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February 29, 2016

VIA ELECTRONIC FILING

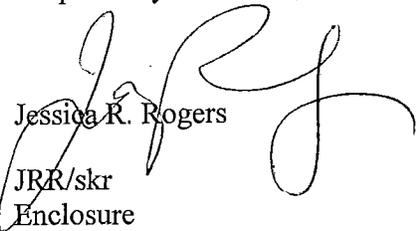
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

**Re: Petition of UGI Utilities, Inc. - Gas Division for Approval of a Modification to its
Long Term Infrastructure Improvement Plan
Docket No. P-2016-**

Dear Secretary Chiavetta:

Enclosed please find the Petition of UGI Utilities, Inc. – Gas Division for Approval of a Modification to its Long Term Infrastructure Improvement Plan. Copies will be provided as indicated in the Certificate of Service.

Respectfully submitted,


Jessica R. Rogers

JRR/skr
Enclosure

cc: Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

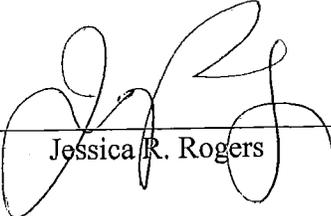
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300 North Second Street, Suite 202
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Date: February 29, 2015



Jessica R. Rogers

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of UGI Utilities, Inc. – Gas :
Division for Approval of a Modification to : Docket No. P-2016-_____
its Long Term Infrastructure Improvement :
Plan

**Petition of UGI Utilities, Inc. – Gas Division for Approval of a
Modification to its Long Term Infrastructure Improvement Plan**

Pursuant to 66 Pa. C.S. § 1352 and 52 Pa. Code § 121.5(a), UGI Utilities, Inc. – Gas Division (“UGI-GD” or the “Company”) hereby files this Petition seeking approval of its modified Long Term Infrastructure Improvement Plan (“Modified LTIIIP” or “Modified Plan”). UGI-GD’s Modified LTIIIP, which is attached to this petition as **Appendix “A”**, contains all of the elements required by 66 Pa C.S. § 1352(a)(1)-(6) and 52 Pa. Code § 121.1 *et. seq.* Pursuant to 52 Pa. Code § 121.5(a), any change that will increase the total cost of a utility’s LTIIIP by more than 20% constitutes a “major modification”, and requires the utility to file a petition for modification explaining and justifying the change. This petition identifies the modifications reflected in the LTIIIP attached to this petition, and consistent with the requirements of 52 Pa. Code 121.5(a) explains the justification for these changes.

UGI-GD is modifying its LTIIIP to better ensure that it can continue providing safe and adequate service to its customers. Specifically, UGI-GD is increasing its spending in three previously identified categories of its LTIIIP: system reliability improvements, service replacements, and mandated relocations of utility facilities. The additional cost of undertaking this work will bring the investment identified in the LTIIIP to approximately \$92 million in 2016, alone. Further, UGI already spent approximately \$11 million more than it had reflected in the LTIIIP for 2015, and approximately \$8 million more than it had reflected for 2014. The total

impact of this additional investment exceeds the 20% mark established in the Commission's regulations. The projects contemplated in the modified LTIP for 2016 are included in Appendix "B" and "C" of the Company's AAOP, filed concurrently with this Petition.

I. INTRODUCTION

1. UGI-GD is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania. UGI-GD is engaged in the business of selling and distributing natural gas to retail customers within the Commonwealth, and is therefore a "public utility" within the meaning of Section 102 of the Public Utility Code, 66 Pa. C.S. § 102, subject to the regulatory jurisdiction of the Commission. UGI-GD provides natural gas service to approximately 380,000 customers in and around Eastern and Central Pennsylvania, pursuant to certificates of public convenience granted by the Commission. Its system contains approximately 5,525 miles of natural gas distribution mains and 117.5 miles of natural gas transmission mains as of December 31, 2014.¹

2. On December 12, 2013, UGI-GD filed a *Petition for Approval of its Long Term Infrastructure Improvement Plan* ("LTIP Petition") at Docket No. P-2013-2398833. In its LTIP Petition, which contained all of the elements of 66 Pa C.S. § 1352(a)(1)-(6), UGI-GD described the Company's plans to replace all of its cast iron pipelines over a 13-year period ending in February 2027. The Company will also replace all of its bare steel and wrought iron pipelines over a 28-year period ending September 2041. In addition to its mains, UGI-GD identified other infrastructure repair and replacement that the Company would address in the five year period covered by the LTIP. The Commission approved UGI-GD's LTIP in an order entered on July 31, 2014.

¹ The customer count and miles of main have been updated from the numbers included in the LTIP in order to reflect the most recently available numbers.

3. The Commission's regulations at 52 Pa. Code 121.5(a) provide that:

If a utility elects to modify a Commission-approved LTIP during its term to incorporate a major modification to any of the elements in § 121.3(a) (relating to LTIP), the utility shall file a separate petition for modification. The utility shall clearly identify the change and explain the operational, financial or other justification for the change in its petition. The petition will be subject to notice and an opportunity to be heard by interested parties. Parties shall have 30 days to file comments to the petition.

4. The Commission's regulations at 52 Pa. Code § 121.2 define a major modification as follows:

A change to a utility's previously approved LTIP which meets at least one of the following criteria:

- (i) Eliminates a category of eligible property from the LTIP.
- (ii) Extends the schedule for repair, improvement or replacement of a category of eligible property by more than 2 years.
- (iii) Increases the total estimated cost of the LTIP by more than 20%.
- (iv) Otherwise reflects a substantial change to the current Commission-approved LTIP.

5. Based on the Company's calculation, its projected expenditures will increase the total estimated cost originally projected in its LTIP by more than 20%. Therefore, in order to comply with the Commission's regulations, UGI-GD is filing this petition for modification of its LTIP. The modified LTIP will replace the LTIP approved at Docket No. P-2013-2398833 for the remainder of the original LTIP period.

II. THE MODIFIED LTIP

A. MODIFICATIONS

6. The majority of UGI-GD's plan remains unchanged from the LTIP which was approved by the Commission in Docket No. P-2013-2398833. The changes in the modified

LTIP are exclusively reflected in an adjustment to the experienced and projected investment for the period of the modified plan.

7. UGI-GD's initial LTIP reflected investment of \$51.2 million per year, for a total of \$256.0 million over the five year period of the plan. UGI-GD has accelerated its investment, for the reasons described in detail later in this petition. The accelerated investment over the five year period of the LTIP is as follows:

Year	Investment (in millions)
2014	\$59.0 actual spend
2015	\$62.5 actual spend
2016	\$92.9 projected spend
2017	\$90.5 projected spend
2018	\$66.0 projected spend

The modified LTIP reflects this accelerated spending on pages 25 and 29. The total anticipated investment over the five year modified plan is anticipated to be approximately \$370.9 million, which reflects a 44.9% increase over the original LTIP.

8. UGI-GD does not anticipate any adjustment to the replacement schedule included in the original LTIP. The additional investment identified in the modified LTIP is supplemental to the investment on main replacements, which made up the majority of investment dollars identified in the original LTIP. No investment previously identified for main replacement is being redirected as part of this modified LTIP.

9. **Appendix "B"** to this Petition is a redlined LTIP, reflecting the changes proposed from the original LTIP. In addition to the dollar differences identified in Paragraph 7, above, UGI-GD has also updated language in its description of the types of eligible property to

be replaced, to reflect certain changed legislative and operating circumstances that have occurred since the original filing was made. These changes are described more fully in Section B, below.

10. With the exception of the specific changes identified in this section and reflected in Appendix B, the modified LTIP is otherwise identical to the one previously approved by the Commission. UGI-GD does not provide discussion of the unchanged portions of its modified LTIP in this Petition. As to the elements of the LTIP which are required by statute and regulation, and which have not been changed from UGI-GD's Commission-approved LTIP, UGI-GD's modified LTIP meets all established requirements.

B. THE MODIFICATIONS TO THE LTIP ARE NECESSARY TO ENSURE THE ACCELERATED PACE OF INFRASTRUCTURE AND TO MAINTAIN SAFE AND RELIABLE SERVICE

11. Approving the modifications to UGI-GD's LTIP is in the public interest and will ensure that customers continue to receive safe and reliable service in the future as required by 66 Pa. C.S. § 1501. The projects driving the proposed increase in spending associated with the UGI-GD LTIP are increased investments in three primary categories: system reliability improvements, service replacements, and mandated relocations of utility facilities. Each of these categories was previously identified in the original LTIP, but for operational and legislative reasons, as described more fully below, UGI-GD has found it necessary to accelerate the investment associated with each of these categories.

12. The first category of projects which have increased investment over the original LTIP are system reliability improvement projects. System reliability improvements are described on pages 16 and 17 of the modified LTIP. As evidenced by the challenges experienced in the winters of 2013-2014 and 2014-2015, increasing system reliability improvements to address peak day system reliability must be a priority. Due to temperatures which approached historic record lows, UGI-GD experienced pressures well below design

criteria at multiple distribution system endpoints. This is evidence of the need for reliability enhancements. UGI-GD is planning system reliability improvement projects to elevate peak system pressures and improve reliability to areas including Carlisle, Cleona, Easton, Harrisburg West Shore, Lancaster, Palmyra, Millersville, and Willow Street, as well as other portions of its service territory.

13. The second category for increased investment is service replacements. Service replacements are described on pages 10 through 11 of the modified LTIP. In its original LTIP, UGI-GD identified that this element of its LTIP might increase as a result of the pending proposed rulemaking at Docket No. L-2009-2107155. The Commission issued a Final Order in Docket No. L-2009-2107155 on May 23, 2014 amending 52 Pa. Code § 59.18. The amendments, which became effective September 13, 2014, require that all regulators on service lines operating over 10 psig,² and gas meters under certain conditions, must be located outside. Utilities have 20 years from the effective date of the amendments to address the relocations. In order to comply with the regulatory mandate to move all medium pressure regulators from inside to outside by September 13, 2034, UGI-GD will continue to increase investment in service replacements. Acceleration of investment in service replacements is also driven by the replacement of bare steel and other non-contemporary service line materials, both concurrently with cast iron and bare steel main replacements, and on an incidental basis.

14. Finally, the third category contributing to increased investments is mandated relocations. This category of investment is described on page 17 of the modified LTIP. According to the Pennsylvania Department of Transportation (“PennDOT”), Act 89 of 2013 will provide for an additional \$2.3 to \$2.4 billion of transportation investment annually by 2019,

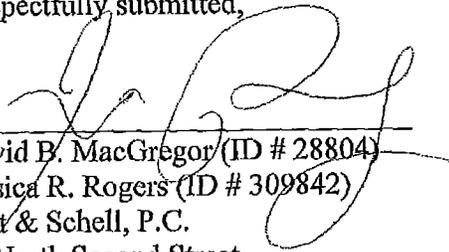
² Psig stands for pounds per square inch gauge.

including \$1.3 billion for state roads and bridges and \$237 million for local roads and bridges.³ Given the historically unprecedented increase in PennDOT highway improvement project expenditures, UGI-GD expects a corresponding increase in the number of mandated utility facility relocations, particularly related to bridge construction and replacements of non-contemporary gas infrastructure on and ahead of paving basis.

III. CONCLUSION

WHEREFORE, UGI Utilities, Inc. – Gas Division respectfully requests that the Pennsylvania Public Utility Commission find that its modified Long Term Infrastructure Improvement Plan contains all necessary items identified in 66 Pa. C.S. § 1352, and that the modified LTIP be approved for the remaining period of the plan.

Respectfully submitted,



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Of Counsel:

Post & Schell, P.C.

Attorneys for UGI Utilities, Inc. – Gas Division

Date: February 29, 2016

³ For a summary of Act 89 of 2013, see <http://www.dot.state.pa.us/public/Bureaus/PublicTransportation/GeneralInformation/Act%2089%20of%202013.pdf>

Verification

I, Hans G. Bell, Vice President, Engineering and Operations Support, of UGI Utilities, Inc., hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect UGI Utilities, Inc. -- Gas Division to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

Date: February 29, 2016

Hans G. Bell
Hans G. Bell
Vice President, Engineering
and Operations Support
UGI Utilities, Inc.
2525 N. 12th Street
Reading, PA 19612-2677

APPENDIX A

UGI Utilities Inc. - Gas Division

Long Term Infrastructure Improvement Plan

2014-2018

December 12, 2013
Modified on February 29, 2016

Introduction

UGI Utilities, Inc. – Gas Division (“UGI-GD” or the “Company”) respectfully submits this Long-Term Infrastructure Improvement Plan (“LTIIIP” or “Plan”) for the approval of the Pennsylvania Public Utility Commission (“Commission”) in accordance with the requirements of 66 Pa. C.S. § 1352(a) and the Commission’s Final Implementation Order, entered August 2, 2012, at Docket M-2012-2293611 (“Final Implementation Order”). As approved by the Commission, the UGI-GD LTIIIP shall serve to guide the Company’s accelerated infrastructure repair, improvement and replacement activities for the five year period 2014 through 2018 for its natural gas transmission and distribution facilities used in providing natural gas service to its customers located within the UGI-GD service territory.

The UGI-GD LTIIIP is being filed simultaneously with the LTIIIPs of UGI Penn Natural Gas (“UGI-PNG”) and UGI Central Penn Gas, Inc. (“UGI-CPG”). Hereinafter, UGI-GD, UGI-PNG and UGI-CPG shall be referred to collectively as the “UGI Distribution Companies.” Each company’s LTIIIP incorporates the joint facility replacement and betterment program of the UGI Distribution Companies.

The UGI-GD LTIIIP is structured to address the six specific factors set forth in the Commission’s Final Implementation Order. Accordingly, this LTIIIP includes the following sections:

- (1) Identification of the types and age of eligible property owned or operated by the utility for which the utility would seek recovery;
- (2) An initial schedule for the planned repair and replacement of eligible property;
- (3) A general description of the location of the eligible property;
- (4) A reasonable estimate of the quantity of eligible property to be improved;
- (5) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective; and
- (6) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service.

UGI-GD will address each section in more detail below. Additionally, the Company will provide certain information about maintaining a qualified work force, as identified by the Commission in the Final Implementation Order.

Corporate Background

UGI Utilities, Inc. (“UGI Utilities”) is the wholly owned, utility subsidiary of UGI Corporation. It operates two regulated divisions encompassing a natural gas distribution operation, UGI-GD, and an electric distribution operation, UGI Utilities. – Electric Division (“UGI-ED”). It also wholly owns two natural gas distribution companies, UGI-PNG and UGI-CPG, which were separately acquired by UGI Utilities within the last

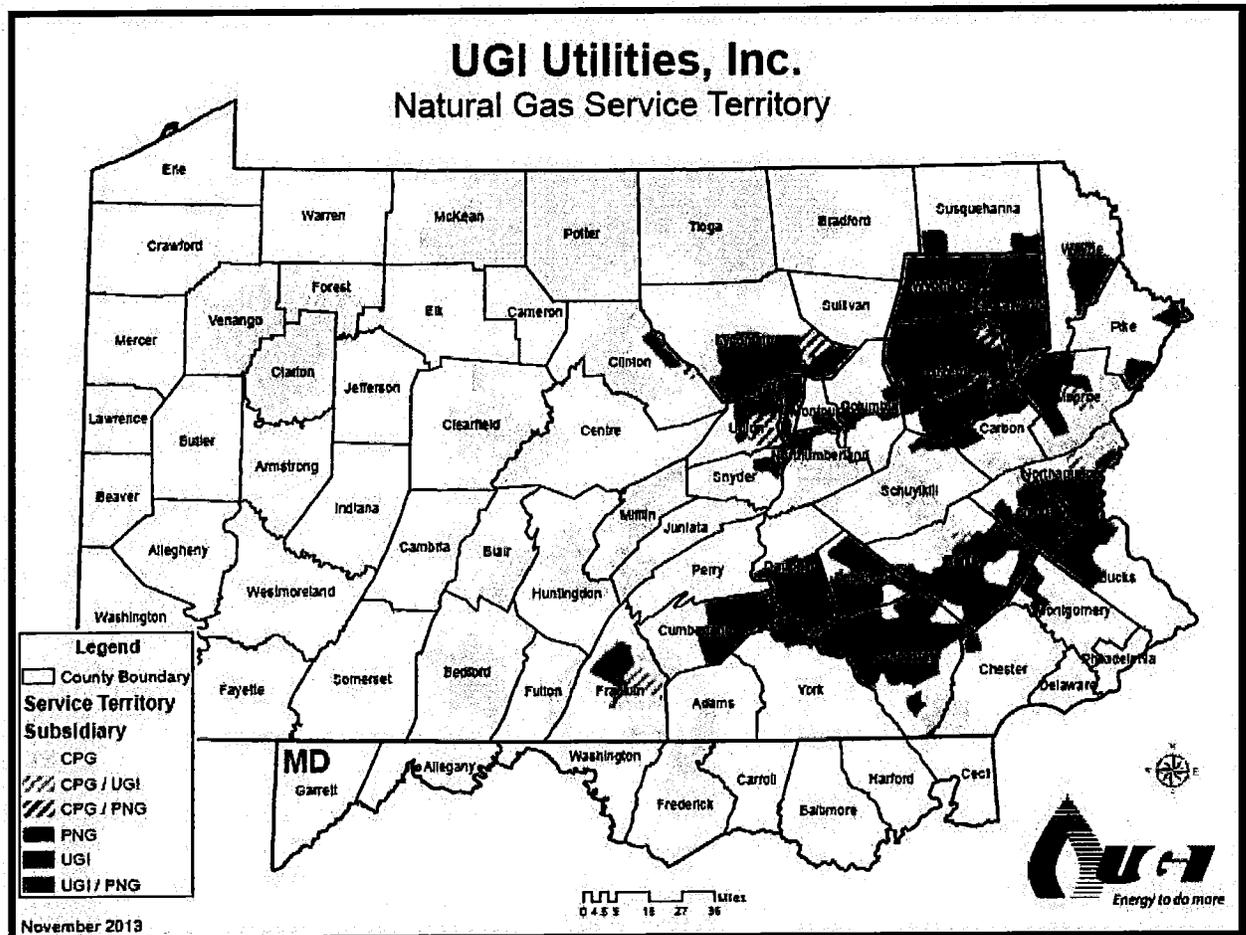
decade and operate under the shared executive management of UGI-GD. UGI-PNG began operations as a wholly owned subsidiary of UGI Utilities on September 1, 2006, through an acquisition of the assets from Southern Union Company.¹ UGI-CPG began operations as the wholly-owned subsidiary of UGI Utilities on October 1, 2008, via an acquisition of the stock of PPL Gas Utilities Corporation.²

The UGI Distribution Companies serve approximately 600,000 residential, commercial and industrial natural gas customers located in 45 of Pennsylvania's total 67 counties and spanning more than 700 municipalities. As shown in the map below, the service territories of the UGI Distribution Companies include the following cities: Allentown, Bethlehem, Easton, Harrisburg, Hazelton, Lancaster, Lebanon, Reading, Scranton, Wilkes-Barre, Lock Haven, Pittston, Pottsville, and Williamsport.

