorm.

Findings & Conclusions

Finding VII-8 **Asset (mains, services, valves, meters, etc.) records reside in multiple databases, which requires reconciliation, and maintenance of multiple systems, causing potential inaccuracies in data.**

PGW asset records are stored in the following databases with primary/secondary shown:

- Services: Underground Facilities Database (UFD)/AIMS (same backend)
- Pressure Force Structures (valves, regulators, bridges, etc.): UFD/AIMS
- Corrosion Structures (rectifiers, etc.): standalone Access database
- Drawings: standalone Access database/AIMS
- Mains: ESRI GIS and AutoCad
- Work Orders: AIMS
- Schedules: AIMS / standalone Access database (for Corrosion only)
- Repair Records: AIMS / standalone Access database (for Corrosion only)

In addition to these databases, there is the time and labor system and the Oracle financial system, which is comprised of the general ledger, fixed assets, projects, accounts payable, and inventory. Producing performance reports or any ad hoc report involving multiple databases in different departments presents

an issue with regard to data integrity and consistency. In conclusion, with the exceptions of the time and labor system and Oracle financial system, it appears that PGW would benefit from eliminating the standalone databases and the UFD database and migrating all of its data to the ESRI GIS database currently employed for the system modeling and Main Replacement Program. In addition, all work orders generated in AIMS should be linked to ESRI GIS as well.

Finding VII-9 PGW has not addressed the PaPUC noted unsatisfactory aspects of its DIMP in a timely manner.

A DIMP inspection/audit conducted by the PaPUC's Gas Safety Division in December of 2012, several unsatisfactory aspects of the plan were noted. Subsequent to the audit, PGW's DIMP review committee did not hold its first annual meeting until May 28, 2014 or 17 months later to address elements rated unsatisfactory. Members of the review team are the Director of Resource Management; the Director, Field Operations and Planning; the Manager of Distribution; a Senior Staff Engineer; an Operational Performance Analyst; and Engineers II & III. All of the unsatisfactory elements were assigned to specific individuals for completion. However, specific completion or implementation timelines to address were not established. It was also determined at this meeting that reviews would be conducted annually not to exceed 15 months, plan updates would be made on an annual basis not to exceed 15 months, and that a full plan review would be conducted every three years. No follow-up meeting has been scheduled. The team established self-imposed deadlines to review trending and to update the plan. In conclusion, this is work in progress at PGW and needs to be finished. The sections that need to be corrected are as follows:

- *Question 7*: Does the plan contain written procedures to identify additional information that is needed to fill gaps due to missing, inaccurate, or incomplete records?
- *Question 8*: Does the plan list the additional information needed to fill gaps due to missing, inaccurate, or incomplete records?
- *Question 19*: Do the written procedures consider, in addition to the operator's own information, data from external sources (e.g., trade associations, government agencies, or other system operators, etc.) to assist in identifying potential threats?
- *Question 40*: When measures are required to reduce risk, do the written procedures provide how their effectiveness will be measured?
- *Question 42*: Does the documentation provided by the operator demonstrate implementation of the element "Measure Performance, Monitor Results, and Evaluate Effectiveness"?
- *Question 43a*: Do the written procedures for periodic review include a frequency of review based on the complexity of the system and changes in factors affecting the risk of failure, not to exceed five years?

Finding VII-10 **The number of leaks on cast iron mains are increasing while leaks on services are decreasing.**

Exhibit VII-47 shows the trend in new main leaks for the last five years by type of pipe.

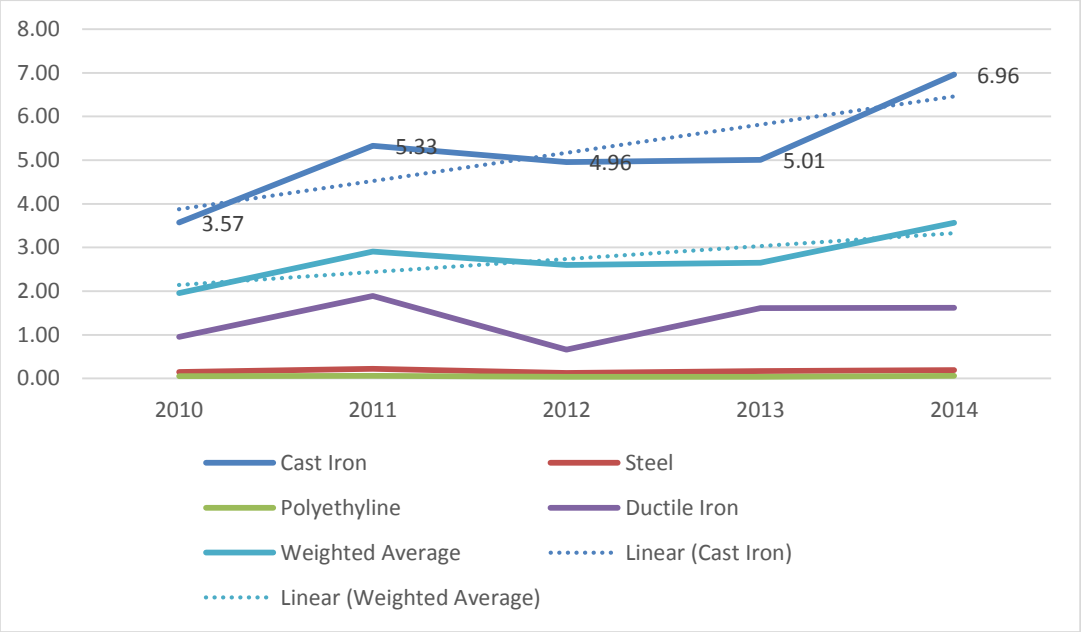
Exhibit VII-47
Main and Service Leaks Outstanding
2009 to 2014

	2009	2010	2011	2012	2013	2014
Main Leaks	2,655	2,119	2,652	2,294	2,703	3,460
Service Leaks	4,133	3,433	3,893	3,170	3,713	3,682
Total Leaks	6,788	5,552	6,545	5,464	6,416	7,142

Source: Information Response 552

In addition, the trend in leaks per mile is also increasing, as shown in *Exhibit VII-48*.

Exhibit VII-48
Main Leaks per Mile
2010 to 2014



Source: Information Response 552

Despite replacing nearly 80 miles of cast iron main during the time period of 2010 to 2013, it can be seen that both the number of cast iron main leaks and the leaks per mile for cast iron have increased. Leaks per mile on steel mains are relatively flat. Ductile iron main leaks per mile fluctuate from year to

year, but this tendency can be attributed to the relatively small inventory of this type of pipe. Leaks per mile for polyethylene pipe were not shown since the figure is too small to show on the graph. It ranges from 0.038 to 0.057 leaks per mile and the trend line is improving. The overall upward trend is driven by leaks on cast iron pipe. The trend of increasing number of leaks can be attributed to several factors. First, the cast iron system is degrading faster than it is being replaced. Second, the segments being replaced are not the ones showing the highest leaks per mile, or a combination of both (i.e., a DIMP deficiency). Additionally, PGW's MRP predicts that total number of leaks on 8 inch and less cast iron) will continue to increase from approximately 1600 to 1900 by 2023 depending on the model run.

Exhibit VII-49 shows statistics on leaks per mile for cast iron pipe for eight companies, including PGW, collectively managing over 9,300 miles of cast iron pipe. The weighted average leaks per mile without the PGW statistics is 1.07 leaks/mile. This is considerably better than PGW's performance.

Exhibit VII-49
Benchmark Data Leaks per Mile Cast Iron Pipe
2013

Company	A	B	C	D	F	PGW	G	H
Leaks/Mile C.I.	0.7600	0.94	1.03	1.22	1.49	1.5	1.69	2.074

Source: Schumaker & Company access to confidential benchmarking data

The number of cast iron breaks per mile is holding steady. (A break is when a circumferential crack in the main occurs. It is a more serious leak than a joint leak), as can be seen in *Exhibit VII-50*. Also shown are the number of actual breaks and the number of breaks predicted in the Stoner Software study in 2008. It can be seen that the results that were predicted by Stoner were more positive than the results actually achieved.

Exhibit VII-50
Cast Iron Main Breaks
2010 to 2013

	2010	2011	2012	2013
Cast Iron Breaks per Mile Actual	0.1950	0.2050	0.1070	0.1970
Cast Iron Breaks per Mile Predicted	0.1650	0.1610	0.1590	0.1570
Actual Cast Iron Breaks	305	337	164	297
Predicted Cast Iron Breaks	258	249	243	237

Source: Information Responses 552 and 376

The predicted results were predicated using the Stoner model and replacing 18 miles of cast iron pipe per year from 2009 through 2018. The 18 miles of pipe consist of 14 miles of prudent replacement and four miles of enforced replacement. Enforced replacement is the replacement and/or relocation of the gas main due to other projects such as road reconstruction. The actual amount of enforced replacement is shown in *Exhibit VII-51*.

Exhibit VII-51
Enforced Replacement Footage
CY2010 to CY2014

	Enforced Replacement Footage		
	Total Enforced Relocation	Top 10% MRP	Bottom 90% MRP
2010	15,320'	0'	0'
2011	16,484'	0'	1320'
2012	27,169'	0'	0'
2013	32,501'	335'	458'
2014	40,923'	0'	322'

Source: Information Response 698

It can be seen that the enforced replacement averaged five miles per year over the past five years and has been increasing each year. In 2014, enforced replacement footage was nearly eight miles, double the enforced footage the MRP model results were based on. In addition, virtually all of the enforced replacement footage was not ranked in the top 10% of the high-risk segments.

PGW has a higher leak per mile rate for cast iron pipe than its peers. Its aging cast iron infrastructure is presently the primary source of main leaks. Consequently, Schumaker & Company believes that PGW needs to accelerate its cast iron main replacement efforts in order to aggressively reduce its number of total and hazardous leaks. This is strongly supported by the Pennsylvania Public Utility Staff Report entitled, "Inquiry into Philadelphia Gas Works' Pipeline Replacement Program" dated April 21, 2015. In addition, while there were benchmarking studies conducted by both Advantica in 2008 and GL Nobile Denton in 2012, neither based their recommendations on establishing goals for system improvement in leaks per mile based on these benchmark studies. In short, a goal for system improvement needs to be established in terms of reducing the number of leaks per mile. If the leaks per mile is not being reduced, a greater amount of main needs to be replaced each year, which translates into capital dollars, until the leaks per mile shows significant improvement.

Service leaks have trended down over the last five years. Bare steel services account for about 80% of the service leaks PGW has replaced approximately 12,500 bare steel services from 2010 through 2014. PGW's policy of replacing bare steel services whenever they are encountered in main replacement (as cast iron main replacement increases the amount of services replaced also increase), leak repair or in any excavation is having a positive impact on both reducing service leaks and eliminating bare steel services. This will accelerate if the number of open leaks are reduced and the cast iron main replacement program is ramped up. PGW feels that the present policy is adequately addressing bare steel service replacement.

Finding VII-11 The amount of open leaks is high, leading to extensive field rechecking and auditing for duplication.

PGW carries between 2,800 and 3,200 open or backlogged leaks at any one timeand does not appear to have the resources to reduce that number. *Exhibit VII-52* shows a typical daily accounting for open leaks on a recheck schedule. The work immediate leaks are not on this list since they are work in progress, the frequency of the recheck is an indication of the relative severity of the leak. Taking frequency of inspection into consideration, this annualizes out to over 9,500 rechecks per year or over 40 per day in a five-day week.

Exhibit VII-52
Leaks on Recheck Schedule
November 3, 2014

Inspection Period	Number of Open Leaks	Percentage
3 days	14	0.5%
15 days	18	0.6%
30 days	201	6.7%
180 days	2,230	73.8%
365 days	507	16.8%
"To be closed"	7	0.2%
"To be audited"	43	1.4%
Total	**3,020**	**100%**

Source: Information Response 358

In addition, PGW is engaged in extensive leak surveys, many of which exceed code, as shown in *Exhibit VII-53;* however, PGW does not believe that the extensive survey work is why the leak count is high. Instead, customer-reported leaks are the dominant source for identifying leaks. Based on a rolling average of 12 months ending in October of 2014 there were 6,450 customer-reported leaks, of which 66% were classified as work immediate versus 1,029 leaks detected from surveys, of which only 15% were classified as work immediate.

Exhibit VII-53
PGW Survey Program
2014

Survey Program	Method	Schedule	Code Requirements	Does PGW's requirement exceed Federal Code requirements?
Footway	Walking	Every 3 years Not to Exceed 3.5 Years	§192.723: Every 5 years, not to exceed 63 months. (for cathodically unprotected lines: every 3 calendar years not to exceed 39 months)	Yes: PGW conducts more frequently. All footway distribution structures (protected & unprotected), are surveyed at least once every 3 years.
Roadway	Mobile	Annually - Not to Exceed 15 Months	§192.723: Every 5 years, not to exceed 63 months. (for cathodically unprotected lines: every 3 calendar years not to exceed 39 months)	Yes: More frequent. PGW conducts leak survey, all roadway distribution mains (protected & unprotected), once every year.
Center City / Business District	Mobile /Walking	every 6 month	§192.723: Every calendar year, not to exceed	Yes
Buried Bridge	Walking	Annually	N/A	Yes
Plants and Gate Station	Walking	Annually	N/A	Yes
Transmission Line (TP1)	Mobile/Walking	every 3 months	§192.706: Every year; not to exceed 15 month	Yes
Franklin Mills (Rooftop main)	Walking	every 3 months	N/A	Yes
Master Meter	Walking	every 3 years	N/A	Yes
Parades, Bike Race, Broad Street Run	Mobile	2-4 weeks prior (Bike Race, Broad Street Run)	N/A	Yes
30" HP CI main (Richmond plant to Passyunk plant) - Main in Poor Condition	Mobile	every 3 months (added in Nov. 2012)	N/A	Yes
Blasting & Implosion	Mobile/Walking	when notified by PFD	N/A	Yes
All High Pressure (10-35 psig) Cast Iron Mains	Mobile	Bi-Annually (added in September 2013)	N/A	Yes
12" High Pressure (10-35 psig) Cast Iron Mains	Mobile	every 2 months (updated from twice/year to 6 times/year in October 2013)	N/A	Yes
Philadelphia Housing Authority (PHA) underground fuel lines	Walking	Every 3 years	N/A	Yes
Yorktown Housing Project underground fuel lines	Walking	Every 3 years	N/A	Yes
Winter Survey		**(December 1 - March 31)**		
General Winter Patrol Survey (high concentration of CI)	Mobile	December 1 - March 31	N/A	Yes
Prudent Winter Patrol Survey (top 600 blocks)	Mobile	Based on Frost	N/A	Yes

Note:
PGW leak survey programs are designed to accommodate the nature of operations and the local conditions within the City of Philadelphia. Many of these leak surveys exceed code requirements due to the following factors:
1)- Almost all of PGW territory consists of congested urban environment with wall to wall concrete; which increases the risk of having hazardous gas leaks
2)- The large amount of Cast Iron mains within PGW distribution system (50% of mains are Cast Iron)
3)- The high number of unprotected steel services that PGW still has (25% of all PGW gas services are unprotected steel)
4)- The sizable amount of unprotected coated steel mains within PGW gas distribution system (16% of PGW mains are unprotected steel)
5)- The relatively high number of leaks per mile within PGW gas distribution system
6)- The relatively high number of broken mains that PGW usually experience on Cast Iron pipe; especially during the Winter season
7)- Some of the special survey programs were initiated in order to help mitigate the risk of certain mains identified by PGW for having higher risk factor than the rest of the system (for example: 12'' HP cast iron mains)

Source: Information Response 601

PGW has more open leaks per mile than most similar gas utilities, as shown in *Exhibit VII-54*.

Exhibit VII-54
Open Leaks/Mile of Pipe
2012

Company	A	B	C	D	E	PGW	F
2012 Year End Leaks/Mile of Pipe	**0.0330**	**0.0560**	**0.1480**	**0.2500**	**0.4140**	**0.523**	**0.693**

Source: Schumaker & Company access to confidential benchmarking data

If PGW were to attain the benchmark average of 0.265, it would be carrying about 1,500 open leaks. In contrast, PGW has about 3,000 open leaks. In conclusion, PGW's open leak count is too high.

Finding VII-12 There are no training drills conducted in the field to simulate emergencies such as loss of a gate station.

The emergency procedures manual is a compilation of sections from the following manuals: Dispatchers Manual, Foreman's Handbook, Field Service Operations Manual, Pressure Force Handbook, Supervisors Handbook, and Operators Plan. There are sections that cover incident reporting and investigation, training, hostage/barricade incidents, large-scale system outages, generic natural disasters, load shedding (Philadelphia is divided into 12 distinct areas for segregation and load shedding), and communications plans for coordinating with Transco, TECO Energy, the Office of Emergency Management, the Philadelphia Emergency Operations Center, and the Managing Directors Office of Emergency Management. Lastly, there are generic descriptions of shut-down procedures for each gate station from outside the fence. The specific plans were not included in the manual.

The manual complies with the Minimum Federal Safety Standards' Section 192.615. It is updated annually. It was observed that the oldest documents were vintage 2008 and the newest 2014, indicating the book was updated regularly.

Emergency coverage is provided on a 24x7x365 basis with a communication plan to escalate reporting up to the Chief Executive Officer (CEO), depending on the severity of the incident. All Field Operations Supervisors are trained in the Incident Command system (ICS) and the National Incident Management System (NIMS).

PGW does not have a mobile incident command center; it is considering to obtain one, although as of December 31, 2014, there is no definite date.

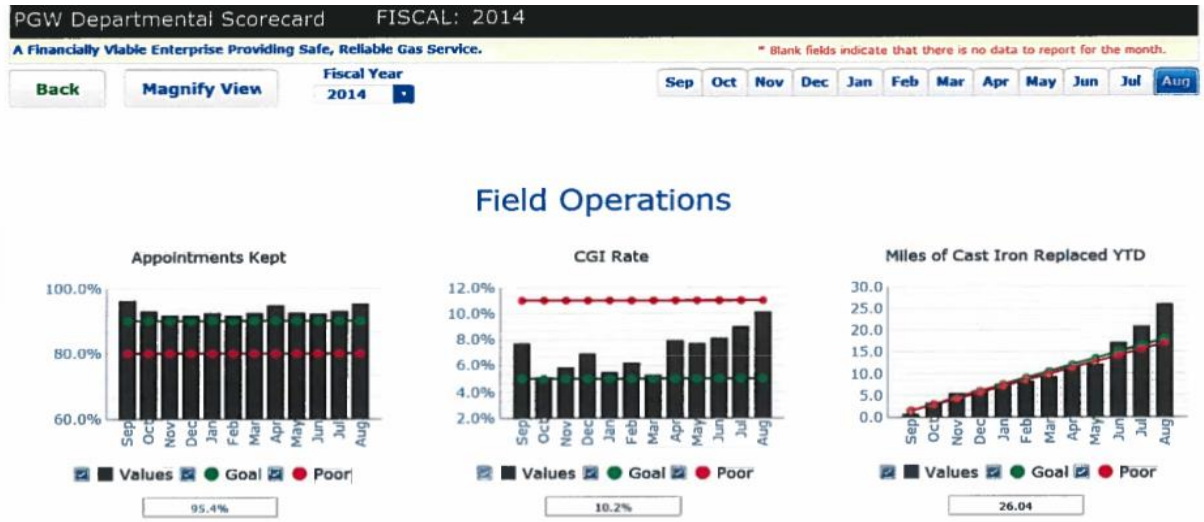
PGW does not run training drills on any of the scenarios in the emergency procedures manual.

In conclusion, running tabletop drills and/or conducting simulated field drills depicting actual incidents or emergencies would improve PGW's incident preparedness.

Finding VII-13 Current goals do not include efficiency measures such as man-hours per unit, cost per unit, travel time, etc. and there is no formalized productivity/efficiency measurement system for Distribution or Field Services; productivity measurement is left up to the discretion of the supervisor.

The Field Operations and Planning scorecard is shown in *Exhibit VII-55*.

Exhibit VII-55
Field Operations and Planning Scorecard
FY2014



Source: Information Response 171

The goals shown, while important, do not lend themselves to help drive efficiency or productivity. There was no evidence that there were other goals like completed orders per day, cost per unit of work completed, man-hours per order, etc. PGW does generate reports that include some of the raw data needed for these types of goals. PGW collects and analyzes a great deal of data about the performance of its workers; it does not translate the data into goals to drive improved performance. They need to set performance improvement goals throughout the organization using the data they have to track actual performance versus goals set. Without a set of goals that measures productivity and efficiency, it is not surprising that there are no formal productivity and efficiency measurement processes and reports linked to every level in PGW. There were some productivity standards developed for individuals during the 2007 contract negotiations, but little evidence exists that they were being used to manage productivity. When asking this question during interviews, there were two basic answers given by PGW employees. The first was that productivity of individuals was left up to that individual's supervisor. The second was that PGW recognizes the need for productivity reports, which are reportedly being developed and should be ready in the near future. It is not being concluded that productivity and efficiency are low. In fact, they may be quite good. The issue is that it is not known if they are good or bad because they are not being tracked or measured in any formal way.

Finding VII-14 The design criteria for the system model is not up-to-date.

PGW network design parameters are based on a negative five-degree one-hour specification. This specification is determined by the Winter Load Committee and has not been evaluated for some time. The mission of the committee is to establish the ground rules necessary to determine the supply and deliverability required to meet maximum demand created by worst-case temperature conditions and

failure scenarios. Its aim is also to ensure the distribution system can meet maximum demand. The Winter Load Committee needs to review the current ground rules for the design day planning document and update using the latest design day temperature and load profile forecast. The purpose of this procedure will be to determine the present or proposed method of operation and the maximum capabilities of existing plant facilities The use of a negative five-degree/hour for setting the design of the system needs to be reviewed and either validated or adjusted. It is not known what the probability is of hitting a negative five-degree/hour day is or how often it has happened. Actual system loads are not available. In addition, PGW is not aware the last time this design day criterion was evaluated. Model criteria are out of date, which may affect main sizing and emergency operation plans.

Finding VII-15 Contractor management needs improvement.

There are only four approved contractors available to do main installation work for PGW. As a result, only two to three responses are typically received for requests for bids. PGW personnel have expressed the desire to have more contractors compete for work but are experiencing difficulty in adding new firms to the list of approved contractors.

There is no formalized change order process. Change orders are approved by the Field Inspector, Engineer, or Area Supervisor, with no escalation process to move approvals from Field Inspector to Engineer to Area Supervisor or higher, depending on the dollar amount of the change order. The final inspection report does not compare and critique the actual cost of the contract with the estimated cost. It can be concluded that the contractor management process can be improved.

Finding VII-16 The number of residential meters installed with the incorrect ERT protocol is unknown.

With the rollout of the automated meter reading (AMR) program in (starting in 1995), installation protocols were not standardized. Consequently, isolated billing issues (i.e., in some cases large make-up bills issued to customers for previously unbilled usage dating back several years) surfaced related to the various installation methods utilized. Contractors and employees previously installed ERT devices on meters at the customer's premises, and in some cases the installation was not correct. If the ERT to meter connection was made using the wrong protocol or specification, then the meter would register only 50% of the gas used. This problem was corrected approximately 10 years ago when vendors were required to deliver meters fully assembled with the ERT properly calibrated. In addition, all ERT replacements are currently performed in the Meter Shop and the meter tested prior to field installation. Meters and ERTs are no longer repaired, replaced or modified in the field. Also, approximately five years ago, the equipment used to program the ERT was modified to only allow the proper protocol to be used when installing a new ERT in the Meter Shop. Meters are also 100% quality control checked to ensure proper specification before they are placed in inventory for installation. However, PGW is currently unaware of the number of meters still in service that were installed with the incorrect protocol prior to the corrective measures taken.

Finding VII-17 PGW has conducted a limited number of tabletop exercises and live drills in the past five years.

Exhibit VII-56 illustrates that PGW has conducted only eight tabletop exercises or live drills in the past six years (FY2009 to FY2015 (through March 2015). Additionally, PGW has developed after action reports for only four of these tabletop exercises/live drills, plus one snowstorm in 2009.

Exhibit VII-56
Tabletop Exercises or Live Drills
FY2010 to FY2015 (as of March 2015)

Type	Date	AAR Creation
Pandemic Tabletop	Sept 14, 2009	Yes
Passyunk Tactical Drill	Oct 20, 2010	Yes
Radio Drill	June 26, 2013	No
ICS 300 Training Tabletop	July 23, 2013	No
ICS 300 Training Tabletop	October 8, 2013	No
1-800 Facility Tabletop	Nov 20, 2014	Yes
Employee Contact System (NotiFind) Test	January 6, 2015	Yes
Earthquake Response Tabletop	March 10-12, 2015	No

Source: Information Responses 425 and 426 and PGW Draft Report Comments

Other activities planned in the future include the following:

Loss of Gas Supply and How Individual Departments React

The last exercise of this type took place roughly six years ago, which included the loss of one of PGW's city gate locations. It primarily involved a tabletop exercise, using the Stoner gas flow model. It was a fairly robust exercise dealing with firm and interruptible customers. Also, as a part of normal operations annually PGW conducts a study of the failure of 17 critical gas supply facilities and develops a supply continuity response to the each of the 17 failures.

Corporate Campus Interruption, Initially With Critical Functions Then Eventually All Functions

The last exercise of this nature prior to 2014 took place roughly four years ago. The next tabletop exercise was held in November 2014, involving the loss of PGW's headquarters building for three critical functions:

- Dispatching
- Gas control operations
- Call center operations

SunGard's disaster recovery offsite location has a seating capacity of 65 to be used at PGW's disposal. Of these 65 seats, 15 are to be used by the dispatching function and 50 by the call center operations function during live drills. The gas control employees are to report to one of PGW's plant locations during live drills.

A live drill is scheduled for the summer of 2015 (probably August 2015) during which the entire PGW headquarters building will be evacuated. Before the live drill occurs, however, tabletop exercises were performed in November 2014 and planned for the spring of 2015. The 2015 spring exercise is designed to react to lessons learned from the November 2014 tabletop exercise. The three critical functions as part of the live drill exercise will be moved to either a SunGard facility or one of PGW's plant locations. Other employees will be allowed back into the building, because they won't be actively involved in this live drill (only in a later one). After the live drill, appropriate parties will meet to resolve any conflicts resulting from the live drill exercise. Other live drill exercises are anticipated to occur at least annually. Likely seven to eight departments will be the focus of these live drills.

The Manager of Corporate Preparedness has attended Homeland Security training, so PGW uses Homeland Security Exercise & Evaluation Program (HSEEP) activities to conduct its live drills.

Pandemic/Loss of Employees and Maintaining Safety

PGW began working with the City of Philadelphia roughly five years ago regarding the development of pandemic plans. These types of plans also dovetail with workforce reduction plans. PGW reviews various levels of employee reductions, including 25%, 50%, and 75%, regardless of employee type. Unlike strike situations, specific employee availability would be unpredictable during a pandemic. PGW anticipates performing two tabletop exercises and one live drill annually. Drills would include use of social distancing (distance among different groups of society as opposed to location distance) using a telephone bridge.

Finding VII-18 PGW's framework for developing a Business Continuity Plan is not provided to departments in a specific format, making it difficult for departments to complete.

A format for developing business continuity plans for departments is provided by the LDRPS software and the software provides a navigator that guides departmental planners through a set framework to input information into the system, so as to provide a consistent framework for departmental business continuity plans. The Corporate Preparedness Department indicates that it will continue to provide training through the software provider and one-on-one counseling to department coordinators to assure their understanding of the LDRPS software.

However, when Schumaker & Company consultants requested a sample plan based on the BCP framework, only a discussion of the framework was provided. It appears that no specific format is provided to PGW departments for developing its BCP. Without providing specific format development

procedures, standardization and content of the BCP for each respective department may not be optimized.

Finding VII-19 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 with the Pennsylvania Public Utility Commission (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 2014, for example, for 2013), as shown in *Exhibit VII-57*.

Exhibit VII-57
Chapter 101 Self-Certification Form
as of December 31, 2013

Item No.	Classification	Response (Yes – No – N/A*)
1	Does your company have a physical security plan?	1. Yes
2	Has your physical security plan been reviewed in the last year and updated as needed?	2. Yes
3	Is your physical security plan tested annually?	3. Yes
4	Does your company have a cyber security plan?	4. Yes
5	Has your cyber security plan been reviewed in the last year and updated as needed?	5. Yes
6	Is your cyber security plan tested annually?	6. Yes
7	Does your company have an emergency response plan?	7. Yes
8	Has your emergency response plan been reviewed in the last year and updated as needed?	8. Yes
9	Is your emergency response plan tested annually?	9. Yes
10	Does your company have a business continuity plan?	10. Yes
11	Does your business continuity plan have a section or annex addressing pandemics?	11. Yes
12	Has your business continuity plan been reviewed in the last year and updated as needed?	12. Yes
13	Is your business continuity plan tested annually?	13. Yes

Source: Information Response 35

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 as well as 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

Schumaker & Company's review of activities performed by various PGW groups reflect that PGW is beginning to undertake considerable positive efforts to ensure emergency preparedness, as discussed in Finding VII-17. Also, 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 nor have test results always been 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 disaster on PGW operations. Refer to *Chapter III – Support Services* for additional discussion regarding the disaster recovery and cyber security plans and activities.

Recommendations

Recommendation VII-5 Migrate all asset data into a single geospatial database. (Refer to Finding VII-8.)

PGW recognizes the need to move to a geospatial database and is moving its asset data systematically to the ESRI GIS database. Currently, there are plans to move leak data and main drawings to the ESRI GIS database. It is recommended that PGW continue to move this data and all other asset meters, valves, regulators, corrosion test stations, rectifiers services, and their respective maintenance records and descriptions to the GIS database. In addition, all work orders generated in AIMS that are completed, open, scheduled, etc. should be linked to the GIS database. This will make the computing environment more efficient by reducing the number of interfaces to synchronize and support. Having

the assets and related data linked to a GIS database would greatly enhance the ability to efficiently plan, schedule, and route work (leak surveys for example). It would bring a visual perspective when looking at geographic areas that may be prone to system issues such as higher than normal leak rates and the analysis of sources of odors in the air.

Recommendation VII-6 Take corrective action to timely address the noted deficiencies in the portions of the DIMP that were deemed unsatisfactory. (Refer to Finding VII-9.)

It is recommended that the DIMP review team reconvene, set a schedule, and correct the unsatisfactory elements in the DIMP. The team did meet for the first time on May 28, 2014 to start the process for correcting the DIMP. The team set a one-year not-to-exceed-15-months target to update the plan but has not met since their May 2014 meeting. The plan was audited in December of 2012 by the PaPUC's Gas Safety Division and needs to be corrected.

Recommendation VII-7 Aggressively accelerate the replacement of high risk mains, specifically cast iron mains. (Refer to Finding VII-10.)

It is recommended that PGW establish goals for system performance using benchmark data of the leak rate of components in the distribution system against comparable companies in the gas distribution industry to help determine problem areas annual system performance targets for PGW's main distribution system components (i.e., cast iron, steel unprotected, steel protected, wrought iron, and plastic) as well as the aggregate of the system be developed using benchmark data. Suggested measures for each are the number of total main leaks, the number of leaks per mile, and the number of cast iron breaks per mile. It is also recommended that service leaks per mile be tracked and establishment of goals to measure performance. In addition, it is recommended that five-, 10-, and 20-year goals for total leaks, leaks per mile, and breaks per mile be established to improve the performance of the system and in particular the cast iron system using benchmark data. The MRP model can then be used to establish footages of cast iron pipe that needs to be replaced to hit the goals targeted.

It is recommended that the performance targets set for the system components and overall distribution system performance be at least second quartile of the benchmarked companies. The time it takes to achieve the target would depend on the gap in PGW's actual performance, the performance of the peer panel, and the funding available. PGW's component performance for plastic and steel may already be at this level. It is the cast iron component that is performing poorly and dragging down the overall performance of PGW's overall distribution system down. PGW needs to aggressively replace cast iron main that is performing poorly. This is strongly supported by the Pennsylvania Public Utility Staff Report entitled, "Inquiry into Philadelphia Gas Works' Pipeline Replacement Program" dated April 21, 2015. The mileage of pipe replaced each year should be driven by efforts to attain goals in a reduction of total leaks, the leaks per mile, and the breaks per mile. The miles of cast iron pipe needed to be replaced to close the gap between PGW system performance and second-quartile performance of the benchmarked companies may initially require significantly more poorly performing main being replaced than the current program, depending on how soon the targeted performance is desired to be reached.

Presently, PGW uses a replacement footage target for cast iron pipe replacement and then the MRP predicts the result given the target footage. Consideration should be given to working the process in reverse. Start by setting an improvement target and use the MRP to determine the number of feet of cast iron that needs to be replaced to hit that target. Having a goal of replacing "miles" of cast iron pipe does not necessarily result in improved performance.

Recommendation VII-8 Integrate the corrosion work order database into AIMS. (Refer to Finding 0-10.)

It is recommended that PGW set a target date for moving the Corrosion work order database into AIMS and utilize AIMS as the sole work management system.

Recommendation VII-9 Reduce the number of open leaks by outsourcing the excavation work and using PGW crews to make repairs. (Refer to Finding VII-11.)

It is recommended that PGW reduce its average number of open leaks to a maximum of 1,500, which would be in line with the open leaks per mile average of the peer panel shown in *Exhibit VII-54*. The number of open leaks being carried by PGW is approximately 3,000. Once the reduction in leaks is achieved, PGW could maintain the lower number with its present workforce. However, to achieve the lower number, PGW will need to increase the resources applied to leak repair either by working overtime or by using contractors or temporary employees to do the excavation, or a combination of both as well as accelerate infrastructure replacement efforts.

Having too many open leaks increases the chance of an incident, drives up the resources required to do all of the rechecking, and adds to the burden of auditing for duplicate leaks. PGW recognizes its need to control duplicate leaks and reduce the time presently spent manually reconciling new leak tickets with existing ones. PGW presently evaluating a GIS-based software system, VeriTrack, which would allow real-time checking of leaks for duplicates and will make the auditing process much more efficient and accurate. It is recommended that this system or an equivalent be implemented as soon as possible.

Recommendation VII-10 Reconcile the output from the Main Replacement Program with the actual leak experience to validate its predicted outcomes. (Refer to Finding VII-11.)

It is recommended that PGW analyze the differences between the MRP model predictions for, cast iron main leaks, and cast iron main breaks and the actual results achieved annually to determine if the input parameters for the model and/or the main segments chosen for replacement need to be adjusted to better align the actual experience with predicted outcomes. It is also recommended that the footage of cast iron pipe replaced as enforced replacement that does not fall within the top 10% of the high-risk segments not be used to develop predictive outcomes of the MRP. It is recognized that PGW has made significant progress in its Main Replacement Program in the last 10 years by focusing on the cast iron system through benchmark studies, increasing the replacement footage, and implementing a state-of-

the-art MRP model. A significant amount of cast iron main has been replaced; however, total number of cast iron main leaks, leaks per mile, and breaks per mile on the cast iron main system have not improved in the last five years. Predicted breaks per mile on 8 inch and smaller pipe are not in line with MRP predictions as shown in *Exhibit VII-50* and are overly optimistic.

Recommendation VII-11 Improve emergency response capability by conducting periodic drills, simulating potential emergency situations, and updating area segregation plans. (Refer to Finding VII-12.)

It is recommended that PGW do the following to enhance its emergency response capabilities:

- Review and update the emergency procedures manual including the gate station failure plans to ensure they reflect the latest contact information and configuration of the system.
- Conduct periodic drills, annual as a minimum, both tabletop and field-oriented covering incidents, and emergency scenarios, including gate station failure and area segregation.(area segregation is when a geographical area needs to have the gas shut off for reasons such as load sheading)
- Review and update area segregation plans annually. These plans have not been updated since 2009 despite the amount of replacement main being installed annually.

Recommendation VII-12 Develop a set of goals and reports for Field Operations and Planning and cascade them down through the organization to drive efficiency and operational and individual performance improvements. (Refer to Finding VII-13)

It is recommended that PGW develop performance and efficiency measures and their respective reports that are used to measure actual performance vs. goals. The measures need to be linked to the set of goals as discussed later in this recommendation. These reports need to cascade down from a high summary level to the lowest level of accountability within the organization (department, supervisory group and/or individuals). When PGW associates were questioned during interviews about performance reports, the consistent answer was "they are being developed." For example, in FSD, there exists a report that gives information on the average number of work orders completed per day on straight time by the department, but there are no reports on individual technician performance. Not every high-level summary report can be driven down to individuals, but it is recommended that they be developed down to the lowest possible level of accountability.

PGW needs to expand performance goals for the Field Operations and Planning unit to drive efficiency and productivity improvement in the department's operations. Specific goals and targets are not being suggested in this report. They need to be developed by PGW. Listed below are broad areas that may be considered and measures within those areas that may be useful. These are for Field Operations and Planning only. Suggested goal areas include:

- Customer Service
  - Appointments Made and Kept
  - Heater PLP Compliance
  - Customer Complaints, Field Operations
- Finance
  - Capital Budget Plan versus Actual
  - Operating and Maintenance Budget Plan versus Actual
  - Main Replacement Program Budget Plan versus Actual
- Employees
  - Absence per Employee
  - Occupational Safety & Health Administration (OSHA) Index
- Operations
  - Percentage of Scheduled Work Completed
  - Average Work Orders Completed per Day
  - Percent of Overtime
  - Leaks Covered in 60 Minutes or Less
  - Leaks per Mile of Pipe
  - Breaks per Mile of Cast Iron
  - Damages per 1,000 Mark-outs

These are high-level goals. Targets would be developed internally based on improving upon past performance; however, it is suggested that PGW use benchmark data from similar companies to compare current performance to determine if a more or less aggressive goal/target should be made, depending on how well PGW is doing compared to other similar companies. There would be a subset of data and reports needed under each broad category. For example, under financial, the reports and data showing unit costs per foot of pipe installed, cost per leak repaired, and cost per order completed, and under operations, the number of orders completed per day by employee and leaks per mile of pipe broken down into type of pipe, etc. would be developed. Goals would be developed for each as well. The object would be to cascade the high-level goals downward to departments and individuals. Most of this data is already collected by PGW. It just needs to be employed to improve the performance of the department.

Recommendation VII-13 Update the system model design criteria. (Refer to Finding VII-14.)

It is recommended that the Winter Load Committee update and validate design criteria used in the system model in terms of both temperature and loads. Consideration needs to be given to what is the probability of hitting a design day and how often. For example, if it is found that a negative five-degree/hour design day has the probability of occurring only twice in 50 years, then PGW needs to evaluate the risk and impact of raising the design-day temperature and modifying its emergency operating procedures to handle the times the design day is exceeded. In addition, in consideration of

the fact that PGW will be replacing approximately 50% of its main system over the next 60 years, it is important that the design criteria be closely monitored. An increase in design-day temperature may result in the possibility of downsizing a percentage of the new and replacement mains, and subsequently, a cost savings may be achievable. It is recommended that PGW model several scenarios with a zero-degree/hour and a five-degree/hour design criteria and take interruptible customers off line at various temperatures to see what the impact would be on replacement main sizing and operating plans. In addition to changes in the design temperature, PGW needs to gather accurate load information for the model runs. PGW is taking steps to link the customer system to the system model to bring actual customer loads into the model. It is expected that this effort will be completed in 2016. This needs to be completed in order to accurately model system capabilities and to forecast future loads.

Recommendation VII-14 Increase the number of qualified contractors to perform gas main installation work. (Refer to Finding VII-15.)

Given the large amount of replacement main to be installed annually for the foreseeable future, the current number of four qualified contractors is insufficient to generate sufficient competition for the work. It is recommended that PGW solicit and qualify at a minimum two to three additional firms.

Recommendation VII-15 Implement financial controls on work performed by contractors. (Refer to Finding VII-15.)

Implement a standardized change order approval process for gas main construction work performed by contractors. Develop an escalation process that establishes dollar amounts that can be approved by field inspectors and higher levels of management for increases or reductions to a given contract. It is recommended that a financial component be added to the final inspection and review report prepared by field inspectors that requires an explanation when the actual cost of a contract varies by a set +/– percentage from the estimate. For example, if the actual costs vary by more than +/– 5%, an explanation is required and the report needs to be signed off by the Area Supervisor. Develop an escalation process that establishes the percentage of variance in costs and management level for signoffs.

Recommendation VII-16 Determine the number and location of residential meters that may have the incorrect ERT protocol and implement corrective measures. (Refer to Finding VII-16.)

It is recommended that PGW examine its meter repair records from the initial installation of AMR until the corrective actions taken in Finding VII-16 were taken to determine the number and location of meters that had their ERT field repaired or replaced and are still in service. Once the number and location have been determined a statistically valid sampling of these meters should be done to determine the likely percentage of meters with incorrect protocol. If the results of the sampling show that there is still a likelihood that a significant number of meters may still be in service with the incorrect protocol then PGW needs to develop procedures to find and correct the improperly installed ERTs

Recommendation VII-17 **Develop and implement an expanded BCP schedule that includes tabletop exercises and live drills annually. (Refer to Finding VII-17.)**

PGW's desire to enhance its BCP activities is positive; however, the Manager of Corporate Preparedness, in conjunction with other PGW management, should develop a specific schedule for increasing the number of tabletop exercises and live drills every year. Also, other departments that have not previously been involved in BCP activities should be incorporated into the schedule on an expedited basis. Senior management should also ensure that these schedules are actually implemented each year.

Recommendation VII-18 **Develop and implement a sample plan framework for PGW departments to use when developing their BCPs. (Refer to Finding VII-18.)**

To ensure that standardization of a comprehensive BCP for every department is in use, PGW should develop a specific format for a BCP sample plan and provide an updated version, as necessary, to every department annually.

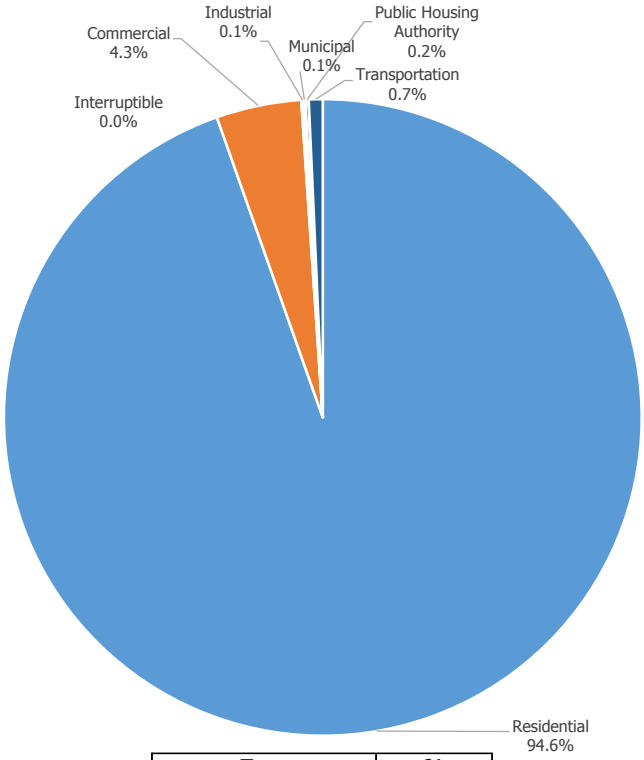
VIII. Customer Service

This chapter provides a review of customer service functions supporting Philadelphia Gas Works (PGW).

A. Background & Perspective

PGW serves approximately 500,000 customers in the City of Philadelphia. As illustrated in *Exhibit VIII-1*, in fiscal year (FY) 2014, over 94% are residential customers, which represents approximately 49% of total usage (98% of which is for heating purposes) and 76% of total revenues.

