

**MANAGEMENT  
AND  
OPERATIONS AUDIT  
OF  
UGI UTILITIES, INC.  
UGI CENTRAL PENN GAS, INC.  
UGI PENN NATURAL GAS, INC.**

Prepared By The  
Pennsylvania Public Utility Commission  
Bureau Of Audits

ISSUED OCTOBER 2019

Docket Nos. D-2018-3002234, D-2018-3002235, and  
D-2018-3002236



**UGI UTILITIES, INC.  
MANAGEMENT AND OPERATIONS AUDIT**

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**UGI UTILITIES, INC.  
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## I. INTRODUCTION

In accordance with the Pennsylvania Public Utility Commission's (PUC or Commission) program to identify improvements in the management and operations of fixed utilities under its jurisdiction, it was determined that a management and operations audit should be conducted of UGI Utilities Inc., UGI Central Penn Gas, Inc. (CPG) and UGI Penn Natural Gas, Inc. (PNG) (collectively referred to as UGI Utilities). As the individual companies are owned and jointly operated by UGI Corporation (UGI Corp.), the management and operations audits were conducted concurrently. Management and operational audits, which are required of certain utility companies pursuant to 66 Pa. C.S. § 516(a), come under the Commission'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 Commission can investigate and examine the condition and management of any public utility, 66 Pa. C.S. § 331(a).

This report summarizes the work of the Commission's Management Audit team and outlines their conclusions. The findings presented in the report identify certain areas and aspects where weaknesses or deficiencies exist. In all cases, recommendations have been offered to improve, correct, or eliminate these conditions. The final and most important step in the management audit process is to initiate actions toward implementation of the recommendations.

### A. **Objectives and Scope**

The objectives of the management and operations audit were:

- To provide the Commission, UGI Utilities, and the public with an assessment of the efficiency and effectiveness of the companies' operations, management methods, organization, practices, and procedures.
- To identify opportunities for improvement and develop recommendations to address those opportunities.
- To provide an information base for future regulatory and other inquiries into the management and operations of UGI Utilities.

The scope of the audit was limited to the areas as explained in Section B, Audit Approach.

## **B. Audit Approach**

The management and operations audit was performed by the Management Audit Division of the PUC Bureau of Audits (audit staff or auditors). The process began with a pre-fieldwork analysis as outlined below:

- A five-year internal trend (2013 – 2017) and ratio analysis was completed using financial and operational data obtained from UGI Utilities, Commission, and other available sources.
- Input was solicited from Commission Bureaus and Offices, certain external parties, and UGI Utilities, regarding any concerns or issues they would like addressed during our review.
- Prior management and operations audits, follow-up management efficiency investigations, implementation plans, implementation plan progress reports, other Commission conducted audits, annual diversity reports, and other available documents were reviewed.

Information from the above steps was used to focus the auditors' work efforts in the field. Specifically, the following areas or functions were selected for an in-depth analysis and are included in this report:

- Executive Management and Organizational Structure
- Corporate Governance
- Affiliated Interests and Cost Allocations
- Financial Management
- Gas Operations
- Electric Operations
- Emergency Preparedness
- Materials Management
- Information Technology
- Customer Service
- Fleet Management
- Human Resources/Diversity

The pre-fieldwork analysis should not be construed as a comprehensive evaluation of the management or operations in the functional areas not selected for in-depth examination. Had we conducted a thorough review of those areas, weaknesses or deficiencies may have come to our attention that were not identified in the limited pre-fieldwork review.

Fieldwork began on August 28, 2018 and continued intermittently through March 26, 2019. The principal components of the fact gathering process included:

- Interviews with UGI Utilities' personnel as well as other Commission Bureaus.

- Analysis of records, documents, and reports of a financial and operational nature. This analysis focused primarily on the period 2014-2018, and year-to-date 2019, as available.
- Visits to the corporate offices of UGI Utilities, various service centers which included warehouse and stockrooms, gas facilities, electric facilities, customer assistance and customer response centers, the gas control center; and direct observation of several other selected work practices.

### **C. Functional Area Ratings**

For the functions or areas of UGI Utilities that were selected for in-depth examination, the auditors rated the operating or performance level relative to the expected level at the time of the audit. This expected performance level is the state at which each area or function should be operating given UGI Utilities' resources and general operating environment. Expected performance is not a "cutting edge" operating condition; rather, it is management of an area or function such that it produces reasonably expected operating results.

As part of evaluating a utility's expected performance, the auditors consider the risk associated with the functional area. Probability and the magnitude of impact are two parameters used to evaluate risk. Probability is the chance or frequency of an event (either positive or negative) occurring. Risk magnitude is the associated dollar value, usually cost, the utility would incur if a given event were to occur. Magnitude goes beyond cost and can include other factors such as loss of life or a damaged reputation. Therefore, high consequence or high probability findings and recommendations may warrant a more severe rating than those of low consequence or probability. In our audits, this is especially true in the safety and emergency preparedness areas.

The following are the evaluative categories utilized to rate each function or area's operating or performance level:

- Meets Expected Performance Level
- Minor Improvement Necessary
- Moderate Improvement Necessary
- Significant Improvement Necessary
- Major Improvement Necessary

Our ratings for each function or area reviewed in-depth can be found in Exhibit I-1 on the next page.



**Exhibit I-1**  
**UGI Utilities, Inc.**  
**Management and Operations Audit**  
**Functional Rating Summary**

Functional Area	Meets Expected Performance Level	Minor Improvement Necessary	Moderate Improvement Necessary	Significant Improvement Necessary	Major Improvement Necessary
Executive Management and Organizational Structure		X			
Corporate Governance		X			
Affiliated Interests and Cost Allocations			X		
Financial Management		X			
Gas Operations			X		
Electric Operations		X			
Emergency Preparedness				X	
Materials Management			X		
Information Technology		X			
Customer Service			X		
Fleet Management		X			
Human Resources / Diversity		X			

**D. Benefits**

Where possible, the auditors quantify the potential savings that would be expected from effectively implementing the recommendations made in this report. The audit report contains identifiable potential quantifiable cost savings of \$336,090 to \$713,019 in annual savings and \$3,360,900 to \$7,130,196 in one-time savings from effective implementation of the recommendations. We identify, whenever it is reasonably practical, the potential savings net of the projected costs for implementation. Some of these savings could be considered an actual reduction in costs, avoided costs or increased revenues; whereas others would result from better deployment and/or use of existing resources. These quantifications require some judgment and may require efforts beyond the scope of the audit for further refinement. Therefore, the actual benefits from effective implementation of the recommendations are subject to some degree of uncertainty and could be higher or lower than the amounts estimated by the auditors. An overall summary of the annual and one-time cost savings quantified in the audit report are shown in Exhibit I-2.

**Exhibit I-2**  
**UGI Utilities, Inc.**  
**Management and Operations Audit**  
**Quantifiable Savings Summary**

Recommendation	Annual Savings	One-Time Savings
X-1. Improve company-wide inventory turnover and exclude emergency stock from inventory turnover calculations.	\$336,090 - \$713,019	\$3,360,900 - \$7,130,196

For most of the recommendations, it is not possible or practical to estimate quantitative benefits as they are of a qualitative nature or insufficient data was available to quantify the impact. For example, it is difficult to estimate the actual benefit where new management practices or procedures are recommended where such did not previously exist. Similarly, changes in workflow or implementation of good business practices could result in improved effectiveness and efficiency of a specific function but cannot be easily quantified.

UGI Utilities will have options to implement the recommendations and so the auditors have not estimated the cost of implementation for recommendations where no savings were quantified. However, it should be noted to the reader that the cost of implementing certain recommendations could be significant.

**E. Recommendation Summary**

Chapters III through XIV detail the findings, conclusions and recommendations for each function or area reviewed in-depth during this audit. Exhibit I-3 summarizes the recommendations with the following priority assessments for implementation:

- **INITIATION TIME FRAME** – Estimated time frame for how quickly UGI Utilities should be able to initiate its implementation efforts, given UGI Utilities’ resources and general operating environment. The time necessary to complete implementation is expected to vary depending on the nature of the recommendation, the scope of the efforts necessary, and resources available to effectively implement the recommendation.
- **BENEFITS** – Net quantifiable benefits have been provided, where they could be estimated, as discussed in Section D - Benefits. Our estimated overall level of benefits rankings is not solely based on quantifiable dollars, but the auditor’s assessment of the potential overall impact of the recommendation on the efficiency and/or effectiveness of UGI Utilities, and/or the services it provides. In addition, the ratings weight the avoidance of future adverse conditions based upon the potential severity of the adverse condition. In this form, high consequence conditions could

garner a higher benefit rating than conditions occurring frequently but with a lower impact.

- HIGH BENEFITS – Implementation of the recommendation would result in major service improvements, substantial improvements in management practices and performance, avoidance of substantial consequences, and/or significant cost savings.
- MEDIUM BENEFITS – Implementation of the recommendation would result in important service improvements, meaningful improvements in management practices and performance, avoidance of unfavorable but manageable consequences, and/or meaningful cost savings.
- LOW BENEFITS – Implementation of the recommendation is likely to result in service improvements, management practices and performances, and/or enhance cost controls.

**UGI Utilities, Inc.**  
**Management and Operations Audit**  
**Summary of Recommendations**

No.	Recommendation	Page	Initiation Time Frame	Benefits (including \$ estimates)
<b>Chapter III – Executive Management and Organizational Structure</b>				
III-1	Improve the maintenance and tracking of safety training through automation.	18	0-6 Months	Medium
III-2	Periodically review spans of control for UGI Utilities' management positions and document justification for supervisory position ratios with narrow or wide spans of control and adjust reporting relationships as appropriate.	18	0-12 Months	Low
III-3	Centralize policy management and establish requirements to periodically review and update them.	18	12+ Months	Medium
<b>Chapter IV – Corporate Governance</b>				
IV-1	Organize the Internal Audit function to report administratively to the UGI Corp. CEO, another non-financial senior officer of UGI Corp., or directly to the Board of Directors.	23	0-12 Months	Low
IV-2	Revise UGI Utilities' delegation of authority policy to strengthen governance controls for the new EVP Natural Gas position.	23	0-6 Months	Medium
<b>Chapter V – Affiliated Interests and Cost Allocations</b>				
V-1	Create a periodic, recurring process to compare the internal cost of services provided between UGI Utilities and its affiliates to market rates.	31	0-12 Months	High
V-2	Update UGI Corp.'s Cost Allocation Manual.	31	0-6 Months	Low
V-3	Work with UGI Corp. to improve the level of detail provided in intercompany invoices and reports.	31	0-12 Months	Medium
V-4	Develop time entry training to address direct charging of labor for intercompany services.	31	0-12 Months	Low
V-5	Amend or file new affiliated interest agreements to more accurately detail services provided.	31	0-6 Months	Low
<b>Chapter VI – Financial Management</b>				
VI-1	Conduct periodic internal audits of affiliate transactions and shared service costs.	37	12+ Months	High
VI-2	Document or update existing policies or procedures to reflect actual practices.	37	0-6 Months	Low
<b>Chapter VII – Gas Operations</b>				
VII-1	Continue to reduce the number of third-party damages and increase the damage collection rate at UGI North.	57	0-6 Months	Medium
VII-2	Decrease the inventory of outstanding Class A leaks and continue to reduce the number of main leaks at UGI North.	57	12+ Months	Medium
VII-3	Maintain focus on safety with the objective of meeting or exceeding safety KPI goals.	57	0-12 Months	High

**UGI Utilities, Inc.**  
**Management and Operations Audit**  
**Summary of Recommendations**

No.	Recommendation	Page	Initiation Time Frame	Benefits (including \$ estimates)
<b>Chapter VII – Gas Operations (continued)</b>				
VII-4	Continue accelerated efforts to identify and safely remove and dispose of all mercury regulators in UGI South's service territory.	57	0-12 Months	Low
VII-5	Follow through on plans to develop a centralized training facility to aid in OQ training	57	12+ Months	High
VII-6	Consider redefining emergent and non-emergent work and train supervisors on the usage of overtime and continue to work to reduce overtime that is not related to an emergency.	57	0-6 Months	Medium
<b>Chapter VIII – Electric Operations</b>				
VIII-1	Establish and track response times by subcategories and take corrective action to continue improving response times for emergency outage calls.	63	0-6 Months	Medium
VIII-2	Investigate the costs and related benefits of implementing some EMS features into the existing SCADA system.	63	12+ Months	Low
<b>Chapter IX – Emergency Preparedness</b>				
IX-1	Install sprinkler systems at all regularly occupied facilities, where feasible.	74	0-6 Months	Medium
IX-2	Establish physical security standards that apply at company facilities and devote resources to adequately maintain oversight.	74	0-6 Months	High
IX-3	Update the PSP to include relevant physical security efforts and review, update, and test it annually.	74	0-6 Months	High
IX-4	Establish a clear chain of command for physical security by placing the Director of Physical Security in charge of all physical security at UGI Utilities.	74	0-6 Months	Medium
IX-5	Perform penetration tests, risk analysis, and vulnerability assessments of physical security routinely, and periodically utilize external/independent resources.	74	0-6 Months	High
IX-6	Improve the CSP and relevant procedures, secure all PII, and consider formalizing policies at the UGI Corporation level.	74	0-6 Months	High
IX-7	Complete the gas SCADA communication upgrade.	74	0-6 Months	High
IX-8	Review and adjust resources to address the business continuity program's deficiencies.	74	0-6 Months	High
IX-9	Continue improvement of the ERP, and address deficiencies in associated training.	74	0-6 Months	High
IX-10	Maintain up to date printed copies of SDS near where chemicals are stored or in a relevant control center.	74	0-6 Months	Low

**UGI Utilities, Inc.**  
**Management and Operations Audit**  
**Summary of Recommendations**

No.	Recommendation	Page	Initiation Time Frame	Benefits (including \$ estimates)
<b>Chapter X – Materials Management</b>				
X-1	Improve company-wide inventory turnover and exclude emergency stock from inventory turnover calculations.	82	0-12 Months	High \$336,090 - \$713,019 annual savings \$3.36- \$7.13 million one-time savings
X-2	Automate the materials management function.	82	12+ Months	Medium
X-3	Develop a detailed material procurement manual and track vendor performance.	82	0-6 Months	Low
X-4	Improve cycle count accuracy rates at warehouses in the UGI Central division.	82	0-12 Months	Low
<b>Chapter XI – Information Technology</b>				
XI-1	Ensure forward-looking goals and objectives are fully defined within the IT Strategic Plan.	87	0-6 Months	Low
XI-2	Expand the required IT certifications to drive wanted skill competencies.	87	0-12 Months	Low
XI-3	Integrate the IT Department as part of the procurement process to review and evaluate cybersecurity issues for communications-capable operations equipment.	87	0-6 Months	Low
<b>Chapter XII – Customer Service</b>				
XII-1	Reduce long-term accounts receivable balances.	96	0-12 Months	High
XII-2	Resolve integration issues between the new customer information system and program used to support billing and collections processes for UGI Utilities' Customer Assistance Program.	96	0-6 Months	Low
XII-3	Improve customer service performance metrics.	96	0-12 Months	Medium
XII-4	Improve the retention of Customer Care Representatives within the Customer Information Center.	96	0-12 Months	Medium
<b>Chapter XIII – Fleet Management</b>				
XIII-1	Determine optimal vehicle and equipment replacement strategy and update vehicle replacement guidelines.	100	0-12 Months	Medium
XIII-2	Develop key performance indicators tailored to effectively manage UGI Utilities' fleet, reduce costs, and drive efficiency.	100	0-12 Months	Medium
<b>Chapter XIV – Human Resources/Diversity</b>				
XIV-1	All documentation provided to new hires should be reviewed periodically and updated as necessary.	107	0-6 Months	Low
XIV-2	Prepare and file annual diversity reports in accordance with Commission guidelines for annual PUC diversity filing.	107	0-6 Months	Low

## II. BACKGROUND

UGI Utilities, Inc. (UGI) subject to regulation by the Pennsylvania Public Utility Commission (PUC or Commission). UGI is composed of two regulated divisions encompassing a natural gas distribution operation (Gas Service Division) and an electric distribution operation (Electric Service Division). UGI Central Penn Gas, Inc. (CPG) and UGI Penn Natural Gas, Inc. (PNG) were previously wholly-owned natural gas distribution companies (NGDC) that were subsidiaries of UGI Utilities but, as discussed below have been merged into UGI Utilities, Inc., with the gas operations becoming part of the Gas Division.

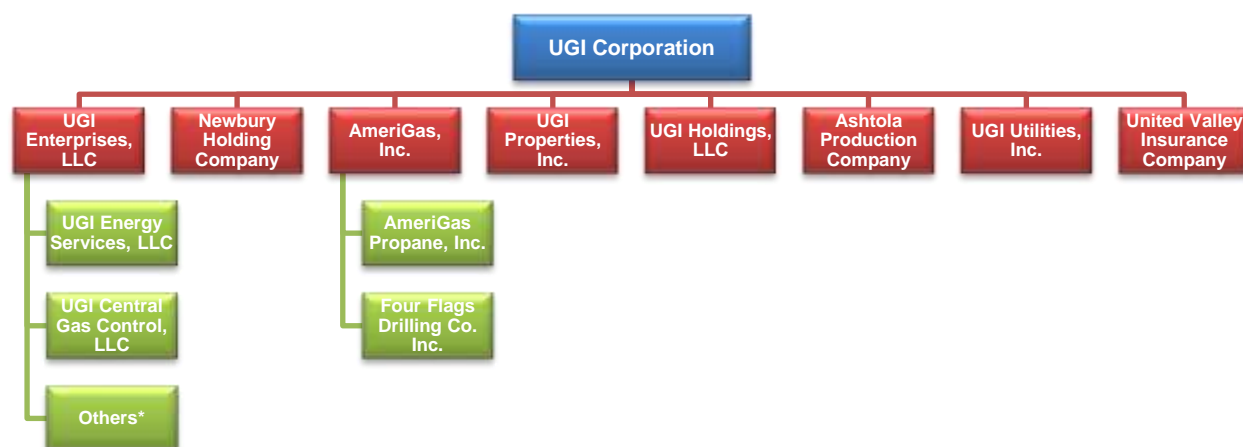
On March 8, 2018, UGI Utilities, Inc. filed a joint application with the Commission to merge UGI Gas, UGI PNG, and UGI CPG and to thereafter operate as three rate districts. At its Public Meeting of September 20, 2018, at Docket Nos: A-2018-3000381, A-2018-3000382, and A-2018-3000383, the Commission approved the joint merger application. The merger was completed on October 1, 2018, and UGI Utilities began operations under the three-district rate structure of UGI South (UGI Gas), UGI North (UGI PNG), and UGI Central (UGI CPG).

UGI Utilities is wholly owned by UGI Corporation (UGI Corp. or parent company). UGI Corp. is a holding company under the Public Utility Holding Company Act of 2005 with eight subsidiaries. An entity organizational chart of UGI Corp., UGI Utilities and its affiliates as of December 31, 2018 is shown in Exhibit II-1. UGI Corp's non-regulated subsidiaries include:

- UGI Enterprises, LLC with eleven first tier subsidiaries including:
  - UGI Central Gas Control, LLC which provides central gas control functions to UGI Utilities and UGI Energy Services
  - UGI Energy Services, LLC (UGIES) which is the gas and electric energy marketing company. UGIES owns and operates midstream natural gas gathering facilities and propane-air peaking facilities. UGIES is also comprised of 14 second-tier subsidiaries of UGI Enterprises Inc. including:
    - Pipeline holding companies (i.e., Homestead Holding Company and Hellertown Pipeline Company)
    - UGI Storage Company which owns and operates two storage facilities formerly owned by CPG
    - UGI LNG, Inc. that operates UGI Corporation's liquefied natural gas facilities located in Temple, Pennsylvania
  - UGI HVAC Enterprises, Inc. provides the unregulated heating ventilation and air conditioning (HVAC) services
  - Various international holding companies including Eastfield International Holdings, Inc., EuroGas Holdings, Inc., UGI Black Sea Enterprises, Inc., UGI China, Inc., UGI International, Inc., and UGI International LLC:
    - The UGI International segment consists of propane holdings in France (Antargaz), Poland, Austria, Hungary, the Czech Republic, Slovakia, Romania, Belgium, the Netherlands, Luxembourg, the United Kingdom, Italy, Finland, Denmark, Norway, and Sweden.

- Newbury Holding Company, a Delaware investment Holding Company
- AmeriGas Inc., the largest retail propane distribution company in the United States which has propane operations in all 50 states
- UGI Properties Inc. which owns UGI Corp.'s corporate headquarters located in King of Prussia, Pennsylvania
- UGI Holdings LLC
- Ashtola Production Company is an inactive Pennsylvania Corporation
- United Valley Insurance Company that provides auto, general, and workers' compensation liability insurance coverage to UGI Corp. and some of its subsidiaries.

**Exhibit II-1  
UGI Corporation  
Corporate Entity Chart  
As of December 2018**



\* UGI Enterprises, LLC is comprised of eleven first tier subsidiaries. Only two of the eleven that are relevant to this audit are shown in the exhibit.

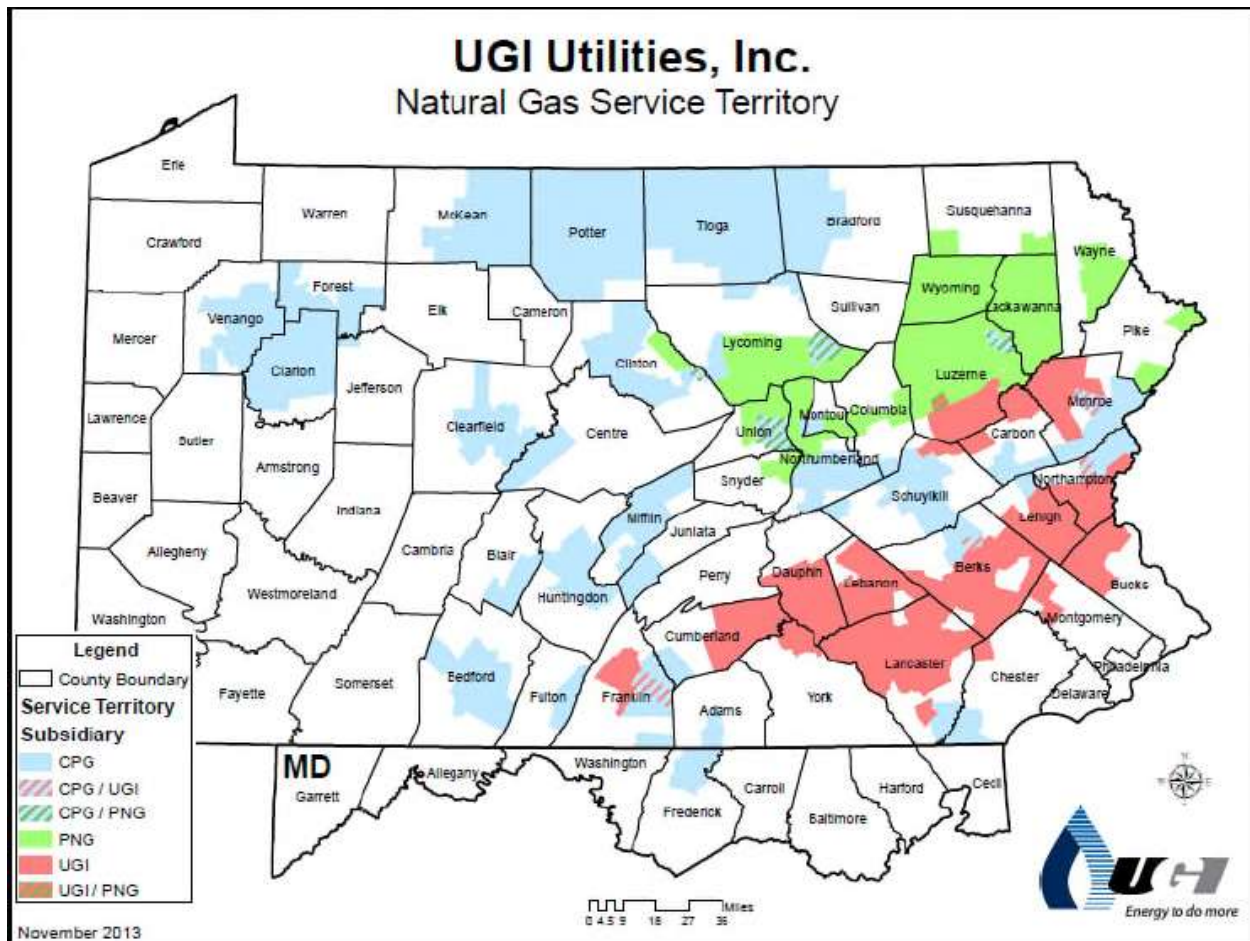
Note: As of October 1, 2018, UGI Utilities merged with UGI CPG and UGI PNG and began operations as one entity: UGI Utilities, Inc.

Source: Data Request GD-2

UGI's Gas Division is currently comprised of three rate districts. UGI South includes approximately 393,000 customers in 16 counties in southeastern and central Pennsylvania. UGI North (the former PNG) includes approximately 171,000 customers in 13 counties in Northeastern Pennsylvania and UGI Central (the former CPG) includes approximately 83,000 customers in 36 counties across Pennsylvania and approximately 500 customers in portions of one Maryland county. UGI's Electric Service Division, headquartered in Wilkes-Barre, Pennsylvania, serves approximately 62,200 customers in portions of Luzerne and Wyoming counties.



**Exhibit II-2**  
**UGI Utilities, Inc.**  
**Operating Area – Pennsylvania and Maryland**



Source: Long Term Infrastructure Improvement Plan, June 15, 2018

Exhibit II-3 shows UGI Utilities' customer base statistics for residential, commercial and industrial customers for 2017 calendar year. Residential gas customers for UGI Utilities accounted for approximately 90% of the customer base and about half of operating revenue whereas residential electric customers comprise approximately 90% of the customer base and about 70% of revenue. Commercial and Industrial gas and electric customers accounted for a much smaller percentage of the customer base and operating revenue.

**Exhibit II-3**  
**UGI Utilities, Inc.**  
**Customer Base Statistics**  
**As of December 31, 2017**

Customer Class	No. of Customers	% of Customers	MCF Sold	% of MCF Sold	Revenues (\$)	% of Revenues
UGI South						
Residential	352,436	89.7%	24,594,882	19.4%	251,118,904	56.0%
Commercial	39,213	10.0%	28,379,886	22.4%	148,185,919	33.1%
Industrial	1,319	0.3%	73,872,114	58.2%	48,867,891	10.9%
Totals	392,968	100.0%	126,846,882	100.0%	448,172,714	100.0%
UGI North						
Residential	153,896	90.1%	15,363,350	16.3%	143,466,246	68.4%
Commercial	16,683	9.8%	12,385,001	13.1%	49,498,203	23.6%
Industrial	218	0.1%	66,467,036	70.5%	16,668,546	8.0%
Totals	170,797	100.0%	94,215,387	100.0%	209,632,995	100.0%
UGI Central						
Residential	71,684	86.4%	6,108,998	24.7%	76,934,621	58.6%
Commercial	10,948	13.2%	7,022,500	28.3%	36,518,712	27.8%
Industrial	304	0.4%	11,644,326	47.0%	17,914,347	13.6%
Totals	82,936	100.0%	24,775,824	100.0%	131,367,680	100.0%
UGI - Electric						
Residential	54,499	87.6%	525,015,791	54.9%	55,621,037	68.7%
Commercial	7,480	12.0%	311,681,118	32.6%	20,222,722	25.0%
Industrial	153	0.2%	112,676,580	11.8%	3,811,434	4.7%
Other	64	0.1%	7,281,113	0.8%	1,300,469	1.6%
Totals	62,196	100.0%	956,654,602	100.0%	80,955,662	100.0%

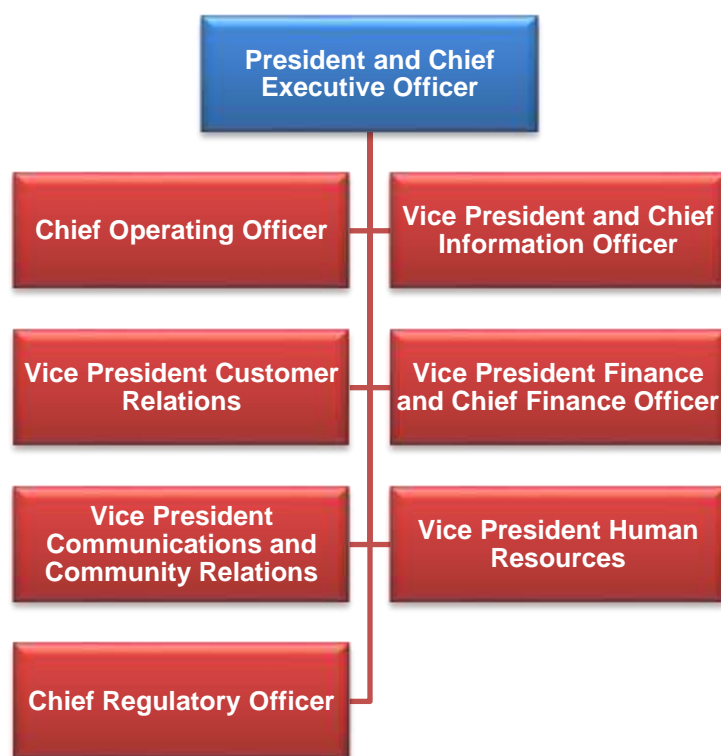
Source: PUC Annual Report Schedule 600 and Auditor Analysis

### III. EXECUTIVE MANAGEMENT AND ORGANIZATIONAL STRUCTURE

#### Background

UGI Corporation (UGI Corp.) is the parent company of UGI Utilities and several non-regulated affiliates, as indicated in Chapter II – Background. UGI Utilities, Inc. was the parent company of UGI Penn Natural Gas, Inc. (PNG) and UGI Central Penn Gas, Inc. (CPG) until October 1, 2018 when the merger of the three companies became effective<sup>1</sup>. UGI Utilities' executive management team is supported through services provided by its parent company, UGI Corp., which is discussed further within Chapter V – Affiliated Interests and Cost Allocations. The UGI Utilities' President and Chief Executive Officer (CEO) leads its executive management team as shown in Exhibit III-1. As discussed further within this chapter, UGI Utilities' President and CEO became Executive Vice President (EVP) of Natural Gas for UGI Corp. effective October 1, 2018. A review of the Boards of Directors that oversee UGI Utilities' operations is provided in Chapter IV – Corporate Governance.

**Exhibit III-1**  
**UGI Utilities, Inc.**  
**Executive Management Organization Chart**  
**As of February 28, 2019**



Source: Data Request GD-9

<sup>1</sup> As a result of the merger, PNG became UGI North, CPG became UGI Central and UGI Utilities Gas Division became UGI South.

UGI Utilities' staffing levels for the fiscal years ended September 30, 2014 through 2018 are shown in Exhibit III-2. As indicated, the number of UGI Utilities' employees increased from 1,453 in 2014 to 1,689 in 2018 or by 16.2%. The growth in UGI Utilities' workforce is driven by increased staffing needs within Operations, Engineering & Operations Support, Customer Relations and Information Technology.

**Exhibit III-2**  
**UGI Utilities, Inc.**  
**Staffing Levels\***  
**For the Fiscal Years Ended September 30, 2014 - 2018**

2014	2015	2016	2017	2018	Percent change
1,453	1,513	1,584	1,663	1,689	16.2%

\* Staffing levels for all years include personnel that were employed by PNG and CPG prior to the merger of these entities into UGI Utilities.

Source: Data Request EM-12

The UGI Utilities' succession planning process is overseen by the VP Human Resources (HR). With support from HR, executive and senior level staff identify employees who possess specialized skill sets, knowledge or specific competencies and/or have demonstrated leadership abilities and exceeded goals with proven results. These employees may also be designated as having potential to ascend into corporate leadership. UGI Utilities' President and CEO in coordination with UGI Corp. annually reviews and updates a succession plan for his direct reports<sup>2</sup>.

UGI Utilities uses an integrated strategic planning and annual budgeting process that results in fiscal year budget with enhanced narrative. This narrative includes a strategic overview, financial review, and key metrics. As the responsible group, the UGI Utilities Finance Department makes an annual budget presentation to UGI Corp. in the fall.

Two noteworthy strategic initiatives are the improvement of UGI Utilities' safety culture and the UNITE initiative. The UNITE initiative is discussed below whereas safety culture is further explored in Chapter VII – Gas Operations.

Since 2016, a significant strategic focus for UGI Utilities has been on its UGI's Next Information Technology Enterprise (UNITE) initiative. UNITE is composed of three phases. Phase 1 (started March 2016 – ended September 2017) is discussed in more detail within Chapter XII – Customer Service because the replacement of existing legacy customer information systems had a significant impact on UGI Utilities' customer service function. Phase 2 (started March 2018 – projected to end July 2019) is focused on replacement of UGI Utilities' Enterprise Resource Planning (ERP) system, which will affect its accounting and supply chain functions. Phase 3 (projected to start in September 2019) will have a significant impact on its work and asset management systems.

<sup>2</sup> The direct reports of UGI Utilities President and CEO are shown in Exhibit II-2.

## **Findings and Conclusions**

Our examination of Executive Management and Organizational Structure focused on a review of UGI Utilities' organizational structure; staffing levels and spans of control; the roles and responsibilities of executive management; strategic planning; and succession planning. Based on our review, UGI Utilities should initiate or devote additional effort to improving its Executive Management and Organizational Structure by addressing the following:

### **1. UGI Utilities' system for tracking safety training is manual and labor intensive.**

Safety training for UGI Utilities employees and contractors is overseen by the Safety and Training group within the Operations department. Safety training is tracked within a legacy database that requires manual input and monitoring of records (i.e., training attendance and expiration of operator qualifications). Companies are responsible for administering the operator qualification program within their organization and making sure their employees maintain operator qualification (OQ)<sup>3</sup> specific to their job duties per federal regulations (42 C.F.R. § 192 (N)). The current process for tracking OQ certification requires multiple supervisors, an OQ administrator, and the Director of Safety and Training to manually monitor the database for expiring certifications. As UGI Utilities continues to increase capital work, the number of employees and contractors that must be tracked and monitored also increases. This inherently increases the risk that something will be missed or that a certification may expire.

As a best practice, utilities should reduce and/or eliminate manual, labor intensive processes to free up employees for more value-added work. The Safety and Training group has requested a new learning management system (LMS) capable of maintaining safety training records that could be integrated with UGI Utilities other systems (i.e. HR and ERP). However, the safety and training group indicated that a lack of available IT resources due to recent enterprise system was one reason that the initiative has not advanced. UGI Utilities is engaging a data integration vendor to consolidate UGI South, UGI Central and UGI North's OQ task lists, which is a first step towards migrating to a new system. However, no decision has been reached regarding the selection of a new LMS.

### **2. UGI Utilities no longer includes documented justifications for narrow or wide reporting relationships within its span of control analyses.**

Span of control refers to the number of subordinates a manager or supervisor directly supervises in an organization. To maximize organizational efficiency and effectiveness, a utility should ideally aim for spans of control in the range of 1:4 to 1:9 to

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<sup>3</sup> See Finding and Conclusion No. 6 within Chapter VII – Gas Operations for additional information about Operator Qualification requirements.

minimize layers of management and maintain effective communications. Overly narrow spans of control can result in micromanagement, a larger number of supervisors, and higher than necessary compensation costs. Spans of control that are too wide can result in inferior performance due to a lack of management oversight and control.

A span of control review conducted by UGI Utilities in July 2018 is summarized in Exhibit III-3. As shown in the exhibit, approximately 46% of reporting relationships at UGI Utilities fall within the ideal range. Compared to analyses presented in prior audits, the number of reporting relationships within the narrow range has increased. However, no further analysis (i.e., justifications for reporting relationships outside of the ideal range, specification of UGI Utilities' target range for spans of control, etc.), was documented. Without the written justifications, no judgment can be made regarding the current reporting relationships.

HR management indicated that span of control reviews occurs annually, but there are no documented policies specifying the frequency or extent of the review. The PUC audit staff contends that the lack of documented justification for reporting relationships outside of the ideal range negates a major component of spans of control analysis (i.e., historical retention of structural justifications). More thorough analyses conducted every two or three years with written justifications of reporting relationships outside of the ideal range would be beneficial to validate results during subsequent reviews rather than the efforts being duplicated or forgotten.

**Exhibit III-3**  
**UGI Utilities, Inc.**  
**Summary of Spans of Control Review**  
**As of July 24, 2018**

<b>Reporting Relationships</b>	<b>Number</b>	<b>Percentage</b>
<b>Narrow (1:1 to 1:3)</b>	78	29.77%
<b>Ideal (1:4 to 1:9)</b>	121	46.18%
<b>Wide (1:10 to 1:25)</b>	63	24.05%

Source: Data Request EM-2

### **3. UGI Utilities lacks a coordinated procedures review and control process.**

Best practices for maintaining accurate and reliable policies and procedures include:

- Retaining policies and procedures in a centralized location (policy management system or spreadsheet) for ease of development, review and maintenance.
- Standardizing policy format to achieve consistency.
- Creating a policy for drafting, tracking, reviewing, and approving all organizational policies.