¹ In an Opinion and Order entered on August 18, 2006 at Docket Nos. A-12001F2000, A-125146F5000 and A-125146, the Commission, among other things, authorized UGI-PNG to: (1) become a wholly-owned subsidiary of UGI Utilities; (2) receive the gas distribution assets of the PG Energy Division of Southern Union Company; and (3) commence the provision of natural gas distribution service to the approximately 160,000 customers previously served by PG Energy in thirteen counties in northeastern Pennsylvania.

² In an Opinion and Order entered on August 21, 2008 at Docket Nos. A-2008-2034045, A-2008-2034047, A-2008-2034115 and A-2008-2034132, the Commission, among other things: (1) authorized UGI-CPG (formerly known as PPL Gas Utilities Corporation) to become a wholly owned subsidiary of UGI Utilities; and (2) affirmed CPG's right to render natural gas distribution service to customers residing in numerous municipalities located in 35 counties in Pennsylvania.

Figure 1. Map of UGI Distribution Companies' Service Territories



UGI-GD, UGI-PNG and UGI-CPG each is a “public utility” and a “natural gas distribution company,” as such terms are defined under the Public Utility Code, 66 Pa.C.S. §§ 102 and 2202, subject to the Commission’s regulatory jurisdiction. Each company renders natural gas distribution and purchase gas cost service to customers pursuant to their individual Commission-approved tariffs and certificate authorities. Together, the UGI Distribution Companies operate approximately 12,000 miles of natural gas mains in the Commonwealth of Pennsylvania.

More specifically, as of September 30, 2013, UGI-GD provides natural gas service to 356,075 customers located throughout its certificated service territory, which includes 16 counties in and around Eastern and Central Pennsylvania. The UGI-GD service territory includes five of Pennsylvania's 10 largest cities: Allentown, Bethlehem, Harrisburg, Lancaster and Reading, along with the suburban communities surrounding them. The UGI-GD service territory also includes rural communities as well. Its distribution system contains 5,423 miles of natural gas distribution mains and 117 miles of natural gas transmission mains.

UGI-PNG provides natural gas service to 162,523 customers as of September 30, 2013. These customers are located throughout a certificated service territory which includes 13 counties in and around Northeast Pennsylvania. The service territory of UGI-PNG is somewhat densely populated in and around the Cities of Wilkes-Barre, Scranton and Williamsport but otherwise consists of sparsely populated rural or suburban communities. Its system contains 2,575 miles of natural gas distribution mains and 66 miles of natural gas transmission mains.

UGI-CPG provides natural gas service to 78,175 Pennsylvania customers as of September 30, 2013. These customers are located throughout its certificated service territory, which includes 37 counties in Northeastern, Central and Northwestern Pennsylvania. UGI-CPG's service area is sparsely populated and non-integrated, as it is composed of mostly rural or distant suburban communities. Its distribution system contains 3,713 miles of natural gas mains and 110 miles of natural gas transmission mains.

1. TYPES AND AGE OF ELIGIBLE PROPERTY

UGI-GD has identified the following types of property as DSIC-eligible distribution infrastructure that will be replaced as part of its plan:

- Gas distribution & transmission mains, valves, fittings, couplings, and appurtenances
- Gas service lines including tees, excess flow valves, curb valves, first stage regulators, tubing / piping, and risers
- Gas meter sets including regulators, meter bars, meter set piping, meters, and telemetry
- District regulator stations and city gate stations including telemetry
- Mandated facility relocations, as related to highway projects (unreimbursed costs)
- Related capitalized costs - equipment, tools, corrosion control equipment, vehicles, and supporting information technology

In the following section of its Plan, the Company will address each of these categories of property.

Distribution Mains

Distribution mains are DSIC-eligible property under Section 1351(2)(i) of the Public Utility Code. UGI-GD's distribution mains are comprised of several different types of material including cast iron, wrought iron, unprotected bare steel, unprotected coated

steel, protected bare steel, protected coated steel, and plastic. Cast iron and bare steel make up approximately 15% of UGI Distribution Companies pipelines. For UGI-GD, those materials comprise 13.6% of its system. The remaining approximately 85% of pipelines of the UGI Distribution Companies are comprised of contemporary materials which include plastic and coated steel. For UGI-GD, contemporary materials compose 86.4% of the system.

Cast iron distribution and bare steel distribution mains are considered legacy distribution assets and are widely recognized as warranting prioritized attention in terms of risk management and accelerated replacement.

As of December 31, 2012, UGI-GD had a total of 5,423 miles of distribution mains in its system.

Figure 2. Miles of Distribution Mains as of 12/31/2012³

Type of Material	Miles	Percent of Total
Unprotected bare steel	260.2	4.8
Unprotected coated steel	129.2	2.4
Protected bare steel	131.8	2.4
Protected coated steel	1613.0	29.7
Ductile iron	0	0.0
Copper	0.1	0.0

³ Per UGI-GD 2012 Department of Transportation (“DOT”) report.

Cast / wrought iron	347.5	6.4
Plastic	2938.3	54.2
Other	3.0	0.1
Total	<u>5423.1</u>	<u>100.0</u>

Beginning in 2014, UGI-GD’s Plan reflects the accelerated replacement and removal of all cast iron and bare steel / wrought iron pipelines within 13 and 28 years, respectively, or by February 2017 and September 2041. Other mains will be replaced as may be necessary to maintain or improve system integrity and reliability, or as may be required to accommodate highway related projects.

UGI-GD distribution mains were installed over a significant period of time. While many of these older distribution mains are composed of contemporary materials, the majority of the older facilities are made of vintage materials. Accelerating the replacement of cast iron mains, bare steel mains, vintage plastic mains, and the appurtenances associated with them will significantly improve the overall age profile and performance of the UGI-GD distribution system.

Figure 3. Age Profile of UGI-GD Distribution Mains as of 12/31/12⁴

Decade of Installation	Mileage	Percent of Total
Unknown	1.8	0.0
Pre-1940	508.1	9.4

⁴ Ibid

1940s	77.1	1.4
1950's	536.6	9.9
1960's	729.6	13.4
1970's	421.2	7.8
1980's	693.2	12.8
1990's	1074.7	19.8
2000's	1214.0	22.4
2010's	166.8	3.1
Total	<u>5423.1</u>	<u>100.0</u>

Gas Service Lines

Gas service lines are the piping and/or tubing that connect the Company's mains to the meter sets. Service lines are constructed using the same materials as mains and are subject to the same elements that affect the physical integrity of the mains. In order to ensure that distribution service is reliable and safe, these service lines must be periodically replaced on the basis of condition or planned obsolescence. Gas service lines are DSIC eligible property under Section 1351(2) (iii) of the Public Utility Code.

Figure 4. Service Lines by Material as of 12/31/2012⁵

Service Material	Number of Services	Percent of Total
Unprotected bare steel	14,311	4.1
Unprotected coated steel	9,196	2.7
Protected bare steel	799	0.2
Protected coated steel	39,621	11.4

⁵ Ibid.

Long Term Infrastructure Improvement Plan
of UGI Utilities Inc. – Gas Division

Ductile iron	0	0
Copper	10,871	3.2
Cast / wrought iron	2	0
Plastic	271,696	78.4
Other	23	0
Total Services	<u>346,519</u>	<u>100.0</u>

Gas services are typically replaced on a planned basis in conjunction with the replacement of the main to which they are connected. Coordinating replacements in this manner maximizes the efficient use of Company resources, and minimizes the inconvenience to customers. At the time of service line replacement, inside meters will be replaced with outside meters wherever practical to better facilitate company access.

Gas services may also be replaced in conjunction with meter move-outs. When meters are relocated from inside customer premises to outside, it is often convenient to simultaneously replace the affected service line. When coordinated in such a manner, future inconvenience to the customer is minimized by upgrading Company facilities in a single mobilization. Pursuant to the Commission's Final Order issued on May 23, 2014 in Docket No. L-2009-2107155, UGI-GD must address all relocations on its system by September 13, 2034. As a result, the number of service line replacements will increase in proportion to the number of meter move-outs.

Excess Flow Valves

Excess flow valves are safety devices installed on gas service lines which interrupt the flow of gas in the event of a fully severed line, typically in the case of damage caused by excavation. As service lines are replaced, excess flow valves are installed in accordance with Subpart H of CFR 49 Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards Section 192.381. Excess flow valves are DSIC-eligible property under Section 1351(2)(v) of the Public Utility Code.

Mercury Regulators

Mercury regulators are a type of pressure reduction device which incorporate liquid mercury as over-pressure protection. Mercury regulators were generally installed prior to the early 1960s when spring loaded relief valves became the industry standard. As part of the LTIP, UGI plans to continue the replacement of mercury regulators. An estimated 7,000 mercury regulators remain in the UGI-GD system. Mercury regulators are DSIC-eligible property under Section 1351(2)(iii) of the Public Utility Code.

City Gate & District Regulator Stations

City Gate and District Regulator Stations are facilities which reduce system pressures as gas is distributed throughout the piping network. City Gate Stations are generally located at the point of custody transfer between the interstate pipelines and distribution systems, whereas District Regulator Stations are located within distribution systems. Regulator stations must be periodically updated or replaced as components such as piping and mechanical equipment age and wear. Additionally, over time mechanical components

such as regulators become obsolete and must be replaced with modern equipment to ensure availability of replacement parts and reliability. Regulating facilities may be replaced in whole or part depending upon the project objectives. Partial replacements could encompass equipment including but not limited to regulators, valves, heaters, metering, Supervisory Control And Data Acquisition (“SCADA”), and odorization. Some facilities will be eliminated through main replacement programs as low pressure systems are eliminated or where systems are otherwise consolidated. City Gate Stations and Distribution Regulator Stations are DSIC-eligible property under Section 1351(2)(i) and § 1351(2)(iv) of the Public Utility Code.

Figure 5. Number and Type of Regulator Stations

	City Gate Station	District Regulator Station	Total
UGI-GD	41	378	419

Vintage Plastic Pipe, Plastic Pipe Components, and Mechanical Fittings

Certain plastic pipe materials and fittings have been found to exhibit a higher than average potential for failure. UGI-GD has identified a type of tee, the fitting which joins the service line to the main, which may fail as the result of a compromised mechanical connection between the tee and main. A second type of plastic fitting, a service line curb valve with compression connections, has similarly exhibited a higher potential for failure. UGI-GD is engaged in ongoing surveillance and proactive repair and replacement of these fittings. When mechanical tees are replaced, a section of the host main is replaced,

and a new tee is connected by plastic fusion. Compression connection service line valves are addressed by replacing the affected service line. Finally, early vintage plastic pipes have been found to be subject to higher potential for brittle cracking type failures and are replaced on a risk prioritized basis. In total, approximately 2,900 compression connection valves and 19,800 mechanical tees will be reviewed and addressed as may be appropriate at UGI-GD. Finally, certain types of early vintage plastic pipes have been found to be subject to higher potential for brittle cracking type failures. UGI-GD will monitor vintage plastic pipe performance perform replacements on a risk prioritized basis as may be necessary to maintain reliability and integrity. The aforementioned plastic pipe and pipe components are DSIC-eligible property under Sections 1351(2)(i), 1351(2)(ii), 1351(2)(iii), 1351(2)(iv), and 1351(2)(v) of the Public Utility Code.

Transmission Mains & Infrastructure

UGI-GD maintains approximately 117 miles of natural gas transmission pipelines. Transmission pipelines are those mains which provide large volumes of gas at high pressures to provide service to entire cities and towns or large volume customers such as gas fired electric generation plants.

Maintaining the integrity of transmission infrastructure is necessary for both reliability and safety. In terms of reliability, transmission lines often provide service to many thousands of customers. Service interruptions can have wide spread regional consequences for many stakeholders. For these reasons, maintaining transmission

infrastructure to a high degree of integrity is paramount. Transmission mains are DSIC – eligible property under Sections 1351(2)(i) and 1351(2)(iv) of the Public Utility Code.

Figure 6. UGI-GD Transmission Mains by Material as of 12/31/12⁶

Type of Material	Miles	Percent of Total
Protected bare steel	0.5	0.4
Protected coated steel	115.9	99.4
Unprotected bare steel	0.1	0.1
Unprotected coated steel	0.1	0.1
Cast iron	0	0
Wrought Iron	0	0
Plastic	0	0
Composite	0	0
Other	0	0
Total	<u>116.6</u>	<u>100.0</u>

Figure 7. UGI-GD Transmission Mains by Age as of 12/31/12⁷

Decade of Installation	Mileage	Percent of Total
Unknown	0	0
Pre-1940	0	0
1940s	1.9	1.6
1950's	20.2	17.3

⁶ Per UGI-GD 2012 Department of Transportation (“DOT”) Transmission report.

⁷ Ibid

1960's	30	25.7
1970's	14.4	12.4
1980's	25.2	21.6
1990's	12.2	10.5
2000's	12.7	10.9
2010's	0	0
Total	<u>116.6</u>	<u>100.0</u>

Approximately 19% of the UGI-GD transmission system is pre-1960s vintage, or more than 50 years old. Ongoing investments in transmission infrastructure are necessary to maintain these assets to ever increasing contemporary standards. Specifically, investment in the retrofit of transmission pipelines to facilitate internal inspection, pressure testing, and other integrity assessment techniques may be required to meet transmission integrity management regulations. Furthermore, replacement of transmission assets, in response to assessment findings, may be required to maintain system integrity.

System Reliability Improvements

System Reliability Improvements are those investments required to maintain ongoing system reliability. Typical projects include investments in distribution or transmission infrastructure needed to reinforce system pressures to ensure firm peak-day deliverability. Investment in transmission and distribution mains is DSIC-eligible under Section 1351(2)(i) of the Public Utility Code.

UGI-GD utilizes system network models to predict system performance under peak operating conditions. Model results are validated against actual system operating

conditions using data from remote SCADA monitoring, system regulator station charts, and winter survey gauges. Specific reliability projects have been identified to improve system pressures as needed to maintain system reliability design criteria to firm customers. Additional projects may be identified in the future subject to system performance and reliability.

Meters

UGI-GD replaces meters as may be necessary to maintain compliance with gas measurement accuracy standards as stipulated in 52 PA Code Section 59.21. UGI-GD maintains a statistical sampling program to evaluate meter accuracy. Should a grouping of meters fail to meet accuracy requirements, the meters are repaired or replaced. Replacement meters are DSIC eligible property under Section 1351(2)(viii) of the Public Utility Code.

Mandated Facility Relocations

UGI-GD is periodically required to relocate gas facilities to accommodate highway improvement projects. The unreimbursed portion of these costs is DSIC eligible property under Section 1351(2)(ix) of the Public Utility Code. When contemporary facilities are impacted, UGI-GD seeks to coordinate such projects to minimize the extent of facility relocation. When non-contemporary facilities, such as cast iron, bare steel, or vintage plastic are involved, the relocation projects provide an opportunity for infrastructure replacement.