Exhibit VIII-1
Average Number of Customers
FY2014



Type	%
Residential	94.6%
Commercial	4.3%
Industrial	0.1%
Municipal	0.1%
Public Housing Authority	0.2%
Interruptible	0.0%
Transportation	0.7%
Total	100.0%

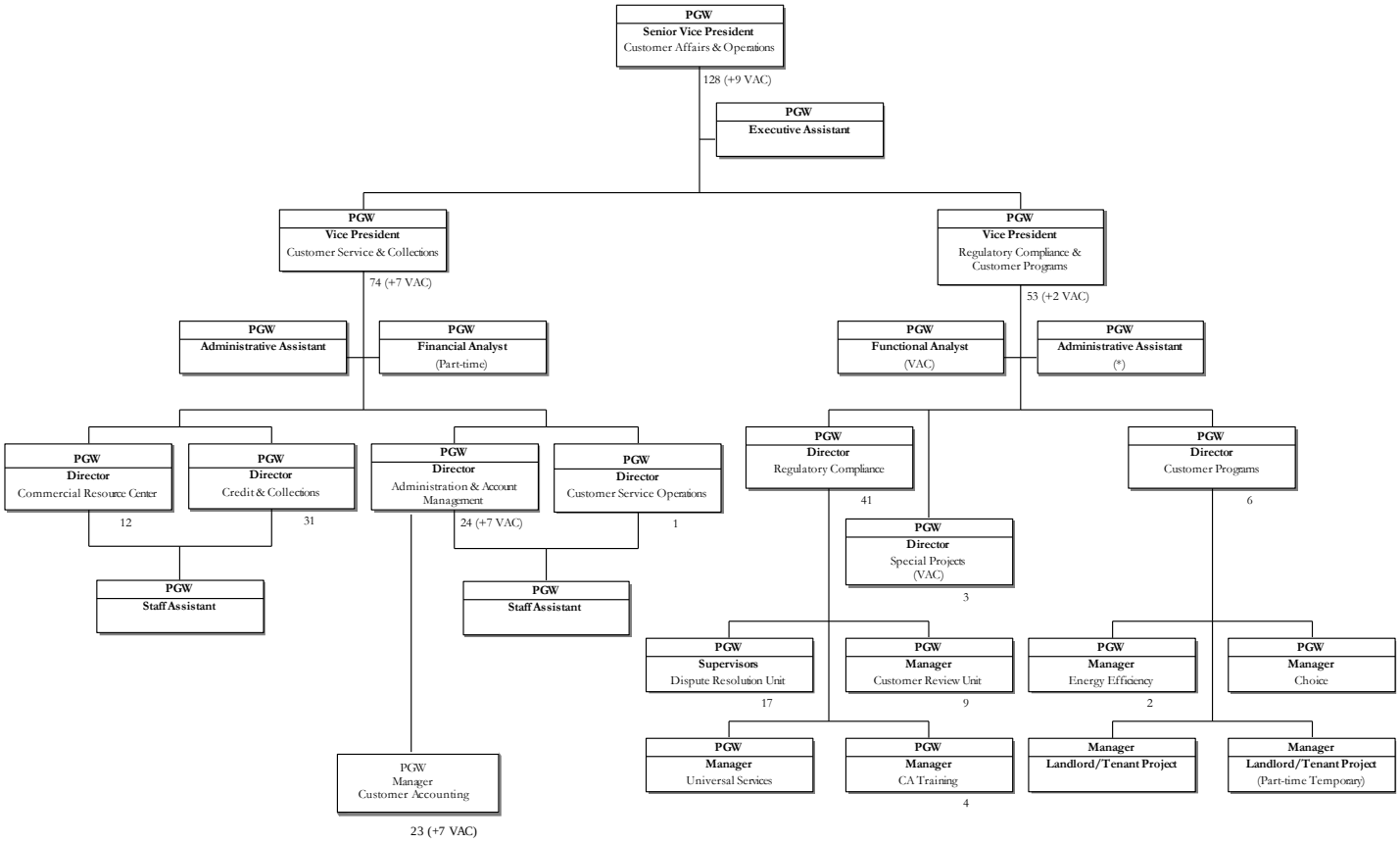
Source: Information Response 628

At PGW, the Customer Affairs & Operations organization is led by the Senior Vice President (SVP) of Customer Affairs and Operations, who has two Vice Presidents (VPs) reporting to the SVP who are responsible for all customer service functions, as follows:

- The Vice President (VP) Customer Service & Collections is responsible for the PGW Call Center, District Offices (DOs), Quality Assurance (QA), Credit and Collections (the Credit & Collections group for residential customers and the Commercial Resource Center (CRC) for commercial/industrial customers), and Administration and Account Management, as well as billing/remittance processing activities.
- The VP Regulatory Compliance & Customer Programs is responsible for Regulatory Compliance, including Universal Services, Training, Dispute Resolution Unit, and Customer Review Unit; Special Projects; and Customer Programs, including the Landlord Cooperation, Customer Choice, and Demand Side Management programs.

Exhibit VIII-2 displays the Customer Affairs & Operations organization (other exhibits in this chapter provide additional detail for the groups in this organization) as of December 31, 2014.

Exhibit VIII-2
Customer Affairs & Operations Organization
as of December 31, 2014



Source: Information Response 1
* Also reports to Director, Customer Programs and Director, Regulatory Compliance

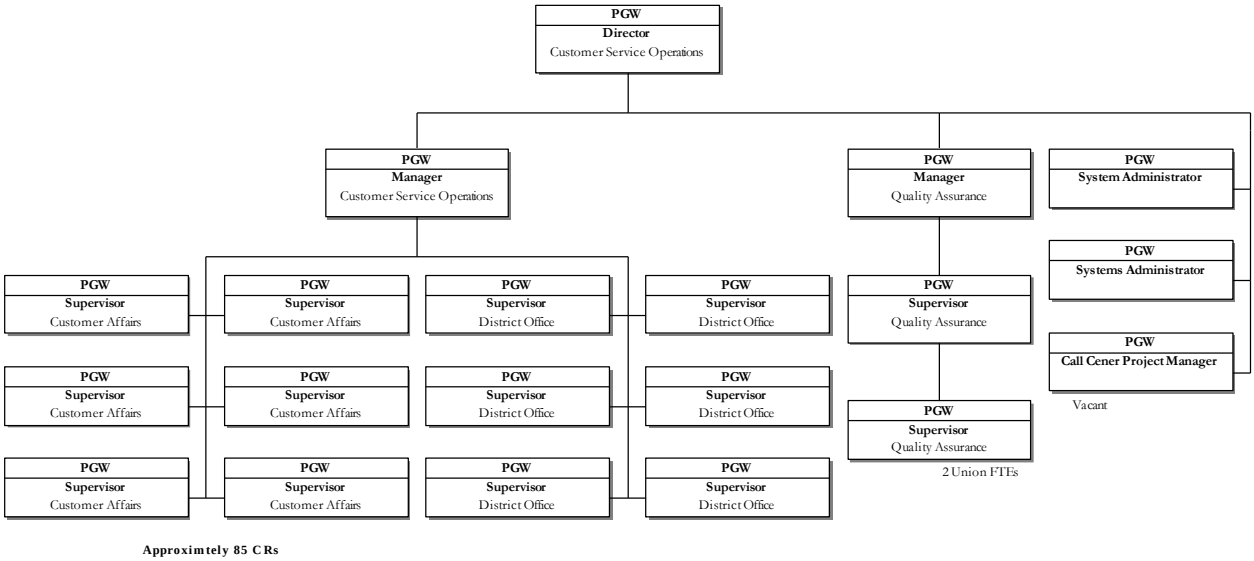
In 2015, the Manager, Labor Relations (Customer Affairs) reports to both the Vice President of Customer Service and Collections and the Vice President of Regulatory Compliance and Customer Programs, while previously this position reported to the Director of Labor Relations who reported to a Chief of Staff who reported to the President.

Customer Service Operations

Organization & Staffing Levels

Exhibit VIII-3 illustrates PGW's Customer Service Operations organization.

Exhibit VIII-3
Customer Service Operations Organization
as of December 31, 2014



Source: Information Response 1 and PGW Draft Report Comments
FTE equals full-time equivalent (FTE) employees

The Director of Customer Service Operations oversees the Call Center, the District Offices, the Quality Assurance group, and information system and projects. These functions are discussed in the following sections.

Roles and Responsibilities/Processes and Systems

PGW operates a customer telephone call center for a wide range of customer services, which include gas emergency reporting, service appointments, bill inquiries, payment arrangements, and universal services applications. As shown in *Exhibit VIII-3,* a Customer Service Operations Manager oversees six Supervisors and approximately 85 Customer Representatives (CRs) who answer calls, plus the Manager also has the six District Office Supervisors and associated staff reporting to this position.

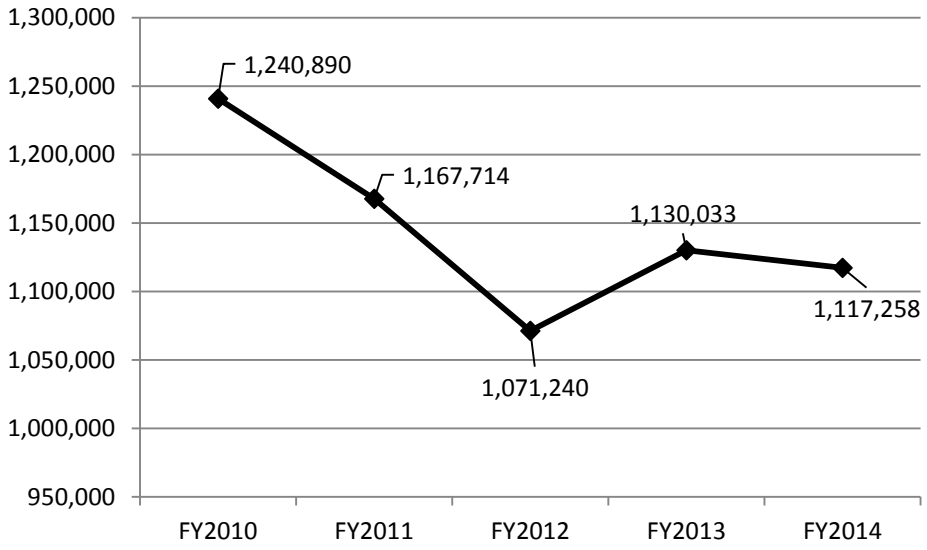
The Call Center staffing declined to about 85 CRs in FY2014 due in part to lower call volumes from warmer winters in 2010, 2011, and 2012. Currently, the Call Center is authorized in the FY2015 budget for 97 full-time equivalents (FTEs). PGW staffing peaked at approximately 114 CRs at the end of December, 2014. PGW staffing peaked in FY2015 to address the need to address the understaffing of

both the Call Center and District Offices and to replace employees who were projected to attrite the company due to retirements. However, with attrition, staffing levels are anticipated to stabilize at approximately 100 in FY2016 and beyond. PGW experiences an average annual attrition rate of 4% during training and another 2% from normal staff turnover. The Director of Customer Operations intends to fully staff its Call Center at the approved complement level of 97 FTEs during FY2015 to improve service levels as noted in *Exhibit VIII-6*. This is discussed in detail in *Finding VIII-3*. In addition, the CR position is the entry-level job for PGW's Customer Affairs organization. Consequently, as senior CRs transition to other positions within PGW, new hires currently completing training will serve to back-fill the Call Center and District Offices.

In addition, in late calendar year 2014, there were 60 employees within Customer Affairs eligible to retire, furthering the need for back-filling employees at the entry level. In addition, PGW has considered expanding District Office hours and days open, but has lacked the staff to do so. Again, the need to fill the pipeline at the entry level is a concern of PGW management. PGW currently has three training classes in progress, with 14 people starting a new class, and two simultaneous classes further along with 20 trainees in each.

PGW received over 1.1 million customer calls in FY2014. The call volume for the past five fiscal years is provided in *Exhibit VIII-4*.

Exhibit VIII-4
PGW Call Volume
FY2010 to FY2014



Source: Information Responses 203, 652 and 752

Call volume is driven primarily by collections activity. Warmer weather results in more collections and billing calls, while colder weather brings more service calls and requests for payment arrangements and assistance. From December 1 to March 31, there is a Cold Weather Interim Program (CWIP), in which selected customers can be turned off, and call volume declines. January and February see normal call activity. Shutoff notices start in March and call volume picks up. April and May represent peak call activity times as the CWIP ends and shutoff activity begins. The call volume tapers off in May and June and continues at normal levels in July and August. As the heating season commences in September and October, there is an uptick in call volume, driven somewhat by service calls as well as service restoration requests by customers who have been shut off.

PGW call volume by month is shown in *Exhibit VIII-5*.

Exhibit VIII-5
PGW Call Volume by Month
FY2014

	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14
Call Offered	101,817	133,035	112,129	90,846	100,266	101,313	104,156	125,031	117,661	114,234	107,118	98,465
Call Handled	87,963	111,994	93,959	84,297	86,829	89,619	98,697	106,999	93,906	94,226	90,216	78,553

Source: Information Response 220 and PGW Draft Report Comments

Exhibit VIII-6 illustrates percentage of calls abandoned, average speed to answer, and service levels for FY2010 to FY2014. In FY2014 the percentage of calls answered within 30 seconds, which includes calls answered by the interactive voice response (IVR), was 86%, while average speed to answer was 3:40. The average speed of answer was skewed due to four months of the fiscal year being above four minutes; therefore, causing the average speed of answer to be higher on an overall basis. Also in FY2014, the percentage of abandoned calls also rose, because as wait times go up, more people hang up and call back later, thereby increasing call volume.

Exhibit VIII-6
Call Center Statistics
FY2010 to FY2014

	FY2010	FY2011	FY2012	FY2013	FY2014
Calls Answered	1,240,890	1,167,714	1,071,240	1,130,033	1,117,258
Calls Abandoned	33,648	21,990	76,383	71,481	188,813
Total Calls Received	1,274,538	1,189,704	1,147,623	1,201,514	1,306,071
% of Calls Abandoned	3%	2%	7%	6%	14%

	FY2010	FY2011	FY2012	FY2013	FY2014
Average Speed to Answer	0:38	0:24	1:27	1:14	3:40
Average Talk Time	N/A	3:21	3:32	3:27	3:46
Average After Call Work	N/A	0:52	0:58	0:54	1:11

	FY2010	FY2011	FY2012	FY2013	FY2014
Service Level (% of Calls Answered within 30 Seconds)	81%	90%	79%	94%	86%

Source: Information Response 752 and PGW Draft Report Comments

The decline in service levels in FY2012 and FY2014, along with the associated increase in speed-to-answer and abandonment rates, is discussed in the *Findings & Conclusions* section of this chapter. By and large, the poorer level of performance, as indicated by these statistics, is due to a decline in staffing in the Call Center. Although PGW attributes the staffing reduction to reduced call volume (due to warmer winters), it is clear that staffing did not rebound with call volume in FY2013. (*See Finding VIII-3.*)

Call Center Technology

PGW's Call Center operates using Avaya contact center technology. This includes IVR for customer self-service and inbound call management. Customers may select from one of nine options on the IVR menu and elect to make payments over the phone. The IVR allows customers to "zero out" to be connected with a PGW representative. The Call Center also uses Avaya's automated call dispatching (ACD) capability to manage call distribution to available agents with appropriate skills.

The system also provides estimated wait times and offers a "virtual hold," with customer-selected automated callback. The number of calls processed into the callback queue varies with call volume. Overall, 5% to 15% of PGW customer calls are handled by the callback queue process.

The Avaya system also supports workforce management through skill-based routing and employee scheduling. Call volumes are monitored throughout the day and staffing adjustments are made to accommodate needs when possible.

PGW also uses Envision Contact Center Workforce Optimization software, including the "Click-to-Coach" application. This is a quality assurance system that provides performance data and can also

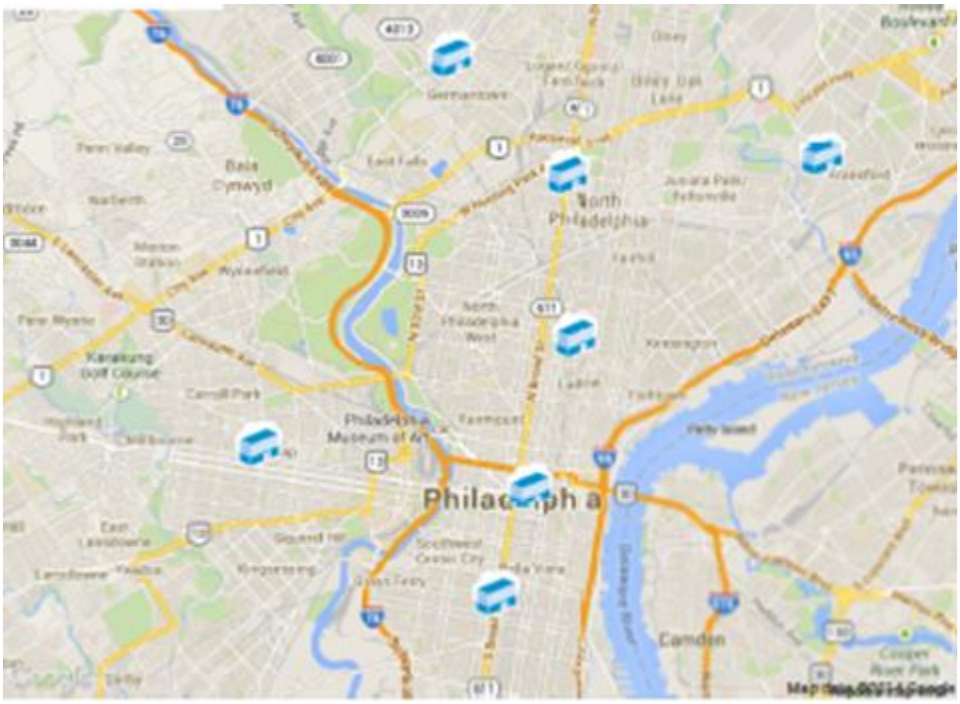
capture both audio and video (keystrokes). The application supports agent coaching as well as a greater ability to respond to customer complaints and escalated calls. The systems records about 25% of all calls with both audio and video. All emergency calls have an audio recording.

When performing their duties, PGW CRs have access to BCCS and Advanced Intelligent Mobile Solutions (AIMS) systems to obtain information about customer accounts. BCCS and AIMS are discussed elsewhere in this chapter, plus AIMS is discussed in *Chapter VII – System Reliability Performance & Other Related Operations*.

District Offices

PGW operates six District Offices in the City of Philadelphia, as shown in *Exhibit VIII-7*.

Exhibit VIII-7
PGW District Office Locations
as of December 31, 2014



Source: PGW Website

On any given day, four of these offices are open to serve the public. As shown previously in *Exhibit VIII-3,* these offices are under a Manager of Customer Service Operations who has six DO Supervisor positions reporting to him (although two of these positions were vacant throughout most of 2014). The two Supervisor positions were held open to reduce operating costs and to reflect the fact that only four offices are open on a given day. PGW intends to fill these positions in the coming year.

These offices can take payments and provide customer support services, including payment arrangements and applications for payment assistance programs. Beginning November 1st and continuing through the heating season (until about April 4th), PGW hires temporary employees (about 14) for Low-Income Home Energy Assistance Program (LIHEAP) intake. Otherwise, the District Offices are staffed by Tellers who accept customer payments and by Customer Representatives who have completed the same training as Customer Representatives in the Call Center. The total budgeted staffing for Tellers and CRs in district Offices is 41.

Exhibit VIII-8 illustrates District Office statistics by year and by office for FY2010 to FY2014.

Exhibit VIII-8
District Office Statistics
FY2010 to FY2014
by Year and by Office

FY2010							
	West Philly	South Philly	North Philly	Germantown	Frankford	Center City	Average
Number of Customers	148,274	76,310	103,014	95,482	98,424	145,469	111,162
Number of Walk-in Payments	102,513	51,974	63,757	65,847	58,475	104,322	74,481
Customer Inquiries	45,761	24,336	39,257	29,635	39,949	41,147	36,681
Average Employees	10	7	10	8	10	8	9

FY2011							
	West Philly	South Philly	North Philly	Germantown	Frankford	Center City	Average
Number of Customers	137,074	67,583	89,108	90,177	89,382	140,551	102,313
Number of Walk-in Payments	94,789	46,567	53,100	63,200	51,819	99,436	68,152
Customer Inquiries	42,285	21,016	36,008	26,977	37,563	41,115	34,161
Average Employees	11	8	11	8	11	9	10

FY2012							
	West Philly	South Philly	North Philly	Germantown	Frankford	Center City	Average
Number of Customers	134,912	64,315	80,167	88,792	82,645	130,943	96,962
Number of Walk-in Payments	98,003	46,274	50,806	65,833	51,560	99,253	68,622
Customer Inquiries	36,909	18,041	29,361	22,959	31,085	31,690	28,341
Average Employees	9	7	10	8	10	8	9

FY2013							
	West Philly	South Philly	North Philly	Germantown	Frankford	Center City	Average
Number of Customers	120,407	62,373	78,954	81,717	78,679	125,507	91,273
Number of Walk-in Payments	91,147	46,616	51,348	62,845	49,121	96,930	66,335
Customer Inquiries	29,260	15,757	27,606	18,872	29,558	28,577	24,938
Average Employees	10	8	11	8	11	9	10

FY2014							
	West Philly	South Philly	North Philly	Germantown	Frankford	Center City	Average
Number of Customers	141,542	67,154	90,886	88,834	86,455	137,303	102,029
Number of Walk-in Payments	92,121	44,754	51,307	59,794	47,866	95,792	65,272
Customer Inquiries	49,421	22,400	39,579	29,040	38,589	41,511	36,757
Average Employees	9	7	10	8	10	8	9

Source: Information Response 765

As discussed above, most work is driven by billing cycles and collections. Monthly (services provided one-on-one by Customer Service Representatives) walk-in customer volume, excluding monthly bill payments, for FY2014 is shown in *Exhibit VIII-9*.

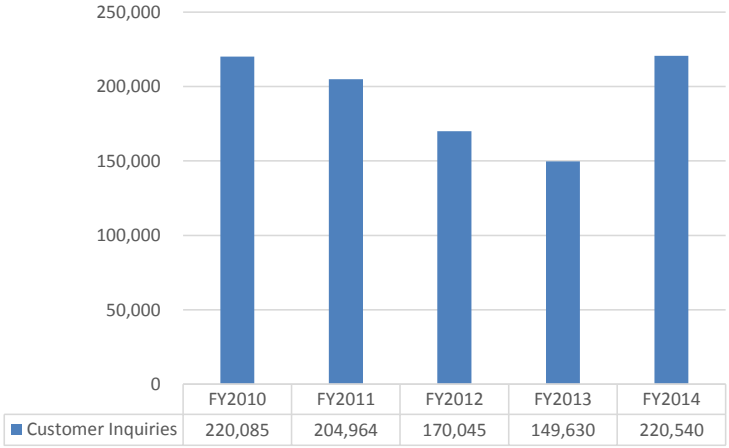
Exhibit VIII-9
Work Volume by Month
FY2014

	Frankford	Center City	West	North	South	Germantown	Total
	Work Volume	Work Volume	Work Volume	Work Volume	Work Volume	Work Volume	Work Volume
September	3,016	3,644	3,998	2,963	1,876	2,173	17,670
October	3,779	3,741	4,522	3,617	2,179	2,798	20,636
November	4,051	4,060	5,231	3,624	2,166	3,220	22,352
December	3,377	3,391	4,316	3,532	1,962	2,383	18,961
January	3,697	3,313	3,787	3,275	1,868	2,224	18,164
February	3,000	2,893	3,462	2,752	1,555	1,979	15,641
March	3,278	3,583	4,604	3,993	1,966	2,564	19,988
April	3,451	3,535	4,358	3,918	2,150	2,816	20,228
May	3,329	3,643	3,767	2,885	1,582	2,324	17,530
June	2,274	3,231	3,904	3,290	1,690	2,090	16,479
July	2,404	3,260	3,805	3,451	1,860	2,180	16,960
August	2,933	3,217	3,667	2,279	1,546	2,289	15,931
Totals	38,589	41,511	49,421	39,579	22,400	29,040	220,540

Source: Information Response 765

There were 220,540 customer inquiries/visits to PGW District Offices in FY2014. The volume of customer visits for the past five fiscal years is shown in *Exhibit VIII-10*. Prior to FY2014 the number of customer visits had been declining, but in FY2014 there was a significant increase.

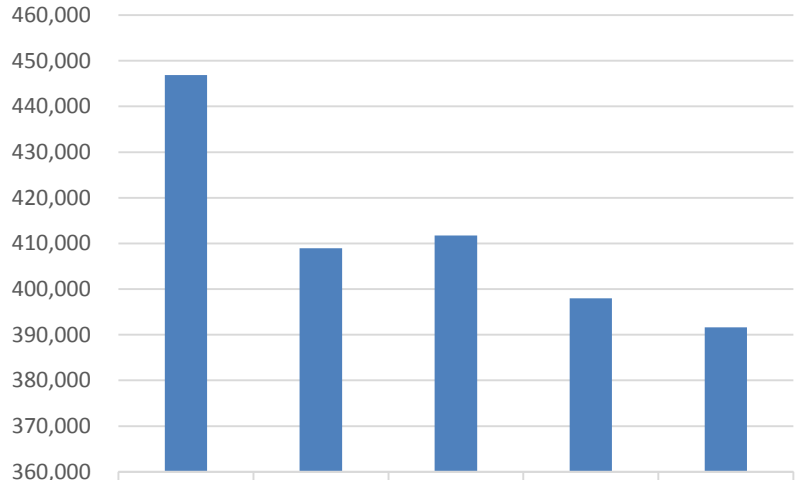
Exhibit VIII-10
District Office Customer Inquiries Volume (Service Other Than Monthly Bill Payments)
FY2010 to FY2014



Source: Information Responses 206, 653, and 765

In FY2014, PGW District Offices processed 391,634 customer payments. These payments totaled between $55 million and $60 million, about 60% of which was cash. The payment volume at District Offices for the prior five fiscal years is shown in *Exhibit VIII-11,* which generally shows a decrease.

Exhibit VIII-11
District Office Walk-In Payment Volume
FY2010 to FY2014



	FY2010	FY2011	FY2012	FY2013	FY2014
Walk-in Payments	446,888	408,911	411,729	398,007	391,634

Source: Information Responses 206, 653, and 765

Quality Assurance

The Quality Assurance group has four employees reporting to a QA Manager position: two QA Analysts and 2 QA Supervisors. The QA Analysts listen to agent calls and grade them. They monitor four calls per agent per month. The call scoring is shared with Agent Supervisors and is used in coaching. The QA Supervisors listen to QA Analysts and manage the group. There are two additional QA Analysts in the Call Center, reporting to Agent Supervisors, who do off-phone work (callbacks, investigations, medicals (customers requesting terminations to be stopped due to medical hardship), and supporting Supervisors in leading the team) and who also walk floors and answer agent questions. They have meetings to discuss issues identified (problems agents are experiencing when attempting to serve the customer) in discussions with agents during these walkabouts. There are also two QA Specialists, a job which is being phased out. These are QA Analysts who can work across all Customer Affairs union groups. There are two QA Analysts on off-hour shifts to handle emergency calls as well. Although volume is low, PGW needs highly trained personnel handling emergency calls at night. These individuals perform other work, including responding to customer e-mails.

Regarding call monitoring, each month the Call Center has a minimum of four calls monitored by QA Analysts, two by their Supervisor, and one by another Call Center Supervisor (total of seven monitored calls at a minimum). The Supervisor-monitored calls are live and may involve intervention. The quality of calls reportedly have improved lately with increased call monitoring (although hard data is limited and reports are mostly anecdotal.). This improvement has been reflected in decreased complaints and better Metrics Matrix scores. (Reduced complaints are related to agent attitude and treatment, with the number of customers dissatisfied with payment terms and other policy issues remaining about the same.) Beginning in January 2015, there will also be calibration sessions for call scoring. All coaching is completed by Agent Supervisors and is developmental, not disciplinary.

The QA Supervisors have other responsibilities, including reviewing Metrics Matrix reports and managing alerts (after call surveys). They call 400 customers per month in response to customer concerns after call surveys. A new structure is being implemented at the beginning of 2015. All seven QA Analysts will report to the QA Supervisors. The Call Center Supervisors will supervise just 10 to 12 agents, with the QA Supervisors also managing the new-hire teams during the on-the-job training period.

Training

The Customer Affairs (CA) training activities, which are managed by the Regulatory Compliance group (not part of Customer Service Operations), include new call center agent training as necessary, plus refresher training annually, for all Customer Affairs staff involving both soft skills and regulatory compliance issues. The Document Specialist works with the Director to manage content. There are also three trainers (previously two), one of whom has been a trainer for a long time while the other two came from the Call Center. The next training sessions are expected to occur in January/February 2015 for roughly 20 agents. The group went from two to three trainers to increase training with representatives. New representative training takes place over a nine-week period, including both class sessions and close monitoring and coaching during on-the-job training periods. Once the agents are "on the floor," Supervisors move to a coaching role. If necessary, Supervisors may request additional training for agents.

The Document Specialist is responsible for uploading information to PGW's learning management system database (PGW is building a new SharePoint site), for sending communications out, and for developing training manuals. The Document Specialist creates PowerPoint presentations and outlines for classroom sessions. The trainers then do the training.

Training includes new hire training for call center agents, as necessary. Generally there are roughly 14 agents per class.The training for new hires is done in phases. It starts with basic customer service (trouble order, service on/off, etc.) and emergency calls then moves to collections. It also includes service calls, payment arrangements, collections processes, other programs, and soft skills. A different phase is done every two weeks, with on-the-job training and a test given at the end of each phase. An employee is separated if s/he fails the test, although most trainees successfully complete training. The

training incorporates material introduction, role-play, observation, testing, and actual phone calls under trainer supervision. The total formal training program is nine weeks long.

PGW also provides refresher training annually to anyone who communicates with customers (typically Supervisors and "lower" employees, including CRs and others). Such training encompasses:

- High bill training (how to review usage)
- Parts & Labor program
- Collections, such as payment arrangements and Customer Responsibility Program (CRP) activities

Other training is provided when policy changes occur, it is requested, or when Training deems it is needed. This training may happen by way of e-mail messages, classroom/standup sessions, or train-the-trainer sessions. Additional discussion of training is offered in *Finding VIII-2*.

This group may also work with others on projects, such as CA reporting.

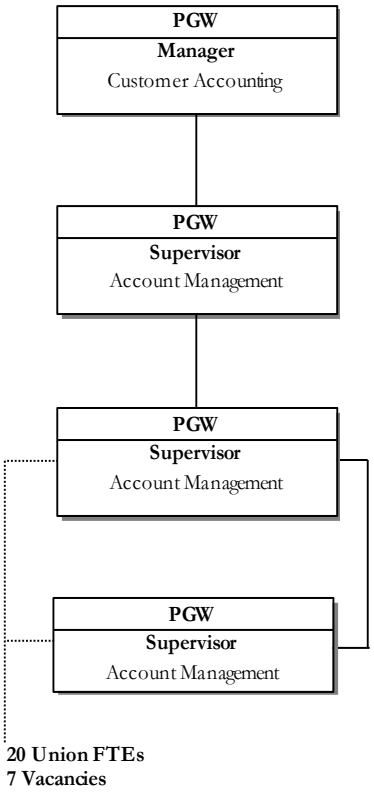
Customer Accounting, Collections, & Complaints

Organization, Staffing Levels, and Roles and Responsibilities

Customer Accounting

Exhibit VIII-12 illustrates PGW's Customer Accounting organization. The Customer Accounting group reports to the Director, Administration & Account Management (position currently vacant). There are currently 29 positions in this group, including seven vacant positions, which are a result of retirements (4), interdepartmental transfers (2), and terminations (1). Of the 20 employees reporting to the Supervisors, four senior employees do specific activities while the remaining individuals are Customer Accounting Clerk employees (also referred to as 63Bs).

Exhibit VIII-12
Customer Accounting
as of September 30, 2014



Source: Information Responses 1 and 245

This group is responsible for three main areas, including:

- Account management, including bank/account reconciliation, is responsible for correcting any money variances associated with billing errors and any discrepancy generated by the Billing, Collections, and Customer Service (BCCS) system on a customer account (two Supervisors and 18 bargaining unit employees, including six senior employees and 12 Customer Accounting Clerk employees).
  - The work is split between three work groups as billing errors and cash, contacts and Meter Investigation Units (MIUs), and special assignment and write-offs. Each group has a senior employee assigned who distributes the work daily. Supervisors and senior employees work closely together to ensure that all work is addressed and distributed equitably among the groups. Because there is a three-day turnaround on billing errors, special attention is made to ensure this deadline is met, including sharing employees from other groups depending on volume and absenteeism.

- There are two Access databases that are used to obtain and communicate within PGW to address requests for adjustments to customer accounts.
  - The "Account Management Department Contact" database is used as a formal request mechanism within PGW to correct errors that may have occurred on a customer account. These contacts are generally inputted by customer-facing employees, such as in the Call Center and at District Offices.
  - The "Bill Error" database is a mirror image of the BCCS report bill errors generated each day. Its purpose is to assign, track, and reflect the completion date of any errors as they are addressed by the Account Management employees. It is used to track the three-day turn around.
  - From time to time, ad hoc reports are created and sent to this group to correct the issues noted. Some are one-time corrections, while others may be compiled on a daily, weekly, or monthly basis.

- Remittance processing, including credit card payments (four bargaining unit employees, including one senior employee, two Customer Accounting Clerk employees, and an Accounting Assistant)
  - Processing all checks relating to gas receivables (received from direct mail and/or within PGW departments)
  - Recording payments received from customers via third-party agencies as well as any checks processed internally (above)
  - Reporting to Treasury total gas payments received on a daily and monthly basis
  - Matching posted payments to the cash received in PGW's Wells Fargo and Bank of America (BoA) depository accounts
  - Adjusting incorrect PGW account numbers on a daily basis as reported via Transcentra, PGW's third-party check processor, as well as any that fall onto PGW's "Cannot Locate" report.

- General ledger accounting for revenue billing and payments (two bargaining unit employees, including an Accounting Assistant)
  - The Accounting Assistant tracks, audits, and records all general ledger activity as it relates to billing revenue and payments. On a daily basis, the Accounting Assistant runs the "GL FIN" from BCCS reports and records all debit and credit activity on an Excel spreadsheet. Once completed, these GL FINs are processed in Oracle by the Accounting Department.
  - At month end, the Accounting Assistant makes a series of standard journal entries to ensure that the accounting for the general ledger accounts is accurate and complete.
  - The Accounting Assistant prepares the A-1 – Gas Sales and Revenue report for the month and on a year-to-date basis (A-2). This report contains the total thousand cubic feet (MCFs) and revenue dollars generated for the month by billing category, the current months' budget, and the previous years' monthly results.

In total, approximately 30 to 40 activities are performed, including remediating customer billing errors. To perform these activities, employees collect information by either customers contacting the group or using the BCCS exception reports. Roughly 33% of these activities are time sensitive based on Pennsylvania Public Utility Commission (PaPUC) rules or escalation requirements. Any remediation efforts must be completed within three days, if PaPUC rules apply.

The Customer Accounting group's mission is to ensure both timeliness and accuracy as it pertains to PGW's customer billing, application of payments, and accounting of such activities in the general ledger. Specific goals and objectives of the Manager and Supervisors are as follows:

- Manager
  - Assist in the development of an operational budget and review its variances each month.
  - Ensure timely completion of all customer contacts as well as the three-day turnaround for bill errors.
  - Oversee the general ledger update of daily billing and payment activity.
  - Perform monthly review of departmental metrics and production standards with departmental personnel.
  - Provide statistical reporting to upper management regarding payment avenues.
  - Update all business processes and policies that pertain to account management.
- Supervisor
  - Attend professional training for personal development.
  - Review 20% of all adjustments made by department personnel.
  - Update departmental attendance reports using the Time & Labor Management (TLM) software.
  - Ensure "requests to correct" in the Bill Error and Contact databases are done in a timely fashion, paying particular attention to bill error three-day turnaround.

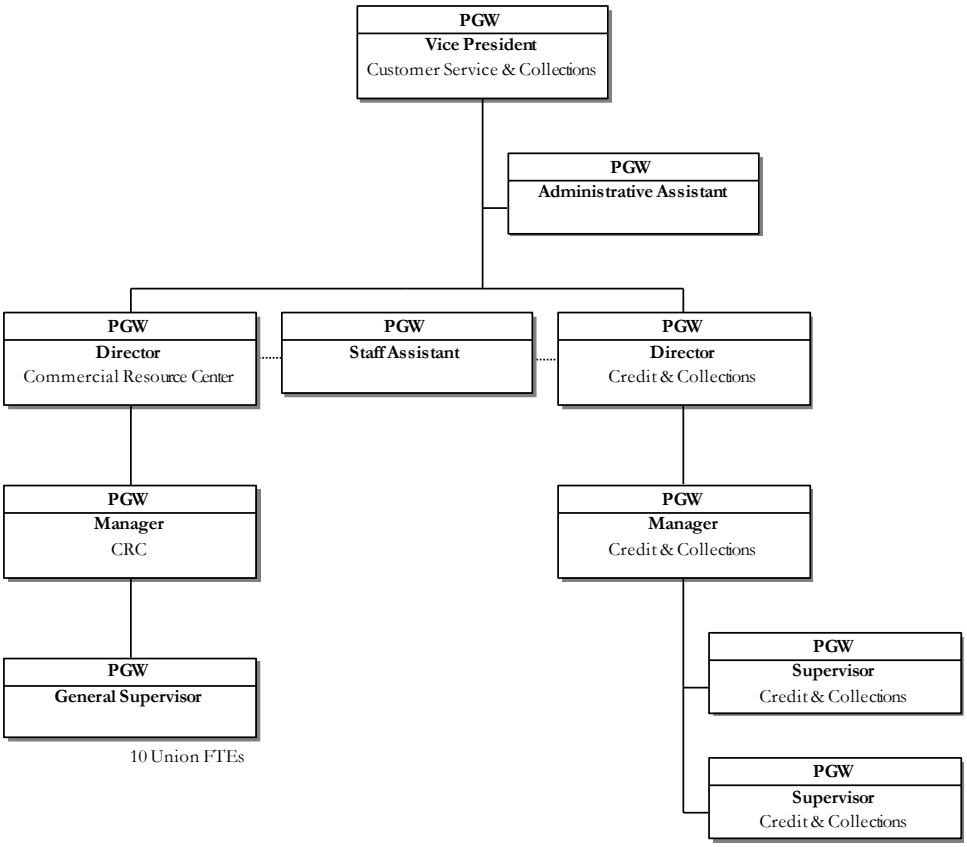
Collections

The Credit & Collections functions are performed by two groups:

- Credit & Collections (residential customers)
- Commercial Resource Center (commercial, industrial, institutions, hospitals, and apartment complex customers)

Exhibit VIII-13 illustrates the two collections organizations at PGW, both of which report to the Vice President of Customer Service & Collections.

Exhibit VIII-13
Collections Organizations
as of December 31, 2014



Source: Information Responses 1 and 245

Credit & Collections

The Credit & Collections group is led by a Director and has one Manager, two Supervisors (each one leading a team of employees), and roughly 20 Gas Collection Clerks (63Bs union job classification), including six senior clerks and 14 clerks. The duties of the Director and Manager are to direct and monitor the risk-based collection system, which includes monitoring performance, selecting accounts for treatment, interacting with Field Services in the area of non-payment shutoffs, and managing the back office work. Specifically the Director directs the process and the Manager manages the Supervisors, who in turn supervise the back office work on the floor. New clerks come from PGW's Call Center, based on their seniority there. All employees can handle any type of credit and collections activities, but the two Supervisors are experts in different areas. One is a bankruptcy expert and one is a payment request expert. Supervisors assign and monitor the work given daily to clerks. Timekeeping is done by the Supervisors and the Staff Assistant.

The mission, goals, and objectives of this group, especially with regard to training, are:

- To organize a detailed training manual for the group, the purpose of which is to continually enhance the group
- To provide a guideline for new employees coming into the group
- To provide a method to evaluate tools used, which will aid the group in implementing updates when needed
- To assist in preparing employees for promotion to the senior level
- To prepare the group for possible new staffing levels that could become a reality in the future
- Finally to document knowledge so that when experienced employees retire or leave PGW, institutional knowledge will not be lost

This group is in the process of reviewing old manuals, updating policies and procedures, and adding additional processes that are performed. This is ongoing work that has not yet been completed at this time.

Activities performed by this group include:

- Settlement normally generated by payoff requests regarding customers who are selling or transferring title to real estate, plus handling payoff requests for properties being sold at sheriff or tax sales
- Liens (proposing and approving liens, satisfying liens, and vacating liens)
- Bankruptcies (processing accounts where customers have filed for bankruptcy and filing proof of claims)
- Medical holds (processing customer requests for medical holds that have come from the customers' physicians)
- Collection agency reporting, monitoring, and verifying invoices pertaining to accounts sent to collection agencies, as illustrated in *Exhibit VIII-34* and *Exhibit VIII-35*
- Back office reporting of metrics, plus streamlining reporting and attempting to make it more accurate
- Check processing of payments that are sent to the Customer Accounting group, typically for items such as sheriff sales, liens, settlements, etc.
- Assisting the Call Center in servicing customer calls, if necessary
- Handling District Office mail

Currently, legal collection judgments are not being done but the Credit & Collections group is looking into doing them in the future.

The Credit & Collections group's mission is to efficiently conduct the collection and enforcement of delinquent accounts, maximizing the use of PGW's risk-based collection system. It also endeavors to ensure that collection attempts are made on all other PGW accounts that are not a part of risk base. The group's goals are to maximize delinquent collections, manage accounts receivable, and provide exceptional customer service by sufficiently performing back office operations and consistently improving soft skills.

Its strategy for improving service to residential accounts include performing the following steps:

- Monitoring non-payment shut-off (NPSO) strategies and making changes on a monthly basis, based on reviewing both a 12-month and 24-month NPSO report
- Identifying what areas of the city NPSO strategy is most effective
- Determining optimal times for outbound calling
- Reviewing soft skills to ensure that customer service is adequate, and reviewing payment and service options to ensure that customers can conveniently pay
- Monitoring the results of 10-day notices
- Performing monthly analysis by reviewing reports and measuring collection efforts, as illustrated in *Exhibit VIII-28*
- Monitoring collection blockers (temporary holds created and placed on accounts to stop or prevent the collection process on specific accounts) or technology issues that would inhibit the effectiveness of PGW's system
- Enhancing collection efforts on difficult accounts, referred by PGW as TUPs, and managing high-balance delinquencies (a TUP is a situation in which multiple meters are served by a single service line, often involving apartments, row homes, etc.). These accounts are difficult to shut off because PGW must gain access to the individual meter sets inside the respective premise.
- Managing accounts receivable, including managing the relationship of third-party assistance (collection agencies) by instituting different programs to assist in collection agency performance
- Periodically meeting with these agencies to discuss PGW's needs and to continue to improve PGW's strategy
- Managing write-offs

Credit & Collections' intention is also to upgrade its back office performance involving:

- Medicals
- Settlements
- Sheriff sales
- Bankruptcies
- Back office reporting

Lastly, when required, the group also assists other Customer Affairs areas, such as the Call Center, to ensure a higher level of customer service.

The Credit & Collections group can systematically initiate shutoffs for residential customers only from April 1 to November 30, because the remaining period is a CWIP period and shut offs are currently done manually during this time, although this selection process will be automated soon. The majority of telephone calls are recorded for quality and training purposes. Both Supervisors and senior clerks listen in or sit with other clerks. Also soft skills coaching is provided.

Commercial Resource Center

The CRC's areas of responsibility include answering telephone calls on collections issues, processing gas service applications and deposits, billing adjustments, metering issues, high bill investigations, liens (as shown in *Exhibit VIII-14*), and negotiating payment arrangements, writing off accounts, and coordinating with the Legal Department on judgments and settlements. The goal of the unit is to reduce the overall arrears of the commercial portfolio in an effort to increase PGW's collection rate.