- Tracking all changes to policies and procedures (who made each change, when it was made, and why).
- Automatically notifying the appropriate individuals when policies are up for review and archiving previous versions.

As discussed further within several report chapters<sup>4</sup>, several departments within UGI Utilities have out-of-date or insufficient policies and procedures. Additionally, many policies and procedures reviewed during the audit lacked pertinent information such as document owner, date of last review, etc. Instead, UGI Utilities should create a template to ensure that the procedures meet minimum standards for content and version control.

As noted in Chapter VI – Financial Management Finding and Conclusion No. 2, UGI Utilities’ financial policies and procedures illustrate the need for a coordinated procedures review process. Many of the company’s financial policies are deficient because they are undocumented or maintained informally within memos or SOX process walkthroughs. Additionally, UGI Corp.’s Code of Ethics (discussed in Chapter XIV – Human Resources) has not been updated in fifteen years though UGI Corp. claims its policies and procedures are reviewed annually. Review dates (and revision dates) should be documented on the policies or procedures themselves and/or within a policy management system.

## **Recommendations**

- 1. Improve the maintenance and tracking of safety training through automation.**
- 2. Periodically review spans of control for UGI Utilities’ management positions and document justification for supervisory position ratios with narrow or wide spans of control and adjust reporting relationships as appropriate.**
- 3. Centralize policy management and establish requirements to periodically review and update them.**

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<sup>4</sup> For specific examples: see Chapter V – Affiliated Interests and Cost Allocations, Chapter VI – Financial Management, Chapter IX – Emergency Preparedness, Chapter X – Materials Management and Chapter XIV – Human Resources.

## IV. CORPORATE GOVERNANCE

### **Background**

As discussed in Chapter II – Background, UGI Utilities, Inc. (UGI Utilities) is a wholly-owned subsidiary of UGI Corporation (UGI Corp.). UGI Corp. is a publicly traded company listed on the New York Stock Exchange (NYSE) under the symbol, “UGI.” As such, UGI Corp. is subject to the corporate governance requirements contained in both the Sarbanes-Oxley Act of 2002 (SOX) and the corporate governance rules of the NYSE.

UGI Corp. has a ten-member Board of Directors (Board) comprised of an independent Chairman, the Vice Chairman (i.e., the CEO and President of UGI Corp.), and eight independent Board members. As of December 31, 2018, the average tenure of the Directors was nine years with one of the Directors recently appointed in March 2018. As part of UGI Corp.’s Principles of Corporate Governance, the Board has adopted independence guidelines to determine director independence in accordance with the NYSE and Securities and Exchange Commission (SEC) requirements. In its proxy statement dated December 20, 2018, the Board determined, based on its guidelines, that all board members except the CEO were independent. The Board conducts its business by using the following committees:

- Audit Committee - responsible for assisting the Board in its oversight of financial statements, compliance with legal and regulatory requirements, evaluating the independent auditor’s qualifications and independence, and reviewing the performance of the independent auditors and UGI Corp.’s internal audit staff, including the appointment, compensation, retention and oversight of any independent registered public accounting firm. The Audit Committee is composed of three independent members and met ten times in 2018.
- Compensation and Management Development Committee - responsible for establishing executive compensation policies and programs, recommending base salaries and target bonus levels for the CEO and senior executive personnel to the Board, reviewing and evaluating the performance of the CEO, and reviewing management’s succession planning. The Compensation and Management Development Committee is comprised of three independent members and met six times in 2018.
- Corporate Governance Committee - responsible for nominating and reviewing the qualifications of persons eligible to stand for election as Directors and makes recommendations to the Board, reviews and recommends candidates for committee membership and chairs, and advises the Board with respect to significant developments in corporate governance matters. The Corporate Governance Committee also reviews and assesses the performance of the Board and each Committee. The Corporate Governance Committee is composed of three members, all independent, and met four times in 2018.



- Safety, Environmental, and Regulatory Compliance Committee - reviews the adequacy of the UGI Corp.'s safety, environmental, and regulatory compliance policies, programs, procedures, initiatives, and training. The Safety, Environmental, and Regulatory Compliance Committee is comprised of three independent members and met four times in 2018.
- Executive Committee - acts on behalf of the Board when the Board is not in session. The Executive Committee is composed of three members (two of which are independent) and did not require any meetings during 2018.

The Audit Committee operates in accordance with its written charter. The Audit Committee charter is consistent with the applicable standards of the NYSE and SEC. As required by the NYSE, the Chairman of the Audit Committee is a financial expert as defined by the applicable law and each member of the Audit Committee is financially literate. The Audit Committee Charter is reviewed annually and updated accordingly. The Audit Committee undergoes an annual performance self-evaluation that is subsequently reviewed by the full Board. The Audit Committee meets at least once annually with the head of UGI Corp.'s Internal Audit department (General Auditor) and its independent registered public accounting firm, Ernest and Young (EY) to review and approve the overall scope and plans for their respective audits. In addition, the Audit Committee meets a minimum of four times during the year with the UGI Corp., General Auditor and EY, with and without management, to discuss audit results, evaluations of internal controls and the overall quality of UGI Corp.'s financial reporting.

Since August 2014, EY has been engaged as the external audit firm by UGI Corp. to perform its annual audits. UGI Corp.'s Audit Committee evaluates the performance of its external auditor on an ongoing basis. This continuing evaluation includes consideration for the forthcoming audit partner rotation slated for the 2020 fiscal year, in accordance with applicable NYSE and SEC rules.

UGI Corp. has a Code of Business Conduct and Ethics (Code) that applies to directors, officers, and employees of UGI Corp. and its subsidiaries. UGI Corp.'s Vice President and General Counsel is the designated Compliance Officer and responsible for the administration of the Code. The Code provides for employees to anonymously report improprieties to the Compliance Officer via a Code of Business Conduct and Ethics Violation Report form. In addition, there is an executive Code of Ethics applicable to the CEO and senior financial officers (i.e., Chief Financial Officer and Chief Accounting Officer) of UGI Corp. and UGI. The Code of Ethics focuses on areas of ethical risk and recognizing and dealing with ethical issues. Corporate governance guidelines and related documents are publicly available for review on the company's website. Documents available on the UGI Corp. website include:

- Charters for the Audit, Corporate Governance, Compensation and Management Development, and Safety, Environmental and Regulatory Compliance Committees;
- Code of Business Conduct and Ethics;
- Code of Ethics for the CEO and senior financial officials; and,
- Principles of corporate governance.

UGI Utilities has an eleven-member Board of Directors which includes the ten members of the UGI Corp. Board and the President and CEO of UGI Utilities. UGI Utilities operates with the same committees (i.e., Audit, Corporate Governance, Compensation and Management Development, Safety, Environmental, and Regulatory Compliance, and Executive) having the same respective committee members as UGI Corp. In addition, UGI Utilities has a Pension Committee. The Pension Committee oversees the UGI Utilities' Savings Plan, as well as the UGI Utilities' Retirement Income Plan. The Pension Committee is comprised of three independent members of the UGI Utilities Board.

As discussed in Chapter II – Background, UGI Utilities was the parent company of two wholly-owned, regulated gas utilities: UGI Penn Natural Gas (PNG) and UGI Central Penn Gas (CPG). PNG and CPG each held its own Board of Directors, composed of the same members as their parent company. On September 26, 2018, the Pennsylvania Public Utility Commission approved the merger of PNG and CPG into UGI Utilities to form a single legal entity. On completion of the merger, the PNG and CPG Boards of Directors were consolidated under UGI Utilities' Board of Directors.

## **Findings and Conclusions**

Our examination of the Corporate Governance function included a review of UGI Corp. and UGI Utilities' Boards of Directors' organization including committee structure and charters; director independence; relationship with the external auditor; oversight of UGI Corp. internal audits, business conduct and ethics codes; documents related to corporate governance; annual reports; etc. Based on our review, UGI Utilities should improve its corporate governance oversight function by addressing the following:

### **1. UGI Corp.'s current reporting relationship for the General Auditor may hinder the Internal Audit function's independence.**

To maintain independence, internal audit, which reports on the effectiveness of internal control, should not report to the corporate officer in charge of maintaining internal control. To do so would introduce a conflict of interest, in which internal audit may be biased and disinclined to report deficiencies or to criticize their direct supervisor. Therefore, the internal audit function should be positioned within the organization such that it is impartial and cannot be influenced by day-to-day operations.

According to a January 2013 Supplemental Policy Statement (Internal Audit Function and its Outsourcing) by the Board of Governors of the Federal Reserve System, the internal audit function is independent and exists to evaluate the effectiveness of the business' risk management, control, and governance processes. Moreover, according to an article in the February 2013 Journal of Accountancy, the President and CEO of the Institute of Internal Auditors (IIA President) conveyed support of this Policy Statement. According to the IIA President, although Chief Audit Executives (CAEs) in U.S. companies typically report administratively to the CFO, there are inherent risks in this reporting relationship. Moreover, the reporting relationship

trend over the past ten years has diminished as more CAEs have begun reporting to the CEO and in some cases administratively to the general counsel, chief risk officer, or chief operating officer, or even directly to the Audit Committee. The IIA President also noted that although this administrative reporting relationship is not required by IIA standards, he anticipates the CAE to CEO administrative reporting model to become more widely adopted.

At UGI Corp., the General Auditor reports administratively to UGI Corp.'s CFO and functionally to the Audit Committee of the Board. Thus, the General Auditor's performance review is conducted by, and is the responsibility of, the Audit Committee Chair with consultation from the UGI Corp. CFO and CEO. However, the current administrative reporting structure for UGI Corp.'s General Auditor creates the potential risk of undue influence and may hinder the independence of the internal audit function.

UGI Corp. complies with SOX and NYSE rules, which require the head of internal audit to report functionally to the Audit Committee. However, these guidelines do not specify to whom the organization's internal auditing function should report to for administrative matters. Therefore, to improve the objectivity of its internal audit function, UGI Corp. should realign the administrative reporting relationship of its General Auditor to avoid conflict of interest between the executive with oversight of its internal controls (i.e., the CFO) and the staff member charged with the testing of those controls. Instead, it is audit staff's opinion that internal audits should continue reporting to the audit committee functionally but should report administratively to any other UGI Corp. officer other than the CFO.

## **2. The delegation of authority for UGI Utilities' President and CEO's new dual role as Executive Vice President, Natural Gas within UGI Corporation does not provide optimal governance.**

On September 17, 2018, UGI Corporation announced an executive management realignment involving several executives and newly created positions. Effective October 1, 2018, UGI Utilities' President and CEO was appointed to a newly created position of Executive Vice President, Natural Gas. As EVP, Natural Gas, the UGI Utilities' President and CEO continues to oversee UGI's utility operations and assumes oversight of the midstream and marketing activities of UGI Energy Services (UGI ES).

As of January 2019, the direct reports for the UGI Utilities' President and CEO included the UGI ES' President. Prior to the creation of the EVP, Natural Gas role, UGI Utilities' President and CEO routinely signed contracts between UGI Utilities and UGI ES. UGI ES' President or UGI ES' VP and COO would routinely sign contracts on behalf of UGI ES for gas procurement or services between UGI Utilities and UGI ES. This new structure initially raised conflict of interest concerns of the PUC audit staff, who in turn asked for guidance from the PUC's Law Bureau. Upon consultation with the Law Bureau; continued discussion with company management; and to meet the spirit of the PUC's standards of conduct, UGI Utilities should alter its delegation of authority guidelines to designate an employee other than the UGI Utilities President and CEO to

sign contracts between UGI Utilities and UGI ES, if the UGI Utilities President and CEO continues to oversee UGI ES.

The Natural Gas Choice and Competition Act, 66 Pa. C.S. §§ 2209, provides in relevant part:

(b) Permanent standards of conduct. -- The commission shall thereupon promulgate regulations setting forth permanent standards of conduct governing the activities of and relationships between natural gas distribution companies and their affiliated natural gas suppliers and other natural gas suppliers and monitor and enforce compliance with these standards. The commission shall neither favor nor disfavor conduct or operations by and between a natural gas distribution company and an affiliated natural gas supplier or a nonaffiliated natural gas supplier.

(c) Contents of standards. -- Standards of conduct shall provide for: (1) No discrimination against or preferential treatment of any natural gas supplier, including an affiliated natural gas supplier.

Although the PUC audit staff did not find any evidence that violated the Natural Gas Choice and Competition Act or the Commission's regulations in any way, we are concerned that the current reporting structure of the EVP Natural Gas role, particularly the execution of the gas purchase contracts, warrants a change. Therefore, UGI Utilities should take steps to mitigate the concerns raised above by revising its delegation of authority.

### **Recommendation**

- 1. Organize the Internal Audit function to report administratively to the UGI Corp. CEO, another non-financial senior officer of UGI Corp., or directly to the Board of Directors.**
- 2. Revise UGI Utilities' delegation of authority policy to strengthen governance controls for the new EVP Natural Gas position.**

## V. AFFILIATED INTERESTS AND COST ALLOCATIONS

### **Background**

This chapter presents the results of the auditors' review of the transactions between UGI Utilities and its affiliates. As discussed in Chapter II – Background, UGI Utilities was the parent company of two wholly-owned regulated gas utilities: UGI Penn Natural Gas (PNG) and UGI Central Penn Gas (CPG). On September 20, 2018, the Pennsylvania Public Utility Commission (PUC or Commission) approved the merger of PNG and CPG into UGI Utilities to form a single legal entity, composed of one electric service division and three natural gas service divisions<sup>5</sup>. As detailed in Chapter II – Background, UGI Utilities is a wholly-owned subsidiary of UGI Corporation (UGI Corp.). UGI Corp. is a holding company that provides common services to both its regulated and non-regulated subsidiaries, including UGI Utilities.

The common services provided by UGI Corp. include cash management, corporate tax, internal auditing, human resources, financing, merger and acquisition, investor relations, technical accounting and external reporting, insurance, risk management, legal, and executive management. These services are governed by an affiliated interest agreement (AIA) previously approved by the PUC in May 1992 under Docket No. G-00920296. Generally, common corporate costs are distributed to UGI Corp.'s subsidiaries through its Modified Wisconsin Formula (MWF).<sup>6</sup> The UGI Corp. MWF allocation is weighted by three factors: revenue (25%), operating expenses (25%), and net assets employed (50%). Exhibit V-1 contains a summary of intercompany charges, including those charged from UGI Corp. to UGI Utilities.

As illustrated in Exhibit V-1, the non-regulated affiliates charge UGI Utilities for goods and services, including intercompany charges from UGI Central Gas Control (UGI CGC) and UGI Energy Services (UGI ES). UGI CGC provides gas control services on a continuing basis under AIAs approved by the PUC in July 2017.<sup>7</sup> Conversely, UGI ES provided goods and services are based on limited term contracts, which govern the amounts charged for natural gas procurement, peaking services, and asset management. The limited term contracts for these services are awarded through UGI Utilities' competitive bidding process. UGI Utilities' requires a minimum of three bids for such services (whose contract term is \$25,000 or more).<sup>8</sup> As reflected in Exhibit V-1, intercompany charges from UGI ES to UGI Utilities are subject to large swings between fiscal years, due to uncontrollable variables (i.e., weather, cost of gas, customer demand, etc.) to meet operational needs.

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<sup>5</sup> The merger was completed on October 1, 2018 (see docket numbers A-2018-3000381, A-2018-3000382, A-2018-3000383).

<sup>6</sup> Additional information on UGI Corp.'s distribution of common costs is discussed in Finding and Conclusion No. 3.

<sup>7</sup> Docket numbers: G-2016-2539961, G-2016-2539970, and G-2016-2539979

<sup>8</sup> Additional information on UGI Utilities competitive bidding process is detailed in Chapter X – Materials Management.

**Exhibit V-1**  
**UGI Utilities, Inc.**  
**Summary of Affiliate Charges**  
**For the Fiscal Years Ended September 30, 2014 – 2018**

<u><b>Affiliate</b></u>	<u><b>2014</b></u>	<u><b>2015</b></u>	<u><b>2016</b></u>	<u><b>2017</b></u>	<u><b>2018</b></u>
<i><u>Charges From Affiliates to UGI Utilities*</u></i>					
UGI Corporation	\$10,671,322	\$11,955,799	\$11,934,133	\$12,901,486	\$14,234,105
UGI Central Gas Control	0	0	0	432,071	1,754,209
UGI Energy Services	196,090,076	149,154,405	110,396,887	181,122,263	269,480,763
Total from Affiliates	<u>\$206,761,398</u>	<u>\$161,110,204</u>	<u>\$122,331,020</u>	<u>\$194,455,820</u>	<u>\$285,469,077</u>
<i><u>Charges From UGI Utilities* to Affiliates</u></i>					
Amerigas Propane, Inc.	\$4,895	\$9,762	\$34,725	\$187,716	\$403,350
UGI Central Gas Control	0	0	24	130,706	1,455,203
UGI Corporation	1,573,232	1,149,237	2,112,189	2,219,745	2,116,108
UGI Development	78,568	(197,510)	73,458	47,022	(9,025)
UGI Energy Services	112,782,062	83,226,856	34,777,271	54,966,109	108,230,674
UGI Enterprises	19,086	15,936	11,912	4,295	(39,322)
UGI HVAC Enterprises	254,491	189,461	(150,195)	245,842	0
UGI HVAC Services	283,654	273,800	220,446	188,008	(96,562)
UGI Properties	4,847	966	51	27	0
UGI Storage Company	1,022,296	903,256	765,287	668,154	755,694
Total to Affiliates	<u>\$116,023,131</u>	<u>\$85,571,764</u>	<u>\$37,845,168</u>	<u>\$58,657,624</u>	<u>\$112,816,120</u>

Note: Transactions between the regulated entities (UGI Utilities, CPG and PNG) were excluded due to the merger of these companies as of October 1, 2018.

\* Transactions between affiliates and any individual regulated entity were combined into the totals shown for UGI Utilities.

Source: Data Request CA-21, CA-32 and auditor analysis

UGI Utilities also provides several services to its affiliates including rent, engineering, construction, maintenance services, information services, payroll, and benefits administration. UGI Utilities' general application of intercompany charges for services are documented in its Cost Allocation Manual (CAM). UGI Utilities' CAM has multiple appendices, including the UGI Corp. CAM<sup>9</sup>. According to the UGI Utilities CAM, whenever possible, labor and payroll burden costs<sup>10</sup> related to intercompany

<sup>9</sup> The UGI Corp. CAM is discussed in greater detail this chapter's Finding and Conclusion No. 2.

<sup>10</sup> Payroll burden costs (commonly referred to as fully allocated labor costs) include employee insurance, retirement plan costs, payroll taxes, other compensation, and paid time off.

services are captured and charged to each respective affiliate by direct charge.<sup>11</sup> However, when it is not feasible to direct charge, UGI Utilities utilizes predetermined time allocations to distribute costs to its respective affiliate in proportion with each employee's time. Annually, each supervisor is responsible for verifying the predetermined time allocations for relevant employees based on an estimation of the percentage of that employee's time spent performing work for other affiliates. UGI Utilities' CAM states that charges to its nonregulated affiliates are at the greater of its incurred costs or market value for similar services.<sup>12</sup> UGI Utilities' CAM provides general guidance for applying intercompany costs and is also supported by UGI Utilities' PUC approved AIAs that also provide guidance on alternative methodologies applied to its intercompany charges. Additional information related to UGI Utilities' CAM is discussed in Chapter VI – Financial Management in Finding and Conclusion No. 2. Similarly, UGI Utilities' approved AIAs are discussed in greater detail in this chapter's Finding and Conclusion No. 5.

Ringfencing is a term used to describe the efforts intended to insulate a regulated utility from the potentially higher risk activity of its nonregulated affiliates. The objective is to ensure the utility's financial stability and service reliability are not affected by nonregulated corporate activities. UGI Corporation's corporate structure is separated into four principal subsidiary/affiliate business segments: utilities, midstream & marketing, international and propane. This corporate structure provides UGI Utilities with a separate board of directors, separate books of accounts, separate debt instruments and bank accounts, with no comingling of funds between UGI Utilities and its affiliates. In addition, UGI Utilities has voluntarily adopted the corporate codes of conduct of the New York Stock Exchange to assure that the boards of directors and chief executive and financial officers fulfill their fiduciary duties.

UGI Utilities' Code of Conduct is included in the employee handbook. Employees are provided annual training on the Code of Conduct to ensure compliance with the Electricity Generation Customer Choice and Competition Act and National Gas Generation Customer Choice and Competition Act.<sup>13</sup> UGI Utilities' Code of Conduct is meant to ensure the provision of fair, equal access, and consistent terms to all customers and suppliers, including both electric and natural gas customers and/or suppliers, regardless of whether or not they are affiliates of UGI. The training addresses UGI Utilities rules on the separation of employees including the functional separation for electric operations employees. In addition, employees are not shared between UGI Utilities' functional areas responsible for its operations system (including energy delivery, billing, and metering activities), marketing, and customer service with any affiliated natural gas supplier.

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<sup>11</sup> See Finding and Conclusion No. 4 for additional information related to employee training on direct charge.

<sup>12</sup> See Finding and Conclusion No. 1 for more details related to UGI Utilities' determination of market values for intercompany shared services.

<sup>13</sup> 66 Pennsylvania Consolidated Statute Chapters 22 and 28 and 52 Pa. Code Chapters 54 and 62.

## **Findings and Conclusions**

Our examination of the Affiliated Interests and Cost Allocations function focused primarily on a review of contracts and agreements governing transactions between affiliates, cost allocation methodologies, employee training on time and expense reporting, allocation policies and practices, ringfencing efforts, competitive safeguards, etc. Based on our review, UGI Utilities should devote additional efforts to improving its affiliated interests and cost allocations function by addressing the following:

### **1. UGI Utilities does not regularly conduct cost versus market studies for services to and from affiliates.**

UGI Utilities has not performed market studies for the intercompany services it provides to or receives from its affiliates. In contrast, UGI Utilities competitively bids for purchased gas supplies and large capital projects. Nonetheless, UGI Utilities' parent company, UGI Corp., has not performed any recent market studies on intercompany services provided to, or received by, UGI Utilities which collectively totals at least \$12 million annually. However, UGI Corp. indicated it plans to engage a consultant to analyze corporate shared services this fiscal year. This analysis will evaluate the feasibility of centralizing contracts and services across UGI Corp.

To realize the benefits of centralization, in 2017, UGI Corp. centralized the gas control function as part of newly formed affiliate UGI CGC. Furthermore, UGI Corp. indicated it is examining the feasibility of centralizing procurement services. UGI Corp. is looking to leverage similar purchasing functions (i.e., non-gas purchasing like materials, goods and services) across its affiliates, which should yield benefits from economies of scale. Nonetheless, in its current state, UGI Utilities cannot substantiate whether the costs of goods and services received from, or provided to, its affiliates are fair and reasonable.

The auditors agree that centralization of non-core functions could generate cost savings for or increase services to UGI Utilities. However, it is imperative that UGI Utilities periodically compare the cost of all services received from affiliates to market rates to ensure intercompany charges are fair and competitively priced on a least cost basis. In addition, the level of service should be evaluated against comparable outside options to ensure service is beneficial. Currently, neither UGI Corp. nor UGI Utilities regularly conduct market studies of intercompany services. The company does competitively bid projects, which is a form of market study, but a gap still exists for services provided to/from affiliates where the competitive process is not used or feasible. UGI Corp.'s plan to utilize a consultant to analyze corporate shared services, should include a cost component for these services providing information on whether those services are at market costs or not. Ideally, market studies for shared services should be conducted regularly, every three to five years. Otherwise, UGI Utilities cannot substantiate whether the costs of goods and services received from, or provided to, its affiliates are fair and reasonable.



## **2. UGI Corp.'s Cost Allocation Manual lacks key information.**

As discussed in this chapter's background, UGI Utilities' CAM includes multiple appendices with partial organizational charts, current and prior year Corporate MWF allocations, and UGI Corp.'s CAM. The UGI Corp. CAM addresses the various methods for distributing costs between subsidiaries including exceptions to general allocation processes. More specifically, UGI Utilities relies on the UGI Corp. CAM to document the processes used by UGI Corp. to determine its proportion of corporate shared costs. However, documentation for exceptions when distributing costs and/or related processes lacks key information. As such, UGI Corp. should address the following:

- Certain unidentified subsidiaries are excluded from the cost allocation process and rationale is not documented (i.e., holding company only (no employees), discontinued operations, etc.)
- Justification, determination, and review process for establishing the international reduction rate for UGI Corp. subsidiaries (40% reduction of allocated costs<sup>14</sup>). An annual review process is conducted, yet no information is documented within the UGI Corp. CAM.
- Identification of subsidiaries (and specific divisions within) who utilize gross margin instead of revenue as an allocation factor and justification for the established practice.

CAMs typically describe all methods used to allocate charges among affiliates, including identification of exempted or partially exempted subsidiaries, and provide explanation of processes that reduce or eliminate shared costs for certain affiliates. As UGI Corp. is a parent company to both its regulated subsidiary and numerous nonregulated subsidiaries, justification for such exceptions should be documented. In a mixed regulated/nonregulated environment, shared costs must be segregated appropriately due to different operating environments. Regulated entities' costs are passed through to ratepayers, whereas non-regulated businesses costs reduce profits, creating a motive for cross-subsidization. Ambiguous, undefined, or undocumented cost allocation processes make the application and verification of intercompany charges unclear for its subsidiaries and regulators. Additionally, undocumented processes can change unexpectedly leading to unintended consequences. Thus, UGI Corp. should update its CAM to ensure safeguards from cross-subsidization between regulated and nonregulated subsidiaries.

## **3. Intercompany invoices from UGI Corporation lack adequate detail.**

When affiliates provide service to other affiliates, the resulting cost of service is usually detailed within an intercompany invoice. These intercompany invoices should provide recipients, in this case UGI Utilities, with enough detail and support to perform

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<sup>14</sup> Due to the lack of physical proximity of UGI Corp.'s international companies to UGI Corp. headquarters, UGI Corp.'s international companies use less shared services than UGI Corp.'s domestic subsidiaries. The international adjustment's overall effect on UGI Utilities' corporate allocation factor is approximately 1%.

required functions, such as managing operations, supporting operational decisions, responding to regulatory actions, etc. UGI Corp.'s monthly invoice to UGI Utilities presents total direct and indirect charges for each affiliate, rendering a high-level summary of the costs for services. However, the invoice lacks any supporting details for intercompany costs.

As a result, UGI Utilities cannot verify the reasonableness of intercompany costs with the level of services received from UGI Corp. Although UGI Corp. was able to provide line item detail (payroll salaries, taxes, office expenses, etc.) for intercompany charges, the line item report lacked a description of the services performed. Thus, its format is not conducive to assisting the utility in managing its operations effectively or efficiently. This lack of information makes it difficult or impossible for UGI Utilities to assess the costs for each service received. Therefore, UGI Utilities should work with UGI Corp. to ensure that the format of intercompany invoices from UGI Corp. contain adequate details to support operational decisions.

#### **4. UGI Utilities does not have comprehensive time entry training that addresses direct charging for intercompany and shared services.**

According to UGI Utilities' CAM, non-regulated affiliates should be charged for labor and overhead by direct charge or predetermined time. Although the UGI Utilities' CAM mentions the use of its direct charge method whenever feasible, there is no documentation or formalized process providing guidance for employees to direct charge an affiliate for shared services. Instead, direct charging for special projects is used as an exception to capture labor expended on certain projects (e.g., hours dedicated to the UNITE project) and is not used to capture intercompany labor costs. Most utilities direct charge personnel costs through its time entry system. However, UGI Utilities relies on its predetermined time allocation process to capture intercompany labor costs. This method is inadequate for new employees or new positions where an employee would be unable to predict how they would spend their time. In this case, the annual review process should be modified to allow for a review after six months to better capture the actual allocation of an employee's time.

Typically, due to the limited amount of shared services, only a few UGI Utilities employees must consider occasionally allocating their time. However, as noted in Finding and Conclusion No. 1, UGI Corp. is exploring the expansion of shared services. As a regulated entity, UGI Utilities must accurately and consistently track and account for the increased labor and associated costs, particularly when expanding centralized services provided by UGI Utilities. Ideally, such utility-provided services should be provided at a minimum of UGI Utilities' costs and/or above current market rates, to ensure regulated employee labor is not subsidizing affiliate expenses. However, UGI Utilities has not developed any formal time entry training for its employees to address the proper charging of time between such entities. As such, UGI Utilities' risk for inconsistent or inaccurate application of time entry may also increase, if it expands shared services provided to its affiliates. In addition, UGI Utilities current time entry training is conducted on an informal basis, with no documented guidance or instruction. Therefore, each department has a responsibility to ensure that employees are charging

their time properly and that predetermined time allocations are coordinated with the accounting department.

Nonetheless, reliance on each department's supervisor, to ensure intercompany charges are correct, should be a failsafe rather than the primary assurance. This concept of a failsafe will be even more important if shared services are expanded. Unfortunately, UGI Utilities' lacks documented time entry training and as such, lacks formal training on direct charging for intercompany labor. Ideally, and in accordance with UGI Utilities' CAM, employees should be the first arbiter on how to charge their time and should be trained on intercompany charges. Therefore, UGI Utilities should create a detailed time entry training procedure to ensure that employees understand the proper mechanics for capturing direct charges to affiliates. In addition, proper predetermined time allocations should be maintained and reevaluated as new shared services are offered.

## **5. UGI Utilities' affiliated interest agreements are outdated.**

As previously discussed, the PUC approved UGI Utilities' petition for merger of its three gas companies on September 20, 2018. As a result of this merger, many previously filed AIAs involving CPG and/or PNG and their affiliates are no longer relevant or need to be updated. In fact, the merger order entered September 20, 2018 (at Docket Nos. A-2018-3000381 et al.) identified which AIAs were terminated or remained in effect. Nonetheless, the Commission's order does not exempt future Commission action on these AIAs should material changes occur or are needed. Additionally, in audit staff's opinion, some vintage, generic AIAs on file with the PUC no longer meet the minimum standards for adequate documentation. For example, UGI Utilities' 1992 administrative services agreement with UGI Corp.<sup>15</sup> has not been updated to reflect the updated UGI Corp. structure, nor does it identify the affiliates providing and/or receiving intercompany services from/to UGI Utilities and the associated costs of those services. UGI Utilities' AIAs should contain relevant cost information, explicitly identify current legal entities, and reflect changes by refiling the AIAs.

In addition, some of the generic AIAs on file with the PUC have been filed in lieu of specific contracts between UGI Utilities and UGI Energy Services. However, the authority to approve contracts between public utilities and its affiliates comes under the Commission's general authority to regulate public utilities in the Commonwealth at 66 Pa. C.S. § 2102(a) and (b), which state, in part:

(a) General rule. - No contract or arrangement providing for the furnishing of management, supervisory, construction, engineering, accounting, legal, financial, or similar services and no contract or arrangement for the purchase, sale, lease, or exchange of any property, right or thing or for the furnishing of any service, property, right or thing . . . between a public utility and any affiliated interest

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<sup>15</sup> Filed at Docket No. G-00920296

shall be valid or effective unless and until such a contract or arrangement has received the written approval of the commission... (b) Filing and action on contract. - It shall be the duty of every public utility to file with the commission a verified copy of any such contract or arrangement, or a verified summary as described in subsection (a) of any such written contract or arrangement . . . The commission shall approve such contract or arrangement made or entered into ... only if it shall clearly appear and be established upon investigation that it is reasonable and consistent with the public interest. . . No such contract or arrangement shall receive the commission's approval unless satisfactory proof is submitted to the commission of the cost to the affiliated interest of rendering the services or of furnishing the property or service described herein to the public utility. No proof shall be satisfactory within the meaning of the foregoing sentence unless it includes the original (or verified copies) of the relevant cost records and other relevant accounts of the affiliated interest. . .

Therefore, UGI Utilities should ensure that all contracts or agreements with affiliated companies are filed with the Commission in a timely manner. These contracts and agreements should contain specific cost information relevant to the specific services being provided between the named affiliates.

### **Recommendations**

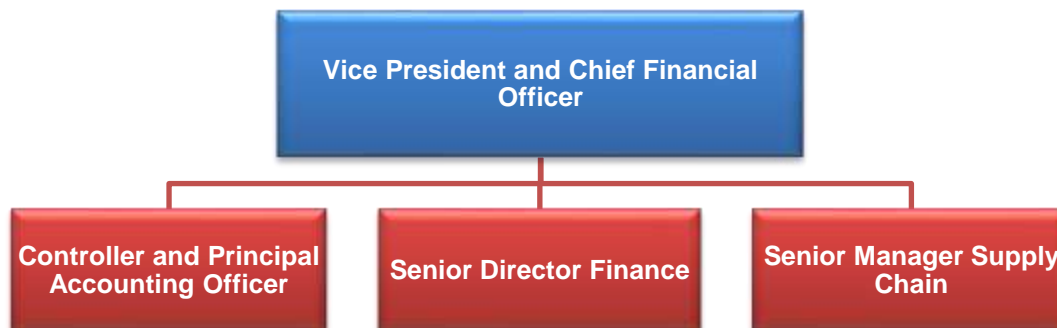
- 1. Create a periodic, recurring process to compare the internal cost of services provided between UGI Utilities and its affiliates to market rates.**
- 2. Update UGI Corp.'s Cost Allocation Manual.**
- 3. Work with UGI Corp. to improve the level of detail provided in intercompany invoices and reports.**
- 4. Develop time entry training to address direct charging of labor for intercompany services.**
- 5. Amend or file new affiliated interest agreements to more accurately detail services provided.**

## VI. FINANCIAL MANAGEMENT

### **Background**

UGI Utilities, Inc.'s finance department is overseen by the UGI Utilities' Vice President of Finance and Chief Financial Officer (CFO). As shown in Exhibit VI-1, the CFO has three direct reports. The Senior Director of Finance oversees personnel responsible for compiling annual budgets, reporting on variances and performing financial analyses. The Controller oversees personnel responsible for maintaining the general ledger, overseeing intercompany transactions<sup>16</sup>, and compiling financial statements and financial reports. The Senior Manager of Supply Chain oversees personnel responsible for procurement of goods and services, materials management and fleet, which is discussed further in Chapter X – Materials Management. UGI Utilities also receives financial services such as treasury, internal audit, tax services, external reporting, etc. from its parent company, UGI Corporation (UGI Corp.).

**Exhibit VI-1  
UGI Utilities, Inc.  
Finance Department Organization Chart  
As of February 28, 2019**



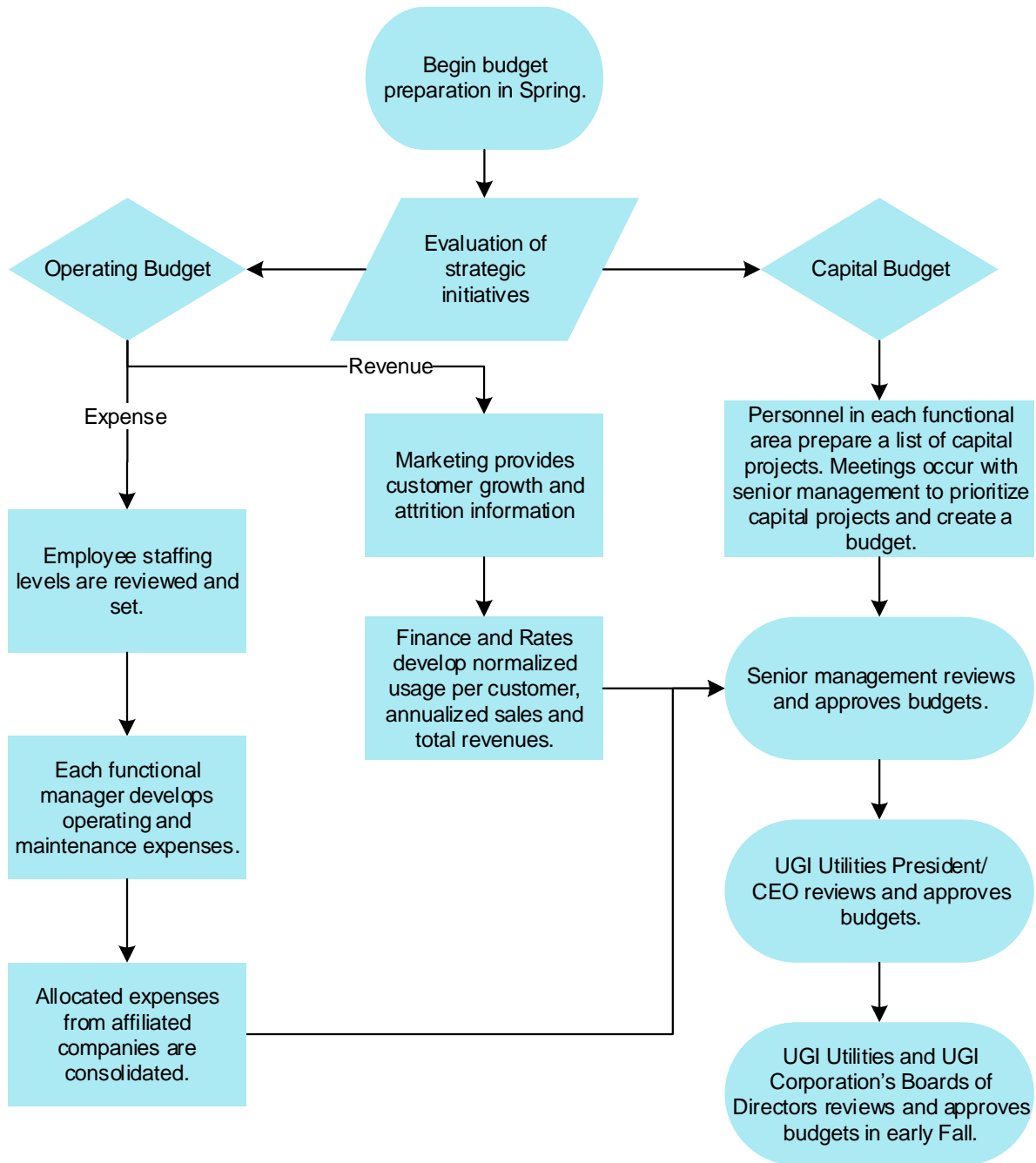
Source: Data Request GD-9

### **UGI Utilities' Finance Department:**

As shown in Exhibit VI-2, UGI Utilities' annual budget process begins in the spring and continues through early fall. The Finance Department monitors the capital and operating budgets throughout the year using updated forecasts to reflect ongoing changes. Monthly variances are presented in reports and discussed with various departments during in-person meetings. On July 1, 2019, UGI Utilities plans to implement new financial software as part of the UNITE Phase 2 project, which is discussed further in Chapter III – Executive Management & Organizational Structure.