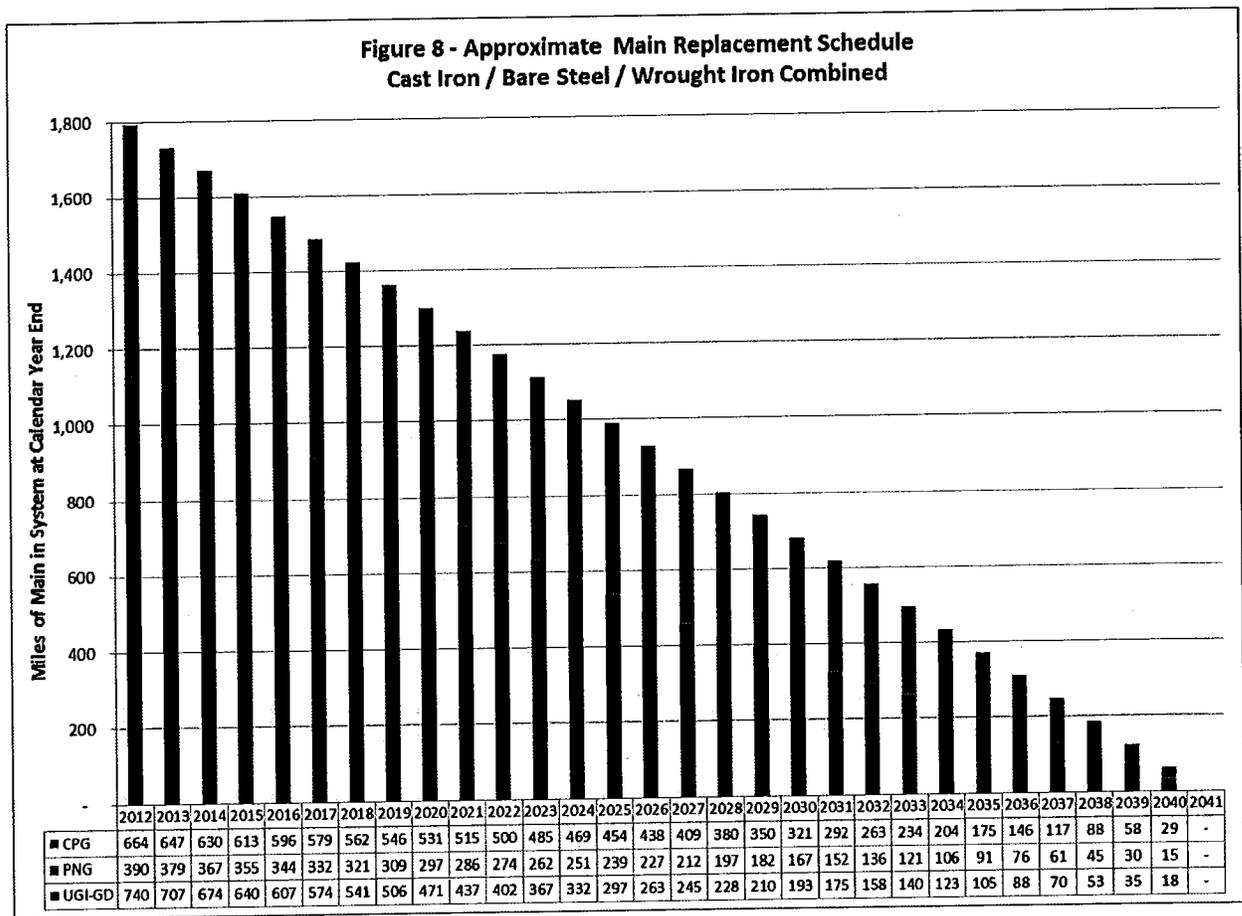
Related Capitalized Costs

The replacement of DSIC eligible property described above may result in additional related costs incurred that are essential and necessary in order to efficiently manage specific accelerated capital improvement projects. Examples include but are not limited to tools, equipment, fleet, corrosion control, and information technology investments. These related costs are DSIC eligible property under Section 1351(2)(x) of the Public Utility Code.

2. SCHEDULE FOR PLANNED REPLACEMENT OF ELIGIBLE PROPERTY

The UGI-GD LTIP reflects acceleration in the rate of infrastructure repair, improvement and replacement over historical levels. In particular, the accelerated replacement in this plan conforms with the Settlement Agreement approved by the Pennsylvania Public Utility Commission at Docket No. C-2012-2308997 (“Settlement Agreement”). Under the Settlement Agreement, the UGI Distribution Companies will replace all cast iron and bare steel pipelines located within their combined systems. As of the date of the Plan filing, cast iron replacement will be completed in 13 years ending in February 2027, and bare steel / wrought iron replacement will be completed in 28 years ending in September 2041. This replacement rate, on a combined basis, represents a significant acceleration over historical replacement rates.

As depicted in the Figure 8⁸ below, it is anticipated that UGI-GD will replace approximately 33 miles of combined cast iron and bare steel mains in 2014. The specific allocation of mileage between cast iron and bare steel main replacement will vary annually depending on annual risk evaluations and project specific considerations. Additionally, the amount of the annual UGI Distribution Companies' 62 mile main replacement plan allocated to UGI-GD will vary as risks are annually re-evaluated and re-prioritized across all UGI Distribution Companies.



⁸ The replacement schedule presented in Figure 8 is a forecast based on known mileage of cast iron, bare steel, and wrought iron as of 12/31/12. Subsequent revisions of main classifications, as determined through field verification or records review, will modify this projection.

Under the accelerated main replacement program UGI-GD will focus on replacing existing cast iron and bare steel /wrought iron mains and related facilities. While certain bare steel facilities will be replaced in early years, the initial schedule emphasizes cast iron replacement until the final cast iron retirements are completed by March 1, 2027. Subsequently, replacement efforts shift to an emphasis on bare steel.

Main replacement risk evaluation is based on numerous factors, including the pipe condition, age, coating, type of ground cover, geographical proximity to structures, and prior leak and/or break history. Appendix A provides a detailed listing of factors considered in the risk based evaluation. Additionally, specific projects may be escalated to enable coordination of replacement efforts with municipal roadway resurfacing projects.

The UGI Distribution Companies perform an annual review to identify the highest risk pipe segments and prioritize those replacements each year. UGI Distribution Companies utilize commercial risk evaluation software in concert with a team of Subject Matter Experts to evaluate, prioritize, and bundle replacement projects. This hybrid approach targets the highest risk mains first while also balancing the need to maximize the efficient deployment of capital and resources.

This approach is consistent with the UGI Distribution Companies' Transmission Integrity Management Program ("TIMP") and Distribution Integrity Management Program

(“DIMP”) in accordance with Subpart P of 49 CFR Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. The purpose of the UGI Distribution Companies’ TIMP & DIMP is to enhance public safety by identifying risks, assessing and prioritizing the risks, and implementing additional and accelerated actions or preventative and mitigative measures to reduce risks. As the UGI Distribution Companies continue to implement the TIMP & DIMP, other pipeline assets may be identified for repair, improvement or replacement as their conditions are evaluated and relative risks are reviewed and prioritized.

A list of planned DSIC eligible main replacement projects is included with the Company’s Annual Asset Optimization Plan (“AAOP”). This listing is developed and reviewed one or more times each year based on a reassessment of the most current data available. Therefore, this is a dynamic list of projects that is subject to modification. In addition to the identified projects, UGI-GD must address mandatory replacements, non-repairable leakage, and emerging main issues that develop in the field and require immediate attention. Replacement of such segments of pipe is not reflected in the AAOP and will impact the ultimate timing of the completion of identified projects.

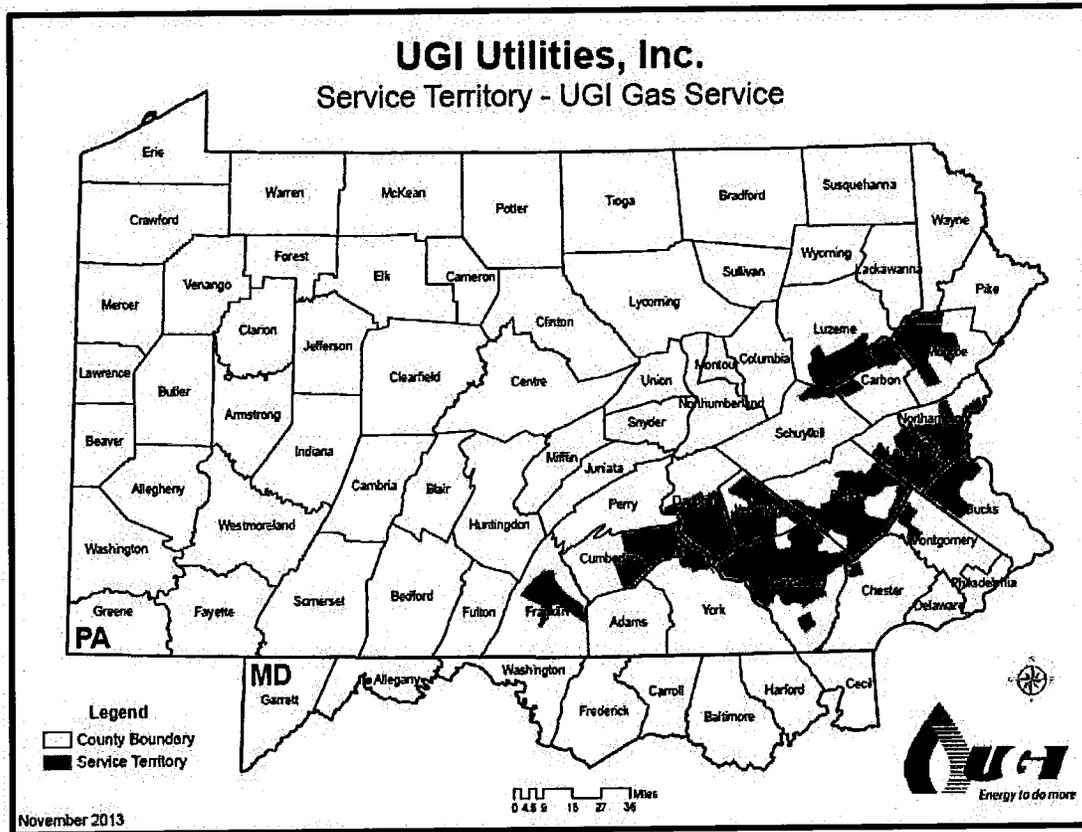
Certain circumstances, such as municipal government and Pennsylvania Department of Transportation construction projects, or changes in state or federal pipeline safety code also could impact UGI-GD’s schedule and scale. Long term infrastructure improvement projects performed by the UGI-GD, and human and material assets associated with those projects, will be adjusted or changed as required to align with changing circumstances.

Projects will be regularly reviewed and updated to ensure all projects are cost effective and provide the expected system integrity and reliability benefits.

3. LOCATION OF ELIGIBLE PROPERTY

UGI-GD will conduct projects distributed throughout its service territory. As described earlier, UGI-GD's service territory contains approximately 5,423 miles of natural gas distribution mains and 117 miles of natural gas transmission mains throughout 16 counties in and around Eastern and Central Pennsylvania. The UGI-GD map below identifies the UGI-GD service territory. Eligible property is located in all parts of UGI-GD's service territory as depicted in Figure 9 below.

Figure 9. (UGI-GD Service Territory Map)



4. REASONABLE ESTIMATE OF THE QUANTITY OF PROPERTY TO BE IMPROVED

As described in the prior sections, the Company has identified numerous property types including cast iron and bare steel pipeline for replacement. The Company estimates that in 2014 approximately 62 miles of cast iron and bare steel mains will be replaced across all UGI Distribution Companies. For UGI-GD, the 2014 replacement plan includes replacement of approximately 33 miles of cast iron and bare steel mains. In each annual asset optimization plan filed by UGI-GD, the Company will provide updated yearly replacement plans, based on its latest risk assessment process.

**Long Term Infrastructure Improvement Plan
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The following table provides estimates of the approximate schedule and units of property to be replaced at UGI-GD under the LTIP plan. UGI-GD anticipates replacing or repairing the following approximate amounts of DSIC eligible infrastructure.

Figure 10. Replacement Quantities and Rates

<u>Asset Type</u>	<u>Strategy</u>	<u>LTIP Schedule / Replacement Rate</u>
Distribution Mains – Cast Iron	Replace cast iron mains on a risk prioritized basis consistent with DIMP criteria	All mains replaced in 13 years, ending February 2027
Distribution Mains – Bare Steel	Replace bare steel mains on a risk prioritized basis consistent with DIMP criteria	All mains replaced in 28 years, ending September 2041
Coated Steel Mains	Replace coated steel main as required per mandatory replacements, non-repairable leakage, and emerging main issues	Replace as necessary to maintain system integrity
Transmission Mains	Retrofit transmission lines as required to perform assessments, replace / remediate as may be required per assessment findings	To be determined based upon requirement for assessments and assessment results
Services	Replace services in concert with main replacements	Replacement rate will be proportional to accelerated main replacement rates
Regulator & City Gate Stations	Replace stations and components on obsolescence / condition basis	Variable rate per year based on facility condition assessment & prioritization
Vintage Plastic	Replace mechanical tees, mechanical coupled valves, on an assessed condition basis, including replacement of header main as may be required	Replace as needed to maintain system integrity or at rate as determined by relative risk prioritization

Mandated Facility Relocations	Relocate infrastructure as required by highway agencies. Replace vintage infrastructure in path of highway improvements opportunistically to minimize future paving costs	As required by highway agencies
Related Capital Costs	Invest in tools, equipment, fleet, corrosion control, and information technology as required to enable LTIP	As required

5. PROJECTED ANNUAL EXPENDITURES AND MEASURES TO ENSURE THAT THE LTIP IS COST-EFFECTIVE

Projected Annual Budget for Upgrades

The table below provides a projection of total annual expenditures for the LTIP period, 2014 through 2018, for both UGI-GD specifically as well as the UGI Companies in total.

Figure 11. Projected LTIP Annual Expenditures 2014-2018

Fiscal Year	Capital Investment UGI-Gas (\$MM)	Capital Investment All UGI Companies (\$MM)
2014 Actual	\$59.0	\$93.5
2015 Actual	\$62.5	\$108.2
2016 Projected	\$92.9	\$155.9
2017 Projected	\$90.5	\$135.7
2018 Projected	\$66.0	\$111.2

Cost-Effectiveness

UGI-GD will be employing numerous oversight and control processes in order to ensure resources expended on its LTIP projects are being prudently spent. The following methods are planned to increase cost effectiveness:

- Competitive bidding of multi-year pipeline construction and restoration contracts
- Utilization of unit based pricing to limit change order impacts
- Aggregation of UGI Distribution Companies' projects for bid purposes to gain economy of scale benefits
- Provision of minimum guaranteed volume contracts to benefit from economies of scale
- Issuance of special bids for large or unconventional projects
- Recruitment of additional qualified contractors to increase the competitive nature of the process.
- Evaluation and implementation of new or improved technologies to decrease costs, such as:
 - Directional drilling, insertion, and other minimally disruptive trenchless technology versus traditional direct burial
 - Key hole / core bore service replacement
- Perform periodic HR staffing allocation reviews to assure optimal resource utilization and deployment.

In addition to the above, UGI-GD will monitor safety and reliability indicators for the natural gas distribution system over time in particular with a focus to evaluate corrosion and leak resolution performance, track emergency response, pursue damage prevention, and reinforce employee safety and safety improvement.

In order to increase construction efficiency in a way that maximizes the effectiveness of replacement capital, efforts shall be made at the start of each fiscal year to group planned replacement projects with others in a geographic region. Such an approach reduces costs associated with mobilization, materials delivery and stockpiling, and also improves inspection efficiency and safety performance.

Geographic planning of projects as described above will also reduce the impact to the community in which the projects occur by ensuring that replacement activities are completed with fewer mobilizations into and out of a community. As the construction crew completes main and service replacements, construction should move logically from one portion of an area to another, so that disruptions such as road closures, parking restrictions, construction noise and interruption of service are restricted to only the time required to complete the main and service replacement in the immediate area.

Overall, the UGI Distribution Companies will focus on continuously enhancing planning, response and facility restoration efforts. Changing circumstances impacting the accelerated facility restoration efforts will cause a need for constant review and update of the responses and techniques used. In addition, communication approaches, information management systems and operations protocols used in facility improvement will need to be adjusted and continuously improved as well. The UGI Distribution Companies are refining the planning and resource alignment processes used in accelerated facilities improvement initiatives. The UGI Distribution Companies are constantly reviewing and

evaluating facility information to continually enhance and refine the accuracy of infrastructure data.

Finally, UGI Distribution Companies will continue an evaluation of industry best practices, collaboration with industry partners, and interaction with regulatory agencies. Opportunities to enhance and expand the effectiveness of processes and procedures will be evaluated and considered to ensure continuous improvement of infrastructure that is cost-effective.

6. MANNER IN WHICH REPLACEMENT OF AGING INFRASTRUCTURE WILL BE ACCELERATED AND HOW REPAIR, IMPROVEMENT, OR REPLACEMENT WILL MAINTAIN SAFE AND RELIABLE SERVICE.

Acceleration

The UGI-GD LTIP reflects acceleration that has previously been agreed to by the UGI Distribution Companies and the Public Utility Commission. In an Order entered on February 19, 2013, the Pennsylvania Public Utility Commission approved a Joint Settlement Petition which, among other conditions, requires the UGI Distribution Companies to replace all cast iron mains over a 14 year period ending in February 2027 and all bare steel / wrought iron mains over a 30 year period ending in September 2041.⁹ The impact this commitment has on the overall infrastructure replacement rate and capital expenditures for the UGI Distribution Companies has been dramatic.

