STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

PEOPLES GAS LIGHT AND COKE
COMPANY d/b/a Peoples Gas

Investigation of the Peoples Gas Light and Coke Company’s System Modernization Program

Docket No. 24-0081

Direct Testimony Of
Bill McAleb, Jim Crowley, and Jeremy Walker
AG Gas Technical Panel

Submitted on the behalf of
The People of the State of Illinois

AG Exhibit 1.00

June 18, 2024
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I. Introduction and Background

Q. PLEASE STATE YOUR NAMES AND INTRODUCE THE GAS TECHNICAL PANEL.

A. The Gas Technical Panel (the “Panel”) is comprised of Bill McAleb, Jim Crowley, and Jeremy Walker. Bill McAleb is Chief Executive Officer & President of Rod Walker & Associates (“RWA”), a Management Consultancy and Technical Advisory firm based near Atlanta, GA. Jim Crowley is an Associate at RWA, and Jeremy Walker is the Chief Operating Officer of RWA.

Q. PLEASE SUMMARIZE THE PANEL’S EXPERIENCE.

A. Bill McAleb possesses over 40 years of Oil, Gas, Power & Utility industry and business operational knowledge and experience. Having a well-seasoned range of career executive, management, strategic and operational experience, Mr. McAleb offers leadership, guidance, vision, corporate and board counsel, interim executive and expert witness services. Mr. McAleb excels in the provision of technical, financial, policy and managerial advisory and forensics services to clients engaged in the nexus between hydrocarbon fuels, transmission & distribution, hydrocarbon storage enterprises, petroleum midstream and pipelines, electric power, and utilities. Further, Mr. McAleb delivers hands-on leadership, implementation, and management relative to the operational and financial performance of utility and energy policy practices, process and profitability strategy, and innovation, utility M&A/Transactional/Transitional advisory services, and strategic advisory services to utility and energy - related clients. Mr. McAleb has provided expert testimony related to natural gas procurement and prudency, energy asset property tax issues, RCN analysis, operational agreements, energy market
performance and forecasting, regulatory policy and practices, and economic forensics in state, federal, and regulatory venues.

Jim Crowley has over 30 years of experience in the natural gas industry with more than 20 years as Manager of the Gas, Meter and Safety Departments at Easton Utilities, a municipal natural gas utility in Maryland. His responsibilities and experience span from gas procurement, federal, state, and local regulatory code compliance, budgeting, system planning and design, gas/electric and water metering systems and OSHA training and safety. He served several terms on the Miss Utility of Delmarva Board, the Maryland Gas Operations Advisory Committee and was an active member on many committees for the American Public Gas Association. Mr. Crowley, through his industry tenure, engineered and managed pipeline replacement programs and oversaw safety, reliability, compliance, and general operations at a combination utility.

Jeremy Walker is an expert in the analysis of gas technical and operations issues in regulated natural gas utilities and has gained extensive knowledge and familiarity with the natural gas regulatory process through his work serving as lead for RWA in more than 40 regulatory proceedings in the states of Arkansas, California, Colorado Delaware, Rhode Island, Illinois, Massachusetts, Maryland, New Jersey, and the District of Columbia. For these proceedings, he provided and supported expert analysis and testimony regarding various gas technical operations, integrity management and capital and O&M spend for RWA’s work on rate cases, large project prudence reviews, infrastructure and climate programs/plans, and other similar regulatory proceedings.
Q. ON WHOSE BEHALF ARE YOU APPEARING?

A. We are submitting this testimony on behalf of the People of the State of Illinois, represented by the Office of the Illinois Attorney General (“AG” or the “People”).

Q. HAVE MEMBERS OF THE PANEL EVER TESTIFIED BEFORE A PUBLIC UTILITY COMMISSION?

A. Yes. We have submitted or supported testimony before various state utility commissions and similar bodies including:

- The Arkansas Public Service Commission
- The California Public Utilities Commission
- The Delaware Public Service Commission
- The District of Columbia Public Service Commission
- The Illinois Commerce Commission
- The Maryland Public Service Commission
- The Massachusetts Department of Public Utilities
- The New Jersey Board of Public Utilities
- The Regulatory Commission of Alaska
- The Rhode Island Division of Public Utilities and Carriers.

An account of our experience is attached as AG Exhibit 1.01.

Q. HAVE YOU PREPARED ANY ATTACHMENTS IN SUPPORT OF YOUR TESTIMONY?

A. Yes. In addition to AG Ex. 1.01, the Panel has also prepared various supporting documents contained in AG Ex. 1.02 through AG Ex. 1.20 as identified below.
Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY AND HOW IS IT ORGANIZED?

A. On January 31, 2024, the Illinois Commerce Commission (the “Commission” or “ICC”) issued an order initiating an investigation into Peoples Gas Light and Coke Company’s (“Peoples Gas,” “PGL,” or “Company”) System Modernization Program (“SMP”).

In this testimony, the Panel presents their findings and recommendations to the Commission regarding its investigation into the SMP. The testimony is organized as follows:

- Background & Context of the SMP

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1 See ICC Docket No. 24-0081, “Order Initiating Investigation”.
Q. WAS THIS TESTIMONY PREPARED BY THE PANEL OR UNDER THE PANEL’S SUPERVISION AND CONTROL?

A. Yes.

Q. PLEASE SUMMARIZE THE PANEL’S CONCLUSIONS AND RECOMMENDATIONS.

A. Our conclusions and recommendations are as follows:

A. Conclusions:

The Panel finds that:

1. PGL has demonstrated that it cannot accurately forecast the cost or time to complete the SMP. Costs have ballooned from the original 2007 forecast of $1 billion to current estimates ranging from $10 billion up to PGL’s forecast of $19 billion for just the cast iron pipe replacement portion of the SMP, all while the pace of work is lagging the original forecast on the scale of a decade. It continues to be clear that PGL cannot accurately forecast the costs of the SMP and continues to provide poor data – when it provides it at all. Therefore, the summary of disaggregated forecasted costs provided by PGL in this filing should be disregarded.
2. The data and weighting factors that PGL chooses to use to risk rank its pipe is of concern. We find that the individual factors are calculated in ways that bias the rankings and/or are insufficiently substantiated.

3. PGL’s alternatives to its current risk ranking processes are inconsequential, unsubstantial tweaks and are insufficient to address our concerns. While the alternative zonal approach may hold some promise, the Panel finds that there is insufficient data at present to commit to this new approach absent further investigation and collection and analysis of complete data.

4. PGL allows non-safety-related factors to impact its project selection. This is not a minor impact, but one that appears to have led to widespread re-ranking of PGL’s project list.

5. While there is some industry movement toward the removal of low-pressure pipe, low and dual pressure natural gas distribution systems operate around the country today – including in climate regions and urban densities similar or substantially similar to that of PGL’s\(^2\) and they are not inherently more dangerous than medium pressure systems. If PGL were to replace low pressure cast and ductile iron (or “CI/DI”) pipe with plastic or steel low pressure pipe, take the necessary overpressurization precautions, and operate the system correctly, then it is possible for PGL to continue to operate a dual-pressure system safely while the

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\(^2\) According to national pipeline data reported to PHMSA, dozens of US utilities operate at least some low-pressure portions of their systems based on the prevalence of large diameter services. Examples include KeySpan Energy, Boston Gas, BG&E, Entergy’s New Orleans subsystem, and Washington Gas Light. See AG Ex. 1.00, WP-01 attached to this testimony for data.
Commission determines the most prudent path forward regarding PGL’s low pressure system upgrade.

6. PGL’s proposal to continue the expansive, costly scope of the SMP as if the Qualified Infrastructure Plant (“QIP”) statute remains in place is not an efficient approach for the retirement of CI/DI pipe. A refined and disciplined SMP scope will both allow the Commission to focus on the retirement of CI/DI pipe to improve safety and efficiency and evaluate the performance of the SMP more easily—without the bloat of other projects and PGL’s conflated project definitions and various work types.