According to PGW management, in 2011, the CRC modified its collection path to be more aggressive and timely in collections activities. A direct result of this change was an increase in accounts that were habitual non-payers being terminated earlier.

Exhibit VIII-14
Number and Amount of CRC Liens
2010 to 2014

Calendar Year	Count	Amount
2010	3,693	$9,923,013.96
2011	3,764	$9,703,461.90
2012	2,602	$6,509,221.59
2013	2,122	$3,933,805.74
2014	2,229	$4,167,854.47
Five-Year Total	**14,410**	**$34,237,357.66**
Five-Year Average	**2,882**	**$6,847,471.53**

Source: Information Response 722

The Commercial Resource Center is led by a Director and has one Manager, one Supervisor, and 11 representatives who are responsible for credit and collections involving commercial, industrial, institutional (such as hospitals and apartment complexes), interruptible, and transportation gas customers. Over the past five years, the CRC staffing levels has been consistent with a budgeted headcount of five management employees and 10 union employees. One of the CRC representatives performs a dispute resolution role. Five representatives take telephone calls. They also act as backup to the Call Center representatives (residential customers) when call volumes dictate the need, plus CRC representatives have close relationships with industrial/commercial customers, so Call Center agents will

often transfer these customers to the CRC. The CRC representatives on average answer approximately 100 in-bound calls per day. The CRC hours of daily operation are from 8:00 a.m. to 4:30 p.m. After 4:30 p.m. customers can leave a message. These messages are retrieved and distributed by management to CRC representatives for call back. Two Account Management clerks are responsible for the City of Philadelphia and large commercial & industrial accounts. There are also two senior clerks who handle customer inquiries from the large commercial & industrial cycles and distribute work to others, which includes performance of lien capability, field investigation, analysis of application requests for large accounts, and outbound calls in response to inbound calls not completed. Other activities may include assisting the Credit and Collections group in monitoring sheriff sales and title company payoffs.

The Supervisor is responsible for the timely and efficient completion of daily work processes and related activities, which always involve other departments. The Supervisor provides guidance and technical support to subordinate staff by establishing job standards, outlining performance expectations, and ensuring that work processes are completed regarding credit and collection efforts and related customer support activities.

The Manager is responsible for overseeing the day-to-day operations of the department, ensuring that large commercial/industrial customers have access to PGW representatives and that the unit adheres to all federal, state, and local guidelines pertaining to the effective management and proper handling of metering, billing, and collections of high-volume gas consumers. The Manager also oversees PGW's largest accounts, including the City of Philadelphia, Philadelphia Housing Authority, School District of Philadelphia, and the state and federal government.

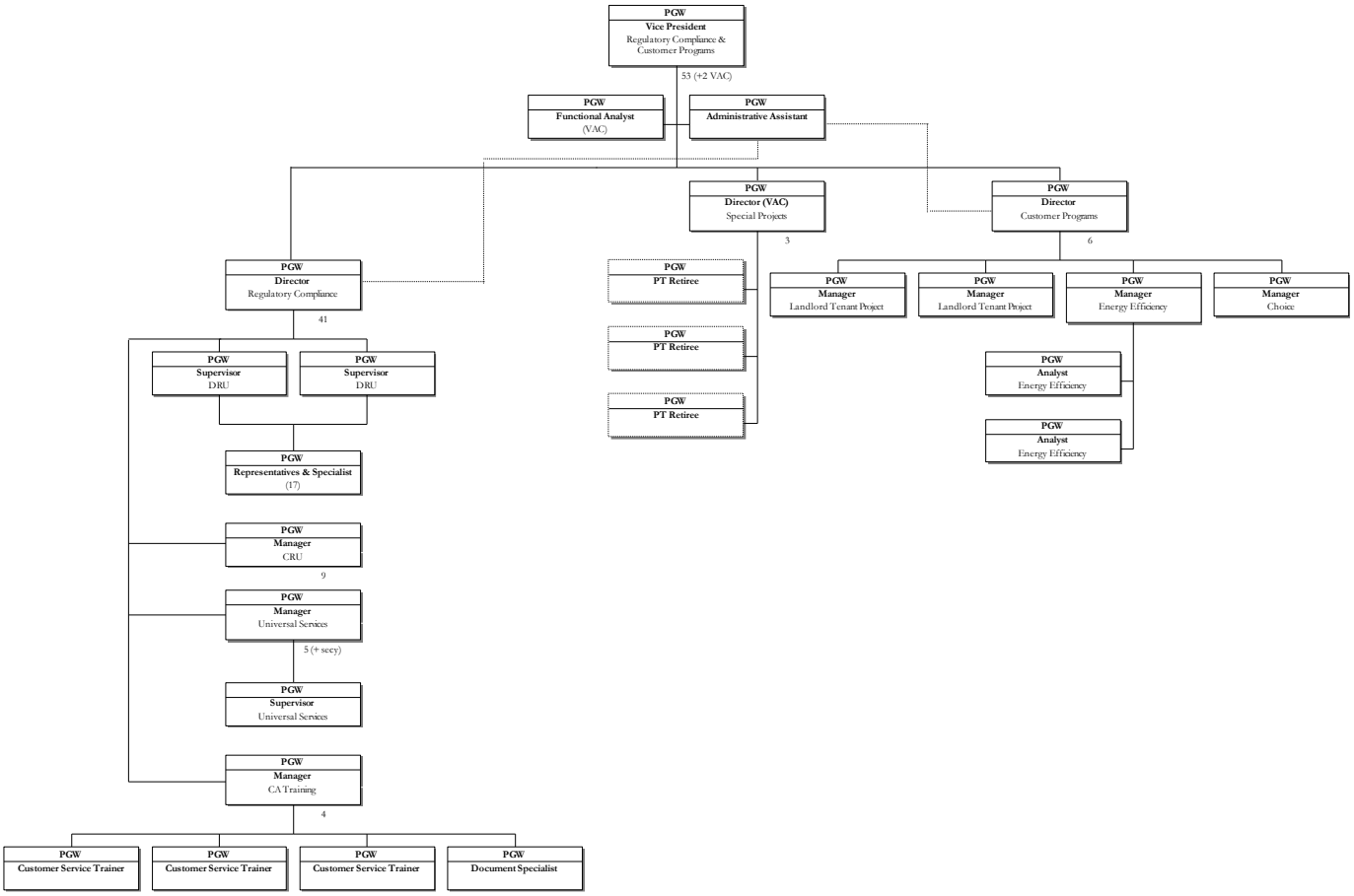
The CRC Director is responsible for leading and delivering results on multiple business processes, including customer care for large commercial/industrial clients and landlord–tenant relationships. This individual also acts as the department representative in strategic and financial planning processes, making determinations about hiring and discipline, and recommends new ways of organizing the department to anticipate and meet new needs and challenges. Additionally, the Director: creates manual bills for three transportation customers, involving two bills with one company; works with Accounting when it is looking for data for PaPUC annual filings and gas supply usage requests; and works with the Marketing group (especially because he previously worked there) on selected situations. For example, if a customer attempts to create a new account at a new location using a service request, PGW checks to make sure the old account is fully paid before the new account can be created.

Regulatory Compliance & Customer Programs

The Regulatory Compliance & Customer Programs organization, led by a VP, as shown in *Exhibit VIII-15*, is composed of the following three groups:

- Regulatory Compliance
- Customer Programs
- Special Projects

Exhibit VIII-15
Regulatory Compliance & Customer Programs
as of December 31, 2014



Source: Information Responses 1, 245, and 774 and PGW Draft Report Comments

The Director of Regulatory Compliance is responsible for four groups:

- *Dispute Resolution Unit* (DRU) – This group is composed of two Supervisors and 17 employees. Customer disputes may be initiated by customers by either contacting the Call Center, District Offices, or other Customer Affairs areas. They can also be submitted by U.S. mail sent directly to the DRU.
  - If the dispute is regarding a high bill, for example, there are seven field representatives who investigate by conducting field visits to check lines, meters, etc. Some of these field representatives have field experience; otherwise, they receive on-the-job (OTJ) training. The DRU has 30 days to investigate and respond to these disputes.
  - There are five specialists who can go "up" and investigate high bill disputes or go "down" and address other correspondence received.

- There are five representatives who address correspondence, not necessarily disputes, which must also be addressed within 30 days. These employees can also act as backup to the Call Center, if necessary.

- *Customer Review Unit* (CRU) – This group is primarily involved with PaPUC informal and formal complaints filed against PGW and comprised of 9 employees reporting to one Manager.
- *Universal Services* – This group is comprised of one Manager, one Supervisor, and six employees (plus one secretary is included in the headcount, although this position assists the VP and two Directors) who are responsible for administration of the following customer programs:
  - Customer Responsibility Program
  - Grants; each of the following programs notifies PGW when someone applies and is approved, so PGW can apply payments to accounts.
  - LIHEAP (started in 2014 on Monday November 3)
  - Crisis (started in 2014 on Monday November 3)
  - Utility Emergency Services Fund (UESF) (Philadelphia program with roughly 1,500 participants receiving grants, in which the program pays 50% and PGW pays 50% of each grant), as described later in *Exhibit VIII-40*. If a customer is approved for a grant that would satisfy their arrears or eliminate the threat of termination, a hold is placed on the account until the grant payment is received, so that the customer is not terminated.
  - Senior Citizens Discount Program; although the program closed to new participants on September 1, 2003, some customers are still grandfathered in the program, so administration entails monitoring the active status of existing accounts by performing quarterly audits on each account. If a senior citizen on the account is deceased, then notification is issued to other members within the household who may apply if they meet certain criteria, specifically if they were an occupant and senior citizen before the program closed.
- *Customer Affairs* (CA) *Training* – This group is responsible for new hire training for call center agents, supervisory training, training on policy changes, and refresher training for all CA employees – This group has a Manager, three Trainers, and one Document Specialist position.

Customer Programs

The Manager of Energy Efficiency reports to the Director of Customer Programs. This group is currently primarily responsible for PGW's Demand Side Management (DSM) program, which includes both a low income and a market rate program. Recently the program has been expanded to include not only energy efficiency/DSM activities but also emerging customer programs by looking at other utility organizations' best practices. This group is just beginning to set up a work plan for addressing emerging customer programs. For example, this group is looking at other utility programs, such as landlords/tenants and tariffs, plus other customer engagement ideas. This group expects to be troubleshooting and helping with issues, as well as outreaching and making presentations to the community. It is considered a "warm

filtering point" at PGW for customer programs. This group also expects to add to the landlord programs to assist with meter access.

PGW filed a petition to extend the DSM programs on December 23, 2014, at Docket No. P-2014-2459362, for an additional five-year period (Phase II) and allowing for ongoing programming thereafter. In 2015 subsequent actions were taken with respect to the Petition docket.

Exhibit VIII-16 and *Exhibit VIII-19* provide natural gas and non-gas savings, respectively, since inception through February 2015.

Exhibit VIII-16
Natural Gas Savings
Inception through February 2015

Program	Incremental Net Annual Gas Savings (MMBtus/Year)	Incremental Net Lifetime Gas Savings (MMBtus)
Enhanced Low Income Retrofit	234,529.6	4,851,319.6
Residential Heating Equipment Rebates	50,039.3	1,088,249.6
Comprehensive Residential Retrofit Incentives	6,752.2	188,330.7
High Efficiency Construction Incentives (Residential)	2,034.4	36,676.7
Residential Total	293,355.7	6,164,576.7
Commercial and Industrial Retrofit Incentives	8,483.8	167,794.1
Commercial and Industrial Equipment Rebates	9,773.4	216,599.0
High Efficiency Construction Incentives (Nonresidential)	-	-
Non-residential Total	18,257.2	384,393.1
PORTFOLIO TOTAL	311,612.9	6,548,969.7

Source: PGW Draft Report Comments

Exhibit VIII-17
Non-Gas Savings
Inception through February 2015

	Inception through Feb 28, 2015			
Program	Incremental Net Annual Electiricy Savings (MWh)	Incremental Net Lifetime Electricity Savings (MWh)	Incremental Net Summer Peak Demand Savings (kW)	Incremental Net Annual Water Savings (Million Gallons)
Enhanced Low Income Retrofit	2,437.7	56,151.3	900.4	12.1
Residential Heating Equipment Rebates	256.2	5,124.0	-	-
Home Rebates	82.5	2,516.3	-	0.0
High Efficiency Construction Incentives (Residential)	5.5	138.9	1.7	0.5
Residential Total	**2,782.0**	**63,930.5**	**902.0**	**12.7**
Commercial and Industrial Retrofit Incentives	115.5	2,020.6	12.3	2.6
Commercial and Industrial Equipment Rebates	-	-	-	1.9
High Efficiency Construction Incentives (Nonresidential)	-	-	-	-
Non-residential Total	**115.5**	**2,020.6**	**12.3**	**4.4**
PORTFOLIO TOTAL	**2,897.4**	**65,951.1**	**914.3**	**17.1**

Source: PGW Draft Report Comments

For roughly 20 years, PGW has had a Low Income Usage Reduction Program (LIURP), which is available to CRP participants and is now part of the DSM program. Other programs include DSM market rate weatherization programs (MRWPs) for residential and commercial customers. The LIURP includes income criteria but the MRWP does not. Rebates include:

- Residential equipment rebates
- Commercial and industrial rebates
- Building grants
- Construction grants
- Residential home rebates

Another major responsibility of this group includes PGW's customer choice program. Recently, as part of a settlement with suppliers, PGW agreed to implement a Purchasing of Receivables (POR) program, with consolidated billing. Currently, there is dual billing, in which suppliers charge for the gas commodity and PGW charges for transportation. Under the POR program, consolidated billing will be done by PGW that will include both charges. Suppliers will send data to PGW, which will incorporate the information onto PGW's bills. Then PGW will in turn pay the suppliers. Under this program, PGW is taking on the risk of not collecting from customers. Based on uncollectible rates in its last rate case, PGW will use a 4.68% discount for residential customers, a 0.28% discount for commercial customers, and a 0.30% discount for industrial customers. Additionally there is a 2% administration fee. As such, for example, if the commodity costs $100, then PGW will pay the supplier approximately $94 (4% discount plus 2% administration fee) if it is related to a residential customer and approximately $97 (1% discount plus 2% administration fee) if it is related to a commercial/industrial customer. The POR program must be developed by the end of FY2015 (i.e., August 31, 2015). Additionally PGW agreed to take on some marketing activities.

In addition, Customer Programs has a group that offers two programs regarding landlords, which are:

- Landlord Cooperation Program (LCP) (launched in June 2006)
- Commercial Landlord Notification Program (CLNP) (launched in September 2002)

PGW's two LCP and CLNP employees report directly to the Director of Customer Programs. The LCP is designed to provide fully cooperating landlords protection against PGW liens, to help landlords better manage their property, and to improve PGW's ability to obtain access to its meters. As part of the program, PGW provides registered landlords with information on their properties' meter events, such as planned shutoff events, and usage without a contracted customer. As long as landlords maintain a cooperative status, they are also protected against the placement of PGW gas liens for unpaid PGW arrearage at their properties. In exchange, cooperating landlords must provide PGW with access to their registered properties for all PGW purposes. PGW's LCP is available to all residential landlords with a valid Philadelphia renter's license for properties at which gas service is in a tenant's name. The LCP was designed with substantial input from landlords and landlord association groups, such as the Homeowner's Association of Philadelphia and the Greater Philadelphia Association of Realtors. These two programs are similar, but LCP includes protection against the placement of gas liens, while CLNP

has no protection against liens but offers advanced lien notification to commercial landlords in exchange for access to properties.

Exhibit VIII-18 illustrates PGW's results for its LCP over the past five fiscal years.

Exhibit VIII-18
LCP Results
FY2010 to FY2014

	FY2010	FY2011	FY201FY2	FY2013	FY2014	Total
LCP NPSO						
Completed Landlord Assisted NPSO Orders	842	846	936	733	653	4,010
LCP Landlord Appointment Effectiveness	85%	86%	86%	84%	79%	84%
Completed LCP Shut-off Orders Past Due Amounts	$1,512,240	$1,327,112	$1,875,310	$822,695	$3,160,874	$8,698,231

Source: PGW Draft Report Comments

PGW is currently not implementing the CLNP program to have landlords access the property; therefore, no current results are available.

Special Projects

The Special Projects group is the liaison/project manager for Customer Affairs with the Information Services (IS) organization. It includes only three part-time retirees (less than or equal to 19 hours weekly for each) as the Director position is currently vacant. Among the activities performed by this group is a review of the BCCS application, including testing activities, addressing BCCS production issues and management of all Customer Affairs IS projects.

Processes

Billing

Billing occurs in a nightly batch run by bill cycle. Each account is placed in a billing cycle based on the premise's location. The system will bill regardless of the number of days from the last bill date. If less than 16 days from the last bill date, the customer charge will not be billed.

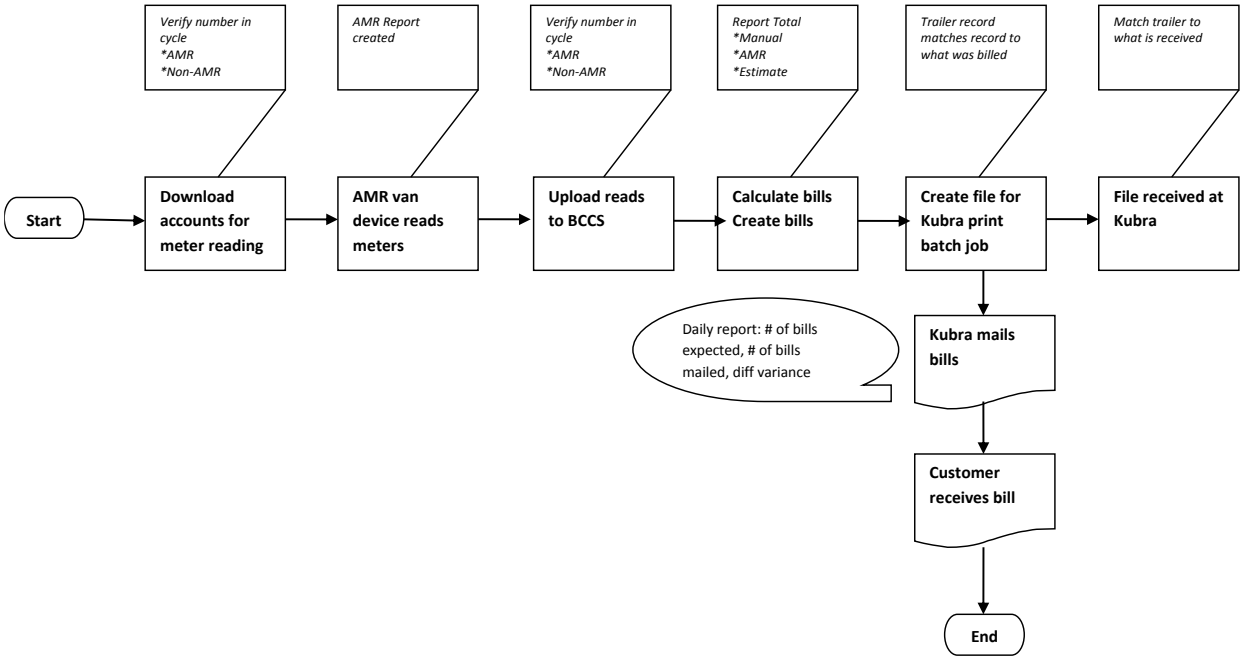
At PGW there are 20 main billing cycles (Cycle 1 to 20) for all residential customers and commercial customers with small to moderate MCF (1,000 cubic feet) usage. Other cycles include Cycle 21 for City of Philadelphia property accounts, Cycle 22 for large MCF users from industrial and commercial customer (interruptible) accounts, Cycle 23 for customer choice accounts, and Cycle 30 for supplier billing (customer choice). For Cycles 1 to 20, the location is based on when meter reading is done. The billing of customers is done Monday through Friday, not Saturday or Sunday.

Cycle 21 is for unique situations, such as school districts, Philadelphia Water Department (PWD), Philadelphia Housing Authority (PHA), and City of Philadelphia accounts. The bills sent are called

blanket bills and they can contain different cycles if multiple locations are used. A bill is issued by the 10th of the month and payment is due by the 10th of the following month. The CRC creates reports based on bills developed by the BCCS. It will notify Cycle 21 customers if an account is not paid within 30 to 45 days. These customers typically pay electronically.

The duration of each element of the billing cycle is driven by the billing process, as illustrated graphically in *Exhibit VIII-19* and described following the exhibit.

Exhibit VIII-19
Account Billing Control Flow
as of December 31, 2014



Source: Information Response 266

- *Day 1*
  - Meter batches for the scheduled cycle are created; data is downloaded to automated meter reading (AMR) vans.
  - Meter routes are read by AMR vans.
  - Meter reading area uploads information to BCCS nightly.
- *Day 2*
  - The Meter Reading group identifies missed reads in the morning.
  - 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.

- *Day 3*
  - 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 (in the Customer Accounting group) on *Day 4*. If an account requires further follow up, the Billing group issues a service order that requests verification of the current reading.
  - Accounts in which no exception was flagged and those that were manually billed are included in the Bill Print job.
  - At the end of *Day 3* the non-billing exception bills are transmitted for processing and bill printing, which occurs in the early morning hours of *Day 4* or three days after the meter was read. Typically 99.1% to 99.9% of the accounts were read on *Day 1*.

- *Day 4*
  - The Customer Accounting group works those accounts that are contained in an exception report by correcting the account and reissuing a bill for *Day 4* nightly billing.

Therefore, most billings are printed and sent out three days (*Day 4* of the account billing process) after meter reading; however, those accounts requiring a reread or some other review are usually issued on the fourth day and are processed *Day 5*. Billing errors are corrected by canceling and reissuing the bill. By the end of *Day 5*, all accounts are billed.

PGW issues approximately 6 million bills each year for roughly 500,000 residential and non-residential customers. Of these, roughly 20,000 misreads occur (roughly 0.3% or three errors every 1,000 bills).

Exhibit VIII-20 displays the number of bills processed by year and by month for the past five years. It also shows the number and percentage of rebills by year.

Exhibit VIII-20
Number of Bills Processed
FY2010 to FY2014

Month	FY2010	FY2011	FY2012	FY2013	FY2014*
September	488,291	492,356	491,766	492,781	493,925
October	488,086	491,319	491,940	492,406	492,293
November	488,305	494,113	494,458	493,223	499,087
December	491,867	496,663	496,391	497,808	502,490
January	493,659	498,823	496,736	499,020	505,627
February	494,947	498,964	497,688	525,863	506,916
March	496,862	501,545	499,795	500,906	506,240
April	498,521	501,449	500,479	502,129	507,755
May	497,032	500,791	499,628	501,067	501,821
June	496,788	498,293	497,337	499,324	499,362
July	494,645	495,303	494,959	500,709	496,296
August	492,002	493,891	493,709	495,889	494,271
Total Year	**5,921,005**	**5,963,510**	**5,954,886**	**6,001,125**	**6,006,083**
Total Year #	**645**	**719**	**1,009**	**1,029**	**1,276**
Total Year %	**0.011%**	**0.012%**	**0.017%**	**0.017%**	**0.021%**

Source: Information Responses 208 and 774
*FY2014 figures may change because this fiscal year is subject to audit.

If an account is billed outside its normal billing cycle, it is considered an off-schedule (or off-cycle bill). The number of off-schedule bills is typically less than 1%. There are various reasons why these types of bills are generated, including:

- *Bill Segment and Bill Header Error Reports* – After each cycle, systematically a Bill Segment and a Bill Header Error Report are generated. These reports contain accounts that were unable to bill during the nightly batch billing process along with their associated error. The Account Management Department Customer Accounting group receives the report the following day and is responsible for correcting the account errors and manually generating the bills.
- *Prorates and Bankruptcies Prorates* – PGW receives notification that the utility service agreement (USA) start and/or end date for a customer is incorrect. After the dates are corrected, a new bill is manually generated, reflecting the corrected dates and usage. A bankruptcy prorate is generated when a customer files for bankruptcy and the post-petition account has to be back dated to the date of the bankruptcy.

- *Rebills* – When information is received that an account was billed incorrectly, that account is manually rebilled and a new bill is generated. As shown previously in *Exhibit VIII-20*, the number of rebills increased over the past five fiscal years correspondingly to the number of bills created. In addition, the higher numbers over the years has been driven by meter exchanges as equipment ages. (The dollar amount of rebills for each fiscal year is not tracked.) The Customer Accounting group only revises bills. Its employees are not involved in investigating, but they change bills once another group, like the Field Services Division (FSD), Universal Services (US), the Dispute Resolution Unit (DRU), the Customer Resolution Unit, the Call Center, or the District Office, performs an investigation. According to FSD management, for example, an outside firm reviews meter reads and lets PGW's Revenue Protection Unit (RPU) know if a questionable situation exists.
- *Closing Bills* – When a turnoff is completed and the USA is unlinked, the account billing cycle is systematically changed to the billing cycle that will bill the following night in order for the closing bill to be generated in a timely manner.

Exhibit VIII-21 displays the amount of revenues billed for the past five years.

Exhibit VIII-21
Revenues Billed
FY2010 to FY2014

	FY2010	FY2011	FY2012	FY2013	FY2014*
September	$27,009,338	$25,807,807	$28,188,830	$27,384,896	$24,987,534
October	$41,988,560	$40,602,723	$36,061,169	$34,573,992	$32,523,066
November	$68,867,996	$69,709,930	$61,890,148	$68,555,132	$67,273,981
December	$112,489,953	$112,607,954	$87,675,659	$89,324,090	$96,579,696
January	$128,472,155	$130,510,836	$100,066,915	$103,958,682	$135,592,617
February	$110,820,597	$110,343,396	$94,408,699	$107,403,691	$119,807,745
March	$86,908,254	$82,292,137	$62,728,166	$94,854,264	$103,094,450
April	$45,666,818	$49,420,151	$36,845,460	$46,259,692	$47,134,818
May	$27,164,945	$29,272,988	$24,690,326	$18,373,143	$26,325,735
June	$28,803,239	$26,863,655	$26,830,301	$27,081,442	$23,804,641
July	$23,317,315	$26,368,357	$24,471,473	$23,243,796	$28,001,366
August	$40,832,645	$45,467,747	$44,530,067	$34,141,463	$16,143,435
Total	**$742,341,815**	**$749,267,681**	**$628,387,213**	**$675,154,283**	**$721,269,084**

Source: Information Response 208
*FY2014 figures may change because this fiscal year is subject to audit.

Kubra Data Transfer Ltd. (Kubra), which was recently acquired by Hearst, does PGW's bill printing in northern New Jersey. Bills to customers are sent via either mail (90%) or e-bill (10% or roughly 70,000 customers) by Kubra. If an e-bill bounces, then it is taken off the e-bill list and a letter is sent along with a paper bill.

Remittance Processing

Receipts from PGW customers for gas payments are received in several ways. Customer receipts are primarily processed by Transcentra, previously Regulus, (third-party provider of remittance processing services), six customer service centers at District Offices (with four open on any given day), credit cards, online payments, check-by-phone payments, Ameracash and MoneyGram (third-party physical locations), Avista (third-party collections for commercial customers using Wachovia-integrated posting and Automated Clearing House (ACH) payments), Cass Information Systems (third-party collections), and PGW's website. PGW uses Kubra for its merchant credit card service, with seven different categories of credit cards, as well as a pay-by-phone system that directly credits money to the Bank of America account. There are also wire transfers, which are generated by PHA, the City of Philadelphia, any federal/state government contract, and several other commercial customers.

Payments from PGW's third-party agents are received on a daily basis and are keyed in a "Cash Receipts" tracking spreadsheet file in the Remittance Processing group. These payments are posted in this spreadsheet and are compared (verified) to the posting payment received daily as well from third-party agents. Any discrepancies are researched and identified.

Exhibit VIII-22 illustrates the number, dollars, and percentage associated with posted payments by source.

Exhibit VIII-22
Posted Payments by Source
FY2014

Source	Items	Dollars	%
Transcentra	1,774,388	$294,790,200	44%
Agencies	1,317,966	$151,870,114	23%
District Offices	396,141	$62,931,395	9%
WEB	427,071	$61,124,554	9%
IVR	162,314	$24,480,419	4%
Desktop	97,153	$22,914,744	3%
Autopay	289,208	$25,573,456	4%
PHA	23,448	$9,055,282	1%
RPPS	124,563	$16,086,945	2%
Agcy COLL	1,973	$263,947	0%
Total	**4,614,225**	**$669,091,056**	**100%**

Source: Information Response 215
RPPS= report payment processing service at locations like Walmart, via Kubra
Agcy COLL differs from Agencies; Agencies refers to collection agencies and Agcy COLL refers to payments received directly by PGW group, as opposed to its website (WEB).

Regarding remittance processing of checks, PGW uses Transcentra. During FY2008 (when the prior Stratified Management & Operations Audit was conducted), PGW received approximately 60% of payments via check. Due to use of technology in subsequent years, that figure has been reduced annually to 44% in FY2014. Two computer files are processed each day by Transcentra (early and late morning) and transmitted to PGW for payments to be applied to customer accounts via batch processing each night. Transcentra also images checks and sends to BoA for depositing to PGW's account. BoA provides 80% availability the next day. Each day the Customer Accounting group connects online to Transcentra's system to view potential "kick-outs," which PGW can attempt to correct. If done by 3:00 p.m., the correction is processed by the 3:00 a.m. (early morning) processing. If not, it is "kicked out" and not applied to a customer's account unless the customer contacts PGW to determine why a payment has not been applied. Of roughly 4.5 million accounts this year, approximately 3,500 have been kicked out as invalid payments. Recently (July 2014) the Commonwealth of Pennsylvania changed its escheat period from five years to three years, which is the time period during which PGW must send in unclaimed funds.

Regarding wire/ACH payments, PGW uses Kubra. Kubra also processes payments received via the web, IVR telephone system, and Customer Representatives over the telephone. Kubra also has relationships with online services, such as Checkfree, etc. Automatic payments (autopay) (40,000 to 50,000 residential customers) are also processed through Kubra; policy does not include commercial/industrial customers. A spreadsheet is e-mailed to Kubra for autopay customer bills. Kubra is responsible for depositing funds into PGW's BoA account for payments it processes.

Payments received by DOs are approximately 50% cash, 10% credit card, and 40% check. If a debit card is used, it is considered from a credit card standpoint. Every day Brinks picks up cash from the DOs and PGW has availability of funds within one day. For checks, the DOs use a scanner and PGW has availability of funds the same day. For credit cards, it takes roughly two days for availability of funds, because PGW DOs use a different system, which must be interfaced with BCCS. Kubra is responsible for processing and depositing into PGW's BoA account. In the first half of 2015, PGW is exploring the use of kiosks at DOs to determine the costs and benefits of their use. PGW is also considering going to a more robust processing in DOs, as the Manager of Customer Service Operations has proposed the use of iPads by representatives.

PGW uses two banks: BoA and Wells Fargo.

- BoA is considered PGW's primary bank. Transcentra and Kubra process PGW payments via BoA. The DOs also use BoA for depositing payments.
- Well Fargo (WF) is a custodial bank that PGW uses for wire transfers; it also makes investments through WF.

The Customer Accounting group never inputs directly into the PGW cash account. Only the Treasury Department books to that corporate account; therefore, the Customer Accounting group instead uses a clearing account called "Total Office Deposits" or "Cash Clearing." On a daily basis as posting files are

"received from PGW's third-party agents, they are posted to the customer accounts, and all daily posting totals are reflected in the general ledger as debits to Cash Clearing. At month end, the Treasury Department totals all daily worksheets from Remittance Processing that contain each day's reported gas receivable payments and posts a journal entry that credits the Cash Clearing account in the general ledger. There are four accounts that do not post to Cash Clearing each day. They are: Ameracash, MoneyGram, PHA, and UESF. For these four accounts, the Accounting Assistant journalizes the totals less any unapplied amounts directly to Cash Clearing at month end. There are also some miscellaneous entries relating to payroll that post to the Cash Clearing account. At month end, the Remittance Processing group, via its cash tracking spreadsheet, informs the Accounting Assistant that there are unapplied moneys that will help to reconcile the Cash Clearing account. While the clearing/suspense accounts should be zero at month end, they may not be due to timing issues.

Regardless of the method used to collect customer payments, the culmination of the process ends with the revenue entering BCCS. On a daily basis, BCCS is automatically updated with the cash receipts for gas payments from the various systems used throughout the revenue cycle.

BCCS interfaces with Oracle via reports run daily called "G/L Fins." After the journal entries are reviewed by the Manager, Customer Accounting, the Manager, Financial Reporting posts them to Oracle Financials. The senior employee in the Mail Receipts Department handles clearing of any suspense items to post them correctly as a reduction to accounts receivable.

Each operating day, a Daily Cash/Check Transmittal Sheet is prepared by each open District Office (four on any given day) describing whether its deposit was currency/coin or checks. These sheets are sent to the Senior Accounting Clerk (Clerk). The Clerk also receives the Daily Cash Transmittal Reports from the Mail Receipts Department. These reports summarize the daily transactions and deposits to the bank from all methods of gas revenue payments, which are generated based on BCCS reports. The Clerk prepares a manual tape by District Office and balances the transmittal sheets to the Daily Cash Report. If there are any discrepancies, the Clerk follows up with telephone calls to the appropriate District Office. Errors are commonly due to transposing of numbers during the initial input of the information. On a weekly basis, the Clerk summarizes the transmittal sheets and places the summary at the front of the week's transmittal sheets.

The Treasury Department also receives the Daily Cash Transmittal Reports and uses them to create the monthly Cash Book, which is a culmination of the daily activity that is being recorded. The Cash Book is prepared on a daily basis and produced monthly in report form. This report is then given to the Bank Reconciliation area in the Accounting & Reporting Department. The Accounting Analyst (AA) in Treasury checks the transaction sheets and debits or credits the appropriate cash accounts based on the information provided.

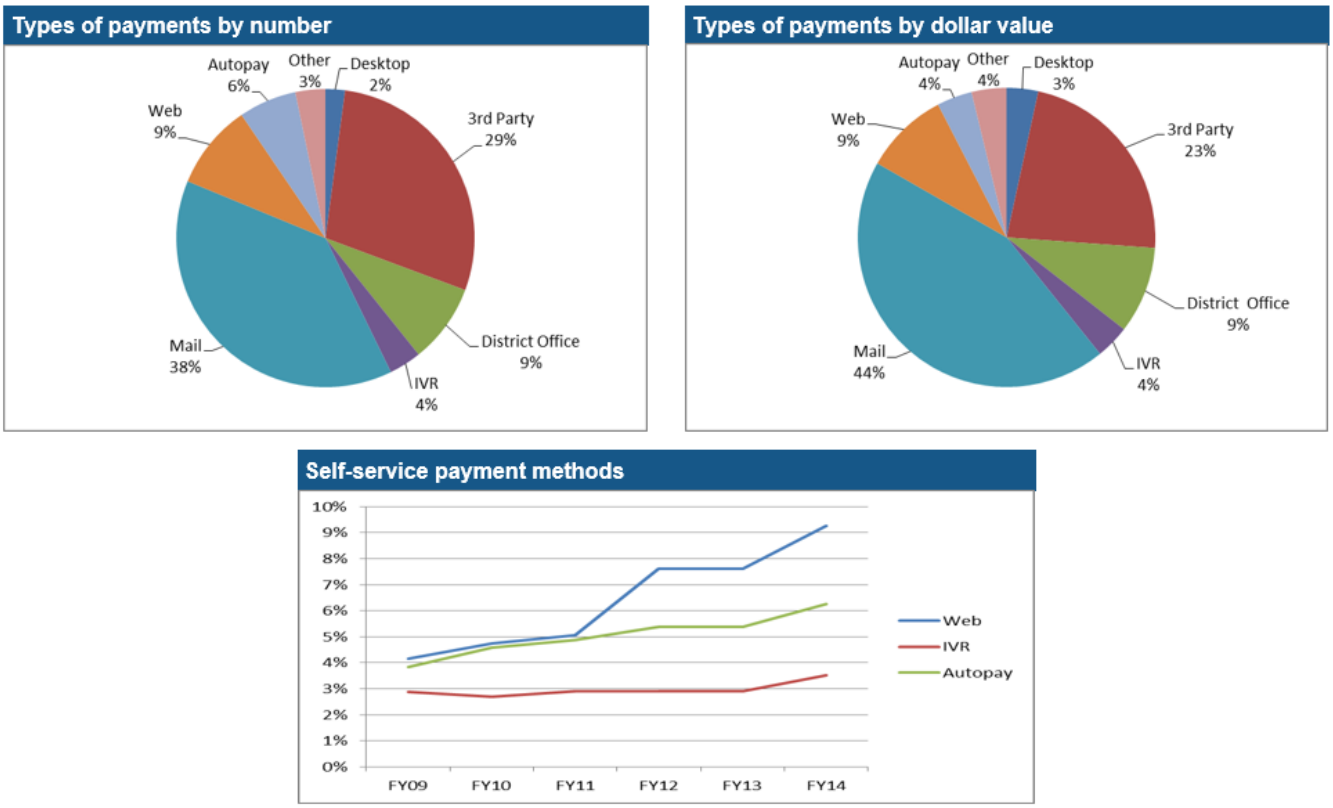
The AA in Treasury also handles the petty cash accounts. The safe containing cash and other security-sensitive items is maintained in the cash office, which is kept locked. No unauthorized employees are permitted to enter this office space. If any miscellaneous cash/checks are received, the AA(s) prepare them for deposit in one of two manners. Cash is prepared for deposit with a deposit slip and is sealed

in a deposit bag. Checks are scanned weekly and sent to the bank electronically by the AA(s). The Treasury Financial Section Supervisor reviews the cash deposit and signs off. It is then given to the AA to record.

The Financial Supervisor downloads ACH payments and wire transfers from Wells Fargo and Bank of America and forwards them to the Customer Affairs Department for processing. The senior employee in Mail Receipts uses this information to update records.

Exhibit VIII-23 illustrates an overview of the types of payments made by PGW customers.

Exhibit VIII-23
Customer Payment Overview
by Type (FY2014)
Increase in Self-Service Payment Methods (FY2009 to FY2014)



Source: Information Response 217, Slide 46
Figures above do not include grants or wire transfers into the Commercial Resource Center group.
Desktop payments are payments made by telephone directly with CR representatives, as opposed to through the IVR.

PGW has multiple bank accounts with several different banks, including two main operating bank accounts, which are with Bank of America and Wells Fargo. Each bank has deposit (input) and

disbursement (output) accounts, which are reconciled on a monthly basis. For each of these banks, the inputs are as follows:

- Wells Fargo Bank
  - Wire/ACH payments (from customers such as Philadelphia Housing Authority, City of Philadelphia, and federal/state government, collection agencies, and some large commercial accounts)
  - MoneyGram
  - Legal
  - Checkfree
  - Cass Information Systems
  - Online Resources
  - Ameracash (Softgate Systems)
  - Wells Fargo Integrated Receivables
- Bank of America
  - Coin/currency from District Offices
  - Checks from District Offices
    - Credit card receipts
    - IVR system (pay by phone to PGW) (tracked by Kubra)
    - Kubra (Paymentech) and Metavante (used by Kubra for credit card processing)
    - Parts & Labor Plan payments by web via credit cards
    - Encoded checks via Transcentra (previously Regulus)
  - Remote deposit scanned checks from all District Offices, mail receipts, and the Treasury Department
    - Pension funding from PGW's Retirement Pension Fund
  - Third-party collectors

Non-Sufficient Funds (NSF)/Bounced Checks

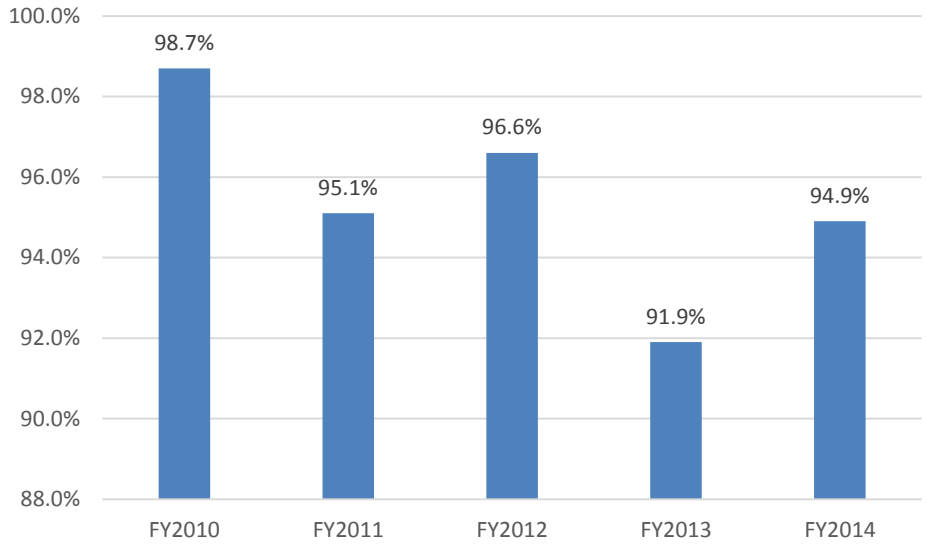
Transcentra sends a daily file with all NSF/bounced checks processed at its facility. Any NSF/bounced checks that were presented at the District Offices are retrieved electronically directly from Bank of America's online banking portal. The AA in Treasury and Mail Receipts confirms the total amount retrieved from the Bank of America online banking portal and the daily file sent by Transcentra each month prior to recording the journal entries above and below. In both cases, the customer's account is reopened and the following journal entry is created to record the amount due back from the customer: The customer is also charged a bounced check fee, which is credited to Finance Charges Revenue:

Collections

As noted in the PaPUC 2013 Universal Service Programs and Collections Performance Report, PGW has the highest number (77,839) and percentage (16.6%) of residential customers overdue (in debt) of any gas utility in Pennsylvania. Moreover, of those residential customers, PGW had approximately 4% on a payment agreement. The dollars associated with residential customers in debt was approximately $46,900,000, which excludes Customer Assistance Program (CAP) participants. Also, the average arrearage (total dollars in debt divided by the number of customers in debt) results in PGW having the highest overall average arrearage of any gas utility in Pennsylvania. In a later section, a description of overdue/delinquent accounts greater than 30 days and the process involved are discussed.

The following exhibits provide various collections data. *Exhibit VIII-24* provides a five-year trend of collection rates for FY2010 to FY2014. According to PGW management, the collection rate from FY2010 to FY2012 was above 95.0% due to mild winters and customers being able to pay bills timely. As a result of the billings occurring in the later part of the winter, the collections impact was not felt in FY2013. Instead, the impact was seen in FY2014's collection rate. The uptick in FY2014 collection rate was due to the colder winter in the latter half of FY2013, and also the cold winter in FY2014. Due to the increased billings in both FY2013 and FY2014, PGW anticipates an uptick in the collection rate in FY2015.

Exhibit VIII-24
Collection Rate
FY2010 to FY2014



Source: Information Response 717

PGW's 12-month collection rate is significantly influenced by prior period billings, in which billing and collections/receipts are essentially in step.

Exhibit VIII-25 provides a five-year trend of 10-day termination notices for calendar years 2010 to 2014, which are the result of risk-based collections criteria. While from 2010 to 2012, the number of notices declined, in 2013 and 2014, the number increased, with 2014 having the largest number during the five-year period.

Exhibit VIII-25
Number of 10 day Termination Notices Issued
2010 to 2014

	2010	2011	2012	2013	2014
March	46,750	12,119	27,273	15,396	32,344
April	40,968	35,379	24,472	55,101	37,290
May	30,103	19,653	18,217	20,532	41,726
June	22,755	19,616	22,633	26,734	41,915
July	21,140	19,900	14,478	18,670	34,388
August	15,602	18,397	12,382	18,059	31,781
September	15,160	16,074	8,629	16,351	28,302
October	13,841	15,234	10,824	10,861	27,581
November	8,391	9,174	11,259	0	14,905
Total	214,710	165,546	150,167	181,704	290,232

Source: Information Response 717

Exhibit VIII-26 illustrates the dollar amounts of gross write-offs by type of account for the last five calendar years (2010 to 2014). According to PGW management, the increase in gross write-offs in the later years (2013 and 2014) is contributed to higher bills due to colder winters.