⁹ Pennsylvania Public Utility Commission Opinion and Order Entered February 19, 2013, Docket C-2012-2308997

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Accelerated Capital Investment by UGI-GD

In accordance with the accelerated replacement plan described above, the UGI Distribution Companies have already begun to ramp-up needed resources and capital spending levels. This acceleration started in 2012, and while prioritization of activities initially were largest at UGI-GD, the acceleration impacts – both current and planned – are evident across all of the UGI Distribution Companies, including UGI-GD.

For purposes of demonstrating the acceleration commitment made by the UGI Distribution Companies in this LTIP for 2014 through 2018, a comparison to a three-year baseline average comprised of capital expenditures for 2009 through 2011 is shown below for both UGI-GD specifically, as well as the UGI Distribution Companies, in total.

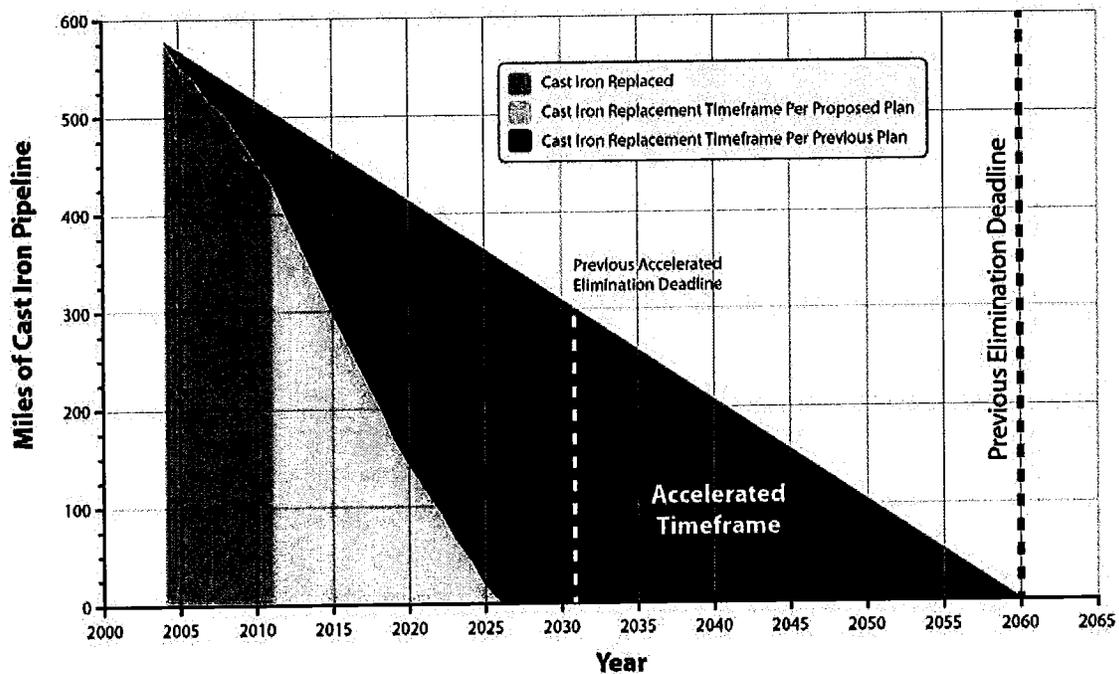
Fiscal Year		Capital Investment UGI-Gas (\$MM)	Capital Investment All UGI Distribution Companies (\$MM)
2009-2011 (Avg/yr)	Baseline	\$26.1	\$50.6
2012 Actual		\$35.7	\$61.1
2013 Actual		\$54.3	\$93.9
2014 Actual		\$59.0	\$93.5
2015 Actual		\$62.5	\$108.2
2016 Projected		\$92.9	\$155.9
2017 Projected		\$90.5	\$135.7
2018 Projected		\$66.0	\$111.2

As demonstrated above the acceleration in UGI-GD DSIC eligible spend between 2018 projected spend and the 2009-2011 baseline period increases by 153%. Total DSIC eligible spend for all UGI Distribution Companies increases by 120%. This investment acceleration relates to a 17% increase in the amount of bare steel and cast iron main

replaced (average 53.2 miles per year replaced in 2009-2011 baseline period vs. 62 miles per year during LTIP).

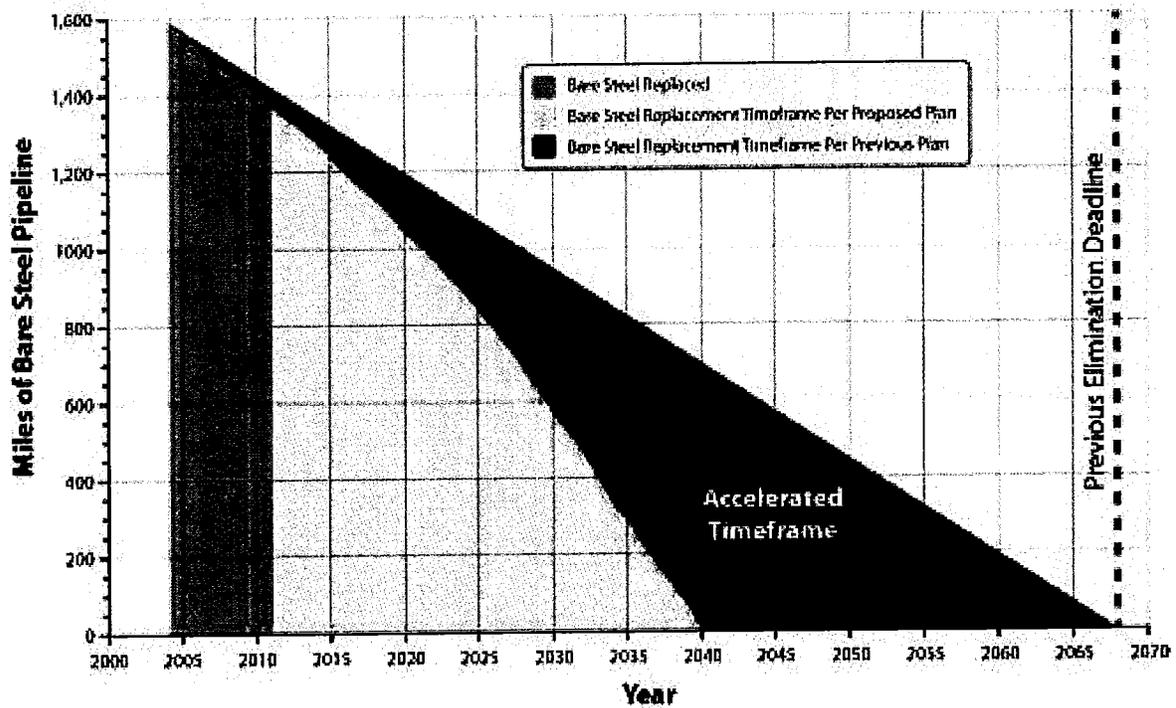
The overall plan to address cast iron distribution mains is to replace all such facilities by the end of February, 2027. The graph in Figure 12 below provides a visual representation of this plan versus the previous replacement timeframe which is based on the historical replacement trend. Per the accelerated replacement rate, all cast iron mains will be eliminated from the UGI Distribution Companies 33 years ahead of the prior timetable.

Figure 12. Accelerated Cast Iron Replacement



The overall plan to address bare steel and wrought iron mains is to replace all such facilities by October 2041. The graph in Figure 13 below provides a visual representation of this plan versus the previous replacement timeframe which is based on the historical replacement trend. Per the accelerated replacement rate, all bare steel / wrought iron mains will be eliminated from the UGI Distribution Companies 27 years ahead of the prior timetable.

Figure 13. Accelerated Bare Steel / Wrought Iron Replacement



While the overall replacement deadlines will remain fixed, for any given intermediate period the sequence of projects and amount of specific facilities to be addressed may be adjusted in response to changing conditions. A variety of factors, due to the nature of the natural gas distribution business, may cause these changes to occur. These factors include but are not limited to state and municipal relocation projects, other private construction projects, system upgrades due to pressure requirements, regulatory changes, and legislative changes.

Safe and Reliable Service

UGI-GD expects that the investment enumerated in this LTIP will provide customers with significant improvements in safety and reliability. Proposed LTIP replacement investments have been identified and prioritized on a risk basis in accordance with UGI Distribution Companies' DIMP and TIMP plans. Risk based prioritization ensures that those projects which deliver the most significant reductions are addressed first. As the investment plan progresses, customer benefits will be manifested over time in terms of reduced leakage rates, fewer main breaks, and fewer unplanned customer interruptions. Additionally, it is expected that the amount of lost and unaccounted for gas due to system leakage and measurement inaccuracy will be reduced as leaks are eliminated and meters are replaced. Finally, peak day reliability will improve as pressure improvement projects will elevate system low points under peak day design conditions.

Project Coordination & Municipal Outreach

UGI-GD, as part of the UGI Distribution Companies, has a long-standing and active outreach program with local municipalities in its service territories aimed at coordinating construction projects. The municipal outreach program allows for clear communication of information about the natural gas distribution system safety, design and operations, as well as information regarding upcoming facility improvement projects. Coordination with municipal governments minimizes disruptions to residents in the area of proposed construction, enables efficient replacement of facilities, and promotes awareness of construction projects being performed around UGI Distribution Companies infrastructure.

Section 59.38, from Chapter 59 - Gas Service, requires each public utility to notify the Commission of all major construction, reconstruction or maintenance of plant at least 30 days prior to the commencement of work. Notification must be given when the estimated expenditure for any single project exceeds \$300,000 on the sum of main, paving and service replacement costs. In order to increase communication with the Commission, notification shall be sent for multiple projects grouped by a close proximity that are estimated to total \$300,000 or more for main, paving and service replacements.

7. WORKFORCE MANAGEMENT AND TRAINING

Training and Operator Qualifications

Safety has always been a core value at UGI-GD. The UGI Distribution Companies conduct an Operator Qualification (OQ) Program to ensure that personnel performing critical tasks on all pipeline facilities have the necessary knowledge, skills and abilities.

The OQ program includes more than 120 identified tasks, with many sub-parts within tasks, requiring extensive training, testing and qualification verification. Field technicians complete comprehensive safety courses including jobsite safety, driver safety, fire extinguisher use, pipefitting, hazardous materials recognition, abnormal operating condition recognition, emergency response, basic gas piping construction and maintenance, and leak detection.

UGI Distribution Companies utilizes an internal compliance department to perform regular quality and safety inspections of construction activities, and verification of qualifications of those individuals performing operator qualification covered tasks. Compliance inspectors perform unannounced job site inspections of both Company and contractor crews. Any deficiencies identified are escalated to Company or contractor management for investigation and correction.

UGI-GD currently utilizes construction inspectors, both internal and external, to inspect natural gas distribution facility projects constructed by contractor crews. Contractors working on the UGI-GD system must pass a rigorous review and meet all Department of Transportation regulatory requirements. Contractors must maintain current written documentation including operator qualification plans, safety plans, drug and alcohol abuse prevention plans.

Resource Requirements

It is anticipated that UGI Distribution Companies will hire incremental managers, supervisors, engineers, project managers, inspectors, and contractors in order to

accelerate the replacement of the facilities per this plan. Currently, UGI Distribution Companies have hired external consulting resources to assist with engineering design workload as needed.

The UGI Distribution Companies have allied with universities and post-secondary technical schools and are partnering with the veteran's group Helmets to Hardhats to serve as resources in responding to the resource ramp-up required to support the LTIPs. The UGI Distribution Companies are also engaged in developing plans to recruit qualified individuals able to serve in Construction & Maintenance (C&M), Utility, Mechanic, and Technician positions.

Appendix A

Distribution Integrity Risk Evaluation

As part of the UGI Distribution Companies' Distribution Integrity Management Plan, on an ongoing basis several methods are employed to perform a relative risk ranking of assets for each Company. Commercially available pipeline risk evaluation software is utilized in conjunction with the data available from the UGI Distribution Companies' Geographic Information Systems to compute risks on individual main segments. The computed risks are utilized to prioritize the sequence of planned main replacements. Additionally, supplemental to the computerized risk model, on a quarterly basis, the UGI Distribution Companies gather individual Subject Matter Experts from each Company to update and validate the relative risk assessment of all distribution assets, discuss any new or emergent threats, and to communicate any recent distribution integrity issues. The outlines below summarize distribution infrastructure data considerations and distribution integrity threats incorporated in the UGI DIMP plan.

Physical Infrastructure

Pipe material

- A. Plastic
 - 1) Polyethylene (PE)
 - 2) Polyamide 11 (PA11)
 - 3) Poly Vinyl Chloride (PVC)
 - 4) Fiberglass
 - B. Steel
 - 1) Coated, protected
 - 2) Coated, non-protected
 - 3) Bare, protected
 - 4) Bare, non-protected
 - C. Copper
-

- D. Cast iron
- E. Wrought iron
- F. Other

Pipe specifications

- A. Diameter
- B. Joint length, primarily for cast iron
- C. Steel pipe specifics as appropriate
 - 1) Grade (not typically relevant for low hoop stress operating pressures)
 - 2) Wall thickness
- D. Plastic pipe specifics
 - 1) Medium density/high density
 - 2) SDR
 - 3) Straight lengths (stick) or coil

Construction

- A. Year installed
- B. Joining Method (e.g., coupling, mechanical joint, bell and spigot, welded, threaded, fused, electro-fusion, adhesive)
- C. Installation method (e.g., open trench, inserts, boring, directional drilling, pad by others, common trench, etc.)
- D. Location (e.g., in street, behind curb, in private r/w)
- E. Cover
 - a. Depth (original, current, restored)
 - b. Type (e.g. backfill, pavement, grass/dirt, gravel/slag, aboveground)
- F. Company/contractor completing installation
- G. Casings
- H. Crossings (e.g. highway, bridge, underwater)
- I. Expansion loops (thermal effects)
- J. Pipe support systems

Corrosion control

- A. Below ground coating type – mill and field applied (e.g. coal tar, PE, fusion bonded epoxy, wax, cold or hot applied tapes, etc.)
- B. Cathodic protection type (e.g., galvanic anode, impressed current;)
- C. Electrical isolation (e.g., type, location)
- D. Stray current areas (e.g., interference, bonds, reverse current switch)
- E. Rock shield
- F. Above ground coating type

Valves

- A. Size
 - B. Type (e.g., ball, gate, plug)
 - C. Location
 - D. Usage (e.g., emergency, station shutoff, bypass, convenience)
 - E. Manufacturer
-

- F. Material of construction (e.g., same as pipe?)
- G. End connections
- H. Pressure rating (e.g., ANSI or WOG class)

System pressure regulation

- A. Regulator specification
- B. Location
- C. Design and typical inlet and outlet pressures
- D. Regulator capacity
- E. Operation (e.g., pilot, spring, weight)
- F. Manufacturer
- G. Means of overpressure protection (e.g., relief valve, monitor, slam shut, and combinations)
- H. Relief valve capacity and build-up as required.

Other

- A. Specialized components (e.g., EFVs, insulating joint or union, anodeless riser, expansion or other flexible joint)
- B. Field Fabricated fittings (e.g., reducing coupling, service entry jacket, leak repair device)
- C. "Priority facilities" under physical facilities security program

Historical Operating Information & Attributes

Results of inspections and surveys

- A. Leak surveys
- B. Corrosion inspections
- C. Valve inspections
- D. District regulator inspections
- E. Patrols
- F. Special field surveys or patrols (e.g., post-flooding patrols or winter/frost leak surveys)
- G. Liquids removal

Documentation of leaks and other maintenance performed

- A. Leak grade ("C" hazardous; "B"; and "A")
 - B. Repair type
 - C. Exposed metallic pipe inspections
 - D. Corrosion control systems
 - E. Equipment or component replacements
 - F. Material or equipment failure reports
 - G. Number of leaks eliminated/repaired by cause of leak category (Part C of the Annual DOT Report)
 - H. Incident reports
-

Damage Prevention Locate / Excavation activity

- A. Damage records (e.g., Operator, one-call center)
- B. Responsible parties
- C. The number of underground locate requests received
- D. Proposed or completed significant construction activities

Geologic/environmental conditions

- A. Surface type at grade over pipeline
- B. Proximity to varying building types and density
- C. Earthquake zone
- D. Known washout areas
- E. Flood zones
- F. Minimum and maximum temperatures
- G. Soil types
- H. Land subsidence areas

Operating pressure

- A. Maximum actual/allowable operating pressure
- B. Minimum operating pressure experienced (e.g., peak day)
- C. Normal operating pressure
- D. Fluctuations (e.g., seasonal, random)
- E. Upgrading performed in the past.

General Industry Information

In addition to company specific information, UGI monitors the activities of PHMSA, the American Gas Association, Plastic Pipe Data Committee, Gas Piping Technology Committee and industry publications to ensure that information related to failures experienced by other operators is known to UGI. Such information is used to compare information about other operators to that of UGI and to offer an additional source of information about failure data and materials and operating problems throughout the gas industry.