7. Certain progress metrics must be identified, and the Commission must be given the data and tools to evaluate the performance of the SMP going forward on a regular basis.

8. The current reporting PGL provides is inadequate. Reporting needs to be improved to allow efficient evaluation of project work.

B. Recommendations

The Panel makes the following recommendations to the Commission:

1. That the SMP pause be lifted and PGL be directed to continue its work replacing cast and ductile iron facilities beginning first with its in-progress projects (where construction has started) and continuing with projects that prioritize cast and ductile iron pipeline replacements regardless of pressure upgrade considerations.

2. That, going forward, the Commission direct PGL to limit the scope of the SMP to mitigating demonstrably high-risk threats to the system. This includes:
a. The proactive replacement of vulnerable mains and services that are
demonstrably highest risk—primarily cast and ductile iron mains and
services;

b. Moving indoor meter sets outdoors when replacing highest risk vulnerable
services;

c. Installing Excessive Flow Valves (“EFVs”) or curb valves when replacing
highest risk vulnerable services and regulations require PGL to do so; and

d. Installing or retiring the regulating equipment necessary to connect the
replaced highest risk vulnerable mains and services to existing pipes of a
different pressure.

3. That the Commission direct PGL to file certain project-level data as set forth in
AG Ex. 1.17 for its SMP project work on an annual basis.

4. That the Commission direct PGL to file data demonstrating the implementation of
recommendations in Liberty Consulting Group’s (“Liberty”) report related to
aspects impacting pipe degradation and risk factors that PGL may or may not be
using in its risk ranking processes.

5. That the Commission initiate a further investigation to determine the appropriate
approach to retiring PGL’s remaining cast iron and ductile iron pipes and address
the outstanding issues raised during this brief investigation. The goals of this
Phase II investigation should be, at minimum, to:

   a. Determine the most appropriate path forward regarding PGL’s low
pressure system upgrade;
b. Determine what project grouping methodology is most appropriate for the SMP;

c. Determine the most appropriate means to risk rank PGL’s pipeline replacement projects; and

d. Determine appropriate long-term cost caps that most appropriately balance the need for pipeline replacement and minimize ratepayer impacts.

II. Background and Context

A. History of the SMP

Q. BRIEFLY SUMMARIZE THE HISTORY OF THE COSTS AND COMPLETION TIMELINE FORECASTS FOR PGL’S SMP.

A. In its 2010 final order approving PGL’s Accelerated Main Replacement Program (“AMRP”), the Commission recognized that PGL’s accelerated CI/DI replacement plan would benefit ratepayers and expressed its opinion “that time is of the essence” and “require[d] completion of the acceleration plan project by 2030.”

Only four years into the program, ICC Staff (“Staff”) reported that PGL was experiencing considerable problems with completing the work as planned. Ratepayers were bearing the burden of compensating PGL for work it had not completed. Staff went on to identify substantial deficiencies in PGL’s AMRP. Staff recommended PGL be required to submit a new plan and suggested 28 components which PGL should include in the plan. The Commission adopted Staff’s recommendation and ordered a two-phase

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4 Final Order, ICC Docket No. 12-0512, June 18, 2013, at 47.
audit which included an initial comprehensive audit and eight subsequent quarterly
compliance audits. The initial audit, performed by Liberty, produced 95
recommendations for improving AMRP planning and execution. In its report, Liberty
noted that PGL estimated the total program cost to be $4.45 billion based on its 2012
study. The cost estimate represented a 4.5x increase over its 2007 estimate of $1.0
billion. Just six months later, PGL filed a Cost Plan Model and Scheduling Master Plan in which it estimated a long-run cost of the AMRP at $6.8 billion to $7.8 billion.

On January 10, 2018, the Commission approved PGL’s request to adopt a
completion target of 2035 to 2040, thereby abandoning its 2010 order in which it
recognized that time was of the essence and set a required completion year of 2030.
PGL’s pipeline replacement rate had begun to slow to a 3-year average of 57 miles per
year from the previous peak of 77 miles. Indeed, by 2019, PGL had fallen so far behind,
it would have had to increase its replacement rate to an unprecedented 123 miles per year
to conclude AMRP by its previously mandated completion of 2030.

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6 The Peoples Gas Light and Coke Company’s Cost Plan Model and Scheduling Master Plan Compliance Filing for Condition of Approval 5, Executive Summary at 2 (November 30, 2015).
7 Final Order, ICC Docket No. 16-0376, January 10, 2018.
8 PHMSA data reports PGL’s remaining CI/DI at the end of 2018 was 1,356 miles (https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/data_statistics/pipeline/annual_gas_distribution_2010_present.zip)
For the period of 2018 through the end of 2023, PGL spent $1.7 billion on SMP at an average cost of $5.0 million per mile of mains retired, while installing considerably more miles of pipe than it retired. In its Neighborhood Replacement Program alone, PGL spent over $617 million to install 416 miles, which represents approximately 1.8x the miles of pipe it retired. In other words, PGL is installing 1.8x more pipe than it is retiring. This is largely a result of PGL’s practice of “double-decking” pipeline installations, which we will discuss later in our testimony. Moreover, the Rider QIP surcharge has increased at an annual 20% compound annual growth rate (“CAGR”), more than doubling from a total annual of $74.90 in 2018 to $182.50 in 2023 and has ranged between 6% and 13% of customers’ total annual bill.\textsuperscript{10}

\textsuperscript{9} Data for Figures 1-3 and supporting analysis can be found in AG Ex. 1.00, WP-00.

\textsuperscript{10} Calculations based on data provided in PGL’s quarterly SMP reports, Tables 4A, 5A, 7D and 8C.
Q. USING RECENT COSTS AND RETIREMENT PACE DATA, WHAT IS YOUR ESTIMATE OF THE PROBABLE COMPLETION YEAR OF THE RETIREMENT OF PGL’S ENTIRE CI/DI INVENTORY?

A. Maintaining its current retirement rate of approximately 50 miles per year, PGL may need to extend its completion date to 2045,¹¹ five-to-ten years beyond recent reports’ already delayed target completion range of 2035 to 2040, to replace its Year End (“YE”) 2023 CI/DI inventory of 1,112 miles. Applying PGL’s average retirement cost of $5.0 million per mile and inflated at 1% per annum, PGL is on track to spend an additional $6.1 billion to attempt to complete SMP by 2045.¹² Ratepayers would be spared an extra $748 million if PGL were to complete its program by 2035. Due to its poor performance up to this point, PGL would need to increase its average annual pace to an unprecedented 93 miles per year to complete the program by 2035.

¹¹ PGL agrees with this forecast and is proposing such in its current filing.
¹² Assuming PGL is able to maintain minimal cost inflation.
Q. WHY IS THIS RELEVANT TO THE CURRENT SMP INVESTIGATION?
A. Although the history and scope of the SMP and its predecessors have been reiterated throughout the long procedural history of the program, we find it particularly relevant to maintain a “big picture” perspective on the evolving scope and cost of the program. The Panel has prepared a summary timeline of the SMP cost and completion forecasts which it attaches as AG Ex 1.02.

In summary, both the description above and the timeline in AG Ex. 1.02 clearly show ballooning costs and lagging CI/DI retirement performance. PGL has demonstrated that it cannot accurately forecast the cost or time to complete the SMP. Costs have substantially increased from original forecasts of $1 billion to current estimates ranging from $10 billion up to PGL’s forecast of $19 billion for just the cast iron pipe replacement portion of the SMP —all while pace is lagging the original forecasts on the scale of a decade.
B. **Context of the Commission’s Pause Order and Goal of the SMP Investigation**

Q. **DESCRIBE YOUR PERSPECTIVE ON THE COMMISSION’S PAUSE OF THE SMP AND THE GOAL OF THE INVESTIGATION IN THIS PROCEEDING?**

A. By its order in PGL’s 2023 rate case in ICC Docket No. 23-0069, the Commission paused the SMP pending an investigation into how or why the SMP should proceed. It is our perspective that the purpose of this investigation is to identify key issues with the SMP and explore how the SMP can be continued in a more effective and efficient fashion. From our perspective, most parties in this proceeding have broad consensus on certain items, but there is also need for investigation and clarification on other items.