<sup>16</sup> See Chapter V – Affiliated Interests and Cost Allocations for more information regarding cost allocation of affiliate transactions.

**Exhibit VI-2**  
**UGI Utilities, Inc.**  
**Operating and Capital Budget Process**  
**As of August 2018**



Source: Data Requests EM-4, FM-3, and auditor analysis

Since the 2012 Management Audit, UGI Utilities has significantly increased its capital improvement work. For this reason, UGI Corporation has permitted UGI Utilities to decrease the amount of annual dividend payments. Exhibit VI-3 provides a list of dividend payments UGI Utilities has made to UGI Corporation in fiscal years 2014 through 2018.

**Exhibit VI-3**  
**UGI Utilities, Inc.**  
**Dividend Payments to UGI Corporation**  
**For the Fiscal Years Ended September 30, 2014 – 2018**

<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
\$77,396,514	\$65,600,000	\$47,000,000	\$57,700,000	\$50,000,000

Source: Data Request FM-14 and UGI Utilities 2018 10-K dated November 20, 2018.

UGI Corporation's Treasury Function:

UGI Corp.'s Treasury function oversees debt issuances on behalf of UGI Utilities. To fund its capital investment program, UGI Utilities issues senior and medium-term notes. As of September 30, 2018, UGI Utilities held \$715 million in long-term debt comprised of \$675 million in senior notes and \$40 million in medium-term notes. For short-term borrowing needs, UGI Utilities has an unsecured revolving credit agreement with a group of banks providing borrowings up to \$300 million.

Another role for the Treasury function is as a financial liaison for pension oversight. UGI Corp. sponsors a defined benefit pension plan that applies to UGI Corp. employees and employees of its domestic, wholly owned subsidiaries (including UGI Utilities) who were hired before January 1, 2009.<sup>17</sup> See Exhibit VI-4 for the funding status of the pension plan as of September 30, 2018.

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<sup>17</sup> UGI Utilities' employees hired January 1, 2009 and thereafter may elect to participate in UGI Utilities' tax deferred retirement savings plan (i.e., 401K). For additional information related to employee benefits see Chapter XIV – Human Resources/Diversity.

**Exhibit VI-4**  
**UGI Corporation**  
**Employee Pension Plan\***  
**As of September 30, 2018**

	Accumulated Pension Obligation
Projected Benefit Obligation	\$611,200,000
Fair Value of Assets	\$531,700,000
Percent funded	86.99%

\* This pension plan includes employees from UGI Corp.'s domestic US subsidiaries.  
Source: UGI Corporation 10-K for fiscal year end September 30, 2018

**UGI Corporation's Internal Audit Function:**

UGI Corp.'s Internal Audit department (IA), which is discussed in more detail within Chapter IV – Corporate Governance, develops an annual Internal Audit Plan based on risk for the entire corporation. There are no set number of audits required to be conducted on UGI Utilities each year. However, multiple internal audits were performed on UGI Utilities from 2014 through 2018 and planned for 2019 (the years reviewed during this audit). The completed and planned audits ranged from five to ten projects every year and focused on safety, succession planning, business continuity, cybersecurity, infrastructure, and financial processes.

**Findings and Conclusions**

Our examination of the Financial Management function focused primarily on a review of accounting policies and procedures, the capital and operating budget process, budget variance tracking and reporting, long and short-term financing policies and activities, dividend policies, internal audit and the pension program funding. Based on our review, UGI Utilities should initiate or devote additional efforts to improving its financial management function by addressing the following:

**1. Internal audits are not regularly performed on affiliate transactions and shared services.**

As discussed previously, IA is responsible for conducting internal audits of all UGI Corp.'s regulated and non-regulated subsidiaries. The PUC auditors reviewed a list of internal audits performed between September 30, 2014 and June 30, 2018. However, during this period, IA had not conducted an internal audit of affiliate transactions and cost allocations. The company indicated that its internal audits are prioritized based on risk and affiliated transactions or cost allocations of shared services simply have not met the threshold for an internal audit.



As discussed in greater detail in Chapter V – Cost Allocations and Affiliated Transactions, UGI Utilities engages in a significant level of intercompany transactions with its affiliates. These intercompany transactions are calculated by numerous allocation formulas, which are adjusted, at least annually. Errors in the application or adjustment of these formulas could lead to the potential for material cross-subsidization between UGI Utilities and its nonregulated affiliates. Without a periodic review of affiliate transactions and cost allocations for shared services, charges may not align with those prescribed by the UGI Corp. Cost Allocation Manual and Commission-approved AIAs. IA should ensure that cost allocations for shared services and affiliated transactions align with the UGI Utilities' Commission-approved affiliated interest agreements (AIAs). In addition, these audits should be performed periodically, at least every three to five years, or whenever major changes occur.

## **2. UGI Utilities' lacks comprehensive, uniform, and consistent documentation of its utility specific accounting processes.**

Policies provide administrative controls to ensure that processes and activities that support basic business needs are updated to reflect significant changes. On September 26, 2018, UGI Utilities received approval to merge CPG and PNG into UGI Utilities while maintaining separate rate districts<sup>18</sup>. This merger became effective on October 1, 2018. The merger represents a major change that should have been reflected in the administrative policies. Additionally, UGI Utilities is preparing to implement new financial software (slated for July 1, 2019) that will change how accounting processes are completed.

During fieldwork, many financial policies and procedures were reviewed. Generally, UGI Utilities relies on UGI Corp. financial policies and procedures to support its financial and accounting processes. However, financial policies and procedures specific to UGI Utilities were limited. A noticeable gap existed in the documentation for UGI Utilities' budgeting process. When documentation existed, most of the utility-specific processes were in the form of memos or SOX process walkthroughs. Going forward, several processes and procedures will become obsolete once the new financial system is implemented. Therefore, UGI Utilities should also develop a periodic, recurring procedure for reviewing and updating its policies. A few examples of policies and procedures that need to be revised are highlighted in Exhibit VI-5.

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<sup>18</sup> As a result of the merger, PNG became UGI North, CPG became UGI Central and UGI Utilities Gas Division became UGI South.

**Exhibit VI-5**  
**UGI Utilities, Inc.**  
**Summary of Financial Policies and Procedures**  
**As of September 2018**

<b>Document</b>	<b>Last Updated</b>	<b>Problems Found</b>
UGI Corp.'s Accounting Policy Manual	October 2017	None - thorough documentation of specific accounting policies.
UGI Utilities' Cost Allocation Manual	May 2017	Recently developed into a manual from its previous incarnation – a memo. Although now more detailed, it does not reflect the impact of the merger. It also fails to adequately emphasis direct charging of employee time to affiliates as needed.
Close the Books - Detailed Process Memo	2017	Very specific to current financial system but will be outdated once new system goes live in July 2019.
Process walkthroughs for SOX	Various	These documents were provided instead of actual financial procedures. The payroll and financial processes described in the walkthroughs are very specific to their respective systems and will be outdated once new systems go live in July 2019.
Policy memos, including Dividend policy	Various	Dividend policy memo was last updated in 2012 and does not mention PUC notification before issuance of dividends exceeding 80% of net income.

Source: Data Requests FM-19 and FM-23

Ideally policies and procedures should be reviewed, and if necessary, updated at least every five years or whenever major changes occur. The merger and new system implementation are major changes. Therefore, it is an optimal time for UGI Utilities to formally document or update existing policies or procedures to reflect current practices.

**Recommendations**

- 1. Conduct periodic internal audits of affiliate transactions and shared service costs.**
- 2. Document or update existing policies or procedures to reflect actual practices.**

## **VII. GAS OPERATIONS**

### **Background**

UGI Utilities is composed of two regulated divisions consisting of a natural gas distribution operation (UGI Gas Service Division or UGI Gas) and an electric distribution operation<sup>19</sup> (UGI Electric Service Division or UGI Electric). As indicated in Chapter II - Background, on March 8, 2018, UGI filed a joint application with the Commission to merge UGI Utilities, Inc., UGI Central Penn Gas, Inc. (CPG), and UGI Penn Natural Gas, Inc. (PNG) (collectively referred to as UGI Utilities) to operate as three rate districts: UGI South, UGI Central, and UGI North respectively. The joint merger application was approved by the Pennsylvania Public Utility Commission (PUC or Commission) on September 20, 2018 and the merger was completed on October 1, 2018. As such, natural gas operations for the three divisions are discussed within this chapter collectively.

UGI South as of December 31, 2018 served approximately 400,000 customers in 16 counties in southeastern and central Pennsylvania via 5,700 miles of gas distribution main. UGI South is further divided into two non-contiguous regions: a primary and secondary region. The primary region spans twelve counties and includes five of Pennsylvania's ten largest cities: Allentown, Bethlehem, Harrisburg, Lancaster and Reading. The secondary region spans four counties and is largely made up of rural communities, with Hazleton being its largest city. For operational purposes, UGI South is composed of five operating districts or cost centers: Harrisburg, Reading, Lancaster, Lehigh, and Hazleton.

UGI Central as of December 31, 2018 served approximately 83,000 customers and has a largely rural, non-contiguous service territory encompassing all or parts of 37 counties in northeastern, central, and northwestern Pennsylvania. For operational purposes, UGI Central is comprised of 18 operating districts or cost centers stretching from Stroudsburg in eastern Pennsylvania to Fryburg in the west.

UGI North as of December 31, 2018 served approximately 172,000 customers in 13 counties and is largely composed of rural communities surrounding urban centers of Wilkes-Barre, Scranton, and Williamsport. For operational purposes, UGI North is comprised of six operating districts or cost centers: Archbald, Bloomsburg, Honesdale, Southpoint, Wilkes-Barre and Williamsport. Between the North, Central, and South divisions, UGI has a total of 35 service centers and support facilities with several of the operation centers such as Harrisburg, Lehigh, Wilkes-Barre also acting as regional training facilities. Exhibit VII-1 depicts the system characteristics of the three divisions.

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<sup>19</sup> See Chapter VIII – Electric Operations for more information.

**Exhibit VII-1**  
**UGI Utilities, Inc.**  
**System Characteristics**  
**As of December 31, 2018**

Division	Miles of Main	Number of Services	Pressure Zones	City Gates	Interstate Pipelines
South	5,727	374,739	228	32	Texas Eastern, Columbia, Transco
Central	3,699	88,087	589	41	TE, Columbia, Transco, Tennessee
North	2,596	142,780	229	11	Transco, Tennessee
Total	12,022	605,606	1,046	84	

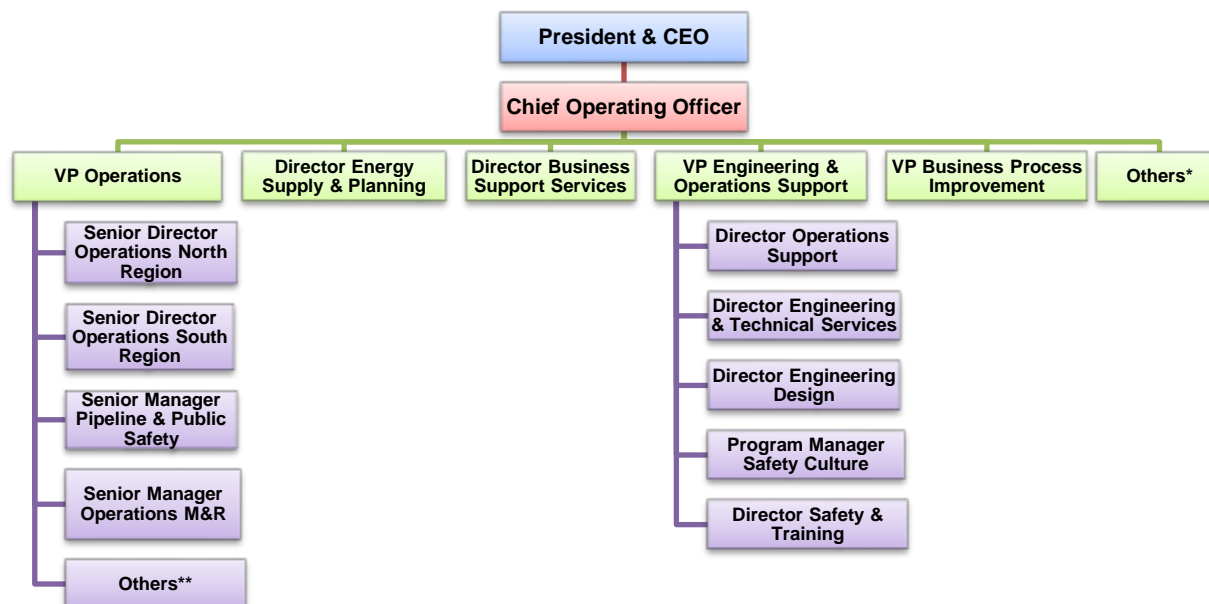
Source: Data Request GO-2

As of December 31, 2018, UGI's operations group<sup>20</sup> consisted of 1,027 full-time employees composed of which, 618 are union personnel and 409 non-union. Between its electric and three gas divisions, the company has 17 unions. Of the 409 non-union employees, 121 were classified as management while the remaining 288 were professionals, technicians, administrative support, etc.

Exhibit VII-2 shows the departments responsible for UGI's transmission and distribution operations. The President and Chief Executive Officer (CEO) of UGI Utilities, Inc. is also the Executive Vice President (EVP) Natural Gas (See Finding and Conclusion No. 2 in Chapter III-Executive Management). The Chief Operating Officer (COO) reports to the President and CEO and has seven direct reports. The five reports shown in Exhibit VII-2 include the Vice President (VP) Business Process Improvement, VP Operations, Director Energy Supply and Planning, Director Business Support Services and VP Engineering and Operations Support. The two reports, Director Electric Engineering and Operations and Director Security and Facilities, that are not shown in the exhibit will be covered in other chapters of this report. The COO is responsible for long-term strategic infrastructure investment plans, capital budgets, engineering and operations support, operations, security and facilities management, and energy supply and planning.

<sup>20</sup> The operations group employee count includes the following departments under the COO: Operations, Business Support Services, and Engineering & Operations Support.

**Exhibit VII-2**  
**UGI Utilities, Inc.**  
**Gas Operations Organization Chart**  
**As of February 28, 2019**



\* Chief Operating Officer's other reports include Director Electric Engineering & Operations, Director Security & Facilities

\*\* VP Operations other reports include Functional Lead-Operations, Project Manager, Project Director, Financial Planning & Analysis Lead

Source: Data Request GD-9

The VP Operations has eight direct reports with four “operational” reports and four employees (not shown in Exhibit VII-2) that are currently working on Phase 2 of the UNITE<sup>21</sup> project. For operational purposes, UGI is divided into a Northern and a Southern Region, with a Senior Director responsible for each of the regions. The Northern region consists of 16 districts or cost centers comprising ten UGI Central districts and six UGI North districts. The Southern region consists of 13 districts comprising all five UGI South districts and eight UGI Central districts. The Southern region also includes UGI Central's small Maryland operation. The operations group is responsible for all operation, maintenance, and construction activity such as main and service line replacement, leak repair, meter reading, emergency response, etc. Also reporting to the VP Operations is a Senior Manager Pipeline & Public Safety who is primarily responsible for the damage prevention program including activities such as line locating, pipeline safety, education, outreach, damage investigation, etc. The Senior Manager Operations Metering & Regulation is responsible for Instrumentation and Control (i.e., inspection and testing of telemetry equipment at gate stations) and the meter shop including meter testing.

<sup>21</sup> UGI Gas' Next Information Technology Enterprise (UNITE) initiative is UGI's ongoing effort to develop and implement next generation technology solutions.

The Energy Supply and Planning Director is responsible for gas and electric supply, planning, procurement, and scheduling for UGI Utilities. The Energy Supply and Planning department plans for customer natural gas use by analyzing historical usage, forecasting future demand scenarios, and evaluating weather patterns. The group also works with UGI Central Gas Control LLC<sup>22</sup> (CGC) to coordinate supply plans, sendout schedules, etc. The CGC utilizes the Supervisor Control and Data Acquisition (SCADA) system to monitor flow and pressure at city gates where the company receives gas from interstate pipelines.

The VP Business Support Services is responsible for two primary groups: business support and capital planning. The business support group performs analytical work for the operations department and develops and measures several metrics for each rate district and for the 29 cost centers. The capital planning group is responsible for managing the capital budget and analyzing the process and performance of each rate district. In addition, this group helps develop forecasts and the creation of several reports and filings (i.e., distribution system improvement charge (DSIC), long term infrastructure improvement plan (LTIIP), etc.)

The VP Engineering and Operations Support has seven direct reports and is responsible for managing the safety and training program, corrosion control program, distribution integrity management program (DIMP), leak survey, GIS, system planning, network analysis, facility design, etc. The Engineering and Operations Support group provides direct support to both regional operations by embedding engineers within the respective regions. The program manager for UGI Utilities' safety culture initiative also reports to the VP Engineering and Operations Support. Further discussion on the safety culture initiative can be found in Finding and Conclusion No. 4.

The VP Business Process Improvement was a new position created in January 2019 with responsibility for phase 3 of the UNITE project which is expected to begin in late 2019. This phase of the project would result in conversions of the Enterprise Asset Management (EAM) systems including work management, gas outage management, GIS, etc. to the new system. The Business Process Improvement group also has responsibility for the central dispatch function and monitoring compliance activities such as regulator stations inspections, valve inspections, etc. The PUC Gas Safety Division defines acceptable emergency dispatch and response times as 15 minutes and 60 minutes, respectively. However, UGI has established a more stringent 45-minute emergency response key performance indicator of 97.8%. The emergency dispatch and response times for UGI South, UGI Central, and UGI North are summarized in Exhibit VII-3. UGI Central's inability to meet its KPI response time in 2018 was primarily attributed to traversing difficult rural terrain to reach some customer locations.

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<sup>22</sup> The gas control function within UGI Utilities was transferred to a newly created affiliate, UGI CGC, in July 2017 in order to centralize gas control services for UGI Utilities and its non-regulated affiliate, UGI Energy Services LLC. This affiliated interest agreement was approved by the Commission at Docket Nos. G-2016-2539961, G-2016-2539970, and G-2016-2539979.

**Exhibit VII-3**  
**UGI Utilities, Inc.**  
**Response Times**  
**For the Fiscal Year Ended September 30, 2018**

	UGI South	UGI Central	UGI North	KPI
Response time <= 45 minutes	97.6%	96.4%	98.1%	97.8%
Response time <= 60 minutes	99.5%	99.1%	99.6%	

Source: Data Request GO-18

The Commission approved an LTIP for each of UGI's rate districts on June 30, 2016. These LTIPs were extended until December 31, 2019 by Commission Order (Docket No.'s P-2013-2398833, P-2013-2397056, P-2013-2398835) entered August 2, 2018. UGI's risk-based prioritization process places a higher priority on the replacement of cast iron and bare steel pipe, which are more susceptible to failure from corrosion, cracks, and leakage than other pipe materials. UGI's prioritization of projects for its capital budget, more specifically its replacement and betterment (R&B) program, adheres to the approved LTIPs and the Distribution Integrity Management Plan (DIMP).

The LTIPs and DIMP include information about the composition of the companies' pipe. As of December 31, 2018, UGI South had the largest amount of cast iron pipe (i.e., 193 miles) whereas UGI Central had the largest amount of bare steel pipe (i.e., 500 miles). Overall, about 87% of the system is made up of contemporary materials, which the company defines as cathodically-protected steel and plastic pipe. Exhibit VII-4 displays the miles of cast iron and bare steel pipe at each of the rate districts over the last five years.

**Exhibit VII-4**  
**UGI Utilities, Inc.**  
**Miles of Main – Cast Iron, Wrought Iron and Bare Steel**  
**For Calendar Years 2014 through 2018**

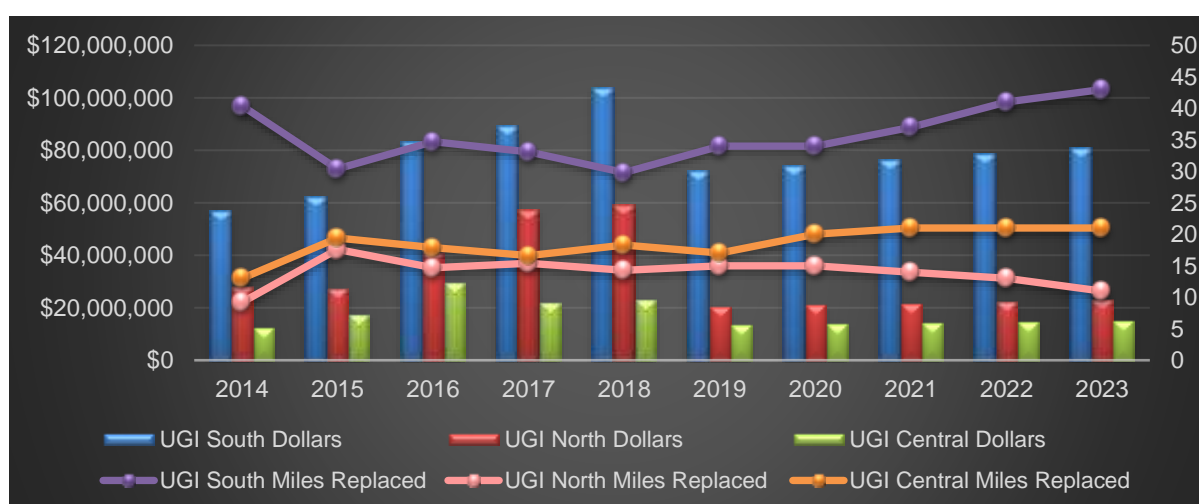
	2014	2015	2016	2017	2018	% of total in 2018
<b>UGI South</b>						
Cast Iron	279	257	238	213	193	3.4%
Wrought Iron	0	0	0	0	0	n/a
Bare Steel*	362	326	309	300	295	5.1%
<b>UGI North</b>						
Cast Iron	47	43	35	23	15	0.6%
Wrought Iron	59	59	58	58	58	2.2%
Bare Steel*	145	134	131	123	107	4.1%
<b>UGI Central</b>						
Cast Iron	6	4	3	1	0	0.0%
Wrought Iron	3	3	3	3	2	0.05%
Bare Steel*	562	548	530	514	500	13.5%

\* Bare steel includes bare unprotected and bare protected steel

Source: Pipeline and Hazardous Materials Safety Administration (PHMSA) DOT reports

UGI manages its main and service replacement schedule through the Replacement and Betterment Program (R&B). UGI's actual R&B miles replaced and amounts expended for the fiscal years 2014 through 2018 and projected R&B amounts for the fiscal years 2019 through 2023 are shown in Exhibit VII-5. Over the last five years, UGI has spent \$713.2 million replacing 327 miles of main, comprising 155 miles of cast iron and 172 miles of bare steel. The current cast iron replacement rate (three-year average) is 30.1 miles and the bare steel/wrought iron replacement rate is 35.7 miles. At the current rate, the company expects to replace its remaining cast iron main (208 miles) by the year 2025 and its remaining bare steel/wrought iron main (962 miles) by 2045. The cast iron replacement rate is on track to meet the LTIP goal of replacing all cast iron pipe by February 2027. The company indicated that although the bare steel/wrought iron replacement rate is not on track to meet the LTIP goal of September 2041, it expects to significantly increase the replacement rate of bare steel once all cast iron pipe has been replaced. Replacement rates are controlled by the operating and maintenance (O&M) and capital expenditure budgets, as discussed in Exhibit VII-6.

**Exhibit VII-5**  
**UGI Utilities, Inc.**  
**Replacement and Betterment Program**  
**Actual and Projected Miles Replaced and Capital Expenditures**  
**For the Fiscal Years Ended September 30, 2014 - 2023**



Note: 2014-2018 data is actual, 2019-2023 data is forecasted  
Source: Data request GO-10, GO-11 and GO-39

Preparation of the O&M budget for the subsequent fiscal year typically begins in the spring and is completed and ready for CEO and Board of Directors approval by September. The O&M budget is developed by functional managers based on review of trends, expenditure patterns, and new or changed programs.

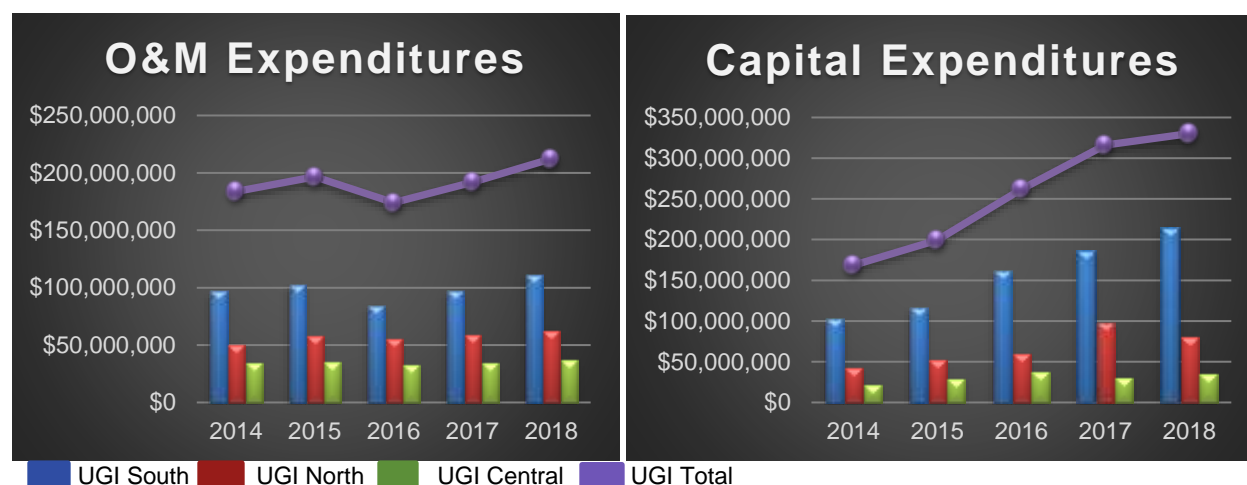
The company's capital budget is created and managed by the Business Support Services group with input from Operations, Engineering & Operations Support, and Energy Supply and Planning. The Business Support Services group works closely with



the Finance department to finalize the capital budget by October for CEO and Board of Director approval. The capital budget typically consists of five major line items: growth, information services, removal and salvage, replacement and betterment, and other<sup>23</sup>.

As presented in Exhibit VII-6, UGI Utilities has drastically increased capital spend driven by infrastructure replacement (i.e., gas mains, new headquarters, etc.) and system upgrades (i.e., the UNITE project). In 2018, UGI Utilities had approximately \$212 million in O&M expenditures and \$330 million in capital expenditures with approximately 60% of its capital spend on the R&B program, which is a 96% increase over its 2014 capital expenditures. Operating and maintenance (O&M) and capital expenditures for UGI Utilities are shown in Exhibit VII-6.

**Exhibit VII-6**  
**UGI Utilities, Inc.**  
**O&M and Capital Expenditures**  
**For the Fiscal Years Ended September 30, 2014 - 2018**



Source: Data Requests GO-3 and GO-4

The O&M budget also determines how much testing can be done in a year. As part of its distribution, the UGI meter shop tests its residential and commercial meters in accordance with 52 Pa. Code § 59.21. Meter testing results for Class A<sup>24</sup> meters for the years 2015, 2016, and 2017 are shown in Exhibit VII-7. In 2017, the American non-TC (temperature compensated) and Other non-TC meter families failed to meet the performance standards<sup>25</sup>. The company is taking corrective action by removing the entire group from service within four years.

<sup>23</sup> The other category includes dollars expended on corrosion control, building improvements, gas supply, fleet capital and related equipment, etc.

<sup>24</sup> Meters are divided into groups in accordance with ANSI Spec, B109.1 Part IV Sec. 4.3.2.1 or its successor. Class A meters are primarily residential diaphragm displacement meters with a rating capacity of 500 cfh or less and comprise a vast majority of the company's meter population. Class B and C meters are diaphragm displacement meters with a higher rating capacity. Class D meters are orifice, rotary, or turbine meters and are tested once every 10 years.

<sup>25</sup> Per 52 Pa. Code § 59.21(d)(3), for a group to remain in service, at least 80% of the meters in the sample test shall meet the accuracy limits of 98% average accuracy (2% slow) and 102% average accuracy (2% fast).

**Exhibit VII-7**  
**UGI Utilities, Inc.**  
**Class A Meter Test Results**  
**For Calendar Years 2015 through 2017**

	2015		2016		2017	
Meter Categories	Number Tested	Percent Failed	Number Tested	Percent Failed	Number Tested	Percent Failed
Large Capacity	819	8.4%	939	11.2%	777	14.3%
American TC	6,340	8.6%	8,489	7.4%	6,534	10.1%
Rockwell TC	2,593	8.4%	3,299	11.7%	2,201	15.2%
Other TC	1,939	4.8%	949	7.0%	690	13.9%
American Non-TC	871	16.6%	1,200	17.2%	1,192	21.8%
Other Non-TC	878	11.5%	894	13.6%	540	21.3%
Total	13,440		15,770		11,934	

Source: Data request GO-36

Unaccounted-for gas (UFG) can be characterized as an indirect measure of the effectiveness of the replacement program. UFG is monitored by the companies monthly and reported to the Commission annually<sup>26</sup>. UGI South, UGI North, and UGI Central employ a similar methodology for determining UFG levels for each rate district. In simple terms, UFG is the difference between sendout less sales and company use. Sendout is defined as the gas supply that enters the distribution system from sources that include delivered gas to city gates, gas produced from wells, storage gas returning to the system, etc. Meanwhile sales include actual customer usage through meter reads, which may be adjusted for various corrections such as timing. For example, net unbilled sales account for timing differences between meter reads and sendout measurements. Lastly, company gas use is related to the operation of the distribution system (i.e., gas used in compressors, buildings, etc.). UFG for the last five fiscal years is shown in Exhibit VII-8. As evident from the exhibit, UGI South and UGI North have reported extremely low UFG levels. To wit, UGI South has reported UFG of less than 0.20% in each of the five years examined.

<sup>26</sup> UFG is reported to the Commission on annual financial statements (Jan 1 thru Dec 31) and on UFG reports (Sep 1 thru Aug 31) in accordance with filing requirements established by the rule-making order entered April 4, 2013, at Docket # L-2012-2294746.

**Exhibit VII-8**  
**UGI Utilities, Inc.**  
**Unaccounted-for Gas (Mcf)**  
**For the Fiscal Years Ended September 30, 2014 - 2018**

	2014	2015	2016	2017	2018
<b>UGI South</b>					
Sendout	121,279,204	129,265,624	124,503,376	126,460,454	127,956,726
Sales	121,116,082	128,888,141	124,821,373	126,214,103	127,557,002
Company use	156,185	170,123	149,143	171,649	181,993
UFG	6,937	207,360	(467,140)	74,702	217,731
Percent UFG	0.01%	0.16%	-0.38%	0.06%	0.17%
<b>UGI North</b>					
Sendout	61,824,426	58,880,304	64,824,564	93,332,633	110,381,853
Sales	61,526,522	58,256,353	63,758,090	93,030,417	109,784,486
Company use	89,828	103,833	77,903	79,365	88,566
UFG	208,076	520,118	988,571	222,851	508,801
Percent UFG	0.34%	0.88%	1.52%	0.24%	0.46%
<b>UGI Central</b>					
Sendout	26,647,407	26,789,499	24,490,543	24,756,643	27,544,341
Sales	26,021,643	26,374,496	23,979,694	24,168,147	26,835,836
Company use	52,805	49,044	43,306	47,284	46,644
UFG	572,959	365,959	467,543	541,212	661,861
Percent UFG	2.15%	1.37%	1.91%	2.19%	2.40%

Source: Data request GO-35

## **Findings and Conclusions**

Our review of Gas Operations at UGI Utilities included a review of the operation and maintenance policies and procedures, main replacement program, leak surveys, leak repair backlogs, damage prevention program, unaccounted for gas levels, capital expenditure trends, staffing levels, contractor utilization, etc. Based on our review, additional efforts should be devoted to improving its gas operations by addressing the following:

- 1. Third-party damages at UGI North are higher relative to UGI South and Central. Furthermore, the collection rate for billed damage claims at UGI North is low.**

The line locating function differs among the three divisions. Line locating at UGI South and UGI North is performed by a mix of third-party contractors and in-house personnel whereas all locating at UGI Central is performed in-house. Line locate

requests received by the company are screened<sup>27</sup> using three different systems at each of the divisions. Company management indicated that with Phase 3 implementation of the UNITE project it would like to bring all three divisions under one platform for screening incoming locate requests. Exhibit VII-9 illustrates the number of line locates received, cleared and marked at UGI. As evident from the exhibit, the number of locate requests received increased significantly between 2017 and 2018 which was attributed primarily to contractors continually updating their PA One Call tickets as the projects increased in scope and complexity and the implementation of Act 50<sup>28</sup>.

**Exhibit VII-9**  
**UGI Utilities, Inc.**  
**Line Locates Received, Marked and Cleared**  
**For the Fiscal Years Ended September 30, 2014 - 2018**

	2014	2015	2016	2017	2018
Locate Tickets Received	230,501	253,412	261,171	272,171	307,638
Total Marked	105,628	116,410	116,148	114,360	128,615
Total Field Clear	52,930	59,612	60,613	65,554	72,632
Total Office Clear	71,943	77,390	84,410	92,257	106,391

Source: Data request GO-34

The effectiveness of line locating is critical for damage prevention. For fiscal year 2018, among the five primary key performance indicators (KPI), the company had a damage prevention target of 1.8 damages/1,000 tickets received. Exhibit VII-10 illustrates the damage prevention statistics for UGI Utilities and each of its rate districts: UGI South, UGI North, and UGI Central. Over the last five years, UGI South and UGI Central have performed within the KPI targeted levels; however, UGI North, although trending positively, performed much worse than the established KPI. The auditors benchmarked UGI Utilities' damages/1,000 locates received with six similar sized PA NGDCs. The average damages/1,000 locates received for the peer NGDCs was 2.41 in 2016 and 2.33 in 2017, which is significantly lower than UGI North's damages/1,000 locates received for similar years of 3.85 and 3.43.

<sup>27</sup> Screening allows the company to compare a locate request to facility maps. When there are no company facilities in the locate area, the company is not required to mark anything.

<sup>28</sup> As of April 28, 2018, Act 50 brought about several changes to oversight and enforcement of the One Call law. Enforcement, which used to be under Labor & Industry's jurisdiction, was transferred to the PUC who now has the authority to levy fines against violators of the One Call law, including excavators.