Threat Identification

The following general threat categories are considered in the DIMP plan:

- 1) Corrosion – resulting from a hole in the pipe or other component that was caused by galvanic, bacterial, chemical, stray current, or other corrosive action.
 - 2) Natural Forces – resulting from earth movements, earthquakes, landslides, subsidence, lightning, heavy rains/floods, washouts, flotation, mudslide, scouring, temperature, frost heave, frozen components, high winds, or similar natural causes.
-

- 3) Excavation Damage – resulting from damage caused by earth moving or other equipment, tools, or vehicles. Include leaks from damage by operator’s personnel or contractor or people not associated with the operator.
- 4) Other Outside Force Damage – caused by fire or explosion and deliberate or willful acts, such as vandalism and due to vehicle damage.
- 5) Material, Weld or Joint Failure – resulting from failure of original sound material from force applied during construction that caused a dent, gouge, excessive stress, or other defect that eventually resulted in a leak. This includes those due to faulty wrinkle bends, faulty field welds, and damage sustained in transportation to the construction or fabrication site, resulting from a defect in the pipe material, component, or the longitudinal weld or seam due to faulty manufacturing procedures.
- 6) Equipment Failure – resulting from malfunction of control/relief equipment including valves, regulators, or other instrumentation; stripped threads or broken pipe couplings on nipples, valves, or mechanical couplings; or seal failures on gaskets, O-rings, seal/pump packing, or similar leaks.
- 7) Incorrect Operation – resulting from inadequate procedures or safety practices, or failure to follow correct procedures, or other operator error.
- 8) Other – resulting from any other cause, such as exceeding the service life, not attributable to the above causes.

Consequence Factors

Weighting factors are established to represent consequences that may be anticipated in case of an integrity breach or failure involving the facility groups. Consequence factors are related to the location of the facility in relation to people and property as well as the amount of gas that could potentially be released. These are assigned in three general categories of (1) population / location, (2) operating pressure and (3) piping size.

Appendix B

See Appendices B and C in the Company's Annual Asset Optimization Plan.

APPENDIX B

UGI Utilities Inc. - Gas Division

Long Term Infrastructure Improvement Plan 2014-2018

December 12, 2013
Modified on February 29, 2016

Long Term Infrastructure Improvement Plan of UGI Utilities Inc. – Gas Division

Introduction

UGI Utilities, Inc. – Gas Division (“UGI-GD” or the “Company”) respectfully submits this Long-Term Infrastructure Improvement Plan (“LTIP” or “Plan”) for the approval of the Pennsylvania Public Utility Commission (“Commission”) in accordance with the requirements of 66 Pa. C.S. § 1352(a) and the Commission’s Final Implementation Order, entered August 2, 2012, at Docket M-2012-2293611 (“Final Implementation Order”). As approved by the Commission, the UGI-GD LTIP shall serve to guide the Company’s accelerated infrastructure repair, improvement and replacement activities for the five year period 2014 through 2018 for its natural gas transmission and distribution facilities used in providing natural gas service to its customers located within the UGI-GD service territory.

The UGI-GD LTIP is being filed simultaneously with the LTIPs of UGI Penn Natural Gas (“UGI-PNG”) and UGI Central Penn Gas, Inc. (“UGI-CPG”). Hereinafter, UGI-GD, UGI-PNG and UGI-CPG shall be referred to collectively as the “UGI Distribution Companies.” Each company’s LTIP incorporates the joint facility replacement and betterment program of the UGI Distribution Companies. ~~In addition, UGI-CPG and UGI-PNG are filing petitions for approval of a Distribution System Improvement Charge (“DSIC”) to accompany their LTIP petitions. UGI-GD is not filing a DSIC petition at this time.~~

Long Term Infrastructure Improvement Plan of UGI Utilities Inc. – Gas Division

The UGI-GD LTIP is structured to address the six specific factors set forth in the Commission's Final Implementation Order. Accordingly, this LTIP includes the following sections:

- (1) Identification of the types and age of eligible property owned or operated by the utility for which the utility would seek recovery;
- (2) An initial schedule for the planned repair and replacement of eligible property;
- (3) A general description of the location of the eligible property;
- (4) A reasonable estimate of the quantity of eligible property to be improved;
- (5) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective; and
- (6) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service.

UGI-GD will address each section in more detail below. Additionally, the Company will provide certain information about maintaining a qualified work force, as identified by the Commission in the Final Implementation Order.

Corporate Background

UGI Utilities, Inc. (“UGI Utilities”) is the wholly owned, utility subsidiary of UGI Corporation. It operates two regulated divisions encompassing a natural gas distribution operation, UGI-GD, and an electric distribution operation, UGI Utilities. – Electric Division (“UGI-ED”). It also wholly owns two natural gas distribution companies, UGI-PNG and UGI-CPG, which were separately acquired by UGI Utilities within the last decade and operate under the shared executive management of UGI-GD. UGI-PNG began operations as a wholly owned subsidiary of UGI Utilities on September 1, 2006, through an acquisition of the assets from Southern Union Company.¹ UGI-CPG began operations as the wholly-owned subsidiary of UGI Utilities on October 1, 2008, via an acquisition of the stock of PPL Gas Utilities Corporation.²

The UGI Distribution Companies serve approximately 600,000 residential, commercial and industrial natural gas customers located in 45 of Pennsylvania’s total 67 counties and spanning more than 700 municipalities. As shown in the map below, the service territories of the UGI Distribution Companies include the following cities: Allentown,

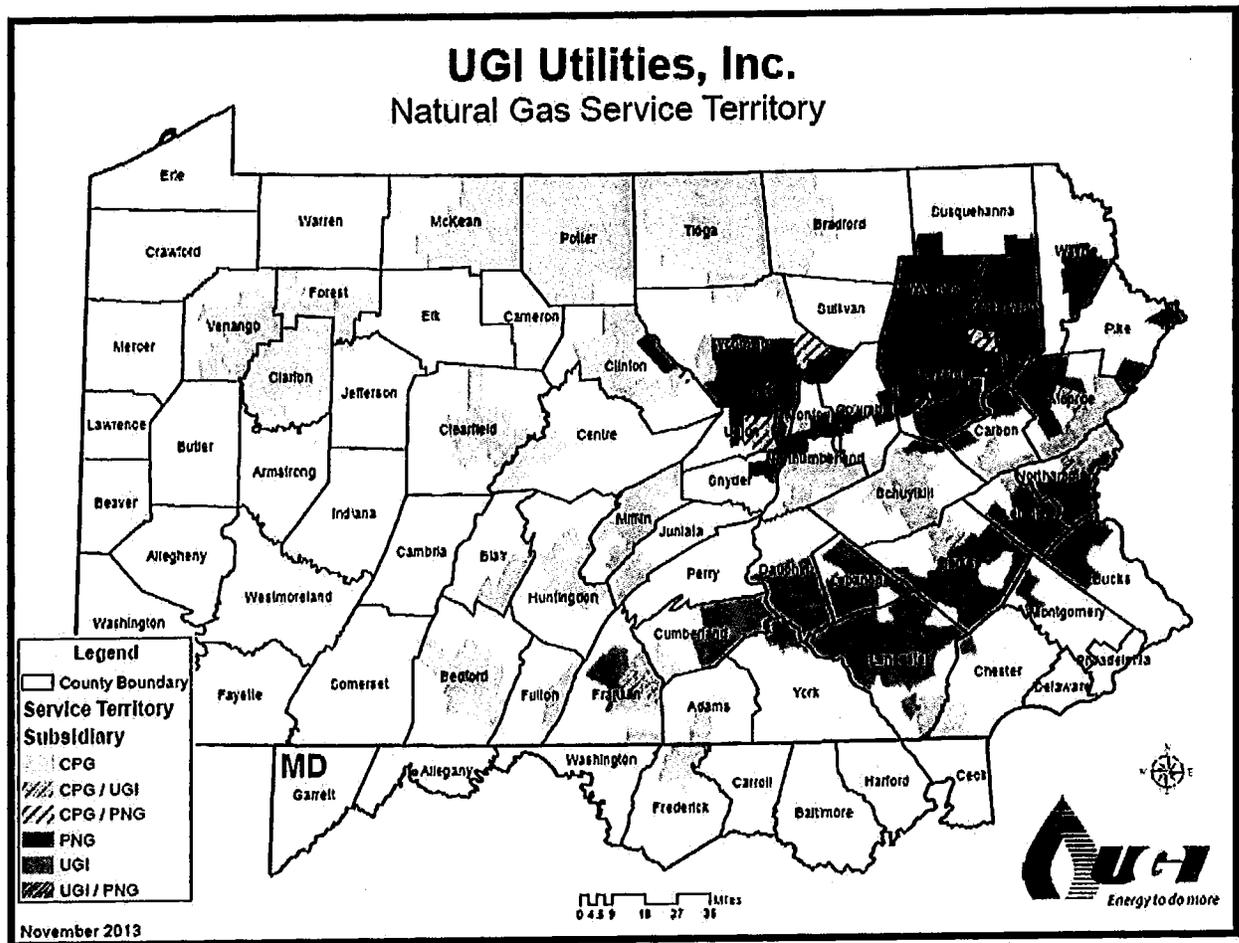
¹ In an Opinion and Order entered on August 18, 2006 at Docket Nos. A-120011F2000, A-125146F5000 and A-125146, the Commission, among other things, authorized UGI-PNG to: (1) become a wholly-owned subsidiary of UGI Utilities; (2) receive the gas distribution assets of the PG Energy Division of Southern Union Company; and (3) commence the provision of natural gas distribution service to the approximately 160,000 customers previously served by PG Energy in thirteen counties in northeastern Pennsylvania.

² In an Opinion and Order entered on August 21, 2008 at Docket Nos. A-2008-2034045, A-2008-2034047, A-2008-2034115 and A-2008-2034132, the Commission, among other things: (1) authorized UGI-CPG (formerly known as PPL Gas Utilities Corporation) to become a wholly owned subsidiary of UGI Utilities; and (2) affirmed CPG’s right to render natural gas distribution service to customers residing in numerous municipalities located in 35 counties in Pennsylvania.

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Bethlehem, Easton, Harrisburg, Hazelton, Lancaster, Lebanon, Reading, Scranton,
Wilkes-Barre, Lock Haven, Pittston, Pottsville, and Williamsport.

Figure 1. Map of UGI Distribution Companies' Service Territories



UGI-GD, UGI-PNG and UGI-CPG each is a “public utility” and a “natural gas distribution company,” as such terms are defined under the Public Utility Code, 66 Pa.C.S. §§ 102 and 2202, subject to the Commission’s regulatory jurisdiction. Each company renders natural gas distribution and purchase gas cost service to customers

pursuant to their individual Commission-approved tariffs and certificate authorities. Together, the UGI Distribution Companies operate approximately 12,000 miles of natural gas mains in the Commonwealth of Pennsylvania.

More specifically, as of September 30, 2013, UGI-GD provides natural gas service to 356,075 customers located throughout its certificated service territory, which includes 16 counties in and around Eastern and Central Pennsylvania. The UGI-GD service territory includes five of Pennsylvania's 10 largest cities: Allentown, Bethlehem, Harrisburg, Lancaster and Reading, along with the suburban communities surrounding them. The UGI-GD service territory also includes rural communities as well. Its distribution system contains 5,423 miles of natural gas distribution mains and 117 miles of natural gas transmission mains.

UGI-PNG provides natural gas service to 162,523 customers as of September 30, 2013. These customers are located throughout a certificated service territory which includes 13 counties in and around Northeast Pennsylvania. The service territory of UGI-PNG is somewhat densely populated in and around the Cities of Wilkes-Barre, Scranton and Williamsport but otherwise consists of sparsely populated rural or suburban communities. Its system contains 2,575 miles of natural gas distribution mains and 66 miles of natural gas transmission mains.

UGI-CPG provides natural gas service to 78,175 Pennsylvania customers as of September 30, 2013. These customers are located throughout its certificated service territory, which includes 37 counties in Northeastern, Central and Northwestern Pennsylvania. UGI-CPG's service area is sparsely populated and non-integrated, as it is

composed of mostly rural or distant suburban communities. Its distribution system contains 3,713 miles of natural gas mains and 110 miles of natural gas transmission mains.

1. TYPES AND AGE OF ELIGIBLE PROPERTY

UGI-GD has identified the following types of property as DSIC-eligible distribution infrastructure that will be replaced as part of its plan:

- Gas distribution & transmission mains, valves, fittings, couplings, and appurtenances
- Gas service lines including tees, excess flow valves, curb valves, first stage regulators, tubing / piping, and risers
- Gas meter sets including regulators, meter bars, meter set piping, meters, and telemetry
- District regulator stations and city gate stations including telemetry
- Mandated facility relocations, as related to highway projects (unreimbursed costs)
- Related capitalized costs - equipment, tools, corrosion control equipment, vehicles, and supporting information technology

In the following section of its Plan, the Company will address each of these categories of property.

Distribution Mains

Distribution mains are DSIC-eligible property under Section 1351(2)(i) of the Public Utility Code. UGI-GD’s distribution mains are comprised of several different types of material including cast iron, wrought iron, unprotected bare steel, unprotected coated steel, protected bare steel, protected coated steel, and plastic. Cast iron and bare steel make up approximately 15% of UGI Distribution Companies pipelines. For UGI-GD, those materials comprise 13.6% of its system. The remaining approximately 85% of pipelines of the UGI Distribution Companies are comprised of contemporary materials which include plastic and coated steel. For UGI-GD, contemporary materials compose 86.4% of the system.

Cast iron distribution and bare steel distribution mains are considered legacy distribution assets and are widely recognized as warranting prioritized attention in terms of risk management and accelerated replacement.

As of December 31, 2012, UGI-GD had a total of 5,423 miles of distribution mains in its system.

Figure 2. Miles of Distribution Mains as of 12/31/2012³

Type of Material	Miles	Percent of Total
Unprotected bare steel	260.2	4.8
Unprotected coated steel	129.2	2.4

³ Per UGI-GD 2012 Department of Transportation (“DOT”) report.

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Protected bare steel	131.8	2.4
Protected coated steel	1613.0	29.7
Ductile iron	0	0.0
Copper	0.1	0.0
Cast / wrought iron	347.5	6.4
Plastic	2938.3	54.2
Other	3.0	0.1
Total	<u>5423.1</u>	<u>100.0</u>

Beginning in 2014, UGI-GD's Plan reflects the accelerated replacement and removal of all cast iron and bare steel / wrought iron pipelines within 13 and 28 years, respectively, or by February 2017 and September 2041. Other mains will be replaced as may be necessary to maintain or improve system integrity and reliability, or as may be required to accommodate highway related projects.

UGI-GD distribution mains were installed over a significant period of time. While many of these older distribution mains are composed of contemporary materials, the majority of the older facilities are made of vintage materials. Accelerating the replacement of cast iron mains, bare steel mains, vintage plastic mains, and the appurtenances associated with them will significantly improve the overall age profile and performance of the UGI-GD distribution system.

Figure 3. Age Profile of UGI-GD Distribution Mains as of 12/31/12⁴

Decade of Installation	Mileage	Percent of Total
Unknown	1.8	0.0
Pre-1940	508.1	9.4
1940s	77.1	1.4
1950's	536.6	9.9
1960's	729.6	13.4
1970's	421.2	7.8
1980's	693.2	12.8
1990's	1074.7	19.8
2000's	1214.0	22.4
2010's	166.8	3.1
Total	<u>5423.1</u>	<u>100.0</u>

Gas Service Lines

Gas service lines are the piping and/or tubing that connect the Company's mains to the meter sets. Service lines are constructed using the same materials as mains and are subject to the same elements that affect the physical integrity of the mains. In order to ensure that distribution service is reliable and safe, these service lines must be periodically replaced on the basis of condition or planned obsolescence. Gas service lines are DSIC eligible property under Section 1351(2) (iii) of the Public Utility Code.

Figure 4. Service Lines by Material as of 12/31/2012⁵

Service Material	Number of Services	Percent of Total
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⁴ Ibid

⁵ Ibid.

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Unprotected bare steel	14,311	4.1
Unprotected coated steel	9,196	2.7
Protected bare steel	799	0.2
Protected coated steel	39,621	11.4
Ductile iron	0	0
Copper	10,871	3.2
Cast / wrought iron	2	0
Plastic	271,696	78.4
Other	23	0
Total Services	<u>346,519</u>	<u>100.0</u>

Gas services are typically replaced on a planned basis in conjunction with the replacement of the main to which they are connected. Coordinating replacements in this manner maximizes the efficient use of Company resources, and minimizes the inconvenience to customers. At the time of service line replacement, inside meters will be replaced with outside meters wherever practical to better facilitate company access.

Gas services may also be replaced in conjunction with meter move-outs. When meters are relocated from inside customer premises to outside, it is often convenient to simultaneously replace the affected service line. When coordinated in such a manner, future inconvenience to the customer is minimized by upgrading Company facilities in a single mobilization. Pursuant to the Commission's Final Order issued on May 23, 2014 in Docket No. L-2009-2107155, UGI-GD must address all relocations on its system by

~~September 13, 2034. As a result, Should future Commission rule makings require existing inside meters to be relocated outside, it would be expected that the number of service line replacements would will increase in proportion to the number of meter move-outs⁶.~~

Excess Flow Valves

Excess flow valves are safety devices installed on gas service lines which interrupt the flow of gas in the event of a fully severed line, typically in the case of damage caused by excavation. As service lines are replaced, excess flow valves are installed in accordance with Subpart H of CFR 49 Part 192 – Transportation of Natural and Other Gas by Pipeline; Minimum Federal Safety Standards Section 192.381. Excess flow valves are DSIC-eligible property under Section 1351(2)(v) of the Public Utility Code.