Q. **WHAT ITEMS DO YOU SEE CONSENSUS ON?**

A. Consistent with guidance from federal and state regulators and industry standards, we agree with the Company, the Commission, and other parties in recent proceedings that cast iron gas mains, ductile iron mains and vulnerable services represent an elevated risk to PGL’s ability to safely and reliably deliver natural gas to its customers, as well as elevated risk to the general public. As such, we believe that the parties generally have consensus on what must be done – namely the retirement of cast and ductile iron in an expedited, targeted, ranked, and cost-effective manner.

Q. **WHAT ISSUES DOES THE PANEL SEE AS NEEDING CLARIFICATION AND INVESTIGATION TO PROCEED WITH THE SMP?**

A. Despite decades of effort, PGL has demonstrated that it cannot reliably forecast its ability to retire CI/DI gas mains and that its ratepayers are experiencing cost impacts that are continuing to grow uncontrollably. While we see broad consensus on what to do, we believe that this proceeding must explore how to do it. As we will discuss in great detail,
PGL’s system is unique in the state of Illinois and requires the consideration of many technical, practical, regulatory, and cost constraints. In addition to the “how,” mitigating cost impacts to ratepayers and the need for transparency and accountability are paramount to the successful conclusion of the SMP, and more importantly, to ensuring that ratepayers are receiving safety and reliability benefits commensurate with the inevitably enormous cost of the SMP.

III. Integrity Management

A. Typical Integrity Management & Risk Ranking

Q. PROVIDE A BIG PICTURE OVERVIEW OF INTEGRITY MANAGEMENT.

A. A utility must maintain the integrity of its distribution system. To do so, it must engage in certain actions to reactively and proactively mitigate threats to its system. To do that, the utility must collect accurate data, identify threats, rank those threats, and take mitigative action.

Q. WHAT REGULATIONS AND INDUSTRY BEST PRACTICES GOVERN TYPICAL DISTRIBUTION PIPELINE INTEGRITY MANAGEMENT?

A. CFR 49-192 Subpart P\(^{13}\) of PHMSA’s pipeline regulations require that a gas distribution utility, with certain exceptions, follow the requirements in this subpart. These requirements are to develop and implement an integrity management program that includes a written distribution integrity management plan (“DIMP”). The DIMP must include procedures for implementing the following elements:

\(^{13}\) https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-192
• **Knowledge.** An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.

• **Identify threats.** The operator must consider the following categories of threats to each gas distribution pipeline: Corrosion, natural forces, excavation damage, other outside force damage, material or welds, equipment failure, incorrect operations, and other issues that could threaten the integrity of its pipeline. An operator must consider reasonably available information to identify existing and potential threats. Sources of data may include incident and leak history, corrosion control records (including atmospheric corrosion records), continuing surveillance records, patrolling records, maintenance history, and excavation damage experience.

• **Evaluate and rank risk.** An operator must evaluate the risks associated with its distribution pipeline. In this evaluation, the operator must determine the relative importance of each threat and estimate and rank the risks posed to its pipeline and to its operations. This evaluation must consider each applicable current and potential threat, the likelihood of failure associated with each threat, and the potential consequences of such a failure. An operator may subdivide its pipeline into regions with similar characteristics (e.g., contiguous areas within a distribution pipeline consisting of mains, services, and other appurtenances; areas with common materials or environmental factors), and for which similar actions likely would be effective in reducing risk.

• **Identify and implement measures to address risks.** Determine and implement measures designed to reduce the risks from failure of its gas distribution pipeline.
These measures must include an effective leak management program (unless all leaks are repaired when found).

- **Measure performance, monitor results, and evaluate effectiveness.** Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its integrity management (or “IM”) program. An operator must consider the results of its performance monitoring by periodically re-evaluating the threats and risks.

- **Periodic Evaluation and Improvement.** An operator must re-evaluate threats and risks on its entire pipeline and consider the relevance of threats in one location to other areas. Each operator must determine the appropriate period for conducting complete program evaluations based on the complexity of its system and changes in factors affecting the risk of failure. An operator must conduct a complete program re-evaluation at least every five years. The operator must consider the results of the performance monitoring in these evaluations.

- **Report results.** Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by Section 191.11.

This PHMSA regulation is not prescriptive but rather allows each natural gas distribution company to develop a DIMP that best suits its unique characteristics while still meeting these minimum requirements. Since this regulation was enacted in 2010, DIMP plans for gas distribution companies are mandatory and are typically subject to annual inspections and audits by the state’s pipeline safety entity. As these DIMP plans have matured, so have the methods by which gas utilities address the required elements.
Specifically, DIMP plans address the identification of pipeline risk, risk ranking, risk mitigation, and performance effectiveness—the primary focus of our review in this proceeding.

In 2015, the American Petroleum Institute (“API”) published a voluntary Recommended Practice 1172 Pipeline Safety Management Systems\textsuperscript{14} to provide guidance to pipeline operators for developing and maintaining a pipeline safety management system (“PSMS”).\textsuperscript{15} The PSMS has become widely accepted in the industry and a prudent extension of the PHMSA regulations.

It should be noted, however, that while the gas industry and PHMSA require gas utilities to design and implement Integrity Management Plans and have offered recommendations on how to address system threats, the regulations do not, either explicitly or implicitly, address the expedited and systematic rebuilding of entire gas systems. They exist for the sole purpose of identifying, ranking, and mitigating risks within the gas distribution system.

Q. IN THE PANEL’S EXPERIENCE, HOW IS INTEGRITY MANAGEMENT TYPICALLY IMPLEMENTED IN A GAS DISTRIBUTION UTILITY?

A. From our experience evaluating and working with dozens of the largest natural gas utilities around the country and abroad, our understanding of the implementation of distribution integrity management is as follows.

A utility has a mandate to perform certain actions to maintain the integrity of its system and it will do so using three typical approaches:

\textsuperscript{14} \url{https://pipelinesms.org}
\textsuperscript{15} AG Ex. 1.03, GPTC - Leak Classification Presentation
1. **Reactive emergency work** – critical failures of pipes, excavation damage, natural disasters and other causes can lead to pipe or other component failures which must be repaired or replaced immediately. This typically involves an active natural gas leak and most often these true emergency situations have a leak that is graded as a Grade 1 leak. Leaks are typically graded on a 1-3 scale in the industry and a Grade 1 leak represents a clear and present hazard and must be repaired as soon as possible.\(^{16}\)

2. **Routine Maintenance Repairs/Replacements** – in the normal course of business, certain risks are identified as rising to the level of needing active remediation to mitigate. Mitigation of pipeline risks is often done through replacement or repair. Often this work is performed under an O&M budget, but sometimes the work crosses a threshold in scope and the costs are capitalized. This threshold differs from utility to utility and state to state.

3. **Proactive Repairs/Replacements** – often a utility will have a certain subset of its distribution system that is comprised of an identified high-risk material or has a high-risk characteristic, and the utility will work to proactively replace or repair those assets in an accelerated manner to mitigate that risk. This is typically done by risk-ranking each portion of the at-risk subset and methodically working to repair or replace those assets from highest to lowest risk.

\(^{16}\) *Id.*
Q. HOW IS RISK-RANKING TYPICALLY DONE?

A. Risk ranking threats to the system is critical to any proactive pipeline or other asset replacement program and the larger in scale the program is, the more critical accurately ranking the risk of the assets is.

There are various models with both objective and subjective aspects and quantified and qualitative aspects – all of which utilize certain data inputs, weight those inputs, layer in relevant other criteria, and result in a quantifiable ranking index. Industry surveys indicate that most system operators utilize a semi-quantitative or fully quantitative risk assessment model, and use dynamic segmentation to divide system segments in such a way that segments have constant risk characteristics.