**Exhibit VII-10**  
**UGI Utilities, Inc.**  
**Damage Prevention Statistics**  
**For the Fiscal Years Ended September 30, 2016 - 2018**

	2016	2017	2018
	<b>UGI Utilities</b>		
Damages/1,000 tickets received	1.98	1.59	1.52
Damages/1,000 tickets marked	4.45	3.79	3.63
UGI Utilities at-fault damages	156	133	120
Contractor at-fault damages	363	301	348
	<b>UGI South</b>		
Damages/1,000 tickets received	1.43	1.10	1.19
Damages/1,000 tickets marked	3.05	2.58	2.82
UGI South at-fault damages	47	58	54
Contractor at-fault damages	159	111	155
	<b>UGI North</b>		
Damages/1,000 tickets received	3.85	3.43	2.83
Damages/1,000 tickets marked	7.33	6.29	5.17
UGI North at-fault damages	86	53	49
Contractor at-fault damages	133	147	133
	<b>UGI Central</b>		
Damages/1,000 tickets received	1.53	1.07	1.11
Damages/1,000 tickets marked	4.91	3.71	3.91
UGI Central at-fault damages	23	22	17
Contractor at-fault damages	71	43	60

Source: Data requests GO-15 and GO-46

Several districts in UGI North's service area such as Archbald, Bloomsburg, Williamsport, and Southpoint have consistently experienced higher third-party damage rates than other UGI districts. The company indicated that higher third-party damage rates in UGI North's service territory are primarily due to water and sewer contractors that damage correctly marked facilities or other contractors that fail to submit locate requests. The company anticipates Act 50 implementation will encourage positive behavior among contractors and decrease third-party damages. With Act 50 implementation, the company has started tracking monthly damage data by individual contractors whereby two or more damages within six months by the same contractor would trigger an alleged violation report (AVR) to the Commission.

As shown in Exhibit VII-11, damage collection rates for UGI North have steadily declined and remained consistently lower than UGI South and UGI Central over the 2014 to 2018 period. The company indicated that more of UGI North's collection efforts enter litigation than the other rate districts. Therefore, it can take several years before damage amounts are collected from the responsible party. Furthermore, UGI North historically had lower capture rates of supporting documentation such as photos and videos making the collection efforts difficult. Company management indicated that this is changing with Act 50 implementation where in-house and third-party locators are required to take detailed photos of the facility before and after damages.

**Exhibit VII-11**  
**UGI Utilities, Inc.**  
**Damage Collection Efforts**  
**For the Fiscal Years Ended September 30, 2014 - 2018**

	2014	2015	2016	2017	2018 <sup>1</sup>
<b>UGI South</b>					
Amount billed	\$369,931	\$308,304	\$485,913	\$273,568	\$480,319
Amount collected	\$307,952	\$231,407	\$373,961	\$227,554	\$196,048
Percent collected	83.2%	75.1%	77.0%	83.2%	40.8%
<b>UGI North</b>					
Amount billed	\$218,779	\$218,225	\$283,371	\$319,526	\$286,313
Amount collected	\$159,750	\$143,094	\$178,455	\$189,798	\$81,212
Percent collected	73.0%	65.6%	63.0%	59.4%	28.4%
<b>UGI Central</b>					
Amount billed	\$126,448	\$117,623	\$128,212	\$106,322	\$131,576
Amount collected	\$105,430	\$99,082	\$96,673	\$84,498	\$45,386
Percent collected	83.4%	84.2%	75.4%	79.5%	34.5%

<sup>1</sup> Due to several cases entering litigation, collection for 2018 damage bills will take longer to realize.

Source: Data request GO-15

An effective damage prevention program consists of several elements that aim to reduce the risk of damages through public awareness, enforcement, public and employee education, locator training, stakeholder communication, etc. Furthermore, benefits such as reduced infrastructure costs, reduced gas loss, and most importantly, improved safety would be realized through an effective damage prevention program. In addition, the auditors determined that if UGI North were to bring its collection rate in line with that of UGI South and UGI Central (i.e., 80%), the company would have been able to collect an additional \$300,000 over the years 2015 through 2018. As UGI Management indicated, they have made several changes at UGI North as a result of Act 50 that should improve both damage prevention and collection performance.

**2. UGI North has experienced a higher number of main leaks compared to other rate districts and has a high inventory of outstanding Class A leaks.**

UGI Utilities maintains a consolidated Gas Operations Manual (GOM) that contains detailed procedures on the operations and maintenance of tasks such as welding, corrosion control, leak surveys, etc. The GOM also provides definitions on classifying leaks that are in line with the Gas Piping Technology Committee (GPTC) guidelines, with corresponding action criteria for repairing and/or re-evaluating leaks. The company uses the A-B-C class scale that runs in reverse of the GPTC 1-2-3 grading scale (i.e., Class A is Grade 3, Class B is Grade 2, and Class C is Grade 1) as defined in Exhibit VII-12.

**Exhibit VII-12**  
**UGI Utilities, Inc.**  
**Leak Classification Definitions and Action Criteria**  
**As of December 31, 2018**

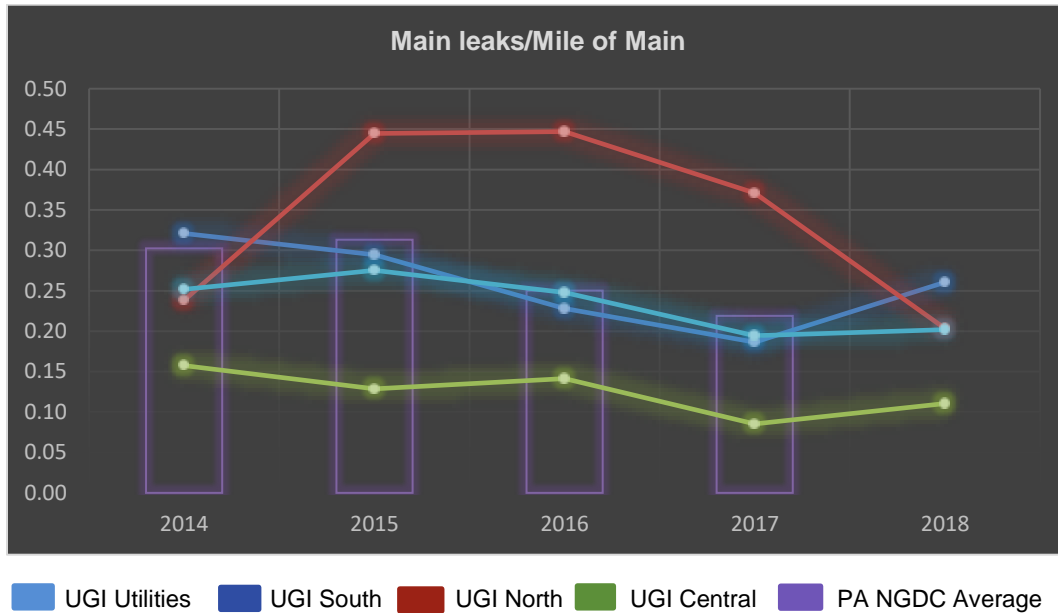
Class	Definition	Action Criteria
Class C (Grade 1)	Leak that represents an existing or probable hazard to persons or property	Requires prompt action to protect life and property and continuous action until the conditions are no longer hazardous
Class B (Grade 2)	Leak that is recognized as being non-hazardous at the time of detection, but justifies a scheduled repair	Should be repaired or cleared within one calendar year but no later than 15 months from the date of the leak classification.
Class A (Grade 3)	Leak that is non-hazardous at the time of detection and can be reasonably expected to stay non-hazardous	Should be re-evaluated during the next scheduled survey, or within 15 months from the date of the leak classification, whichever occurs first, until the leak is regraded or no longer results in a reading.

Source: Data request GO-1

UGI North and UGI South outsource their leak survey functions; whereas, UGI Central performs leak surveys with internal personnel. The types and frequencies of leak surveys vary by rate district. As illustrated in Exhibit VII-13, leaks per mile of main and leaks per locate have trended positively for all three rate districts from 2015 to 2017. Nonetheless, the level of leaks per mile at UGI North have been higher except for 2018 than at UGI Central and UGI South. Furthermore, the number of hazardous leaks or Class C leaks have also been significantly higher at UGI North with most leaks due to corrosion and material/weld issues. To evaluate UGI's leak levels against its natural gas industry peers, the auditors calculated the average leaks per mile of main for six comparable PA NGDCs for the years 2014 through 2017. Although UGI South and UGI Central compared favorably to the panel average, UGI North was worse for the years 2015 through 2017.



**Exhibit VII-13**  
**UGI Utilities, Inc.**  
**Main Leaks per Mile of Main**  
**For Calendar Years 2014 through 2018**



Note: the PA NGDC panel consists of PECO Energy Company, Columbia Gas of Pennsylvania, Inc., National Fuel Gas Distribution Corporation, Peoples TWP, Peoples Natural Gas.  
Source: Data request GO-8 and DOT reports

The company's policy is more aggressive than the GPTC recommended guidelines with respect to Class A and B leaks. For example, the company reevaluates Class B leaks via walking surveys once every six months, not to exceed seven and one-half months unless the leak has been repaired or eliminated through replacement. Beginning in FY 2017, UGI established a goal of reducing Class B leaks by 15% annually. As a result, the Class B leak backlog for all rate districts has decreased significantly for the company overall from 816 leaks in 2015 to 285 leaks by December 31, 2018.

In contrast, the company's inventory of outstanding Class A leaks increased from 4,877 in 2015 to 5,238 in 2018 with a vast majority of the outstanding leaks occurring at UGI South and UGI North. Although UGI's leak classification code and GPTC's recommended guidelines require monitoring Class A leaks instead of performing repairs, UGI Central and UGI South repair 60% and 15% of its Class A leaks, respectively whereas, UGI North typically repairs less than 3%. Moreover, as of December 31, 2018, the percentage of outstanding Class A leaks per mile of main was 49% at UGI South, 12% at UGI Central, and 77% at UGI North.

Sometimes a leak worsens over time and must be shifted into another category. Exhibit VII-14 shows the number of Class A, B, and C leaks reclassified between categories for the years 2015 through 2018. Roughly 10%-13% of all outstanding Class A leaks worsen to B and C leaks each year and require additional attention or



immediate repair. Of the Class A leaks that worsen each year, 95% of this subset develop into Class B leaks, and the remaining 5% become Class C or hazardous leaks. In addition, although a majority of the Class A leaks are less than five years old, over 30% of Class A leaks are more than five years old with about 134 or 7% of the leaks being more than 30 years old.

**Exhibit VII-14**  
**UGI Utilities, Inc.**  
**Reclassified Leaks**  
**For Calendar Years 2015 - 2018**

		UGI South			UGI North			UGI Central		
		A	B	C	A	B	C	A	B	C
2015	Reclassified in	130	535	103	72	325	62	7	26	3
	Reclassified out	588	179	1	345	114	0	26	10	0
	Leaks Outstanding	<b>2403</b>	540	0	<b>1983</b>	218	3	<b>491</b>	58	1
2016	Reclassified in	123	338	41	80	303	28	7	13	5
	Reclassified out	362	140	0	319	92	0	13	12	0
	Leaks Outstanding	<b>2481</b>	300	1	<b>2038</b>	229	2	<b>411</b>	27	0
2017	Reclassified in	97	333	57	60	232	33	6	13	1
	Reclassified out	363	124	0	248	77	0	14	6	0
	Leaks Outstanding	<b>2635</b>	312	0	<b>1968</b>	130	4	<b>460</b>	32	1
2018	Reclassified in	97	293	39	78	209	27	10	14	2
	Reclassified out	316	113	0	224	89	1	14	12	0
	Leaks Outstanding	<b>2808</b>	263	2	<b>1988</b>	156	2	<b>442</b>	22	1

Note: Numbers reflect the number of reclassified leaks from one class to another and does not include new leaks found.

Source: Data requests GO-45 and GO-55

UGI maintains that Class A leaks are non-hazardous at the time of detection, reevaluated annually, and most remain non-hazardous (or Class A) for extended periods of time. However, as demonstrated in Exhibit VII-14, Class A leaks have the potential to become B or C leaks. Roughly 8% of outstanding Class A leaks worsen to B or C leaks each year and require additional attention or immediate repair. Although the audit staff agrees it is not prudent or cost effective to eliminate all Class A leaks, the company should develop a program to reduce the number of Class A leaks before becoming potential hazards.

### **3. UGI Utilities is consistently falling short of its safety KPI goals.**

UGI Utilities maintains a Safety and Health Manual covering topics such as personal protective equipment (PPE), confined space entry, electrical safety, occupational health and wellness programs, etc. In addition, the company contends that it views safety as a core value and has a goal of achieving top decile performance

compared to its American Gas Association (AGA) peer companies in the areas of motor vehicle accident (MVA) rates, Occupational Safety and Health Administration (OSHA) recordable injuries, and OSHA recordable MVA rates. Exhibit VII-15 illustrates the OSHA Recordable Injury Rate, Preventable MVA Rate, and Recordable MVA Rate for UGI Utilities and compares it with the company's safety KPI and the AGA's equivalent sized companies' first quartile and first decile rates.

**Exhibit VII-15**  
**UGI Utilities, Inc.**  
**OSHA Recordable Injury and MVA rates**  
**For the Fiscal Years Ended September 30, 2014 - 2018**

	UGI Utilities					KPI	AGA 1 <sup>st</sup> Quartile	AGA 1 <sup>st</sup> Decile
	2014	2015	2016	2017	2018	2018	2018	2018
OSHA Recordable Injury Rate	4.21	2.82	2.15	2.91	2.47	2.48	1.08	0.74
Preventable MVA rate	5.54	4.47	3.99	3.42	4.36	1.88	1.73	1.08
Recordable MVA rate	9.06	7.66	7.47	6.32	n/a	n/a	4.61	3.74

Source: Data request GO-29

UGI Utilities has achieved its 2018 KPI target for the OSHA Recordable Injury Rate but did not achieve its Preventable MVA rate KPI target. The company indicated that 80% of motor vehicle accidents involve striking fixed objects. Some districts historically experience higher incident rates than others. In 2018, UGI implemented the Vehicle Safety Program (VSP) aimed at reducing preventable MVAs.

To improve its safety rates and the overall safety perception within the company, UGI Utilities hired DuPont Sustainable Solutions (DSS) to initiate a Safety Culture Transformation Program (SCTP). The SCTP began in June 2018 with the initial phase focused on a safety culture assessment that included a safety perception survey, site visits, focus group interviews, documentation review, and assessment of several safety programs<sup>29</sup> currently in place. Based on the initial assessment, the company and DSS embarked upon the second phase of the SCTP in December 2018 which included company-wide presentations and the release of a new vision statement. In March 2019, the company planned to kick-off safety initiatives in three areas: OSHA Voluntary Protection Program (VPP), technical training, and driver safety. UGI indicated that it plans to continue using DSS to drive a multi-year safety culture program. In addition, UGI has developed a Safety Culture Steering Committee composed of the CEO, COO, and VP's of Operations and Engineering, among others.

Under federal law, employees are entitled to a safe workplace and the Occupation Safety and Health Act requires all employers to follow specific guidelines in

<sup>29</sup> Safety programs and initiatives at UGI cover a range of areas including driver safety, vehicle safety, safety leadership training, safety incentive program, VPP certification, nurse triage, incident investigations, etc.

creating safe and healthy workplaces. UGI Utilities recognizes that safety should be a shared responsibility between management and its employees. Management expressed interest in improving safety and believes it must gain partnerships with union leadership and employees to be successful. UGI Utilities also recognizes that a positive safety culture can improve behavior and performance in the workplace. Audit staff agrees with the company's assessment and further believes that the implementation of the SCTP will aid the company in meeting its safety KPI and goal of achieving AGA top decile performance. However, it is important to note that changing culture takes time and a consistent approach.

#### **4. UGI South continues to identify locations with mercury regulators still in service.**

Gas companies installed mercury regulators from the 1940s to the mid-1960s as a safety device, that monitored gas flow in homes, containing a small amount of mercury in a sealed cup that helped release excess pressure. Although mercury provided several operational benefits, it is now considered a toxic substance according to the Toxic Substance Act of 1976 (15 U.S.C § 2601). Although UGI North and UGI Central have removed all mercury regulators within their distribution systems, UGI South continues to identify customer locations with mercury regulators. During the 2016 Management Efficiency Investigation, the company had established an accelerated mercury regulator replacement program and had a goal of removing or replacing all 5,717 known mercury regulators by December 31, 2018. By the end of 2018, removal of all known mercury regulators was only completed in Lehigh and Lancaster districts but was still ongoing in the Harrisburg and Reading districts with 297 regulators remaining.

The company indicated that mercury regulators continue to be identified in all areas while conducting normal operational duties. Exhibit VII-16 illustrates the number of mercury regulators originally and subsequently identified and remaining in service as of November 20, 2018.

**Exhibit VII-16  
UGI Utilities, Inc.  
Mercury Regulators  
As of November 30, 2018**

	Identified	Removed	Remaining
Original Plan (as of Sept. 2014)	5,717	5,420	297
Additional Regulators (since Sept. 2014)	1,357	1,124	233
Total	7,074	6,544	530

Source: Data request GO-48

In 2018, UGI implemented an enhanced mercury regulator removal program to develop a comprehensive understanding of all mercury regulators in its system. The program entailed system research, canvassing for potential mercury regulator locations,

and subsequent removal of any devices found. Consequently, UGI South plans to canvass approximately 262,000 customers in its service territory with expectations of identifying additional mercury regulators. For example, in January 2019, the company canvassed 65,000 customer locations and identified 237 new mercury regulators. The company indicated that mercury regulator removal has been impeded by access issues, which are being addressed through legal complaints and shut-off notifications.

The company indicated that inaccurate records is the primary reason it continues to find mercury regulators in its service territory. Mercury is considered a toxic substance and, if released into the atmosphere, would require a hazardous material response, posing lingering health concerns if not properly remediated in a timely manner. Due to the increased environmental liability from mercury regulators, specialized removal procedures, and customer and employee safety, it is recommended that the company aggressively identify customer locations with mercury regulators and accelerate the safe removal and disposal of these devices within its service territory. Although the company has deployed additional resources to identify locations, more actions should be considered to expedite the process.

#### **5. UGI does not have a centralized training facility.**

UGI has six regional training centers in Lehigh, Reading, Wilkes-Barre, Port Allegany, Lewistown, and Middletown. These training centers have grown over time as a result of the acquisition of PNG and CPG. Although these training centers meet some needs (i.e., routine web-based training and some mock-leak investigation capabilities), the training centers do not provide access to live gas training and real-world equipment. The regional training centers were built decades ago, some containing outdated equipment. Meanwhile, certain critical functions requiring specialized training or equipment, such as tapping and stopping, are not offered at all facilities. Furthermore, most of the current training centers do not have the ability to train employees on larger projects/equipment, have limitations on the number of employees it can train, and use different training procedures.

To address these shortcomings, the company had been planning to build a centralized training facility for the last five years. In 2018, the company received UGI Corp.'s commitment to build a centralized training center, which it expects to complete by late 2020 or early 2021. In addition, the Company has reported its intention to build a centralized training facility to the Commission in at least two filings, its most recent rate case and its Long-Term Infrastructure Improvement Plan. The company anticipates the centralized training facility will include a "safety town" for real-life outdoor training inclusive of leak pinpointing and investigation, and a separate welding and tapping center. In addition, the facility would include offices, meetings rooms, a safety lab, metering and regulation lab, and a computer lab. UGI Utilities expects to design the new facility to provide hands-on training in four primary areas: safety, construction and maintenance, measurement and regulation, and utility service. UGI Utilities plans to continue using the regional training centers for localized training and table-top exercises.

Under the Operator Qualification (OQ) rule, each pipeline operator has a responsibility to develop an OQ program, follow its written OQ plan, and define the training and qualification requirements for personnel performing covered tasks on its pipeline facility as defined by 49 CFR Part 192, subpart N. Furthermore, it is the operator's responsibility to ensure that its contractors and vendors comply with the program requirements. Therefore, a centralized training facility would help facilitate and modernize the OQ training program by allowing UGI Utilities to provide the needed training, access to equipment, etc. In addition, a centralized training center would help improve the company's safety culture, promote a safe work environment, and aid in standardizing practices and procedures.

**6. Emergent and non-emergent work definitions are not adequately documented and/or communicated at each of the companies and non-emergent overtime has been high at some districts.**

Overtime (OT) at UGI Utilities is generally driven by work type and delineated by job code in the work management system. Emergent or "unplanned" activities are non-discretionary emergency activities or time-sensitive activities including leak response, odor calls, leak repairs, service activation, etc. and any work that emerges from O&M work such as leak surveys, main and service repairs, etc. Non-emergent or "planned" activities tend to be discretionary in nature and do not warrant an immediate time-sensitive response such as capital work, annual compliance activities, meter changeouts, turn-ons/shut-offs, valve/meter/regulator maintenance, etc.

Emergent and non-emergent work guidelines have been in place since 2008 when UGI Utilities acquired PPL Gas (later known as CPG and now UGI Central). Although no specific definitions are documented, the company has loose guidelines on the definitions of emergent and non-emergent work. The auditors noted that the overtime guidelines are not always followed. There is inconsistency between operation groups in assigning work as either emergent or non-emergent. In addition, because emergent work is not always emergency work (i.e., it can also include maintenance work such as repairs, leak surveys, etc.), management is unable to identify how much overtime is discretionary or emergency related.

Consequently, one of UGI Utilities' primary key performance indicators is to reduce non-emergent OT for each operating district. For fiscal years 2017 and 2018, several districts in UGI's service territory exceeded its non-emergent OT goals with some districts like Archbald, Reading, Shippensburg, etc. exceeding their goals by 40% to 50%. The company also exceeded its overall non-emergent OT goal in 2018. Emergent and non-emergent OT for fiscal years 2014 through 2018 are shown in Exhibit VII-17. The exhibit illustrates that over this five-year timeframe, the percentage of emergent OT has been decreasing while the percentage of non-emergent OT has been increasing. Non-emergent OT as a percentage of total OT at UGI North and UGI South has consistently hovered around 30% whereas non-emergent OT at UGI Central has been much higher, comprising approximately 50% of overall overtime.

**Exhibit VII-17**  
**UGI Utilities, Inc.**  
**Emergency and Non-emergent OT**  
**For the Fiscal Years Ending September 30, 2014 through 2018**

	Emergent OT	Non-Emergent OT (Actual)	Non-Emergent OT (Goal)	Regular Time	Total OT	% Emergent	% Non-Emergent
2014	76,134	28,313	-	817,942	104,447	72.9%	27.1%
2015	76,050	28,560	-	867,135	104,610	72.7%	27.3%
2016	57,491	23,458	26,561	872,960	80,949	71.0%	29.0%
2017	56,369	25,280	25,440	881,790	81,649	69.0%	31.0%
2018	55,769	25,675	24,154	930,516	81,444	68.5%	31.5%

Source: Data requests GO-17 and GO-41

Overtime, specifically for emergencies such as odor calls, etc., is an essential and unavoidable component for natural gas distribution companies. Meanwhile, overtime for non-emergencies such as meter changeouts, annual compliance activities, etc. should be based on a business decision creating a clear distinction between these two uses of emergent overtime. The audit staff contends UGI Utilities' definition of overtime is confusing, misleading and should be revised to capture emergency, O&M, capital, and general overtime categories. Furthermore, the company should consider documenting the descriptions and communicating and/or training its district supervisors to ensure overtime is captured correctly.

### **Recommendations**

- 1. Continue to reduce the number of third-party damages and increase the damage collection rate at UGI North.**
- 2. Decrease the inventory of outstanding Class A leaks and continue to reduce the number of main leaks at UGI North.**
- 3. Maintain focus on safety with the objective of meeting or exceeding safety KPI goals.**
- 4. Continue accelerated efforts to identify and safely remove and dispose of all mercury regulators in UGI South's service territory.**
- 5. Follow through on plans to develop a centralized training facility to aid in OQ training.**
- 6. Consider redefining emergent and non-emergent work and train supervisors on the usage of overtime and continue to work to reduce overtime that is not related to an emergency.**

## VIII. ELECTRIC OPERATIONS

### **Background**

UGI Utilities is composed of two regulated divisions consisting of a natural gas distribution operation (UGI Gas Service Division or UGI Gas) and an electric distribution company (UGI Electric Service Division or UGI Electric). The UGI Electric Division provides service to 62,219 customers in Luzerne and Wyoming counties. UGI's electric transmission system operates at 66kV (kilovolt) and 230kV, and interconnects twelve 66kV-13kV distribution substations and one bulk electric 230kV-66kV substation. UGI Electric and PPL Electric Utilities are surrounded by PPL Electric Utilities and have several 66kV/69kV tie lines. The number of customers in UGI Electric's service territory for the years ending 2014 through 2018 are shown in Exhibit VIII-1. While the number of customers increased by about 0.4% from 2014 to 2018, the kWh sold increased by 3.4%, from 975.8 million kWh in 2014 to 1.009 billion kWh in 2018.

**Exhibit VIII-1**  
**UGI Electric Division**  
**Annual Average Number of Customers**  
**For Calendar Years 2014 through 2018**

	2014	2015	2016	2017	2018
Residential	54,358	54,255	54,280	54,404	54,475
Commercial	7,404	7,391	7,426	7,454	7,528
Industrial	161	155	153	154	153
Other*	65	64	64	64	63
Total	61,988	61,865	61,923	62,076	62,219

Source: PUC Annual Reports

\*Includes metered sales, unmetered sales for resale, and other unmetered sales.

Although the Chief Operating Officer (COO) is ultimately responsible for all operations at UGI Utilities, the Electric Division's operations are the specific responsibility of the Director Engineering and Operations, who has four Senior Managers, a Principle Line Clearance Leader, a Principle Electrical Safety and Operations Support Leader, and an Administrative Assistant as direct reports. The Senior Managers' responsibilities are divided between Distribution Engineering and Operations, System Operations and Planning, Substation and Metering, and Standards and Transmissions. These Senior Managers oversee between five and eight direct reports consisting of engineers, technicians, supervisors, linemen, project leaders, and analysts. In addition, UGI Electric outsources work to contracted crews, averaging about 30 linemen and 20 vegetation management contractors. Contractors are also

used for underground installations, relamping<sup>30</sup>, transmission work, and substation construction.

In late 2017, UGI Electric added a full-time safety position in response to an internal survey and subsequent analysis by a contractor. This individual developed a safety manual and started a safety committee. In addition, this safety employee focuses on improving and developing training programs, as well as holding regular safety meetings. Root cause analyses is also used following incidents to make changes as needed. These programs and focus on safety have, at least partially, led to the Electric Division having no OSHA reportable injuries in 2018.

Exhibit VIII-2 displays reliability data for UGI Electric for calendar years 2014 through 2018. The exhibit not only trends the reliability data for the given period but also provides context with company performance relative to PUC benchmarks and standards. SAIFI (System Average Interruption Frequency Index) is the number of interruptions per customer per year. SAIDI (System Average Interruption Duration Index) is the average outage duration per customers served. CAIDI (Customer Average Interruption Duration Index) is the average outage duration that any given customer would experience. It can be thought of as the average restoration time and is calculated as SAIDI/SAIFI. CEMI (Customers Experiencing Multiple Outages) specifically refers to the number of customers experiencing four or more outages in a given year.

**Exhibit VIII-2  
UGI Electric Division  
Reliability Data  
For Calendar Years 2014 through 2018**

	SAIFI (customers)	SAIDI (minutes)	CAIDI (minutes)	CEMI**
2014	24	41	103	4,021
2015	26	63	144	278
2016	38	78	125	2,070
2017	30	64	131	1,346
2018	72	219	183	2,471*
12-Month Standard	67	256	228	N/A
12-Month Benchmark	50	140	169	N/A

\*As of June 30, 2018

\*\*CEMI is the number of customers experiencing four or more outages.

Source: Data Request EO-1 and UGI Utilities, Inc. – Electric Division Annual System Reliability Reports (2014-2018).

UGI Electric's reliability performance has worsened in all categories from 2014 to 2018 primarily due to significant storm activity, and persistent wetness that caused more tree-related damage in 2018. However, until 2018, UGI's performance was still below its PUC standard and benchmark. In 2018, SAIFI rose above both the standard and

<sup>30</sup> Relamping is the practice of changing the bulbs in a lighting fixture.



benchmark, whereas both SAIDI and CAIDI resided between benchmark and standard performance. To improve reliability, UGI Electric is working on adding tie lines between existing trunk lines, which allows for the potential to back feed customers. In addition, the company has increased funding for its vegetation management program, which allows the company to target trouble spots. Furthermore, UGI Electric began a sectionalizing program, utilizing roughly 25 automatic switches with remote visibility and control, which allows smaller circuits to be quickly isolated during an outage resulting in fewer customer outages. Therefore, sectionalizing programs often lead to an improvement in SAIFI, but can have an adverse impact on CAIDI. Generally, UGI Electric targets poor performing circuits for sectionalizing.

In spring 2019, UGI Electric also began a program to inspect, repair/replace, and transition ownership of “Company Owned Services<sup>31</sup>” to the customer. Specifically, the program targets underserved customers with aging/antiquated service facilities, etc. Once any required code upgrades are completed and approved by an electrical inspector, service is then turned over to the customer. While the program improves safety and reliability, it also allows customers to expand electrical usage (i.e., the service can now support additional appliances). This program is expected to take at least 10 years to complete with a target of less than 5,000 customers.

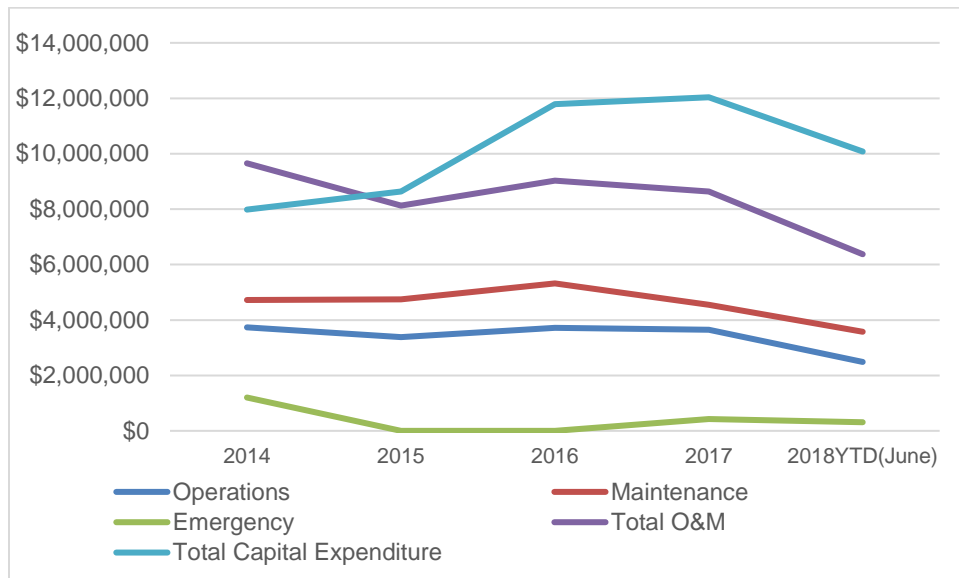
UGI Electric’s operating and capital expenditures for the fiscal years 2014 through June 2018 are shown in Exhibit VIII-3. Emergency spending spiked in 2014 due to one large storm requiring activation of mutual aid agreements. In addition, storm activity through June of 2018 may result in increased O&M spending, highlighting the impact of weather on UGI Electric. The lower spending levels shown for all categories in 2018 reflect only partial year fiscal results<sup>32</sup>.

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<sup>31</sup> This includes the service entrance cable, meter sockets, panel boxes, main breakers, and 240-volt breakers.

<sup>32</sup> UGI’s fiscal year ends on September 30<sup>th</sup>, while data ended on June 30<sup>th</sup>.

**Exhibit VIII-3  
UGI Electric Division  
Operating and Capital Expenditures  
FY2014 through FY2018YTD**



\*2018 YTD represents data ending in June 2018.  
Source: Data Requests EO-5, EO-15, and FM-4

## **Findings and Conclusions**

Our examination of the Electric Operations function included a review of policies and procedures, engineering and construction, operations and maintenance, damage prevention, reliability, budgeting, tree trimming, the worst performing circuit program, storm response and restoration, and the Outage Management System (OMS). Based on our review, UGI Electric should devote additional efforts to improve its distribution operations by addressing the following:

### **1. UGI Electric response times for emergency outage calls have been improving, but more work is needed.**

UGI Electric identifies outages through multiple means such as customer calls, internal systems, company personnel, etc. Once notified, the company will dispatch a crew to make repairs. The company tracks response time and restoration time, the latter being captured in electric reliability indices (i.e., SAIDI and CAIDI). Response time is defined as the time from the initial outage notification to the lineman arriving on scene to begin the repair. UGI Electric's response times are shown in Exhibit VIII-4.

**Exhibit VIII-4**  
**UGI Electric Division**  
**UGI Electric Response Times**  
**Calendar Year 2014 through 2018**

Year	2014	2015	2016	2017	2018*
Response Time (Hours)	1.62	1.32	1.31	1.08	1.13

\* Represents data ending June 30, 2018.

Source: Data Request EO-12

As can be seen in Exhibit VIII-4, response times have improved since 2014. The company attributes this improvement to a more streamlined communications process between systems operators and crews and the deployment of trouble trucks after work hours. Nonetheless, the average response times for emergency/outage calls exceeds an hour. Management indicated that even with trouble trucks deployed, response to emergencies/outages may still be impacted by conditions at a previous worksite (i.e., safely securing the site to perform the work) or deploying resources from their home.

UGI does not differentiate between types of outage calls when tracking response times. For instance, some utilities have separate criteria for responding to priority or life threatening calls, where a person is trapped and the electric line is preventing their rescue, then less serious outages. However, the company will dispatch a wire watcher to guard the wire and keep the public safe in case of a downed wire. Unfortunately, the wire watcher is unable to fix the outage but provides a valuable public safety service.<sup>33</sup>

Minimizing the response times for emergency outage calls has a host of benefits including protecting life and property, minimizing outage duration, improving customer satisfaction, etc. As mentioned before, UGI Electric has reduced emergency response times by improving communications, deploying trouble trucks, etc. These existing strategies should be optimized (i.e., modifying where and how trouble trucks are deployed, considering additional resources, additional communication, etc.) to continue the reduction in response times. In addition, UGI Electric should begin tracking response times to prioritize emergencies with the response goal to make the site safe, in addition to and separate from tracking full restoration, as is currently done. Furthermore, tracking non-emergency response times and priority emergency response times separately will give the company a clearer picture of its performance.

## **2. UGI Electric lacks an Energy Management System.**

UGI Electric's distribution circuit breakers are monitored by a Supervisory Control and Data Acquisition System (SCADA), which provides real-time monitoring and control functionality but does not perform any analysis or load estimation. UGI Electric's transmission SCADA system can provide telemetry to PJM Interconnection LLC (PJM),

<sup>33</sup> Wire watchers do not count towards UGI Electric's response time. However, in a tiered approach, it may be worthwhile to track how quickly the company responds to a priority outage by when it makes the site safe, in addition to tracking when service is restored.

and can receive select data points from PJM's Energy Management System (EMS). In addition, UGI Electric's SCADA system provides thermal ratings and generation input back as data points but lacks the capability to analyze this data as an EMS would. The SCADA system also does not provide real-time data on failures/faults except for a few smart devices.

Electric distribution companies have been deploying smart devices to enable more efficient identification of outages for faster response, improve congestion, optimize system configuration, etc. To optimize new technological equipment, additional infrastructure is needed, particularly systems like EMS. In particular, EMSs can analyze load and usage, provide additional control of the distribution system to increase efficiency, leverage long-term historical data to optimize upgrades, etc. While UGI Electric does not have an EMS, it tries to leverage its SCADA and outage management systems to provide some functions of an EMS. Full scale deployment of an EMS may not be economically feasible for UGI Electric, but certain features of an EMS would benefit the company. Therefore, the company should create a business case for an EMS as well as other alternatives. To this effect, UGI Electric should consider incorporating some EMS functionality, such as the ability to perform real-time contingency analysis and load restriction, into its SCADA system or build similar functionality in another system.

### **Recommendations**

- 1. Establish and track response times by subcategories and take corrective action to continue improving response times for emergency outage calls.**
- 2. Investigate the costs and related benefits of implementing some EMS features into the existing SCADA system.**

## IX. EMERGENCY PREPAREDNESS

### Background

Effective June 2005, 52 Pa. Code § 101 (Chapter 101) requires jurisdictional utilities to develop and maintain written physical security, cybersecurity, emergency response, and business continuity plans to protect the infrastructure within the Commonwealth of Pennsylvania and ensure safe, continuous and reliable utility service. Along with the requirement to establish these “emergency preparedness” plans, a utility is required to annually file a Self-Certification Form to the Public Utility Commission (PUC or Commission) documenting compliance with Chapter 101. This form, available on the PUC website, is comprised of 13 questions as shown in Exhibit IX-1.

**Exhibit IX-1**  
**Pennsylvania Public Utility Commission**  
**Public Utility Security Planning and Readiness Self Certification Form**

Item No.	Classification	Response (Yes–No–N/A*)
1	Does your company have a physical security plan?	
2	Has your physical security plan been reviewed in the last year and updated as needed?	
3	Is your physical security plan tested annually?	
4	Does your company have a cyber security plan?	
5	Has your cyber security plan been reviewed in the last year and updated as needed?	
6	Is your cyber security plan tested annually?	
7	Does your company have an emergency response plan?	
8	Has your emergency response plan been reviewed in the last year and updated as needed?	
9	Is your emergency response plan tested annually?	
10	Does your company have a business continuity plan?	
11	Does your business continuity plan have a section or annex addressing pandemics?	
12	Has your business continuity plan been reviewed in the last year and updated as needed?	
13	Is your business continuity plan tested annually?	