Mercury Regulators

Mercury regulators are a type of pressure reduction device which incorporate liquid mercury as over-pressure protection. Mercury regulators were generally installed prior to the early 1960s when spring loaded relief valves became the industry standard. As part of the LTIP, UGI plans to continue the replacement of mercury regulators. An estimated 7,000 mercury regulators remain in the UGI-GD system. Mercury regulators are DSIC-eligible property under Section 1351(2)(iii) of the Public Utility Code.

⁶In reference to proposed rulemaking re-amendment to 52 Pa. Code §59.18 Meter Location, Docket L-2009-2107155

City Gate & District Regulator Stations

City Gate and District Regulator Stations are facilities which reduce system pressures as gas is distributed throughout the piping network. City Gate Stations are generally located at the point of custody transfer between the interstate pipelines and distribution systems, whereas District Regulator Stations are located within distribution systems. Regulator stations must be periodically updated or replaced as components such as piping and mechanical equipment age and wear. Additionally, over time mechanical components such as regulators become obsolete and must be replaced with modern equipment to ensure availability of replacement parts and reliability. Regulating facilities may be replaced in whole or part depending upon the project objectives. Partial replacements could encompass equipment including but not limited to regulators, valves, heaters, metering, Supervisory Control And Data Acquisition (“SCADA”), and odorization. Some facilities will be eliminated through main replacement programs as low pressure systems are eliminated or where systems are otherwise consolidated. City Gate Stations and Distribution Regulator Stations are DSIC-eligible property under Section 1351(2)(i) and § 1351(2)(iv) of the Public Utility Code.

Figure 5. Number and Type of Regulator Stations

	City Gate Station	District Regulator Station	Total
UGI-GD	41	378	419

Vintage Plastic Pipe, Plastic Pipe Components, and Mechanical Fittings

Certain plastic pipe materials and fittings have been found to exhibit a higher than average potential for failure. UGI-GD has identified a type of tee, the fitting which joins the service line to the main, which may fail as the result of a compromised mechanical connection between the tee and main. A second type of plastic fitting, a service line curb valve with compression connections, has similarly exhibited a higher potential for failure. UGI-GD is engaged in ongoing surveillance and proactive repair and replacement of these fittings. When mechanical tees are replaced, a section of the host main is replaced, and a new tee is connected by plastic fusion. Compression connection service line valves are addressed by replacing the affected service line. Finally, early vintage plastic pipes have been found to be subject to higher potential for brittle cracking type failures and are replaced on a risk prioritized basis. In total, approximately 2,900 compression connection valves and 19,800 mechanical tees will be reviewed and addressed as may be appropriate at UGI-GD. Finally, certain types of early vintage plastic pipes have been found to be subject to higher potential for brittle cracking type failures. UGI-GD will monitor vintage plastic pipe performance perform replacements on a risk prioritized basis as may be necessary to maintain reliability and integrity. The aforementioned plastic pipe and pipe components are DSIC-eligible property under Sections 1351(2)(i), 1351(2)(ii), 1351(2)(iii), 1351(2)(iv), and 1351(2)(v) of the Public Utility Code.

Transmission Mains & Infrastructure

UGI-GD maintains approximately 117 miles of natural gas transmission pipelines. Transmission pipelines are those mains which provide large volumes of gas at high pressures to provide service to entire cities and towns or large volume customers such as gas fired electric generation plants.

Maintaining the integrity of transmission infrastructure is necessary for both reliability and safety. In terms of reliability, transmission lines often provide service to many thousands of customers. Service interruptions can have wide spread regional consequences for many stakeholders. For these reasons, maintaining transmission infrastructure to a high degree of integrity is paramount. Transmission mains are DSIC – eligible property under Sections 1351(2)(i) and 1351(2)(iv) of the Public Utility Code.

Figure 6. UGI-GD Transmission Mains by Material as of 12/31/12⁷

Type of Material	Miles	Percent of Total
Protected bare steel	0.5	0.4
Protected coated steel	115.9	99.4
Unprotected bare steel	0.1	0.1
Unprotected coated steel	0.1	0.1
Cast iron	0	0
Wrought Iron	0	0
Plastic	0	0
Composite	0	0

⁷ Per UGI-GD 2012 Department of Transportation (“DOT”) Transmission report.

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Other	0	0
Total	<u>116.6</u>	<u>100.0</u>

Figure 7. UGI-GD Transmission Mains by Age as of 12/31/12⁸

Decade of Installation	Mileage	Percent of Total
Unknown	0	0
Pre-1940	0	0
1940s	1.9	1.6
1950's	20.2	17.3
1960's	30	25.7
1970's	14.4	12.4
1980's	25.2	21.6
1990's	12.2	10.5
2000's	12.7	10.9
2010's	0	0
Total	<u>116.6</u>	<u>100.0</u>

Approximately 19% of the UGI-GD transmission system is pre-1960s vintage, or more than 50 years old. Ongoing investments in transmission infrastructure are necessary to maintain these assets to ever increasing contemporary standards. Specifically, investment in the retrofit of transmission pipelines to facilitate internal inspection, pressure testing, and other integrity assessment techniques may be required to meet transmission integrity management regulations. Furthermore, replacement of transmission assets, in response to assessment findings, may be required to maintain system integrity.

⁸ Ibid

System Reliability Improvements

System Reliability Improvements are those investments required to maintain ongoing system reliability. Typical projects include investments in distribution or transmission infrastructure needed to reinforce system pressures to ensure firm peak-day deliverability. Investment in transmission and distribution mains is DSIC-eligible under Section 1351(2)(i) of the Public Utility Code.

UGI-GD utilizes system network models to predict system performance under peak operating conditions. Model results are validated against actual system operating conditions using data from remote SCADA monitoring, system regulator station charts, and winter survey gauges. Specific reliability projects ~~are~~ have been identified to improve system pressures as ~~may be needed~~ to maintain system reliability design criteria to firm customers. Additional projects may be identified in the future subject to system performance and reliability.

Meters

UGI-GD replaces meters as may be necessary to maintain compliance with gas measurement accuracy standards as stipulated in 52 PA Code Section 59.21. UGI-GD maintains a statistical sampling program to evaluate meter accuracy. Should a grouping of meters fail to meet accuracy requirements, the meters are repaired or replaced. Replacement meters are DSIC eligible property under Section 1351(2)(viii) of the Public Utility Code.

Mandated Facility Relocations

UGI-GD is periodically required to relocate gas facilities to accommodate highway improvement projects. The unreimbursed portion of these costs is DSIC eligible property under Section 1351(2)(ix) of the Public Utility Code. When contemporary facilities are impacted, UGI-GD seeks to coordinate such projects to minimize the extent of facility relocation. When non-contemporary facilities, such as cast iron, bare steel, or vintage plastic are involved, the relocation projects provide an opportunity for infrastructure replacement.

Related Capitalized Costs

The replacement of DSIC eligible property described above may result in additional related costs incurred that are essential and necessary in order to efficiently manage specific accelerated capital improvement projects. Examples include but are not limited to tools, equipment, fleet, corrosion control, and information technology investments. These related costs are DSIC eligible property under Section 1351(2)(x) of the Public Utility Code.

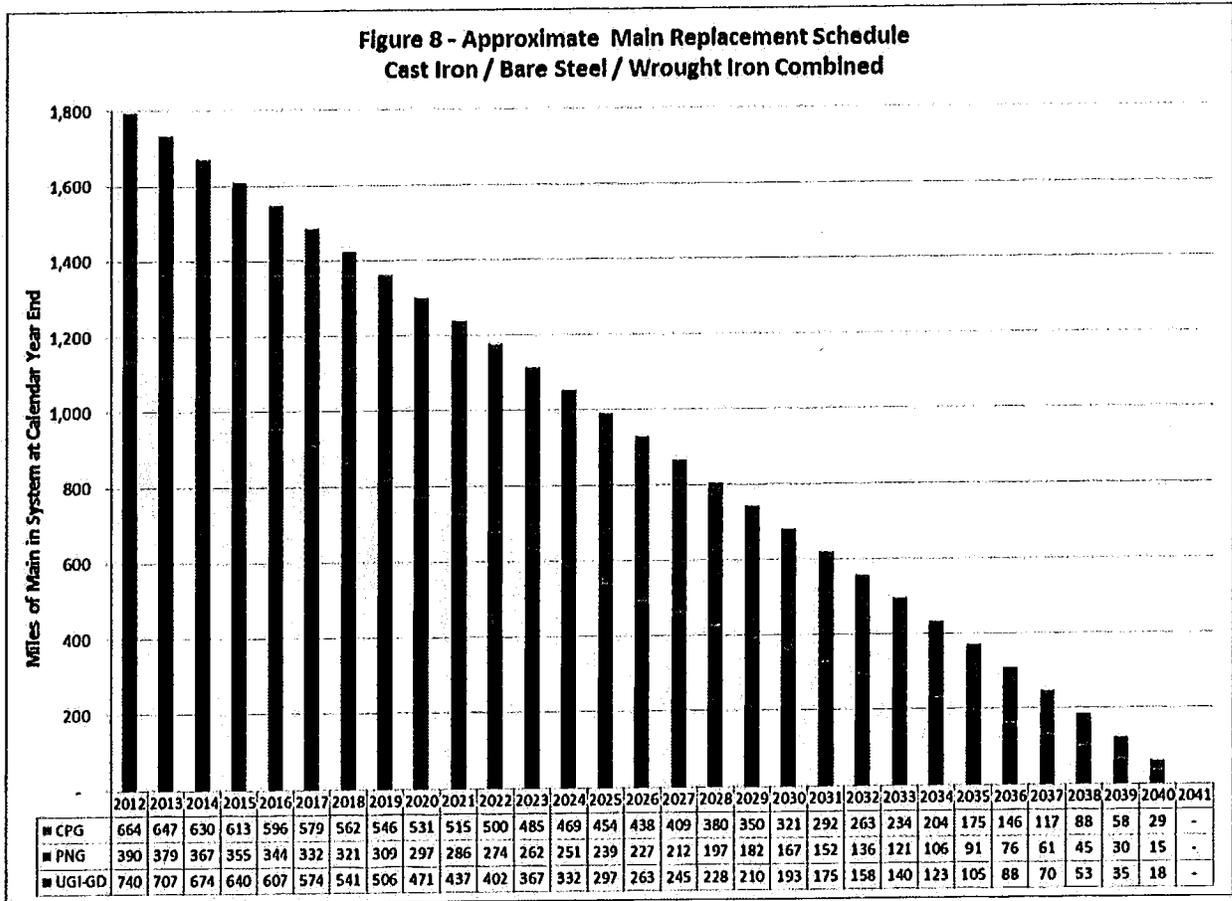
2. SCHEDULE FOR PLANNED REPLACEMENT OF ELIGIBLE PROPERTY

The UGI-GD LTIP reflects acceleration in the rate of infrastructure repair, improvement and replacement over historical levels. In particular, the accelerated replacement in this plan conforms with the Settlement Agreement approved by the Pennsylvania Public

Utility Commission at Docket No. C-2012-2308997 (“Settlement Agreement”). Under the Settlement Agreement, the UGI Distribution Companies will replace all cast iron and bare steel pipelines located within their combined systems. As of the date of the Plan filing, cast iron replacement will be completed in 13 years ending in February 2027, and bare steel / wrought iron replacement will be completed in 28 years ending in September 2041. This replacement rate, on a combined basis, represents a significant acceleration over historical replacement rates.

As depicted in the Figure 8⁹ below, it is anticipated that UGI-GD will replace approximately 33 miles of combined cast iron and bare steel mains in 2014. The specific allocation of mileage between cast iron and bare steel main replacement will vary annually depending on annual risk evaluations and project specific considerations. Additionally, the amount of the annual UGI Distribution Companies’ 62 mile main replacement plan allocated to UGI-GD will vary as risks are annually re-evaluated and re-prioritized across all UGI Distribution Companies.

⁹ The replacement schedule presented in Figure 8 is a forecast based on known mileage of cast iron, bare steel, and wrought iron as of 12/31/12. Subsequent revisions of main classifications, as determined through field verification or records review, will modify this projection.



Under the accelerated main replacement program UGI-GD will focus on replacing existing cast iron and bare steel /wrought iron mains and related facilities. While certain bare steel facilities will be replaced in early years, the initial schedule emphasizes cast iron replacement until the final cast iron retirements are completed by March 1, 2027. Subsequently, replacement efforts shift to an emphasis on bare steel.

Main replacement risk evaluation is based on numerous factors, including the pipe condition, age, coating, type of ground cover, geographical proximity to structures, and prior leak and/or break history. Appendix A provides a detailed listing of factors

considered in the risk based evaluation. Additionally, specific projects may be escalated to enable coordination of replacement efforts with municipal roadway resurfacing projects.

The UGI Distribution Companies perform an annual review to identify the highest risk pipe segments and prioritize those replacements each year. UGI Distribution Companies utilize commercial risk evaluation software in concert with a team of Subject Matter Experts to evaluate, prioritize, and bundle replacement projects. This hybrid approach targets the highest risk mains first while also balancing the need to maximize the efficient deployment of capital and resources.

This approach is consistent with the UGI Distribution Companies' Transmission Integrity Management Program ("TIMP") and Distribution Integrity Management Program ("DIMP") in accordance with Subpart P of 49 CFR Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. The purpose of the UGI Distribution Companies' TIMP & DIMP is to enhance public safety by identifying risks, assessing and prioritizing the risks, and implementing additional and accelerated actions or preventative and mitigative measures to reduce risks. As the UGI Distribution Companies continue to implement the TIMP & DIMP, other pipeline assets may be identified for repair, improvement or replacement as their conditions are evaluated and relative risks are reviewed and prioritized.

~~Attached to this Plan as Appendix B is a~~ list of planned DSIC eligible main replacement projects ~~currently planned for 2014~~ is included with the Company's Annual Asset Optimization Plan ("AAOP"). This listing is developed and reviewed one or more times each year based on a reassessment of the most current data available. Therefore, this is a dynamic list of projects that is subject to modification. In addition to the identified projects, UGI-GD must address mandatory replacements, non-repairable leakage, and emerging main issues that develop in the field and require immediate attention. Replacement of such segments of pipe is not reflected in ~~Appendix B~~ the AAOP and will impact the ultimate timing of the completion of identified projects.

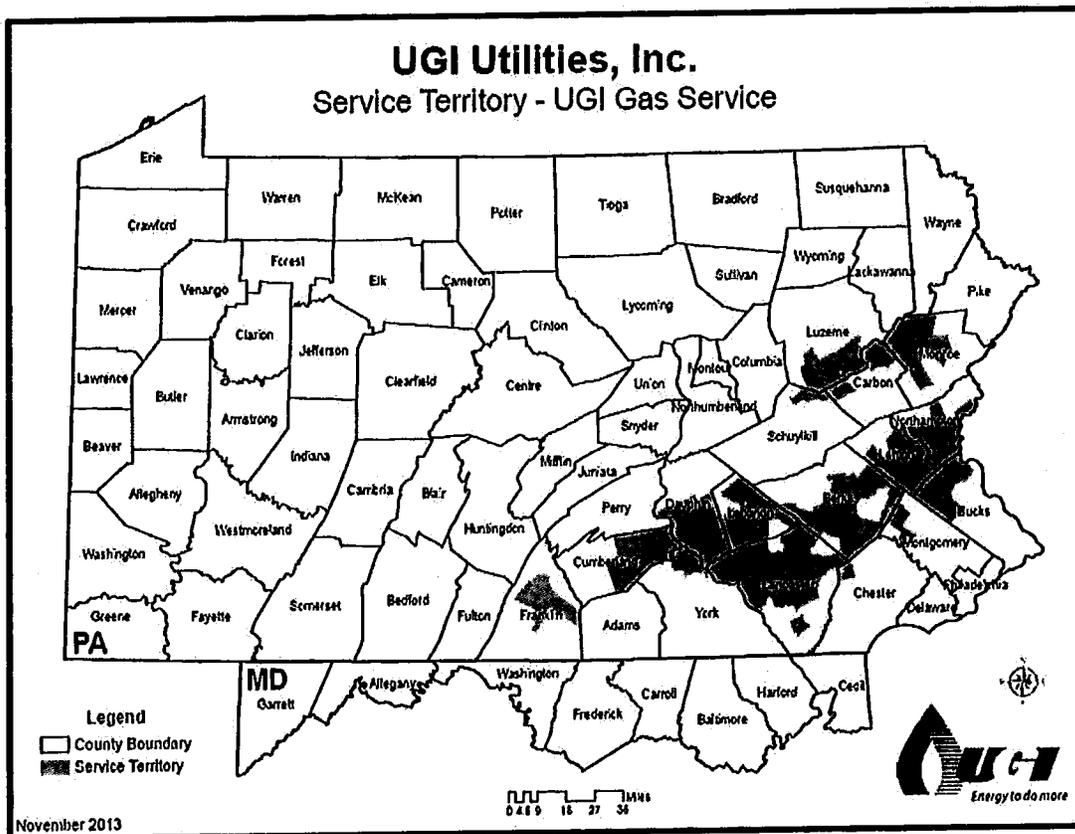
Certain circumstances, such as municipal government and Pennsylvania Department of Transportation construction projects, or changes in state or federal pipeline safety code also could impact UGI-GD's schedule and scale. Long term infrastructure improvement projects performed by the UGI-GD, and human and material assets associated with those projects, will be adjusted or changed as required to align with changing circumstances. Projects will be regularly reviewed and updated to ensure all projects are cost effective and provide the expected system integrity and reliability benefits.