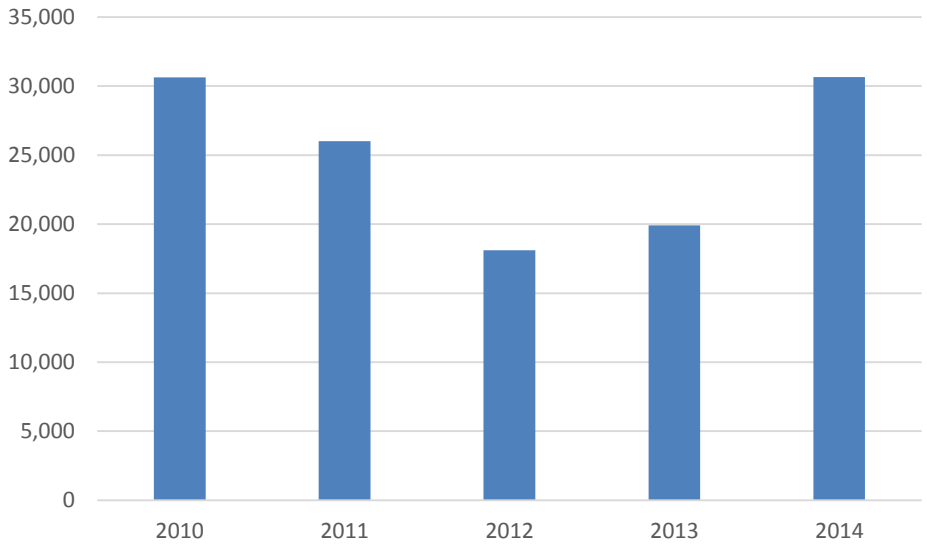
Exhibit VIII-26
Gross Write-Offs* by Type of Account
2010 to 2014

`	2010	2011	2012	2013	2014
Residential	$46,724,334	$39,956,268	$39,112,696	$42,363,032	$46,740,835
Commercial	$7,326,480	$2,242,605	$2,778,456	$1,688,558	$1,228,409
Industrial	$781,395	$112,059	$151,677	$58,727	$41,624
PHA	$203	$1,112	$97	$24,659	$5,610
Total Gross Write-Offs	$54,832,411	$42,312,045	$42,042,927	$44,134,976	$48,016,477

Source: Information Response 717 and 727
* Gross write-offs are prior to any application of payments due to reactivation activities, which results in net write-off amounts.

Exhibit VIII-27 provides a five-year trend of service reconnections for 2010 to 2014, which PGW also tracks relative to its terminations.

Exhibit VIII-27
Service Reconnections
2010 to 2014



Source: Information Response 717 (Report on Universal Services Programs and Collections Report of PA Electric Distribution and Natural Gas Distribution Companies issued by the PaPUC Bureau of Consumer Services)

Exhibit VIII-28 illustrates PGW's accounts receivable aging schedule, which it refers to as collectability by category, showing the number (occurrences) of accounts and associated dollar value (segmented by residential, commercial, and industrial customers) for the past five calendar years highlighting current and overdue accounts. The amount of overdue accounts has ranged between 74% at the end of 2010 to 80% at the end of 2014.

Exhibit VIII-28
Collectability by Category
Calendar Year Ending 2010 to 2014

Calendar Year-End	Description	Current	31 - 60	61 - 90	91 +	Total Arrears 31-91+	Total Accounts Receivable	Occurrences
DEC 2010	Commercial	$7,822,257	$4,279,168	$620,118	$6,965,866	$11,865,152	$19,687,409	7,215
DEC 2010	Industrial	$842,714	$956,805	$66,113	$512,873	$1,535,791	$2,378,505	200
DEC 2010	Residential	$13,901,235	$8,253,736	$4,997,208	$36,978,079	$50,229,023	$64,130,258	109,090
DEC 2010	**Total**	**$22,566,206**	**$13,489,709**	**$5,683,439**	**$44,456,818**	**$63,629,966**	**$86,196,172**	**116,505**
DEC 2011	Commercial	$4,977,065	$3,649,559	$581,763	$6,493,331	$10,724,653	$15,701,718	6,768
DEC 2011	Industrial	$801,393	$646,054	$495,038	$449,354	$1,590,446	$2,391,840	216
DEC 2011	Residential	$12,623,910	$9,896,935	$4,783,204	$43,136,918	$57,817,057	$70,440,967	121,444
DEC 2011	**Total**	**$18,402,369**	**$14,192,548**	**$5,860,005**	**$50,079,603**	**$70,132,157**	**$88,534,525**	**128,428**
DEC 2012	Commercial	$5,040,632	$3,666,428	$443,954	$4,715,004	$8,825,387	$13,866,019	7,304
DEC 2012	Industrial	$747,167	$520,176	$47,105	$141,816	$709,097	$1,456,264	230
DEC 2012	Residential	$15,629,344	$11,024,124	$4,798,145	$47,871,884	$63,694,154	$79,323,498	137,870
DEC 2012	**Total**	**$21,417,143**	**$15,210,728**	**$5,289,205**	**$52,728,704**	**$73,228,637**	**$94,645,781**	**145,404**
DEC 2013	Commercial	$6,592,531	$4,041,086	$394,671	$3,289,630	$7,725,387	$14,317,918	7,634
DEC 2013	Industrial	$937,269	$572,441	$49,796	$185,293	$807,530	$1,744,799	247
DEC 2013	Residential	$17,981,928	$10,424,519	$5,705,641	$55,758,110	$71,888,270	$89,870,198	151,196
DEC 2013	Total	$25,511,727	$15,038,046	$6,150,108	$59,233,033	$80,421,187	$105,932,915	159,077
DEC 2014	Commercial	$4,184,580	$2,686,540	$357,904	$3,600,233	$6,644,677	$10,829,258	6,628
DEC 2014	Industrial	$553,218	$310,399	$74,605	$220,933	$605,936	$1,159,154	186
DEC 2014	Residential	$15,950,703	$9,150,847	$5,327,121	$59,541,519	$74,019,487	$89,970,190	149,703
DEC 2014	**Total**	**$20,688,501**	**$12,147,786**	**$5,759,629**	**$63,362,685**	**$81,270,100**	**$101,958,601**	**156,517**

Source: Information Response 725

Examples of collections activities performed include:

- *Title Company Payment Requests* – The goal of the pay-off request process is to recover money owed for gas service previously provided to a property facing a municipal lien, sheriff sale, or other type of settlement. To successfully transfer the title, the title agency is required to request any outstanding balance information associated with the title's premise. The role of the PGW representative is to provide the title agency with the unpaid dollar amount owed to PGW for gas service provided to the property. For pay-off requests, this group develops real estate ending balances of approximately 300 to 400 per day, of which 200 to 300 per day are residential customers. As of the fourth quarter of calendar year 2014, the Credit & Collections group has approximately 1,300 to 1,400 payment requests to be processed; the volume varies depending on the time of year.
- *Liens* –The application of liens to a customer's account is automated when:
  - The account balance is over 30 days and the amount is over $300 in any of the delinquent arrears buckets.
  - The account receives a ten-day notice and the amount is over $300 in any of the delinquent arrears buckets.

- The account has a final bill and the amount is over $100 in any of the delinquent arrears buckets.

A pre-lien notice is mailed to customers in the categories above, with the exception of accounts that receive a final bill.

- *Medical Certifications/Holds* – A residential customer may obtain a medical hold to prevent termination or to restore service for 30 days. The number of medical holds is limited to three certifications (an initial certificate and two renewals) for the entire household for the same set of arrearages, unless all current bills are paid in full and timely each month since the time of the first medical hold. That is the customer must pay all delinquent debt before another medical hold can be used. Residential customer requests for medical certifications are typically received via the PGW Call Center or District Offices where agents take information and provide forms to medical professionals (physicians, physician assistants, or nurse practitioners). PGW also accepts medical certificates completed in letter form. Upon notification that a medical condition exists in the household, a seven-day medical preliminary hold is required and will be placed on the account by the PGW representative if the customer qualifies for a medical certificate. The purpose of the preliminary hold is to provide the customer's physician or nurse practitioner time to provide PGW with written certification of the medical condition and for PGW to validate the medical certificate, including verification of the medical professional's license number. Upon PGW receiving the written notification, the medical hold will be extended to a maximum of 30 days. PGW must restore service no later than 24 hours upon receipt of a valid medical certificate. PGW restores service to customers who were dug[8] as soon as possible but no longer than three days.
- *Sheriff Sales* – For sheriff sales, the Collections group obtains a listing of properties for sale and determines if any outstanding bills exist, including liens.
- *Bankruptcies* – Once a residential customer files a bankruptcy, PGW must stop actively collecting pre-petition debt from that customer. The service agreement for an active account is closed and a post-petition account is established through a new service agreement, for which PGW can use collection efforts, if necessary. How long it takes for a bankruptcy process depends on the type of bankruptcy (chapter 7, 11, or 13). If the bankruptcy is discharged, then the pre-petition account is written off; however, if the bankruptcy is dismissed, then the customer still owes PGW for the pre-petition debt.
- *Risk Based Collections* – Through the risk-based assessment performed by Experian on behalf of PGW, each month Experian scores each account on its billing cycle. The accounts (past the bill's due date) are put into one of three categories and collection efforts are initiated, as illustrated in *Exhibit VIII-29*.

[8] / In cases where a shutoff of service cannot be performed by shutting a curb stop valve (i.e. there is no curb stop valve), the only way to shutoff service is to dig down to the service pipe and cap off the service underground. This is referred to as a dug service.

Exhibit VIII-29
Risk Path Collection Efforts

High Risk Path - Valid Telephone Path		
Description	**# of Days to Trigger Next Step**	**Comment**
10 Day Notice	4 Days	
Day Telephone Call	4 Days	
Night Telephone Call	7 Days	If the Day Telephone Call is productive, the next event is Post Termination Notice to Trigger in 4 days.
Post Termination Notice		
High Risk Path - No Telephone Path		
Description	**# of Days to Trigger Next Step**	**Comment**
10 Day Notice	6 Days	
3 Day Field Notice	7 Days	
Post Termination Notice		
Moderate Risk - Telephone Path		
Description	**# of Days to Trigger Next Step**	**Comment**
Day Telephone Call	10	
Night Telephone Call	10	If the Day Telephone Call is productive, the next event is the Letter to Trigger in 10 Days.
Letter	10	
Letter	4	
Blast Message	5	
Last Event for Path		
Moderate Risk - No Telephone Path		
Description	**# of Days to Trigger Next Step**	**Comment**
Letter	20	
Letter		
Low Risk - Telephone Path		
Description	**# of Days to Trigger Next Step**	**Comment**
Day Telephone Call	10	
Night Telephone Call	10	If the Day Telephone Call is productive, the next event is the Reminder Letter to Trigger in 10 Days.
Reminder Letter	14	
Blast Message	5	
Last Event for Path		
Low Risk - No Telephone Path		
Description	**# of Days to Trigger Next Step**	**Comment**
Reminder Letter	28	

* The Cold Weather Interim Period required a 48-hour notice prior to termination.
Source: Interviews 22 and 59 and PGW Draft Report Comments

During these activities, customers may pay their outstanding bill by telephone, by mail, or by visiting a District Office, third-party vendors, or online at PGW's website. PGW has 60 days from the first collection event (10-day notice) to terminate gas service, or the collection path must be cancelled and a new set of events (notices) started. To avoid termination of service, a high-risk customer must do one of the following: pay the balance in its entirety or satisfy the

past due amount on the collection notice; pay the required amount owed on his or her payment plan or CRP; or enter into a payment arrangement, if eligible. A customer can be reselected for a new set of collections events if the payment arrangement breaks or he or she becomes delinquent again due to nonpayment. Accounts are referred to a collection agency 30 days after the final bill is generated. Written-off accounts can be reactivated within the period allowed by the PaPUC (four years). The collection process can start all over, if the account status becomes delinquent.

Each day a selection is made to activate collection notices. A selection for the number of notices to begin is made, such as:

- *Low: 500*
- *Moderate: 500*
- *High: <1,000*

PGW can change strategy or flip an account between categories based on daily monitoring. This group also develops an advanced strategy for the upcoming collection period.

Only about 20% to 25% of delinquent accounts go down the collection path each day (based on the risk-based approach illustrated previously in *Exhibit VIII-29* and later in *Exhibit VIII-31* and *Exhibit VIII-32*). As illustrated in *Exhibit VIII-30*, roughly 10% to 13% of notices result in NPSOs. (Customers who are meeting the terms of their account payment arrangement (APA) are not shut off.) The residential and commercial/industrial collection process is impacted by PaPUC complaints, PGW disputes, bankruptcies, and medical holds.

Exhibit VIII-30
Percentage of Successful NPSOs
CY2010 to CY2014

Notices vs NPSOs	CY2010	CY2011	CY 2012	CY 2013	CY 2014
# of Residential NPSOs	30,721	27,547	25,414	28,514	30,141
# of 10 Day Notices Issued	250,165	245,605	204,615	243,431	275,907
Percentage of Successful NPSOs	12.30%	11.20%	12.40%	11.70%	10.90%

Source: Information Response 774

The path for residential collection activities is illustrated in *Exhibit VIII-31*.

Exhibit VIII-31
Residential Collection Path
as of December 31, 2014

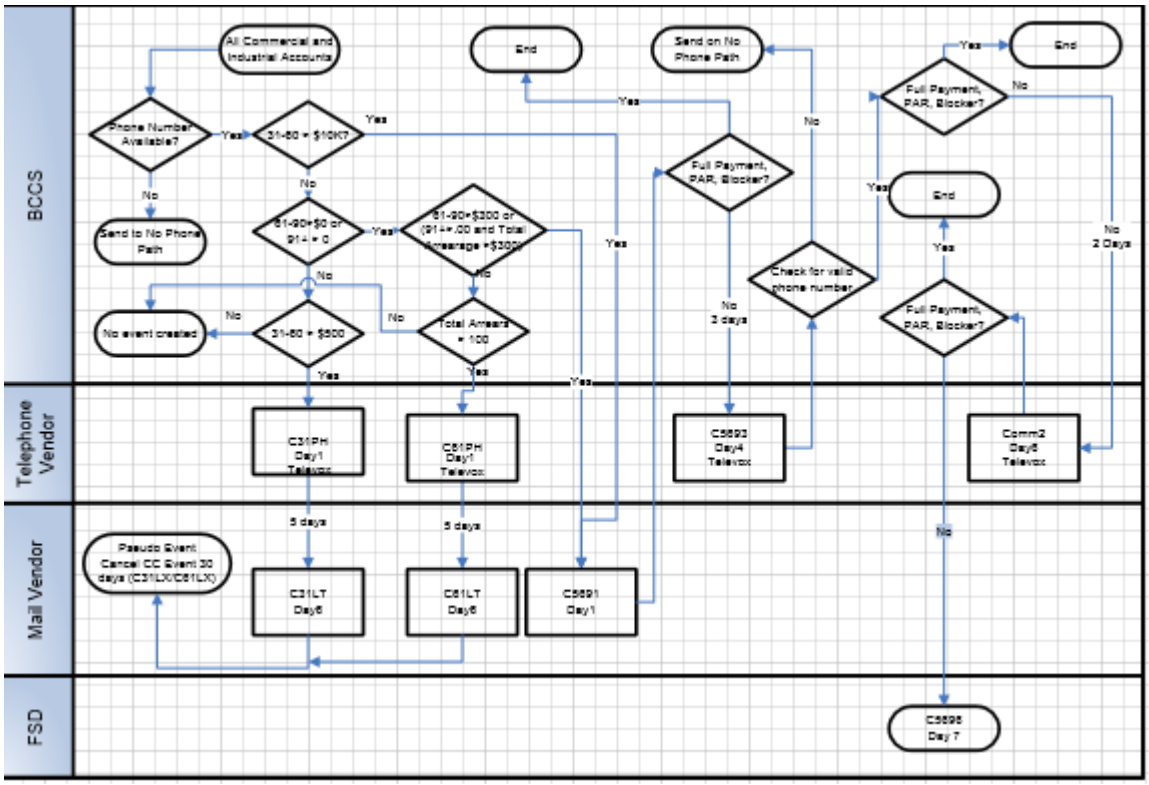
NON-COLD WEATHER PERIOD (NON-CWIP) April 1-November 30				
Residential Phone Path - Non-CWIP			**Residential No Phone Path**	
5691	10 Day Shut Off Notice, Phone Mail		5691N	10 Day Shut Off Notice No Phone
5693D	First Phone Attempt	Will not advance to the next event without a result	5693F	72 Hours Field Notice
5693N	Second Phone Attempt	Will not advance to the next event without a result		
5696	Post Termination Notice	Delivered at time of disconnection	5696	Post Termination Notice
Final	Unlinks USA With Read		Final	Unlinks USA With Read
Final Bill	Generated after Service Disconnection	20 days		
Agency Placement	30 Days after Final Unpaid	30 days		
Write off	After Issurance of Final Bill	90 days		

COLD WEATHER PERIOD December 1 to March 31				
Residential Phone Path - Non-CWIP			**Residential No Phone Path**	
5691	10 Day Shut Off Notice, Phone Mail		5691N	10 Day Shut Off Notice No Phone
5693D	First Phone Attempt	Will not advance to the next event without a result	5693F	72 Hours Field Notice
5693N	Second Phone Attempt	Will not advance to the next event without a result		
5695	48 Hour Field Notice	1 day after successful 72 hour notice	5695	48 Hour Field Notice
5696	Post Termination Notice	Delivered at time of disconnection	5696	Post Termination Notice
Final	Unlinks USA With Read		Final	Unlinks USA With Read
Final Bill	Generated after Service Disconnection	20 days		
Agency Placement	30 Days after Final Unpaid	30 days		
Write off	After Issurance of Final Bill	90 days		

Source: Information Response 650
CWIP= Cold Weather Interim Program

The path for commercial collections activities is illustrated in *Exhibit VIII-32*.

Exhibit VIII-32
Commercial Collection Telephone Path
as of December 31, 2014



Source: Information Response 247

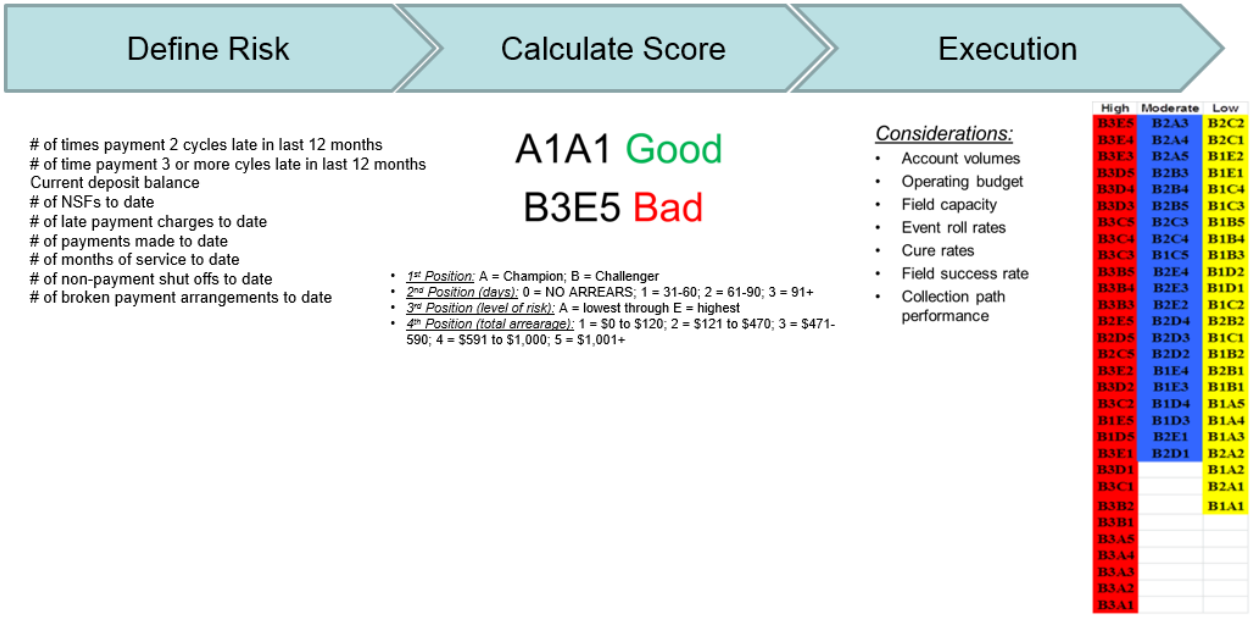
Written policies and procedures documentation exists for the following items:

- Credit & Collections
  - Subpoena Policy
  - Write-Off Policy
  - Lien Policy
  - Accounts Receivable Procedure
  - Easy Way Budget Plan
  - Sheriff Sale Policy
  - Medical Policy
- CRC
  - Credit Application Process
  - Guidelines for Pre-Lien Letter Process

- Handling Landlord-Tenant et al. Accounts
- How to Process Settlement Payoff Requests
- Manual Pre-Lien Process
- Pre-Lien Letter Automation
- Landlord Program
- Completing Account Payoff Inquiry
- CRC Policy–Procedure Credit & Collections for Unlinked Commercial Accounts
- CRC Hi-Bill Database

PGW uses a risk-based collection strategy, as shown in *Exhibit VIII-33*.

Exhibit VIII-33
Overview of Risk-Based Collection Strategy
FY2014



Source: Information Response 217, Slide 48

The current form of collection enforcement that is employed by PGW is risk-based collections. The risk-based collection system is directed by Credit & Collections. It is the responsibility of the Director and Manager of Collections to ensure that this process is running effectively and efficiently. Residential accounts are scored and entered into PGW's risk-based system; however, commercial accounts are not currently scored for risk-based collections.

The risk-based system considers numerous variables to score accounts on a monthly basis. In the scoring process the accounts are categorized into risk grades (low, moderate, and high). Variables considered are times delinquent, number of non-sufficient funds, number of shutoffs to date, amount due, past payment history, and other measurable items. The placement of the account will determine

the type of action that PGW institutes. The collection methods that PGW employs include automated calling campaigns, various letters, field notifications, and, if necessary, discontinuance of service.

The low and moderate categories are what PGW terms as non-regulated. These categories are treated with calling campaigns and letters. In these categories PGW actions do not lead to termination. Only if they are subsequently identified as high risk, would they possibly lead to termination.

The accounts that have been deemed as high risk are those which may lead to termination. Each day Credit & Collections management selects accounts to initiate actions for the various risk classifications, which PGW refers to as making a mail selection. According to PGW management, the high-risk selections are well thought out and calculated by using risk score results to establish a strategy and by using information. When making the mail selection, the first event in the high-risk path is the 10-day notice. As required, the customer is given a 10-day notice of service being terminated. After five days PGW begins making telephone calls (or a field notice if telephone information is not available) to give the customer a 72-hour notice of the pending termination. In most cases, two call attempts are made. If for some reason the call attempts are not successful, the customers is hand-served the 72-hour notice by field personnel. The 10-day notices are effective for 60 days. During this time period customers receiving such a notice can have their service discontinued, after which the customers are delivered a post shutoff notice if service is terminated.

There are various ways for a customer to avoid service being terminated:

- The customer can satisfy their balance or pay the amount that is past due on their most recent payment arrangement.
- The customer can establish an APA or get onto CRP.
- The customer can receive any of the various grants to assist in his or her payments.
- Accounts in dispute are not terminated for the disputed amount until disputes are resolved; however, they can be terminated for their undisputed bills if not paid.
- The customer has a medical condition that is verified by a physician, physician's assistant, or nurse practitioner in which someone living in the home is seriously ill or has a medical condition that may be aggravated if the service is shut off.
- In addition, any fault in the process or failure to properly notify the customer will result in termination cancellation.

The Credit & Collections Department continues to attempt collecting the debt, even if the accounts are shut off:

- Collection agency (first and secondary placement)
- Placing of liens to secure PGW's position

Accounts are grouped into date categories as follows:

- 0–30 days from bill date
- 31–60 days from bill date (overdue)
- 61–90 days from bill date (overdue)
- 90+ days from bill date (overdue)

Currently, before shutoff is considered, an account must have at least a $300 balance and must age to the 61–90-day category. When that happens, a notice (5691 or commercial notice) is automatically generated and sent to the customer. If the customer calls disputing the amount associated with the shutoff notice, the DRU or CRC (depending on the type of customer) will examine the complaint and begin investigation activities. A hold is placed on the account until the company's investigation is complete. The investigation may result in a billing adjustment, having the meter shop go out to the customer's location to verify the meter reading, or no actions being taken (and shutoff proceeds). Once the investigation is complete, the hold is removed and the account can be selected for collection activity again if an outstanding balance still remains due. The initial notice is a seven-day notice for commercial customers, but a 10-day notice for residential customers.

Risk-based collections have been used since 2008 for selecting shutoff candidates. Such efforts involve 32 factors that define risks both logical and quantitative, including number (#) and age of items in arrears. A risk score from "A" (best) to "E" (most risky) results in three paths:

- High (high risk path are those deemed most unlikely to pay the amount due; and therefore, are earmarked for accelerated regulated collection activity including service disconnection); regular 10-day (5691) notice then 3-day (5693) notice
- Moderate (moderate risk path are those at-risk of entering the high risk path; and therefore, are earmarked for more aggressive unregulated collection activities); outbound calls and reminder letters
- Low (customers who pay, but tend to pay late; and therefore, are earmarked for non-aggressive unregulated collection activities); letters only

For shutoffs, there are five different PaPUC collection path types: regular, low income/CRP, CWIP, tenant/landlord, and specialties, such as hospitals.

A list is uploaded and then downloaded to an automatic outbound dialer (calling) system. Automated callback offers verification of voice response or request to speak with a Customer Representative, the PGW Call Center's agents. When the customer calls back, payments can be made via check, debit or

credit card, or a payment arrangement can be established, if the customer is eligible. Collections training is a major component of agents' nine-week training period with refresher and soft skills (i.e., how to listen) training conducted periodically.

Some accounts are sent to a collections agency for assistance in recovering bad debt. Following prior delinquency notices and after 30 days from a final bill, residential accounts or commercial accounts that are residential end use accounts are sent to the first placement agency (three firms) for 180 days, following a write-off referral. At 90 days from a final bill, the account is written off. For non-residential accounts, a lien is automatically put on the business account through PGW's lien management system. After the 180-day period with the first collection agency, delinquent accounts are sent to a second agency (two firms) for another 180 days. These accounts subsequently come back in-house if not successfully collected upon by the collection agencies but are not credit reported. Nothing else is currently done once an account has gone to both first and second placement agencies.

Exhibit VIII-34 illustrates collection agency statistics for FY2010 to FY2015 for first placement, second placement, and total for both placements.

Exhibit VIII-34
Collection Agency Statistics
FY2010 to FY2015

	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015 (Sep14-Dec14)	
First Placement							
Number Placed	39,017	17,599	18,692	27,643	28,252	10,873	
Dollar Value Placed	$69,451,866	$27,523,293	$24,928,161	$36,824,007	$40,078,464	$16,106,248	
Number Returned			1,188	4,253	4,531	3,013	
Dollar Value Returned			$1,864,915	$7,388,836	$8,787,387	$6,192,084	
Number Expired			3,743	22,152	23,169	8,602	
Expired Amount			$3,789,730	$26,692,951	$27,177,341	$10,448,451	
Number Worked			13,761	14,999	15,551	14,809	
Dollar Value Worked			$19,273,516	$22,015,736	$26,129,473	$25,595,186	
Number Payments Received			2,731	5,412	6,137	1,548	
Amount Received			$471,603	$1,190,977	$1,293,709	$351,407	
Commission %			17%/17.5%/20%	17%/17.5%/20%	17%/17.5%/20%	17%/17.5%/20%	*
Number Paid Commission			1,778	3,779	3,936	1,070	
$ Received Paid Commission			$262,918	$601,264	$583,926	$160,969	
Commission Paid			$48,642	$109,611	$105,842	$29,282	
Percentage Approved			8.5%/13.5%/16.1%	7.7%/10.5%/10.9%	7.5%/9.9%/11.2%	6.3%/7.3%/10.3%	**
Net $ Return			$214,275	$491,652	$478,083	$131,687	
% Net Return Number Accounts			9.51%	13.67%	13.93%	9.84%	
% Net Return Dollars			0.86%	1.34%	1.19%	0.82%	
Second Placement							
Number Placed	33,306	12,675	29,691	18,990	19,934	7,240	
Dollar Value Placed	$56,664,522	$23,008,680	$39,395,787	$25,813,514	$26,545,243	$9,757,268	
Number Returned			1,031	3,829	826	278	
Dollar Value Returned			$1,451,866	$5,260,878	$1,269,203	$421,915	
Number Expired			18,617	16,414	19,352	6,414	
Expired Amount			$24,716,052	$21,255,174	$25,157,136	$8,700,859	
Number Worked			10,043	8,791	8,547	9,095	
Dollar Value Worked			$13,227,869	$12,211,027	$12,329,930	$12,964,424	
Number Payments Received			1,572	1,267	1,213	96	
Amount Received			$410,316	$323,137	$355,100	$25,204	
Commission %			21%/24%/26%	21%/24%/26%	21%/26%	21%/26%	*
Number Paid Commission			1,327	921	839	74	
$ Received Paid Commission			$217,219	$143,417	$156,783	$13,639	
Commission Paid			$52,298	$34,028	$37,327	$3,008	
Percentage Approved			10.0%/16.6%/20.0%	9.4%/12.1%/13.0%	8.3%/13.4%	6%/17.8%	**
Net $ Return			$164,921	$109,389	$119,456	$10,631	
% Net Return Number Accounts			4.47%	4.85%	4.21%	1.02%	
% Net Return Dollars			0.42%	0.42%	0.45%	0.11%	
Both Placements							
Number Placed	72,323	30,274	48,383	46,633	48,186	18,113	
Dollar Value Placed	$126,116,388	$50,531,974	$64,323,948	$62,637,521	$66,623,707	$25,863,517	
Number Returned			2,219	8,082	5,357	3,291	
Dollar Value Returned			$3,316,780	$12,649,713	$10,056,590	$6,614,000	
Number Expired			22,360	38,566	42,521	15,016	
Expired Amount			$28,505,782	$47,948,126	$52,334,477	$19,149,310	
Number Worked			23,804	23,790	24,098	23,904	
Dollar Value Worked			$32,501,385	$34,226,763	$38,459,403	$38,559,610	
Number Payments Received			4,303	6,679	7,350	1,644	
Amount Received			$881,919	$1,514,114	$1,648,808	$376,611	
Commission %							
Number Paid Commission			3,105	4,700	4,775	1,144	
$ Received Paid Commission			$480,137	$744,681	$740,708	$174,608	
Commission Paid			$100,941	$143,640	$143,169	$32,290	
Percentage Approved							
Net $ Return			$379,196	$601,041	$597,540	$142,318	
% Net Return Number Accounts			6.42%	10.08%	9.91%	6.32%	***
% Net Return Dollars			0.59%	0.96%	0.90%	0.55%	****

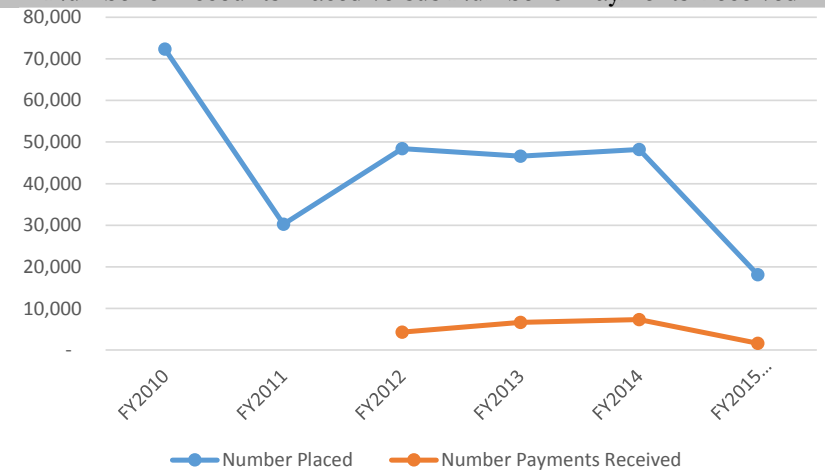
Source: Information Response 720
* and **: % depends on agency used; ***: Number Paid Commission/Number Placed ****: Net $ Return/Dollar Value Placed
"Returned" are accounts that were returned, because of payment in full, settlement in full, dispute, bankruptcy, settlement/sheriff sale, or a turn-on, so not necessarily all recovered.
"Expired" means the timeframe with a collection agency has finished.
"Percentage approved" are the percentage of accounts that were approved for a commission payment.
"Net $ Return" is the dollars received by PGW where commissions paid less any commissions paid.

Agencies are not entitled to a commission, fee, or any other payment or reimbursement from payments received directly by PGW within seven calendar days of account placement, paid to satisfy judgments obtained by PGW, paid to satisfy municipal gas liens placed against real property, paid as a result of a foreclosure, tax sale, or sheriff's sale of real property, including but not limited to payments of municipal gas claims and liens, paid as a result of a sale of real property, including but not limited to payments of municipal gas claims and liens, paid as a result of an energy assistance program, such as, but not limited to LIHEAP, Crisis, UESF payments, or paid for or in connection with restoration of service.

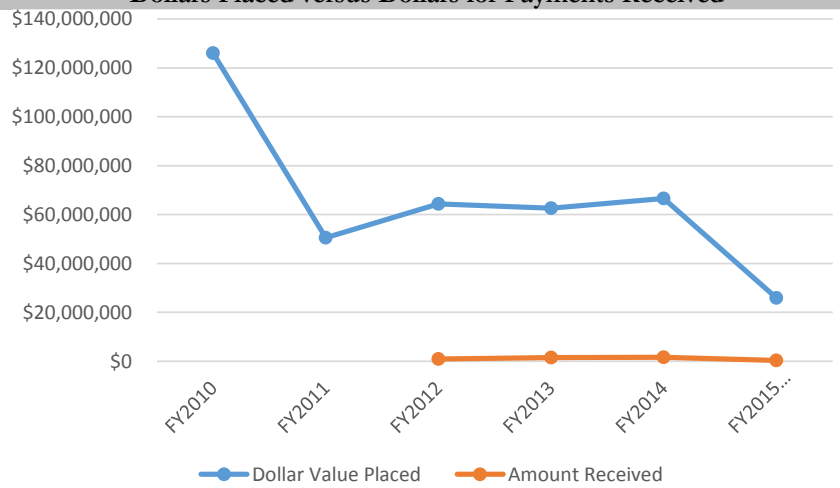
Exhibit VIII-35 illustrates geographically the number of accounts placed versus the number of payments received and the dollars placed versus the dollars for payments received.

Exhibit VIII-35
Collection Agency Statistics
FY2010 to FY2015

Number of Accounts Placed versus Number of Payments Received



Dollars Placed versus Dollars for Payments Received



Source: Information Response 720

According to Customer Affairs management, PGW's low number and amount of payments received once accounts have been placed with collection agencies is primarily due to the number of accounts that are non-commissionable, plus-its challenging customer base walking away from accounts with no incentive to pay, especially once an account is in second placement. By the end of FY2015, Customer Affairs management plans to begin sending information to credit reporting firms once an account has been written off, so customers will have more incentive to pay.

Customer Programs

PGW's customer programs are handled by the Regulatory Compliance & Customer Programs groups. PGW has several different customer programs currently in place for its customers, including:

- Customer Responsibility Programs
- Senior Citizen Discount Program
- Customer Assistance Referral Evaluation Services (CARES) Program
- Low Income Home Energy Assistance Program
- Utility Energy Services Fuel fund
- Energy Sense Program
- Choice Program
- Landlord Cooperation Program
- Commercial Landlord Notification Program

PGW does not have any open proceedings regarding its FY2014 to FY2016 Universal Services and Energy Conservation Plan. The most recent docket associated with PGW's approved plan is Docket# M-2013-2366301, which was adopted on August 21, 2014.

Customer Assistance Program

PGW's customer assistance program (CAP), called by PGW the Customer Responsibility Program or CRP, is available to low-income customers. 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 his or her set CAP bill each month, in full and on time (based on the most recent Universal Service Plan Order, forgiveness will be provided for each full payment regardless of late payment), he or she will have 1/36 of his or her pre-program arrearage forgiven each month. Both the discount amounts and forgiveness offered by PGW's CAP program are recovered via a rate surcharge, which is then absorbed paid by the remaining (or non-CAP) PGW customers. Eligible CAP customers pay anywhere from 8% to 10% of their gross household income. PGW District Offices 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 13% of PGW customers are on the CAP program. The number of customers and the associated discount and forgiveness dollars on PGW's CRP are shown in *Exhibit VIII-36*.

Exhibit VIII-36
CAP Participation
FY2008 to FY2014

Fiscal Year	CRP Discount	CRP Forgiveness	Average CRP Enrollment
FY2008	$96,711,029	$8,223,061	77,749
FY2009	$102,314,637	$8,053,363	80,891
FY2010	$78,920,941	$9,647,126	82,524
FY2011	$88,688,666	$10,024,988	83,897
FY2012	$63,230,840	$8,308,926	81,829
FY2013	$70,597,568	$6,853,779	76,381
FY2014	$65,085,987	$6,188,869	66,945

Source: Information Responses 210 and 360

According to PGW management, participation in the CRP has been decreasing primarily due to the cost of gas decreasing. Another factor includes customers being served better through other outside programs. In addition, some customers' income has increased and they can no longer be recertified and some customers are no longer enrolled in the program, because they did not complete the recertification process.

PGW has the largest low-income population of utilities in Pennsylvania, roughly 33% according to the latest census. (Estimated low income for PGW in 2014 Collections report is 39%, p.8.) Other gas utilities in Pennsylvania fall in the 7% to 18% range (16% to 32% according to 2014 Collections Report), with the lowest being PECO Energy (gas) at 7% (16% according to 2014 Collections Report), although PECO Energy has a larger customer assistance program.

- As a result, PGW must deal with the largest number of customers on payment agreements than any other gas 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 of residential customers (approximately $46.7 million annually in 2014, including both resident and PHA customers) 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 (CRP, LIURP, and CARES only) per residential customer in 2014 was $168.38. This compares to the next highest gas utility in Pennsylvania (Columbia Gas) at $59.11, with the lowest being UGI-Gas at $9.30. Clearly, there is a significant disparity between the highest and lowest average universal service spending in Pennsylvania.

As shown in *Exhibit VIII-36*, PGW's CAP customer participation has been decreasing over the last seven years. PGW personnel indicated that there could be as many as approximately 157,000+

(confirmed) to 187,000+ (estimated) low-income customers who may be eligible for the program. (According to 2014 Collections Report, PGW had 144,696 confirmed and 181,143 estimated low-income customers, p. 7-8.) PGW has the second highest CAP participation rate (42% in 2014 compared to PECO-Gas at 78%, which has a different form of CAP) for gas utilities in Pennsylvania. Many of the potentially eligible customers, however, 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 of December 31, 2014 in this case) divided by the number of confirmed low-income customers. This calculation results in an average annual CAP spending per PGW residential customer of roughly $1,120, the highest of all 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 pre-program arrearage forgiveness amount should the customer later enroll in CAP. PGW's CRP discounts have decreased from approximately $97 million in FY2008 to over $65 million in FY2014, as shown previously in *Exhibit VIII-36*. (PGW spent $63.4 million on CAP credits (CRP discounts) in 2014, according to the Collections Report. They also spent $6.4 million on arrearage forgiveness, p. 62, 64.)

On September 1, 2003, PGW's CAP program was modified and converted to meet the PaPUC's regulations. As part of those changes, PGW's CAP modifications implemented on September 1, 2003 included a structured arrearage forgiveness. The forgiveness amounts, indicated in *Exhibit VIII-36*, represent 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.

PGW customers pay about $183 a year to support customers participating in its low-income programs, including CRP, the Senior Discount Program, and LIURP, which is about $128 more than the natural gas utility average in Pennsylvania. (The 2014 number is $168.38; $183 is from 2013; p. 64 2014 report.)

Senior Citizen Discount

In 2003, as a result of a PaPUC 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 22,126. Customers over 65, independent of income, were given a 20% discount on their bill. PGW reviews data on customers receiving the senior citizen discount in order to discover ineligible (deceased) customers, so they can be removed from the program.

Participation in the senior citizen discount program is shown in *Exhibit VIII-37*. The number of participants has decreased by approximately 47% since FY2008, while the cost of the program has decreased by 50%.

Exhibit VIII-37
Senior Citizen Discount
FY2008 to FY2014

Fiscal Year	# Participants	$
FY2008	41,477	$12,823,765
FY2009	37,672	$13,146,112
FY2010	34,209	$9,628,330
FY2011	30,939	$9,052,220
FY2012	27,897	$6,950,304
FY2013	25,809	$7,056,521
FY2014	22,126	$6,419,515

Source: Information Response 361

According to PGW management, participation in the program is decreasing because it was discontinued in 2003. Only in selected situations, such as when the spouse of a deceased customer was also over 65 when entering the program, are households grandfathered for continuance in the program.

LIHEAP

LIHEAP is a federally funded program that is administered by the state. There are three types of LIHEAP programs from November through March. The administrator of the LIHEAP program is the Commonwealth of Pennsylvania's Department of Human Services (DHS).

- *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. Such grants are paid by non-CAP customers. PGW offers application assistance for this program.
- *LIHEAP Crisis* – This program is for customers whose service has been shut off or who are facing shutoff. They can receive funds to help avoid such a crisis. Intake for this program is available only through the DHS County Assistance Office, although PGW offers application assistance.
- *LIHEAP Weatherization – Weatherization Assistance* – Other agencies do intake for this program. There are intake centers throughout the City.

Exhibit VIII-38 provides the summary statistics for the LIHEAP program and Crisis grants at PGW.

Exhibit VIII-38
LIHEAP/Crisis Grants Summary
FY2008 to FY2014

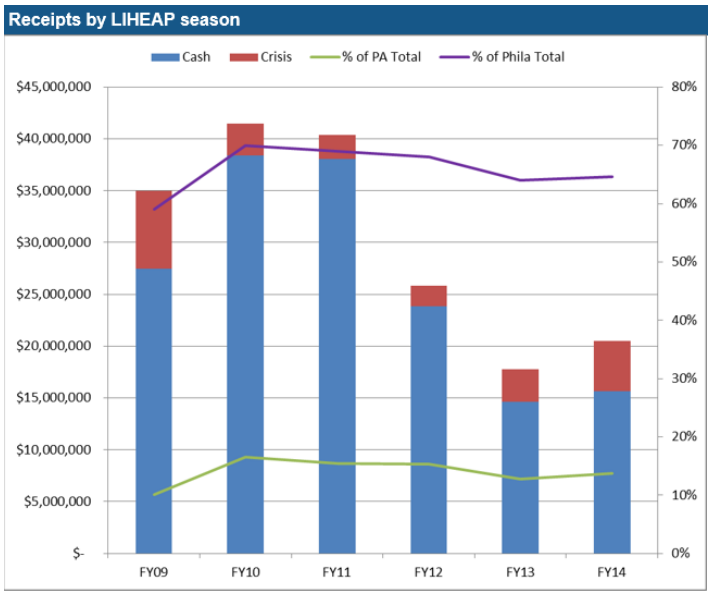
Fiscal Year	LIHEAP # Participants	LIHEAP $	Crisis # Participants	Crisis $
FY2008	51,713	$14,273,163	12,235	$5,329,207
FY2009	68,026	$27,465,361	17,178	$7,516,950
FY2010	77,329	$38,397,739	10,778	$3,101,263
FY2011	78,476	$38,046,324	7,620	$2,354,108
FY2012	64,597	$23,835,307	8,379	$1,981,438
FY2013	65,371	$14,662,345	10,959	$3,139,416
FY2014	67,097	$15,683,229	13,966	$4,806,245

Source: Information Response 364

Participation in the LIHEAP program has been growing recently, although it typically depends on the customer's decision as to whether or not to participate. Sometimes, customers use PGW one year and PECO another year, so changes occur. Also, some are rejected because they do not qualify for the program. PGW has expanded its outreach program by widening its outreach through ads, text messaging campaigns, inclusion on PGW's website, mailings, and CR training about the program.