Source: Public Utility Security Planning and Readiness Self-Certification Form, as available on the PUC website at [http://www.puc.state.pa.us/general/onlineforms/pdf/Physical\\_Cyber\\_Security\\_Form.pdf](http://www.puc.state.pa.us/general/onlineforms/pdf/Physical_Cyber_Security_Form.pdf).

During fieldwork, the PUC audit staff reviewed the most recent (i.e., 2017) Self Certification Forms submitted by UGI Utilities, Inc., UGI Central Penn Gas, Inc., and UGI Penn Natural Gas, Inc. (collectively referred to as UGI Utilities or company). Our examination of UGI Utilities’ emergency preparedness included a review of physical security plans (PSP), cybersecurity plans (CSP), emergency response plans (ERP), business continuity plans (BCP), and associated security measures. In addition, the PUC auditors performed inspections at a sample of UGI Utilities’ facilities; including gate stations, regulator stations, substations, control centers, offices and storage facilities. Due to the sensitive nature of the information reviewed, specific information is not

revealed in this report but rather the generalities of the information reviewed are discussed.

The personnel assigned responsibility for testing, reviewing, and updating the physical security, emergency response, business continuity, and cybersecurity plans for UGI Utilities are as follows:

- Physical Security Plan – Director Security & Facilities
- Cybersecurity Plans – Sr. Manager Infrastructure Services
- Emergency Response Plan – Sr. Manager Standards & Materials, Director Engineering & Technical Services
- Business Continuity Plan – Director Security & Facilities, Director IT Systems Operations

## **Findings and Conclusions**

Our examination of Emergency Preparedness at UGI included a review of their physical security plans, cybersecurity plans, emergency response plans, and business continuity plans and all associated security measures. Based on our review of emergency preparedness efforts at UGI, the companies should initiate or devote additional efforts to improving their security planning and preparedness procedures by addressing the following:

### **1. Several facilities lack sprinkler systems.**

There are no sprinklers at many of UGI Utilities' facilities. According to the Society of Fire Protection Engineers, wet pipe sprinkler systems reduce fatality rates in a fire by 85% and are effective in 98% of incidents where only one sprinkler is activated. It is therefore a best practice to have wet pipe sprinkler systems installed in all buildings regularly used by employees.

UGI Utilities has many older buildings that do not have sprinkler systems installed. Consequently, in the event of a fire at one of these facilities, the likelihood of a fatality is increased by 689%<sup>34</sup> over facilities that do have wet pipe sprinkler systems, and the damage to property is likely to be much more significant. Not all of the companies' facilities are regularly occupied by employees or contractors, with some only being used when picking up materials. Therefore, the company should prioritize all facilities without a sprinkler system and identify those that are occupied regularly. This standard should be documented and facilities without sprinklers should be reevaluated routinely.

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<sup>34</sup> James A. Milke, Ph. D., P.E., FSFPE, "Effectiveness and Reliability of Fire Protection Systems." *SFPE*, Society of Fire Protection Engineers, 2014; [https://www.sfpe.org/page/2014\\_Q4\\_4/Effectiveness-and-Reliability-of-Fire-Protection-Systems.htm](https://www.sfpe.org/page/2014_Q4_4/Effectiveness-and-Reliability-of-Fire-Protection-Systems.htm)

## **2. Physical security at UGI Utilities is inconsistent and lacks sufficient resources.**

According to 52 Pa. Code (Section) 101.3(a), a jurisdictional utility shall develop and maintain written physical and cyber security, emergency response, and business continuity plans. Part of a successful physical security plan is devoting sufficient resources to ensure the plan is developed and followed.

The Director of Physical Security has one direct report for physical security, and no other staff dedicated to that function<sup>35</sup>. UGI has 1,300 locations including thirty-seven office buildings, five warehouses, 13 electric substations, and numerous gate stations and other support buildings, spread out over 47 counties in Pennsylvania. Although the office buildings, warehouses, substations, and gate stations, at a minimum should be inspected annually; the other locations, like valves, bridge crossings, regulator stations, etc. should be inspected from a security perspective periodically based on their criticality.

The Director of Physical Security and the direct report are responsible for the physical security plans at UGI. Additionally, this group developed and maintains the company's workplace violence training that was rolled out in 2018 and given to new hires and on a two-year cycle to all employees. The Director of Physical Security is also responsible for planning and implementing security system upgrades at UGI's facilities. In order to plan these upgrades, these two employees need to inspect all 1,300 company facilities to identify deficiencies and opportunities for improvement. These planning inspections need to occur periodically (e.g., 100% every 5 years/260 a year) and need to be conducted by security professionals. Security compliance inspections could be performed by specially trained operations employees as part of their regular maintenance checks, with security professionals periodically participating at offices, warehouses, substations, and gate stations. With only two professionals tasked with this work, the auditors believe insufficient resources are dedicated to physical security.

UGI Utilities has incorporated facilities from many smaller companies as the company has grown. This has resulted in equipment conditions and layouts that vary from location to location at company facilities. Security equipment manufacturers differ from facility to facility, making maintenance of this equipment a challenge. As a result, certain locations have non-functioning equipment. Meanwhile, other sites (i.e., gate stations) rely on other non-affiliated companies to maintain security, which at times is lax or in poor condition. If partnerships at these sites can not address security concerns, then the company should implement their own security infrastructure at these locations.

UGI Utilities has not devoted the resources necessary to ensure physical security at many of their facilities. The company does use operational employees to conduct period inspections of certain facilities; however, these employees are not typically trained or focused on security. As a result, historical differences have led to variations in

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<sup>35</sup> The Director of Physical Security also has two other direct reports, one focused on real estate management and the other on major building projects.

security quality and coverage from facility to facility. In addition, security deficiencies, mostly resulting from facility age, oversight, weather, or general wear and tear were observed during inspection of company facilities. These deficiencies varied in severity from minor to moderate. To reduce risks, UGI Utilities should correct the physical security deficiencies identified by the PUC auditors and perform ongoing physical security reviews of all facilities. To accomplish this, the company should consider methods to expand its resources through advanced security training for existing staff, increasing personnel dedicated to security, and/or utilizing outside resources.

### **3. The current Physical Security Plan (PSP) is insufficient.**

Prior to hiring the Director of Security and Facilities in May 2017, UGI Utilities did not have the in-house expertise to develop a comprehensive Physical Security Plan. As a result, the company has a limited PSP, which at the time of our field work was being revised. The replacement PSP is currently in draft form and will be accompanied by many of the security policies and programs currently missing in the current plan. For instance, the PSP discusses the card access system, which in most buildings is outdated and unsupported. Instead, the company is upgrading to a security event management system which will be actively monitored from a security operations center. UGI Utilities will also implement a security assessment for all facilities, which is not included in the current PSP.

The current Physical Security Plan (PSP) refers to an out-of-date leadership structure and does not define tiers of security. The company has not yet identified which facilities are critical. The current PSP identifies several threats but does not mention protecting access to company information as a goal. There is also no specific policy on the physical security of cyber equipment, which auditors identified multiple security deficiencies for UGI Utilities. The Electric Division has a separate Cyber Physical Security Plan, covering NERC requirements, but this plan is not administered by or the responsibility of the Director of Security and Facilities.

During audit field work, the draft PSP was a work in progress. The draft version the auditors reviewed covered many deficiencies in the existing PSP, but there were still parts missing. For instance, the draft PSP specifies physical security standards, including a layered approach, but does not define or mention tiers of security based on criticality. Tiers of security should be defined based on facility criticality, and the associated minimum-security specifications should be standardized. In addition, the draft PSP includes protection of company information as a critical goal, though it does not specify physical protection of cyber equipment.

The new Director of Security and Facilities has demonstrated that the draft PSP will improve the company's security stance and response readiness. However, there are still areas that could be improved, and the noted deficiencies discussed above should be included within this revision. Once updated, the PSP should be reviewed, updated and tested annually.



**4. The Director of Physical Security is not formally in charge of the Electric Division's security.**

As mentioned above, the Electric Division's separate Cyber Physical Security Plan is not administered by the Director of Security and Facilities. The Electric Division functionally manages its own security for the control center, with collaboration and support from the Director of Security and Facilities. As physical security should be the responsibility of UGI Utilities' expert on physical security, the Director of Physical Security and Facilities should have overall responsibility for all physical security, with the Director of Electric Operations in a supporting role as per the NERC-CIP requirements.

UGI Utilities has not clarified the chain of command and responsibility, especially with respect to the Electric Division, for physical security within its current PSP. It is a best practice to have one individual in charge of overall physical security, and a clearly defined chain of command and responsibility. In this case, it seems prudent to require all physical security to be the responsibility of the Director of Security and Facilities.

**5. Physical security penetrations tests, independent risk analyses, or vulnerability assessments have not been performed from a physical security perspective.**

According to 52 Pa. Code (Section) 101.3(a), a jurisdictional utility shall develop and maintain written physical and cyber security, emergency response, and business continuity plans. An essential element of maintaining these plans is evaluating them with respect to existing risk and functionality, and new and emerging threats. This evaluation should include regular penetration testing, independent risk analysis, and independent vulnerability assessments.

The current PSP does not include requirements for any kind of vulnerability assessment (VA), risk analysis, or penetration testing. The draft PSP discussed in Finding 2 specifies that each facility must complete a Facility Security Assessment (FSA) at least every three years to identify potential threats and vulnerabilities. These FSAs must identify primary threats and the potential impact to the respective facility; define the potential critical assets and how disruptions may affect overall operations; identify, evaluate, and prioritize risks; determine effective security measures to mitigate threats and vulnerabilities; and recommend security enhancements. These combine the functionality of a vulnerability assessment and a risk analysis. The FSAs, however, do not include any kind of penetration testing.

Although the BCP specifies that all departments must perform risk analysis and business impact analysis of their processes, it does not address physical security penetration testing or risk analysis from a physical security perspective. Consequently, a company-wide physical security or emergency preparedness review has not been conducted. The company is in the process of hiring a consultant to perform a vulnerability assessment with a target date of March 2019. Reportedly, UGI Utilities is

also looking for a software tool to help conduct internal VAs. Furthermore, the Cyber infrastructure has not undergone a physical security penetration test.

Although internal penetration testing and assessments are important, external penetration testing, risk analysis, and vulnerability assessments can be invaluable because they offer an independent outside perspective. Prior to hiring the Director of Physical Security, UGI did not prioritize testing physical security, performing risk analysis, or conducting vulnerability assessments. Accordingly, it did not perform penetration tests, risk analyses, or vulnerability assessments relating to physical security, which has historically diminished the company's physical security posture. Therefore, UGI Utilities should routinely perform physical security assessments, tests, etc., and should consider using outside resources periodically.

## **6. The Cybersecurity Plan (CSP) and related cybersecurity policies could be improved.**

A CSP should include guidelines for response to cyber incidents, identification and ranking of critical cyber components and systems, identification of how long the company can operate without critical cyber components, contacts for law enforcement and national security agencies, incident response guidelines and objectives, requirements for verification of vendor cybersecurity controls, a process to manage cybersecurity in the replacement or upgrade of network equipment, requirements for vulnerability assessment and risk analysis, requirements for conducting after-action reviews (AARs), and requirements to test and revise the plan annually.

Specifically, 52 Pa. Code § 101.3(a)(2) requires a cyber security plan, at a minimum, to contain the following:

- A list of critical functions requiring automated processing;
- Appropriate backup for application software and data, which may include separate distinct storage media for data or a different physical location for application software;
- Alternative methods for meeting critical functional responsibilities in the absence of information technology capabilities;
- A recognition of the critical time period for each information system before the utility could no longer continue to operate;
- Annual review and update to the plan; and
- Maintain and implement an annual testing schedule of these plans.

UGI Utilities' PSP clearly specifies that its main goal is to limit the impact of an information security incident to customers, partners, employees, and the company. The plan also identifies critical systems. Roles and responsibilities relating to cybersecurity are specified, and a response framework is defined, with detailed descriptions of the phases of an incident and what actions should be taken. Incident documentation requirements are also defined, based on security level. Overall, the plan is more akin to a cyber incident response document but lacks key features.

For instance, the CSP does not identify how long the company can operate without specific critical components. The business continuity plan (BCP) identifies critical components, but only on a facility level, as opposed to IT systems or software, which should be identified in the CSP. Identification of critical functions requiring automated processing is required in a CSP, as is the critical time period for each information system before the utility could no longer continue to operate. These critical times should be used to develop recovery time objectives (RTOs). Identification of critical components and RTOs enables the company to craft response plans or mitigating strategies to ensure the loss of software/IT systems doesn't cripple a company.

Other opportunities for improvement relate to inter-connectiveness of plans. There are no backup or restoration plans listed in the CSP. These are identified within the BCP but should be listed or referenced within the CSP. Cross-referencing enables users to quickly and effortlessly transition between security plans during an emergency. A number of other deficiencies or lack of documentation was evident within the PSP, this included:

- Patch management is not being done regularly or on time.
- There are regular scans of all network devices to collect information on current patches, but this standard does not require the frequency of the scan.
- The company performs audits, reviews, external analysis, etc. of their cybersecurity, but this is not mentioned in the CSP.
- Actual protective measures that the company utilizes, like the use of firewalls, virus protection, encryption, port security, etc., are also not specified or required in the CSP.
- Contact information for the internal cyber incident response team is given, but contact information is missing for local law enforcement, national security agencies, etc.
- There are no policies on the access and use of PII and other customer data.

Moreover, several key policies which are currently missing but are reportedly being drafted at the corporate level include the following:

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| • Asset Management                | • Mobile Device Management      |
| • Information Security Program    | • Removable Media               |
| • Third Party Risk Management     | • Encryption                    |
| • Security Awareness Training     | • Acceptable Use of Electronics |
| • Data Classification and Heading | • Clean Desk and Clear Screen   |
| • Vulnerability Assessment        | • Physical Environment Security |
| • Patch Management                | • Risk Management               |
| • Log Management and Monitoring   | • Remote Access                 |

UGI Utilities has the following policies in place:

- IT Document Management Standard

- IT Solution Development Life Cycle
- Access Management Standard
- Security Patch Management Patching Procedures
- Password Processing Options and Change Control Procedure

UGI Utilities has focused on cybersecurity procedures while neglecting cybersecurity policy, though the company has recently begun to take corrective action. The lack of comprehensive cybersecurity policy may lead to ineffective or conflicting cybersecurity strategies being employed by UGI Utilities' IT department, especially in the event of a change in leadership, systems, or employees of the IT department, or an incident where IT department leadership is unavailable. Therefore, the company should continue its efforts to document cybersecurity policies and address the noted deficiencies above.

## **7. Communication of the gas operation's SCADA system is a security concern.**

It is a best practice to ensure that the communication of Supervisory Control and Data Acquisition (SCADA) systems are as secure as possible. However, the company was utilizing existing communication backbones that limited security and/or strategies. Fortunately, the SCADA system collects and reports data, but does not allow for direct automatic control of network equipment. The company has started to rectify the communications integration, and to upgrade the SCADA system's backup capabilities.

## **8. UGI Utilities' Business Continuity Planning needs to be improved.**

The Business Continuity Plans (BCP) are split by department with each department maintaining their own. Some use a common template, and some do not. Therefore, the BCPs are not uniform, and may be inaccurate due to age, with some from the 2011/2012 time period. Many of the existing BCPs reflect the wrong processes and business activities due to the changing business organization with the merging of the three gas companies into one division.

By the end of our fieldwork, UGI Utilities had taken steps to improve its business continuity planning structure and methodology and was revising its BCPs on a new template based on a business impact analysis. A workshop on how to make a BCP was conducted in September 2018. Each department then completed a business impact analysis based on a standardized set of criteria that included various possible threats to continuity of business. Moving forward, the new framework will use a combined risk and impact weighted score to help identify where resources need to be deployed during an event. The results of this new framework were not documented by the end of field work. UGI plans to finalize the business continuity policy, formalize the BCP creation program governance structures, engage external resources to help document the process and templates, identify and address gaps, align the BCP and disaster recovery plans, and develop plans for a full backup electric distribution control center. Once completed, the BCP should be tested. One such option would be to test

the company's backup facility. Reportedly, UGI Utilities has never had an exercise to operate the company, or any of its departments, from this backup facility.

According to 52 Pa. Code § 101.3, A business continuity plan must, at a minimum, include guidance on the system restoration for emergencies, disasters, and mobilization, and establishment of a comprehensive process addressing business recovery, business resumption, and contingency planning. A jurisdictional utility must also review and update these plans annually and maintain and implement an annual testing schedule of these plans. UGI Utilities' current BCPs and related practices reflect significant deficiencies that the company is beginning to address. This has led to non-uniform BCPs and untested business recovery methods, which can lead to confusion and error during an emergency. The company should finalize all BCPs and then review, update and test them annually.

## **9. UGI Utilities could improve its emergency response plan and testing protocols.**

Parts of the Emergency Response Plan (ERP) are periodically tested, largely within the operational groups. For instance, the company participates in the PEMA tabletop exercise annually and holds Coordinated Response meetings with various parties (emergency management, excavators, local officials, etc.) that cover various topics included emergency response. In addition, UGI Utilities held four internal tabletop exercises between January 2015 and March 2019.

Nonetheless, auditors identified a few ways to strengthen the company's ERP. These include:

- The ERP has a complete contact information section in the appendices, but there is not corresponding contact information in the main document, as appropriate where the plan tells you to contact someone. This was done due to the frequency with which the plan is updated. Because this is labor intensive, and considering that the ERP is an electronic document, UGI should consider having it set up to reference the contact numbers in the appendix and auto update throughout the document when contact information in the appendix is changed.
- The ERP has detailed checklists for receiving emergency calls at the call center. Although call center software has drop down menus to allow the operator to easily select information to include in the ticket, the above-mentioned checklists are not included in the software. These checklists should be built into call center software to aid the call center intake of gas/electric emergencies.
- Emergency Responders, Duty Supervisors, and Senior Supervisors receive training on: Investigating leak/odor complaints and Incident Command Training annually. FEMA ICS 100: Introduction to ICS, Fire Training (fire extinguisher use) is offered once every two years. Senior Supervisors are given the same training, plus FEMA ICS 200: For Single Resources and Initial Action Incidents. The Director of Operations Support is responsible for implementing emergency

simulations or drills. These trainings are given annually, or once every two years, depending on the specific training. The ICS-100 course is offered internally to emergency responders and support personnel. There is also no onboarding emergency response training for all employees.

- Per Pa. Code § 67.1, All electric, gas, water, steam and telephone utilities shall notify the Commission when 2,500 or 5.0%, whichever is less, of their total customers have an unscheduled service interruption in a single event for 6 or more projected consecutive hours. The Crisis Communications Plan does not require contacting the PUC to notify them of the outage when appropriate and required by code, though the operations workers know to report. This knowledge is found within the Gas Emergency Plan but should also be documented within the Crisis Communications Plan. The definition of an outage which should activate the Crisis Communications Plan has an exception for vehicle accidents. This is not permitted by Pa. Code § 67.1 and should be removed.
- In the evacuation plans for each facility, there is language to ensure that provisions are made to deal with the special needs of any handicapped employees during implementation of the emergency plan, but there is no requirement to designate a meeting spot for handicapped or physically disabled people to wait for assistance. In an emergency, this could lead to confusion during an evacuation which could cost lives.

It is a best practice to have a uniform, comprehensive approach to emergency response planning and training. While the company's testing and outreach efforts are commendable, audit staff believes that UGI's Emergency Response Plan could be improved. Furthermore, lack of onboarding emergency response training for all employees may hinder the company's response in an emergency. Therefore, the noted deficiencies or opportunities for improvement should be addressed by the company.

#### **10. UGI Utilities relies on electronic Safety Data Sheets (SDS) information.**

OSHA regulation 29 CFR 1910.1200(a)(1) states:

*The purpose of this section is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees...The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labelling and other forms of warning, safety data sheets and employee training.*

UGI Utilities has no safety data sheets (SDS) at most of its locations. At the remaining locations, the only information is out-of-date MSDS sheets. Instead, the company relies upon an online SDS program. Although online SDS increases the general availability of SDS information and allows for easier updating, it may not be accessible during an emergency, for instance if internet or intranet access is unavailable. Consequently, the addition of physical copies of SDS information at locations with redundant communications, such as control centers, which is supported by OSHA regulations, would improve safety and reduce the risk of mistreatment in the case of accidents.

### **Recommendations**

- 1. Install sprinkler systems at regularly occupied facilities where feasible.**
- 2. Establish physical security standards that apply at company facilities and devote resources to adequately maintain oversight.**
- 3. Update the PSP to include relevant physical security efforts and review, update, and test it annually.**
- 4. Establish a clear chain of command for physical security by placing the Director of Physical Security in charge of all physical security at UGI Utilities.**
- 5. Perform penetration tests, risk analysis, and vulnerability assessments of physical security routinely, and periodically utilize external/independent resources.**
- 6. Improve the CSP and relevant procedures, secure all PII, and consider formalizing policies at the UGI Corporation level.**
- 7. Complete the gas SCADA communication upgrade.**
- 8. Review and adjust resources to address the business continuity program's deficiencies.**
- 9. Continue improvement of the ERP, and address deficiencies in associated training.**
- 10. Maintain up to date printed copies of SDS near where chemicals are stored or in a relevant control center.**

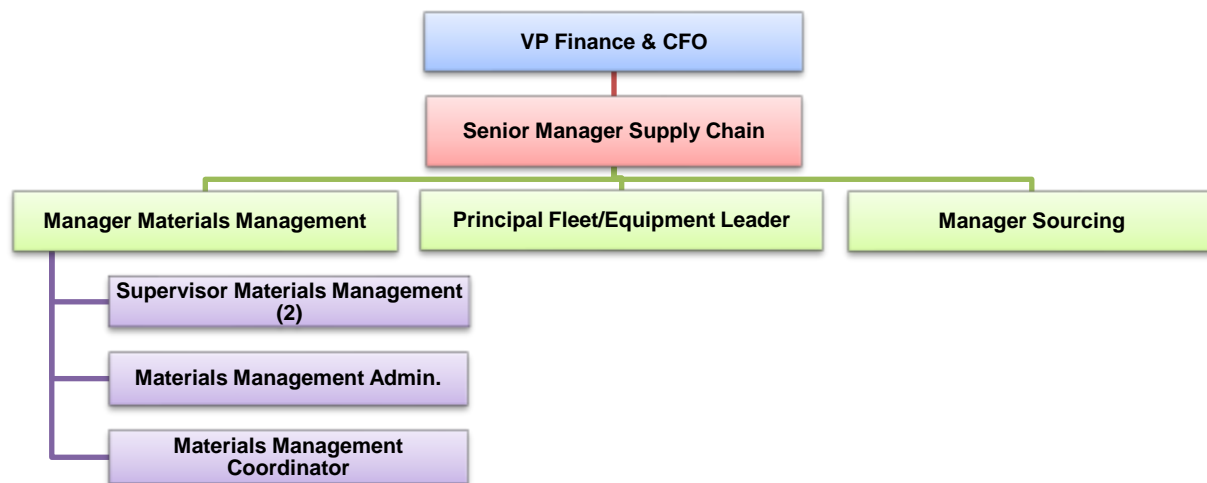
## X. MATERIALS MANAGEMENT

### Background

UGI Utilities, Inc. (UGI), UGI Central Penn Gas, Inc. (CPG) and UGI Penn Natural Gas, Inc. (PNG) are public utilities subject to regulation by the Pennsylvania Public Utility Commission (PUC or Commission). UGI Utilities is composed of two regulated divisions consisting of a natural gas distribution operation (UGI Gas Service Division or UGI Gas) and an electric distribution operation<sup>36</sup> (UGI Electric Service Division or UGI Electric). As indicated in Chapter II - Background, on March 8, 2018, UGI filed a joint application with the Commission to merge UGI, CPG, and PNG to operate as three divisions or rate districts: UGI South, UGI Central, and UGI North, respectively. The joint merger application was approved by the Commission on September 20, 2018 and the merger was completed on October 1, 2018.

The Senior Manager Supply Chain, who reports to the Vice President (VP) Finance and Chief Financial Officer (CFO), is responsible for all materials management and procurement activities at UGI Utilities. Reporting to the Senior Manager Supply Chain are the Manager Materials Management, Manager Sourcing, and the Principal Fleet/Equipment Leader. An organizational chart for the Supply Chain organization is shown in Exhibit X-1. For further discussion on the Principal Fleet/Equipment Leader, please refer to Chapter XIII – Fleet Management.

**Exhibit X-1**  
**UGI Utilities, Inc.**  
**Supply Chain Organization Chart**  
**As of February 28, 2019**



Source: Data Request GD-9

<sup>36</sup> See Chapter VIII – Electric Operations for more information.



The materials management department consists of 24 employees spread across UGI Utilities' service territory. The Manager Materials Management has four direct reports including two supervisors responsible for materials management activities in UGI North, UGI South and UGI Central. Materials management oversight at the UGI Central division is split between UGI North and UGI South, primarily attributed to geographical proximity. The Materials Management Coordinator located in the UGI North central warehouse is responsible for, among other duties, entering information into the inventory management system such as material receipts, inventory issues, cycle count data, etc. All purchasing activities for materials and services are handled by the Manager Sourcing. The Sourcing department is comprised of five buyers for material commodities and services. The group has two buyers embedded in UGI North and two in UGI South that are primarily responsible for major pipeline work such as construction, restoration, etc. Meanwhile, UGI Central is covered by the buyers within UGI North and UGI South based on geographical proximity.

The storeroom and warehousing function at UGI Utilities consists of 29 inventory locations. Each of the UGI South and UGI North divisions are composed of five warehouses, whereas UGI Central is comprised of 18 storerooms and/or warehouses. One warehouse at each division also serves as the central warehouse for the division. Central warehouses serve as a hub for that division and provide inventory to the satellite warehouses upon request. Once the request is received by the centralized warehouse from the satellite location, the material is pulled and placed in a staging area. Inventory is then either delivered to the satellite warehouse or picked up by the storeroom clerk or designated representative. The centralized warehouse is also where emergency stock is stored, except at UGI Central where two warehouses hold emergency stock<sup>37</sup>. In addition, the UGI Electric division maintains one central warehouse/storage yard for electric inventory.

The materials management and sourcing departments currently utilize the Oracle inventory management system (Oracle) for various warehouse functions. Some of the major functions include material requisition, purchase order placement, inventory control, material receipts, issues, and transfers, material forecasting and planning, cycle counts, report generation and auditing for all UGI Utilities divisions. The Oracle system is also used by all departments authorized to requisition materials and approve purchases. In addition to several reports compiled and monitored at varying frequencies, the materials management supervisors produce a monthly Key Performance Indicator (KPI) report, company-wide and by warehouse, that shows the net issues, returns, transfers, inventory turnover, cycle count accuracy and adjustments. The KPI reports provide monthly and year over year trends in inventory values, current and aging inventory, etc. which helps management track progress and monitor trends. The company expects that implementation of the Enterprise Resource Planning (ERP) module in UNITE<sup>38</sup> Phase 2 in late 2019 will, among other things, significantly improve the reporting aspect of the supply chain function.

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<sup>37</sup> UGI Utilities plans to combine the emergency stock between the two locations such that UGI Central only has one central location for emergency stock.

<sup>38</sup> UGI Gas' Next Information Technology Enterprise (UNITE) initiative is UGI's ongoing effort to develop and implement next generation technology solutions.

## Findings and Conclusions

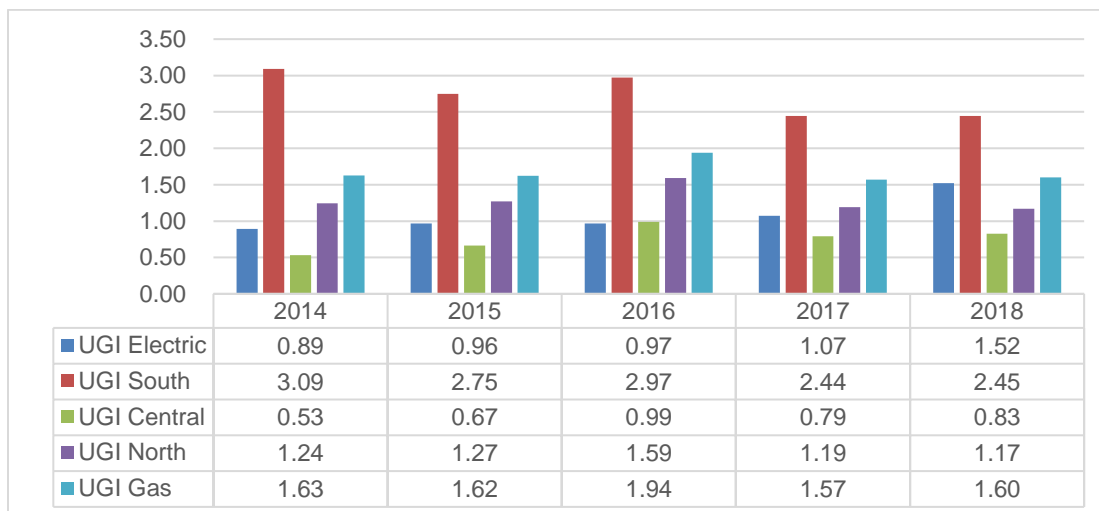
Our examination of the Materials Management function included a review of assigned responsibilities, policies and procedures, information systems, reporting capabilities, inventory controls, inventory levels, inventory turnover rates, procurement, and warehouse operations. Based on our review, UGI Utilities should devote additional efforts to improve its materials management function by addressing the following:

### 1. Inventory turnover at UGI North and UGI Central has been poor and emergency stock is included within UGI Utilities' inventory turnover calculation.

As discussed, in the background section, UGI Utilities has 29 warehouses/storerooms with four warehouses holding dedicated emergency stock. In June 2016, UGI Utilities began tracking monthly inventory turnover: company-wide, by division and by warehouse. However, UGI Utilities includes emergency stock levels within its inventory turnover calculation. This practice does not reflect actual inventory turnover and distorts performance by incorporating slow moving inventory reserved for emergencies.

The auditors were able to exclude emergency stock levels and recalculated inventory turnover, which is presented in Exhibit X-2 on a company-wide and division inventory turnover basis. In 2018, overall emergency stock levels between all of the UGI divisions (including UGI Electric) was approximately \$875,000. As of September 30, 2018, inventory turnover for the UGI Gas division as reported by the company (which includes emergency stock) was 1.50 turns. In contrast, inventory turnover after excluding emergency stock or as calculated by the audit staff was 1.60 for the Gas division.

**Exhibit X-2**  
**UGI Utilities, Inc.**  
**Inventory Turnover (excluding emergency stock)**  
**For the Fiscal Years Ended September 30, 2014 – 2018**



Source: Data request MM-7 and MM-8

UGI Utilities' goal is to improve each warehouse, division and company-wide inventory turnover to 2.0 - 2.5. However, only UGI South has consistently met or exceeded that goal. Only five of the 29 warehouses met the goal in 2017 with four of those in UGI South. Improvement was made in 2018, when 8 warehouses met the goal, but a number of warehouses lag well below its goal of 2.0. For instance, UGI Central's inventory turnover has consistently been below 1.0 turn over the last five years. To be fair, UGI Central's warehouses are often smaller in size and support operational areas that are smaller and less dense.

Company management attributed UGI Central's lower inventory turnover to long lead times, rural service area, postponement of projects, etc. In addition, most CPG storerooms are run by operations personnel as opposed to dedicated materials management personnel. Personnel within operations tend to focus on material availability (i.e., ability to provide materials instantaneously) instead of optimal inventory levels or carrying costs.

The audit staff typically recommends that UGI Electric and UGI NGDCs maintain inventory turnover between 2.0 and 4.0 turns. Excessive inventory increases capital requirements, warehouse space and carrying costs for the warehouses. As shown in Exhibit X-3, the company could realize a one-time inventory reduction savings of \$3.3 million to \$7.1 million and annual carrying cost savings ranging from \$336,090 to \$713,019 (i.e., assuming inventory carrying costs at 10%) based on achieving inventory turns of either 2.0 or 4.0.

**Exhibit X-3**  
**UGI Utilities, Inc.**  
**Inventory Savings**  
**For the Fiscal Year Ended September 30, 2018**

Rate District	At Inventory Turnover = 2.0		At Inventory Turnover = 4.0	
	Inventory Reduction	Carrying Cost Savings	Inventory Reduction	Carrying Cost Savings
UGI Electric	\$275,186	\$27,519	\$714,604	\$71,460
UGI South	\$0	\$0	\$1,656,326	\$165,633
UGI North	\$1,670,248	\$167,025	\$2,846,662	\$284,666
UGI Central	\$1,415,466	\$141,546	\$1,912,603	\$191,260
Total UGI	\$3,360,900	\$336,090	\$7,130,196	\$713,019

Source: Data request MM-8, MM-9, and auditor analysis.

**2. UGI Utilities manually performs several materials management functions.**

UGI Utilities performs a myriad of functions to provide materials across its footprint, such as receiving material from vendors, issuing/pulling material for jobs, replenishing inventory, identifying obsolete materials, etc. However, a number of these functions are performed manually. For instance, issuing/pulling material requires a

warehouse clerk to gather and issue material requested by a paper “pull sheet”. Then, the warehouse clerk must manually enter the transaction into Oracle. Likewise, receiving inventory at the warehouses requires manual input into Oracle for the material to be available. In addition, material placement or organization is not standardized across warehouses, instead relying on individual warehouse employees’ preferences.

Other processes have a degree of automation, but additional opportunities exist. Although minimum/maximum (min/max) levels have been established for a vast majority of the warehouses, replenishment models for the satellite warehouses are tabulated manually on a weekly or bi-weekly basis to determine what needs to be ordered from the central warehouse. Moreover, for the central warehouses, the company does not have the ability to auto-replenish and minimums for each item must be manually reviewed on the min/max report before placing an order with the vendor. Additionally, the Oracle system does not provide adequate reporting capabilities. Consequently, information has to be manually copied and pasted from Oracle into Excel spreadsheets instead of automatically populating or exporting the data, introducing inefficiencies and a greater risk of error.

UGI Utilities management indicated that although it currently does not have the ability to automate all aspects of its materials management function, it intends to automate several processes with SAP implementation through the UNITE Phase 2 project such as installing RF scanners, automatic reordering, warehouse labelling/zoning, reporting, etc. Major components of the materials management function include entering requisitions, issuing and receiving material. Data entry represents a substantial part of this process. As a result, automation reduces the time and resources spent on manual work and therefore drastically improves accuracy and efficiency. It may also help improve inventory turnover by reducing excess inventory levels through increased material forecasting accuracy, better inventory control, etc.

### **3. UGI Utilities does not have a detailed materials procurement manual and does not track vendor performance.**

UGI Utilities maintains procedures for oversight of third-party services such as pipeline construction contractors, engineering, IT, etc. These procedures address such items as the bidding process, service agreements, diversity vendors, etc. However, there are no detailed policies and procedures governing the materials procurement process. UGI Utilities maintains flowcharts on the purchase order process, identifying the responsible parties and the process flow through each party. However, the audit staff contends that these flowcharts are not an adequate substitute for detailed policies and procedures, simply a component of them.

In addition, UGI Utilities does business with several material vendors and suppliers. The three main types of material purchase contracts include purchase orders, blanket purchase orders, and releases against blanket purchase orders. UGI Utilities management indicated that Oracle does not enable vendor performance

tracking on any material vendors but anticipates that the new SAP Enterprise Resource Planning (ERP) system<sup>39</sup> will allow the company to track material vendor performance.

Instead, UGI Utilities' relies on its buyers' experience to monitor or track vendor performance. Therefore, performance can be difficult to objectively measure. Instead, UGI Utilities should track vendor performance metrics to ensure timely delivery, shipping accuracy, quality of goods, vendor qualification, ability to meet design specifications, order fill rate, lead-time variance, etc. Vendor performance metrics in key areas such as cost management, delivery, and quality serve as the basis for effective benchmarking. By tracking vendor performance, UGI Utilities would be able to maintain metrics and/or information on how well or poorly a vendor is performing. This will enable the company to incorporate vendor performance provisions during contract negotiations or rebidding opportunities, ultimately improving efficiency and/or reducing inventory costs.

Vendor performance metrics should then also be incorporated into a documented materials procurement manual. In addition, a procurement manual should include sections on procurement methods, vendor qualification and selection, vendor performance evaluation, process flowcharts, separation of duties, etc. and be updated regularly. Expanding the documented procurement policies and procedures is necessary to ensure consistency, aid in knowledge retention, and enable UGI Utilities to maintain efficient operations.