3. LOCATION OF ELIGIBLE PROPERTY

UGI-GD will conduct projects distributed throughout its service territory. As described earlier, UGI-GD's service territory contains approximately 5,423 miles of natural gas distribution mains and 117 miles of natural gas transmission mains throughout 16 counties in and around Eastern and Central Pennsylvania. The UGI-GD map below

identifies the UGI-GD service territory. Eligible property is located in all parts of UGI-GD's service territory as depicted in Figure 9 below.

Figure 9. (UGI-GD Service Territory Map)



4. REASONABLE ESTIMATE OF THE QUANTITY OF PROPERTY TO BE IMPROVED

As described in the prior sections, the Company has identified numerous property types including cast iron and bare steel pipeline for replacement. The Company estimates that in 2014 approximately 62 miles of cast iron and bare steel mains will be replaced across all UGI Distribution Companies. For UGI-GD, the 2014 replacement plan includes replacement of approximately 33 miles of cast iron and bare steel mains. In each annual

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asset optimization plan filed by UGI-GD, the Company will provide updated yearly replacement plans, based on its latest risk assessment process.

The following table provides estimates of the approximate schedule and units of property to be replaced at UGI-GD under the LTIP plan. UGI-GD anticipates replacing or repairing the following approximate amounts of DSIC eligible infrastructure.

Figure 10. Replacement Quantities and Rates

<u>Asset Type</u>	<u>Strategy</u>	<u>LTIP Schedule / Replacement Rate</u>
Distribution Mains – Cast Iron	Replace cast iron mains on a risk prioritized basis consistent with DIMP criteria	All mains replaced in 13 years, ending February 2027
Distribution Mains – Bare Steel	Replace bare steel mains on a risk prioritized basis consistent with DIMP criteria	All mains replaced in 28 years, ending September 2041
Coated Steel Mains	Replace coated steel main as required per mandatory replacements, non-repairable leakage, and emerging main issues	Replace as necessary to maintain system integrity
Transmission Mains	Retrofit transmission lines as required to perform assessments, replace / remediate as may be required per assessment findings	To be determined based upon requirement for assessments and assessment results
Services	Replace services in concert with main replacements	Replacement rate will be proportional to accelerated main replacement rates
Regulator & City Gate Stations	Replace stations and components on obsolescence / condition basis	Variable rate per year based on facility condition assessment & prioritization

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Vintage Plastic	Replace mechanical tees, mechanical coupled valves, on an assessed condition basis, including replacement of header main as may be required	Replace as needed to maintain system integrity or at rate as determined by relative risk prioritization
Mandated Facility Relocations	Relocate infrastructure as required by highway agencies. Replace vintage infrastructure in path of highway improvements opportunistically to minimize future paving costs	As required by highway agencies
Related Capital Costs	Invest in tools, equipment, fleet, corrosion control, and information technology as required to enable LTIP	As required

5. PROJECTED ANNUAL EXPENDITURES AND MEASURES TO ENSURE THAT THE LTIP IS COST-EFFECTIVE

Projected Annual Budget for Upgrades

The table below provides a projection of total annual expenditures for the LTIP period, 2014 through 2018, for both UGI-GD specifically as well as the UGI Companies in total.

Figure 11. Projected LTIP Annual Expenditures 2014-2018

Fiscal Year	Capital Investment UGI-Gas (\$MM)	Capital Investment All UGI Companies (\$MM)
2014 Projected Actual	\$51,259.0	\$85,193.5
2015 Projected Actual	\$51,262.5	\$87.6\$108.2
2016 Projected	\$51,292.9	\$88.1\$155.9
2017 Projected	\$51,290.5	\$89.1\$135.7
2018 Projected	\$51,266.0	\$89.1\$111.2

Cost-Effectiveness

UGI-GD will be employing numerous oversight and control processes in order to ensure resources expended on its LTIP projects are being prudently spent. The following methods are planned to increase cost effectiveness:

- Competitive bidding of multi-year pipeline construction and restoration contracts
 - Utilization of unit based pricing to limit change order impacts
 - Aggregation of UGI Distribution Companies' projects for bid purposes to gain economy of scale benefits
 - Provision of minimum guaranteed volume contracts to benefit from economies of scale
 - Issuance of special bids for large or unconventional projects
 - Recruitment of additional qualified contractors to increase the competitive nature of the process.
 - Evaluation and implementation of new or improved technologies to decrease costs, such as:
 - Directional drilling, insertion, and other minimally disruptive trenchless technology versus traditional direct burial
 - Key hole / core bore service replacement
 - Perform periodic HR staffing allocation reviews to assure optimal resource utilization and deployment.
-

In addition to the above, UGI-GD will monitor safety and reliability indicators for the natural gas distribution system over time in particular with a focus to evaluate corrosion and leak resolution performance, track emergency response, pursue damage prevention, and reinforce employee safety and safety improvement.

In order to increase construction efficiency in a way that maximizes the effectiveness of replacement capital, efforts shall be made at the start of each fiscal year to group planned replacement projects with others in a geographic region. Such an approach reduces costs associated with mobilization, materials delivery and stockpiling, and also improves inspection efficiency and safety performance.

Geographic planning of projects as described above will also reduce the impact to the community in which the projects occur by ensuring that replacement activities are completed with fewer mobilizations into and out of a community. As the construction crew completes main and service replacements, construction should move logically from one portion of an area to another, so that disruptions such as road closures, parking restrictions, construction noise and interruption of service are restricted to only the time required to complete the main and service replacement in the immediate area.

Overall, the UGI Distribution Companies will focus on continuously enhancing planning, response and facility restoration efforts. Changing circumstances impacting the accelerated facility restoration efforts will cause a need for constant review and update of the responses and techniques used. In addition, communication approaches, information

management systems and operations protocols used in facility improvement will need to be adjusted and continuously improved as well. The UGI Distribution Companies are refining the planning and resource alignment processes used in accelerated facilities improvement initiatives. The UGI Distribution Companies are constantly reviewing and evaluating facility information to continually enhance and refine the accuracy of infrastructure data.

Finally, UGI Distribution Companies will continue an evaluation of industry best practices, collaboration with industry partners, and interaction with regulatory agencies. Opportunities to enhance and expand the effectiveness of processes and procedures will be evaluated and considered to ensure continuous improvement of infrastructure that is cost-effective.

6. MANNER IN WHICH REPLACEMENT OF AGING INFRASTRUCTURE WILL BE ACCELERATED AND HOW REPAIR, IMPROVEMENT, OR REPLACEMENT WILL MAINTAIN SAFE AND RELIABLE SERVICE.

Acceleration

The UGI-GD LTIIP reflects acceleration that has previously been agreed to by the UGI Distribution Companies and the Public Utility Commission. In an Order entered on February 19, 2013, the Pennsylvania Public Utility Commission approved a Joint Settlement Petition which, among other conditions, requires the UGI Distribution Companies to replace all cast iron mains over a 14 year period ending in February 2027

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and all bare steel / wrought iron mains over a 30 year period ending in September 2041.¹⁰

The impact this commitment has on the overall infrastructure replacement rate and capital expenditures for the UGI Distribution Companies has been dramatic.

Accelerated Capital Investment by UGI-GD

In accordance with the accelerated replacement plan described above, the UGI Distribution Companies have already begun to ramp-up needed resources and capital spending levels. This acceleration started in 2012, and while prioritization of activities initially were largest at UGI-GD, the acceleration impacts – both current and planned – are evident across all of the UGI Distribution Companies, including UGI-GD.

For purposes of demonstrating the acceleration commitment made by the UGI Distribution Companies in this LTIP for 2014 through 2018, a comparison to a three-year baseline average comprised of capital expenditures for 2009 through 2011 is shown below for both UGI-GD specifically, as well as the UGI Distribution Companies, in total.

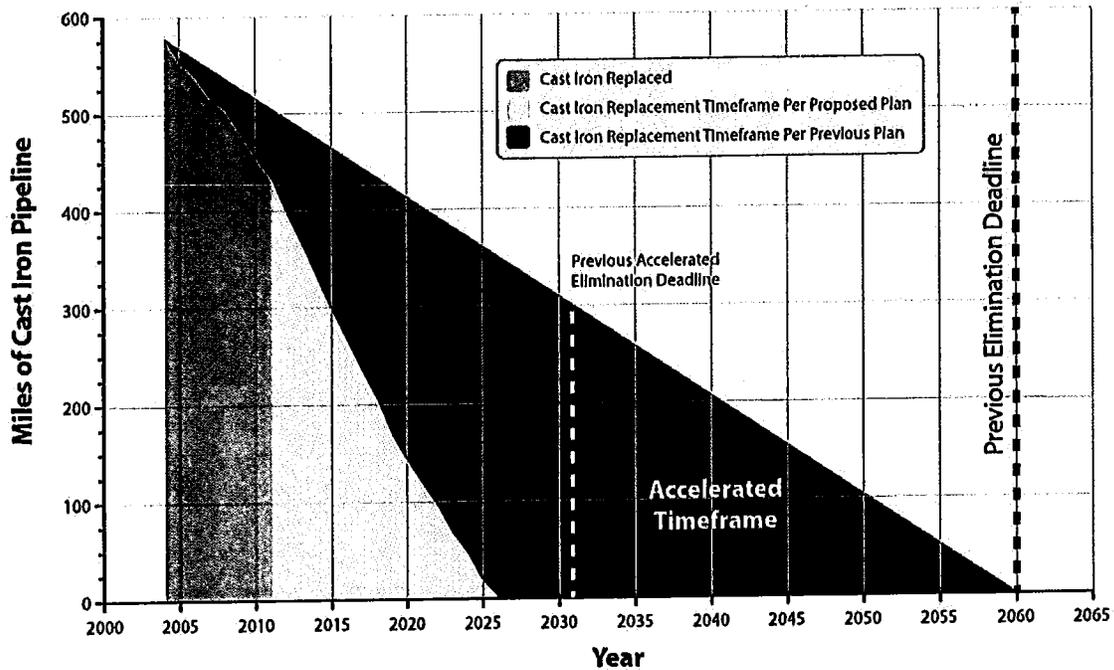
Fiscal Year	Capital Investment UGI-Gas (\$MM)	Capital Investment All UGI Distribution Companies (\$MM)
2009-2011 Baseline (Avg/yr)	\$26.1	\$50.6
2012 Actual	\$35.7	\$61.1
2013 Actual	\$54.3	\$93.9
2014 Projected	\$51.259.0	\$93.5\$85.1
2015 Projected	\$51.262.5	\$108.2\$87.6
2016 Projected	\$51.292.9	\$155.9\$88.1
2017 Projected	\$51.290.5	\$135.7\$89.1
2018 Projected	\$51.266.0	\$111.2\$89.1

¹⁰ Pennsylvania Public Utility Commission Opinion and Order Entered February 19, 2013, Docket C-2012-2308997

As demonstrated above the acceleration in UGI-GD DSIC eligible spend between 2018 projected spend and the 2009-2011 baseline period increases by ~~96~~153%. Total DSIC eligible spend for all UGI Distribution Companies increases by ~~76~~120%. This investment acceleration relates to a 17% increase in the amount of bare steel and cast iron main replaced (average 53.2 miles per year replaced in 2009-2011 baseline period vs. 62 miles per year during LTIP).

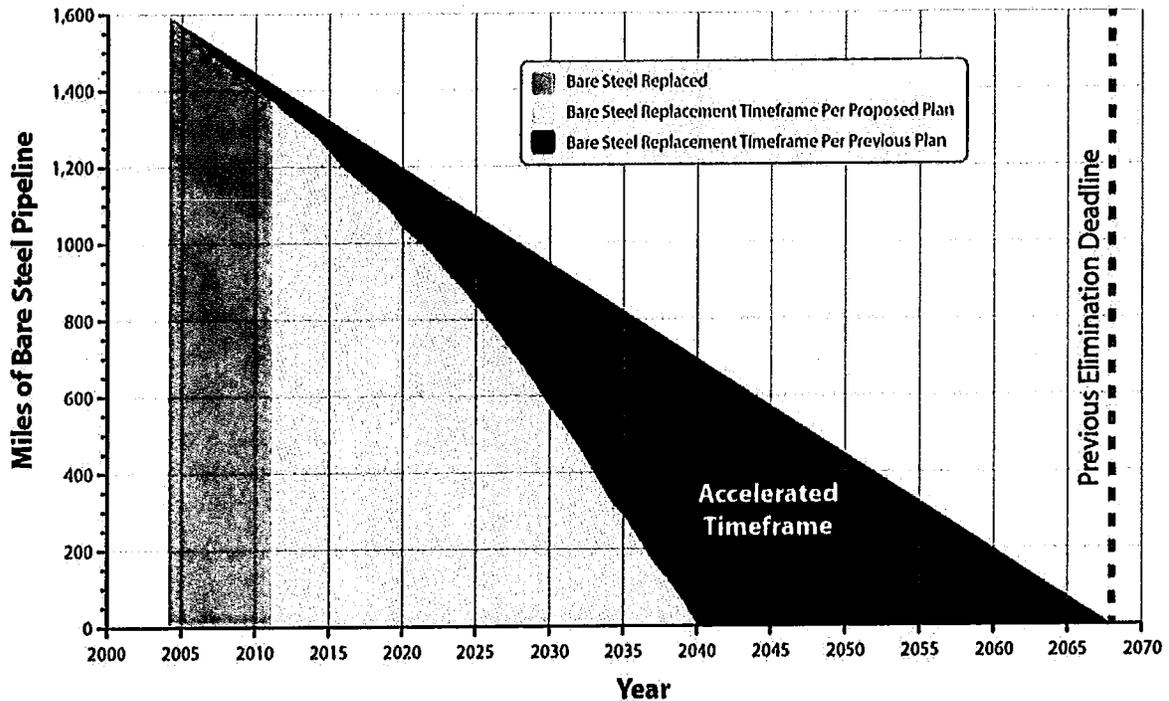
The overall plan to address cast iron distribution mains is to replace all such facilities by the end of February, 2027. The graph in Figure 12 below provides a visual representation of this plan versus the previous replacement timeframe which is based on the historical replacement trend. Per the accelerated replacement rate, all cast iron mains will be eliminated from the UGI Distribution Companies 33 years ahead of the prior timetable.

Figure 12. Accelerated Cast Iron Replacement



The overall plan to address bare steel and wrought iron mains is to replace all such facilities by October 2041. The graph in Figure 13 below provides a visual representation of this plan versus the previous replacement timeframe which is based on the historical replacement trend. Per the accelerated replacement rate, all bare steel / wrought iron mains will be eliminated from the UGI Distribution Companies 27 years ahead of the prior timetable.

Figure 13. Accelerated Bare Steel / Wrought Iron Replacement



While the overall replacement deadlines will remain fixed, for any given intermediate period the sequence of projects and amount of specific facilities to be addressed may be adjusted in response to changing conditions. A variety of factors, due to the nature of the natural gas distribution business, may cause these changes to occur. These factors include but are not limited to state and municipal relocation projects, other private construction projects, system upgrades due to pressure requirements, regulatory changes, and legislative changes.

Safe and Reliable Service

UGI-GD expects that the investment enumerated in this LTIP will provide customers with significant improvements in safety and reliability. Proposed LTIP replacement

investments have been identified and prioritized on a risk basis in accordance with UGI Distribution Companies' DIMP and TIMP plans. Risk based prioritization ensures that those projects which deliver the most significant reductions are addressed first. As the investment plan progresses, customer benefits will be manifested over time in terms of reduced leakage rates, fewer main breaks, and fewer unplanned customer interruptions. Additionally, it is expected that the amount of lost and unaccounted for gas due to system leakage and measurement inaccuracy will be reduced as leaks are eliminated and meters are replaced. Finally, peak day reliability will improve as pressure improvement projects will elevate system low points under peak day design conditions.

Project Coordination & Municipal Outreach

UGI-GD, as part of the UGI Distribution Companies, has a long-standing and active outreach program with local municipalities in its service territories aimed at coordinating construction projects. The municipal outreach program allows for clear communication of information about the natural gas distribution system safety, design and operations, as well as information regarding upcoming facility improvement projects. Coordination with municipal governments minimizes disruptions to residents in the area of proposed construction, enables efficient replacement of facilities, and promotes awareness of construction projects being performed around UGI Distribution Companies infrastructure.

Section 59.38, from Chapter 59 - Gas Service, requires each public utility to notify the Commission of all major construction, reconstruction or maintenance of plant at least 30 days prior to the commencement of work. Notification must be given when the estimated

expenditure for any single project exceeds \$300,000 on the sum of main, paving and service replacement costs. In order to increase communication with the Commission, notification shall be sent for multiple projects grouped by a close proximity that are estimated to total \$300,000 or more for main, paving and service replacements.

