**I&E Statement No. 1**
**Witness: Sunil R. Patel**
**NON-PROPRIETARY VERSION**

**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**v.**

**UGI PENN NATURAL GAS, INC.**

**Docket No. P-2016-2537594**

**UGI CENTRAL PENN GAS, INC.**

**Docket No. P-2016-2537609**

**Direct Testimony**

**of**

**Sunil R. Patel**

**Bureau of Investigation & Enforcement – Gas Safety**

**Concerning:**

**DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**

**Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.**

A. My name is Sunil R. Patel. I am a Fixed Utility Valuation Engineer II in the Gas Safety Division of the Pennsylvania Public Utility Commission's ("Commission") Bureau of Investigation and Enforcement ("I&E"). My business address is Pennsylvania Public Utility Commission, P. O. Box 3265, Harrisburg, PA 17105-3265.

**Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

A. I attended the Pennsylvania State University and earned a Bachelor's of Science Degree in Environmental Engineering Technology in 1995. I joined the Pennsylvania Public Utility Commission's Gas Safety Division in December 2013. Prior to my current position, I worked in the Bureau of Audits of the Pennsylvania Public Utility Commission from 2011-2013 as a General Engineer.

**Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY FOR THE BUREAU OF INVESTIGATION AND ENFORCEMENT?**

A. Yes. I previously testified on UGI's rate increase proceeding Docket No. R-2015-2518438.

**Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF COMPANIES' WITNESS MR. WILLIAM J. MCCALLISTER'S?**

A. Yes. Mr. McCallister describes DSIC requirements as well as the financial impacts of the DSIC on the Companies' customers.

**Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

A. The purpose of my testimony is to address UGI Penn Natural Gas, Inc. and UGI Central Penn Gas ("PNG" & "CPG" or "Companies") petition for a Waiver of the Distribution System Improvement Charge (DSIC) of 5% of Billed Distribution Revenues and Approval to Increase the Maximum Allowable DSIC to 10% of Billed Distribution Revenues. More specifically, my direct testimony will address the following issues:

A. Distribution Integrity Management Program;

B. Pipeline replacement of bare steel and cast iron;

C. Leak Management Program; and

D. Pipeline Replacement Costs.

**Q. WHAT IS A DISTRIBUTION SYSTEM IMPROVEMENT CHARGE?**

A. On February 14, 2012, Governor Corbett signed into law Act 11 of 2012 ("Act 11"), which amends Chapters 3, 13 and 33 of Title 66 of the Public Utility Code ("Code"). Act 11 authorizes natural gas distribution companies ("NGDCs") to establish a Distribution System Improvement Charge ("DSIC"). Act 11 provides utilities with the ability to implement a DSIC to recover reasonable and prudent costs incurred to repair, improve, or replace certain eligible distribution property that is part of the utility's distribution system. Eligible property for NGDCs is defined in Section 1351 of the statute. *See* 66 Pa. C.S. § 1351(2). As a precondition to the implementation of a DSIC, each utility must file a Long Term Infrastructure Improvement Plan ("LTIIP") with the Commission that is consistent with the provisions of Section 1352 of the statute. *See* 66 Pa. C.S. § 1352(a).

**Q. WHAT ARE DSIC ELIGIBLE PROPERTIES FOR NGDCs?**

A. For natural gas distribution companies, eligible property includes:

(i) Piping;

(ii) Couplings;

(iii) Gas services lines and insulated and non-insulated fittings;

(iv) Valves;

(v) Excess flow valves;

(vi) Risers;

(vii) Meter bars;

(viii) Meters;

(ix) Unreimbursed costs related to highway relocation projects where a natural gas distribution company must relocate its facilities; and

(x) Other related capitalized costs.

**Q. DO PNG AND CPG HAVE AN LTIIP ON FILE WITH THE COMMISSION?**

A. Yes. PNG and CPG have current LTIIPs that were filed in December 2013.

**Q. WHAT IS THE RELATIONSHIP BETWEEN THE DSIC AND LTIIP?**

A. In order for a utility to implement a DSIC, an LTIIP must be filed and approved by the Commission. The LTIIP should address the replacement of aging infrastructure and must be sufficient to ensure safe and reliable service. The DSIC provides infrastructure improvement recovery in rates and the LTIIP provides information on the infrastructure replacements and repairs that are needed.

**Q. WHAT INTENDED BENEFITS DOES A DSIC PROVIDE TO THE RATE PAYERS?**

A. A DSIC may provide ratepayers with improved service quality, greater rate stability, fewer main breaks, fewer service interruptions; increased safety, and lower levels of unaccounted for energy. Additionally, it may reduce the frequency and the associated costs of base rate cases while maintaining a high level of customer protections.

**Q. WHAT ARE THE COMPANIES' POSITION REGARDING DSIC INCREASE AND UTILIZATION?**

A. The Companies' aver that in order to meet the customer demand, PNG and CPG plan to address reliability issues in their operating areas where capacity and pressures are inadequate; relocate existing mains on bridges & right-of-way that must be relocated due to conflicts with Pennsylvania Department of Transportation construction projects; and move the regulators and meters outside of structures for public safety.