Commonly, the risk model will identify those data inputs using a type of probabilistic model that outputs the probability of failure of a given asset, its consequence of failure, or both. This allows an objective as possible risk ranking that also recognizes the lack of consistency within various asset classes, the dynamic nature of risks, and the need for a likewise dynamic model.

B. PGL’s Integrity Management & Risk Ranking

Q. HOW DOES PGL IMPLEMENT INTEGRITY MANAGEMENT?

A. PGL implements its Integrity Management through several, overlapping programs and subprograms within the overall directive of its DIMP.

Regarding emergency work, PGL labels certain repairs and replacements as “Emergency” and as “Short Cycle” work. These are collectively generally repairs on

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17 I.e., risk matrices with numerical ranges for likelihood and/or consequences.
18 AG Ex.1.04, Study on Risk Tolerance – Kiefner, pg. 106.
active Grade 1 leaks but can also contain other work that the Company asserts represents an imminent threat.\textsuperscript{19} These projects can be small in scope (a few feet) or up to hundreds of feet of pipeline replacement.\textsuperscript{20}

Regarding routine maintenance repairs and replacements, PGL does not appear to utilize an O&M budget or process for this type of work. It appears that most of PGL’s repair and replacement work – especially on pipelines – is capitalized through one of its subprograms under the SMP umbrella. The Public Improvement (“PI”) program does inevitably retire some aging pipe, but that is not a function of an integrity management program as the driver is 3\textsuperscript{rd} party coordination. PI projects have an impact on integrity, but only as a secondary effect of a logistics-driven program.

Regarding proactive repair and replacement work, which makes up the vast majority of PGL’s integrity management implementation, PGL utilizes three primary processes: the Uniform Main Risk Ranking Index (“UMRI”) segment identification process, which in turn feeds the System Improvement Program (“SI”), and the Neighborhood Replacement Program. Importantly, Neighborhood work and System Improvement work are identified via different methodologies.\textsuperscript{21}

The UMRI segment identification process involves using PGL’s prioritization model and a threshold value for inclusion. PGL states that it proactively replaces any main segment that scores higher than 6 on the UMRI.\textsuperscript{22} PGL states that this program has

\textsuperscript{19} See ICC Docket No. 23-0069, Order on Rehearing at 63, 71-72.

\textsuperscript{20} Id.

\textsuperscript{21} AG Ex. 1.05 - PGL Response to DR AG 1.10, g.

\textsuperscript{22} AG Ex. 1.06 - PGL Response to DR AG-1.05.
accounted for approximately one percent (5.66 miles) of PGL’s pipe replacement efforts (by footage) over the last decade.\textsuperscript{23}

The System Improvement program is unlike most utilities’ SI programs in our experience. In most cases, an SI program is focused on discretionary system upgrades. This may include system looping, pipe upsizing, redundant feeds, pressure improvements to meet load growth forecasts, pipe upgrades to meet modeled pressure deficiencies, and similar work. However, in PGL’s case, its SI program operates as another integrity management program. This program uses a simplified matrix of inputs that results in a quantified list of projects that it performs.\textsuperscript{24} PGL characterizes these projects as “[...] similar to the Neighborhood Replacement Program[...]” but driven by capacity or reliability concerns.\textsuperscript{25} However, it appears that the “reliability concerns” include factors such as corrosion, cast iron joint failure, and other integrity management concerns – thus we identify a distinction between a typical SI program and PGL’s SI program.

The Neighborhood Replacement Program is, by far, the vast majority of PGL’s integrity management implementation – responsible for the large-scale replacement of cast and ductile iron pipe on a neighborhood-by-neighborhood basis. While the Neighborhood Replacement Program is the primary driver of CI/DI replacement, it is important to note that it is not only CI/DI that the Neighborhood Replacement Program is replacing; instead, PGL is also replacing plastic and steel mains within that program. We discuss this in greater detail later in our testimony.

\textsuperscript{23} Id.
\textsuperscript{24} AG Ex. 1.07 - PGL’s Response to DR AG 1.03, Attach02, pg. 69.
\textsuperscript{25} AG Ex. 1.08 - 2023 Q4 SMP Report, pg. 9.
Q. HOW DOES PGL RISK RANK THE PROJECTS WITHIN THESE LARGER PROGRAMS?

A. It appears that PGL uses two primary methods to prioritize its pipelines for replacement: the SI Program and the Neighborhood Replacement Program – both of which include some risk-based ranking factors, but also include factors that are irrelevant to identifying and ranking the risk of pipe segments compared to others.

C. Concerns with PGL’s Integrity Management & Risk Ranking Approach

Q. WHAT CONCERNS DO YOU HAVE WITH PGL’S RISK RANKING PROCESS WITHIN THE SI PROGRAM

A. The SI Program uses a matrix that cannot accurately be described as a true risk ranking model. The matrix allows users to consider objective and subjective factors actually related to risk, such as leak rates, recent leak repairs, forecast O&M cost to maintain, but also objective and subjective factors entirely unrelated to risk, such as “Importance to maintaining 3rd party relationships” and “schedule constraints.” These non-risk related factors are given equal or greater weighting than true risk factors in ranking projects. Additionally, the SI matrix utilizes an arbitrary set of values to rank projects as “high,” “medium,” or “low” risk using a minimum score of 9 and a maximum of 35. As shown in the table below, PGL’s score range is asymmetrical and favors a “Medium” or “High” result.

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26 AG Ex. 1.07 - PGL Response to DR AG-1.03 Attach02, pg. 69.
As the table above demonstrates, the SI matrix does not use a score below 9, and only about 27% of the range qualifies as “low” risk. These ranges appear arbitrary, and the Company did not provide a satisfactory answer as to why they used this division.28 Ultimately, the SI matrix appears to be of limited use in ranking risk because most projects will rank in the Medium and High bands which is not a particularly granular way of ranking risk.

Q. WHAT CONCERNS DO YOU HAVE WITH PGL’S RISK RANKING PROCESS FOR NEIGHBORHOOD PROJECTS AND WHY DOES IT MATTER FOR THE SMP?

A. Within the Neighborhood Replacement Program, PGL considers five different candidate neighborhood characteristics:

- Percentage of medium pressure cast and ductile iron pipe;
- Percentage of small diameter (≤ 8”) cast iron pipe;
- Mean UMRI Score;
- Percentage of services constructed of “vulnerable materials;” and
- Number of pending leaks per mile of main.29

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27 PGL’s actual “Low” range is 0-16, but a score of 1-8 is impossible to achieve.
28 AG Ex. 1.05 - PGL’s Response to DR AG-1.10.
29 PGL Ex. 2.0, at 45-46.
Using those five characteristics, PGL attributes a weighting factor to each and 
calculates a neighborhood score. That score determines the ultimate neighborhood 
ranking list.30

Our concerns with PGL’s risk ranking process are fourfold:

First, PGL’s chosen data inputs are subject to concern. The “CI/DI medium 
pressure miles” metric is not simply the number of miles of cast and/or ductile iron in a 
given neighborhood – but rather the number of such miles divided by the number of 
“SMP miles.”31 “SMP miles” include all low-pressure pipe in the neighborhood 
regardless of whether those miles are made of a vulnerable material. In fact, PGL states 
that about 30% of its low-pressure pipe is made of materials other than cast or ductile 
iron (steel and plastic).32 Thus, by using this “SMP miles” as the denominator in the 
fraction rather than all pipe in the neighborhood, PGL is subjecting itself to bias away 
from selecting neighborhoods with a large amount of cast iron in total – and toward 
neighborhoods with a large amount of cast iron relative to the miles of low pressure pipe 
or “SMP miles.” For example, consider the hypothetical neighborhoods below:

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30 See, e.g.: AG Ex. 1.09 PGL’s Response to PIRG-1.44, Attach01.
31 AG Ex. 1.09 - PGL’s Response to DR PIRG-1.44, Attach01, Tab 2.
32 PGL Ex. 2.0 at 10, and AG Ex. 1.10 - PGL’s Response to DR PIRG-2.03.
As the table demonstrates, in two thirds of the cases, in neighborhoods of comparable size, the current process calculates a higher percentage of CI/DI than what is actually present in the neighborhood. Similarly, PGL does this with the small diameter CI and the “vulnerable services” metrics. This is important to the SMP as it means that neighborhoods with potentially lower inventories of CI/DI are being replaced ahead of those with larger concentrations. This approach prioritizes the replacement of low-pressure pipes over the replacement of CI/DI because all low-pressure miles are treated as candidates for replacement irrespective of the risk associated with the pipe material.

