Long-Term Gas Infrastructure Plan

Workshop No. 2

Dec. 16, 2024

If you would like to ask a question, enter it in the chat along with your name and organization.

Questions will be addressed at the end of the presentation.

Opening

Deb Egelhoff, Manager — Gas Regulatory Compliance and Advocacy

Where we are in the process

July 1, 2024: LTGIP Work Plans were filed

Sept. 23, 2024: Kickoff Stakeholder Workshop

Dec. 16, 2024: Forecast and Capital Planning Workshop

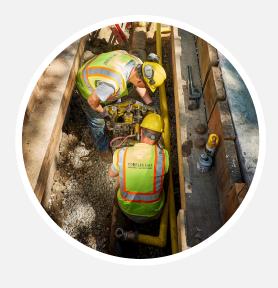
2025: Preview LTGIP Plans over multiple meetings

July 1, 2025: LTGIP Plans to be filed

Dedicated webpages:

Peoples Gas LTGIP

North Shore Gas LTGIP



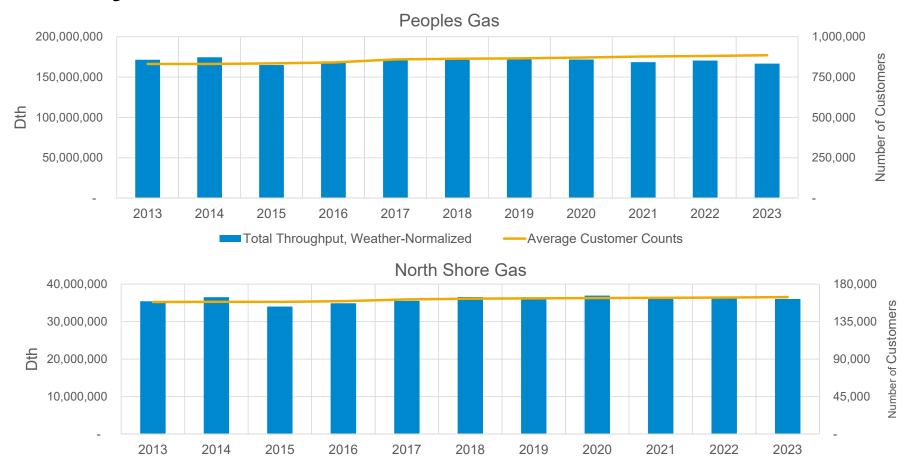
Today's meeting objectives

- 1. Gas forecasting
- 2. Planning background
- 3. Planning process
- 4. Closing

Jared Peccarelli, Manager — Sales Forecasting

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Current System Conditions



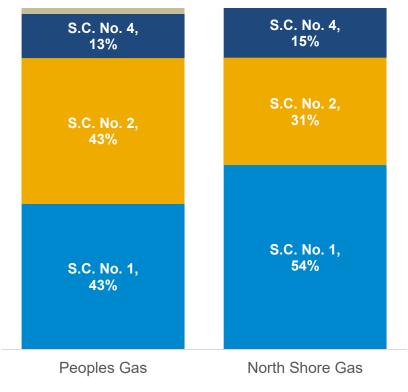
Forecast Methodology Using Service Classes

Service Class	Modeling Type
Small Residential Service (No. 1) ("Residential")	- Econometric
General Service (No. 2) ("Small Commercial & Industrial")	- Econometric
Large Volume Demand Service (No. 4) ("Large Commercial & Industrial")	_
Contract Service Electric Generation (No. 5) ¹	_ Trend
Contract Service to Prevent Bypass (No. 7) ¹	- Hond
Compressed Natural Gas Service (No. 8) ²	

- 1. North Shore Gas does not have any active or projected customers
- 2. Peoples Gas only

Proportion of Total Calendar Sales in 2023 by Service Class

S.C. Nos. 5, 7, 8, 2%



Methodology Overview

Econometric

- Residential and Small Commercial & Industrial (C&I) customers¹
- Average use per customer (UPC)²
 - Weather²
 - Energy efficiency
 - Economic/pricing
- Customer counts³
 - Demographics (e.g., population)
 - Seasonality
- Sales = Average UPC x Customer Counts
 - 1. Service class (S.C.) Nos. 1 and 2
 - 2. Separate models for heating and non-heating customers
 - 3. 12-year average ("normal") heating degree days in Chicago (O'Hare)