**Q. WHAT ARE STATUTORY DSIC LIMITS?**

A. DSIC is capped at 5% of Billed Distribution Revenues. NGDCs can petition to the Commission's approval to increase the maximum allowable DSIC to 10% of Billed Distribution Revenues. The DSIC resets to zero when a company files a base rate case or if the utility is over-earning.

**Q. DO THE COMPANIES WANT TO INCLUDE PIPELINE REPLACEMENT COSTS WITHIN THE DSIC?**

A. Yes.

**Q. ARE THE COMPANIES REQUIRED TO COMPLY WITH ANY FEDERAL REGULATIONS REGARDING PIPELINE REPLACEMENT?**

A. Yes. The Companies are required to develop and implement a Distribution Integrity Management Program or DIMP as required by 49 Code of Federal Regulations ("CFR") Part 192.1001-192.1015. The Pipeline and Hazardous

Materials Safety Administration ("PHMSA") created the DIMP regulations to reduce the number of Department of Transportation ("DOT") reportable incidents.[1] Two of the main causes of reportable incidents are pipeline leaks caused by corrosion on aging infrastructure, and damage to pipelines caused by excavation.

**Q. WHAT DOES DIMP REQUIRE?**

A. DIMP requires a natural gas utility to perform the following risk management strategies:

a) Knowledge of gas distribution system;

b) Identify threats that could threaten the integrity of pipeline;

c) Evaluate and rank risks associated with distribution pipelines;

d) Identify and implement measures to address risks;

e) Measure performance, monitor results, and evaluate effectiveness of Integrity Management ("IM") program;

f) Periodic Evaluation and Improvement of IM Program; and

g) Report results of required performance measures.

[1] A PHMSA reportable incident means any of the following events: (1) An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in one or more of the following consequences: (i) A death, or personal injury necessitating inpatient hospitalization; (ii) Estimated property damage of $50,000 or more, including loss to the operator and others, or both, but excluding cost of gas lost; (iii) Unintentional estimated gas loss of three million cubic feet or more; (2) An event that results in an emergency shutdown of an LNG facility. Activation of an emergency shutdown system for reasons other than an actual emergency does not constitute an incident. (3) An event that is significant in the judgment of the operator, even though it did not meet the criteria of paragraphs (1) or (2) of this definition.

**Q. WHAT ARE THE COMMON MITIGATION MEASURES FOR HIGH RISK PIPELINE SEGMENTS?**

A. The industry's common mitigation measure to reduce pipeline risk is to replace high risk pipes. As a company replaces a pipeline segment identified to be a high risk, the total system risk is reduced. The overall risk of an asset group will reduce as the riskiest segments are replaced, as long as enough pipe is replaced in that asset group annually to overcome increasing risks on other segments of pipe within that group.

**Q. IN YOUR OPINION, DOES THE RISK CALCULATED IN THE DIMP DECREASE AS THE PIPELINE OPERATOR INVESTS ADDITIONAL DOLLARS INTO RISK MITIGATION?**

A. Not necessarily. A decrease in DIMP calculated risk depends on the proper allocation and application of an appropriate amount of dollars to effectively mitigate risk. A well written and implemented DIMP requires operators' clear understanding of the infrastructure characteristics, environment in which it operates, and impact of characteristics and environment on the risk of various parts of its system. DIMP regulations require operators to assemble and integrate this information as part of understating the risk of their pipeline systems. The risks and mitigation measures to their system should be designed around physical condition of the covered pipe, repairing defects that meet certain criteria, and evaluating the need for additional preventive and meditative measures to better manage system risk.  Those risks can be further mitigated by sound solutions and cost effective application of additional dollars.  As does industry, Companies' have determined in their DIMP plan that in order to mitigate risk associated with corrosion they must replace their risky pipe.  The Companies' riskiest pipe is cast iron and unprotected bare steel.  Therefore, a companies' primary method for reducing overall risk to their distribution system is pipeline replacement; specifically, replacement of cast iron and bare steel pipe.

**Q. DO YOU BELIEVE THAT RISKS CAN INCREASE WHILE MAINS ARE BEING REPLACED?**

A. In my opinion yes.  Corrosion is a time dependent process.  A company can replace the bare steel at a steady rate, but the remaining mains will continue to corrode and leaks will increase without protection against corrosion.

**Q. WHAT IS YOUR OPINION REGARDING PIPELINE REPLACEMENT, PIPELINE REPLACEMENT COSTS AND LEAKS?**

A. In my opinion, the Companies' pipeline replacement efforts must be driven by the DIMP regulation.  They must implement these pipeline replacement and O&M activities based on its DIMP to reduce the risks to their system as required under DIMP regulations.