In addition to our concerns with the factors themselves, we are gravely concerned that PGL does not even utilize age of a pipe as a factor, despite relying on it heavily in its rhetoric. For years now, PGL has repeatedly supported its replacement efforts within the SMP by pointing to the Kiefner reports\footnote{See, e.g.; PGL Ex. 2.0 at pg. 64, 66, 75, 77, 78, etc.} which recommend that all cast iron and ductile iron pipes be replaced by 2030 and no later than 2045 – largely based on their “useful life” analysis. This useful life analysis uses an age-based approach to determining the

Table 3: Example Neighborhoods

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<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood 1</td>
<td>3</td>
<td>10</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
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<td>Neighborhood 2</td>
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<td>3</td>
<td>100%</td>
<td>30%</td>
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<td>Neighborhood 3</td>
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<td>0%</td>
<td>0%</td>
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<td>6</td>
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<td>60%</td>
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<td>Neighborhood 6</td>
<td>9</td>
<td>10</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>Neighborhood 7</td>
<td>9</td>
<td>10</td>
<td>3</td>
<td>33%</td>
<td>30%</td>
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<tr>
<td>Neighborhood 8</td>
<td>9</td>
<td>10</td>
<td>6</td>
<td>67%</td>
<td>60%</td>
</tr>
<tr>
<td>Neighborhood 9</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>100%</td>
<td>90%</td>
</tr>
</tbody>
</table>
likely failure rates of cast and ductile iron in the future predicated on the wall thickness of the pipe, decay rates, and age. Despite citing these studies which are time-based, PGL does not use pipeline installation date or pipeline age at all in its own ranking models. Further, as it has lauded loudly, publicly, and often, PGL just replaced a section of 1859 cast iron main in 2019\(^\text{34}\) that up until 2019 did not meet the criteria for removal – and even then, was only identified for removal due to a 3\(^{rd}\) party coordination project.\(^\text{35}\) This 17-ft piece of pipe had over 30 leaks on it according to a PGL representative.\(^\text{36}\) This demonstrates two critical points we wish to make: 1) Cast iron pipes regularly outlive their “useful service life,” and 2) PGL does not use “useful life” or any other age-based factor in its project selection.

All of this raises another critical dilemma – either PGL should be accounting for age in its risk ranking, or age is not a good indicator of risk. At present, PGL has provided no data indicating that it accounts for age and has presented data indicating that age is not always a good indicator of useful life. Thus, the record today is inconclusive on the relevance of age, and this must be one of the questions investigated in an ongoing or phase 2 investigation.

Secondly, even after its data input selections are made and calculations done, PGL puts its thumb on the scale again by weighting factors subjectively and differently.

### Weighting\(^\text{37}\)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIDI MP</td>
<td>30%</td>
</tr>
<tr>
<td>CI Main &lt;= 8&quot;</td>
<td>15%</td>
</tr>
<tr>
<td>Mean MRI</td>
<td>30%</td>
</tr>
</tbody>
</table>

\(^\text{34}\) [https://apnews.com/general-news-bb4c7ea6fe754f1494fb172a9e845c55](https://apnews.com/general-news-bb4c7ea6fe754f1494fb172a9e845c55)  
\(^\text{35}\) AG Ex. 1.11 - PGL Response to DR AG-1.04.  
\(^\text{36}\) [https://www.youtube.com/watch?v=nE5YMb2cWJM](https://www.youtube.com/watch?v=nE5YMb2cWJM); note that this source claims that the segment is 10 ft. long.  
\(^\text{37}\) AG Ex. 1.09 - PGL’s Response to DR PIRG-1.44, Attach01.
In a model that purports to be objective – this weighting of the results is insufficiently substantiated and appears quite subjective. Weightings should be tied to the relative risk of a given threat using either a probability-based factor where appropriate (for example Grade 1 leak history), a consequence of failure factor (for example, high-consequence area, critical infrastructure, etc.), or both. It appears that the basis for these weightings is PGL’s best guess based on the relative risk of each risk factor and is not supported by data. While that guess may be accurate or not, it is not possible to validate.

Third, PGL allows non-safety-related factors to impact its project selection by affecting the order in which the ranked projects are completed. In other words, even after its problematic ranking process, PGL still does not complete its projects in highest risk to lowest risk order – sometimes skipping dozens of projects down the list due to what it calls feasibility issues such as preparation for medium pressure upgrades, high pressure infrastructure dependency, service to meter ratios, or labor constraints in the various operating districts of PGL’s system.38

Fourth, and finally, PGL has not demonstrated that it has implemented the recommendations of the various SMP studies that have been performed over the years. For example, when asked about its implementation of the Liberty recommendations, PGL indicated that the Liberty recommendations resulted in several data types that PGL “tracks.” However, PGL did not provide information regarding how those

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38 AG Ex. 1.12 – PGL Response to DR ENG-1.03, Attach01, pgs. 5 and 9.
recommendations have been implemented in PGL’s risk ranking or how they have impacted project selection. For the Kiefner recommendations, PGL indicated that the Engineering Design White Paper contained the information responsive to that request.\(^{39}\) The Engineering Design White Paper does not mention Kiefner, nor does it describe the implementation of any of their recommendations.\(^{40}\)

It is critical that the billions of dollars PGL has invested and continues to invest be directed at mitigating the highest risk pipe. This safety-first approach to identifying risks must be at the heart of any effective risk-ranking process in a system that contains a large amount of elevated risk pipe. Further, the cast and ductile iron pipes in PGL’s system do not represent a monolithic and homogenous inventory. There is a spectrum of risk that must be acknowledged and addressed in a ranked fashion.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING PGL’S ABILITY TO ADEQUATELY MEASURE AND RANK RISKS TO ITS SYSTEM FOR MITIGATION THROUGH REPLACEMENT?

A. As evidenced by the discussion above, PGL’s existing systems do not appear to be adequately risk ranking its remaining cast and ductile iron for replacement.

Q. PGL HAS A JANA RISK MODEL THAT IT PLANS TO IMPLEMENT. WHAT ARE YOUR FINDINGS REGARDING THE POTENTIAL IMPACT OF THE IMPLEMENTATION OF THIS MODEL ON RISK RANKING?

A. There is potential for improvement as the new model is built and implemented, but a model is only as good as its data inputs and its weighting. Some of the above issues

\(^{39}\) AG Ex. 1.18 – PGL Response to DR ENG 1.01; AG Ex. 1.19 – PGL Response to DR ENG 1.02
\(^{40}\) AG Ex. 1.12 – PGL Response to DR ENG 1.03, Attach01.
with PGL’s model could certainly be applied to the new model. Further, if PGL chooses to continue to allow non-safety related factors to impact its risk measurement, then some of our concerns with the status quo will apply to any new model.

**Q. PGL PREPARED SEVERAL ALTERNATIVE APPROACHES TO PROJECT PRIORITIZATION IN PGL EX. 2.0. WHAT IS YOUR RESPONSE TO THOSE ALTERNATIVES?**

A. PGL proposed three alternative approaches for prioritization and project selection:

- **Approach No. 1: New Fifth Step for Neighborhood Prioritization Process:** This “alternative” is a business-as-usual approach and would involve maintaining the same process for risk ranking but would add an additional layer of discretion that would guide priorities towards economically vulnerable areas of the city. This appears to be unrelated to risk and would not address any of the concerns we have raised.