7. WORKFORCE MANAGEMENT AND TRAINING

Training and Operator Qualifications

Safety has always been a core value at UGI-GD. The UGI Distribution Companies conduct an Operator Qualification (OQ) Program to ensure that personnel performing critical tasks on all pipeline facilities have the necessary knowledge, skills and abilities. The OQ program includes more than 120 identified tasks, with many sub-parts within tasks, requiring extensive training, testing and qualification verification. Field technicians complete comprehensive safety courses including jobsite safety, driver safety, fire extinguisher use, pipefitting, hazardous materials recognition, abnormal operating condition recognition, emergency response, basic gas piping construction and maintenance, and leak detection.

UGI Distribution Companies utilizes an internal compliance department to perform regular quality and safety inspections of construction activities, and verification of qualifications of those individuals performing operator qualification covered tasks. Compliance inspectors perform unannounced job site inspections of both Company and contractor crews. Any deficiencies identified are escalated to Company or contractor management for investigation and correction.

UGI-GD currently utilizes construction inspectors, both internal and external, to inspect natural gas distribution facility projects constructed by contractor crews. Contractors working on the UGI-GD system must pass a rigorous review and meet all Department of Transportation regulatory requirements. Contractors must maintain current written documentation including operator qualification plans, safety plans, drug and alcohol abuse prevention plans.

Resource Requirements

It is anticipated that UGI Distribution Companies will hire incremental managers, supervisors, engineers, project managers, inspectors, and contractors in order to accelerate the replacement of the facilities per this plan. Currently, UGI Distribution Companies have hired external consulting resources to assist with engineering design workload as needed.

The UGI Distribution Companies have allied with universities and post-secondary technical schools and are partnering with the veteran's group Helmets to Hardhats to serve as resources in responding to the resource ramp-up required to support the LTIIPs. The UGI Distribution Companies are also engaged in developing plans to recruit qualified individuals able to serve in Construction & Maintenance (C&M), Utility, Mechanic, and Technician positions.

Appendix A

Distribution Integrity Risk Evaluation

As part of the UGI Distribution Companies' Distribution Integrity Management Plan, on an ongoing basis several methods are employed to perform a relative risk ranking of assets for each Company. Commercially available pipeline risk evaluation software is utilized in conjunction with the data available from the UGI Distribution Companies' Geographic Information Systems to compute risks on individual main segments. The computed risks are utilized to prioritize the sequence of planned main replacements. Additionally, supplemental to the computerized risk model, on a quarterly basis, the UGI Distribution Companies gather individual Subject Matter Experts from each Company to update and validate the relative risk assessment of all distribution assets, discuss any new or emergent threats, and to communicate any recent distribution integrity issues. The outlines below summarize distribution infrastructure data considerations and distribution integrity threats incorporated in the UGI DIMP plan.

Physical Infrastructure

Pipe material

A. Plastic

- 1) Polyethylene (PE)
- 2) Polyamide 11 (PA11)
- 3) Poly Vinyl Chloride (PVC)
- 4) Fiberglass

B. Steel

- 1) Coated, protected
- 2) Coated, non-protected
- 3) Bare, protected
- 4) Bare, non-protected

C. Copper

- D. Cast iron
- E. Wrought iron
- F. Other

Pipe specifications

- A. Diameter
- B. Joint length, primarily for cast iron
- C. Steel pipe specifics as appropriate
 - 1) Grade (not typically relevant for low hoop stress operating pressures)
 - 2) Wall thickness
- D. Plastic pipe specifics
 - 1) Medium density/high density
 - 2) SDR
 - 3) Straight lengths (stick) or coil

Construction

- A. Year installed
- B. Joining Method (e.g., coupling, mechanical joint, bell and spigot, welded, threaded, fused, electro-fusion, adhesive)
- C. Installation method (e.g., open trench, inserts, boring, directional drilling, pad by others, common trench, etc.)
- D. Location (e.g., in street, behind curb, in private r/w)
- E. Cover
 - a. Depth (original, current, restored)
 - b. Type (e.g. backfill, pavement, grass/dirt, gravel/slag, aboveground)
- F. Company/contractor completing installation
- G. Casings
- H. Crossings (e.g. highway, bridge, underwater)
- I. Expansion loops (thermal effects)
- J. Pipe support systems

Corrosion control

- A. Below ground coating type – mill and field applied (e.g. coal tar, PE, fusion bonded epoxy, wax, cold or hot applied tapes, etc.)
- B. Cathodic protection type (e.g., galvanic anode, impressed current;)
- C. Electrical isolation (e.g., type, location)
- D. Stray current areas (e.g., interference, bonds, reverse current switch)
- E. Rock shield
- F. Above ground coating type

Valves

- A. Size
 - B. Type (e.g., ball, gate, plug)
 - C. Location
 - D. Usage (e.g., emergency, station shutoff, bypass, convenience)
 - E. Manufacturer
-

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- F. Material of construction (e.g., same as pipe?)
- G. End connections
- H. Pressure rating (e.g., ANSI or WOG class)

System pressure regulation

- A. Regulator specification
- B. Location
- C. Design and typical inlet and outlet pressures
- D. Regulator capacity
- E. Operation (e.g., pilot, spring, weight)
- F. Manufacturer
- G. Means of overpressure protection (e.g., relief valve, monitor, slam shut, and combinations)
- H. Relief valve capacity and build-up as required.

Other

- A. Specialized components (e.g., EFVs, insulating joint or union, anodeless riser, expansion or other flexible joint)
- B. Field Fabricated fittings (e.g., reducing coupling, service entry jacket, leak repair device)
- C. "Priority facilities" under physical facilities security program

Historical Operating Information & Attributes

Results of inspections and surveys

- A. Leak surveys
- B. Corrosion inspections
- C. Valve inspections
- D. District regulator inspections
- E. Patrols
- F. Special field surveys or patrols (e.g., post-flooding patrols or winter/frost leak surveys)
- G. Liquids removal

Documentation of leaks and other maintenance performed

- A. Leak grade ("C" hazardous; "B"; and "A")
 - B. Repair type
 - C. Exposed metallic pipe inspections
 - D. Corrosion control systems
 - E. Equipment or component replacements
 - F. Material or equipment failure reports
 - G. Number of leaks eliminated/repaired by cause of leak category (Part C of the Annual DOT Report)
 - H. Incident reports
-

Damage Prevention Locate / Excavation activity

- A. Damage records (e.g., Operator, one-call center)
- B. Responsible parties
- C. The number of underground locate requests received
- D. Proposed or completed significant construction activities

Geologic/environmental conditions

- A. Surface type at grade over pipeline
- B. Proximity to varying building types and density
- C. Earthquake zone
- D. Known washout areas
- E. Flood zones
- F. Minimum and maximum temperatures
- G. Soil types
- H. Land subsidence areas

Operating pressure

- A. Maximum actual/allowable operating pressure
- B. Minimum operating pressure experienced (e.g., peak day)
- C. Normal operating pressure
- D. Fluctuations (e.g., seasonal, random)
- E. Uprating performed in the past.

General Industry Information

In addition to company specific information, UGI monitors the activities of PHMSA, the American Gas Association, Plastic Pipe Data Committee, Gas Piping Technology Committee and industry publications to ensure that information related to failures experienced by other operators is known to UGI. Such information is used to compare information about other operators to that of UGI and to offer an additional source of information about failure data and materials and operating problems throughout the gas industry.

Threat Identification

The following general threat categories are considered in the DIMP plan:

- 1) Corrosion – resulting from a hole in the pipe or other component that was caused by galvanic, bacterial, chemical, stray current, or other corrosive action.
 - 2) Natural Forces – resulting from earth movements, earthquakes, landslides, subsidence, lightning, heavy rains/floods, washouts, flotation, mudslide, scouring, temperature, frost heave, frozen components, high winds, or similar natural causes.
-

- 3) Excavation Damage – resulting from damage caused by earth moving or other equipment, tools, or vehicles. Include leaks from damage by operator's personnel or contractor or people not associated with the operator.
- 4) Other Outside Force Damage – caused by fire or explosion and deliberate or willful acts, such as vandalism and due to vehicle damage.
- 5) Material, Weld or Joint Failure – resulting from failure of original sound material from force applied during construction that caused a dent, gouge, excessive stress, or other defect that eventually resulted in a leak. This includes those due to faulty wrinkle bends, faulty field welds, and damage sustained in transportation to the construction or fabrication site, resulting from a defect in the pipe material, component, or the longitudinal weld or seam due to faulty manufacturing procedures.
- 6) Equipment Failure – resulting from malfunction of control/relief equipment including valves, regulators, or other instrumentation; stripped threads or broken pipe couplings on nipples, valves, or mechanical couplings; or seal failures on gaskets, O-rings, seal/pump packing, or similar leaks.
- 7) Incorrect Operation – resulting from inadequate procedures or safety practices, or failure to follow correct procedures, or other operator error.
- 8) Other – resulting from any other cause, such as exceeding the service life, not attributable to the above causes.

Consequence Factors

Weighting factors are established to represent consequences that may be anticipated in case of an integrity breach or failure involving the facility groups. Consequence factors are related to the location of the facility in relation to people and property as well as the amount of gas that could potentially be released. These are assigned in three general categories of (1) population / location, (2) operating pressure and (3) piping size.

Appendix B

See Appendices B and C in the Company's Annual Asset Optimization Plan.

2014 Planned UGI Main Replacement Projects

Cast Iron Main Replacements

<u>Project ID</u>	<u>Description</u>	<u>Cast Iron (ft)</u>
1363	N 5th Street, 300-400	2061
2187	S 6th Street, 100	1907
2663	Municipal Project	500
2689	Manor Street, 600-900	3741
3686	Butter Lane, 000-600	5339
3986	State Street, 1300-1700	2903
4023	N Cameron Street, 2000	50
4583	E Church Street, 00	670
4588	Broadway Street, 1100-1200	1670
4607	Cedar Street, 800-900	1492
4612	S 15th Street, 400	550
4614	E Broad Street, 100	772
4618	Green Street, 900	616

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4620	N 8th Street, 300	416
4622	Ridge Avenue, 200	1728
4626	Liberty Street, 100-200	798
4630	E 3rd Street, 00	40
4631	E Broad Street, 200-300	1113
4632	S 21st Street, 500	196
4635	N 12th Street, 200	640
4639	Buchanan Street, 600	180
4641	E Garrison Street, 100	612
4643	Filmore Street, 300	529
4651	Hanover Avenue, 1800	452
4689	Arthur Street, 524-607	32
4706	Porter Street, 800	1260
4874	N 10th Street, 800	520
4879	S 9th Street, 400	940
4895	Buttonwood Street, 900- 1200	1280
4996	Grant Street, 300	203
4998	N 8th Street, 800	257
4999	S Franklin Street, 300-400	1246
5001	N Lumber Street, 400-500	624
5007	Washington Street, 400-500	1300

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5008	Washington Street, 700	503
5010	Allen Street, 700	369
5012	Jackson Street, 800	1531
5016	Hanover Street, 1300	1835
5019	N 4th Street, 800	1062
5030	E Ettwein Street, 00	302
5031	Monocacy Street, 1500	2432
5035	W Livingston Street, 1600	1448
5036	E. Highland, 2000	1160
5037	Liberty Street, 3000-3100	1083
5132	N 11th Street, 1000-1100	1015
5137	Linden Street, 1200-1500	2211
5140	N 6th Street, 1400	2640
5159	Hampden Boulevard, 1100- 1200	400
5168	Allen Street, 2200	590
5175	Maple Street, 1200	707
5178	Hamilton Avenue, 300	276
5179	Mixsell Street, 600	307
5180	Poplar Street, 800-900	1787
5181	E 9th Street, 400-500	1048
5183	Center Street, 1000-1200	1819

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5186	Bird Street, 000	1158
5187	N 3rd Street, 000	1457
5189	Oakwood Drive, 400	722
5191	Northampton Street, 700- 800	792
5192	Chestnut Street, 900-1000	750
5197	S 4th Street, 000-100	5800
5199	Atlantic Street, 800	344
5201	Packer Street, 600-900	1892
5202	S 10th Street, 100	435
5204	Gordon Street, 2100	712
5228	E Court Street, 400	331
5253	Walnut Street, 800	425
5254	S 7th Street, 400	140
5256	N 17th Street, 1000	260
5259	N Duke Street, 100	572
5260	S 13th Street, 200	517
5261	Daisy Street, 1600	2010
5278	E Walnut Street, 000-400	3526
5299	N Franklin Street, 100	820
5302	Ridge Avenue, 100	507
5304	S 12th Street, 100	359

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5308	N 14th Street, 200-300	431
5313	Pratt Street, 400	139
5316	N Lafayette Street, 500-600	1094
5322	N Hanover Street, 200-300	2484
5330	N West Street, 700	72
5331	S 8th Street, 700	1319
5335	S Howard Street, 1000	229
5337	S 2nd Street, 1400	3098
5339	Zarker Street, 1800-2000	4044
5341	Parkhill Street, 600	151
5347	Railroad Alley, 00	349
5349	N 2nd Street, 100-300	2743
5351	Limestone Alley, 300	778
5398	Ahead of Paving Project	7920
5458	E Green Street, 600-800	1602
5580	Walnut Street, 000-200	1030
5581	Locust Street, 000-200	825
5582	Pine Street, 000-200	790
5583	North Street, 200	1102
5587	Market Street, 300-1000	2155
5588	Forster Street, 400-500	560
5592	N 2nd Street, 200-600	3700

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5593	N 2nd Street, 200-400	1100
5594	N 2nd Street, 500-600	1190
5669	Pike Street, 500	870
5729	Van Buren Street, 1100	1166
5738	St George Street, 100	1905
5780	Chelsea Street, 1400-1500	986
5820	Dewey Avenue, 2200-2400	1034
5840	S Dauphin Street, 000	365
5848	N Franklin Street, 300	405
5852	Parker Avenue, 100	3424
5857	N 27th, 300	1574
5859	N Broad Street, 800	935
5875	N 3rd Street, 3000	511
5882	Grant Street, 2500	700
5883	Green Street, 700	386
5887	Cumberland Avenue, 2600- 2700	1388
5891	E Walnut Street, 300	466
5895	Pembroke Road, 1300	611
5896	Pineapple Street, 000	105
5903	Alder Street, 2400	1692
5912	Gordon Street, 1400-1500	896

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5914	N 12th Street, 500-900	2792
5915	N 12th Street, 1000-1100	976
5918	S 10th Street, 200	1075
5920	Church Street, 600	442
5922	Green Street, 1000	226
5941	Schuylkill Avenue, 600- 700	703
5944	Perkiomen Avenue, 2500	980
5953	Main Street, 00	574
5959	S Lime Street, 500-600	2029
5960	S Lime Street, 300-400	512
5967	Elm Street, 200	270
5968	W Clay Street, 000	258
5980	S Front Street, 300	1159
5986	N Front Street, 2400-2600	2200
5995	N Front Street, 1000-1400	2109
6368	W Cumberland Street, 700	779

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Bare Steel Main Replacements

<u>Project ID</u>	<u>Description</u>	<u>Bare Steel (ft)</u>
1092	State Route 422, 000	1,500
1094	St Lawrence Avenue, 4200	1,500
1109	Tuckerton Road, 100	500
1277	S Lingle Avenue, 200-400	2,200
2630	Marietta Pike, 3000-3100	180
2640	S Enola Drive, 100	416
2641	S Enola Drive, 200-300	1,130
2648	Guilford Street, 1000-1100	1,340
2663	Municipal Project	500
4023	N-Cameron Street, 2000	25
4025	E-Cumberland Street, 700-1400	1,798
4261	Buttonwood Street	1,100
4387	N-13th Street, 00-300	1,275
4393	Steel Avenue	492
4395	Emerick Terrace, 4300	608
4404	00-200	1,258
4513	W-Chestnut Street, 300	50
4583	E-Church Street, 00	480

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4607	Cedar Street, 800-900	50
4626	Liberty Street, 100-200	189
4631	E Broad Street, 200-300	73
4643	Filmore Street, 300	27
4689	Arthur Street, 524-607	1,345
4707	Chestnut St	118
4870	Penn Avenue, 2800-2900	750
4889	Renwick Street, 2000	454
5001	N Lumber Street, 400-500	356
5110	Reading Road, 1700	2,152
5111	Willow Park Road, 2000- 2200	1,257
5175	Maple Street, 1200	140
5183	Center Street, 1000-1200	61
5191	Northampton Street, 700- 800	7
5278	E Walnut Street, 000-400	2,024
5299	N Franklin Street, 100	172
5308	N 14th Street, 200-300	278
5398	Ahead of Paving Project	5,280
5404	Municipal Project	500
5588	Forster Street, 400-500	200

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5657	Morgantown Road, 300	500
5738	St George Street, 100	269
5859	N Broad Street, 800	395
5875	N 3rd Street, 3000	365
5956	Penn Avenue, 3700-3800	1,300
5957	Lafayette Street, 700	741
5958	Rodney Street, 000	379
5962	E New Street, 100	200
5963	Blue Ridge Drive, 1900	1,000
5970	N 3rd Street, 100	561
6005	N 39th Street, 000	355
6033	Church Street, 300-400	273
6034	N 27th Street, 000	469
6314	Princeton Avenue, 2100	400
6317	E 4th Street, 000-500	2,003