#### **4. Inventory cycle counting accuracy rates are poor at several warehouses in UGI Central's service territory.**

Beginning in March 2016, UGI Utilities implemented daily cycle counts at all central warehouses and most satellite storerooms. All inventory items at UGI Utilities' warehouses are subject to cycle counts and at least 80% of total inventory value is counted each fiscal year. Cycle counts follow the ABCD classification as noted as follows:

- **A** = 0% to 80% of total on hand inventory value
  - Counted six times per year;
- **B** = 81% to 90% of total on hand inventory value
  - Counted three time per year;
- **C** = 91% to 97% of total on hand inventory value
  - Counted two times per year;
- **D** = 98% to 100% of total on hand inventory value
  - Counted once per year.

To perform the counts, cycle count sheets are systematically printed from the Oracle inventory management system based on the ABCD classifications. Inventory

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<sup>39</sup> This system is part of UGI Utilities' UNITE phase 2 project. The SAP ERP touches on four major aspects of the Supply Chain process: vendor management/contractor billing, inventory and warehouse management, contracts administration, and sourcing/purchasing.

items are physically counted daily, documented on the count sheet, and manually entered into Oracle. Cycle counts within the established thresholds (tolerances that are preprogramed within the system) are automatically adjusted by the system and those outside the threshold are reviewed by the supervisor, who then has the option to approve the count or perform a recount.

The adjustments to inventory based upon cycle counting is often referred to as inventory accuracy. Historically, UGI Central has not exhibited inventory accuracy rates consistent with the other UGI divisions. More specifically, six of the 18 warehouses in UGI Central had low gross accuracy rates with some below 90%. Exhibit X-4 illustrates the net and gross variance amounts by division. It should be noted that cycle count variances have improved significantly since UGI Utilities started daily cycle counts in 2016. This improvement has also occurred at UGI Central, but the division is still lagging behind UGI South and UGI North.

**Exhibit X-4**  
**UGI Utilities, Inc.**  
**Net and Gross Inventory Variance**  
**For the Fiscal Years Ended September 30, 2016 – 2018**

	2016		2017		2018		
	Net	Gross	Net	Gross	Net	Gross	Average Gross
<b>UGI South</b>							
Dollars	(\$26,973)	\$392,775	\$4,138	\$273,024	(\$11,654)	\$323,813	\$329,871
Percent Accuracy		96.3%		97.1%		98.1%	
<b>UGI Electric</b>							
Dollars	(\$12,252)	\$35,541	(\$4,046)	\$8,830	(\$2,127)	\$5,311	\$16,561
Percent Accuracy		99.2%		99.8%		99.9%	
<b>UGI North</b>							
Dollars	(\$49,161)	\$301,457	(\$24,610)	\$188,594	(\$10,448)	\$167,761	\$219,271
Percent Accuracy		97.0%		98.3%		98.6%	
<b>UGI Central</b>							
Dollars	(\$564,024)	\$1,273,275	(\$68,969)	\$595,782	(\$71,845)	\$405,188	\$758,082
Percent Accuracy		82.1%		94.3%		96.2%	
<b>Total Dollars</b>							
	(\$652,410)	\$2,003,048	(\$93,487)	\$1,066,230	(\$96,074)	\$902,073	\$1,323,783

Source: Data request MM-11

The gross inventory accuracy rates at some of the underperforming CPG warehouses are illustrated in Exhibit X-5. The six warehouses shown in the exhibit have, for the most part, consistently been below 95%. For comparison purposes, it is

common to have over 95% gross accuracy within the industry, a level that UGI North and South generally meet or exceed. Although UGI Central met this target in 2018, many of the warehouses within UGI Central did not.

**Exhibit X-5**  
**UGI Utilities, Inc.**  
**Gross Inventory Accuracy at Select Underperforming CPG Warehouses**  
**For the Fiscal Years Ended September 30, 2017 – 2018**

<b>CPG Warehouse</b>	<b>2017</b>	<b>2018</b>
Frackville	89.3%	91.6%
Lehighton	93.0%	92.6%
Oxford	86.6%	92.1%
Shamokin	91.6%	95.5%
Stroudsburg	87.2%	90.1%
Troy	84.6%	97.6%

Source: Data request MM-14

Many of the challenges as discussed in Finding and Conclusion No. X-1 also prevent UGI Central from achieving inventory accuracy rates at the industry level. Poor inventory accuracy often results in more inventory on-hand and can cause financial as well as operational problems. Although significant progress in inventory accuracy at all UGI divisions has been made since 2015, additional strategies should be deployed in the UGI Central division such as additional training, automation, oversight, etc.

**Recommendations**

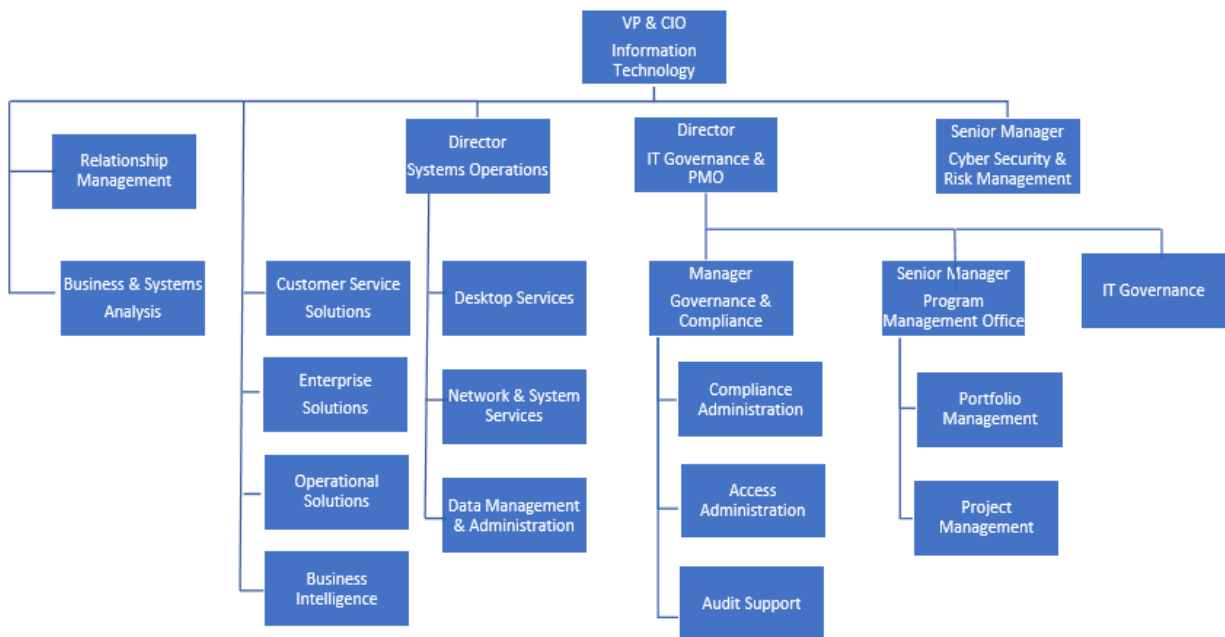
- 1. Improve company-wide inventory turnover and exclude emergency stock from inventory turnover calculations.**
- 2. Automate the materials management function.**
- 3. Develop a detailed material procurement manual and track vendor performance.**
- 4. Improve cycle count accuracy rates at warehouses in the UGI Central division.**

## XI. INFORMATION TECHNOLOGY

### **Background**

UGI Utilities, Inc.'s Information Technology (IT) Department provides consolidated IT related services for the Electric and Gas Divisions. The IT Department is managed by the Vice President (VP) & Chief Information Officer (CIO). As shown in Exhibit XI-1, the IT Department is organized across multiple functions including System Operations, IT Governance & Project Management, Cyber Security and Risk Management, etc.

**Exhibit XI-1  
UGI Utilities, Inc.  
IT Department Organization Chart  
As of March 26, 2019**



Source: Company supplied data.

Since 2014, the IT department has completed or is completing a series of upgrades, replacement, and modifications of IT systems in support of UGI Utilities' Next Information Technology Enterprise (UNITE) program. UNITE is a three-phase project aimed at upgrading UGI Utilities' IT systems and capabilities. The first phase was completed in September 2017 and centered on the deployment of a new Customer Information System (CIS)<sup>40</sup>, which replaced two older customer information systems.

<sup>40</sup> Further information on the CIS can be found in Chapter XII: Customer Service

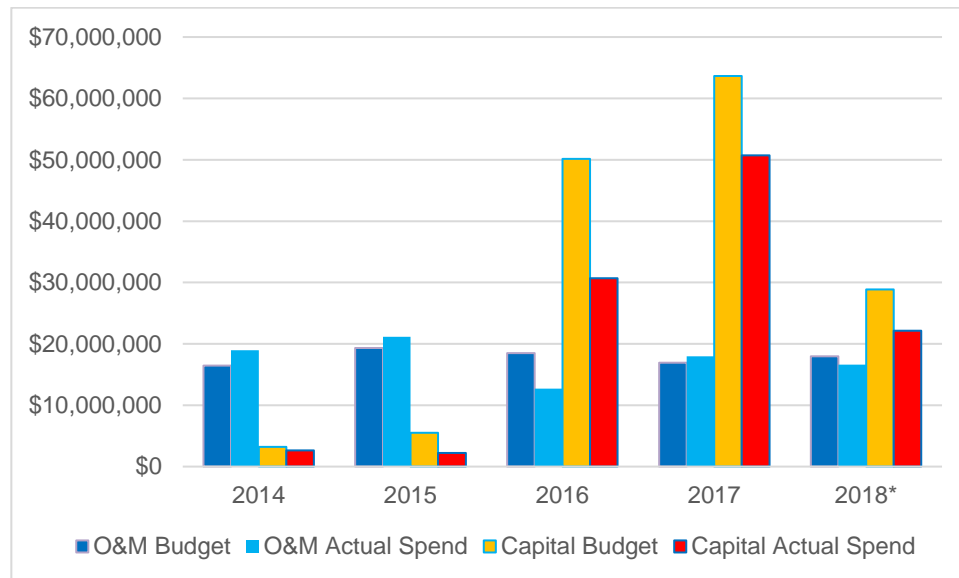


The second phase began in March 2018 and was expected to go live in July 2019. Phase 2 of the UNITE project includes the replacement or deployment of Enterprise Resource Planning (ERP) systems (i.e., human capital management, supply chain management, and vendor management programs). The third phase is expected to begin in late 2019. Projects for UNITE Phase 3 include Enterprise Performance Management (EPM) programs such as capital planning and budgeting, Enterprise Asset Management (EAM) programs such as compliance management, work management system (WMS), geographic information system (GIS), and gas outage management. Phase 3 is conceived to be completed by 2022, but the final timeline has not been established.

UNITE is envisioned as a transformational program, supporting the IT Department's strategy to guide IT function through a defined and managed framework. Before UNITE, many of the IT systems were legacy-based or end-of-life, offering limited capabilities. However, with the host of capabilities offered by the various UNITE systems, UGI Utilities seeks to align with and support effective automation and streamlining of business processes, procedures, and practices. The IT department's goal is to replace the aged IT application portfolio with more modern solutions using standardized, enterprise-wide solutions.

Due to UNITE's scope and complexity, much of the IT department's resources are focused on UNITE. Management indicated because all resources were devoted to the UNITE project that other non-core projects were being deferred. In fact, the IT department has underspent, by an average of 28.4%, on its capital budget since 2014. The budget vs. actual spend for operations and maintenance (O&M) and capital is shown in Exhibit XI-2.

**Exhibit XI-2**  
**UGI Utilities, Inc.**  
**IT Department Budget Vs. Actual Spend**  
**For the Fiscal Years Ended September 30, 2014 – 2018**



\*As of August 28, 2018  
Source: Data Request IT-5

## **Findings and Conclusions**

Our examination of the Information Technology function included a review of policies and procedures, staffing levels and overtime utilization, contractor utilization, strategic and long-range plans, goals and objectives, budget and spending, project management, and training. Based on our review, UGI Utilities' IT Department should devote additional efforts to improve its effectiveness by addressing the following:

### **1. The IT Service Model section of the IT Strategic Plan lacks support for forward-looking components underway at UGI.**

A company's IT strategic plan should define the goals of the IT department and in turn, the IT department's actions should reflect those goals. According to UGI's IT Strategic Plan, "the primary objective of UGI's IT organization is the continuing, reliable functioning of in-place technologies that support business activities." This statement does not include any forward-looking concepts, such as the need to evaluate new technology; ensure business needs will be served in the future; promote forward planning; or update equipment and technologies. The IT department is serving these goals and does identify forward-looking projects/investments as goals, but this fails to capture how the IT department will help drive future improvement at UGI. Currently this concept is covered by the UNITE Project. For instance, the UNITE project involves evaluating, choosing, and deploying new systems to support current and future business needs. The department is also planning an infrastructure replacement plan,

with established replacement cycles for employee laptops and desktops. In addition, the IT Department has established a goal to self-evaluate the department according to the Control Objectives for Information and Related Technologies (COBIT) 2019 Maturity Model to evaluate and refine the department's governance and controls.

Clearly, the IT department is supporting UGI Utilities future needs through these projects/initiatives. Management indicated the absence of these components from the IT Strategic Plan was an oversight with little to no impact on department functionality. However, undocumented goals and strategies can often migrate, become lost, or create detrimental conditions to any organization as leadership, employees, or business needs change. Although goal evolution is often needed for a dynamic organization, undocumented and unguided evolution introduces added risk to the company. Therefore, the IT department should document all forward-looking components within its IT Strategic Plan.

## **2. Advanced IT certifications are not required for department IT professionals.**

At UGI Utilities, IT positions require base level certifications for all IT personnel, but most positions require no other certifications. Specifically, the base level Information Technology Infrastructure Library (ITIL) Foundation certification is required of every IT employee. The ITIL Foundations certification verifies awareness of key elements, concepts, and terminology used in the ITIL lifecycle, which is designed to ensure that services are delivered in a customer-focused, quality-driven, and economical fashion. Other than that, the Senior Manager is required to have Project Management Professional (PMP) certification. Other certifications are listed as preferred but are not required.

As a practice, the company does not require specific certifications as a condition of employment, except those already mentioned as base level certifications. Certifications are not the only way to gain expertise on IT skills, however, they are an accepted method of demonstrating competence. Certification indicates specialized skills meet a minimum threshold and provides objective evidence of competency. Although these certifications may not be conditions for hire, they could be encouraged or required as a condition for advancement, raise, or within a certain time period. Therefore, the IT department should require certification in core areas relative to each position. This requirement can also serve as a training plan for IT professions and helps to ensure the company gains core competencies it needs.

## **3. The IT department is not included in the procurement process to identify and evaluate operations equipment with internet connectivity capabilities.**

A purpose of any cybersecurity plan, as required by 52 Pa. Code § 101.3, is that the company employ measures designed to protect computers, software and communications networks that support, operate or otherwise interact with the company's operations. This includes monitoring any equipment deployed by the company with the capability to communicate on the company's networks. At UGI

Utilities, IT infrastructure and cybersecurity projects are determined collaboratively by the IT Department and company management. Specifically, the IT Department is involved in strategy sessions and needs identification, but is not involved in the procurement of operations equipment, such as meters and other operations devices that connect to the internet.

Audits commends the inclusion of IT in needs identification of new equipment; however, IT should also be part of the evaluation and selection of equipment that has communication capabilities, even if the communication capacity is not going to be used. Although smart equipment is often air-gapped from the business network, it does not eliminate security and interoperability concerns. Unprotected smart devices could compromise the device, leading to a loss of data, operability or control. Therefore, it is important to ensure the IT Department's input and review occurs throughout the selection and procurement process.

### **Recommendations**

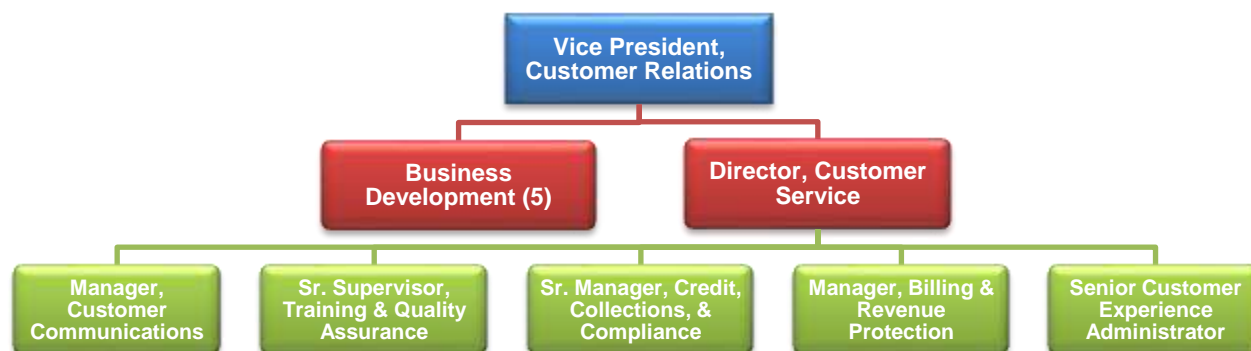
- 1. Ensure forward-looking goals and objectives are fully defined within the IT Strategic Plan.**
- 2. Expand the required IT certifications to drive wanted skill competencies.**
- 3. Integrate the IT Department as part of the procurement process to review and evaluate cybersecurity issues for communications-capable operations equipment.**

## XII. CUSTOMER SERVICE

### **Background**

As of August 2018, UGI Utilities served approximately 640,000 natural gas customers and 62,000 electric customers in Pennsylvania. As shown in Exhibit XII-1, UGI Utilities' Vice President of Customer Relations is responsible for both the Business Development and the Customer Service departments. UGI Utilities' Customer Service department provides several services to ratepayers including, customer communications, collections, billing, and customer experience administration. The Customer Service Department is led by the Director of Customer Service who has five direct reports, as shown in Exhibit XII-1.

**Exhibit XII-1**  
**UGI Utilities, Inc.**  
**Customer Service Organization Chart**  
**As of February 28, 2019**



Source: Data Request GD-9

The Manager of Customer Communications oversees the customer information center (CIC) teams, including seven Customer Care Supervisors (CCS) and about 115 Customer Care Representatives (CCRs). The CCRs are available to handle customer calls on weekdays from 8 am until 5 pm. CCRs accept payments by phone, answer billing inquiries, create service orders (including starting/stopping service), and take outage and emergency calls<sup>41</sup>. UGI Utilities' CIC is comprised of three locations within their service territory.<sup>42</sup> During periods of low call volume, the CIC also provides back office support and placement of outgoing calls to customers. Training and development for the CIC is provided by the Training and Quality Assurance (TQA) department.

<sup>41</sup> Outside of normal business hours, UGI Utilities' Operations department dispatchers are available to accept emergency/outage calls from 5 pm to 8 am.

<sup>42</sup> The CIC offices are located in Reading, Wilkes Barre, and Lock Haven, Pennsylvania.

The TQA department is led by the Senior Supervisor TQA who has six direct reports, including one Quality Assurance (QA) Coordinator and five Customer Care Trainers (Trainers). The QA Coordinator is responsible for compiling internal call metrics such as call performance and customer satisfaction data provided by third-party vendors. Meanwhile, the Trainers are responsible for all customer service-related training including third-party training<sup>43</sup> and support within the CIC and Credit, Collections, and Compliance (CC&C) department. The TQA department also randomly selects two to three calls each month for quality assurance scoring. The scored calls and metrics combine to provide feedback for each CCR and respective CCS. In order to improve call performance and address emerging problems, the TQA department offers ongoing coaching assistance; annual, emergency, and new CCR training for CIC staff; and credit and collection training to the CC&C department.

The CC&C department is led by the Senior Manager of Credit, Collections, and Compliance. The CC&C department is responsible for assisting payment troubled customers through the establishment of payment arrangements and administration of the Universal Service Program (USP). The USP is a multifaceted program designed to assist low-income customers maintain natural gas and electric utility service and includes:

- Customer Assistance Program (CAP) – payment assistance and debt forgiveness program for qualified payment-troubled low-income customers, where payments are based on the lower of a percentage of income or average monthly bill
- Operation Share Energy Fund – annual crisis grants available to customers who are not active CAP participants to assist in the repayment of outstanding balances
- Low Income Usage Reduction Program (LIURP) – energy conservation and education program that provides qualifying low-income customers with household energy audits, which may result in installation of energy conservation and efficiency measures and provides free education to facilitate energy conservation and usage reduction
- Customer Assistance & Referral Evaluation Services (CARES) – outreach and referral service for customers with special needs and/or hardships

The CC&C department has oversight of the day-to-day operations of the USP and communicates with Community Based Organizations (CBOs) who assist in local customer outreach and program administration. UGI Utilities' contracted CBOs are third parties that are established in the local community and help facilitate human services programs for qualified individuals, including UGI Utilities' USP.

Natural gas and electric utility customers are invoiced through UGI Utilities' Billing and Revenue Protection (BRP) department. The BRP department is led by the Manager of Billing and Revenue Protection and is split into two divisions. The Revenue Protection division is composed of five staff members who audit usage on meters and

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<sup>43</sup> UGI's third-party credit and collections vendors, as well as training for UGI Utilities' Community Based Organizations.

investigate cases of suspected theft of service. The Billing division is responsible for all customer invoicing, including natural gas, electric, and dual service for residential, commercial, and industrial customers. In addition, the Billing division is responsible for addressing all billing exceptions<sup>44</sup>. Generally, most customer bills are issued within one business day of the meter reading<sup>45</sup>. Most customer bills are delivered through U.S. mail; however, customers enrolled with online accounts may opt to receive their bills via email.

UGI Utilities' Senior Customer Experience Administrator has oversight of technical initiatives and issues, including resolution of social media inquiries and accessibility for online customer accounts. The Senior Customer Experience Administrator is responsible for the continued testing and development of current and future technical initiatives, including expanded features to the customer portal, paperless options, and additional functionality for the UGI Utilities' website.

In September 2017, UGI Utilities implemented a new customer information system (CIS), replacing two legacy systems including the mainframe system used by UGI Utilities for more than forty years. As discussed in the Findings and Conclusions section, the system implementation has presented several challenges as UGI Utilities has worked to resolve the deficiencies within its new CIS. However, the implementation of the new CIS has successfully eliminated the constraints created from the operation of two separate systems, improving UGI Utilities effectiveness and efficiency as the new CIS provides the flexibility for all customer calls to be routed to any CCR. Further, the new CIS provides a foundation for continued technological functionalities that will include improved customer access through texting alerts and UGI Utilities' mobile website.

## **Findings and Conclusions**

Our examination of the Customer Service function focused primarily on a review of the policies and procedures, organizational structure, staffing levels, customer service performance, customer information system, meter reading, billing, payment, credit and collections processes, etc. Based on our review, UGI Utilities should devote additional efforts to improving its customer service function by addressing the following:

### **1. UGI Utilities' long-term residential accounts receivable balances have significantly increased.**

The vast majority of UGI Utilities customers are residential, encompassing 89% of natural gas customers and 88% of electric customers<sup>46</sup>. Collection performance for a

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<sup>44</sup> Bills exceeding the high and low usage thresholds generate billing exception cases for additional review and vary based on prior usage.

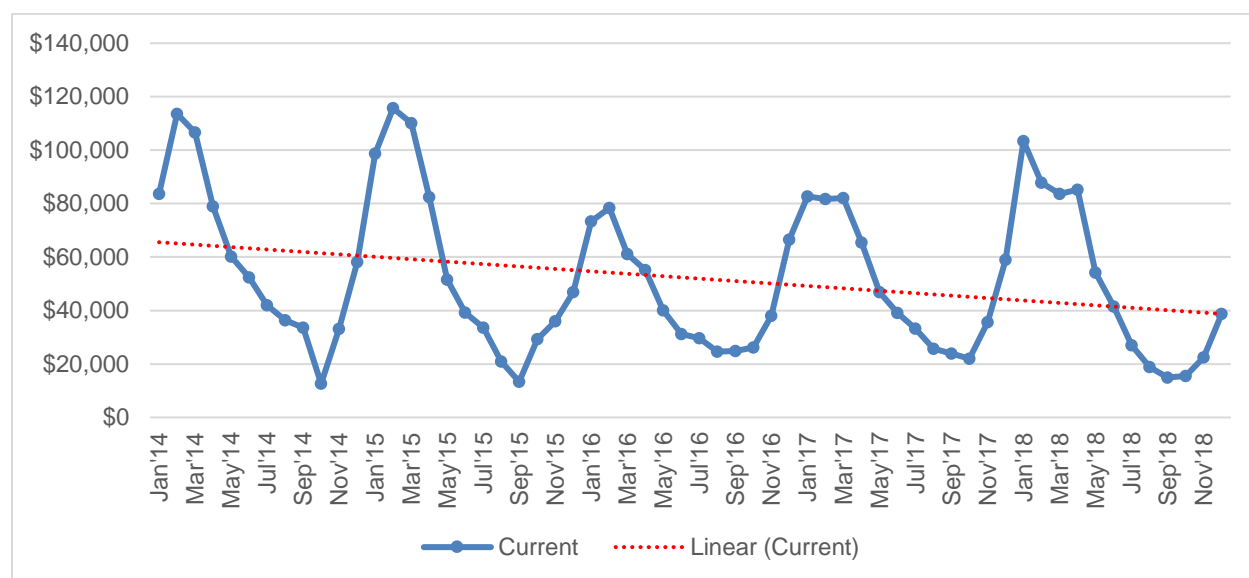
<sup>45</sup> Meter reading and field service work orders are completed by members of UGI Utilities' Operations department, see Chapter VII – Gas Operations and Chapter VIII – Electric Operations for additional information.

<sup>46</sup> Per UGI Utilities Annual financial reports (electric and gas divisions) filed with the Commission reflecting data as of December 31, 2018.

utility's residential accounts is often discussed in terms of aged receivables (i.e., overdue customer bills and how long ago the bill was issued). More specifically, current accounts receivable balances represent the current amount due, whereas long-term accounts receivable balances represent the total overdue and/or accumulated arrearage balances for customers.

As reflected in Exhibit XII-2, UGI Utilities current accounts receivable balances between calendar years 2014 through 2018 have been steadily declining. This decline is reflective of several key factors, including warmer weather, improved energy efficiency and lower overall cost of gas supply.<sup>47</sup> Generally, declining current balances are beneficial to customers (i.e., utility service is more affordable) thereby improving aging account balances.

**Exhibit XII-2**  
**UGI Utilities, Inc.**  
**Current Residential Accounts Receivable Balances**  
**January 2014 through December 2018**



Note: Balances in thousands of dollars  
Source: Data Requests CS-11 and CS-28

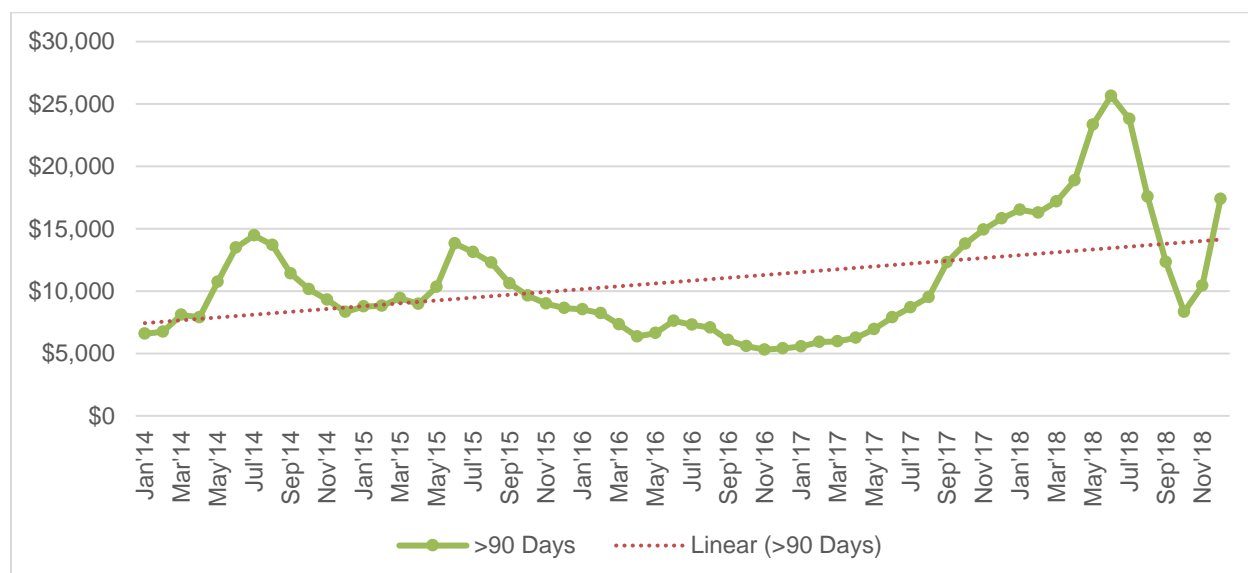
However, UGI Utilities' long-term residential accounts receivable balances have significantly increased between 2017 and 2018. In particular, long-term residential accounts receivable balances are outstanding or uncollected for a period greater than 90 days. As shown in Exhibit XII-3, UGI Utilities' over 90-day residential accounts receivable balances remained relatively stable but then began to increase significantly between October 2017 and June 2018. The increase corresponds to the implementation in September 2017 of a new CIS (as discussed within the background) as part of UGI Utilities' efforts to replace its legacy systems. More specifically, UGI

<sup>47</sup> Customer conversion to energy efficient appliances and lower than normal weather degree days (i.e., weather was warmer than the historical average) contribute to declining residential use.



Utilities' collections activities were significantly reduced temporarily (i.e., the period between CIS implementation in September 2017 and April 2018). In April 2018, at the close of the Pennsylvania winter moratorium period<sup>48</sup>, UGI Utilities reestablished nearly all of its automated collections processes under the new CIS (see Finding and Conclusion No. 2 for additional information on manual collections processes). Consequently, in June 2018, a precipitous reduction in accounts receivable balances greater than 90 days occurred over the next three months. In addition, an error in the budget billing calculation estimates resulted in abnormally large true-ups for certain customers. The error in the budget billing calculation was corrected, affected customers were offered extended repayment terms up to 60 months at no additional fee.

**Exhibit XII-3**  
**UGI Utilities, Inc.**  
**Over 90-Day Residential Accounts Receivable Balances**  
**January 2014 through December 2018**



Note: Balances in thousands of dollars  
Source: Data Requests CS-11 and CS-28

Due to the reduced collections activities and the errors created from the CIS transition, UGI Utilities has experienced an increased level of long-term accounts receivable balances. Generally, older accounts receivable balances are at increased risk of non-collection. Collection activities were suspended in order to implement the new CIS and upon resuming collection activities, UGI Utilities was able to improve its long-term account receivables. However, there may be lingering effects from this temporary suspension.

Between 2014 and 2017, UGI Utilities residential gross write-off ratio ranged between 2.1% and 2.9%; however, in 2018 that ratio increased to 3.2%. In addition, as

<sup>48</sup> Pennsylvania Consolidated Statutes under Chapter 14 restrict termination of electric and natural gas utility service for confirmed low-income customers between November 1<sup>st</sup> and March 31<sup>st</sup>.

presented in Exhibit XII-3, long-term account receivables have increased again from October 2018 to December 2018. Although many factors may attribute to this uptick, it is likely that customers with extended repayment terms or larger account balances are signaling an inability to pay. Therefore, UGI Utilities should consider additional targeted programs for customers with large overdue balances. In addition, UGI Utilities should reduce long-term accounts receivable balances to decrease the risk of non-payment and increased gross write-offs.

## **2. Billing and collections processes for UGI Utilities' Customer Assistance Program have been adversely affected by implementation of the new customer information system.**

The new CIS implemented in September 2017 supports customer billing and accounting and interfaces with other software programs used by UGI Utilities including its Customer Outreach System (COS). The COS supports UGI Utilities' low-income programs, including its CAP. The two software programs have experienced persistent integration issues, where CAP participant balances do not reconcile. Although the CIS is the accounting system for UGI Utilities' customers, certain balances<sup>49</sup> maintained by the COS do not agree.

UGI Utilities plans to migrate all calculations exclusively to the CIS, whereby the COS would continue to serve as the interface between UGI Utilities and its CBOs for delivery of its low-income programs. As of February 2019, UGI Utilities' IT department continued to find a 2% failure rate (approximately 178 CAP accounts) in CAP calculations. Although UGI Utilities has made great improvements in resolving issues between the systems, the deficiency was unresolved as of the end of audit field work. As a compensating control, CAP collections continue to be reviewed manually due to continued irregularities occurring between the CIS and COS, with reconciliations between systems on outstanding balances.

The complexity of calculations for CAP participants' accounts has created challenges in reconciliation of balances between UGI's new CIS and existing COS. The new CIS provides UGI Utilities with superior capabilities than its old legacy system; however, manual processes and physical review of its CAP collections notices to ensure accuracy is not optimal or efficient. Thus, UGI Utilities should work to resolve the inherent CIS limitations to eliminate the need for manual review of CAP collections notices.

## **3. Customer service performance metrics have declined.**

The implementation of UGI Utilities' new CIS resulted in several defects and modifications, examples discussed and presented in Finding and Conclusion Nos. 1 and 2. In addition, the system conversion affected customer service performance and

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<sup>49</sup> The unreconciled balances include preprogram arrearages, incremental arrearage forgiveness, CAP credits, and current balance due.

increased UGI's average call handling time. For example, the CIS implementation required an upgrade of the customer facing portal for web-based customer interfaces. This upgrade required customers to create a new online account to access information and re-enter banking information for online payment.

UGI Utilities tracks customer service metrics internally and relies on third parties to collect information on customer service performance. The third-party contractors conduct surveys on call representative satisfaction, field representative satisfaction, and overall customer satisfaction. The third-party rankings have remained consistent throughout the audit review period, with UGI Utilities ranking above average for its industry, even after the new CIS system implementation. However, as demonstrated in Exhibit XII-4, UGI Utilities' internally collected metrics have deteriorated in 2017 and 2018. More specifically, UGI Utilities' grade of service metrics (percentage of calls answered in 30 seconds) has declined and its call abandonment rate<sup>50</sup> has increased significantly. Both metrics declined during system implementation.

**Exhibit XII-4**  
**UGI Utilities, Inc.**  
**Customer Service Performance Metrics**  
**Calendar Year Average 2014 - 2018**

<b>Metric</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Percentage of Calls answered within 30 seconds</b>	80.0	80.0	83.0	82.3	76.4
<b>Call Abandonment Rate</b>	3.88	4.18	3.17	5.32	7.86

Source: Data Requests CS-8 and CS-29

UGI Utilities' Customer Service management has been focused on reducing the increased average handle time for calls. As of February 2019, UGI Utilities successfully reduced its average call handle times to levels more commensurate with those experienced prior to the implementation of its CIS.<sup>51</sup> In addition, UGI Utilities is working toward expanding self-service options for customers and positioning itself to better meet customer communication preferences, including potential enhancements to its IVR functionality and online customer portal. Utilities exist to serve customers; therefore, they should aim to achieve high levels of customer service performance. As such, UGI Utilities should continue to improve customer service performance and reduce call volumes through increased self-service options for customers by increasing online and mobile service offerings, such as outage reporting, text notifications, and other enhancements. There appears to be a strong correlation between the deployment of the new CIS and the degradation of the metrics presented in Exhibit XII-4. Therefore, it is possible that the degradation in service is temporary and will correct itself over time. In fact, as of December 2018, UGI Utilities' monthly performance rate for calls answered within 30 seconds appears to have improved to historical performance levels.

<sup>50</sup> The call abandonment rate is determined by dividing the number of calls received but abandoned (terminated by customers prior to speaking with the company's call center representative) by the total number of calls received by the company.

<sup>51</sup> Prior to September 2017, average call handle times ranged from 7.5 to 8.5 minutes. In January and February 2019, call handle times averaged less than 8.5 minutes.

Nonetheless, UGI Utilities should be prepared to implement additional remedies to improve performance or pivot its focus to meet changing customer demands should the metrics not improve.

**4. UGI Utilities' Customer Information Center is experiencing higher than average turnover for its Customer Care Representatives.**

UGI Utilities' CCR position is an entry-level position which serves as a feeder for higher-level positions within the company (e.g., Customer Care Supervisors). As an entry-level position, CCRs often experience higher turnover rates, but not all turnover should be viewed negatively. For instance, internal turnover provides a counter-balanced benefit to the company and reflects growth and sustainability by retaining valuable institutional knowledge and experience in higher positions. Conversely, external turnover results in similar hiring and training costs as internal turnover but yields zero counter-balancing benefits to the company.

As shown in Exhibit XII-5, UGI Utilities' external turnover rates have increased significantly between fiscal years 2014 and 2018 with the largest increase occurring during the implementation of the new CIS despite efforts to add resources (i.e., increased third-party call support and temporary staff) to mitigate turnover. As also highlighted in Exhibit XII-5, UGI Utilities increased its permanent CCR staffing levels during the preparation for and implementation of the new CIS. After CIS implementation, the CCR staffing levels were reduced to normal levels. Although a small percentage of the external turnover was produced by the staffing level reduction, the overall number of external separations significantly increased in 2018. It is noteworthy to mention that a portion of the temporary staff were onboarded as permanent CCRs; however, CCR staffing levels and external separations reflected in Exhibit XII-5 exclude temporaries and third-party support levels. As of the close of the 2018 fiscal year, UGI Utilities intended to forgo temporary support, and instead pursued permanent hires to fill open positions.