- **Approach No. 2: Alternative Risk Ranking Attributes for Prioritization:** This alternative would have PGL modify the inputs to its neighborhood ranking process broken down into two options:
  - Option 1:
    - Remove medium pressure ductile iron from the consideration since there are only 11 miles left (or less than 1%). Since there are only 11 miles left, this would have a negligible impact on rankings and would not address any of our concerns.

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41 PGL Ex. 2.0 at pgs. 76-78.
o Increase the weight of the remaining medium pressure cast iron pipe by “about half,” increase the 8” or smaller CI main by about 66%, double the weight of the unrepaired leak inventory, and decrease the weight of vulnerable services by about 33%. These changes are not inherently unreasonable, but they do not appear to address our broader concerns with the process as a whole. Minor tweaks to an ineffective system are not enough to fix the system.

• Option 2:

  o Remove entirely the medium pressure CI/DI factor and increase the 8” or smaller CI factor to include 12” or smaller CI/DI pipe. This change is also not inherently unreasonable but is mostly shifting around the location of the target pipes and removing certain large diameter pipe from the equation. A probability of failure-focused ranking system would be indifferent to these pipe characteristics and be able to address segments in any class according to risk, not size.

  o Increase the weight of unrepaired leaks by 150% and decrease the weight of vulnerable services by 33%. These alternative weightings, as shown in Figure 4 below, present the same issues as in Option 1 and do not address our concerns.

<table>
<thead>
<tr>
<th>Current Attributes</th>
<th>Current Weighting</th>
<th>Alternative 1 Attributes</th>
<th>Alternative 1 Weighting</th>
<th>Alternative 2 Attributes</th>
<th>Alternative 2 Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP Cast Iron &amp; Ductile Iron Main</td>
<td>30%</td>
<td>MP Cast Iron Main</td>
<td>15%</td>
<td>MP Cast Iron Main</td>
<td>0%</td>
</tr>
<tr>
<td>8” or smaller CI Main</td>
<td>15%</td>
<td>LP 12” or smaller CI &amp; DI Main</td>
<td>25%</td>
<td>LP 12” or smaller CI &amp; DI Main</td>
<td>35%</td>
</tr>
<tr>
<td>Mean MRI</td>
<td>30%</td>
<td>Mean MRI</td>
<td>30%</td>
<td>Mean MRI</td>
<td>30%</td>
</tr>
<tr>
<td>Unrepaired Leaks</td>
<td>10%</td>
<td>Unrepaired Leaks</td>
<td>20%</td>
<td>Unrepaired Leaks</td>
<td>25%</td>
</tr>
<tr>
<td>Vulnerable Services</td>
<td>15%</td>
<td>Vulnerable Services</td>
<td>10%</td>
<td>Vulnerable Services</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td></td>
<td></td>
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<td>100%</td>
</tr>
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</table>

*Figure 4: Proposed Alternatives to Weighting*

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42 Id.
Approach No. 3: Alternative Geographical Approach to Replacing Risky Pipe: PGL

proposes an alternative zonal approach to prioritizing pipe. This approach would divide
the service area into zones by first risk ranking segments using PGL’s forthcoming JANA
risk model and then grouping them as appropriate.

This alternative has the most promise of all of PGL’s proposals and is the only one
with material changes to the process. Critically, however, the Panel does not believe that

enough information exists at present to determine if this approach is prudent. The
Panel agrees with PGL that further development and testing are required to determine
how best to implement something like this alternative.

Additionally, the Panel is concerned that PGL’s emphasis on medium pressure
upgrades may influence the development of the zonal approach and some of the Panel’s
existing concerns may be carried over to the new approach. Further, regardless of the
model and the way that PGL divides its system, good data must be present that describes
the risks of a given pipe and any weightings need to be justified and tied to risk
mitigation.

Q. AT PRESENT, WITHIN THE SMP, HOW DO YOU RECOMMEND THAT PGL
CONTINUE GOING FORWARD?

A. Regardless of approach, effective IM going forward must recognize that: 1) Risk
is not homogenous – even within the CI/DI inventory; 2) accurate, transparent, and
justified risk ranking must be the basis for project selection; 3) risk ranking must
prioritize threats to safety; and 4) with the implementation of new systems, the
investigation into the SMP, and the myriad of changes proposed by parties, a larger
conversation needs to be had over a longer period.
D. Non-Safety Project Prioritization Factors

Q. YOU HAVE MENTIONED “NON-SAFETY FACTORS.” WHAT ARE THEY, AND HOW GREAT OF AN IMPACT DO NON-SAFETY RELATED FACTORS HAVE ON PROJECT SELECTION?

A. In the context of PGL’s project prioritization process, PGL uses certain factors that are not inherently safety related. These factors strongly impact project prioritization and CI/DI pipe retirement order. PGL stated that projects that rank high on its list will have construction delayed because pressure upgrade pre-work has not been completed.43

Q. WHAT NON-SAFETY FACTORS HAVE YOU IDENTIFIED?

A. We have identified at least the following factors impacting neighborhood or main segment project prioritization:

- Whether or not a target for replacement is able to be connected to an elevated pressure system.
- How much “SMP pipe” a target neighborhood contains – which includes low pressure pipe regardless of material type (i.e., plastic, modern steel, etc.).
- Whether the project is necessary to please a third party.
- Schedule conflicts/workload limitations.

Q. WHAT ARE YOUR CONCERNS WITH PGL’S USE OF THESE FACTORS FOR PROJECT SELECTION?

A. PGL’s use of these non-safety factors to prioritize projects for construction in the context of the SMP gives rise to significant concerns regarding the alignment of PGL’s

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43 AG Ex. 1.12 - PGL Response to DR ENG-1.03, Attach 01, pg. 12.
intentions with the purpose of the SMP. Whereas the SMP is intended primarily to mitigate risks to the system, the use of these factors in project selection and prioritization obfuscates that goal. As discussed above, in the context of PGL’s SMP, when PGL performs project selection, it considers certain non-safety factors – both within the SI Program and the Neighborhood Replacement Program.

Above and beyond this, however, PGL will re-rank its already ranked projects based on their readiness for pressure upgrade. The Panel acknowledges that certain feasibility factors may impact project execution order on occasion, but the non-safety factors described appear to be widespread in practice and appear to result in a large number of re-ordered projects.

Q. BRIEFLY DESCRIBE THE PRESSURE UPGRADING PROCESS AND HOW IT IMPACTS PGL’S PROJECT PRIORITIZATION.

A. Currently, PGL’s distribution system is primarily supporting two different pressure systems—medium and low pressure—at the same time. This is very typical of a natural gas distribution system that has existed for a long time. PGL intends to continue its ongoing process of upgrading all its low-pressure pipe to medium pressure through the SMP.\(^{44}\) This was primarily done through the QIP which explicitly provided for this work.\(^{45}\) Since much of the low-pressure pipe is also cast-iron pipe, PGL is giving consideration to this pressure upgrade goal in its project selection process. Through the QIP, PGL was able to receive favorable cost recovery for certain work – including “upgrading the gas distribution system from a low pressure to a medium pressure system,

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\(^{44}\) PGL Ex. 2.0 at 5.
including installation of high-pressure facilities to support the upgrade.\textsuperscript{46} PGL took full advantage of the statutory authorization to move to medium pressure to the point of putting off certain higher risk projects so that it could complete preparatory work to increase pressure.

For example, consider the following hypothetical: there may be an area of PGL’s service territory containing several neighborhoods – all with low pressure mains and services. At the northern end of this area, there may be a high-pressure pipeline that does not connect to the rest of this area, and at the southern end, there may be a neighborhood that ranks as one of the highest risks in PGL’s existing neighborhood list. PGL would delay replacing the higher risk pipe in the south until it can bring the high-pressure pipe closer to the area and perform replacements in the intermediate neighborhoods and only then replace that highest risk neighborhood. This hypothetical is reflected repeatedly in PGL’s neighborhood ranking list.