**Q. WHAT IS THE COMPANIES' CURRENT STATUS WITH REGARDS TO MAIN REPLACEMENTS AND INSIDE METERS?**

A. The Companies have increased main replacement miles in 2015 from 2013 levels.[2] The Companies' policy is to address inside meters during main replacement projects. Below is a status summary of risk reduction measures undertaken by the Companies:

- In 2015, PNG replaced 19 miles of bare steel and wrought /cast iron mains. In 2014, PNG replaced 21 miles of bare steel and wrought/cast iron. In 2013, PNG replaced 8 miles of bare steel and wrought/cast iron. The average capital spending for 2013-2015 is **{BEGIN PROPRIETARY}** **{END PROPRIETARY}**.[3]
- In 2015, CPG replaced 18 miles of bare steel and wrought /cast iron mains. In 2014, CPG replaced 13 miles of bare steel and wrought/cast iron. In 2013, CPG replaced 11 miles of bare steel and wrought/cast iron. The average capital spending for 2013-2015 is **{BEGIN PROPRIETARY}** **{END PROPRIETARY}**.[4]
- PNG has 257 miles of cathodically unprotected bare/coated steel and 102 miles of wrought/cast iron mains its inventory as of December 2015.
- CPG has 581 miles of cathodically unprotected bare/coated steel and 7 miles of wrought/cast iron mains its inventory as of December 2015.

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[2] I&E Exhibit No. 1, Schedule 1
[3] I&E Exhibit No. 1, Schedule 1
[4] I&E Exhibit No. 1, Schedule 1

- PNG and CPG have 14,782 and 3,848 inside meters respectively (as of December 2014). While PNG inventory decreased by 1,049 from 2012-2014, CPG has virtually stayed the same for those years. Combined the companies' still have 18,630 inside meters.[5]
- Compared to other NGDCs, PNG has the highest number of total leaks/mile. The statewide average is .95 leaks/mile while PNG is 1.65 leaks/mile.[6]

**Q. WHAT IS YOUR ASSESSMENT OF PNG AND CPG RISKS?**

A. PNG risk for cast iron/wrought iron mains is trending down from 58,344 to 52,263 points, and similarly steel risks decreased from 58,069 to 42512 points (2012-2015). The DOT Annual Report indicates that PNG presently has 102 miles of cast iron/wrought iron main remaining in the system and 257 miles of cathodically unprotected bare/coated steel. Despite capital spending in addressing risky mains, PNG leaks per mile are the highest amongst other NGDCs. PNG's corrosion related main leaks have increased by 64% from 2013 to 2015 and services for the same time period have increased by 31%.[7] It is difficult to truly gauge risk reduction from the effects of an asset being moved from an unprotected bare to unprotected coated bucket. Compared to other NGDCs, PNG has the highest

[5] I&E Exhibit No. 1, Schedule 2
[6] I&E Exhibit No. 1, Schedule 3
[7] I&E Exhibit No. 1, Schedule 4

number of total leaks/mile. The statewide average is .95 leaks/mile while PNG is 1.65 leaks/mile.[8]

CPG's risk for cast iron/wrought iron mains is trending down from 4,352 to 3,986 points, but steel risks increased from 63,475 to 65,441 points (2012-2015). The DOT Annual Report indicates that CPG presently has 7 miles of cast iron/wrought iron main remaining in the system and 581 miles of cathodically unprotected bare/coated steel.[9] Despite capital spending, CPG main risks remain above 2012 levels (67,827 to 69,427).

**Q. HOW DO THE DSIC ELIGIBLE PROJECTS CORRELATE WITH DIMP EFFORTS?**

**A.** Addressing risky pipeline replacement of gas mains/services is consistent with the DSIC eligibility criteria.

In my opinion, the mandatory relocation of gas mains is not a quantifiable risk reduction from DIMP perspective unless it involves risky gas mains. However, gas mains suspended from a bridge deck may be subject to corrosion threat, which is especially true with support systems. While there may not be many instances of support failures, the consequence of such a failure would pose serious hazards to public and property. It is prudent to address these gas mains

8 I&E Exhibit No. 1, Schedule 3
9 I&E Exhibit No. 1, Schedule 5

during Pennsylvania Department of Transportation construction project which benefits the Company and its rate payers from cost perspective.

Additionally, moving regulators and meters outside is consistent with the Commission's Regulations at 52 Pa. Code §59.18 (relating to meter, regulator and service line location) mandating the NGDCs to have meters and regulator to be located outside and above ground. PNG and CPG have quantifiable risks associated with the inside meter sets in their DIMP.

**Q. WHAT IS YOUR RECOMMENDATION REGARDING THE COMPANIES' DSIC PETITION?**

A. I recommend that the waiver petition be approved in order for the Companies to reduce the risk identified in their DIMP; however, I do not believe that a 10% DSIC is necessary at this point. I recommend that the DSIC be set at 7.5%.

**Q. WHY DO YOU RECOMMEND 7.5% DSIC?**

A. DSIC at 7.5% is reasonable level that will allow the Companies to reduce pipeline risk in a timely manner. Until the Companies can support with documentation and experience that a higher level is necessary, I do not believe the Companies should be granted a 10% DSIC.

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.