**Exhibit XII-5**  
**UGI Utilities, Inc.**  
**Customer Information Center Customer Care Representatives External**  
**Separations, Staffing Levels and Turnover Ratios**  
**For the Fiscal Years Ended September 30, 2014 - 2018**

	2014	2015	2016	2017	2018
External Separations	17	18	14	22	33
Staffing Level	110	114	118	135	117
External Turnover Ratio	15%	16%	12%	16%	28%

Source: Data Requests CS-7 and CS-25

As detailed within Finding and Conclusions Nos. 1-3, UGI Utilities experienced numerous challenges with its transition to a new CIS resulting in extensive resolution

times. These challenges appear to have negatively affected CCR external turnover rates. The 2012 International Customer Management Institute's Agent Report cited a 12-month industry average external turnover rate of 20% or less for 79% of all contact centers surveyed. Higher turnover rates increase company costs, reduce productivity levels, and may decrease employee morale. Thus, UGI Utilities should continue to improve the retention of CCRs within the CIC through continued technology improvements, employee engagement efforts, and employee feedback groups.

### **Recommendations**

- 1. Reduce long-term accounts receivable balances.**
- 2. Resolve integration issues between the new customer information system and program used to support billing and collections processes for UGI Utilities' Customer Assistance Program.**
- 3. Improve customer service performance metrics.**
- 4. Improve the retention of Customer Care Representatives within the Customer Information Center.**

### **XIII. FLEET MANAGEMENT**

#### **Background**

As indicated in Chapter II – Background, on March 8, 2018, UGI filed a joint application with the Public Utility Commission (PUC or Commission) to merge UGI Utilities, Inc., UGI Central Penn Gas, Inc. (CPG), and UGI Penn Natural Gas, Inc. (PNG) (collectively referred to as UGI Utilities) to operate as three divisions or rate districts: UGI South, UGI Central, and UGI North respectively. The joint merger application was approved by the Commission on September 20, 2018 and the merger was completed on October 1, 2018. Furthermore, UGI Utilities is composed of two regulated divisions consisting of a natural gas distribution operation and an electric distribution operation.

UGI Utilities' Fleet Operations department provides transportation services to UGI South, UGI Central, and UGI North. The Principle Fleet/Equipment Leader reports through the Senior Manager Supply Chain to the Vice President (VP) Finance & Chief Financial Officer (CFO), as presented in Chapter X – Materials Management. Assisting the Principle Fleet/Equipment Leader are a full-time Administrative Assistant and a part-time Fleet Coordinator. Reductions in Fleet Department complement from 29 employees in 2006 to three as of March 2019 coincides with increased outsourcing of fleet maintenance services.

UGI Utilities outsources all vehicle and equipment maintenance and repair services. These services are provided through contracts with Penske, Inc. (Penske) and Automotive Rentals, Inc. (ARI). Penske's services are performed at facilities in Archbald, Harrisburg, Hazleton, Lancaster, Lehigh, Reading, and Wilkes-Barre. As part of the contract, Penske picks up vehicles, performs services at Penske facilities, and returns the vehicle to its original location. ARI offers a network of independent local garages and repair facilities as an alternative to Penske's services, mostly for vehicles located in more remote areas of UGI Utilities' service territory. Local garages and repair facilities must obtain approval from ARI prior to providing service, and services in excess of \$1,000 must receive approval from the Principle Fleet/Equipment Leader. Both vendors provide the same type of service with geography/proximity to repair shop serving as the primary determination of which vendor is used.

As of August 2018, UGI Utilities' had 1,393 vehicles in its fleet. A profile of the number of vehicles by class is shown in Exhibit XIII-1.

**Exhibit XIII-1**  
**UGI Utilities, Inc.**  
**Number of Vehicles by Vehicle and Equipment Class**  
**As of August 2018**

Vehicle and Equipment Class	Number of Vehicles
Passenger Car & SUV	193
Van & Light Truck	513
Heavy Truck	236
Equipment & Trailers	451
Total Vehicles and Equipment	1393

Source: Data Request FT-5

In order to manage the fleet, Fleet Operations uses a fleet management information system (FMIS) provided by ARI. This web-based application acts as the database for all company fleet records, including chassis specifications, factory and aftermarket options, maintenance and repair, invoicing and expense, and fueling data. Vendors automatically upload maintenance and fueling records into the system daily.

Vehicles are refueled at company refueling stations located in Wilkes-Barre, Archibald, Reading, Lehigh, and Lancaster (diesel fuel) or at public fueling stations utilizing Wright Express (WEX) fuel cards. The company also began converting some of the vehicles in its fleet to natural gas vehicles in recent years and anticipates 104 natural gas-fueled vehicles by the end of 2019. To fuel the natural gas-converted vehicles, UGI has three compressed natural gas (CNG) fueling stations.

### **Findings and Conclusions**

Our examination of the Fleet Management function included a review of operating and safety policies and procedures, staffing, acquisition and disposal practices, and vehicle maintenance. Based on our review, additional efforts should be devoted to improving the oversight of fleet management by addressing the following:

**1. Vehicle replacement practices are not consistent with vehicle replacement procedures.**

UGI Utilities' vehicle replacement criteria, as shown in Exhibit XIII-2, were established in an undated procedures document written at least six years ago. The procedures identify optimal replacement points for vehicles and equipment based on exceeding mileage/hours, age, or lifetime maintenance cost thresholds. Trailer replacement is based strictly on age.

**Exhibit XIII-2**  
**UGI Utilities, Inc.**  
**Vehicle Replacement Policy Guidelines**

UNIT CLASS	MILEAGE / HOURS	LIFETIME COST	AGE (years)
Cars	> 115,000	> \$8,000	> 10
Light-Duty SUV	> 115,000	> \$8,000	> 10
Cargo Van	> 115,000	> \$8,000	> 10
Standard Pickup	> 115,000	> \$8,000	> 10
Pickup > 10,000 lbs.	> 90,000	> \$8,000	> 10
Trucks > 10,000 lbs.	> 90,000	> \$20,000	> 10
Light-Duty Equipment	> 3,000 (hours)	> \$10,000	> 15
Heavy-Duty Equipment	> 5,000 (hours)	> \$20,000	> 15
Trailer	N/A	N/A	> 15

Source: Data Request FT-4

Units meeting any of these parameters are eligible for replacement. The Fleet Operations department ranks vehicles eligible for replacement based on miles or hours, ownership cost, age and physical condition, operational performance, safety, and obsolescence. The list is shared with department management, whose feedback is used to help prioritize replacement candidates.

Despite developing optimal replacement points for three separate factors, these factors are no longer used. An over-abundance of vehicles overdue for replacement caused by budget constraints led the Principle Fleet/Equipment Leader to prioritize mileage over age and lifetime maintenance expenses (i.e., more than enough potential replacements were identified using mileage as the sole factor). This undocumented change may have been necessary under the circumstances, but the continued practice raises multiple concerns. Primarily, changing the number of factors alters the decision-tree and can lead to potential changes in the replacement thresholds for any one factor. Compounding the problem is that the policy does not describe how the thresholds were established, so it is not possible for Fleet Operations to analyze the formulas and develop alternatives based upon unique circumstances.

Using analysis driven by outdated data or outside its design may lead to suboptimal replacement decisions. Replacing assets too early incurs excessive capital outlays while maintaining assets too long can result in excessive maintenance costs. Consequently, operations could be adversely impacted due to vehicle downtime and faulty equipment. Therefore, Fleet Operations should ensure it is replacing vehicles at an optimal level and include such justification within its replacement policy.



**2. UGI Utilities is not effectively using vehicle performance metrics.**

Despite a relatively large fleet and dedicated employees, UGI does not use key performance indicators in any meaningful capacity. The company never advanced beyond basic expense per mile tracking (i.e., maintenance expense and operating expense per mile) and ceased tracking those limited metrics in November 2017. The contractual agreements with Penske and ARI call for meeting service-level standards by achieving goals in several performance measurements, but UGI Utilities did not provide any documentation related to these performance metrics and could only affirm monitoring several of the measurements during interviews with audit staff.

Performance metrics are crucial in assessing the reasonableness of the costs of operating and maintaining a vehicle. UGI's fleet is large enough to consider a very wide range of financial and non-financial metrics. The metrics should align with fleet activities and focus on the performance and health of the fleet, contractor performance, and support key goals or initiatives.

**Recommendations**

- 1. Determine optimal vehicle and equipment replacement strategy and update vehicle replacement guidelines.**
- 2. Develop key performance indicators tailored to effectively manage UGI Utilities' fleet, reduce costs, and drive efficiency.**

## **XIV. HUMAN RESOURCES/DIVERSITY**

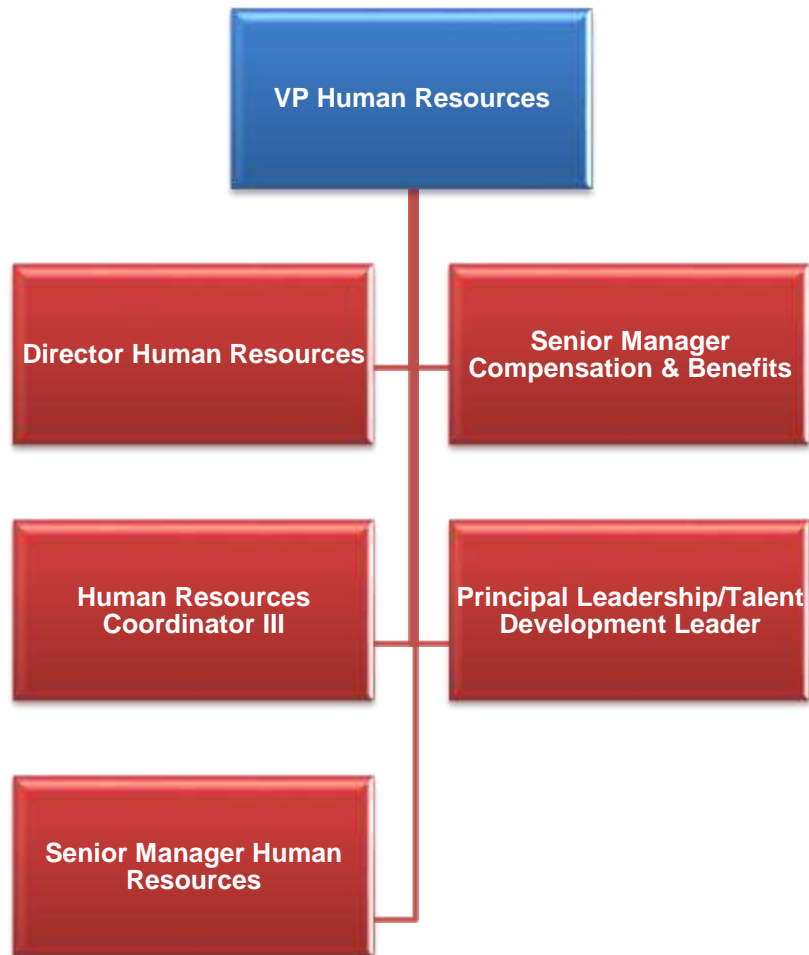
### **Background**

#### **Human Resources**

As indicated in Chapter II – Background, on March 8, 2018, UGI filed a joint application with the Commission to merge UGI Utilities, Inc., UGI Central Penn Gas, Inc. (CPG), and UGI Penn Natural Gas, Inc. (PNG) (collectively referred to as UGI Utilities or company) to operate as three divisions or rate districts: UGI South, UGI Central, and UGI North respectively. The joint merger application was approved by the Pennsylvania Public Utility Commission (PUC or Commission) and became effective on October 1, 2018. Furthermore, UGI Utilities is composed of two regulated divisions consisting of a natural gas distribution operation and an electric distribution operation.

UGI Utilities' Human Resources department (HR) led by the Vice President (VP) of Human Resources provides several services to the two regulated divisions including companywide recruitment and hiring, affirmative action, compensation, employee benefits, and training. The VP of Human Resources reports to the President & CEO of UGI Utilities. The reporting structure of the company's Human Resources Department is summarized in Exhibit XIV-1.

**Exhibit XIV-1**  
**UGI Utilities, Inc.**  
**Human Resources Organization Chart**  
**As of February 28, 2019**



Source: Data Request GD-9

The company's HR department employs a human resource information system (HRIS) comprised of modules provided by Automatic Data Processing, Inc. (ADP) and SAP SE (SAP). Personnel data is stored within ADP's software platform and the company uses ADP modules to manage payroll, employee self-service, time and attendance, and benefits administration. In 2014, HR began designing a new compensation structure, meeting with department vice-presidents and evaluating every position in the organization. This framework separates positions into four general categories: business support, professional, management, and technical. Base salaries are determined by a compensation structure built around job classifications within these general categories. The company implemented this new position framework (i.e., new compensation structure) in 2017.

Periodic salary benchmarking studies are conducted by an outside compensation consultant to determine appropriate salary levels. These studies are conducted every

two to three years by comparing positions to comparable positions in the marketplace (utilities and industry). The company uses nationwide salary data for benchmarking, contending that the cost of living in Reading and the surrounding area is comparable to the national average. The company targets general compensation and benefits to be commensurate with industry standards and specifically sets base salary to the median. In between these compensation studies, cost of living-type (e.g., inflation, wage data, etc.) adjustments are considered for salary levels annually, prior to any merit-based increase. Meanwhile, wages and benefits for union employees are determined through the collective bargaining process. The collective bargaining employees are represented by six unions and composed of 17 bargaining units.

In addition to the base salary, exempt employees (excluding executives) are eligible to participate in an annual incentive program. The annual incentive program gives exempt employees the ability to earn bonuses based on company performance. In particular, the bonus rate is determined by the company's performance relative to safety, customer service, pipeline replacement, and customer growth metrics. In addition, the company's net income must meet a threshold to trigger the payout. Once triggered all exempt employees participating in the program receive the same bonus rate.

The Safety department located within the Environmental Health, and Safety (EHS) organization is led by the Vice President - EHS. The Safety department maintains a comprehensive safety and health manual that covers a wide array of topics such as general worksite safety, personal protective equipment (PPE), confined space entry, crane safety, electrical safety, emergency preparedness, occupational health and wellness, lockout/tagout procedures, fleet safety, etc. Safety programs include employee training (i.e., flagging and jobsite setup, rigging and lifting, crane inspection and operation, etc.), safety committees, and compliance, injury, and accident analysis (i.e., root cause, injury & accident investigations, etc.). As discussed in Chapter VII – Gas Operations, the company views safety as one of the organization's core values. Recent attempts to improve employee perception of safety and the organization's performance in safety metrics led to a variety of internal and external initiatives, including hiring DuPont Sustainable Solutions (DSS) and implementing a Vehicle Safety Program (VSP) discussed in greater detail in Chapter VII – Gas Operations.

### Diversity

The Pennsylvania Public Utility Commission (PUC or Commission) has encouraged utilities to proactively improve diversity in their workforce and purchasing efforts for more than two decades. In March of 1992, the Commission issued a Secretarial letter directing all jurisdictional utilities affected by Section 516 of the Public Utility Code (i.e., utilities whose plant-in-service exceeds \$10 million) to file quarterly diversity status reports with the Commission. In May of 1994, the Commission issued an Order directing Section 516 utilities to file diversity status reports semi-annually rather than quarterly, to submit Equal Employment Opportunity (EEO) plans annually, and to file certain diversity procurement data. In February 1995, the Commission adopted Chapter 69 regulations which encouraged utilities to include diversity efforts as

a component of its business strategy. Later, in March of 1997, the Commission's diversity filing requirements changed from semi-annual to annual.

UGI Utilities participates in corporate-wide diversity and inclusion, programs and initiatives as a subsidiary of UGI Corporation. UGI Corporation's HR department is responsible for coordinating and administering these programs across all subsidiaries. In turn, UGI Utilities' HR department supports diversity programs and administers the programs in Pennsylvania. For example, UGI Utilities reports annually to the UGI Corporation Board of Directors on hiring and promotion of female and minority candidates into management-level positions to support UGI Corporation's efforts to improve diversity within management positions.

## **Findings and Conclusions**

Our examination of the Human Resources and Diversity function included a review of the company's HRIS, compensation levels, safety programs, PUC diversity filings, hiring and recruiting, and employee training. Based on our review, additional efforts should be devoted to improving the oversight of human resources by addressing the following:

### **1. UGI Corporate HR policies and procedures governing UGI Utilities new hires are outdated.**

UGI Utilities HR provides new hires with a variety of policies and procedural documents at the beginning of employment including an employee handbook, vacation and leave policies and procedures, antitrust compliance and code of business conduct and ethics policies, etc. Although the company is providing these documents to its employees, not all the documents are owned and maintained by UGI Utilities' HR. The non-HR policies and procedures are maintained by UGI Corporate's legal department. UGI Utilities indicated that UGI Corporate requires these policies and procedures to be provided to new hires on their behalf. However, our analysis of the documentation revealed contrasting oversight standards between UGI Utilities and UGI Corporation. UGI Utilities appears to review these policies and procedures at least every few years, or on an annual basis with respect to the employee handbook. In contrast, UGI Corporate's Code of Business Conduct and Ethics Policy was last updated over 15 years ago and the Antitrust Compliance Policy contains no date.

Although these documents still contain sections of relevant and accurate information, some minor issues with the lengthy Code of Business Conduct and Ethics Policy supports the need for more thorough examination. The policy contains an introductory letter from a UGI Chairman that retired more than a decade ago. Furthermore, it directs employees to the employee handbook for more information on antitrust compliance even though it is not covered in the document but instead in UGI Corporate's standalone policy. These points, although minor in nature, indicate the need for revision. Documented policies and procedures should be reviewed, and if necessary, revised and updated at least every five years, or sooner if structural changes

render existing policy inadequate or obsolete, reorganization occurs, or if company policy recommends shorter interval periods.

**2. The UGI Utilities annual Report on Diversity filed with the Commission is incomplete.**

PA Title 52 Chapter 69.809 encourages major jurisdictional utility companies to file an annual report describing their diversity program activity from the prior year, including human resources and the procurement of goods and services. UGI Utilities filed diversity reports in 2017 and 2018; however, the company did not include procurement sections in either of the filings submitted to the PUC. Management acknowledged the missing information and mentioned that the process oversight has been corrected.

Overall, the missing data was provided to the auditors during field work and indicate a continued improvement in historical numbers. As a result of a recommendation from the Pennsylvania Public Utility Commission Bureau of Audit's 2011 Management and Operations Audit, UGI Utilities implemented changes to improve discovery, identification, and outreach of minority, women, and persons with disabilities-owned business enterprise (MWDBE) vendors. An analysis of MWDBE vendor procurement in the 2015 Management Efficiency Investigation (MEI) showed MWDBE spending levels more than doubled from 5.8% in 2010 to 12.4% in 2014. Analysis of 2017 and 2018 procurement data and applicable policies and procedures revealed a continuation of the performance first noted in the 2015 MEI, as can be viewed in Exhibit XIV-2.

**Exhibit XIV-2**  
**UGI Utilities, Inc.**  
**Total Procurement from Minority, Women, and Disabilities-Owned Business Enterprise**  
**For Calendar Years 2014 through 2017**

Year	Total Purchases	Minority-Owned Business Enterprises		Women-Owned Business Enterprises		Disabilities-Owned Business Enterprises		Diversity Spending	
		Annual Purchases	% of Total Purchases	Annual Purchases	% of Total Purchases	Annual Purchases	% of Total Purchases	Annual Purchases	% of Total Purchases
2014	\$246,049,046	\$6,203,116	2.52%	\$24,164,138	9.82%	\$62,963	0.03%	\$30,430,217	12.37%
2015	\$274,513,519	\$8,622,070	3.14%	\$22,729,366	8.28%	\$149,599	0.05%	\$31,501,035	11.48%
2016	\$310,300,127	\$8,656,404	2.79%	\$23,980,045	7.73%	\$34,574	0.01%	\$32,671,023	10.53%
2017	\$333,538,312	\$8,425,214	2.53%	\$29,765,731	8.92%	\$142,525	0.04%	\$38,333,470	11.49%

Source: Data Request HR-6

The Commission's "Policy Statement Regarding Diversity at major Jurisdictional Utilities" was adopted to facilitate transparency and the monitoring of a company's diversity programs and encourages jurisdictional utilities to file annual diversity reports. Furthermore, a vast majority of other Pennsylvania major jurisdictional utilities are consistently filing annual diversity reports with the PUC.

### **Recommendations**

- 1. All documentation provided to new hires should be reviewed periodically and updated as necessary.**
- 2. Prepare and file annual diversity reports in accordance with Commission guidelines for annual PUC diversity filing.**



## **XV. ACKNOWLEDGEMENTS**

We wish to express our appreciation for the cooperation and assistance provided by the officers and staff of the UGI Utility Group during this Management and Operations Audit.

This audit was conducted by Porus Irani, Krystle Daugherty, Jennie Banzhof, Barry Keener, Michael Flynn, and Michael Savage of the Management Audit Staff of the Bureau of Audits.

## **XVI. APPENDICES**

Appendix A	UGI Utilities, Inc. – Financial and Operating Data and Statistics
Appendix B	UGI Penn Natural Gas, Inc. – Financial and Operating Data and Statistics
Appendix C	UGI Central Penn Gas, Inc. – Financial and Operating Data and Statistics
Appendix D	UGI Utilities, Inc. (Electric Service Division) – Financial and Operating Data and Statistics
Appendix E	UGI Utilities, Inc. (Electric Service Division) – Balance Sheet Data

UGI Utilities, Inc.  
Financial and Operating Data and Statistics

<u>Operating Statistics</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>Compound Growth</u>
Gross Utility Plant	\$1,412,979,177	\$1,518,058,883	\$1,626,360,628	\$1,783,687,539	\$1,955,285,107	8.5%
Depreciation & Amortization	-480,813,476	-497,992,267	-515,364,988	-536,810,257	-560,222,294	3.9%
Net Utility Plant	\$932,165,701	\$1,020,066,616	\$1,110,995,640	\$1,246,877,282	\$1,395,062,813	10.6%
Operating Revenue:						
Residential	\$232,038,455	\$246,941,829	\$222,505,945	\$205,448,293	\$251,118,904	2.0%
Commercial	135,002,562	150,881,529	140,124,004	128,205,592	148,185,919	2.4%
Industrial	44,385,798	48,345,517	46,666,498	45,921,264	48,867,891	2.4%
Subtotals	\$411,426,815	\$446,168,875	\$409,296,447	\$379,575,149	\$448,172,714	2.2%
Other	39,034,012	65,217,902	48,150,377	30,307,775	52,308,925	7.6%
Totals	\$450,460,827	\$511,386,777	\$457,446,824	\$409,882,924	\$500,481,639	2.7%
Deliveries by Volume (Mcf)						
Residential	23,236,635	25,576,761	24,319,150	23,665,914	24,594,882	1.4%
Commercial	25,003,493	27,681,548	26,985,168	26,761,247	28,379,886	3.2%
Industrial	68,765,808	68,781,033	73,627,597	77,434,018	73,872,114	1.8%
Total Mcf Sales	117,005,936	122,039,342	124,931,915	127,861,179	126,846,882	2.0%
Total Receipts (Mcf)	139,273,469	142,233,018	146,852,825	151,652,863	155,210,839	2.7%
Unaccounted for Gas (Mcf)	481,060	-22,803	183,746	98,816	137,043	-26.9%
UFG as a % of Total Receipts	0.35%	-0.02%	0.13%	0.07%	0.09%	-28.9%
Customers (Average):						
Residential	321,086	327,905	335,157	341,891	347,849	2.0%
Commercial	34,973	35,738	36,671	37,715	38,628	2.5%
Industrial	1,376	1,364	1,349	1,341	1,322	-1.0%
Other	0	0	0	0	0	0.0%
Totals	357,435	365,007	373,177	380,947	387,799	2.1%
Employees (Average)	904	943	991	1044	1104	5.1%
Distribution Mains (M. Ft.)	28,969	29,172	29,563	29,874	30,217	1.1%
Transmission Mains (M. Ft.)	616	692	643	641	595	-0.9%
Total Main Pipeline (M. Ft.)	29,585	29,864	30,205	30,515	30,812	1.0%
Total Main Pipeline (Miles)	5,603	5,656	5,721	5,779	5,836	1.0%
Services	322,599	328,716	359,045	362,701	369,846	3.5%

NM = Not Meaningful

NA = Not available

Source: PUC Annual Reports

**UGI Utilities, Inc.**  
**Financial and Operating Data and Statistics**

**Appendix A**  
**Page 2 of 2**

<b><u>Gas Operation &amp; Maintenance Expenses</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>Compound Growth</u></b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	
Natural Gas Production Expenses	55,133	54,677	66,492	450,269	2,024,760	146.2%
Other Gas Supply Expenses	217,135,177	258,637,685	212,661,450	164,742,616	229,442,042	1.4%
Natural Gas Storage, Terminating, & Processing Expenses:						
Underground Storage Expenses	0	0	0	0	0	0.0%
Maintenance	0	0	0	0	0	0.0%
Other Storage Expenses	0	0	0	0	0	0.0%
Total	0	0	0	0	0	0.0%
Transmission Expenses:						
Operation	104,692	227,891	0	0	1,203	-67.3%
Maintenance	144,847	592,862	0	0	9,528	-49.4%
Totals	249,539	820,753	0	0	10,731	-54.5%
Distribution Expenses:						
Operation	17,728,209	19,841,076	21,344,292	18,006,677	20,994,089	4.3%
Maintenance	13,471,915	14,302,379	14,053,837	11,560,505	12,549,340	-1.8%
Totals	31,200,124	34,143,455	35,398,129	29,567,182	33,543,429	1.8%
Customer Accounts Expenses	15,644,517	17,390,502	17,359,948	13,273,095	15,605,517	-0.1%
Customer Service & Inform. Expenses	1,812,245	1,706,444	1,624,717	1,638,447	1,535,831	-4.1%
Sales Expenses	1,169,116	1,072,652	974,897	814,433	1,036,255	-3.0%
Administrative & General Expenses:						
Operation	38,638,508	44,304,564	46,467,366	36,394,375	43,993,272	3.3%
Maintenance	1,317,691	1,674,504	1,664,494	1,785,549	1,933,838	10.1%
Totals	39,956,199	45,979,068	48,131,860	38,179,924	45,927,110	3.5%
Total Gas Operation & Maintenance Exp.	307,222,050	359,805,236	316,217,493	248,665,966	329,125,675	1.7%

NM - Not Meaningful  
Source: PUC Annual Reports

UGI Penn Natural Gas  
Financial and Operating Data and Statistics

<u>Operating Statistics</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>Compound Growth</u>
Gross Utility Plant	\$822,465,207	\$867,592,984	\$912,058,954	\$970,974,394	\$1,070,105,285	6.8%
Depreciation & Amortization	238,568,284	250,591,849	263,399,496	275,952,293	282,169,325	4.3%
Net Utility Plant	\$583,896,923	\$617,001,135	\$648,659,458	\$695,022,101	\$787,935,960	7.8%
Operating Revenue:						
Residential	\$167,198,473	\$178,724,799	\$166,063,186	\$133,646,580	\$143,466,246	-3.8%
Commercial	52,748,445	59,934,828	56,078,040	44,686,430	49,498,203	-1.6%
Industrial	11,649,192	13,317,142	12,749,468	14,484,507	16,668,546	9.4%
Subtotals	\$231,596,110	\$251,976,769	\$234,890,694	\$192,817,517	\$209,632,995	-2.5%
Other	45,294,305	56,574,333	30,194,523	13,069,435	21,635,300	-16.9%
Totals	\$276,890,415	\$308,551,102	\$265,085,217	\$205,886,952	\$231,268,295	-4.4%
Deliveries by Volume (Mcf)						
Residential	16,013,990	17,159,744	16,452,412	15,556,039	15,363,350	-1.0%
Commercial	11,790,582	16,145,726	12,533,911	11,942,467	12,385,001	1.2%
Industrial	25,862,817	27,551,467	27,432,024	48,470,545	66,467,036	26.6%
Total Mcf Sales	53,667,389	60,856,937	56,418,347	75,969,051	94,215,387	15.1%
Total Receipts (Mcf)	73,833,760	75,785,711	69,739,975	85,975,667	106,381,035	9.6%
Unaccounted for Gas (Mcf)	-25,453	331,158	226,156	745,487	633,751	NM
UFG as a % of Total Receipts	-0.03%	0.44%	0.32%	0.87%	0.60%	10.9%
Customers (Average):						
Residential	147,583	148,991	150,138	151,284	152,442	0.8%
Commercial	15,988	16,175	16,358	16,530	16,603	0.9%
Industrial	218	216	218	218	219	0.1%
Other	0	0	0	0	0	0.0%
Totals	163,789	165,382	166,714	168,032	169,264	0.8%
Employees (Average)	233	232	241	251	259	2.6%
Distribution Mains (M. Ft.)	13,317	13,279	13,527	13,432	13,543	0.4%
Transmission Mains (M. Ft.)	163	223	265	266	267	13.2%
Total Main Pipeline (M. Ft.)	13,480	13,502	13,792	13,698	13,810	0.6%
Total Main Pipeline (Miles)	2,553	2,557	2,612	2,594	2,616	0.6%
Services	128,945	130,564	172,113	171,242	169,990	7.2%

NM = Not Meaningful

NA = Not available

Source: PUC Annual Reports

**UGI Penn Natural Gas**  
**Financial and Operating Data and Statistics**

**Appendix B**  
**Page 2 of 2**

<b><u>Gas Operation &amp; Maintenance Expenses</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>Compound Growth</u></b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	
Natural Gas Production Expenses	1,100,000	1,100,000	1,100,000	1,100,000	1,297,250	4.2%
Other Gas Supply Expenses	153,790,488	177,487,491	134,972,775	75,896,339	94,866,997	-11.4%
Natural Gas Storage, Terminating, & Processing Expenses:						
Underground Storage Expenses	0	0	0	0	0	0.0%
Maintenance	0	0	0	0	0	0.0%
Other Storage Expenses	37,632	36,497	36,644	38,364	34,962	-1.8%
Total	37,632	36,497	36,644	38,364	34,962	-1.8%
Transmission Expenses:						
Operation	117,379	503,983	308,317	248,180	261,657	22.2%
Maintenance	462,185	244,984	220,976	236,523	415,961	-2.6%
Totals	579,564	748,967	529,293	484,703	677,618	4.0%
Distribution Expenses:						
Operation	10,547,359	12,127,997	11,629,579	11,868,752	12,342,824	4.0%
Maintenance	6,932,892	8,623,344	12,006,652	10,427,138	10,034,604	9.7%
Totals	17,480,251	20,751,341	23,636,231	22,295,890	22,377,428	6.4%
Customer Accounts Expenses	7,123,107	8,147,556	8,093,966	7,608,892	8,369,079	4.1%
Customer Service & Inform. Expenses	814,708	678,840	628,084	765,788	677,884	-4.5%
Sales Expenses	692,484	474,203	379,668	351,280	464,256	-9.5%
Administrative & General Expenses:						
Operation	21,839,441	20,731,403	24,187,372	21,719,248	25,385,764	3.8%
Maintenance	638,783	767,634	792,935	856,763	795,587	5.6%
Totals	22,478,224	21,499,037	24,980,307	22,576,011	26,181,351	3.9%
Total Gas Operation & Maintenance Exp.	204,096,458	230,923,932	194,356,968	131,117,267	154,946,825	-6.7%

NM - Not Meaningful  
Source: PUC Annual Reports

UGI Central Penn Gas  
Financial and Operating Data and Statistics

<u>Operating Statistics</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>Compound Growth</u>
Gross Utility Plant	\$386,106,312	\$400,349,619	\$434,049,924	\$465,988,723	\$489,806,412	6.1%
Depreciation & Amortization	-131,475,864	-131,724,555	-139,888,584	-147,601,228	-153,242,977	3.9%
Net Utility Plant	\$254,630,448	\$268,625,064	\$294,161,340	\$318,387,495	\$336,563,435	7.2%
Operating Revenue:						
Residential	\$80,621,452	\$86,501,788	\$73,320,866	\$71,306,297	\$76,934,621	-1.2%
Commercial	37,624,042	40,366,880	34,939,855	32,702,502	36,518,712	-0.7%
Industrial	17,571,374	20,813,430	17,975,280	17,991,069	17,914,347	0.5%
Subtotals	\$135,816,868	\$147,682,098	\$126,236,001	\$121,999,868	\$131,367,680	-0.8%
Other	6,539,246	6,326,631	4,903,485	1,959,229	4,997,627	-6.5%
Totals	\$142,356,114	\$154,008,729	\$131,139,486	\$123,959,097	\$136,365,307	-1.1%
Deliveries by Volume (Mcf)						
Residential	6,118,627	6,646,923	6,369,010	6,250,645	6,108,998	0.0%
Commercial	6,948,031	7,468,771	7,127,893	6,880,017	7,022,500	0.3%
Industrial	10,881,389	11,566,232	11,614,760	11,534,252	11,644,326	1.7%
Total Mcf Sales	23,948,047	25,681,926	25,111,663	24,664,914	24,775,824	0.9%
Total Receipts (Mcf)	29,227,550	30,015,085	29,717,273	28,623,367	29,680,440	0.4%
Unaccounted for Gas (Mcf)	767,267	509,477	680,097	482,697	265,549	-23.3%
UFG as a % of Total Receipts	2.63%	1.70%	2.29%	1.69%	0.89%	-23.6%
Customers (Average):						
Residential	68,128	69,129	70,047	70,711	71,080	1.1%
Commercial	10,330	10,472	10,627	10,791	10,907	1.4%
Industrial	298	300	303	305	305	0.6%
Other	0	0	0	0	0	0.0%
Totals	78,756	79,901	80,977	81,807	82,292	1.1%
Employees (Average)	196	197	207	213	216	2.5%
Distribution Mains (M. Ft.)	3,716	19,452	19,626	19,784	19,805	51.9%
Transmission Mains (M. Ft.)	84	692	692	694	693	69.3%
Total Main Pipeline (M. Ft.)	3,800	20,143	20,318	20,478	20,498	52.4%
Total Main Pipeline (Miles)	720	3,815	3,848	3,878	3,882	52.4%
Services	77,792	84,430	83,302	82,757	83,500	1.8%

NM = Not Meaningful

NA = Not available

Source: PUC Annual Reports

**UGI Central Penn Gas**  
**Financial and Operating Data and Statistics**

**Appendix C**  
**Page 2 of 2**

<b><u>Gas Operation &amp; Maintenance Expenses</u></b>	<b><u>2013</u></b>	<b><u>2014</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>Compound Growth</u></b>
	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	<b>\$</b>	
Natural Gas Production Expenses	106,727	10,396	-865	-629	-500	NM
Other Gas Supply Expenses	55,399,623	59,848,809	41,765,181	32,100,589	43,451,524	-5.9%
Natural Gas Storage, Terminating, & Processing Expenses:						
Underground Storage Expenses	649,129	565,774	81	0	0	-100.0%
Maintenance	842	0	0	0	0	-100.0%
Other Storage Expenses	0	0	1881	6191	0	0.0%
Total	649,971	565,774	1,962	6,191	0	-100.0%
Transmission Expenses:						
Operation	307,932	265,098	242,790	315,891	322,822	1.2%
Maintenance	217,694	330,059	675,942	531,080	497,939	23.0%
Totals	525,626	595,157	918,732	846,971	820,761	11.8%
Distribution Expenses:						
Operation	8,418,053	10,035,056	9,315,707	8,313,569	8,686,242	0.8%
Maintenance	3,068,434	3,770,848	3,286,726	3,514,196	3,297,313	1.8%
Totals	11,486,487	13,805,904	12,602,433	11,827,765	11,983,555	1.1%
Customer Accounts Expenses	5,128,009	5,610,743	5,310,341	5,651,596	6,094,927	4.4%
Customer Service & Inform. Expenses	580,005	479,340	390,324	463,958	469,898	-5.1%
Sales Expenses	425,749	266,958	216,907	187,443	290,696	-9.1%
Administrative & General Expenses:						
Operation	15,188,963	14,758,448	15,191,147	14,701,955	15,972,856	1.3%
Maintenance	543,763	524,064	468,107	423,267	402,103	-7.3%
Totals	15,732,726	15,282,512	15,659,254	15,125,222	16,374,959	1.0%
Total Gas Operation & Maintenance Exp.	90,034,923	96,465,593	76,864,269	66,209,106	79,485,820	-3.1%