Q. IS THE LOW PRESSURE ISSUE A SAFETY ISSUE THAT ALSO WARRANTS EQUAL CONSIDERATION WITH OTHER RISK FACTORS?

A. No, not inherently. PGL cites to the tragic incident at Columbia Gas Merrimack Valley, Massachusetts in which overpressurization led to widespread property damage and one death. RWA is very familiar with this incident and is aware of the NTSB investigation results which determined that this incident was caused by weak engineering management, insufficient oversight, and a lack of overpressure protection.\textsuperscript{47} PGL concludes that if the low-pressure system did not exist, then this specific issue would not

\textsuperscript{46} Id.
\textsuperscript{47} AG Ex. 1.13 - PGL’s Response to DR AG-1.35, Attach01, pg. 49.
have occurred. However, if the low-pressure system had been properly designed and
operated, then the incident would not have occurred either.

Low pressure systems operate around the country today and are not inherently
more dangerous. If PGL were to replace low pressure CI/DI pipe with plastic or steel low
pressure pipe, take the necessary overpressurization precautions, and operate the system
correctly, then it is possible for a dual-pressure system to exist and continue to operate
safely.

The determination of when the benefits of upgrading the low-pressure system
outweigh the replacement of CI/DI pipe is incredibly nuanced and has interconnections to
many other parts of operating the system. It is unclear that enough information (and
certainly time) exists within the present investigation to make a determination of whether
PGL ought to fully replace its low-pressure pipe with medium pressure or not. What is
clear, however, is that through the QIP period, PGL has planned its replacements, in part,
around this pressure upgrade issue and invested significant resources in bringing in high
pressure feeders and preparing for a pressure upgrade. Moving forward, with the sunset
of the QIP and a renewed focus on the expeditious retirement of CI/DI pipe, there must
be careful consideration of the pros and cons of this approach.
IV. Scope of the SMP

Q. GIVEN YOUR CONCERNS ABOVE, WHAT IS THE PANEL’S APPROACH TO REFINING THE SCOPE OF THE SMP GOING FORWARD?

A. PGL proposes to continue the scope of the SMP as it has for the last decade – namely as defined by the QIP statute. Given the lagging pace of retirements, the concerns with the distractions of other work, and the issues described above, the Panel concludes that the SMP should be refocused on risk-based threats to the distribution system. Rather than include everything that was in the QIP, the SMP should be focused on mitigating demonstrably high-risk threats to the system. The existing programs identified in red below (SI, PI, and HP) are not directly in service of high threat mitigation.

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Figure 5: Extraneous SMP Segments

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48 PGL Ex. 2.0 at pg. 61.
To be very clear, we are not proposing that PGL does not pursue additional safety and reliability work that it believes to be prudent – including mandatory work to relocate pipe, leak repairs, the replacement of at-risk pipe segments, and other ordinary integrity management projects; but rather, that the SMP itself be focused on removing cast and ductile iron. The Panel believes that this focus is more likely to result in the progress that the ratepayers, Commission, and general public need to see from PGL.

Q. WHAT SPECIFICALLY ARE YOU PROPOSING NOT BE INCLUDED IN THE FUTURE SMP?

A. Specifically, we propose that PGL handle Emergency work, discretionary system improvement projects, growth projects, public improvement projects, and high-pressure upgrades outside of the SMP and within its ordinary O&M and capital projects programs. We recognize that each of these work types can certainly include the replacement of at-risk pipe that the refined SMP would target, and that coordination of PGL’s various work would benefit efficiency.

Rather than listing exclusions, it may be simpler to identify what we propose to remain in the SMP. This includes:

- The targeted and orderly proactive replacement of highest risk vulnerable mains and services that are demonstrably high risk—primarily cast and ductile iron mains and services;
- Moving meter sets outdoors when replacing highest risk vulnerable services;
- Installing EFVs or curb valves when replacing highest risk vulnerable services and regulations require PGL to do so; and
• Installing or retiring any regulating equipment necessary to connect the replaced
highest risk vulnerable mains and services to existing pipes of a different pressure.

This approach appears to be in line with PGL’s recent switch from calling the
SMP a “System Modernization Program” to a “Safety Modernization Program,” as
demonstrated below.

Figure 6: PGL Changing the name of the SMP:

49 PGL Website Jan, 2022, and PGL Website May, 2022

41
Q. HOW WILL THIS HELP THE COMMISSION HAVE BETTER OVERSIGHT OF THE SMP?

A. Our proposed refinements to the SMP will have a narrower, safety-first scope and contain only those items addressing safety. Because there is no longer any independent recovery mechanism for SMP work, there is no reason for PGL to continue to do any other work not related to safety within the SMP. As stated above, PGL may continue to perform any work it believes to be prudent and necessary for the safe and reliable operation of its system and it may argue its case for the prudency of that work when it next seeks recovery of its costs and investments.

Finally, this refined SMP scope will allow the Commission to evaluate the performance of the SMP more easily without the bloat of other projects and PGL’s conflated project definitions and various work types. A results-focused evaluation criteria gives PGL the freedom to continue its pipeline retirements with the performance goals of the SMP front and center.

V. Measuring the Performance of the SMP

Q. WHAT IS YOUR APPROACH TO MEASURING THE PROGRESS OF A PROGRAM LIKE THE SMP?

A. The measure of the progress of an accelerated pipeline replacement program like the SMP should be tied to the purpose of the program. Specifically, the goals of the SMP are to prioritize the retirement of aging infrastructure that poses the most significant and immediate threat to safety and property (namely cast and ductile iron pipe) and thereby improve the safety of the distribution system; and to achieve these goals in a cost-
effective and efficient manner. Therefore, an ideal SMP performance tracking method will be quantifiable, transparent, and tied to those goals.

Q. WHAT SPECIFIC METRICS DOES THE PANEL PROPOSE TO USE TO TRACK THE PROGRESS OF THE SMP?

A. Given current information on the SMP and our present understanding of its factors, we recommend that the Commission and other interested parties utilize the following metrics to measure the progress of the SMP:

1. Combined miles of cast iron and ductile iron main and services retired.

   - Focusing on retirements rather than “replacements” or installed miles avoids some of the confusion in previous SMP progress tracking. This also allows PGL to achieve progress through alternative means such as cast-iron relining, abandonment, and other alternative paths.

2. Number of leaks attributable to failing cast and ductile iron pipe.

   - Preferably this metric would track Grades 1 and 2 leaks attributable to cast iron and ductile iron failure. Additionally, it appears that PGL tracks methane released per mile of pipe,\(^50\) so a combination of these two metrics would enable the Commission to verify that PGL is effectively targeting the leakiest or most likely to leak pipes for replacement. This metric should exclude excavation damage and natural force damage.

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\(^50\) PGL Ex. 2.0 at pg. 48.
3. Level of SMP spend.

- There is clearly a need for some kind of cost effectiveness measure. If retirement targets are set, then likewise cost targets must track those retirements – either on a unit cost basis or a total cost basis. PGL’s CI/DI retirements cost more today than they ever have in the past and cost control is a major concern. Ensuring that rate impacts are considered is critical. The Panel welcomes any analysis PGL has done on rate impacts in its rebuttal.

Q. CAN YOU PROVIDE A DESCRIPTION OF HOW YOU ENVISION THESE METRICS BEING COLLECTED AND TRACKED?

A. We recommend that the Commission direct PGL to include these data points in its annual SMP reports going forward. The data points described above are readily available to PGL and would not represent a burdensome endeavor to collate and report on an annual basis. Indeed, PGL has tracked similar data historically, and these metrics should be reconstructed from historical data to give a benchmark to measure the relative progress of the SMP going forward.