Exhibit VIII-38 illustrates receipts for PGW's LIHEAP.

Exhibit VIII-39
Universal Service Cost Involving LIHEAP
FY2009 to FY2014



Source: Information Response 217, Slide 45

Customer Assistance Referral Evaluation Services Program

The Customer Assistance Referral Evaluation Services program provides payment assistance to residential customers with special circumstances, which might include medical emergencies, unemployment, or other temporary hardships. Additionally the CARES referral programs are not administered by PGW, as CARES is essentially just a referral process, as follows:

- If it is "quick fix" when a customer calls into PGW's Call Center or comes into one of PGW's District Offices, the CR taking the call or meeting with the customer can provide referral contact information for the customer to use. Examples include organizations like neighborhood energy centers (NECs) or senior agencies. For example, according to its website, the ECA serves households across Philadelphia through its network of 14 neighborhood energy centers, which serve as one-stop-shops for all low-income energy services. Trained counselors at the NECs help prevent utility emergencies by helping customers obtain energy assistance grants and utility payment agreements. NEC counselors provide budget counseling and intake for conservation and home repair programs that offer more permanent solutions to the problem of energy affordability.

- If the situation is more complex, however, the CR has the ability to forward the account to the Universal Services group, so it can handle the matter. If this happens, it is considered part of case management and the Supervisor follows up with the customer to make sure the issue has been discussed and possible referral assistance provided.

Utility Energy Services Fuel Fund

In addition, PGW customers are eligible for the Utility Energy Services Fuel Fund, which 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. To be eligible for 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 must be made prior to receiving approval of the grant. There are various intake centers (run by various energy agencies) that process the paperwork for this fund. The statistics for the Utility Energy Services Fuel Fund are shown in *Exhibit VIII-40*.

Exhibit VIII-40
Utility Energy Services Fuel Fund Grants
FY2008 to FY2014

Fiscal Year	UESF # Participants	UESF $
FY2008	3,713	$1,196,820
FY2009	2,085	$528,554
FY2010	2,257	$1,096,983
FY2011	2,263	$1,092,327
FY2012	1,676	$806,608
FY2013	1,184	$620,846
FY2014	1,088	$552,489

Source: Information Response 365
Note: Amount includes components from UESF, PGW's match, and client and/or third-party contributions.

Energy Sense Program

PGW submitted its original *Five-Year Gas Demand-Side Management Plan* (*Phase I Plan*) to the PaPUC on December 18, 2009. This plan was modified from an earlier PGW filing to comply with a joint petition for settlement (settlement) submitted to the PaPUC on May 12, 2010 and approved by the Commission by order entered on July 29, 2010. In its latest implementation plan for FY2015, PGW detailed activity to date and plans for the FY2015 program year, consisting of the following six programs:

- ELIRP/LIURP
- Residential Equipment Rebates
- Efficient Building Grants
- Home Rebates
- Commercial and Industrial Equipment Rebates
- Efficient Construction Grants

Implementation of these programs has proceeded to achieve five broad goals:

- Reduce customer bills
- Maximize customer value
- Contribute to the fulfillment of the City's sustainability plan
- Reduce PGW cash flow requirements
- Help the Commonwealth of Pennsylvania and the City of Philadelphia reduce greenhouse gas emissions

Since the filing and approval of the *Phase I Plan*, PGW has continued to provide updates to its portfolio of energy efficiency programs and to report on its success in achieving the stated goals in the form of annual implementation plans and annual reports As of December 2014, PGW management was unsure of the specific direction of its program after FY2015.

Exhibit VIII-41 illustrates participation by PGW customers in PGW's Energy Sense program.

Exhibit VIII-41
Energy Sense Participation
FY2011 to FY2014

Program	FY2011	FY2012	FY2013	FY2014	Total
LIURP	272	1,998	2,310	2,978	7,558
Residential Equipment Rebates	0	309	535	1,019	1,863
Home Rebates	0	0	1	195	196
Efficient Construction Grants	0	0	3	5	8
Efficient Building Grants	0	0	7	8	15
Commercial Equipment Rebates	0	0	20	36	56

Source: Information Responses 368 and 605

Exhibit VIII-42 illustrates nominal costs by type of program included in the Energy Sense program.

Exhibit VIII-42
Energy Sense Participation
FY2011 to FY2014

Program	FY2011	FY2012	FY2013	FY2014	Total
LIURP	$2,885,302	$6,077,028	$7,538,828	$7,898,251	$24,399,409
Residential Equipment Rebates	$46,596	$395,897	$611,057	$902,435	$1,955,985
Home Rebates	-	-	$280,176	$602,224	$882,400
Efficient Construction Grants	-	-	$86,785	$121,090	$207,875
Efficient Building Grants	-	$43,768	$258,271	$134,424	$411,555
Commercial Equipment Rebates	-	$13,640	$133,998	$124,574	$272,212
Portfolio-wide	$587,925	$586,884	$817,836	$1,360,476	$3,353,121
Total	**$3,519,823**	**$7,117,217**	**$9,726,951**	$11,143,474	$31,482,557

Source: Information Response 368

Over the full five years of the *Phase I Plan*, PGW now expects to spend approximately $44.1 million on its six programs, 31% less than projected in the *Phase I Plan*, to save 373 British thermal units (BBtus) of natural gas during the first five years of the portfolio and 7,802 BBtus of natural gas over the lifetime of the measures installed. In actual activity from inception through February 2014, PGW spent $27 million on its six programs for an incremental net annual gas savings of 214 BBtus and an incremental net lifetime gas savings of 4,543 BBtus.

Additional expected energy and environmental impacts projected from the full five years of portfolio implementation include:

- Saving 3.7 megawatt hours (MWh) per year of electricity (electric savings are ancillary, resulting from direct gas saving measures such as air-conditioning savings from insulation treatments.)
- Avoiding 1,023 kilowatts (kW) per year of summer peak demand
- Saving 20.3 million gallons of water per year (Low-flow devices are installed within most ELIRP retrofits, to reduce hot water usage to reduce natural gas domestic hot water (DHW) heating usage. These same devices then also result in reductions in overall water usage.)
- Creating new jobs in Pennsylvania
- Reducing the emissions of carbon dioxide (CO_2) by over 25,000 tons per year

The cost-effectiveness of the portfolio from inception through February 28, 2014 shows a total resource cost (TRC) benefit cost ratio (BCR) of 1.17, and a present value (PV) of net benefits of $3.8 million (2009 dollars). PGW expects that over the full five-year term of the portfolio, it will achieve cost-effectiveness

under both the natural gas system test, which results in a PV of net benefits of $3.9 million and a BCR of 1.11, and the TRC test, which results in a PV of net benefits of $5.7 million and a BCR of 1.14.

To date, total portfolio spending and gas savings have fallen short of annual goals and are expected to do so on a cumulative basis by the end of the five-year period covered by PGW's *Phase I Plan*. Nonetheless, according to PGW management, PGW has achieved and continues to improve overall portfolio cost-effectiveness in that projected lifetime benefits from measures installed through February 2014 exceed cumulative costs incurred by PGW and participating customers. Not only is PGW's DSM portfolio cost-effective from a total resource perspective, but it has continued to increase the value provided by each dollar spent while simultaneously increasing spending.

Systems

The BCCS is a full-functioning customer information system that automates and generally supports all aspects relating to customer information, billing, payments, collections, and payment plans. (See *Finding VIII-6* for potential enhancements.) 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 the history of all customers remains with the account. *Exhibit VIII-43* and *Exhibit VIII-44* illustrate the functional components of BCCS.

Exhibit VIII-43
BCCS Functional Components
as of December 31, 2014
Page 1 of 2

Component	Sub-Component	Sub-Component
Adjustments	♦ Miscellaneous ♦ Transfer	
Administrative Services	♦ Contact Subsystem	♦ Batch Submission ♦ Review List (Workflow Tracking)
	♦ Administration Tables (Soft Tables)	♦ Meter Data, Service Data, Billing Data, Customer Data, Payment Data, Order Control Data, CRP Data, etc.
	♦ Control Subsystem	♦ Security Subsystem ♦ Run Control ♦ Company Control ♦ Holiday Maintenance
Billing	♦ Bill Header ♦ Bill Segment ♦ Cancel/Rebill ♦ Bill Cycle Schedule ♦ Degree Days ♦ Temperature ♦ Reports and Lists	
Budgets		
One-Time Invoices		
Credit & Collections (C&C)	♦ C&C Events ♦ C&C Paths ♦ C&C Templates ♦ Payment Arrangements ♦ Account and USA Write-Offs and Referrals ♦ Grants ♦ Negotiated Payment Arrangements ♦ Reports and Lists	
Customer Information	♦ Person ♦ Miscellaneous Persons Group ♦ Account ♦ Premise ♦ Premise Group ♦ Service Point (SP) ♦ USA ♦ USA/SP ♦ USA/Supplier ♦ Contract Rider ♦ Dispute ♦ Customer Contact ♦ Pass-Through USA ♦ Reports and Lists	

Source: Information Response 630

Exhibit VIII-44
BCCS Functional Components
as of December 31, 2014
Page 2 of 2

Component	Sub-Component	Sub-Component
Electronic Funds Transfer		
Interface Processes	♦ Meter Reading (MR) Download ♦ MR Upload ♦ Bill Print ♦ Remittance Processor ♦ General Ledger ♦ Accounts Payable ♦ C&C Phone Calls Admin ♦ New Energy Retail Office MR Interface ♦ Message Processing	
Meter Management	♦ Meter Maintenance ♦ Equipment ♦ Package ♦ Batch Device/Upload ♦ Test Selection ♦ Reports and Lists	
Meter Reading	♦ MR Schedule ♦ Extract Control ♦ Create MR Route Control ♦ Modify MR Route Control ♦ MR Maintenance ♦ Re-Sequence SP ♦ Trend Table Maintenance ♦ Reports and Lists	
Loan Service Agreements		
Payments	♦ Payment Entry ♦ Payment Modification ♦ Payment Distribution ♦ Bundle Control ♦ Reports and Lists	
Rates	♦ Rate Schedule ♦ Rate Schedule Component ♦ Rate Version ♦ Rate Version Component ♦ Billing Factor ♦ Daily Therm Value ♦ Reports and Lists	
Audit Log Trail		

Source: Information Response 630

Meter Management & Reading

Meter management and reading is discussed in *Chapter VII – System Reliability Performance & Other Related Operations – Field Operations*.

B. Findings & Conclusions

Customer Service Operations

Finding VIII-1 **Customer satisfaction scores for PGW are lower than the average of other Pennsylvania gas distribution companies.**

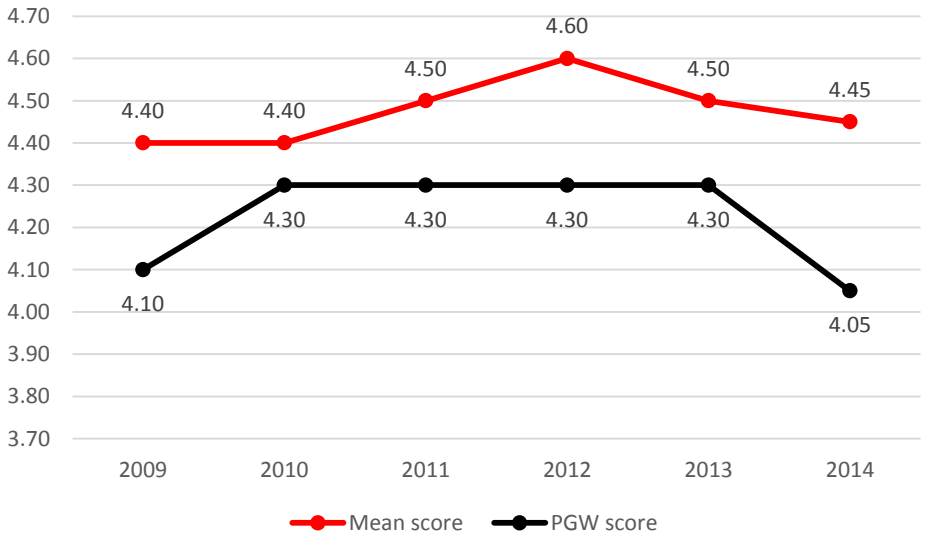
PGW participates in an annual customer satisfaction survey conducted by MetrixMatrix for eight Pennsylvania gas distribution companies. This survey analyzes 21 elements of customer satisfaction and provides an overall summary score. The 21 elements are listed below.

1. Overall satisfaction
2. Primary reason for this score?
3. Contact by (phone or walk-in)?
4. Reason for contact
5. Wait time
6. First contact?
7. Satisfaction with call representative
8. Knowledge of call representative
9. Courtesy of call representative
10. One call resolution?
11. Was a field service set up as a result of the contact?
12. Was an appointment date and time given?
13. Satisfaction with field representative
14. Knowledge of field representative
15. Courtesy of field representative
16. Respect of field representative
17. Did company call to confirm?
18. Did field representative arrive on time?
19. Did field representative call in advance?
20. Did field representative say it was done?
21. Did field representative complete the work in one visit?
22. Satisfaction with PGW rates?

A review of survey statistics for the past five years shows that PGW's overall customer satisfaction has been below the average of the scores for the eight companies. In fact, in the last four years, PGW has had the lowest customer satisfaction score of any of the eight participating Pennsylvania gas distribution companies. In 2014, the score fell to its lowest point in the last six years – reflecting a significant staffing shortage in the call center.

Exhibit VIII-45 provides a comparison of PGW's overall customer satisfaction scores to the average score of its peer group (Pennsylvania gas distribution companies).[9]

Exhibit VIII-45
Customer Satisfaction Scores for Pennsylvania Gas Distribution Companies
2009 to 2014



Source: Information Responses 205 and 755

Finding VIII-2 **Recent improvements in PGW's Call Center training, development, and quality assurance are consistent with industry best practices.**

PGW's new Director of Customer Service Operations started with the company on May 5, 2014. Prior to coming to PGW, she led the Customer Service Department for a major company with operations in the United States and Canada. She has been in the customer service/call center industry for over 20 years, serving in leadership positions for the last 18 years. She is responsible for the PGW Call Center and District Offices. She brings extensive experience in call center management. Her efforts appear to have strengthened the performance of PGW's Call Center.

Call center agents receive substantial training by the Training group (in Regulatory Compliance) when hired. The training for Call Center new hires is done in phases. Employees first learn to handle basic customer service requests, which include trouble orders, service turn-ons/offs, and similar routine requests. Trainees also learn to handle emergency calls during this initial phase of training. After

[9] Note: In 2013, MetrixMatrix changed from a five-point scale to a 10-point scale. These numbers are adjusted back to a five-point scale for a consistent comparison.

mastering these activities, the training focuses on collections, which includes service calls, payment arrangements, collections processes, and other programs.

It is during this phase that soft skills are introduced. Soft skills include call management, service quality, behavioral expectations, and communications skills. Customer Affairs is currently working to strengthen this aspect of training. PGW is developing custom training materials because much of the vendor-supplied material is outdated or not specific to the needs of PGW and the gas utility industry. PGW plans to hire or contract with an instructional designer to assist in developing this soft skills material. This enhanced training will focus on attitudes and communication skills, with an emphasis on dealing with irate customers. It will also include topics such as dealing with a gas emergency and related questioning and listening skills.

The formal training (a combination of classroom and on-the-job training) lasts for nine weeks. There is a test at the end of each phase. Although most trainees successfully complete the training, employees who fail the test are terminated.

Since arriving at PGW, the Director of Customer Service Operations has implemented an "incubator" period for recently-released new hire CRs. This process entails the new CRs resuming their on-the-job training after being released by the Training group. During this period, trainees continue to receive close monitoring and daily coaching on call handling and customer service.

The person responsible for Customer Affairs' new employee training has been with PGW eleven years. He began his work at PGW in collections and then became a Customer Service Supervisor, rising to Manager of Training. Prior to coming to PGW, he worked at PECO for 20 years in customer service and training.

Not only has the training process been strengthened for call center agents, but the hiring standards have also been increased. PGW has revised the interview questions used for screening applicants as well. PGW management reports that new hires have higher initial skills and aptitude for customer service work.

Employee development does not end with successful completion of the training and incubator period. PGW call center agents receive feedback every week from their Supervisors. Calls are actively monitored by the QA staff and by Supervisors. Calls are monitored and scored using a standardized scoring process. At minimum, a call center agent will have two calls monitored and scored by his or her Supervisor, one call monitored by another Supervisor, and an additional four calls monitored and scored by the QA staff on a monthly basis. Agents who are performing below expectations may have more calls monitored. Supervisors conduct monthly coaching sessions with each agent to review statistics (call volume and handling time) as well as to provide feedback on the monitored calls.

Refresher training is also offered periodically for the following topics:

- CRP Refresher
- High Bill/Bill Analyzer Refresher
- Credit & Collections Refresher
- Cold Weather Survey Refresher
- Cold Weather Interim Period Refresher
- Payment Arrangement (PAR) Refresher
- Parts and Labor Refresher
- Grant Refresher
- Budget True-Up Refresher
- Supervisor Training
- Senior Citizen Audit Refresher
- Emergency/Leaks Refresher

Finding VIII-3 Call center service levels have improved as a result of increased training, and ongoing employee development.

Service levels (the percentage of calls answered within 60 seconds) is highly dependent on staffing levels. Nonetheless, PGW service levels have been somewhat better in recent years even as staffing levels declined. This is likely related to strengthened hiring requirements, improved training, and more frequent and effective coaching and development (as recommended by Schumaker & Company in the 2008 audit). Obviously, additional years of data are needed to see the true effects of PGW's investment in the PGW Call Center because most these initiatives were being implemented in 2014. *Exhibit VIII-46* shows the trend for staffing levels and service levels at the PGW Call Center from FY2010 to FY2014.

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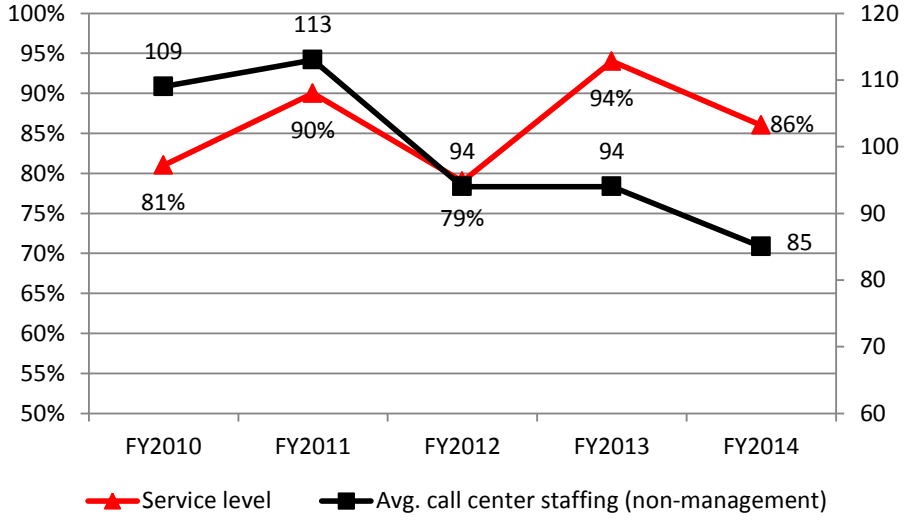
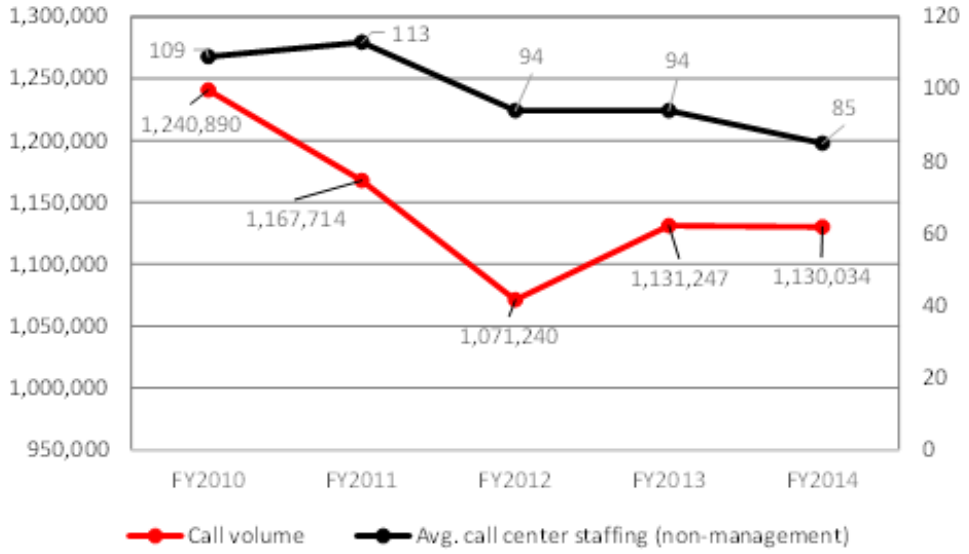
Exhibit VIII-46
Customer Call Center Staffing and Service Levels
FY2010 to FY2014



Source: Information Responses 203, 204, and 652

Call center staffing levels, in particular high turnover rates, were noted by Schumaker & Company in the 2008 Stratified Management & Operations Audit. It appears that only recently has call center staffing stabilized. Call center staffing declined to about 85 CRs in FY2014. PGW attributes this tendency as a response to lower call volume from warmer winters in 2010, 2011, and 2012. *Exhibit VIII-47* shows the relationship of call center staffing (non-management personnel) to call volume. Overall, call center staffing has fluctuated with call volume, but it has increased at a higher rate than call volumes in FY2015.

Exhibit VIII-47
PGW Call Volume and Staffing Levels
FY2010 to FY2014



Source: Information Responses 203, 204, and 652

In an ongoing effort to improve customer service, and in anticipation of a significant impact of retirements at the end of the year, PGW hired additional call center staffing. At the time of the audit in FY2015, PGW had just completed a training class and had two more classes underway, each with 20 new service representatives. This brings non-union personnel levels to 120, although because this is an entry position for all of Customer Affairs and because of expected attrition through retirements and normal attrition, PGW expects this number to decline to 115.

Again, increased staffing, combined with improvements in hiring, training, and ongoing employee development, can be expected to produce improvements in customer service in the coming years.

Finding VIII-4 District Office service levels and operating hours are inhibited by insufficient staffing.

PGW maintains six customer service District Offices where customers can pay bills, request service, inquire about their account, apply for LIHEAP grants, and make payment arrangements including CAP arrangements. No offices are open every day of the week. Four of the six PGW District Offices are open on any given business day. PGW attributes this infrequent availability to staffing shortages. The long lines, with wait times in excess of 30 minutes, observed on our tour of the District Offices were described as normal customer volumes by PGW staff.

When open, each District Office is staffed with six to 10 people including security personnel, CRs, 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-48*, which reflects the number of walk-in payments and customer inquiries per office as well as the average number of customer service employees per office. A comparison from the 2008 PaPUC audit of PGW is offered in this table. The walk-in payments are independent of the number of customer inquiries; payments could be made by customers visiting for an inquiry as well.

Exhibit VIII-48
Customer Service District Office Statistics
Comparing FY2007 and FY2014

Office	Walk-in Payments FY2007	Walk-in Payments FY2014	Customer Inquiries FY2007	Customer Inquiries FY2014	Avg Staffing FY2007	Avg Staffing FY2014	Ratio of Customers per Employee FY2007	Ratio of Customers per Employee FY2014
Center City	111,371	95,792	33,444	41,511	8	8	4181	5189
South Phila	59,560	44,754	22,823	22,400	6	6	3804	3733
West Phila	111,229	92,121	38,621	49,421	8	8	4828	6178
North Phila	68,786	51,307	36,157	39,579	8	9	4520	4398
Germantown	71,010	59,794	26,662	29,040	7	7	3809	4149
Frankford	62,999	47,866	35,252	39,846	7	9	5036	4427
Total	484,955	391,634	192,959	221,797	7	8	4120	4736

Source: PaPUC PGW Management Audit, 2008, p. 372 and Information Response 206

In the 2008 audit, Schumaker & Company recommended that PGW consider closing District Offices and finding alternative ways to serve customers, including greater use of third-party payment locations. Although PGW continues to operate six District Offices, the number of payments received at these locations has declined by almost 20% (19.24%). Over the same period, customer inquiries (requests for service, inquiries about their account, applications for LIHEAP grants, and payment arrangements) have increased by about 15% (14.95%).

Finding VIII-5 PGW continues to operate costly District Offices contrary to industry trends and prior audit recommendations.

In the 2008 PaPUC management audit of PGW, Schumaker & Company stated that:

> 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 addition, Schumaker & Company recommended that PGW close District Offices and rely more heavily on third-party payment centers.

As noted in Finding VIII-4, the role of the District Offices continues to evolve away from bill payment centers and toward customer services, particularly for low-income customers. Schumaker & Company continues to believe that PGW needs to reassess its strategy for customer service delivery.

Given the staffing (customer service, supervision, and security), plus the costs of maintain these aging facilities, it is presumed that PGW's District Offices are expensive to operate. Schumaker & Company requested specific costs and was surprised to learn that PGW does not budget or track these costs separately from the other customer service function costs (Call Center and QA). As such, we were not able to make any cost per transaction calculations. Nonetheless, with overall staffing approaching 40 people, staffing costs alone easily exceed $2 million.

Customer Accounting, Collections, & Complaints

Finding VIII-6 Enhancements to existing systems would provide added functionality and process improvements.

As discussed in the *Information Technology* section of *Chapter III – Support Services*, current IS BCCS activities are primarily focused on modernization activities; however, Schumaker & Company concluded that functional enhancements would streamline and improve certain system processes. The CA Special Projects group maintains and works CA's new project list.

System enhancements pertaining to resumption of credit and collections activities following putting an account on hold (are included on the Special Projects new project list) should be addressed. Currently, once an account has been put on hold, the collections process must start over. Additional system changes needed to improve functionality, a few of which are on the Special Projects' new project list, include:

- Changing from manual storage of medical forms to imaging.
- Automating the Cold Weather Interim Program – Typically from December 1 to March 31, the PaPUC restricts PGW (and other regulated utilities) from terminating utility service to certain customers during the winter season for non-payment. While there are restrictions to protect certain customers from terminations, PaPUC-regulated utilities such as PGW are permitted to terminate services to a specific group of customers. PGW currently uses a manual selection process for this time period. PGW is not permitted to terminate service for customers above 150% up to 250%, if someone in a household is under 12 or over 65 or if customers are 150% of the federal poverty guidelines or below.
- PGW's reactivation program, which addresses customers who have left PGW but want to start a new account – When a person applies for an account, PGW checks for the customer and unpaid bills (even if previously written off) and includes the amount owed by the customer on the new account, if still unpaid.

- "Warehousing" of accounts once the 360 days with collection agencies has occurred by outsourcing so PGW pays only a percentage of what is collected – It is likely that PGW will implement "warehousing" in the future. PGW is evaluating options used by other utility organizations, plus discussions have occurred with one vendor. PGW plans to have discussions with other vendors, but issuance of a competitive request for proposal is planned before a final decision is made.

Finding VIII-7 PGW customers cannot make payments via mobile applications.

PGW expressed interest in enhancing its mobile payments through applications (apps) on telephones or computers, although currently such options are available through PGW's mobile site. Possibly going to a third-party app rather than developing one of its own is considered an option. One example given by PGW management is that Boston Market uses cash-safe technology to accept cash and have it go directly to its bank.

Finding VIII-8 Commercial/industrial accounts do not follow PGW's risk-based collections process, nor are overdue commercial/industrial accounts typically submitted to collection agencies, unless they are accounts with residential end use.

The commercial and industrial accounts typically are not submitted to collection agencies in a similar manner as the residential accounts, except for commercial accounts with residential end use (landlord/tenant accounts), which are currently referred to collection agencies similar to residential accounts. Instead, if not residential end use, they are currently written-off. Although the amount of gross-write-offs for commercial and industrial accounts has been decreasing (as shown previously in *Exhibit VIII-26*), the CRC group is exploring how to begin increasing collection agency referrals by working with the Credit & Collections group, which already uses such agencies for residential accounts.

Finding VIII-9 Customer disputes and PaPUC complaints have increased from FY2010 to FY2014.

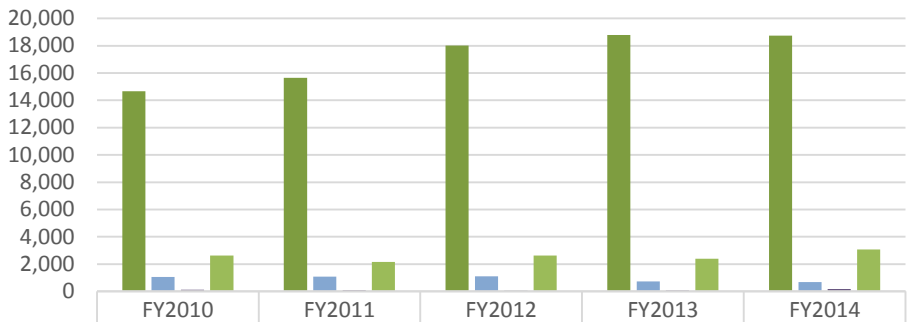
Customer Disputes

A customer has the right to file a dispute if he or she is dissatisfied with PGW's initial or follow-up response to an inquiry. For the disputed matter to be investigated, a Customer Service Representative must enter the dispute through BCCS into the Dispute Resolutions Unit (DRU) complaint management database. Once a dispute is entered, the late payment charge (LPC) indicator is systematically unchecked, credit and collections events are cancelled, a 30-day hold is placed on the account, and the case is assigned to a DRU representative. The DRU staff investigates the case and provides a written response within 30 days from the entry date of the dispute. The customer is responsible for paying the non-disputed portion of his or bill while the dispute is pending.

When the Dispute Resolution Unit's investigation is complete, the DRU representative assigned to the case must enter PGW's position into the complaint management database and mark the investigation as closed. Once this occurs, the complaint management database stores a contact in BCCS and updates the blocker of activities to 21 days from the closing of the dispute. The account is thus allowed to become eligible for LPCs and credit and collection activity upon expiration.

Exhibit VIII-49 provides a breakdown of number of disputes by type for the last five fiscal years (FY2010 to FY2014) that have been handled by the DRU directly from customers. According to Regulatory Compliance management, these figures also include any correspondence, not just disputes, received directly from customers.

Exhibit VIII-49
DRU Disputes Received by Fiscal Year
FY2010 to FY2014



	FY2010	FY2011	FY2012	FY2013	FY2014
B Type	14,664	15,659	18,023	18,775	18,730
C Type	1,059	1,088	1,094	731	675
P Type	120	106	57	79	156
S Type	2,620	2,145	2,626	2,401	3,069

Source: Information Response 213 and Interview 61
Billing (B), Credit (C), Account payment arrangements (P), and Service (S)

Exhibit VIII-50 provides a detailed breakdown of number of disputes by type for the last five fiscal years (FY2010 to FY2014).

Exhibit VIII-50
DRU Disputes Received by Fiscal Year
FY2010 to FY2014
By Type

	FY10	FY11	FY12	FY13	FY14
B - Bill/Notice Format Changes	741	675	1,598	2,032	1,991
B - Billing Dispute	4,559	4,295	4,422	4,365	4,801
B - Budget Issues	215	212	109	118	259
B - Competition/Choice	3	0	1	1	1
B - Discontinuance/Transfer	481	580	971	1,225	722
B - Failed to Establish Account	8	6	7	6	7
B - Foreign Load	154	144	167	261	356
B - General High Bill Complaint	1,289	1,359	1,651	1,052	1,048
B - High Bill - New Customer	160	183	240	181	163
B - Mailing Address Wrong/Missing	908	897	827	1,642	438
B - Make Up Bill	115	157	1,245	1,117	498
B - Multiple SA Confusion	6	8	7	8	9
B - Preview Make Up Bill	246	348	1,173	2,037	2,059
B - Prorate	431	470	324	178	186
B - Rates	203	208	181	132	178
B - Sr. Citizen discount	112	102	72	138	171
B - Statement	4,291	5,315	4,529	4,023	5,694
B - Switch Meter/Meter Twist	141	147	75	166	107
B - Turn On/Off in Error	594	550	336	87	37
B - WNA	7	3	88	6	5
C - Bankruptcy Issues	1	6	2	3	3
C - Credit Reporting	104	95	80	36	13
C - Credit/Service Denials - Off	3	12	5	4	0
C - Credit/Service Denials - On	2	1	1	1	1
C - Deposit	34	46	14	17	3
C - ID Theft	15	15	9	5	5
C - Liability Dispute	4	6	7	7	9
C - Lien and Judgment	36	38	76	77	18
C - Lost/Misapplied Payment	557	570	700	355	355
C - Medical Certification	4	9	3	5	1
C - Name Game	2	7	0	1	3
C - Payment Issues	280	265	193	211	257
C - Self Turn On/Theft	7	7	3	3	1
C - User Without Contract	6	6	0	2	2
C - Write Off Recovery (WOR)	4	5	1	4	4
P - CRP Dispute	15	12	14	22	24
P - CRP Off	6	5	0	2	3
P - CRP Review	10	6	19	18	19
P - Off PAR w/Dispute	6	6	2	6	20
P - On PAR w/Dispute	12	13	9	13	49
P - Other	56	51	8	13	23
P - PFA	2	1	0	0	0
P - Straight PAR	13	12	5	5	18
S - $50 Fast Service Charge (IRS)	2	1	0	1	0
S - Damage Claim	7	4	9	4	15
S - Metering Issues	1,931	1,297	1,920	1,543	2,377
S - Personnel Problems (Rude Employee)	2	2	3	3	1
S - Phone Access	4	3	0	1	0
S - Restoring Service Delays	4	2	2	4	6
S - Scheduling Delay	3	4	5	7	7
S - Service Extensions/New Service	477	630	452	660	419
S - Service Interruptions/Outages	121	115	172	145	215
S - Service Quality	69	87	63	33	29
Totals	**18,463**	**18,998**	**21,800**	**21,986**	**22,630**

Source: Information Response 213

According to PGW management, as shown in *Exhibit VIII-50*, the primary reason for high PGW disputes is billing issues, especially given recent changes in winter weather, including customers who are experiencing their first winter bills. Many of the complaints come in after PGW has issued adjusted bills.

Customer Complaints

Any informal complaints received by the PaPUC regarding PGW are sent from the PaPUC's Bureau of Consumers Services (BCS) electronically (XML encrypted) to the CRU. Once the informal complaint is reviewed, investigated, and resolved, the CRU sends a response back to BCS. If service has already been shut off, PGW must respond within five business days; otherwise, it must respond within 30 days. Such complaints are received hourly from BCS. Some customers previously had submitted complaints to PGW directly (as part of DRU activities), while others had not. These complaints can involve any type of issue, including billing, payment arrangements, service, etc.

Formal complaints received by the PaPUC regarding PGW typically result from appeals of informal PaPUC complaints, although commercial customers and selected residential customers may initiate a formal complaint without first filing an informal complaint. These formal complaints are sent to PGW's Legal Department from the PaPUC Secretary's Bureau, which notifies the CRU of these complaints and then sends the documents once they are received. The CRU group is responsible for gathering information/data and testifying, as necessary. The Legal Department must respond to the BCS within 20 days; therefore, the CRU typically must respond to the Legal Department at least a week before this due date.

Exhibit VIII-51 provides a breakdown of number of PaPUC complaints by type for the last five fiscal years (FY2010 to FY2014) that are handled by the Customer Resolution Unit.

Exhibit VIII-51
Informal and Formal PaPUC Complaints
FY2010 to FY2014

Fiscal Year	Informal	Formal
FY2010	4,373	390
FY2011	4,141	288
FY2012	5,511	294
FY2013	5,596	317
FY2014	8,852	339

Source: Information Responses 366 and 728

Exhibit VIII-52 provides a breakdown of number of informal PaPUC complaints by type for the last five fiscal years (FY2010 to FY2014).

Exhibit VIII-52
CRU PaPUC Informal Complaints Received by Fiscal Year
FY2010 to FY2014

Dispute Type	FY2010	FY2011	FY2012	FY2013	FY2014
Billing	683	626	881	628	687
Credit	487	395	442	419	438
Payment Arrangement	2,950	2,850	3,836	4,181	7,260
Service	145	165	128	131	169
No Category	108	105	224	237	298
Total	**4,373**	**4,141**	**5,511**	**5,596**	**8,852**

Source: Information Response 251
Due to reporting errors in FY2010 and FY2011, the summation of each dispute type by fiscal year is slightly off from the total provided in *Exhibit VIII-51*.

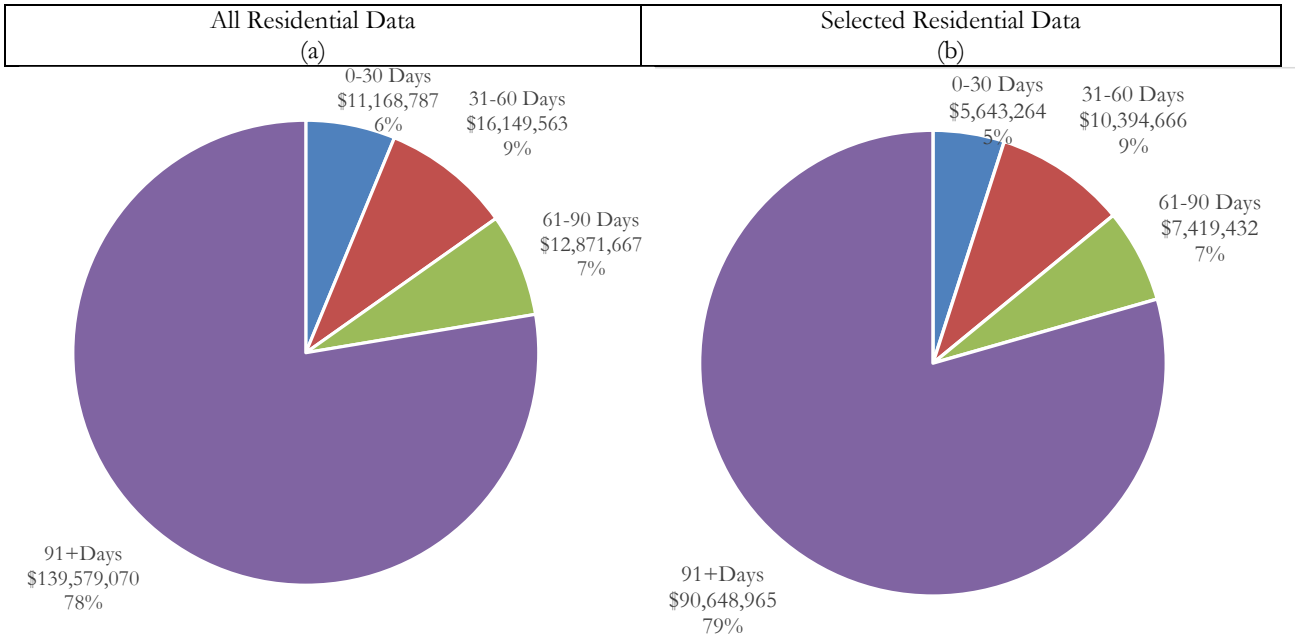
The number of informal PaPUC complaints has been increasing over the last few years. For example, in FY2013 there were more than 5,500 complaints, in FY2014 more than 8,800 complaints, and in FY2015 they are running at an even higher level. One of the primary reasons why informal complaints have been increasing is payment arrangement disputes, which PGW management indicates are based on customers exhausting their options or simply not being able to afford payment arrangements or disputing them. One example is that a customer may have only two payment arrangements on the same balance, which is one more than required, but sometimes customers want to establish additional payment arrangements. A second example is that customers may be dissatisfied with the terms of a payment arrangement, because the amount of the down-payment depends on their income level. The terms have been the same since 2004/2005 when 66 Pa.C.S. §1401 et. seq was implemented. In the summer of 2013, PGW made system enhancements, which didn't change its process but better facilitated its procedures and automated the process, which helps to ensure that agreement limitations are set.

Meanwhile, the number of formal complaints has also been increasing since FY2011. According to PGW management, the increase in formal complaints is in direct correlation with the increase in the number of informal complaints received. Because the number of informal complaints has consistently increased each year since FY2011, the number of decisions that were appealed and escalated to the formal process has also increased.

Finding VIII-10 **Timely customer payments remain a problem for PGW as indicated by the fact that the vast majority of customer aged receivables are greater than 90 days old.**

Monthly portfolio analysis reports are developed for summarizing collections data. *Exhibit VIII-53* illustrates Credit & Collections' breakdown of dollars at FY2014 year-end among number of days outstanding categories for residential customers.

Exhibit VIII-53
Number of Days Outstanding
Residential Customers
as of August 31, 2014 (FY2014 Year-End)

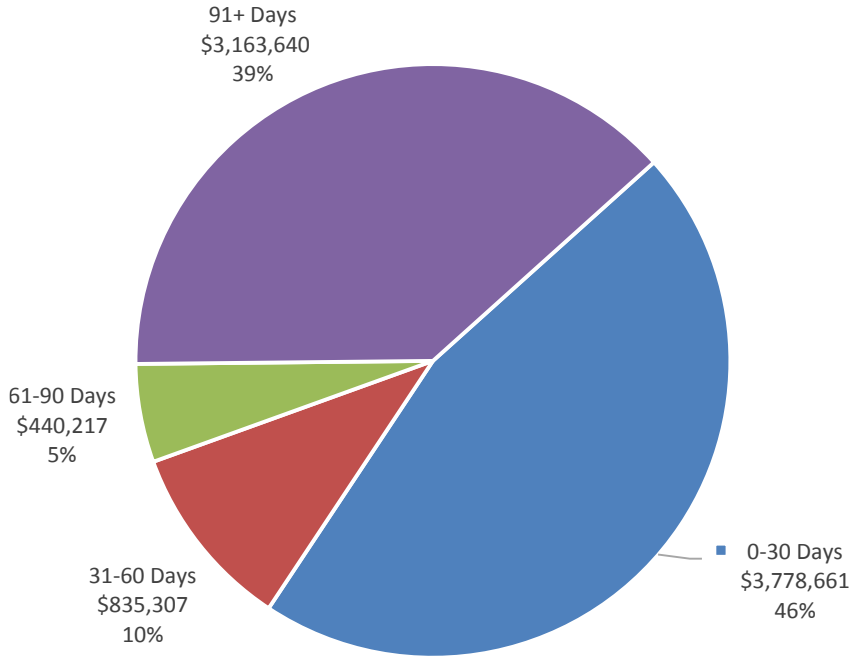


Source: Information Response 254
(a) The arrears data includes payment arrangements, budget billing (Easyway), and frozen arrearage for the CRP loan forgiveness.
(a) The arrears data excludes payment arrangements, budget billing (Easyway), and frozen arrearage for the CRP loan forgiveness.

Last year in 2014, the Credit & Collections group experienced higher work activity levels due to the severe winter weather. Consequently, the average account balance exceeding 90 days was approximately $2,500. That is because these customers frequently did not pay during the Cold Weather Interim Program period, resulting in a high percentage of the delinquencies. Also, some delinquent customers don't make payment arrangements. According to PGW management, one of the primary reasons for the over-90-day outstanding balance for residential customers is the poverty base in Philadelphia, involving customers who simply don't or can't pay.

Exhibit VIII-54 illustrates CRC's breakdown of dollars at FY2014 year-end among number of days outstanding categories for commercial/industrial customers.