Trend

- Large C&I, Electric Generation, Special Contract and CNG customers⁴
- Historical monthly billed sales by customer or account
- Customer specific intelligence from account management team
- Contract information and terms
- Customer forecasts aggregated to service classes
 - 4. S.C. Nos. 4, 5, 7 and 8

Data Sources

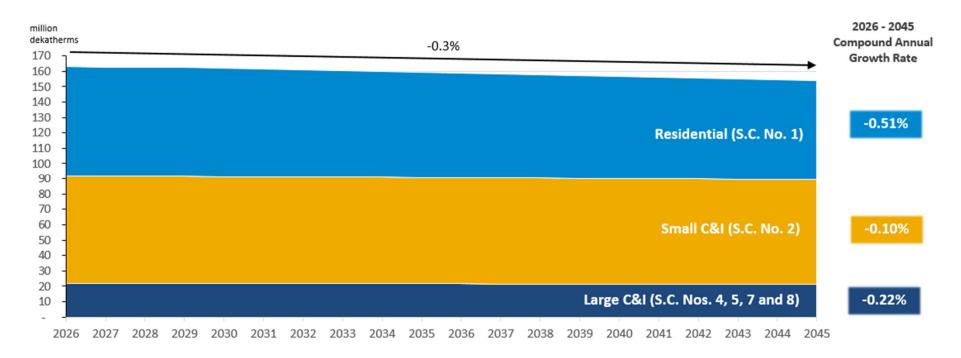


- Billing system
- Financial ledger
- Moody's Analytics
- National Weather Service¹
- U.S. Energy Information Administration
- Internal business partners
 - Account management
 - Energy efficiency

1. National Oceanic and Atmospheric Administration (NOAA)

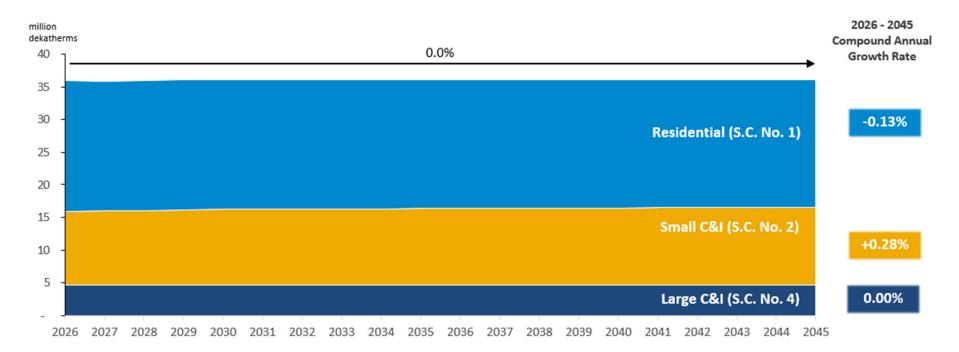
Baseline Forecast – Peoples Gas

Gas consumption is forecasted to decline slightly through 2045 in the baseline "business as usual" scenario



Baseline Forecast – North Shore Gas

Gas consumption is forecasted to be flat through 2045 in the baseline "business as usual" scenario