NM - Not Meaningful  
Source: PUC Annual Reports



**UGI Utilities Inc. (Electric Division)**  
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**Appendix D**  
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	2013	2014	2015	2016	2017	Compound Growth
<b>Plant In Service</b>						
Land and Land Rights	\$1,837,778	\$1,837,778	\$1,837,804	\$2,245,222	\$2,245,708	5.1%
Structures and Improvements	\$299,003	\$299,003	\$299,003	\$1,800,369	\$1,810,756	56.9%
Station Equipment	\$21,354,919	\$22,091,916	\$22,758,613	\$23,476,044	\$25,597,642	4.6%
Towers and Fixtures	\$2,789,348	\$3,004,215	\$3,265,827	\$3,489,073	\$3,689,243	7.2%
Poles and Fixtures	\$3,780,917	\$4,098,743	\$4,209,130	\$4,272,970	\$4,553,938	4.8%
Overhead Conductors and Devices	\$7,790,418	\$8,147,819	\$8,331,518	\$8,461,769	\$8,694,935	2.8%
Underground Conduit	\$2,092	\$2,092	\$2,092	\$2,092	\$2,092	0.0%
Underground Conductors and Devices	\$12,486	\$12,486	\$12,486	\$12,486	\$12,486	0.0%
Roads and Trails	\$0	\$0	\$141,114	\$159,890	\$159,890	6.4%
<b>Total Transmission Plant</b>	<b>\$37,866,961</b>	<b>\$39,494,052</b>	<b>\$40,857,587</b>	<b>\$43,919,915</b>	<b>\$46,766,690</b>	<b>5.4%</b>
Land and Land Rights	\$98,168	\$98,168	\$98,168	\$98,168	\$98,168	0.0%
Structures and Improvements	\$11,459	\$11,459	\$11,459	\$11,459	\$11,459	0.0%
Station Equipment	\$482,227	\$482,227	\$517,972	\$534,166	\$1,714,356	37.3%
Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	0.0%
Poles, Towers, and Fixtures	\$32,377,756	\$33,912,297	\$35,445,774	\$36,764,151	\$38,925,856	4.7%
Overhead Conductors and Devices	\$25,459,642	\$27,150,861	\$29,075,468	\$30,454,178	\$33,393,171	7.0%
Underground Conduit	\$4,875,344	\$5,011,132	\$5,106,097	\$5,504,160	\$6,002,825	5.3%
Underground Conductors and Devices	\$7,082,805	\$7,442,326	\$7,541,670	\$7,535,766	\$8,236,163	3.8%
Line Transformers	\$20,580,279	\$20,971,262	\$21,517,320	\$21,974,782	\$22,612,421	2.4%
Services	\$11,773,838	\$12,166,851	\$12,567,149	\$12,979,487	\$13,425,417	3.3%
Meters	\$9,130,585	\$9,262,224	\$9,351,520	\$9,471,816	\$9,591,301	1.2%
Installations on Customer Premises	\$1,787,947	\$1,900,208	\$2,077,345	\$2,197,775	\$2,295,146	6.4%
Leased Property on Customer Premises	\$0	\$0	\$0	\$0	\$0	0.0%
Street Lighting and Signal Systems	\$1,504,784	\$1,497,976	\$1,525,058	\$1,540,870	\$1,567,726	1.0%
<b>Total Distribution Plant</b>	<b>\$115,164,834</b>	<b>\$119,906,991</b>	<b>\$124,835,000</b>	<b>\$129,066,778</b>	<b>\$137,874,009</b>	<b>4.6%</b>
Land and Land Rights	\$89,222	\$89,222	\$89,222	\$89,222	\$89,222	0.0%
Structures and Improvements	\$1,013,204	\$1,247,941	\$1,380,693	\$1,260,912	\$1,204,270	4.4%
Office Furniture & Equipment	\$840,053	\$883,173	\$899,743	\$832,605	\$664,380	-5.7%
Transportation Equipment	\$44,000	\$44,000	\$0	\$0	\$0	-100.0%
Stores Equipment	\$12,439	\$12,440	\$15,657	\$15,657	\$15,657	5.9%
Tools, Shop & Garage Equipment	\$665,732	\$658,175	\$695,455	\$757,452	\$820,586	5.4%
Laboratory Equipment	\$117,440	\$155,267	\$155,264	\$172,100	\$169,293	9.6%
Power Operated Equipment	\$167,867	\$167,867	\$167,867	\$167,867	\$145,839	-3.5%
Communication Equipment	\$1,423,269	\$1,408,955	\$1,189,255	\$1,219,419	\$1,190,044	-4.4%
Miscellaneous Equipment	\$76,765	\$76,765	\$85,617	\$97,651	\$166,608	21.4%
Other Tangible Property	\$0	\$0	\$0	\$0	\$0	0.0%
<b>Total General Plant</b>	<b>\$4,449,991</b>	<b>\$4,743,805</b>	<b>\$4,678,773</b>	<b>\$4,612,885</b>	<b>\$4,465,899</b>	<b>0.1%</b>
<b>Total Plant In Service</b>	<b>\$157,481,786</b>	<b>\$164,144,848</b>	<b>\$170,371,360</b>	<b>\$177,599,578</b>	<b>\$189,106,598</b>	<b>4.7%</b>

NM - Not Meaningful

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	2013	2014	2015	2016	2017	Compound Growth
<b><u>Operating Revenues</u></b>						
<b>Sales of Electricity</b>						
Residential Sales	\$67,625,250	\$69,844,177	\$65,023,696	\$61,425,435	\$55,771,800	-4.7%
Commercial Sales	\$22,874,735	\$25,295,707	\$22,751,318	\$21,638,328	\$20,625,920	-2.6%
Industrial Sales	\$3,898,189	\$3,999,813	\$3,349,240	\$3,404,409	\$3,823,468	-0.5%
Public Street and Highway Lighting Sales	\$917,534	\$936,663	\$814,781	\$773,220	\$708,304	-6.3%
<b>Total Sales to Ultimate Customers</b>	<b>\$95,315,708</b>	<b>\$100,076,360</b>	<b>\$91,939,035</b>	<b>\$87,241,392</b>	<b>\$80,929,492</b>	<b>-4.0%</b>
Other Sales to Public Authorities	\$21,623	\$27,034	\$23,088	\$16,527	\$8,587	-20.6%
Sales for Resale	\$14,221	\$15,975	\$14,633	\$12,756	\$7,861	-13.8%
<b>Total Sales of Electricity</b>	<b>\$95,351,552</b>	<b>\$100,119,369</b>	<b>\$91,976,756</b>	<b>\$87,270,675</b>	<b>\$80,945,940</b>	<b>-4.0%</b>
Provision for Rate Refunds	\$0	\$0	\$0	\$0	\$0	0.0%
<b>Total Revenues Net Provisions</b>	<b>\$95,351,552</b>	<b>\$100,119,369</b>	<b>\$91,976,756</b>	<b>\$87,270,675</b>	<b>\$80,945,940</b>	<b>-4.0%</b>
<b><u>Kilowatt Hours Sold</u></b>						
<b>Sales of Electricity</b>						
Residential Sales	558,416,010	543,145,143	554,164,593	4,083,273	4,219,344	-70.5%
Commercial Sales	327,354,565	316,181,313	324,381,639	142,510,370	149,038,218	-17.9%
Industrial Sales	109,173,591	110,582,527	106,095,831	86,743,133	90,095,292	-4.7%
Public Street and Highway Lighting Sales	4,928,321	4,913,158	4,876,800	2,631,256	2,029,739	-19.9%
<b>Total Sales to Ultimate Customers</b>	<b>999,872,487</b>	<b>974,822,141</b>	<b>989,518,863</b>	<b>235,968,032</b>	<b>245,382,593</b>	<b>-29.6%</b>
Other Sales to Public Authorities	826,924	905,724	863,847	631,850	464,800	-13.4%
Sales for Resale	\$0	\$0	\$0	\$0	\$0	0.0%
<b>Total Sales of Electricity</b>	<b>1,000,699,411</b>	<b>975,727,865</b>	<b>990,382,710</b>	<b>236,599,882</b>	<b>245,847,393</b>	<b>-29.6%</b>
<b><u>Average Number of Customers Per Month</u></b>						
<b>Sales of Electricity</b>						
Residential Sales	54,402	54,358	54,273	54,280	55,333	0.4%
Commercial Sales	7,364	7,381	7,393	7,426	8,238	2.8%
Industrial Sales	159	156	155	153	181	3.3%
Public Street and Highway Lighting Sales	55	55	54	54	129	23.8%
<b>Total Sales to Ultimate Customers</b>	<b>61,980</b>	<b>61,950</b>	<b>61,875</b>	<b>61,913</b>	<b>63,881</b>	<b>0.8%</b>
Other Sales to Public Authorities	10	10	10	10	7	-8.5%
Sales for Resale	\$0	\$0	\$0	\$0	\$0	0.0%
<b>Total Sales of Electricity</b>	<b>61,990</b>	<b>61,960</b>	<b>61,885</b>	<b>61,923</b>	<b>63,888</b>	<b>0.8%</b>
<b><u>Operation and Maintenance Expenses</u></b>						
<b><u>Transmission</u></b>						
<b>Total Operation</b>	<b>\$6,620,105</b>	<b>\$6,332,483</b>	<b>\$6,492,305</b>	<b>\$6,234,581</b>	<b>\$6,247,154</b>	<b>-1.4%</b>
Maintenance Supervision and Engineering	\$87,026	\$85,141	\$56,270	\$46,515	\$43,118	-16.1%
Maintenance of Structures	\$7,509	\$1,855	\$1,165	\$9,590	\$2,374	-25.0%
Maintenance of Station Equipment	\$433,190	\$283,687	\$227,086	\$182,176	\$148,730	-23.5%
Maintenance of Overhead Lines	\$472,453	\$516,321	\$220,437	\$546,913	\$493,284	1.1%
Maintenance of Underground Lines	\$0	\$0	\$0	\$0	\$0	0.0%
Maintenance of Misc.Transmission Plant	\$0	\$0	\$0	\$0	\$0	0.0%
<b>Total Maintenance</b>	<b>\$1,000,178</b>	<b>\$887,004</b>	<b>\$504,958</b>	<b>\$785,194</b>	<b>\$687,506</b>	<b>-8.9%</b>
<b>Total Transmission O&amp;M Expenses</b>	<b>\$7,620,283</b>	<b>\$7,219,487</b>	<b>\$6,997,263</b>	<b>\$7,019,775</b>	<b>\$6,934,660</b>	<b>-2.3%</b>

NM - Not Meaningful

Source: Pa PUC Annual Reports

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	2013	2014	2015	2016	2017	Compound Growth
<b><u>Distribution</u></b>						
Operation Supervision/Engineering	\$443,272	\$471,009	\$392,136	\$462,158	\$396,622	-2.7%
Load Dispatching	\$370,200	\$370,096	\$342,417	\$341,925	\$350,757	-1.3%
Station Expenses	\$51,312	\$65,067	\$75,524	\$81,436	\$104,051	19.3%
Overhead Line Expenses	\$139,934	\$177,307	\$172,274	\$183,963	\$162,998	3.9%
Underground Line Expenses	\$36,525	\$49,396	\$42,588	\$49,245	\$36,655	0.1%
Street Lighting and Signal System Expenses	\$27,762	\$58,615	\$71,728	\$47,282	\$27,374	-0.4%
Meter Expenses	\$385,735	\$419,156	\$421,210	\$404,658	\$423,901	2.4%
Customer Installations Expenses	\$171,270	\$184,818	\$152,579	\$102,339	\$85,801	-15.9%
Miscellaneous Distribution Expenses	\$560,980	\$592,553	\$586,699	\$675,783	\$1,103,169	18.4%
Rents	\$2,028	\$542	\$1,385	\$545	\$1,517	-7.0%
<b>Total Operation</b>	<b>\$2,189,018</b>	<b>\$2,388,559</b>	<b>\$2,258,540</b>	<b>\$2,349,334</b>	<b>\$2,692,845</b>	<b>5.3%</b>
Maintenance Supervision/Engineering	\$240,090	\$232,490	\$217,216	\$214,030	\$205,310	-3.8%
Maintenance of Structures	\$1,637	\$5,517	\$1,525	\$2,170	\$2,102	6.5%
Maintenance of Station Equipment	\$24,778	\$56,101	\$147,776	\$90,299	\$106,615	44.0%
Maintenance of Overhead Lines	\$3,023,329	\$4,555,944	\$3,675,802	\$4,021,254	\$3,528,487	3.9%
Maintenance of Underground Lines	\$197,232	\$198,268	\$171,312	\$146,346	\$218,450	2.6%
Maintenance of Line Transformers	\$195,297	\$194,593	\$176,022	\$116,738	\$143,966	-7.3%
Maintenance of Street Lighting/Signal Systems	\$35,982	\$107,416	(\$9,596)	\$42,690	\$72,949	19.3%
Maintenance of Meters	\$13,562	\$13,971	\$14,179	\$8,122	\$8,978	-9.8%
Maintenance of Misc. Distribution Plant	\$30,926	\$20,458	\$16,429	\$20,935	\$14,773	-16.9%
<b>Total Maintenance</b>	<b>\$3,762,833</b>	<b>\$5,384,758</b>	<b>\$4,410,665</b>	<b>\$4,662,584</b>	<b>\$4,301,630</b>	<b>3.4%</b>
<b>Total Distribution O&amp;M Expenses</b>	<b>\$5,951,851</b>	<b>\$7,773,317</b>	<b>\$6,669,205</b>	<b>\$7,011,918</b>	<b>\$6,994,475</b>	<b>4.1%</b>
<b>Total Transmission and Distribution Expenses</b>	<b>\$13,572,134</b>	<b>\$14,992,804</b>	<b>\$13,666,468</b>	<b>\$14,031,693</b>	<b>\$13,929,135</b>	<b>0.7%</b>
<b><u>Customer Service and Info. Expenses</u></b>						
Supervision	\$56,672	\$50,389	\$51,922	\$21,775	\$34,203	-11.9%
Customer Assistance Expenses	\$260,359	\$244,084	\$239,208	\$235,806	\$215,985	-4.6%
Information and Instructional Expenses	\$86,894	\$41,278	\$16,198	\$4,689	\$44,526	-15.4%
Misc Customer Service and Info. Expenses	\$37,703	\$27,130	\$1,519	\$3,983	\$21,183	-13.4%
<b>Total Customer Service and Info. Expenses</b>	<b>\$441,628</b>	<b>\$362,881</b>	<b>\$308,847</b>	<b>\$266,253</b>	<b>\$315,897</b>	<b>-8.0%</b>
<b><u>UTILITY OPERATING INCOME</u></b>						
OPERATING REVENUES	\$101,829,553	\$107,533,937	\$102,194,718	\$94,369,248	\$87,361,280	-3.8%
OPERATING EXPENSES						
Operation Expenses	\$73,932,900	\$80,523,438	\$73,701,633	\$65,679,571	\$64,193,893	-3.5%
Maintenance Expenses	\$4,801,970	\$6,295,412	\$4,953,440	\$5,492,733	\$5,013,095	1.1%
Depreciation Expenses	\$3,938,592	\$4,192,526	\$4,323,685	\$4,572,516	\$4,649,030	4.2%
Amort. of Limited Term Electric Plant	\$178,967	\$289,921	\$344,650	\$318,036	\$443,335	25.5%
Amort. of Other Electric Plant	\$18,137	\$20,519	\$21,400	\$46,630	\$0	-100.0%
Regulatory Debits	\$0	\$0	\$0	\$0	\$0	0.0%
Regulatory Credits	\$0	\$0	\$0	\$0	\$0	0.0%
Taxes Other Than Income Taxes	\$6,693,638	\$6,787,196	\$6,288,243	\$6,105,736	\$5,098,988	-6.6%
Federal Income Taxes	\$5,351,772	\$118,136	\$2,961,787	\$1,054,235	(\$532,765)	NM
Provision for Deferred Income Taxes	\$1,446,152	\$175,865	\$871,044	\$9,935,195	(\$5,297,626)	NM
Provision for Deferred Income Taxes - Credit	(\$1,445,962)	\$3,200,594	\$3,972,554	(\$9,017,256)	\$8,373,752	NM
Investment Tax Credit	(\$22,241)	(\$17,328)	(\$17,328)	(\$6,301)	\$0	-100.0%
Gains from Disposition of Utility Plant	\$0	\$0	\$0	\$0	\$0	0.0%
Losses from Disposition of Utility Plant	\$0	\$0	\$0	\$0	\$0	0.0%
Gains from Disposition of Allowances	\$0	\$0	\$0	\$0	\$0	0.0%
Losses from Disposition of Allowances	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOTAL UTILITY OPERATING EXPENSES</b>	<b>\$94,893,925</b>	<b>\$101,586,279</b>	<b>\$97,421,108</b>	<b>\$84,181,095</b>	<b>\$81,941,702</b>	<b>-3.6%</b>
<b>NET UTILITY OPERATING INCOME</b>	<b>\$6,935,628</b>	<b>\$5,947,658</b>	<b>\$4,773,610</b>	<b>\$10,188,153</b>	<b>\$5,419,578</b>	<b>13.7%</b>

NM - Not Meaningful

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**Appendix D**  
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	2013	2014	2015	2016	2017	Compound Growth
<b>OTHER INCOME AND DEDUCTIONS</b>						
Rev. from merch., Jobbing and Cont. Work	\$0	\$0	\$0	\$0	\$0	0.0%
Costs & Exp. Of Merch., Jobbing & Contract	\$0	\$0	\$0	\$0	\$0	0.0%
Revenue from Non-Utility Operations	\$0	\$0	\$0	\$0	\$0	0.0%
Expenses of Non-Utility Operations	\$0	\$0	\$0	\$0	\$0	0.0%
Non Operating Rental Income	\$25,632	\$37,910	\$27,296	\$45,734	29,201	3.3%
Equity in Earnings of Subsidiary Companies	\$0	\$0	\$0	\$0	\$0	0.0%
Interest & Dividend Income	\$64,209	\$218,710	\$314,000	(\$22,779)	(35,639)	NM
Allow. for Other Funds Used During Construction	\$114,431	\$125,739	\$89,762	\$180,248	264,758	23.3%
Miscellaneous Non Operating Income	\$135,305	\$9,391	\$14,034	\$10,940	(20,787)	NM
Gain on Disposition of Property	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOTAL OTHER INCOME</b>	<b>\$ 339,577</b>	<b>\$ 391,750</b>	<b>\$ 445,092</b>	<b>\$ 214,143</b>	<b>237,533</b>	<b>-8.5%</b>
Loss on Disposition of Property	\$0	\$0	\$0	\$0	8,612	0.0%
Miscellaneous Amortization	\$0	\$0	\$0	\$0	\$0	0.0%
Donations	\$108,424	\$36,036	\$38,056	\$36,649	\$44,609	-19.9%
Life Insurance	\$0	\$0	\$0	\$0	\$0	0.0%
Penalties	\$0	\$0	\$0	\$0	\$0	0.0%
Miscellaneous Income Deductions	\$66,597	\$82,516	\$58,281	\$49,860	\$56,845	-3.9%
<b>TOTAL OTHER INCOME DEDUCTIONS</b>	<b>\$ 175,021</b>	<b>\$ 118,552</b>	<b>\$ 96,337</b>	<b>\$ 86,509</b>	<b>110,066</b>	<b>-10.9%</b>
Taxes Other Than Income Taxes	\$0	\$0	\$0	\$0	\$0	0.0%
Income Taxes, Other Income and Deductions	(\$1,834,143)	(\$740,422)	(\$859,084)	(\$378,729)	(\$220,150)	-41.1%
Other Income Taxes	\$0	\$0	\$0	\$0	\$0	0.0%
Provision for Deferred Income Taxes	\$0	\$0	\$0	\$0	\$0	0.0%
Deferred Income Tax Credits	\$0	\$0	\$0	\$0	\$0	0.0%
Investment Tax Credit Adjustment - Net	\$0	\$0	\$0	\$0	\$0	0.0%
Investment Tax Credit	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOT. TAXES ON OTHER INC. AND DED.</b>	<b>(\$1,834,143)</b>	<b>(\$740,422)</b>	<b>(\$859,084)</b>	<b>(\$378,729)</b>	<b>(\$220,150)</b>	<b>-41.1%</b>
<b>NET OTHER INCOME AND DEDUCTIONS</b>	<b>\$ 1,998,699</b>	<b>\$ 1,013,620</b>	<b>\$ 1,207,839</b>	<b>\$ 506,363</b>	<b>347,617</b>	<b>-35.4%</b>
<b>INTEREST CHARGES</b>						
Interest on Long-Term Debt	\$1,792,069	\$1,819,270	\$1,841,126	\$1,700,625	\$1,873,165	1.1%
Amortization of Debt Disc. And Expense	\$33,866	\$28,137	\$31,232	\$18,998	\$18,375	-14.2%
Amortization of Loss on Reacquired Debt	\$3,999	\$4,041	\$3,072	\$0	\$0	-100.0%
Amortization of Premium on Debt	\$0	\$0	\$0	\$0	\$0	0.0%
Amort. of Gain on Reacquired Debit-Credit	\$0	\$0	\$0	\$0	\$0	0.0%
Interest on Debt to Associated Companies	\$0	\$0	\$0	\$0	\$0	0.0%
Other Interest Expense	\$102,820	\$142,525	\$67,853	\$196,395	\$109,053	1.5%
Allow. for Borrowed Funds Used During Construction	(\$17,671)	(\$16,703)	(\$18,560)	(\$33,435)	(\$47,627)	28.1%
<b>NET INTEREST CHARGES</b>	<b>\$1,915,083</b>	<b>\$1,977,270</b>	<b>\$1,924,723</b>	<b>\$1,882,583</b>	<b>\$1,952,966</b>	<b>0.5%</b>
<b>INCOME BEFORE EXTRAORDINARY ITEMS</b>	<b>\$7,019,244</b>	<b>\$4,984,008</b>	<b>\$4,056,726</b>	<b>\$8,811,933</b>	<b>\$3,814,229</b>	<b>-14.1%</b>
<b>EXTRAORDINARY ITEMS</b>						
Extraordinary Income	\$0	\$0	\$0	\$0	\$0	0.0%
Extraordinary Deductions	\$0	\$0	\$0	\$0	\$0	0.0%
Income Taxes - Extraordinary Items	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOTAL EXTRAORDINARY ITEMS</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>0.0%</b>
<b>NET INCOME</b>	<b>\$7,019,244</b>	<b>\$4,984,008</b>	<b>\$4,056,726</b>	<b>\$8,811,933</b>	<b>\$3,814,229</b>	<b>-14.1%</b>

NM - Not Meaningful

Source: Pa PUC Annual Reports

**UGI Utilities Inc. (Electric Division)**  
**Balance Sheet**

**Appendix E**  
**Page 1 of 2**

<b>BALANCE SHEET</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>Compound Growth</b>
<b>UTILITY PLANT</b>						
Utility Plant	\$1,407,264,358	\$1,501,823,991	\$1,593,700,146	\$1,704,774,388	\$1,921,207,964	8.1%
Construction Work in Progress	\$5,714,819	\$16,234,892	\$32,660,482	\$78,913,151	\$34,077,143	56.3%
<b>TOTAL UTILITY PLANT</b>	<b>\$1,412,979,177</b>	<b>\$1,518,058,883</b>	<b>\$1,626,360,628</b>	<b>\$1,783,687,539</b>	<b>\$1,955,285,107</b>	<b>8.5%</b>
Accum. Depreciation and Amortization	(\$480,813,476)	(\$497,992,267)	(\$515,364,988)	(\$536,810,257)	(\$560,222,294)	3.9%
<b>NET UTILITY PLANT</b>	<b>\$932,165,701</b>	<b>\$1,020,066,616</b>	<b>\$1,110,995,640</b>	<b>\$1,246,877,282</b>	<b>\$1,395,062,813</b>	<b>10.6%</b>
<b>OTHER PROPERTY AND INVESTMENTS</b>						
Nonutility Property	\$45,992	\$107,769	\$108,039	\$108,039	\$108,039	23.8%
Accum. Depreciation and Amortization	\$0	\$0	\$0	\$0	\$0	0.0%
Investments in Associated Companies	\$377,735,039	\$429,604,128	\$0	\$0	\$0	-100.0%
Investment in Subsidiary Companies	\$0	\$0	\$0	\$0	\$0	0.0%
Noncurrent Portion of Allowances	\$0	\$0	\$0	\$0	\$0	0.0%
Other Investments	\$0	\$0	\$0	\$0	\$0	0.0%
Special Funds	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOTALS</b>	<b>\$377,781,031</b>	<b>\$429,711,897</b>	<b>\$108,039</b>	<b>\$108,039</b>	<b>\$108,039</b>	<b>-87.0%</b>
<b>CURRENT AND ACCRUED ASSETS</b>						
Cash	\$1,542,854	\$1,618,837	\$1,111,829	\$1,427,126	\$1,547,517	0.1%
Special Deposits	\$0	\$0	\$0	\$0	\$0	0.0%
Working Fund	\$0	\$0	\$0	\$0	\$0	0.0%
Temporary Cash Investments	(\$207,002)	\$5,349,744	\$3,099,168	\$912,298	\$3,943,658	NM
Notes Receivable	\$0	\$0	\$0	\$0	\$0	0.0%
Customer Accounts Receivable	\$71,731,386	\$73,940,227	\$51,551,220	\$64,689,425	\$65,781,425	-2.1%
Other Accounts Receivable	\$7,014,548	\$5,184,446	\$9,402,824	\$10,751,532	\$6,703,059	-1.1%
Accum. for Uncollectible Accounts	(\$3,664,932)	(\$4,470,510)	(\$4,445,940)	(\$3,860,284)	(\$4,327,535)	4.2%
Notes Receivable from Assoc. Companies	\$0	\$122,927,454	\$74,675,048	\$72,364,571	\$130,560,823	2.0%
Accts Receivable from Assoc. Companies	\$87,217,438	\$14,529,977	\$39,319,264	\$23,927,356	\$34,034,528	-21.0%
Fuel Stock	\$0	\$0	\$0	\$0	\$0	0.0%
Fuel Stock Expenses Undistributed	\$0	\$0	\$0	\$0	\$0	0.0%
Residuals and Extracted Products	\$0	\$0	\$0	\$0	\$0	0.0%
Plant Materials and Operating Supplies	\$4,134,254	\$4,552,387	\$5,498,684	\$4,905,272	\$5,983,679	9.7%
Merchandise	\$0	\$0	\$0	\$0	\$0	0.0%
Other Materials and Supplies	\$0	\$0	\$0	\$0	\$0	0.0%
Nuclear Materials Held for Sales	\$0	\$0	\$0	\$0	\$0	0.0%
Allowances	\$0	\$0	\$169,493	\$62,340	\$210,761	11.5%
Noncurrent Portion of Allowances	\$0	\$0	\$0	\$0	\$0	0.0%
Stores Expense Undistributed	\$761,351	\$460,347	(\$753,242)	\$1,061,939	\$784,009	0.7%
Gas Stored Underground-Current	\$32,452,142	\$34,589,361	\$22,844,830	\$17,239,816	\$21,961,644	-9.3%
Liquefied Gas Stored and Held for Proc.	\$0	\$0	\$0	\$0	\$0	0.0%
Prepayments	\$3,879,322	\$3,821,352	\$4,031,016	\$4,906,766	\$10,422,055	28.0%
Interest and Dividends Receivable	(\$647)	\$95,819	\$181,174	\$192,924	\$347,698	NM
Rents Receivable	\$0	\$0	\$0	\$0	\$0	0.0%
Accrued Utility Revenues	\$37,652,496	\$28,904,765	\$16,034,918	\$30,411,491	\$57,231,033	11.0%
Miscellaneous Current and Accrued Assets	\$1,462,377	\$498,561	\$1,604,326	\$4,924,661	\$2,028,160	8.5%
<b>TOTALS</b>	<b>\$243,975,587</b>	<b>\$292,002,767</b>	<b>\$224,324,612</b>	<b>\$233,917,233</b>	<b>\$337,212,514</b>	<b>8.4%</b>
<b>DEFERRED DEBITS</b>						
Unamortized Debt Expenses	\$1,237,126	\$1,341,847	\$1,291,271	\$2,172,564	\$2,204,009	15.5%
Extraordinary Property Losses	\$0	\$0	\$0	\$0	\$0	0.0%
Unrecovered Plant and Regulatory Study	\$0	\$0	\$0	\$0	\$0	0.0%
Other Regulatory Assets	\$149,784,766	\$163,578,708	\$188,082,333	\$259,395,835	\$228,935,236	11.2%
Prelim. Survey and Investigation Charges	\$431,250	\$659,874	\$1,603,880	\$2,513,512	\$1,793,147	42.8%
Clearing Accounts	(\$595,271)	(\$486,132)	(\$59,514)	\$33,702	\$121,499	NM
Temporary Facilities	\$0	\$0	\$0	\$0	\$0	0.0%
Misc. Deferred Debits	\$3,631,437	\$4,902,021	\$5,034,683	\$5,232,246	\$6,350,734	15.0%
Def. Losses from Disposition of Plant	\$66,309	\$533,932	\$1,372,088	\$665,452	\$723,783	81.8%
Research, Devel. and Demonstration	\$0	\$0	\$0	\$0	\$0	0.0%
Unamortized Loss on Reacquired Debt	\$145,316	\$62,278	\$0	\$0	\$0	-100.0%
Accum. Deferred Income Taxes	\$20,623,614	\$15,342,010	\$78,674,432	\$121,227,433	\$74,716,661	38.0%
Unrecovered Purchase Gas Costs	\$360,939	\$10,431,555	\$0	\$0	\$108,408	-26.0%
<b>TOTALS</b>	<b>\$175,685,486</b>	<b>\$196,366,093</b>	<b>\$275,999,173</b>	<b>\$391,240,744</b>	<b>\$314,953,477</b>	<b>15.7%</b>
<b>TOTAL ASSETS AND OTHER DEBITS</b>	<b>\$1,729,607,805</b>	<b>\$1,938,147,373</b>	<b>\$1,611,427,464</b>	<b>\$1,872,143,298</b>	<b>\$2,047,336,843</b>	<b>2.7%</b>

NM - Not Meaningful

Source: Pa PUC Annual Reports

**UGI Utilities Inc. (Electric Division)**  
**Balance Sheet**

**Appendix E**  
**Page 2 of 2**

<b>BALANCE SHEET</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>Compound Growth</b>
<b><u>PROPRIETARY CAPITAL</u></b>						
Common Stock Issued	\$60,259,016	\$60,259,016	\$60,259,016	\$60,259,016	\$60,259,016	0.0%
Preferred Stock Issued	\$0	\$0	\$0	\$0	\$0	0.0%
Capital Stock Subscribed	\$0	\$0	\$0	\$0	\$0	0.0%
Stock Liability for Conversion	\$0	\$0	\$0	\$0	\$0	0.0%
Premium on Capital Stock	\$470,189,252	\$471,076,091	\$471,952,258	\$473,579,872	\$473,579,872	0.2%
Other Paid-in Capital Stock	\$0	\$0	\$0	\$0	\$0	0.0%
Installments Received on Capital Stock	\$0	\$0	\$0	\$0	\$0	0.0%
Discount on Capital Stock	\$0	\$0	\$0	\$0	\$0	0.0%
Capital Stock Expense	\$0	\$0	\$0	\$0	\$0	0.0%
Retained Earnings	\$267,795,844	\$332,267,317	(\$119,584,028)	(\$4,046,114)	\$50,263,075	-34.2%
Unappropriated Undistributed Earnings	\$0	\$0	\$0	\$0	\$0	0.0%
Reacquired Capital Stock	\$0	\$0	\$0	\$0	\$0	0.0%
Other	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOTALS</b>	<b>\$798,244,112</b>	<b>\$863,602,424</b>	<b>\$412,627,246</b>	<b>\$529,792,774</b>	<b>\$584,101,963</b>	<b>-7.5%</b>
<b><u>LONG-TERM DEBT</u></b>						
Bonds	\$0	\$0	\$0	\$0	\$0	0.0%
Reacquired Bonds	\$0	\$0	\$0	\$0	\$0	0.0%
Advances from Associated Companies	\$0	\$0	\$0	\$0	\$0	0.0%
Other Long-Term Debt	\$298,915,200	\$279,400,000	\$276,045,000	\$412,610,000	\$463,884,000	11.6%
Unamortized Premium on Long-Term Debt	\$0	\$0	\$0	\$0	\$0	0.0%
Unamortized Discount on Long-Term Debt	\$0	\$0	\$0	\$0	\$0	0.0%
<b>TOTALS</b>	<b>\$298,915,200</b>	<b>\$279,400,000</b>	<b>\$276,045,000</b>	<b>\$412,610,000</b>	<b>\$463,884,000</b>	<b>11.3%</b>
<b><u>OTHER NONCURRENT LIABILITIES</u></b>						
Obligations Under Capital Leases-Noncurrent	\$0	\$0	\$0	\$0	\$0	0.0%
Accum. Provision for Property Insurance	\$0	\$0	\$0	\$0	\$0	0.0%
Accum. Provision for Injuries and Damages	\$578,600	\$656,385	\$452,512	\$203,989	\$2,084,287	37.8%
Accum. Provision for Pensions and Benefits	\$49,878,465	\$66,656,044	\$92,485,011	\$127,447,036	\$98,384,342	18.5%
Accum. Misc. Operating Provisions	\$4,754,000	\$5,343,772	\$3,702,986	\$43,570,092	\$40,926,905	71.3%
Accum. Provision for Rate Refunds	\$0	\$0	\$0	\$0	\$0	0.0%
Asset Retirement Obligation	\$68,810	\$68,810	\$68,810	\$68,810	\$68,810	0.0%
<b>TOTALS</b>	<b>\$55,279,875</b>	<b>\$72,725,011</b>	<b>\$96,709,319</b>	<b>\$171,289,927</b>	<b>\$141,464,344</b>	<b>26.5%</b>
<b><u>CURRENT AND ACCRUED LIABILITIES</u></b>						
Notes Payable	\$73,500,000	\$153,500,000	\$217,700,000	\$98,400,000	\$181,500,000	25.4%
Accounts Payable	\$48,053,950	\$56,795,580	\$48,898,764	\$62,781,528	\$65,599,477	8.1%
Notes Payable to Associated Companies	\$0	\$0	\$0	\$0	\$0	0.0%
Account Payable to Associated Companies	\$16,302,565	\$13,510,000	\$4,504,751	\$8,565,682	\$16,990,916	1.0%
Customer Deposits	\$16,642,926	\$17,874,229	\$16,866,424	\$15,023,070	\$14,207,380	-3.9%
Taxes Accrued	\$23,511,688	\$21,822,487	\$9,879,785	\$5,962,099	\$531,695	-61.2%
Interest Accrued	\$9,322,559	\$11,182,200	\$10,468,936	\$10,604,209	\$12,035,677	6.6%
Dividends Declared	\$0	\$0	\$0	\$0	\$0	0.0%
Matured Long-Term Debt	\$0	\$46,736,000	\$0	\$0	\$0	0.0%
Matured Interests	\$0	\$0	\$0	\$0	\$0	0.0%
Tax Collections Payable	\$1,190,710	\$498,809	\$77,006	\$530,007	\$313,877	-28.3%
Misc. Current and Accrued Liabilities	\$32,724,697	\$28,759,085	\$34,658,312	\$30,723,650	\$33,783,289	0.8%
Obligations Under Capital Leases-Current	\$0	\$0	\$0	\$0	\$0	0.0%
Derivate Instrument Liabilities	\$3,271,613	\$6,722,822	\$7,541,720	\$294,630	\$1,034,987	-25.0%
<b>TOTALS</b>	<b>\$224,520,708</b>	<b>\$357,401,212</b>	<b>\$350,595,698</b>	<b>\$232,884,875</b>	<b>\$325,997,298</b>	<b>9.8%</b>
<b><u>DEFERRED CREDITS</u></b>						
Customer Advances for Construction	\$293,282	\$293,282	\$0	\$0	\$0	0.0%
Other Deferred Credits	\$21,783,074	\$24,241,935	\$28,772,757	\$8,101,912	\$8,273,872	-21.5%
Other Regulatory Liabilities	\$9,074,831	\$9,255,482	\$17,959,161	\$34,802,008	\$238,968,049	126.5%
Accum. Deferred Investments Tax Credits	\$4,184,861	\$3,849,113	\$3,513,365	\$3,188,644	\$2,870,224	-9.0%
Unamortized Gain on Reacquired Debt	\$0	\$0	\$0	\$0	\$0	0.0%
Accum. Deferred Income Taxes - Other Property	\$323,338,182	\$339,454,711	\$380,317,487	\$406,851,809	\$237,122,579	-7.5%
Accum. Deferred Income Taxes - Other	(\$6,026,320)	(\$12,075,797)	\$44,887,931	\$72,621,349	\$44,654,512	NM
<b>TOTALS</b>	<b>\$352,647,910</b>	<b>\$365,018,726</b>	<b>\$475,450,701</b>	<b>\$525,565,722</b>	<b>\$531,889,236</b>	<b>10.8%</b>
<b>TOTAL LIABILITIES AND OTHER CREDITS</b>	<b>\$1,729,607,805</b>	<b>\$1,938,147,373</b>	<b>\$1,611,427,964</b>	<b>\$1,872,143,298</b>	<b>\$2,047,336,841</b>	<b>4.3%</b>

NM - Not Meaningful

Source: Pa PUC Annual Reports