Exhibit VIII-54
Number of Days Outstanding
Commercial/Industrial Customers
as of August 31, 2014 (FY2014 Year-End)



Source: Information Response 253

The CRC pursues customers throughout the year. For institutional accounts, such as the City of Philadelphia, collections activities are not systematically handled, but only manually performed by CRC representatives. For landlord/tenant accounts, which are considered "residential end use," PGW doesn't pursue them during the Cold Weather Interim Program period. Specifically for these types of accounts, delinquent accounts in the 30-60 day category, collections activities are typically performed if the balance is $10,000 or greater, while for delinquent accounts in the 61-90 or 91+ category, collections activities are typically performed if the balance is $300 or greater.

Finding VIII-11 **For customers that have terminated service from 2009 to 2013 with credit balances, PGW has been successful at refunding at least 60% of the credit balances, although the number of customers being refunded has decreased from roughly 62% to 27%.**

Each year some PGW customers terminate service while having a credit balance – which usually arises from budget billings, initial deposit refund requirements, or overpayments. Regarding refunds for credit

balances, if the refund for a closed account is less than $300, then it is automatically paid; however, if it is greater than $300, the Customer Accounting group reviews it and, if appropriate, manually calculates the refund and the appropriate amount to be paid. If the refund payment comes back because it cannot be delivered to the customer, PGW attempts to resolve the credit balance account over the next five years. Since July 2014, if it was still not refunded after three years (previously five years), the balance then went to the escheat (unclaimed property) program at the Pennsylvania Treasury Department.

The number of accounts closed by year with credit balances and the number refunded are shown in *Exhibit VIII-55*. The dollars associated with these accounts by year and the amount refunded are shown in *Exhibit VIII-56*. Over the six-year period from 2009 to 2014, approximately 45,549 accounts containing $15,805,646 in credit balances occurred, and during that same time period PGW refunded 17,509 accounts totaling $11,469,623 or 38.4% of the initial number of credit balance customers, amounting to 72.6% of the initial credit balances. This leaves roughly 28,030 accounts or $4,336,023 outstanding over the six-year time period. The number of accounts over the six-year time period that have been refunded has decreased from 62.4% in 2009 to 39.2% in 2014, while the amount refunded has ranged from 78.5% in 2009 to 60% in 2010. The percentage of refunds increased to 73% in 2011, 77.8% in 2012, 67.4% in 2013, and 79.0% in 2014, a relatively stable percentage.

Exhibit VIII-55
Number of Accounts with Credit Balances and Refunded
2009 to 2014

	2009	2010	2011	2012	2013	2014	
Credit Balances	6,359	9,613	6,509	6,838	9,208	7,012	
Refunded	3,968	3,069	2,628	2,627	2,465	2,752	
Total Outstanding	2,391	6,544	3,881	4,211	6,743	4,260	
Refunded %	62.4%	31.9%	40.4%	38.4%	26.8%	39.2%	
Total Escheated	784	2,984	2,797	3,954	4,543	4,260	From 5 Years Ago

Source: Information Response 651 and PGW Draft Report Comments

Exhibit VIII-56
Dollars Associated with Credit Balance Accounts and Amount Refunded
2009 to 2014

	2009	2010	2011	2012	2013	2014	
Credit Balances	$2,273,513	$2,508,280	$2,257,141	$3,500,135	$3,024,698	$2,241,879	
Refunded	$1,785,567	$1,504,256	$1,647,835	$2,721,758	$2,039,434	$1,770,773	
Total Outstanding	$487,946	$1,004,024	$609,306	$778,377	$985,264	$471,106	
Refunded %	78.5%	60.0%	73.0%	77.8%	67.4%	79.0%	
Total Escheated	$357,519	$644,590	$430,439	$533,892	$671,059	$471,106	From 5 Years Ago

Source: Information Response and PGW Draft Report Comments

According to PGW management, there have been no changes in strategy over the past five years in regards to refunding larger credit balances while reducing the number of customers refunded; however, in 2009 there was an active campaign to clean-up unlinked credits going back as far as 1999.

Finding VIII-12 Rebilling of accounts may be negatively impacted by the lack of formal communications among PGW groups.

In recent years, PaPUC complaints have been filed regarding the issuance of make-up bills for previous unbilled gas service for extended periods of time (i.e., in some cases for several years) that originally had gone undetected. Additional discussion related to this issue is provided in *Chapter VII – System Reliability Performance & Other Related Operations – Field Operations*.

Presently, the Customer Accounting group is not involved in investigating such instances, but rather only issues the make-up bills once notified by the respective employees in Field Services or another Customer Service group, such as the DRU group, which are primarily tasked with investigating and analyzing such cases. An outside firm, Detectant, reviews meter reading data for anomalies via computer algorithms and notifies PGW if a questionable situation exists. However, upon inquiry from Schumaker & Company during the course of fieldwork, Customer Accounting employees were unable to provide detailed information about what situations typically result in rebilling or what has caused the extensive need for backbilling for overage extended periods of time. The Customer Accounting group should have the most appropriate tools and information at its disposal to more readily diagnose this situation to help PGW avoid the issuance of large make-up bills.

It appears that the lack of formal communications among the Customer Service groups, including the Customer Accounting and the DRU groups, the Field Services groups, and the outside firm (Detectant) may have hindered PGW's ability to reduce these backbilling/make-up billing cases and resulted in many PaPUC complaints.

C. Recommendations

Customer Service Operations

Recommendation VIII-1 **Continue to institutionalize recent efforts to strengthen call center operations. (Refer to Finding VIII-1, Finding VIII-2, and Finding VIII-3.)**

As discussed in *Finding VIII-2*, Schumaker & Company believes PGW is on the right track in strengthening call center operations. Our concern is that these improvements are new and are dependent on the current call center management team and support from senior management.

Schumaker & Company encourages PGW senior management not to divert attention from these efforts but continue to make the investment in well-trained and well-supported employees under the leadership of highly competent management. This is likely to be reflected in improved customer service scores. Turning attention away from customer service and looking to the call center for the next round of budget tightening will quickly undo the progress that has been made.

Recommendation VIII-2 **Budget and track costs separately for each District Office. (Refer to Finding VIII-5.)**

Understanding operating costs for customer operations is essential. Knowing these costs is the basis for determining the return on investments (ROI) in alternative service delivery options. Understanding service delivery costs at each location is also necessary to provide meaningful analysis and comparisons of costs per transaction.

Recommendation VIII-3 **Evaluate and implement alternative in-person customer service options. (Refer to Finding VIII-4, Finding VIII-5, and Finding VIII-7.)**

As we did in 2008, Schumaker & Company recommends that PGW consider alternatives to operating expensive customer service centers. In-person payments are declining and new payment technologies are emerging. Expanding use of third-party payment acceptance may be a less expensive alternative and may increase the number of locations available to customers.

As long as PGW remains a City-owned utility, consideration should be given to combining customer offices with the City of Philadelphia Water Department and cross-training employees. This option could support both payments and service requests.

Application for payment assistance programs might be offered through neighborhood agencies or by renting space during the enrollment period at churches or other neighborhood locations. Again, offering more locations affords customers opportunities to enroll closer to home. For many of these customers, transportation is a challenge and this would likely be perceived as a welcomed alternative.

Finally, strengthened call center operations and improved service levels should allow for more service requests to be done over the phone. This again would be considered more convenient to customers with mobility issues and limited transportation options.

As Schumaker & Company noted in 2008, the customer offices were created to sell appliances, offer cooking classes, serve as a community meeting room, and process customer transactions. All of these purposes have disappeared except processing customer transactions. PGW needs to find a new less expensive, more convenient way to reach the population that continues to need in-person support.

Customer Accounting, Collections, & Complaints

Recommendation VIII-4 Develop a plan for enhancing customer systems, including use of mobile applications for making customer payments. (Refer to Finding VIII-6 and Finding VIII-7.)

During Schumaker & Company's discussions with Collections management, many desired functional enhancements to PGW's systems were mentioned, including some which are on the Special Projects' new project list. Collections management should develop requirements specifications for what changes it desires and should meet with the CA Special Projects group and IS management to determine when such changes should be implemented. That is because BCCS modernization changes were considered the top priority by IS management, which were expected to be completed by the end of June 2015. For any of these functional requirement specifications, Collections management should develop specific business cases that identify priorities and efficient uses of funds.

Recommendation VIII-5 Further incorporate commercial/industrial accounts into PGW's risk-based collections process, including sending more accounts to collection agencies. (Refer to Finding VIII-8.)

The CRC group should develop a plan and implement it in the near future to further incorporate all commercial/industrial accounts into PGW's risk-based collections process, which is on the Special Projects' new project list. More formalization of such activities would enhance the CRC's abilities to help prevent the extensive number of over-90-day-old accounts, as discussed in *Finding VIII-10* and *Recommendation VIII-7*. In addition, sending all commercial/industrial accounts to collection agencies once they have been written off would help PGW in potentially collecting additional dollars from these accounts rather than simply writing them off.

Recommendation VIII-6 Identify and address increasing customer disputes and PaPUC complaints. (Refer to Finding VIII-9.)

Because the number of customer disputes has been increasing, which also results in the number of informal and formal PaPUC complaints increasing, PGW should develop specific actions to address each of the primary types of disputes and complaints included. For example, customer disputes are primarily billing focused, such as high bills or initial bills, while informal PaPUC complaints are primarily

shut-offs and payment arrangement focused. By the end of 2015, a detailed root cause analysis should be performed by PGW management for each type, and specific action plans should be developed for addressing the identified issues as soon as possible, even though the company may not want to increase the number of payment agreements it makes available.

Recommendation VIII-7 Place greater emphasis on decreasing the number and amount of over-90-day-old accounts. (Refer to Finding VIII-10.)

As shown in *Exhibit VIII-53* and *Exhibit VIII-54*, the number and amount of customers with over-90 day-old accounts is high, even when payment arrangements, budget billing (Easyway), and frozen arrearage for the CRP loan forgiveness are excluded from residential customer figures in *Exhibit VIII-53*. The percentage of accounts in this category is approximately 78% to 79% for residential customers and 39% for commercial/industrial customers.

Although PGW currently has recurring meetings to discuss outreach initiatives with the Credit and Collections, Customer Programs, and Public Communications groups, the management in PGW's Collections groups should work together with the management in PGW's Customer Programs (Universal Service), as well as the Public Communications group, to place greater emphasis on decreasing the number and amount of over-90-day accounts by enhancing its current activities. PGW's current attitude seems to be to just accept this issue due to the poverty levels within Philadelphia; however, more focus on outreach activities, such as customer assistance programs, could help address this situation. More aggressive activities for terminating customers, especially commercial/industrial customers may also be helpful.

Recommendation VIII-8 Identify and address why the number of customers being refunded their credit balances following closing has decreased from roughly 62% to 27%. (Refer to Finding VIII-11.)

Although the dollars associated with refunds of accounts closed with credit balances has typically remained above 60% for the past five years, the number of customers being refunded their credit balances over the same time period has decreased from roughly 62% to 27%. Therefore, the number of disappointed customers is likely increasing. By the end of 2015, a detailed root cause analysis should be performed by PGW management, and specific action plans should be developed for addressing the identified issues as soon as possible.

Recommendation VIII-9 Formalize communication protocols between PGW groups to readily identify and remediate underbillings for gas service. (Refer to Finding VIII-12)

The PGW Field Services, Customer Service, and Regulatory Compliance groups should work together to investigate the causal factors attributable to cases in which individual customers were underbilled for gas service for extended periods of time in order to develop formal communications protocols between PGW operating groups and departments to mitigate and/or eliminate such cases in the future. Based on

the results of this study, changes to Field Services and/or Customer Services processes should be modified. Additionally these groups should meet regularly on a formal basis to review ongoing situations and evaluate how modifications to processes are working to rectify this problem.

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 (2009 to 2013)
- *Section II:* Comparative analysis of PGW to a select group (Panel) of gas utilities over a five-year period (2009 to 2013), including:
  - Columbia Gas of Pennsylvania (CGP)
  - Equitable Gas Company (EGC)
  - National Fuel Gas Distribution Corporation (NFG)
  - PECO Energy Company (PECO)
  - Peoples Natural Gas Company d/b/a Dominion Peoples in Pennsylvania (PNG)
  - UGI Utilities – Gas (UGI)

Schumaker & Company has reviewed each firm's Annual Report documents for the years 2009 through 2013 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 2009 through 2013.

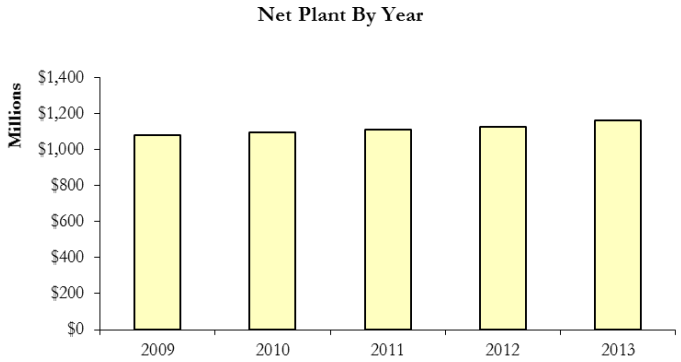
- Total net plant in service
- Operating revenue
- Gas sales by volume
- Total average number of customers (year-end)
- Total employees (year-end)
- Total operation and maintenance expense
- Gas distribution lines
- Performance ratio expense

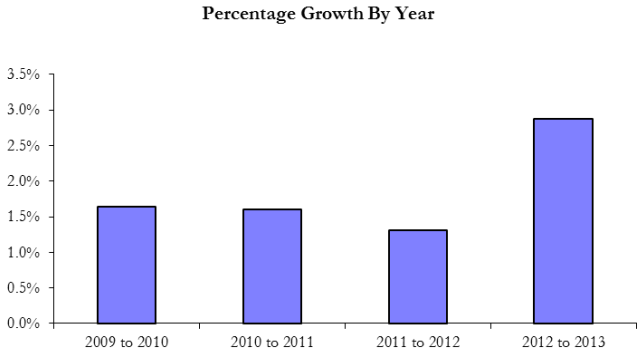
Total Net Plant in Service

Exhibit A-1
Total Net Plant in Service
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Gross Utility Plant in Service	1,799,444,451	1,855,717,746	1,913,592,192	1,964,659,706	2,015,260,289	2.87%
Accum Prov for Depreciation of Gas Utility Plant	(721,095,205)	(759,694,231)	(800,010,184)	(836,495,108)	(854,631,792)	4.34%
Total Net Gas Plant in Service	**1,078,349,246**	**1,096,023,515**	**1,113,582,008**	**1,128,164,598**	**1,160,628,497**	**1.86%**

Dollar Growth by Year	$17,674,269	$17,558,493	$14,582,590	$32,463,899
	2009 to 2010	**2010 to 2011**	**2011 to 2012**	**2012 to 2013**
Percentage Growth by Year	1.6%	1.6%	1.3%	2.9%





Source: PaPUC Annual Reports
Includes Annual Report 200-Comparative Balance Sheet, Line 24 for Total Utility Plant (net) and Line 11 for Accumulated Provision for Depreciation of Gas Utility Plant.

Operating Revenue

Operating revenues include revenues from the sale of natural gas to residential, commercial, and industrial heating and non-heating customers. PGW also provides natural gas transportation service. Appliances and other revenues primarily consist of revenue from the Company's parts and labor repair program. Revenue from this program is recognized on a monthly basis for the life of the individual parts and labor plans. Additional revenue is generated from collection fees and reconnection charges. Other operating revenues primarily consist of finance charges assed on delinquent accounts.

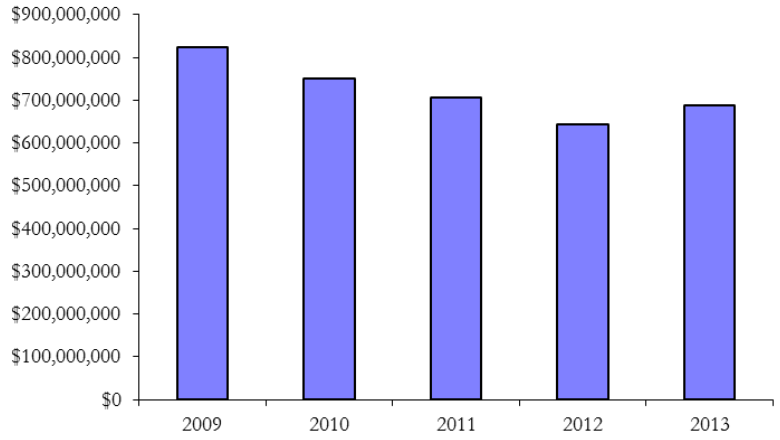
Exhibit A-2
Operating Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Sales of Gas						
Residential Sales	$608,835,612	$543,226,491	$524,324,173	$485,938,281	$523,231,780	-3.72%
Commercial & Industrial Sales*	$164,616,385	$136,903,421	$133,057,965	$106,613,678	$110,520,586	-9.48%
Other Sales to Public Authorities	$22,415,585	$17,355,988	$16,412,364	$13,210,426	$14,478,217	-10.35%
	$795,867,582	$697,485,900	$673,794,502	$605,762,385	$648,230,583	**-5.00%**
Other Operating Revenues						
Sales for Resale	$0	$0	$0	$8,944	$13,726	N/A
Forfeited Discounts	$8,523,189	$8,165,351	$8,482,707	$7,856,877	$9,248,363	2.06%
Miscellaneous Service Revenues	$135,600	$127,114	$117,915	$154,360	$190,990	8.94%
Revenues from Transportation of Gas of Others:						
Through Distribution Facilities	$26,353,127	$27,619,505	$28,461,600	$31,376,988	$38,722,862	10.10%
Other Gas Revenues**	($7,738,054)	$15,792,999	($5,773,194)	($2,569,063)	($8,200,915)	1.46%
Total Gas Operating Revenue* **	**$823,141,444**	**$749,190,869**	**$705,083,530**	**$642,590,491**	**$688,205,609**	**-4.38%**

* Does not include Sales for Resale or GTS Sales

** Other gas revenues (Account 495.0) include the provision of various goods and services to other parties, including shared asset charges to affiliates, crude oil sales, returned check charges, training programs, line item billing, and other items.

*** Rounding difference: Annual Report Total $1 less for 2010



Source: PaPUC Annual Reports

Gas Sales by Volume

MCF is used as a unit of measure in the oil and gas industry for 1000 cubic feet of natural gas.

Exhibit A-3
Total Gas Sales by Volume (MCF)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Residential Metered Sales	36,347,031	35,863,902	36,622,026	31,478,999	35,624,468	-0.50%
Commercial & Industrial Metered Sales	9,988,302	9,055,997	9,213,960	8,041,905	8,341,977	-4.40%
Gas Transport Services (GTS)	22,891,782	24,474,027	24,537,661	24,392,567	28,090,922	5.25%
Philadelphia Housing Authority (PHA) + Municipal	1,384,882	1,251,611	1,258,715	1,042,665	1,172,620	-4.07%
Other Gas Revenues**	183,032	529,536	(951,506)	(862,974)	110,104	-11.93%
Total Sales of Gas	**70,795,029**	**71,175,073**	**70,680,856**	**64,093,162**	**73,340,091**	**0.89%**

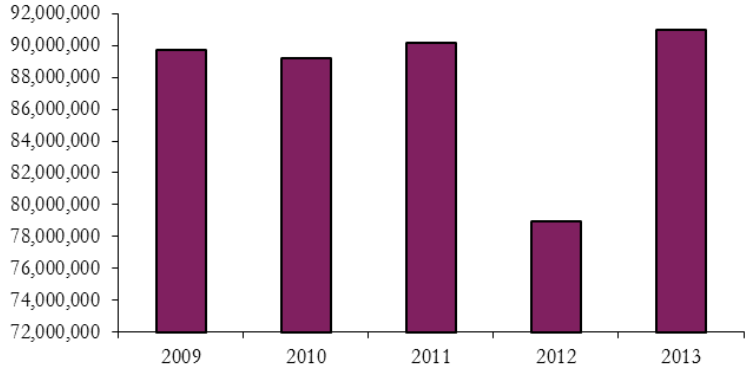
** Other gas revenues (Account 495.0) include the provision of various goods and services to other parties, including shared asset charges to affiliates, crude oil sales, returned check charges, training programs, line item billing, unbilled and gas cost rate (GCR) adjustments, and other items.

Source: PaPUC Annual Reports

Gas sales dropped in calendar year 2012 in comparison to the three previous years due to weather. Degree days experienced during 2012 were only 3,253 as compared to 3,619 in 2011, a 10.1% decrease. Degree days returned to near normal in 2013 at 3,987, an increase of 22.6% from the previous year.

Exhibit A-4
Total MCF as Reported (Received & Delivered)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Purchased Gas	52,747,669	50,994,511	52,880,562	44,344,005	48,955,272	-1.85%
Gas of Others Received for Transportation (GTS)	22,891,782	24,474,027	24,537,661	24,392,567	28,090,922	5.25%
Gas Received from Underground Storage	12,619,516	12,502,898	11,580,523	10,925,331	12,135,332	-0.97%
LNG Vaporized	1,452,840	1,251,187	1,189,534	1,003,095	1,821,118	5.81%
Total MCF Received	**89,711,807**	**89,222,623**	**90,188,280**	**80,664,998**	**91,002,644**	**0.36%**
Natural Gas Sales	47,720,215	46,171,510	47,094,701	40,563,569	45,018,413	-1.45%
Deliveries of Gas Transported or Compressed for Others (GTS)	22,891,782	24,474,027	24,537,661	24,392,567	28,090,922	5.25%
Natural Gas used by Respondent	2,700,085	0	0	0	382,451	-38.65%
Natural Gas Delivered to Storage	13,161,101	12,624,287	15,435,104	11,317,349	12,969,361	-0.37%
Other Deliveries	697,892	982,994	0	0	0	-100.00%
Unaccounted for	2,540,732	4,969,805	3,120,814	4,391,513	4,541,497	15.63%
Total MCF Delivered & Unaccounted For	**89,711,807**	**89,222,623**	**90,188,280**	**80,664,998**	**91,002,644**	**0.36%**
Unaccounted For as Percentage of Total Delivered	2.8%	5.6%	3.5%	5.4%	5.0%	15.2%



Source: PaPUC Annual Reports

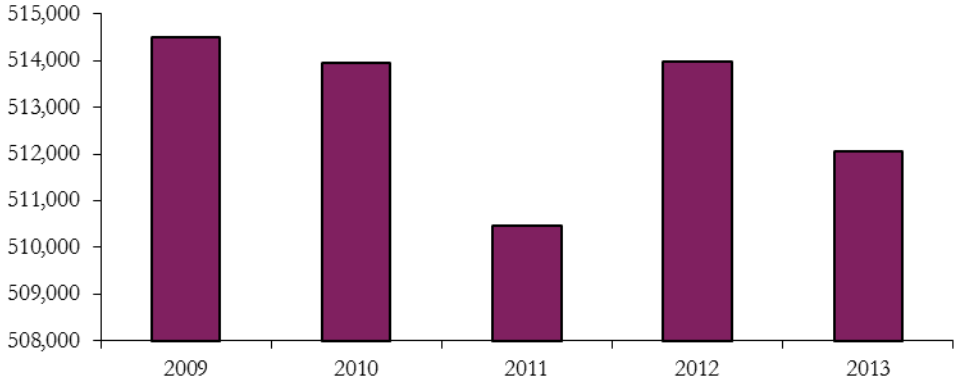
The 38.65% compound loss for "Natural Gas used by Respondent", the reporting of zero for 2010-2012, and the drop in "Other Deliveries" to zero as of 2011 can be explained by the fact that different responders made independent judgments as to how to classify gas volumes on the PaPUC annual report. Some responders found classifications other than "Other Deliveries" for volumes and Gas used by Respondent.

The DOT report and the PaPUC annual report cover different time frames and use different methodologies to calculate "unaccounted for" gas figures. The differences in methodologies arise from the different number of classifications available on the two reports and different respondents who made assumptions and judgments independently. The DOT report has undergone several revisions and the report sent to the PaPUC may be amended.

Number of Customers (Year-End)

Exhibit A-5
Number of Customers (Year-End)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Residential	481,497	480,994	480,286	480,643	478,804	-0.14%
Commercial & Industrial	26,338	26,177	25,810	25,753	25,651	-0.66%
Gas Transportation Service (GTS)	2,211	2,350	0	3,285	3,464	11.88%
Philadelphia Housing Authority (PHA) + Municipal	4,445	4,422	4,360	4,288	4,151	-1.70%
Total Number of Customers (End of Year)	**514,491**	**513,943**	**510,456**	**513,969**	**512,070**	**-0.12%**



Source: PaPUC Annual Reports

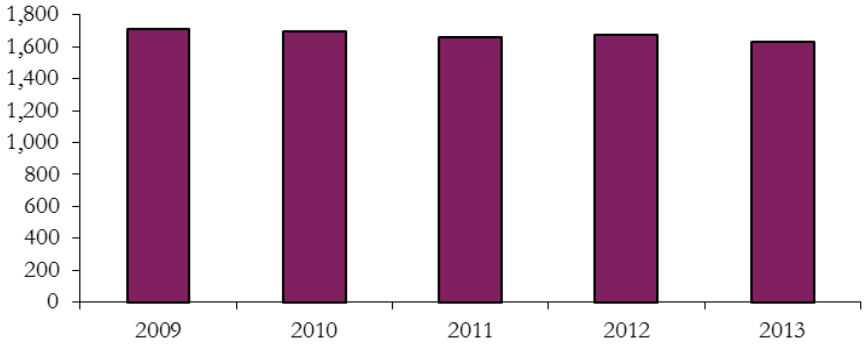
PGW reports the Philadelphia Housing Authority (PHA) and Municipal categories separately from other categories for customers and revenues, because they are separate rate classes.

Total Employees (Year-End)

The counts in *Exhibit A-6* represent end-of-year totals and include active, full-time and part-time employees.

Exhibit A-6
Total Employees (Year-End)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Total Employees at Year End	1,712	1,694	1,659	1,675	1,633	-1.17%

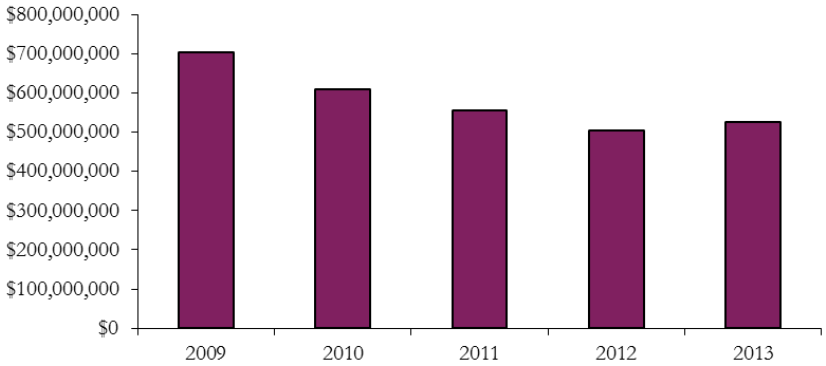


Source: PaPUC Annual Reports

Total Operation and Maintenance Expense

Exhibit A-7
Total Operation and Maintenance Expense
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Total Operation Expense	$679,058,234	$583,456,756	$523,646,456	$473,306,538	$491,171,530	-7.78%
Total Maintenance Expense	$25,642,836	$25,705,467	$31,688,771	$29,771,798	$33,587,172	6.98%
Total Gas Operating & Maintenance Expenses	**$704,701,070**	**$609,162,223**	**$555,335,227**	**$503,078,336**	**$524,758,702**	**-7.11%**



Source: PaPUC Annual Reports

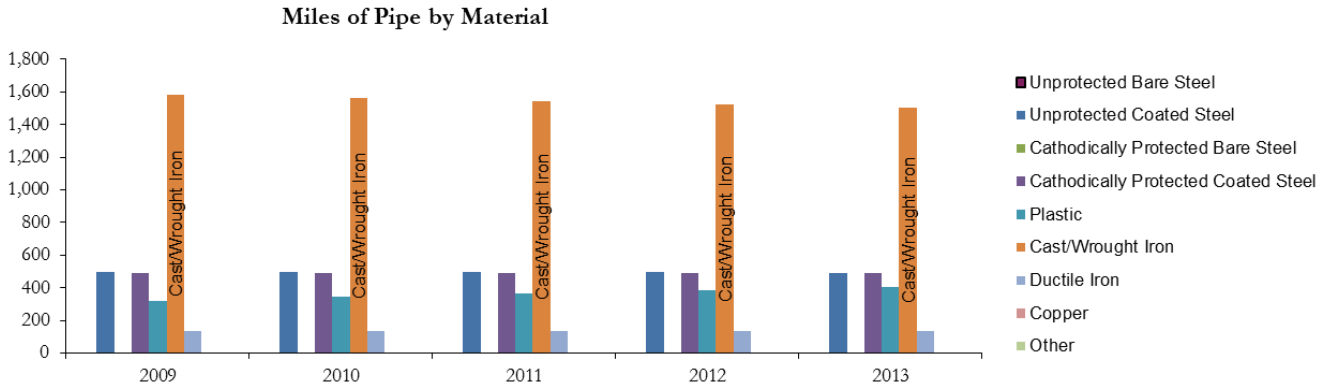
Total operating expenses, including fuel costs, in FY 2013 increased from FY 2012 reflecting higher natural gas demand. In FY 2012 they decreased from FY 2011reflecting lower natural gas demand and a decrease in the commodity price of natural gas. In FY 2011 the decrease reflected lower natural gas prices. Then again, in FY 2010 a decrease reflected substantially lower natural gas prices and a decrease in natural gas volumes from FY 2009.

Gas Distribution Lines

Miles of Pipe by Material Type

Exhibit A-8
Miles of Pipe by Material Type
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Unprotected Bare Steel	0	0	0	0	0	N/A
Unprotected Coated Steel	500	499	497	496	493	-0.35%
Cathodically Protected Bare Steel	0	0	0	0	0	N/A
Cathodically Protected Coated Steel	491	490	491	488	492	0.05%
Plastic	321	344	365	385	406	6.05%
Cast/Wrought Iron	1,582	1,562	1,542	1,524	1,501	-1.31%
Ductile Iron	135	134	134	133	132	-0.56%
Copper	0	0	0	0	0	N/A
Other	0	0	0	0	0	N/A
System Total	**3,029**	**3,029**	**3,029**	**3,026**	**3,024**	**-0.04%**

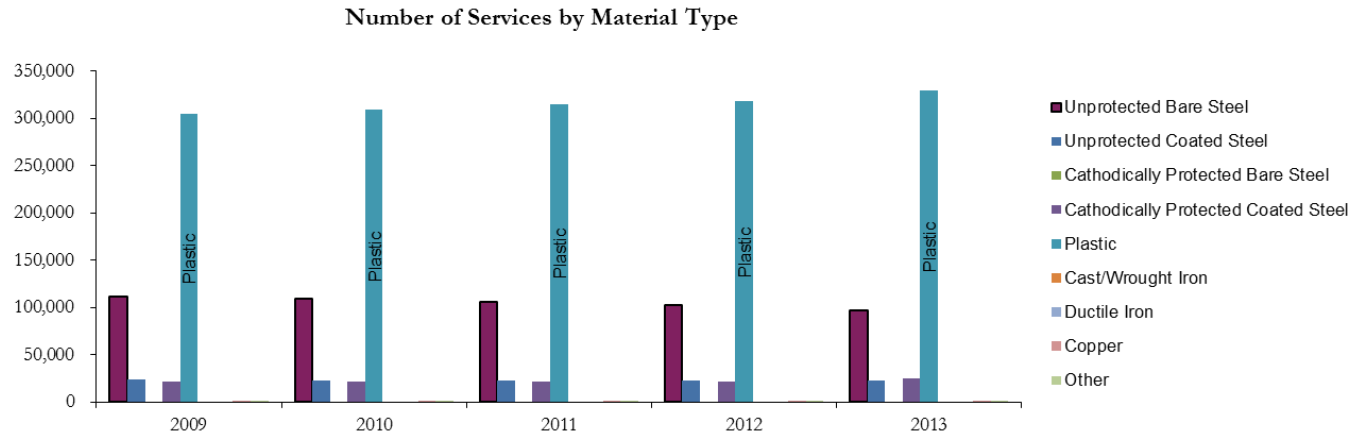


Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

Number of Services by Material Type

Exhibit A-9
Number of Services by Material Type
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Unprotected Bare Steel	112,113	109,319	105,700	102,607	97,341	-3.47%
Unprotected Coated Steel	23,693	23,184	22,729	22,292	23,247	-0.47%
Cathodically Protected Bare Steel	0	0	0	0	0	N/A
Cathodically Protected Coated Steel	21,939	22,009	22,036	22,131	25,165	3.49%
Plastic	305,395	309,671	315,324	318,681	329,984	1.95%
Cast/Wrought Iron	0	0	0	0	0	N/A
Ductile Iron	0	0	0	0	0	N/A
Copper	17	16	16	16	16	-1.50%
Other	228	241	240	239	244	1.71%
System Total	**463,385**	**464,440**	**466,045**	**465,966**	**475,997**	**0.67%**



Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

The service numbers for calendar year 2013 "Other" were incorrect at 47 in the original 2013 U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Report. We have used PGW's amended 2013 report's revised number of 244 for "Other" in 2013.

Performance Ratios

Exhibit A-10
Performance Ratios
as of December 31, 2013

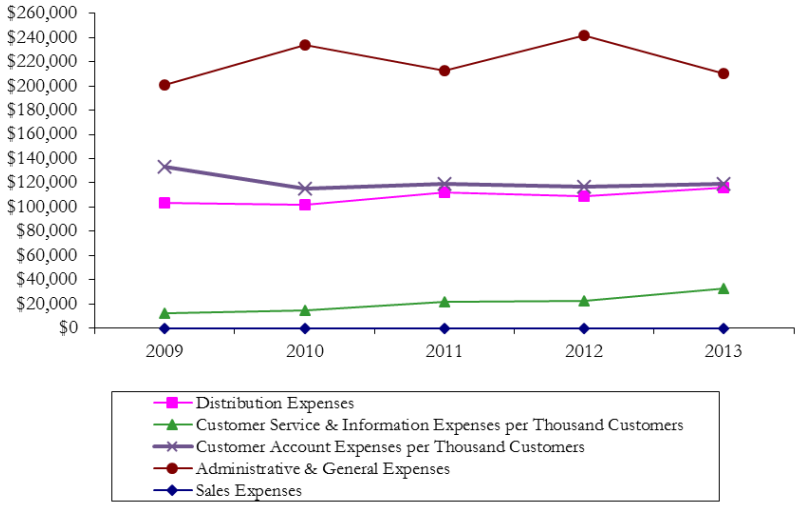
	2009	2010	2011	2012	2013	Compound Growth/Loss 2009-2013
Total Distribution Operation Expenses	$34,927,711	$33,691,799	$33,730,632	$34,586,367	$34,284,801	-0.46%
Total Distribution Maintenance Expenses	$18,252,868	$18,679,630	$23,584,164	$21,602,516	$25,027,934	8.21%
Total Customer Service and Information Expenses	$4,569,547	$5,828,907	$9,072,633	$9,368,854	$14,350,823	33.12%
Total Customer Account Expenses	$68,400,929	$59,347,179	$61,035,932	$59,935,476	$61,021,312	-2.81%
Total Administrative & General Expenses	$103,368,335	$120,323,163	$108,505,874	$124,144,200	$107,901,618	1.08%
Total Sales Expenses	$1,662,261	$1,543,788	$1,883,389	$2,091,491	$2,346,283	9.00%
Number of Customers End of Year (includes Transportation/GTS)	514,491	513,943	510,456	513,969	512,070	-0.12%
Distribution Expenses per Thousand Customers	**$103,365**	**$101,901**	**$112,282**	**$109,323**	**$115,829**	**2.89%**
Customer Service & Information Expenses per Thousand Customers	**$8,882**	**$11,342**	**$17,774**	**$18,228**	**$28,025**	**33.28%**
Customer Account Expenses per Thousand Customers	**$132,949**	**$115,474**	**$119,571**	**$116,613**	**$119,166**	**-2.70%**
Administrative & General Expenses per Thousand Customers	**$200,914**	**$234,118**	**$212,567**	**$241,540**	**$210,717**	**1.20%**
Sales Expenses per Thousand Customers	**$3,231**	**$3,004**	**$3,690**	**$4,069**	**$4,582**	**9.13%**
Operating Revenues (Total Sales and Transport Revenues, includes Transportation/GTS)	$822,220,709	$725,105,405	$702,256,102	$637,148,319	$686,967,170	-4.39%
Operating Revenue (Residential, Commercial, & Industrial)	$795,867,582	$697,485,900	$673,794,502	$605,762,387	$648,230,582	-5.00%
Distribution Expenses as Percentage of Gas Operating Revenue	**6.47%**	**7.22%**	**8.16%**	**8.82%**	**8.63%**	**7.49%**
Customer Service & Information Expenses as Percentage of Gas Operating Revenue	**0.56%**	**0.80%**	**1.29%**	**1.47%**	**2.09%**	**39.24%**
Customer Account Expenses as Percentage of Gas Operating Revenue	**8.32%**	**8.18%**	**8.69%**	**9.41%**	**8.88%**	**1.65%**
Administrative & General Expenses as Percentage of Gas Operating Revenue	**12.57%**	**16.59%**	**15.45%**	**19.48%**	**15.71%**	**5.72%**
Sales Expenses as Percentage of Gas Operating Revenue	**0.20%**	**0.21%**	**0.27%**	**0.33%**	**0.34%**	**14.01%**
Total MCF Sold (includes Transportation/GTS)	70,795,029	71,175,073	70,680,856	64,093,162	73,340,091	0.89%
Total MCF Sold (Residential, Commercial, & Industrial)	69,227,115	69,393,926	70,373,647	63,913,471	72,057,367	1.01%
Distribution Expenses per MCF	**$0.75**	**$0.74**	**$0.81**	**$0.88**	**$0.81**	**1.86%**
Customer Service & Information Expenses per MCF	**$0.06**	**$0.08**	**$0.13**	**$0.15**	**$0.20**	**31.95%**
Customer Account Expenses per MCF	**$0.97**	**$0.83**	**$0.86**	**$0.94**	**$0.83**	**-3.67%**
Administrative & General Expenses per MCF	**$1.46**	**$1.69**	**$1.54**	**$1.94**	**$1.47**	**0.19%**
Sales Expenses per MCF	**$0.02**	**$0.02**	**$0.03**	**$0.03**	**$0.03**	**8.04%**

Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

The increase in costs for "Total Customer Service and Information Expenses" is associated with implementation of PGW's Demand Side Management Program, which was started with PaPUC approval on September 1, 2010.

Performance Ratios per One Thousand Customers

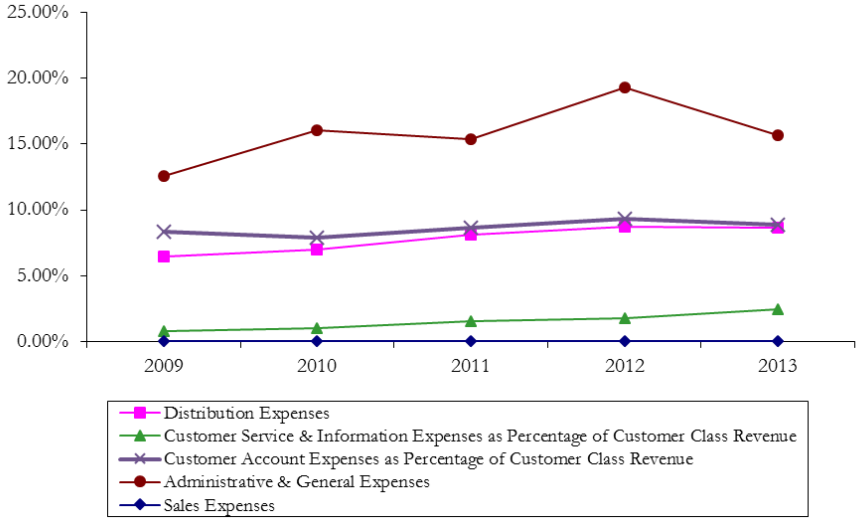
Exhibit A-11
Performance Ratios per One Thousand Customers
as of December 31, 2013



Source: PaPUC Annual Reports

Performance Ratios as Percentage of Customer Class Revenue

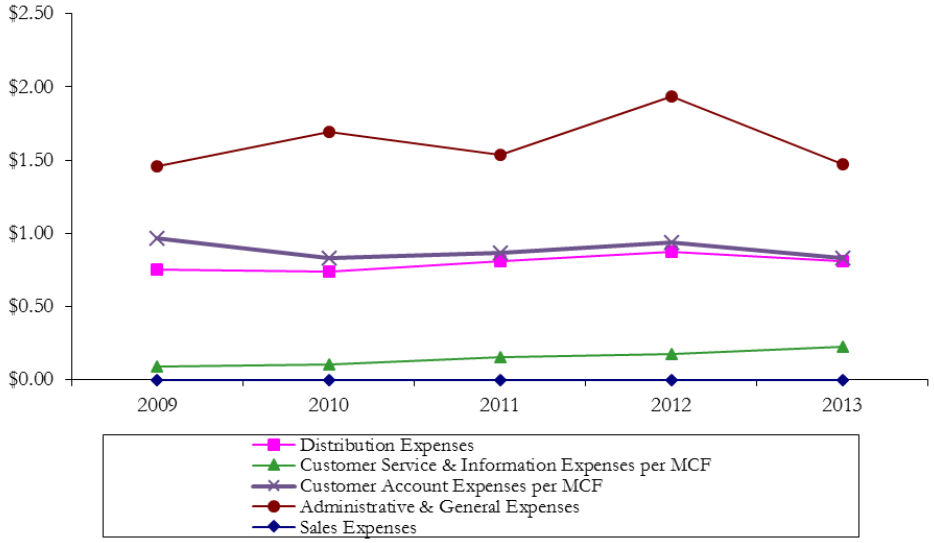
Exhibit A-12
Performance Ratios as Percentage of Customer Class Revenue
as of December 31, 2013



Source: PaPUC Annual Reports

Performance Ratios per MCF

Exhibit A-13
Performance Ratios per MCF
as of December 31, 2013



Source: PaPUC Annual Reports

Section 2 – Comparative

This section provides a comparative analysis of PGW to a select group (Panel) of appropriate gas utilities over a five-year period (2009 to 2013). These comparators include:

- Columbia Gas of Pennsylvania (CGP)
- Equitable Gas Company (EGC)
- National Fuel Gas Distribution Corporation (NFG)
- PECO Energy Company (PECO)
- Peoples Natural Gas Company (PNG)
- UGI Utilities – Gas (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 2009 through 2013.