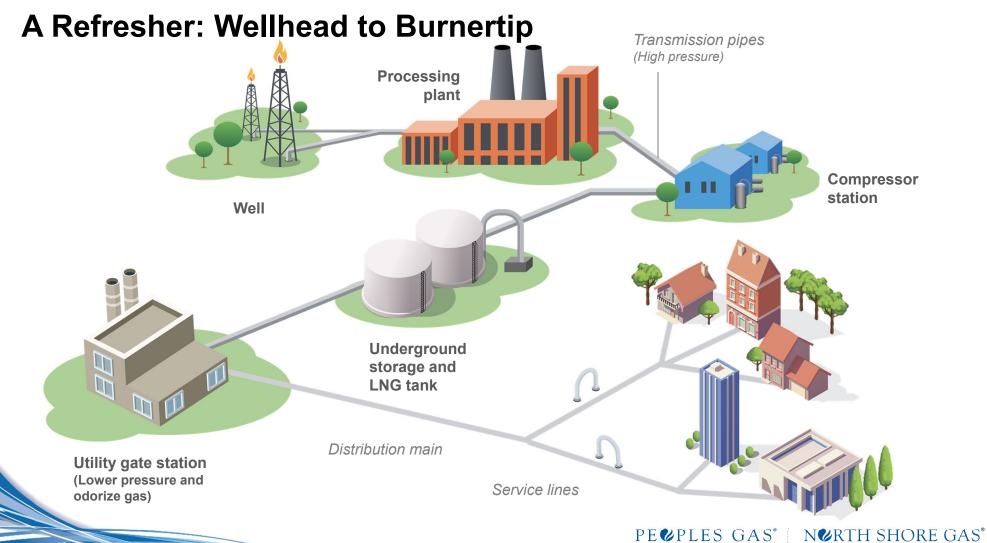


Jon Czarnecki, Director — Gas Engineering



Topics to Discuss

- 1. Infrastructure refresher and work we do on that infrastructure
- 2. Why we do that work



Specifically, the infrastructure at Peoples Gas includes:

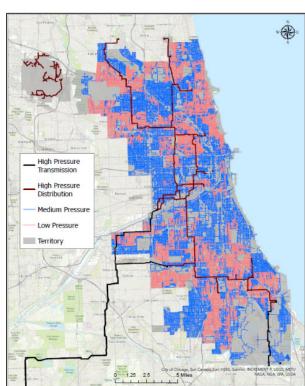
- Pipe: Transmission and distribution mains and services
 - Cast iron and ductile iron (leak-prone)
- Valves and valve assemblies
- Regulation stations and regulation vaults
- Meters and metering equipment
- Manlove Field underground storage and liquefied

natural gas (LNG)

What needs to be done:

These various types of infrastructure are extended or replaced.



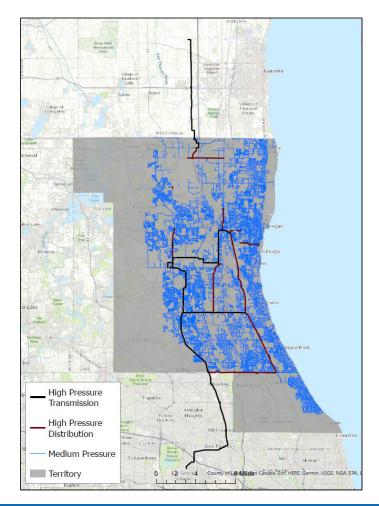


Specifically, the infrastructure at North Shore Gas includes:

- Pipe: Transmission and distribution mains and services
- Valves and valve assemblies
- Regulation stations and regulation vaults
- Meters and metering equipment
- Propane air plant

What needs to be done:

These various types of infrastructure are extended or replaced.



Why do we need to work on the infrastructure?

Rules and regulations dictate various obligations and requirements



Planning Background: Integrity Management and Threats

Events, Rules and Regulations Background

TIMP Rule

The Transmission Pipeline Integrity Management Program (TIMP) objective is to operate, maintain and manage gas transmission pipelines in a safe and responsible manner.

San Bruno **Accident**

Sept. 9, 20210: A 30" diameter natural gas transmission pipeline in San Bruno, CA, ruptured and released vast quantities of natural gas. The escaping gas ignited and initiated structure fires in the community surrounding the pipeline.

Aliso Canyon Release

The Aliso Canvon Natural Gas Disaster was a methane gas leak from a natural gas storage facility in the Santa Susana Mountains of Los Angeles County, CA.

Columbia Gas (Merrimack) Valley) Accident

This event caused a series of explosions and fires to occur in as many as 40 homes, with over 80 individual fires, 30,000 evacuated, and one death. The National Transportation Safety Board (NTSP) recommended PHMSA issue an alert to all low-pressure natural gas distribution system operations of the possibility of a failure of over-pressure protection and identify potential failures and take action to mitigate those identified failures.