Q. PGL CURRENTLY REPORTS CERTAIN DATA IN ITS QUARTERLY SMP REPORTS. HOW DO YOU PROPOSE TO CHANGE OR IMPROVE SMP REPORTING GOING FORWARD?

A. PGL’s Quarterly SMP reports include some useful data, but as each QIP reconciliation docket and PGL’s most recent rate case have shown, the data included is insufficient to make a determination of prudency. PGL should continue to provide sufficient quarterly data to enable the Commission to have oversight of this multi-billion-dollar program and to identify issues concerning whether it is prudently designed and
operated to ensure adequate, efficient, reliable, safe and least-cost natural gas service to ratepayers.

Recent SMP quarterly reports have not required or contained project-level data or descriptions of reasons for cost variances and excessive unit costs. The recent reports also suffer from PGL’s manipulation of the required data points. For example, in the 2023 Q4 report, PGL reports a cost per mile and tracks that against its “plan” costs. However, these costs are on a cost per installed mile basis and PGL is installing over 1.8x more pipe than it is retiring due to its double decking practice. A revised cost per retired mile would be more accurate in forecasting future costs and measuring performance.

The Panel appreciates PGL’s offer\(^\text{51}\) to provide project-level data in its reporting and concurs that this data would support efficient evaluation of project work as was recently demonstrated in PGL’s last rate case. The Panel also concurs that annual reporting of this data is sufficient – particularly given the amount of carryover projects and project modifications that would need to be reconciled in quarterly reports. In support of this agreement, the Panel has provided a template for this data attached to this testimony as AG Ex. 1.17.

\(^{51}\) PGL Ex. 2.0, at pg. 80.
VI. Costs

Q. THROUGHOUT THIS DISCUSSION, THERE HAVE BEEN NUMEROUS COST CONCERNS RAISED. WHAT ANALYSIS HAS BEEN DONE TO DETERMINE THE ROOT CAUSE OF THE COST INFLATION OF THE SMP?

A. In its filing in this docket, PGL provided disaggregated cost estimates for various work types based on average historical rates. These estimates are highly unlikely to be accurate for a number of reasons. For example, the cost for the replacement of LP CI/DI main is given as $10,715,215 per mile. With approximately 983 miles of cast iron remaining to be retired (PGL inaccurately labeled this as “Install Qty.”), this would result in a cost for just the CI/DI replacements of $10.5 billion. However, this is inaccurate in multiple ways – first, the average cost is based on a cost/install mile, not retired mile. Looking at the last 4 years of SMP quarterly reports, we know that PGL has historically installed approximately 1.8x more pipe than it retires. Therefore, we have to increase the number of miles replaced to equal the number of miles installed and extrapolate a forecast cost of approximately $18.9 billion just to retire and replace the remaining cast iron in the system. Thankfully, this wildly expensive forecast is unlikely to be accurate because PGL based its $10.7M/mile figure on a sample of about 700 recent projects, 80–90% of which were short cycle projects. Short cycle projects have unit costs in excess of 300% that of other projects as summarized below.

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52 Id. at pg. 61.
53 Id.
54 AG Ex. 1.14 - PGL Response to DR PIRG-1.14, Attach 01 clarifies that this should be miles left to retire.
55 AG Ex. 1.15 - PGL Response to DR PIRG-1.14, Attach 02.
Given the above, it continues to be clear that PGL has not accurately forecasted the costs of the SMP and continues to provide poor data – when it provides it at all. Therefore, the summary of disaggregated costs provided by PGL should be disregarded.

Q. IF YOU WERE TO USE THE 10% OF NON-SHORT CYCLE PROJECTS IN PGL’S DATA TO FORECAST THE COST OF CI/DI REPLACEMENTS, WHAT WOULD THE RESULTING COST AND RATEPAYER IMPACT BE?

A. Despite the dubious and inaccurate nature of PGL’s data, we attempted to derive an estimate of the cost of CI/DI retirements from the portion of that data that was not short-cycle projects. The unit costs in the table above for non-short cycle projects average $9,175,732/mile which can be extrapolated to a total cost of $9.0 billion to replace the remaining miles of main. In simple terms of dollars/customer, that represents a cost of $10,123 per customer.\(^{56}\) Even over a long period, that amount would require a rate increase of about $506 per customer, per year, every year, for 20 years to recover.\(^{57}\) Again – we look forward to PGL’s rate impact analysis.

\(^{56}\) Using 891,000 customers (See https://www.peoplesgasdelivery.com/company/area)
\(^{57}\) (($9.019B/891,000 customers)/20 years)/12 months.
Q. IS IT CLEAR WHY THE COSTS OF THE SMP HAVE BALLOONED?

A. No, it is not. However, there are several factors that may be contributing to it which we summarize briefly below:

- PGL is retiring non-cast iron and non-ductile iron pipe in its neighborhood replacement approach. Because of its internal directive to upgrade pressure across the system, PGL is replacing all “SMP mains” when it completes a neighborhood. In some cases, this includes plastic and steel facilities. PGL must do this to upgrade the pressure of the system, which contributes to the concerns we have expressed above.

- PGL is utilizing “double-decking” in which it installs main on both sides of the road in almost every case. Despite repeated discovery on this matter, the Panel is unconvinced that this is the most economic approach to pipeline replacement in nearly every case. The Panel acknowledges that there are certainly cases where this practice could make sense, but the process by which PGL walks through the decision to double its miles of main installed does not make sense – namely using a 6+ services per block threshold for the decision. The Panel has concerns that certain practices such as inserting services inside of existing services to avoid double-decking are not being considered. These concerns include cost concerns and thus we list this topic here.

- PGL has included a large amount of preparatory work for the pressure upgrades. Namely PGL includes the costs to upgrade the HP pipelines to bring higher

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58 AG Ex. 1.20 - PGL’s Response to DR AG-1.24.
pressure to areas that PGL wants to serve with medium pressure. This preparatory work has added cost to the total SMP.

- Non-safety related work has bloated the SMP since the SMP has conformed to the broad language of the QIP statute.

- PGL has been replacing cast iron since the early 1980s. If PGL had reached and maintained its peak CI/DI pace sooner when costs were lower, then total program costs would not be as high due to cost inflation.

- The Panel continues to have some concerns that PGL’s cost controls have room for improvement to maintain effective project execution. This has been evidenced in PGL’s QIP reconciliation filings, however there is a large backlog of those QIP filings, so we have no visibility into the last 5+ years at the project level.

Q. **HOW MIGHT THE COMMISSION ADDRESS THESE BALLOONING COST CONCERNS?**

A. Ideally in the form of a cost cap for future SMP pipeline replacements. As discussed above, the Commission could consider defining a target cost for prudent SMP retirements. A more effective cap would be on a cumulative basis rather than a unit cost basis as it would allow PGL to pursue retirement or mitigation of CI/DI pipes utilizing alternative methods as a counterbalance to certain potentially more expensive projects.

Alternatively, the Commission could utilize a per-unit cost cap derived from industry average unit costs per mile for cast iron replacements – keeping PGL in line with
its peers from a cost perspective. The AGA estimates the below unit costs for cast iron
pipeline replacements based on system operator submissions, adjusted for inflation59:

<table>
<thead>
<tr>
<th>Dia.</th>
<th>Cost per mile (2024 $)60</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;4&quot;</td>
<td>$2,259,007</td>
</tr>
<tr>
<td>4&quot;-12&quot;</td>
<td>$2,635,508</td>
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<tr>
<td>&gt;12&quot;</td>
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</tr>
</tbody>
</table>

Table 5: Cast Iron Unit Cost Benchmark

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes. However, the Panel has issued discovery to PGL, and responses were due
within a business day of the draft of this testimony. Therefore, the Panel reserves its right
to supplement or otherwise modify this testimony or address issues in that discovery in its
rebuttal testimony.

60 AG Ex. 1.16 - Managing the Reduction of the Nation’s Cast Iron Inventory, pg. 10.