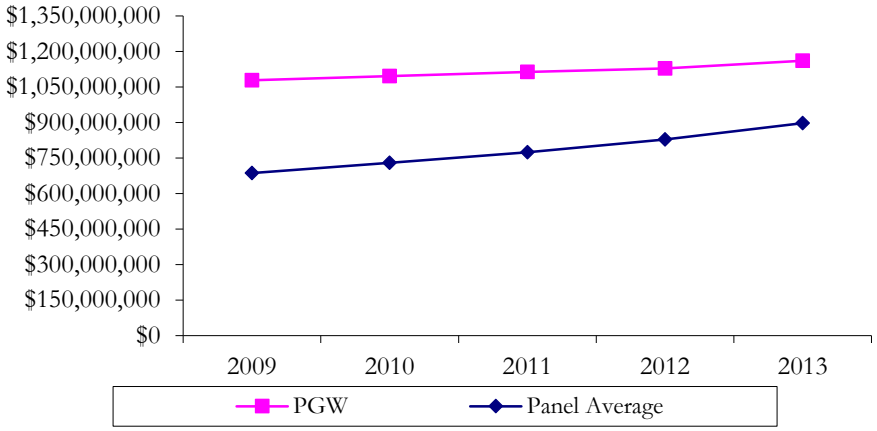
- Total net plant in service
- Gas sales by volume
- Operating revenue
- Total average number of customers (year-end)
- Total employees (year-end)
- Total operation and maintenance expense
- Performance ratio expense

Total Net Plant in Service

Exhibit A-14
Total Net Gas Plant in Service
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$1,078,349,246**	**$1,096,023,515**	**$1,113,582,008**	**$1,128,164,598**	**$1,160,628,497**	**1.86%**
Columbia Gas of Pennsylvania	$670,352,014	$729,219,651	$841,498,351	$961,476,915	$1,105,017,357	13.31%
Equitable Gas Company	$634,576,663	$613,834,368	$617,633,040	$622,335,983	$846,311,196	7.46%
National Fuel Gas (NFG)	$300,607,159	$306,784,907	$312,947,256	$322,450,411	$324,183,319	1.91%
PECO Energy Company*	$1,139,049,614	$1,168,628,028	$1,218,298,094	$1,274,588,147	$1,328,738,265	3.93%
Peoples Natural Gas Company	$616,547,329	$781,505,979	$836,921,152	$922,122,242	$846,913,412	8.26%
UGI Utilities - Gas	$754,797,350	$776,071,179	$816,038,147	$867,559,523	$932,165,701	5.42%
Panel Average	**$685,988,355**	**$729,340,685**	**$773,889,340**	**$828,422,204**	**$897,221,542**	**6.94%**

*Electric and Common Plant figures have been removed



Source: PaPUC Annual Reports
Includes Annual Report 200-Comparative Balance Sheet, Line 24 for Total Utility Plant (net).

Operating Revenue

Operating revenue includes residential, commercial, industrial, and all public classes. It does not include transportation gas or other.

Exhibit A-15
Operating Revenue
as of December 31, 2013

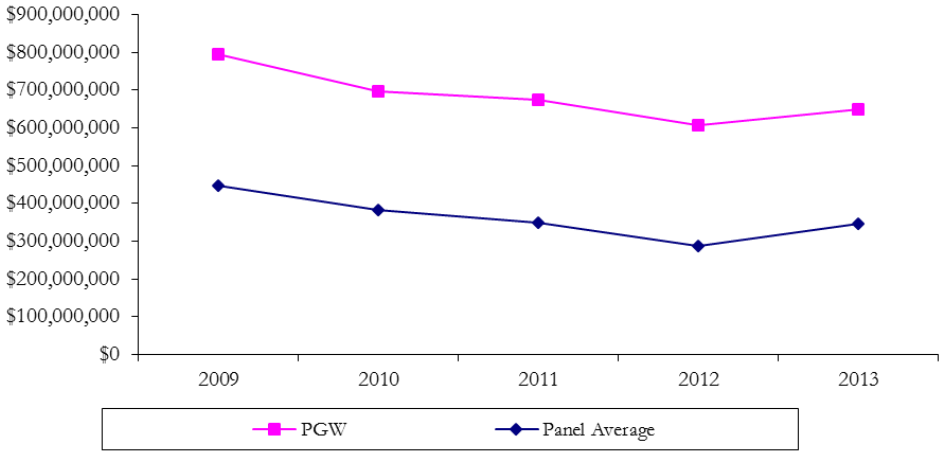
	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)*	**$795,867,582**	**$697,485,900**	**$673,794,502**	**$605,771,330**	**$648,244,307**	**-5.00%**
Columbia Gas of Pennsylvania	$461,454,572	$424,865,085	$395,558,066	$284,109,644	$448,570,211	-0.71%
Equitable Gas Company[1]	$385,408,692	$321,836,292	$286,434,080	$230,501,518	$274,892,708	-8.10%
National Fuel Gas (NFG) - PA Division only[2]	$302,409,318	$218,331,183	$211,390,731	$173,606,177	$186,791,461	-11.35%
PECO Energy Company[3]	$731,460,828	$657,577,514	$577,624,385	$509,565,260	$561,635,197	-6.39%
Peoples Natural Gas Company	$330,676,828	$266,642,613	$266,365,163	$250,652,616	$292,303,305	-3.04%
UGI Utilities - Gas	$473,854,299	$406,493,936	$352,083,510	$271,636,845	$305,693,480	-10.38%
Panel Average	**$447,544,090**	**$382,624,437**	**$348,242,656**	**$286,678,677**	**$344,981,060**	**-6.30%**

* Does not include GTS, 2012 and 2013 include Sales for Resale

[1] Rounding difference: Annual Report Tab 400, Line 3 is $1 less for 2012 and 2013 than calculating numbers from Tab 600

[2] Rounding difference: Annual Report Tab 400, Line 3 is $2 less for 2010 and $1 more for 2012 than calculating numbers from Tab 600

[3] Includes Unmetered Sales and there is a rounding difference for 2010 of $1 Less on Annual Report Tab 400 than calculating numbers from Tab 600

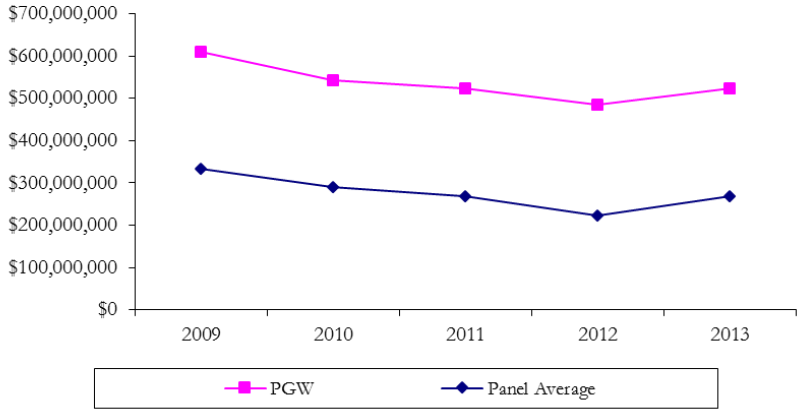


Source: PaPUC Annual Reports

Residential Revenue

Exhibit A-16
Residential Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$608,835,612**	**$543,226,491**	**$524,324,173**	**$485,938,281**	**$523,231,780**	**-3.72%**
Columbia Gas of Pennsylvania	$349,489,047	$323,067,880	$300,666,299	$215,946,428	$334,859,686	-1.06%
Equitable Gas Company	$326,534,898	$274,212,049	$244,271,546	$198,808,438	$236,573,069	-7.74%
National Fuel Gas (NFG) - PA Division only	$251,269,902	$184,002,314	$179,391,348	$148,397,327	$158,877,532	-10.83%
PECO Energy Company	$509,064,765	$462,803,525	$411,242,630	$368,652,961	$406,099,447	-5.49%
Peoples Natural Gas Company	$259,501,732	$215,310,144	$218,203,109	$206,409,789	$248,002,681	-1.13%
UGI Utilities - Gas	$310,882,629	$279,358,230	$251,572,256	$196,658,799	$219,150,635	-8.37%
Panel Average	**$334,457,162**	**$289,792,357**	**$267,557,865**	**$222,478,957**	**$267,260,508**	**-5.45%**



Source: PaPUC Annual Reports

Commercial and Industrial Revenue

Exhibit A-17
Commercial and Industrial Revenue
as of December 31, 2013

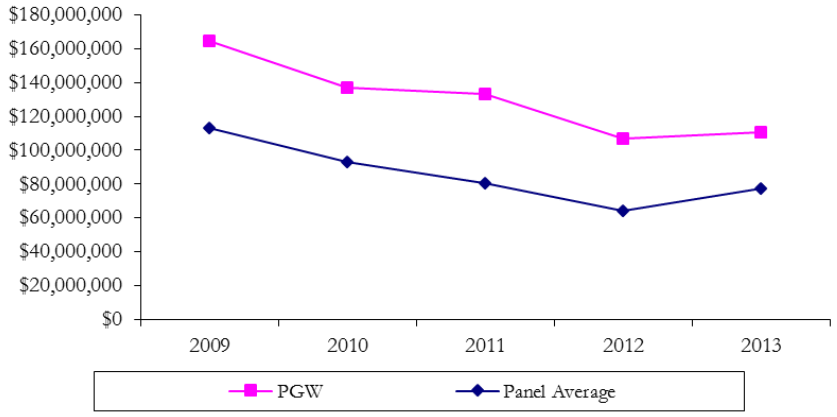
Commercial & Industrial Revenue without Transportation	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)*	**$164,616,385**	**$136,903,421**	**$133,057,965**	**$106,622,623**	**$110,534,311**	**-9.48%**
Columbia Gas of Pennsylvania	$111,965,525	$101,797,205	$94,891,767	$68,163,216	$113,710,525	0.39%
Equitable Gas Company[1]	$58,873,794	$47,624,243	$42,162,534	$31,693,080	$38,319,639	-10.18%
National Fuel Gas (NFG) - PA Division only[2]	$51,139,416	$34,328,869	$31,999,383	$25,208,850	$27,913,929	-14.05%
PECO Energy Company[3]	$222,396,063	$194,773,989	$166,174,191	$140,752,002	$155,274,468	-8.59%
Peoples Natural Gas Company	$71,175,096	$51,332,469	$48,162,054	$44,242,827	$44,300,624	-11.18%
UGI Utilities - Gas	$162,971,670	$127,135,706	$100,511,254	$74,978,046	$86,542,845	-14.64%
Panel Average	**$113,086,927**	**$92,832,080**	**$80,650,197**	**$64,173,004**	**$77,677,005**	**-8.96%**

* 2012 and 2013 include Sales for Resale

[1] Rounding difference: Annual Report Tab 400, Line 3 is $1 less for 2012 and 2013 than calculating numbers from Tab 600

[2] Rounding difference: Annual Report Tab 400, Line 3 is $2 less for 2010 and $1 more for 2012 than calculating numbers from Tab 600

[3] Includes Unmetered Sales and there is a rounding difference for 2010 of $1 Less on Annual Report Tab 400 than calculating numbers from Tab 600

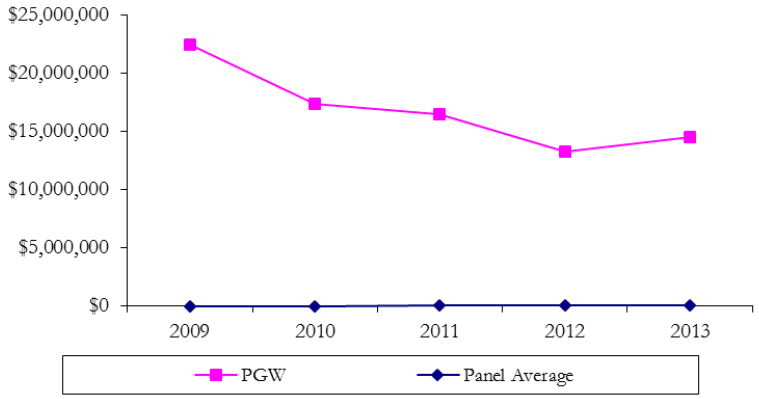


Source: PaPUC Annual Reports

PHA plus Municipal Revenue

Exhibit A-18
PHA + Municipal Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$22,415,585**	**$17,355,988**	**$16,412,364**	**$13,210,426**	**$14,478,217**	**-10.35%**
Columbia Gas of Pennsylvania	$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	$207,564	$160,297	$261,282	0.00%
Peoples Natural Gas Company	$0	$0	$0	$0	$0	0.00%
UGI Utilities - Gas	$0	$0	$0	$0	$0	0.00%
Panel Average	**$0**	**$0**	**$34,594**	**$26,716**	**$43,547**	**0.00%**



Source: PaPUC Annual Reports

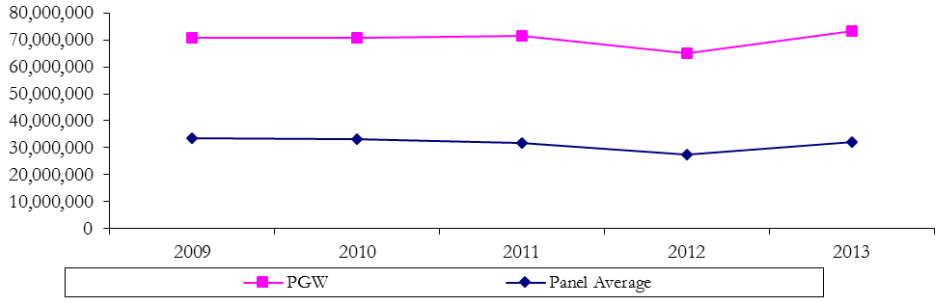
Gas Sales by Volume

Total gas sales by volume include residential, commercial, industrial, and all public sales. It does not include transportation.

Exhibit A-19
Total Residential, Commercial, Industrial, and Public Gas Sales by Volume (MCF)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)*	**70,611,997**	**70,645,537**	**71,632,362**	**64,956,136**	**73,229,987**	**0.91%**
Columbia Gas of Pennsylvania	36,616,031	35,941,035	34,774,139	26,916,770	31,997,031	-3.31%
Equitable Gas Company	24,502,295	24,442,697	23,642,782	20,369,836	24,690,166	0.19%
National Fuel Gas (NFG) - PA Division only	19,479,044	21,367,512	20,326,920	17,312,800	19,540,734	0.08%
PECO Energy Company (Sales for Resale)	57,099,319	56,848,228	54,258,297	49,783,971	57,637,728	0.23%
Peoples Natural Gas Company (Sales for Resale & Other)	30,033,703	30,284,229	30,556,523	26,185,651	29,776,913	-0.21%
UGI Utilities - Gas	32,563,389	29,785,968	27,940,753	24,166,579	28,604,895	-3.19%
Panel Average	**33,382,297**	**33,111,612**	**31,916,569**	**27,455,935**	**32,041,245**	**-1.02%**

* Does include GTS, does not inlcude Other Gas Revenues as inlcuded in Section 1

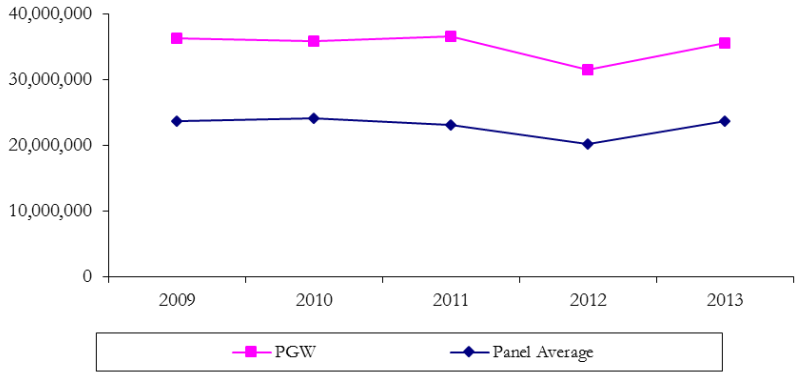


Source: PaPUC Annual Reports

Residential Gas Sold

Exhibit A-20
Residential Gas Sold (MCF)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**36,347,031**	**35,863,902**	**36,622,026**	**31,478,999**	**35,624,468**	**-0.50%**
Columbia Gas of Pennsylvania	26,097,595	25,942,239	24,878,520	19,026,460	22,692,644	-3.43%
Equitable Gas Company	20,539,610	20,475,303	19,745,219	17,152,541	20,767,216	0.28%
National Fuel Gas (NFG) - PA Division only	15,329,865	17,671,708	16,920,018	14,522,855	16,299,270	1.54%
PECO Energy Company	37,768,019	37,738,610	35,505,671	33,095,643	38,418,395	0.43%
Peoples Natural Gas Company	21,462,817	22,571,290	21,958,007	20,292,504	24,031,029	2.87%
UGI Utilities - Gas	21,059,875	20,314,895	19,790,061	17,283,081	20,335,354	-0.87%
Panel Average	**23,709,630**	**24,119,008**	**23,132,916**	**20,228,847**	**23,757,318**	**0.05%**

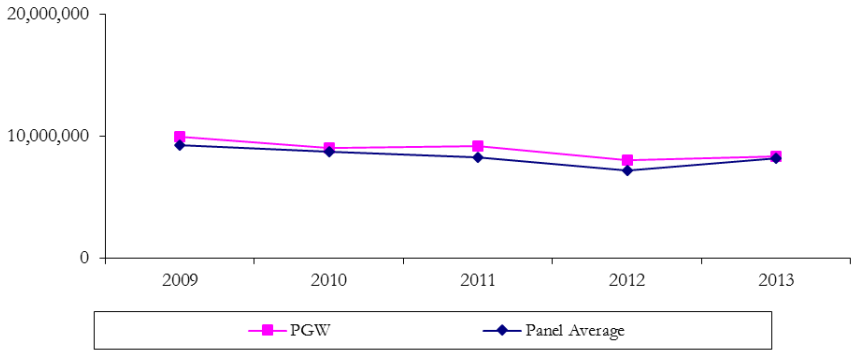


Source: PaPUC Annual Reports

Commercial and Industrial Gas Sold

Exhibit A-21
Commercial and Industrial Gas Sold (MCF)
as of December 31, 2013

Commercial & Industrial Sales by Volume (MCF) without Transportation	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**9,988,302**	**9,055,997**	**9,213,960**	**8,041,905**	**8,341,977**	**-4.40%**
Columbia Gas of Pennsylvania	10,518,436	9,998,796	9,895,619	7,890,310	9,304,387	-3.02%
Equitable Gas Company	3,962,685	3,967,394	3,897,563	3,217,295	3,922,950	-0.25%
National Fuel Gas (NFG) - PA Division only	4,149,179	3,695,804	3,406,902	2,789,945	3,241,464	-5.99%
PECO Energy Company	19,331,300	19,109,618	18,732,954	16,670,484	19,194,187	-0.18%
Peoples Natural Gas Company	6,260,138	5,973,363	5,686,853	5,714,651	5,356,159	-3.82%
UGI Utilities - Gas	11,503,514	9,471,073	8,150,692	6,883,498	8,269,541	-7.92%
Panel Average	**9,287,542**	**8,702,675**	**8,295,097**	**7,194,364**	**8,214,781**	**-3.02%**

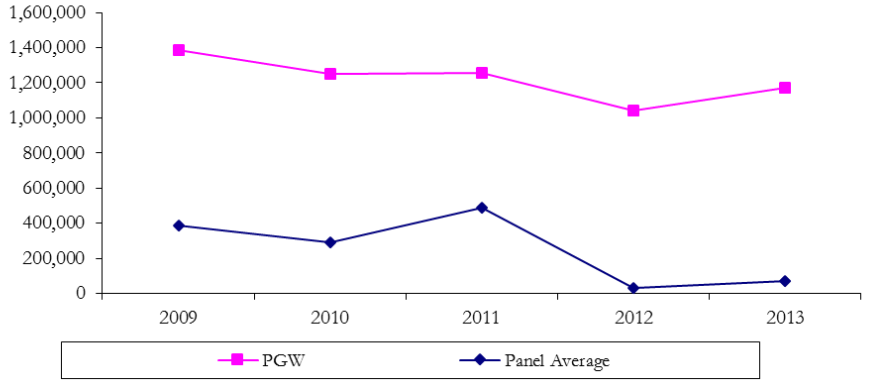


Source: PaPUC Annual Reports

PHA plus Municipal Gas Sold

Exhibit A-22
PHA + Municipal Gas Sold (MCF)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**1,384,882**	**1,251,611**	**1,258,715**	**1,042,665**	**1,172,620**	**-4.07%**
Columbia Gas of Pennsylvania	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	19,672	17,844	25,146	0.00%
Peoples Natural Gas Company (Sales for Resale & Other)	2,310,748	1,739,576	2,911,663	178,496	389,725	-35.92%
UGI Utilities - Gas	0	0	0	0	0	0.00%
Panel Average	**385,125**	**289,929**	**488,556**	**32,723**	**69,145**	**0.00%**



Source: PaPUC Annual Reports

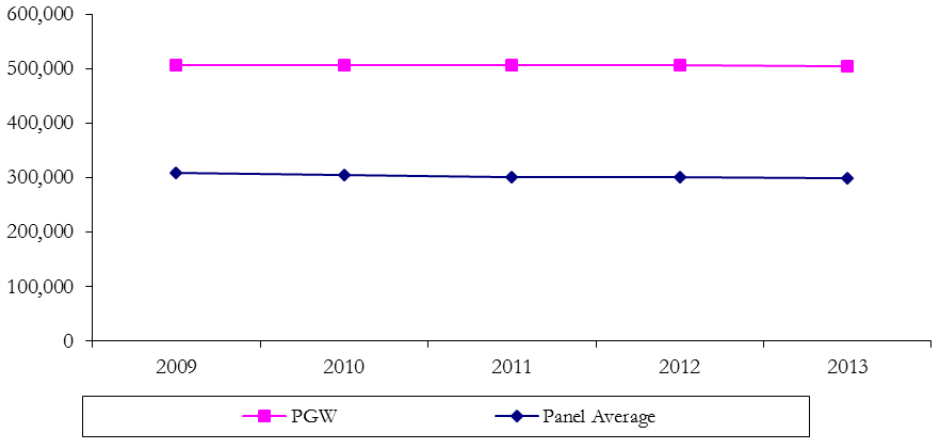
Number of Customers (Year-End)

It does not include gas transportation service customers.

Exhibit A-23
Number of Customers (Year-End)
(Excluding Gas Transportation Service Customers)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)*	**507,835**	**507,171**	**506,096**	**506,396**	**504,455**	**-0.17%**
Columbia Gas of Pennsylvania	336,651	317,104	304,719	301,580	299,817	-2.86%
Equitable Gas Company	240,016	240,930	241,621	242,428	243,574	0.37%
National Fuel Gas (NFG) - PA Division only	209,861	201,603	191,835	187,342	178,711	-3.94%
PECO Energy Company	485,900	489,634	492,661	496,258	500,452	0.74%
Peoples Natural Gas Company (Sales for Resale & Other)	256,567	262,585	264,833	270,053	268,207	1.12%
UGI Utilities - Gas	325,047	321,541	314,136	310,213	309,998	-1.18%
Panel Average	**309,007**	**305,566**	**301,634**	**301,312**	**300,127**	**-0.73%**

* Does not include GTS or PHA + Municipal



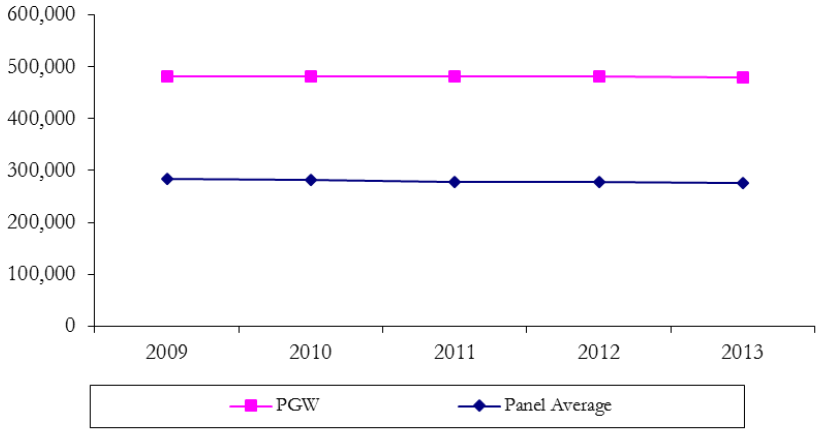
Source: PaPUC Annual Reports

The PaPUC eliminated the PHA + Municipal Number of Customers comparison for Section 2 of this audit, because no other utility compares with PGW.

Residential Number of Customers (Year-End)

Exhibit A-24
Residential Number of Customers (Year-End)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**481,497**	**480,994**	**480,286**	**480,643**	**478,804**	**-0.14%**
Columbia Gas of Pennsylvania	307,468	287,994	276,537	274,877	273,342	-2.90%
Equitable Gas Company - PA only	225,942	226,696	227,433	228,377	229,539	0.40%
National Fuel Gas (NFG) - PA Division only	195,678	188,866	180,142	175,843	167,694	-3.78%
PECO Energy Company	444,923	448,391	451,384	454,502	458,356	0.75%
Peoples Natural Gas Company	236,089	241,942	244,650	248,379	247,365	1.17%
UGI Utilities - Gas	295,992	295,425	288,854	285,986	284,683	-0.97%
Panel Average	**284,349**	**281,552**	**278,167**	**277,994**	**276,830**	**-0.67%**

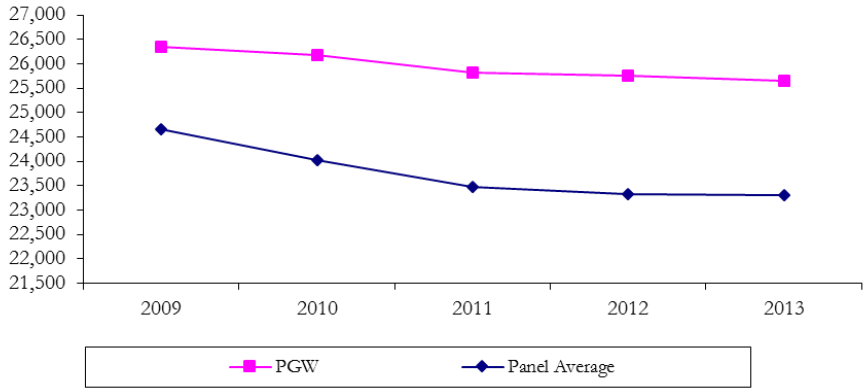


Source: PaPUC Annual Reports

Commercial and Industrial Number of Customers (Year-End)

Exhibit A-25
Commercial and Industrial Number of Customers (Year-End)
as of December 31, 2013

Commercial & Industrial Customers (Year-end) without Transportation	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**26,338**	**26,177**	**25,810**	**25,753**	**25,651**	**-0.66%**
Columbia Gas of Pennsylvania	29,183	29,110	28,182	26,703	26,475	-2.41%
Equitable Gas Company	14,074	14,234	14,188	14,051	14,035	-0.07%
National Fuel Gas (NFG) - PA Division only	14,183	12,737	11,693	11,499	11,017	-6.12%
PECO Energy Company	40,977	41,243	41,277	41,756	42,096	0.68%
Peoples Natural Gas Company	20,478	20,643	20,183	21,674	20,842	0.44%
UGI Utilities - Gas	29,055	26,116	25,282	24,227	25,315	-3.39%
Panel Average	**24,658**	**24,014**	**23,468**	**23,318**	**23,297**	**-1.41%**



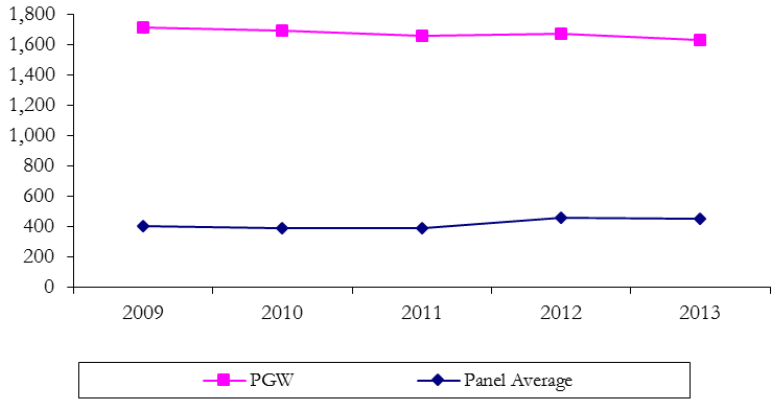
Source: PaPUC Annual Reports

Total Employees (Year-End)

The counts in *Exhibit A-26* represent end-of-year totals and include active, full-time and part-time employees.

Exhibit A-26
Total Number of Employees (Year-End)
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**1,712**	**1,694**	**1,659**	**1,675**	**1,633**	**-1.17%**
Columbia Gas of Pennsylvania	495	478	496	537	543	2.34%
Equitable Gas Company	387	360	353	338	310	-5.40%
National Fuel Gas (NFG) - PA Division only	358	320	322	320	327	-2.24%
PECO Energy Company	521	527	524	532	540	0.90%
Peoples Natural Gas Company	507	577	717	779	761	N/A
UGI Utilities - Gas	250	255	250	239	227	-2.38%
Panel Average	**402**	**388**	**389**	**458**	**451**	**2.92%**

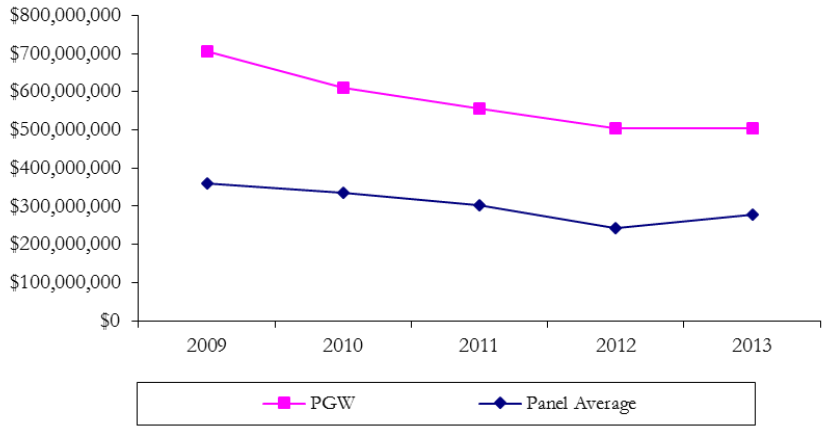


Source: PaPUC Annual Reports

Total Operation and Maintenance Expense

Exhibit A-27
Total Operation & Maintenance Expense
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$704,701,070**	**$609,162,223**	**$555,335,227**	**$503,078,336**	**$524,758,702**	**-7.11%**
Columbia Gas of Pennsylvania	$451,226,203	$475,339,455	$417,488,349	$305,262,563	$379,647,934	-4.23%
Equitable Gas Company	$387,526,826	$273,933,339	$235,292,458	$190,382,655	$238,713,209	-11.41%
National Fuel Gas (NFG) - PA Division only	$269,417,275	$199,601,678	$189,503,338	$165,496,234	$176,560,397	-10.03%
PECO Energy Company	$579,791,851	$511,063,588	$428,181,601	$371,038,530	$405,525,015	-8.55%
Peoples Natural Gas Company	$336,811,809	$289,572,575	$300,826,694	$240,112,089	$271,455,923	-5.25%
UGI Utilities - Gas	$136,790,098	$260,386,747	$237,011,224	$177,007,020	$204,060,461	10.52%
Panel Average	**$360,260,677**	**$334,982,897**	**$301,383,944**	**$241,549,849**	**$279,327,157**	**-6.16%**



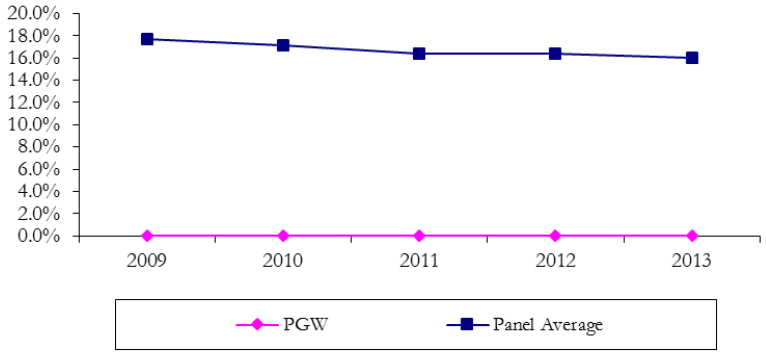
Source: PaPUC Annual Reports

Gas Distribution Lines

Mains by Material Type

Exhibit A-28
Unprotected Bare Steel Main %
as of December 31, 2013

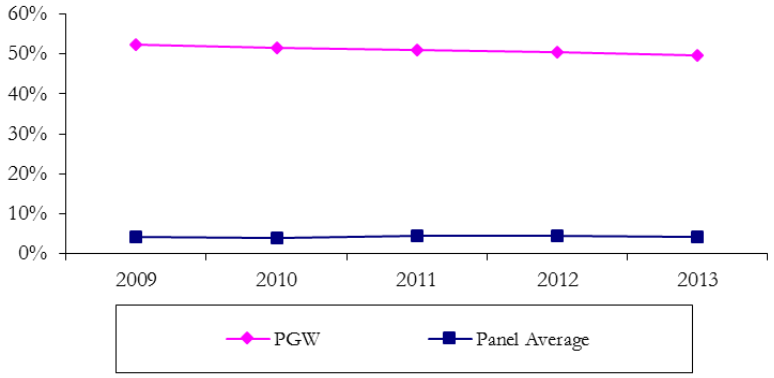
	2009	2010	2011	2012	2013	Compound Growth
Philadelphia Gas Works (PGW)	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**N/A**
Columbia Gas of Pennsylvania	26.2%	25.3%	23.3%	22.3%	21.2%	-5.2%
Equitable Gas Company	23.0%	22.4%	21.0%	20.3%	20.1%	-3.3%
National Fuel Gas (NFG) - PA Division only	19.3%	18.5%	17.9%	20.5%	20.1%	1.0%
PECO Energy Company	5.2%	5.1%	5.0%	4.9%	4.6%	-2.9%
Peoples Natural Gas Company	27.4%	26.9%	26.5%	25.8%	25.5%	-1.8%
UGI Utilities - Gas	5.1%	4.9%	4.6%	4.8%	4.6%	-2.8%
Panel Average	**17.7%**	**17.2%**	**16.4%**	**16.4%**	**16.0%**	**-2.5%**



Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

Exhibit A-29
Cast Iron Main %
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth
Philadelphia Gas Works (PGW)	**52%**	**52%**	**51%**	**50%**	**50%**	**-1.3%**
Columbia Gas of Pennsylvania	0.9%	0.8%	2.2%	2.0%	1.9%	20.0%
Equitable Gas Company	1.4%	1.3%	3.0%	2.9%	2.7%	18.0%
National Fuel Gas (NFG) - PA Division only	1.8%	1.7%	1.7%	3.6%	3.5%	18.1%
PECO Energy Company	12.1%	11.9%	11.7%	11.3%	10.9%	-2.7%
Peoples Natural Gas Company	1.0%	0.9%	0.9%	0.3%	0.3%	-28.9%
UGI Utilities - Gas	7.5%	7.3%	6.8%	6.4%	5.8%	-6.4%
Panel Average	**4.1%**	**4.0%**	**4.4%**	**4.4%**	**4.2%**	**0.3%**

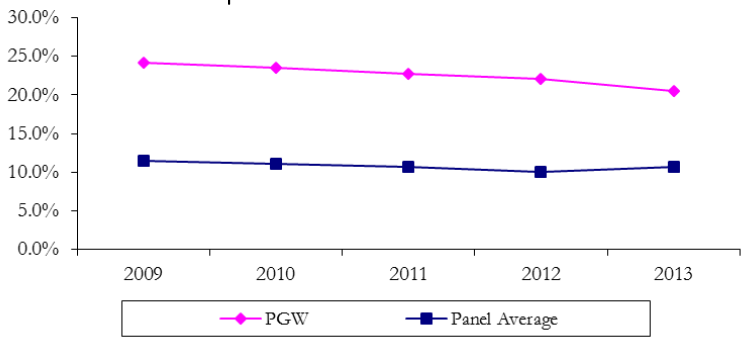


Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

Service by Material Type

Exhibit A-30
Unprotected Bare Steel Service %
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth
Philadelphia Gas Works (PGW)	**24.2%**	**23.5%**	**22.7%**	**22.0%**	**20.5%**	**-4.1%**
Columbia Gas of Pennsylvania	16.8%	16.1%	15.7%	14.9%	14.1%	-4.2%
Equitable Gas Company	6.6%	6.6%	6.0%	5.7%	11.9%	15.9%
National Fuel Gas (NFG) - PA Division only	15.3%	14.7%	14.5%	13.2%	12.6%	-4.7%
PECO Energy Company	10.1%	9.4%	8.9%	8.2%	7.5%	-7.2%
Peoples Natural Gas Company	15.2%	15.0%	14.7%	14.3%	14.0%	-2.0%
UGI Utilities - Gas	5.1%	4.8%	4.5%	4.1%	3.8%	-7.3%
Panel Average	**11.5%**	**11.1%**	**10.7%**	**10.1%**	**10.7%**	**-1.9%**

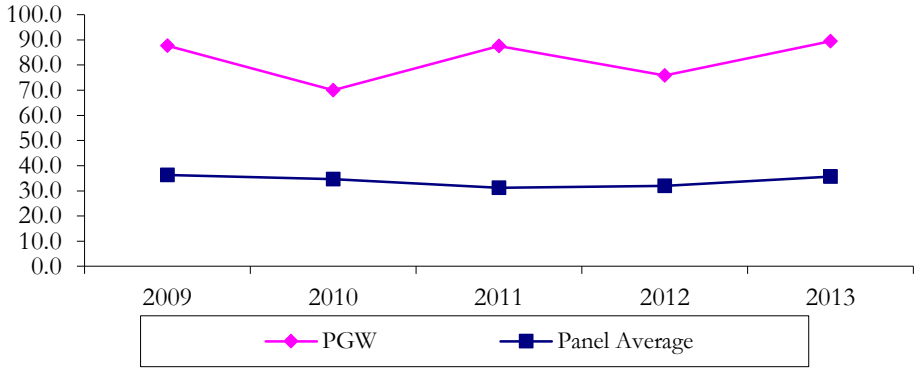


Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

Main Leaks Repaired

Exhibit A-31
Main Leaks Repaired/100 Main Miles
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth
Philadelphia Gas Works (PGW)	**87.7**	**70.0**	**87.6**	**75.8**	**89.4**	**0.5%**
Columbia Gas of Pennsylvania	53.2	50.4	45.7	46.3	38.8	-7.6%
Equitable Gas Company	28.4	32.8	26.7	27.2	24.9	-3.2%
National Fuel Gas (NFG) - PA Division only	30.4	31.1	23.3	23.2	22.6	-7.1%
PECO Energy Company	46.0	56.7	53.6	48.9	65.5	9.3%
Peoples Natural Gas Company	41.8	36.1	33.9	36.0	34.0	-5.0%
UGI Utilities - Gas	27.9	22.5	26.6	27.1	28.3	0.3%
Panel Average	**36.3**	**34.6**	**31.3**	**32.0**	**35.7**	**-0.4%**

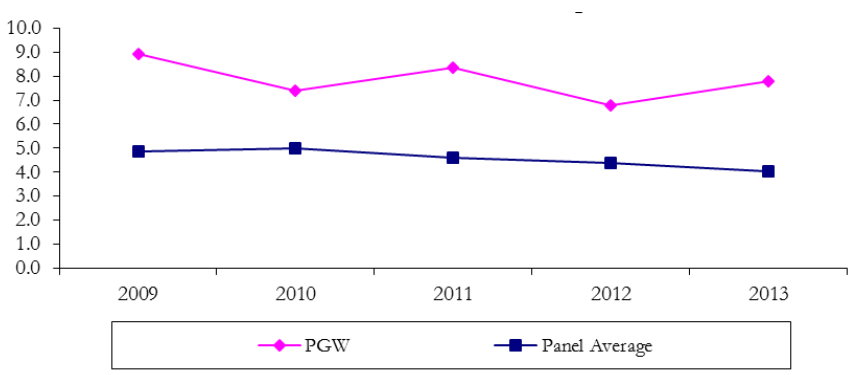


Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

Service Leaks Repaired

Exhibit A-32
Service Leaks Discovered and Repaired/1,000 Services
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth
Philadelphia Gas Works (PGW)	**8.9**	**7.4**	**8.4**	**6.8**	**7.8**	**-3.3%**
Columbia Gas of Pennsylvania	4.2	4.0	3.9	3.9	4.3	0.3%
Equitable Gas Company	2.8	2.8	2.8	2.2	1.9	-9.3%
National Fuel Gas (NFG) - PA Division only	3.0	2.8	2.8	2.6	2.6	-3.5%
PECO Energy Company	3.5	3.9	3.8	3.2	3.0	-3.6%
Peoples Natural Gas Company	11.3	12.4	10.0	10.7	9.5	-4.2%
UGI Utilities - Gas	2.9	3.2	3.6	2.6	2.9	0.0%
Panel Average	**4.8**	**5.0**	**4.6**	**4.4**	**4.0**	**-4.4%**



Source: U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Annual Reports

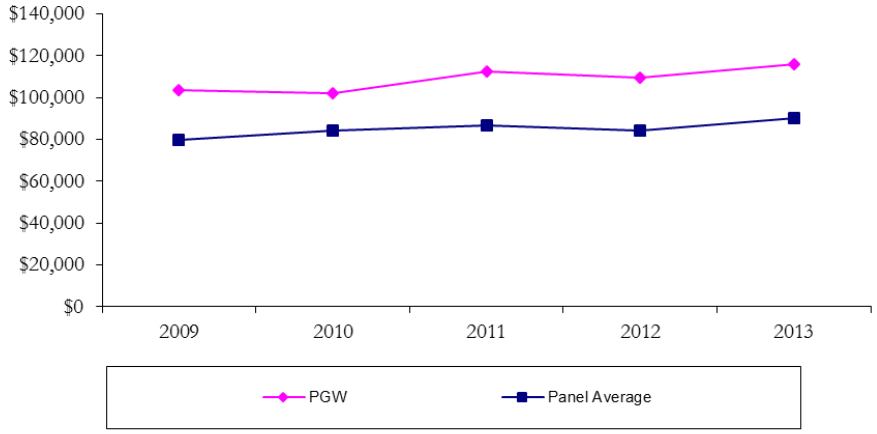
Performance Ratio Expense

Distribution Expenses per One Thousand Customers

Exhibit A-33
Distribution Expenses per One Thousand Customers
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$103,365**	**$101,901**	**$112,282**	**$109,323**	**$115,829**	**2.89%**
Columbia Gas of Pennsylvania	$91,093	$95,783	$97,718	$97,914	$109,965	4.82%
Equitable Gas Company	$96,195	$94,032	$93,142	$89,739	$93,994	-0.58%
National Fuel Gas (NFG) - PA Division only	$59,437	$62,609	$61,128	$58,393	$53,513	-2.59%
PECO Energy Company	$78,494	$89,065	$85,184	$79,740	$90,406	3.60%
Peoples Natural Gas Company	$90,782	$99,188	$101,257	$101,106	$113,298	5.70%
UGI Utilities - Gas	$63,289	$64,569	$82,396	$79,018	$80,111	6.07%
Panel Average	**$79,881**	**$84,208**	**$86,804**	**$84,318**	**$90,215**	**3.09%**

Note: Customers include all metered and unmetered customers



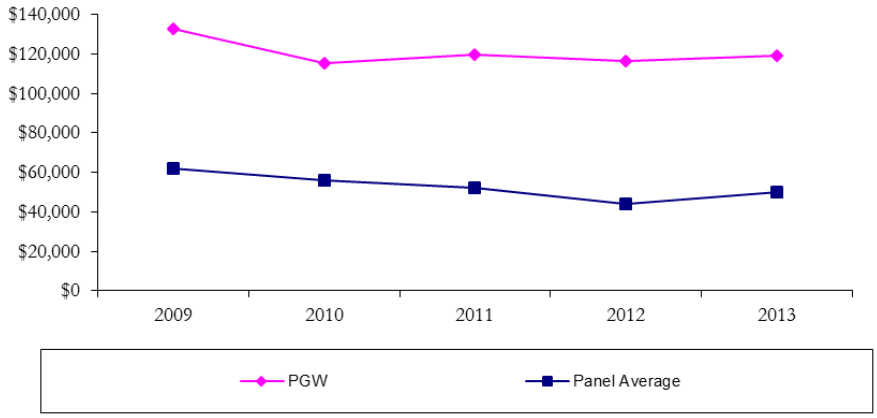
Source: PaPUC Annual Reports

Customer Account Expenses per One Thousand Customers

Exhibit A-34
Customer Account Expenses per One Thousand Customers
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$132,949**	**$115,474**	**$119,571**	**$116,613**	**$119,166**	**-2.70%**
Columbia Gas of Pennsylvania	$94,475	$81,068	$75,574	$54,108	$62,549	-9.80%
Equitable Gas Company	$38,338	$53,086	$37,331	$33,914	$48,492	6.05%
National Fuel Gas (NFG) - PA Division only	$64,529	$49,680	$35,596	$43,301	$38,739	-11.98%
PECO Energy Company	$57,130	$54,904	$55,483	$50,243	$47,394	-4.56%
Peoples Natural Gas Company	$60,932	$50,416	$59,470	$44,249	$61,049	0.05%
UGI Utilities - Gas	$56,771	$47,238	$49,186	$39,121	$43,076	-6.67%
Panel Average	**$62,029**	**$56,065**	**$52,107**	**$44,156**	**$50,217**	**-5.14%**