Sep 2018

LDAR Rule proposed

The proposed new Leak Detection and Repair (LDAR) rule will likely require more frequent leak surveys using leak detection equipment eight times more sensitive than the required settings for current detection equipment. The proposed LDAR rule requires all Class 3 leaks that are not part of a replacement program to be repaired within three vears.

Dec 2009

Dec 2003 Sep 2010 Mar 2011

Oct 2015

Dec 2016

Oct 2019

Jan 2025

DIMP Rule

Requires operators like Peoples Gas to maintain a "distribution integrity management program" (DIMP) and reduce and evaluate risk of the system. Results from a risk evaluation allows proper attention to be focused on developing measures that address the greatest risks.

PHMSA Call to Action

Regulatory advise utilities to review their state's current replacement plans for the highest risk pipelines (ie; bare steel, cast iron pipe and pipe whose integrity is questionable or not confirmed), and consider what would be necessary to accelerate these

Underground storage well requirement

PHMSA to enact minimum federal safety standards for storage and address safety concerns following an Oct. 2015 through Feb. 2016 natural gas leak near Aliso Canyon, CA

MAOP Verification

PHMSA adopted a final rule titled "Safety of Gas Transmission Pipelines: Maximum Allowable Operating Pressure (MAOP)" to improve the safety of onshore gas transmission pipelines.

One major change: new requirement that gas utilities have traceable, verifiable and complete records to reconfirm and establish the MAOP of all gas transmission pipelines by 2035.

Planning Background: Integrity Management and Threats

Integrity Management

Federal law requires establishment of programs to enhance safety by:

- Assessing the integrity of the pipelines
- Identifying risks to the integrity of the pipeline
- Implementing preventive actions to improve safety

Types of pipes subject to the law:

- Transmission: Big pipes at high pressure bringing gas to a city
- Distribution: Small pipes at lower pressure running down your street or bringing gas to your home



Part of an old leaking main

Planning Background: Integrity Management and Threats

MAOP Reconfirmation

Maximum allowable operating pressure (MAOP) reconfirmation required by federal law:

- Transmission pipelines in higher population areas
- Transmission pipelines that do not have original construction pressure test records

Filed a MAOP Compliance & Cost Recovery Plan under Docket Nos. 23-0068 / 23-0069 (cons.)



Planning Background: Gas Storage

Peoples Gas Manlove Field

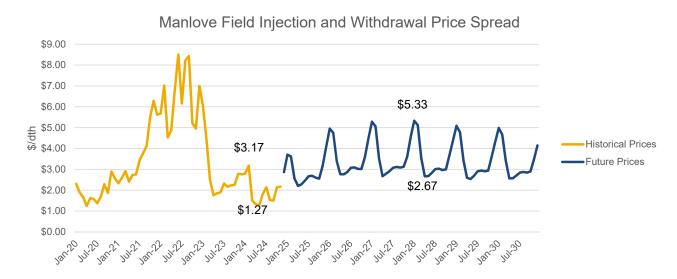


- Provides reliability and financial prudence while adhering to multiple rules and regulations
- Manlove Field is responsible for 25% of Peoples Gas and 6% of North Shore Gas winter supply
- Manlove Field is responsible for 41% of Peoples Gas and 14% of North Shore Gas peak day plan

Planning Background: Gas Storage

Peoples Gas Manlove Field

- Seasonal pricing trends
 - Typically heating increases gas demand, resulting in pricing increases
 - Manlove Field purchases and injects in the spring/summer/fall at lower prices
 - The field withdraws 36,500,000 dth in the winter to avoid buying higher priced gas
 - \$2 of savings per Dth = \$73,000,000



Planning Process

Peggy Salvatore, Manager — Capital and Operations Planning

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"Give me six hours to chop down a tree and I will spend the first four sharpening the axe."