Note: Customers include all metered customers and unmetered customers

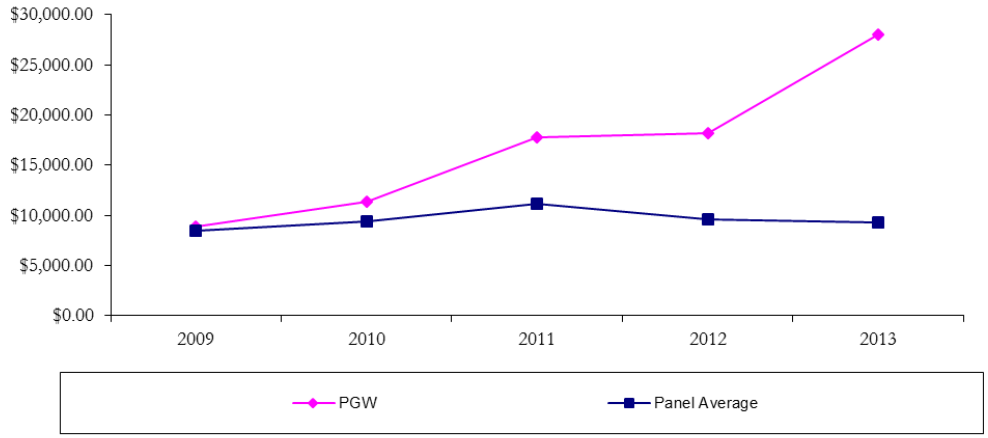


Source: PaPUC Annual Reports: Values in table = Total Customer Account Operations Expense (405)/Number of Customers, End of Year, Total Sales of Gas (600)

Customer Service and Information Expenses per One Thousand Customers

Exhibit A-35
Customer Service and Information Expenses per One Thousand Customers
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$8,882**	**$11,342**	**$17,774**	**$18,228**	**$28,025**	**33.28%**
Columbia Gas of Pennsylvania	$11,575	$17,007	$21,578	$11,536	$15,973	8.38%
Equitable Gas Company	$2,121	$1,423	$1,950	$1,693	$1,686	-5.58%
National Fuel Gas (NFG) - PA Division only	$19,586	$18,553	$17,643	$16,961	$17,071	-3.38%
PECO Energy Company	$5,655	$6,927	$11,712	$10,275	$10,136	15.70%
Peoples Natural Gas Company	$3,555	$4,915	$7,281	$11,124	$5,978	13.88%
UGI Utilities - Gas	$8,556	$7,819	$6,869	$5,856	$4,990	-12.61%
Panel Average	**$8,508**	**$9,441**	**$11,172**	**$9,574**	**$9,306**	**2.27%**



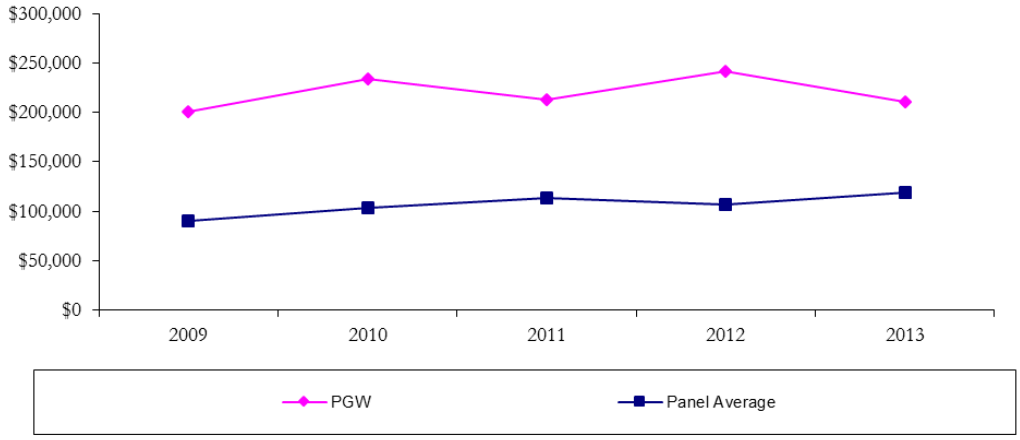
Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

Administrative & General Expenses per One Thousand Customers

Exhibit A-36
Administrative & General Expenses per One Thousand Customers
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$200,914**	**$234,118**	**$212,567**	**$241,540**	**$210,717**	**1.20%**
Columbia Gas of Pennsylvania	$109,745	$128,694	$135,400	$113,624	$126,410	3.60%
Equitable Gas Company	$104,797	$108,058	$106,002	$115,815	$173,726	13.47%
National Fuel Gas (NFG) - PA Division only	$124,845	$127,358	$137,955	$135,289	$145,742	3.94%
PECO Energy Company	$65,595	$59,881	$58,794	$65,663	$55,848	-3.94%
Peoples Natural Gas Company	$27,118	$91,339	$142,133	$113,358	$103,247	39.69%
UGI Utilities - Gas	$111,124	$107,048	$101,359	$97,833	$106,389	-1.08%
Panel Average	**$90,537**	**$103,730**	**$113,607**	**$106,930**	**$118,560**	**6.97%**

Note: Customers include all metered customers and unmetered customers



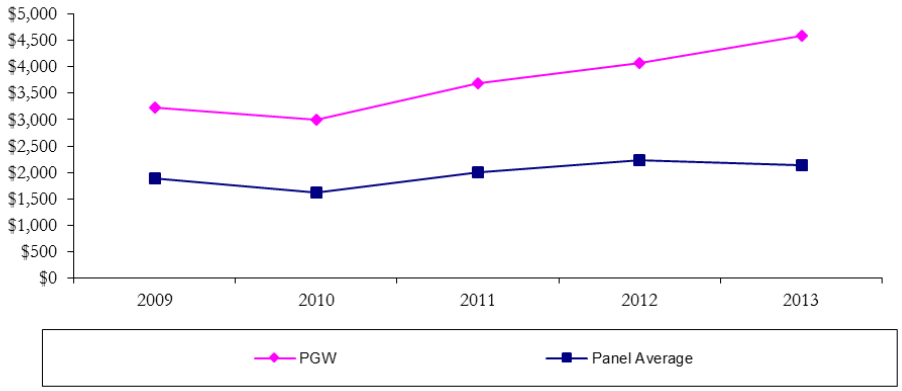
Source: PaPUC Annual Reports

Sales Expenses per One Thousand Customers

Exhibit A-37
Sales Expenses per One Thousand Customers
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)*	**$3,231**	**$3,004**	**$3,690**	**$4,069**	**$4,582**	**9.13%**
Columbia Gas of Pennsylvania	$1,718	$1,310	$1,455	$1,671	$1,634	-1.24%
Equitable Gas Company	$2,965	$2,287	$2,262	$2,023	$2,231	-6.87%
National Fuel Gas (NFG) - PA Division only	$891	$902	$1,279	$584	$758	-3.96%
PECO Energy Company	$1,153	$969	$2,217	$3,217	$2,776	24.57%
Peoples Natural Gas Company	$1,512	$1,407	$1,356	$2,482	$2,179	9.56%
UGI Utilities - Gas	$3,056	$2,873	$3,443	$3,398	$3,219	1.31%
Panel Average	**$1,883**	**$1,625**	**$2,002**	**$2,229**	**$2,133**	**3.17%**

Note: Customers include all metered customers and unmetered customers
* Sales expenses are included under Customer Service & Informational



Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

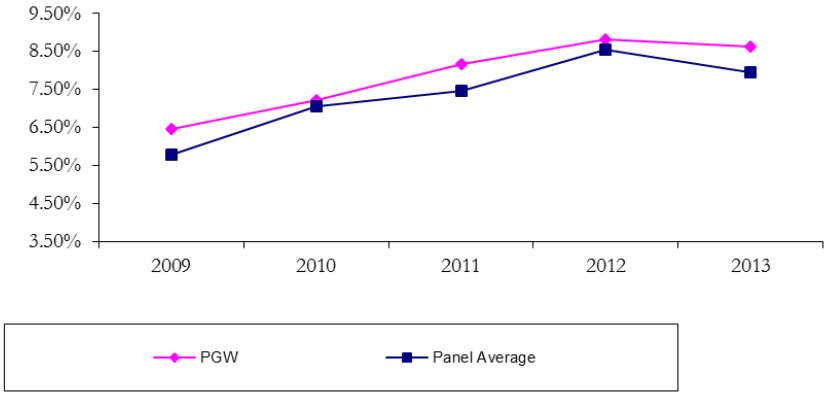
Distribution Expenses as Percentage of Gas Operating Revenue

Exhibit A-38
Distribution Expenses as Percentage of Gas Operating Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)*	**6.47%**	**7.22%**	**8.16%**	**8.82%**	**8.63%**	**7.49%**
Columbia Gas of Pennsylvania	8.15%	9.35%	8.53%	10.95%	9.94%	5.08%
Equitable Gas Company	5.86%	6.71%	7.37%	8.70%	7.76%	7.29%
National Fuel Gas (NFG) - PA Division only	3.89%	5.25%	5.29%	5.81%	4.89%	5.87%
PECO Energy Company	5.05%	6.39%	6.90%	7.32%	7.58%	10.69%
Peoples Natural Gas Company	7.92%	10.23%	10.18%	10.87%	10.53%	7.38%
UGI Utilities - Gas	3.88%	4.48%	6.46%	7.68%	7.07%	16.20%
Panel Average	**5.79%**	**7.07%**	**7.45%**	**8.55%**	**7.96%**	**8.28%**

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues

*Includes transportation



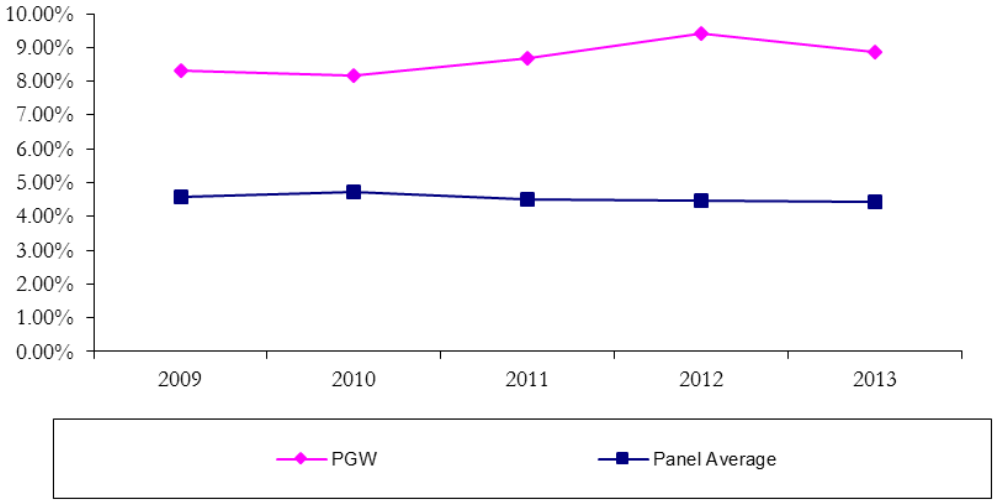
Source: PaPUC Annual Reports Values in table = (Total Distribution Operation Expenses (405) + Total Maintenance Expenses (405))/Sales During Year, Total Operating Revenue, Total Sales of Gas (600)

Customer Account Expenses as Percentage of Gas Operating Revenue

Exhibit A-39
Customer Account Expenses as Percentage of Gas Operating Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**8.32%**	**8.18%**	**8.69%**	**9.41%**	**8.88%**	**1.65%**
Columbia Gas of Pennsylvania	8.45%	7.91%	6.60%	6.05%	5.65%	-9.57%
Equitable Gas Company	2.34%	3.79%	2.95%	3.29%	4.01%	14.44%
National Fuel Gas (NFG) - PA Division only	4.23%	4.16%	3.08%	4.31%	3.54%	-4.33%
PECO Energy Company	3.67%	3.94%	4.49%	4.61%	3.97%	1.97%
Peoples Natural Gas Company	5.32%	5.20%	5.98%	4.76%	5.67%	1.64%
UGI Utilities - Gas	3.48%	3.28%	3.86%	3.80%	3.80%	2.24%
Panel Average	**4.58%**	**4.71%**	**4.49%**	**4.47%**	**4.44%**	**-0.77%**

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



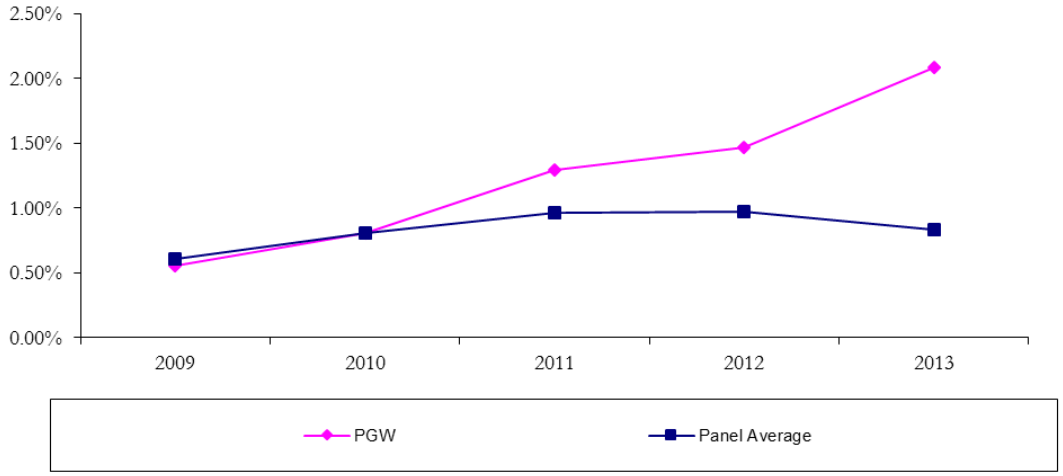
Source: PaPUC Annual Reports: Values in table = Total Customer Account Operations Expense (405)/ Sales During Year, Total Operating Revenue, Total Sales of Gas (600)

Customer Service and Information Expenses as Percentage of Gas Operating Revenue

Exhibit A-40
Customer Service and Information Expenses as Percentage of Gas Operating Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**0.56%**	**0.80%**	**1.29%**	**1.47%**	**2.09%**	**39.24%**
Columbia Gas of Pennsylvania	1.04%	1.66%	1.88%	1.29%	1.44%	8.65%
Equitable Gas Company	0.13%	0.10%	0.15%	0.16%	0.14%	1.89%
National Fuel Gas (NFG) - PA Division only	1.28%	1.55%	1.53%	1.69%	1.56%	5.01%
PECO Energy Company	0.36%	0.50%	0.95%	0.94%	0.85%	23.62%
Peoples Natural Gas Company	0.31%	0.51%	0.73%	1.20%	0.56%	15.69%
UGI Utilities - Gas	0.52%	0.54%	0.54%	0.57%	0.44%	-4.27%
Panel Average	**0.61%**	**0.81%**	**0.96%**	**0.98%**	**0.83%**	**8.15%**

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



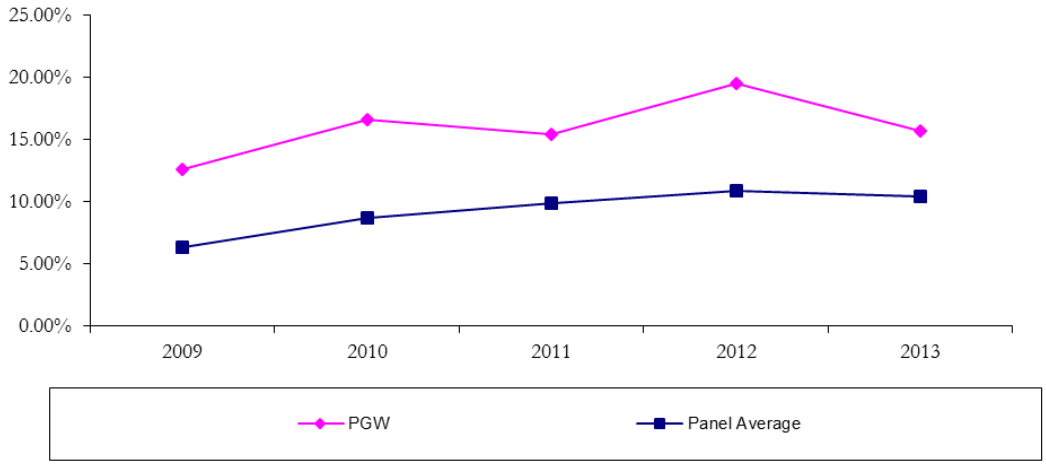
Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

Administrative & General Expenses as Percentage of Gas Operating Revenue

Exhibit A-41
Administrative & General Expenses as Percentage of Gas Operating Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**12.57%**	**16.59%**	**15.45%**	**19.48%**	**15.71%**	**5.72%**
Columbia Gas of Pennsylvania	9.82%	12.56%	11.82%	12.71%	11.42%	3.85%
Equitable Gas Company	6.38%	7.71%	8.39%	11.23%	14.35%	22.45%
National Fuel Gas (NFG) - PA Division only	8.18%	10.67%	11.93%	13.47%	13.32%	12.97%
PECO Energy Company	4.22%	4.30%	4.76%	6.02%	4.68%	2.63%
Peoples Natural Gas Company	2.37%	9.42%	14.29%	12.18%	9.59%	41.91%
UGI Utilities - Gas	6.81%	7.43%	7.95%	9.51%	9.39%	8.36%
Panel Average	**6.30%**	**8.68%**	**9.86%**	**10.85%**	**10.46%**	**13.53%**

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues



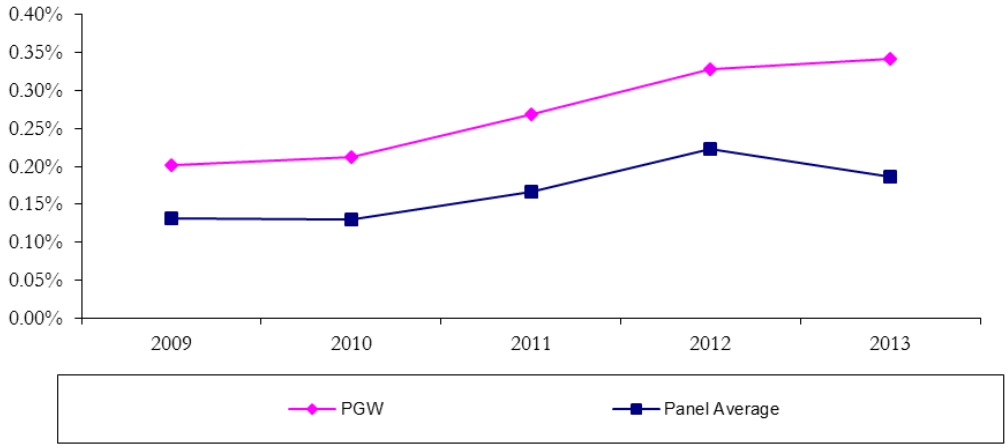
Source: PaPUC Annual Reports: Values in table = Total Gas Operations Expense (405)/ Sales During Year, Total Operating Revenue, Total Sales of Gas (600)

Sales Expenses as Percentage of Gas Operating Revenue

Exhibit A-42
Sales Expenses as Percentage of Gas Operating Revenue
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**0.20%**	**0.21%**	**0.27%**	**0.33%**	**0.34%**	**14.01%**
Columbia Gas of Pennsylvania	0.15%	0.13%	0.13%	0.19%	0.15%	-1.00%
Equitable Gas Company	0.18%	0.16%	0.18%	0.20%	0.18%	0.50%
National Fuel Gas (NFG) - PA Division only	0.06%	0.08%	0.11%	0.06%	0.07%	4.38%
PECO Energy Company	0.07%	0.07%	0.18%	0.30%	0.23%	33.10%
Peoples Natural Gas Company	0.13%	0.15%	0.14%	0.27%	0.20%	11.31%
UGI Utilities - Gas	0.19%	0.20%	0.27%	0.33%	0.28%	10.98%
Panel Average	**0.13%**	**0.13%**	**0.17%**	**0.22%**	**0.19%**	**9.27%**

Note: Customer class revenue includes metered and unmetered sales and excludes other gas revenues
* Sales expenses are included under Customer Service & Informational



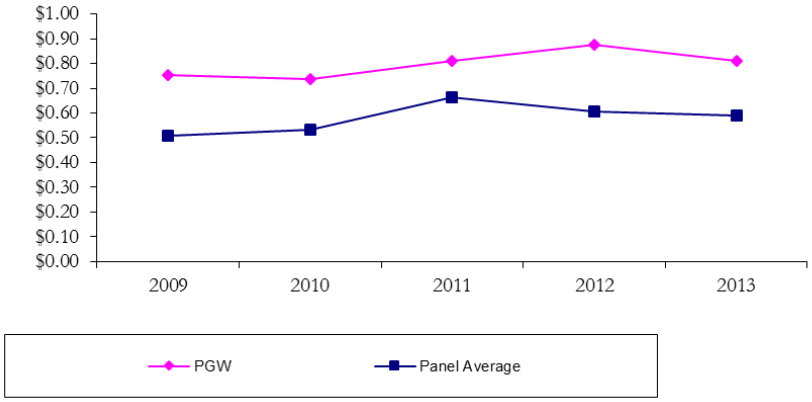
Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

Distribution Expenses per MCF Sold

Exhibit A-43
Distribution Expenses per MCF Sold
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$0.75**	**$0.74**	**$0.81**	**$0.88**	**$0.81**	**1.86%**
Columbia Gas of Pennsylvania	$1.03	$1.11	$1.17	$1.52	$1.44	8.82%
Equitable Gas Company	$0.49	$0.50	$0.50	$0.53	$0.51	0.64%
National Fuel Gas (NFG) - PA Division only	$0.32	$0.31	$1.00	$0.30	$0.25	-6.23%
PECO Energy Company	$0.45	$0.53	$0.51	$0.52	$0.53	3.88%
Peoples Natural Gas Company	$0.50	$0.51	$0.54	$0.53	$0.58	4.03%
UGI Utilities - Gas	$0.26	$0.23	$0.27	$0.24	$0.25	-0.78%
Panel Average	**$0.51**	**$0.53**	**$0.66**	**$0.60**	**$0.59**	**3.91%**

Note: MCF includes MCF for metered and unmetered sales.



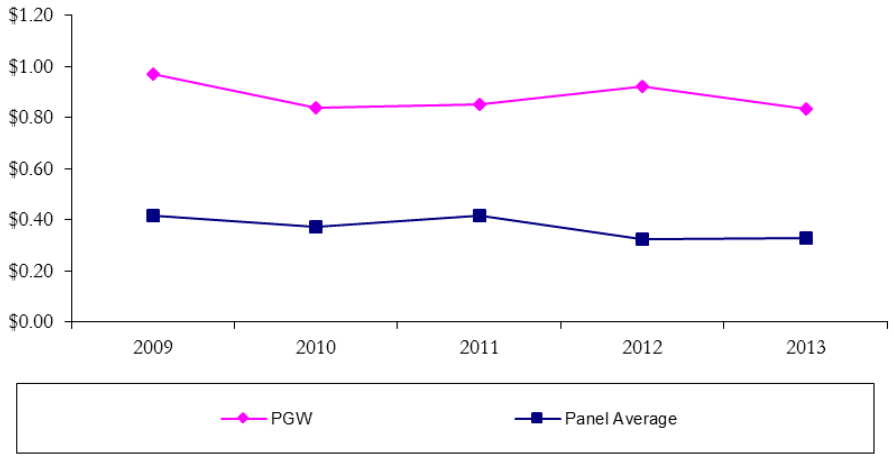
Source: PaPUC Annual Reports Values in table = (Total Distribution Operation Expenses (405) + Total Maintenance Expenses (405))/Sales During Year, Total Operating Revenue, Total Sales of Gas (600)

Customer Account Expenses per MCF Sold

Exhibit A-44
Customer Account Expenses per MCF Sold
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$0.97**	**$0.84**	**$0.85**	**$0.92**	**$0.83**	**-3.69%**
Columbia Gas of Pennsylvania	$1.07	$0.94	$0.90	$0.84	$0.82	-6.35%
Equitable Gas Company	$0.20	$0.28	$0.20	$0.20	$0.26	7.35%
National Fuel Gas (NFG) - PA Division only	$0.34	$0.25	$0.58	$0.22	$0.18	-15.27%
PECO Energy Company	$0.33	$0.33	$0.33	$0.33	$0.28	-4.30%
Peoples Natural Gas Company	$0.33	$0.26	$0.32	$0.23	$0.31	-1.53%
UGI Utilities - Gas	$0.23	$0.17	$0.16	$0.12	$0.13	-12.70%
Panel Average	**$0.42**	**$0.37**	**$0.42**	**$0.32**	**$0.33**	**-5.64%**

Note: MCF includes MCF for metered and unmetered sales.



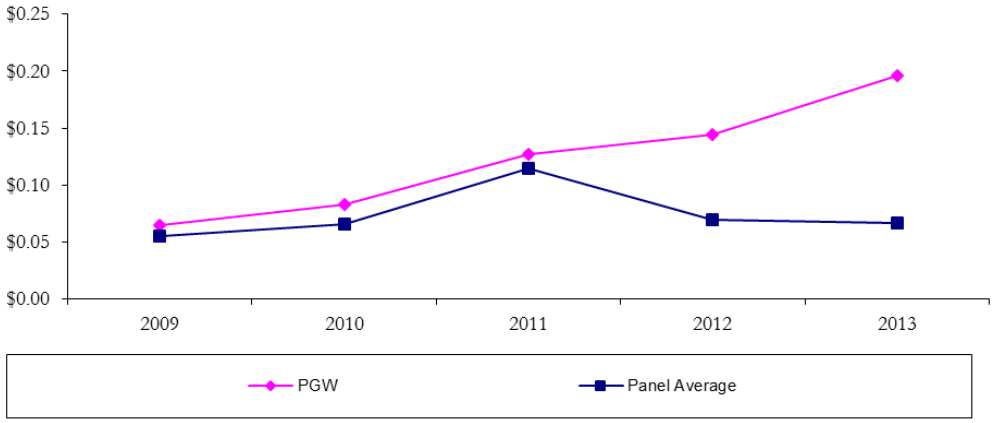
Source: PaPUC Annual Reports: Values in table = Total Customer Account Operations Expense (405)/ Sales During Year, Total Operating Revenue, Total Sales of Gas (600)

Customer Service and Information Expenses per MCF Sold

Exhibit A-45
Customer Service and Information Expenses per MCF Sold
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$0.06**	**$0.08**	**$0.13**	**$0.14**	**$0.20**	**31.92%**
Columbia Gas of Pennsylvania	$0.13	$0.20	$0.26	$0.18	$0.21	12.52%
Equitable Gas Company	$0.01	$0.01	$0.01	$0.01	$0.01	-4.43%
National Fuel Gas (NFG) - PA Division only	$0.10	$0.09	$0.29	$0.09	$0.08	-6.99%
PECO Energy Company	$0.03	$0.04	$0.07	$0.07	$0.06	16.02%
Peoples Natural Gas Company	$0.02	$0.03	$0.04	$0.06	$0.03	12.08%
UGI Utilities - Gas	$0.03	$0.03	$0.02	$0.02	$0.02	-18.25%
Panel Average	**$0.06**	**$0.07**	**$0.11**	**$0.07**	**$0.07**	**4.83%**

Note: MCF includes MCF for metered and unmetered sales.



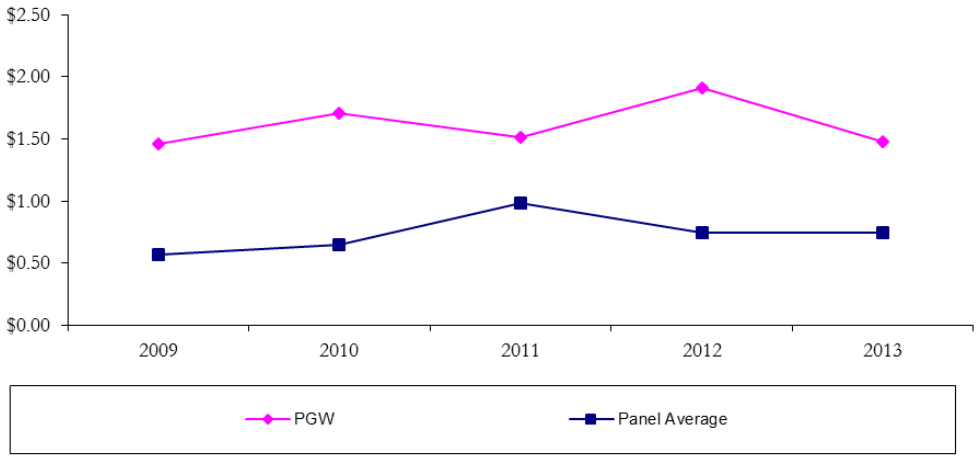
Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

Administrative & General Expenses per MCF Sold

Exhibit A-46
Administrative & General Expenses per MCF Sold
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$1.46**	**$1.70**	**$1.51**	**$1.91**	**$1.47**	**0.16%**
Columbia Gas of Pennsylvania	$1.24	$1.48	$1.62	$1.76	$1.66	7.55%
Equitable Gas Company	$0.54	$0.58	$0.57	$0.68	$0.94	14.86%
National Fuel Gas (NFG) - PA Division only	$0.67	$0.64	$2.25	$0.69	$0.67	0.06%
PECO Energy Company	$0.38	$0.36	$0.35	$0.43	$0.33	-3.68%
Peoples Natural Gas Company	$0.15	$0.47	$0.76	$0.59	$0.53	37.48%
UGI Utilities - Gas	$0.45	$0.38	$0.33	$0.30	$0.33	-7.47%
Panel Average	**$0.57**	**$0.65**	**$0.98**	**$0.74**	**$0.74**	**6.78%**

Note: MCF includes MCF for metered and unmetered sales.



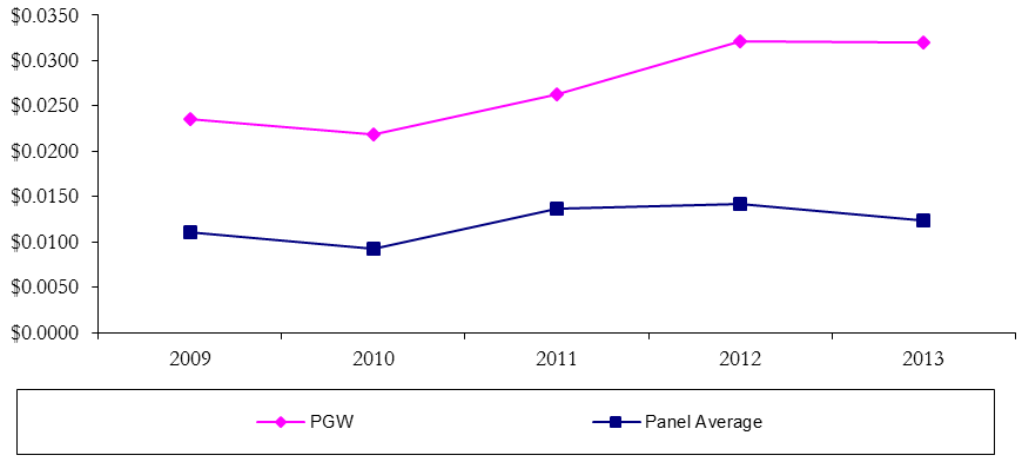
Source: PaPUC Annual Reports

Sales Expenses per MCF Sold

Exhibit A-47
Sales Expenses per MCF Sold
as of December 31, 2013

	2009	2010	2011	2012	2013	Compound Growth/Loss
Philadelphia Gas Works (PGW)	**$0.0235**	**$0.0219**	**$0.0263**	**$0.0322**	**$0.0320**	**8.01%**
Columbia Gas of Pennsylvania	$0.0194	$0.0151	$0.0174	$0.0259	$0.0214	2.53%
Equitable Gas Company	$0.0152	$0.0122	$0.0122	$0.0118	$0.0120	-5.73%
National Fuel Gas (NFG) - PA Division only	$0.0048	$0.0045	$0.0209	$0.0030	$0.0035	-7.56%
PECO Energy Company	$0.0066	$0.0057	$0.0132	$0.0209	$0.0162	24.91%
Peoples Natural Gas Company	$0.0082	$0.0073	$0.0072	$0.0130	$0.0112	7.83%
UGI Utilities - Gas	$0.0124	$0.0103	$0.0112	$0.0104	$0.0100	-5.23%
Panel Average	**$0.0111**	**$0.0092**	**$0.0137**	**$0.0141**	**$0.0124**	**2.73%**

Note: MCF includes MCF for metered and unmetered sales.
* Sales expenses are included under Customer Service & Informational



Source: PaPUC Annual Reports and Information Response 738 (A PaPUC requested split of Customer Service and Information Expenses and Sales Expenses).

B. PGW Glossary

A

Item	Acronym	Description
account payment arrangement	APA	
accounts payable	A/P	
Actuarial accrued liability	AAL	
additional funds used during construction	AFUDC	
Administrative and general	A&G	
Advanced Intelligent Mobile Solutions/ Automated Information Management System	AIMS	
affirmative action plan	AAP	
affirmative action/ Accounting Analyst	AA	
After action report	AAR	
American Gas Association	AGA	
American Production and Inventory Control Society	APICS	
American Public Gas Association	APGA	
annual OPEB cost	AOC	
Annual required contributions	ARC	
audio/visual	A/V	
automated call dispatching	ACD	
Automated Clearing House	ACH	
Automated Clearing House	ACH	
automated external defibrillator	AED	
automated meter reading	AMR	
automated vehicle locator	AVL	

B

Item	Acronym	Description
Bank of America	BoA	
benefit cost ratio	BCR	
Billing, Collections, and Customer Service	BCCS	
Board of Directors	BOD	
Bring Your Own Device	BYOD	
British thermal unit	BBtu	
Bureau of Consumers Services	BCS	
business continuity plan	BCP	
business transformation	BT	
business unit	BU	
business unit	BU	
Business-as-usual	BAU	

C

Item	Acronym	Description
Cannot Get In	CGI	
Cardiopulmonary Resuscitation	CPR	
Center for Energy Workforce Development	CEWD	
Certified Public Accountant	CPA	
Change-to-business	CTB	
Chief Administrative Officer	CAO	
Chief Executive Officer	CEO	
Chief Financial Officer	CFO	
Chief Information Officer	CIO	
Chief Operations Officer	COO	
Clean Air Council	CAC	
code division multiple access	CDMA	
collective bargaining agreement	CBA	
Combined Heat and Power	CHP	
Commercial Industrial Customer Incentive Plan	CICIP	
Commercial landlord notification program	CLNP	
Comprehensive Delivery Service	CDS	
Compressed Natural Gas	CNG	
Cold Weather Interim Period	CWIP	
Construction Work in Progress	CWIP	
Consumer Price Index for All Urban Consumer	CPI-U	
contract management system	CMS	
cooperative buying programs	COSTARS	
Credit & Collections	C&C	
Customer Affairs	CA	
Customer Assistance Program	CAP	
Customer Assistance Referral Evaluation	CARES	
Customer Representative	CR	
Customer Resource Center	CRC	
Customer Responsibility Program	CRP	
Customer Review Unit	CRU	
Customer Services Representative	CSR	

D

Item	Acronym	Description
database administration	DBA	
day-away, restricted, and transferred	DART	
decatherms	dths	
Demand Side Management	DSM	
Department of Transportation	DOT	
Detailed Main Map	DMM	
Directors & Officers	D&O	
Disabled Business Enterprise	DsBE	
Disadvantaged Business Enterprise	DBE	
Dispute Resolution Unit	DRU	
Distribution Integrity Management Program	DIMP	
Distribution System Improvement Charge	DSIC	
District Office	DO	

E

Item	Acronym	Description
Eastern Minority Supplier Development Council	EMSDC	
electronic data interchange	EDI	
emergency operations center	EOC	
Employee Retirement Income Security Act	ERISA	
encoder receiver transmitter	ERT	
Energy Association of Pennsylvania	EAP	
Energy Coordinating Agency	ECA	
Enhanced Low-Income Retrofit Program	ELIRP	
Enterprise Risk Management	ERM	
Enterprise Strategic Services	ESS	
Environmental Protection Agency	EPA	
equal employment opportunity	EEO	
Equal Employment Opportunity Commission	EEOC	
Executive Vice President	EVP	

F

Item	Acronym	Description
Family and Medical Leave Act	FMLA	
Federal Energy Regulatory Commission	FERC	
Field Operations Procedures Working Group	FOPWG	
Field Service Department	FSD	
Field Services Division	FSD	
financial size category	FSC	
fiscal year	FY	
fiscal year end	FYE	
Fleet management software	FMS	
Fleet Operations	FO	
Front Foundation Wall	FFW	
full-time equivalent	FTE	

G

Item	Acronym	Description
gas cost recovery/ gas cost rate	GCR	
General Counsel	GC	
Geographic information system	GIS	
Global positioning system	GPS	
Governmental Accounting Standards Board	GASB	
graphical user interface	GUI	

H

Item	Acronym	Description
hazardous materials	HAZMAT	
Hazardous Waste Operations and Emergency Response	HAZWOPER	
heating, ventilating, and air conditioning	HVAC	
Hewlett Packard	HP	
Homeland Security Exercise & Evaluation Program	HSEEP	
Human Resources	HR	
Human Resources Information System	HRIS	

I

Item	Acronym	Description
incident command system	ICS	
Information Services	IS	
Information Technology	IT	
Initial Recovery Team	IRT	
Institute of Supply Management	ISM	
instructor led training	ILT	
Integrated gas management system	IGMS	
Integrated Support Strategies	ISS	
interactive voice response	IVR	
Internal auditing	IA	
internally generated funds	IGF	
International Organization for Standardization	ISO	
intrusion prevention system	IPS	

J

Item	Acronym	Description

K

Item	Acronym	Description
key performance indicator	KPI	
kilowatt	kW	

L

Item	Acronym	Description
Landlord cooperation program	LCP	
late payment charge	LPC	
Leadership Development Program	LDP	
lightweight directory access protocol	LDAP	
liquefied natural gas	LNG	
Living Disaster Recovery Planning System	LDRPS	
Local area network	LAN	
London Interbank Offered Rate	LIBOR	
long-term disability	LTD	
Long-Term Infrastructure Improvement Plan	LTIIP	
Low Income Usage Reduction Program	LIURP	
Low Income Weatherization Program	LIWP	
Low-Income Home Energy Assistance Program	LIHEAP	

M

Item	Acronym	Description
1,000 cubic feet	MCF	
Main Replacement Program	MRP	
Market Rate Weatherization Program	MRWP	
Materials Management Department	MMD	
megawatt hour	MWh	
Meter Investigation Unit	MIU	
Meter Reading	MR	
Michael Ira Sobol	MIS	
Minority Business Enterprise	MBE	
Minority Business Enterprise Council	MBEC	
Minority, Women, and Disabled Business Enterprise	MWDBE	

N

Item	Acronym	Description
National Association of Corrosion Engineers	NACE	
National Association of Securities Dealers	NASD	
National Incident Management System	NIMS	
Neighborhood Energy Center	NEC	
network file system	NFS	
New business	NB	
New York Mercantile Exchange	NYMEX	
New York Stock Exchange	NYSE	
non-payment shutoff	NPSO	
non-sufficient funds	NSF	
not-to-exceed	NTE	

O

Item	Acronym	Description
Occupational Safety & Health Administration	OSHA	
Office of Consumer Advocate	OCA	
Office of Economic Opportunity	OEO	
Office of Federal Contract Compliance Programs	OFCCP	
Office of Small Business Advocate	OSBA	
off-the-shelf	OTS	
on-the-job	OTJ	
Operational Qualification	OQ	
Operations and maintenance	O&M	
Organizational Development	OD	
other accounts receivables	OARs	
Other Post-Employment Benefits	OPEB	
overtime	OT	

P

Item	Acronym	Description
Citizens for Fire Prevention Committee	PFD	
Parts and Labor Plan	PLP	
Payment Arrangement	PAR	
Pennsylvania	PA	
Pennsylvania Department of Transportation	PennDOT	
Pennsylvania Human Relations Commission	PHRC	
Pennsylvania Public Utility Commission	PaPUC	
peripheral component interconnect	PCI	
personal protective equipment	PPE	
Philadelphia Commission on Human Relations	PCHR	
PECO Energy Company	PECO	
Philadelphia Facilities Management Corporation	PFMC	
Philadelphia Gas Commission	PGC	
Philadelphia Gas Works	PGW	
Philadelphia Housing Authority	PHA	
Philadelphia Industrial and Commercial Gas Users Group	PICGUG	
Philadelphia Water Department	PWD	
Pipeline and Hazardous Materials Safety Administration	PHMSA	
pounds per square inch gage	PSIG	
present value	PV	
preventable motor vehicle accident	PMVA	
PricewaterhouseCoopers, LLC	PwC	
project management methodology	PMM	
project management office	PMO	
Public Service Electric & Gas Company	PSE&G	
Public Utility Commission	PUC	
Purchase of receivables	POR	
purchase order	PO	
Purchasing of Receivables	POR	

Q

Item	Acronym	Description
quality assurance	QA	

R

Item	Acronym	Description
recovery time objective	RTO	
remote terminal unit	RTU	
report payment processing service	RPPS	
request for proposal	RFP	
request for quote	RFQ	
Retail Energy Supply Association	RESA	
Revenue Protection Unit	RPU	

S

Item	Acronym	Description
Sales Service Change	SSC	
Sarbanes-Oxley	SOx	
Securities and Exchange Commission	SEC	
service level agreement	SLA	
Service Point	SP	
Short Message Service	SMS	
short-term disability	STD	
Software as a Service	SaaS	
Software Development Lifecycle	SDLC	
Southeastern Pennsylvania Transportation Authority	SEPTA	
Standard & Poor's Ratings Services	S&P	
Strategic Focused Organization	SFO	
Strengths Weaknesses Opportunities Threats	SWOT	
Supervisory Control and Data Acquisition	SCADA	

T

Item	Acronym	Description
tax-exempt commercial paper	TXCP	
Tenant Union Representative Network	TURN	
Texas Eastern	TETCO	
Time & Labor Management	TLM	
total cost of ownership	TCO	
total resource cost	TRC	

U

Item	Acronym	Description
UIL Holdings Corporation	UIL	
Underground Facilities Database	UFD	
Unfunded actuarial accrued liability	UAAL	
unified computing system	UCS	
uninterruptible power supply	UPS	
United Meter Reading Service	UMS	
United States Department of Transportation	USDOT	
Universal Services	US	
user acceptance testing	UAT	
Utility Energy Services Fuel	UESF	
utility service agreement	USA	

V

Item	Acronym	Description
Vehicle Data Input System	VDIS	
Vehicle identification number	VIN	
Vice President	VP	
virtual desktop infrastructure	VDI	
virtual private network	VPN	
voice over Internet protocol	VoIP	

W

Item	Acronym	Description
weather normalization adjustment	WNA	
Weighted Average Cost of Gas	WACOG	
Well Fargo	WF	
wide area network	WAN	
Women Business Enterprise	WBE	
work breakdown structure	WBS	
work order authorization	WOA	

X

Item	Acronym	Description

Y

Item	Acronym	Description
Year-to-Date	YTD	

Z

Item	Acronym	Description