Abraham Lincoln

Capital Planning Process

- 1. Definitions
- 2. Individual project planning
- 3. Multiyear planning

Definitions

Projects are grouped for planning and reporting purposes:

Project Grouping	Drivers
Emergency	Driven by situation best addressed by replacing in place
Manlove Field	Driven by issue and/or risk, located at Manlove Field
Neighborhood	Geographically based, driven by issues and/or risks
Public improvement	Driven by other entities' work plans in the vicinity of the infrastructure
System expansion	Driven by new customers and/or changing customer needs
System improvement	Driven by issue and/or risk

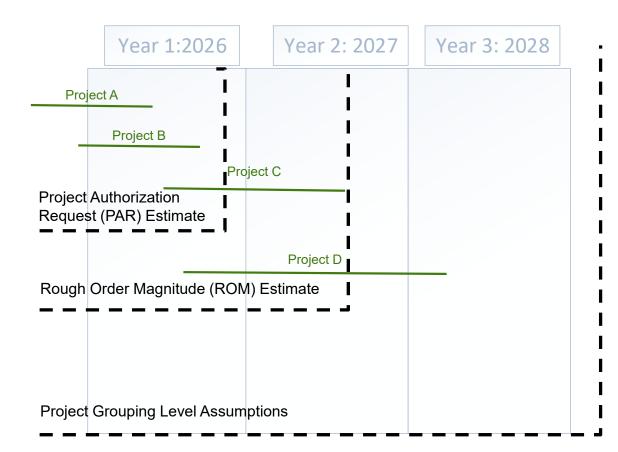
Definitions

Project planning:

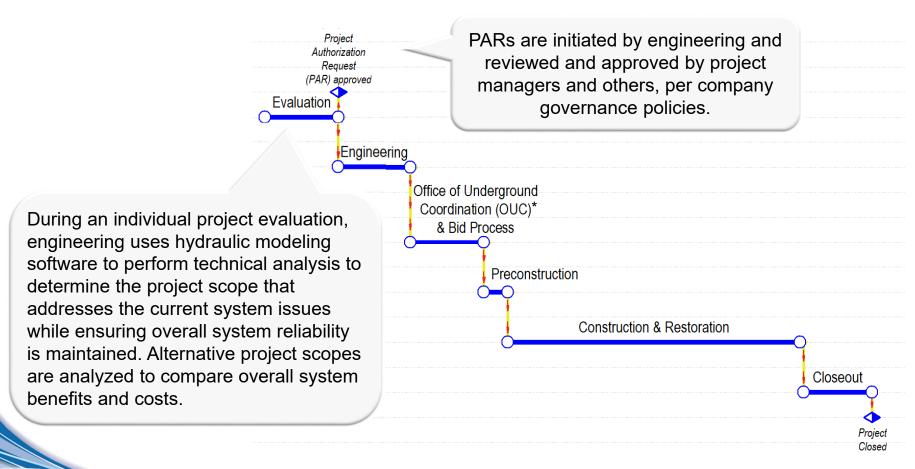
Process for a specific location, from evaluation through closeout

Annual and out-year planning: Process for a period of time, which includes specific projects and assumptions for future work

Rolling wave methodology: Iterative planning approach, using detailed project information for the planning time-period for which it is known and summary information for time-periods for which the project details are not known.



Individual Project Gantt Chart



Annual Capital Planning Process

The steps involved with preparing the annual plan include:

- Consolidate individual project information, including prioritization attributes
- Develop assumptions for the project grouping portions of the work
- Assess resource needs against resource availability*
- Iterate and make adjustments until resource needs and availability are aligned

^{*}Resource in the broad sense of headcount, materials, funding

Let's talk more about how work is prioritized

Letter	Title	Description
Α	Required	Work is required to comply with federal, state, and/or city requirements
В	Issue	System has observed failures: leaks and/or poor supply. Repairs and maintenance have been attempted but issue persists.
С	High risk/issue monitoring	 System attributes have a high risk of failure Overpressure, redundancy doesn't exist and/or redundancy just as likely to fail Lead time and/or coordination required in advance of potential need date
D	Medium to high risk	 System attributes have a medium to high risk of failure Leak may have occurred and were resolved through repair means
E	Medium risk/emergent	System attributes have a medium risk of failure

Summary

- Overall planning objectives are to support the "why" for the infrastructure work for our customers:
 - Safety
 - Reliability
 - Sustainability
 - Financial prudence
- Well-established plan provides roadmap

Closing

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Closing

What's Next

- Forecasting process will be used to prepare the five-year and 20-year forecasts
- Plan supports safety, reliability, sustainability and financial prudence to support future needs of our customers
- Next workshop will be held in 2025

Q&A

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