# North Shore Gas LTGIP Project Plan

Workshop No. 3

March 24, 2025

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**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.

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# Opening

**Deb Egelhoff**
Manager
Gas Regulatory Compliance and Advocacy

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*Company Overview*

# North Shore Gas — Providing safe and reliable natural gas to the northern Chicago suburbs


## North Shore Gas

- In business for 125 years
- Delivers natural gas to approximately 164,000 customers in the northern suburbs of Chicago through over 2,300 miles of gas main

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# 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 Plan**

July 1, 2025: LTGIP Plan currently scheduled to be filed

*Dedicated webpage:*

North Shore Gas LTGIP


# Today's meeting objectives

1. Gas Forecasts
2. Planned Projects
3. Customer Impact
4. Non-pipeline Alternatives

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# Gas Forecasts

**Jared Peccarelli**
Manager
Sales Forecasting

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*Gas Forecasts*

## Where we've been, where we're going

- In the previous workshop, we presented our 5-year baseline gas throughput forecast (through 2030) and methodology.
- We also shared the 20-year baseline gas throughput forecast.
- Today we will present the assumptions for the alternative scenarios being prepared in collaboration with The Brattle Group.

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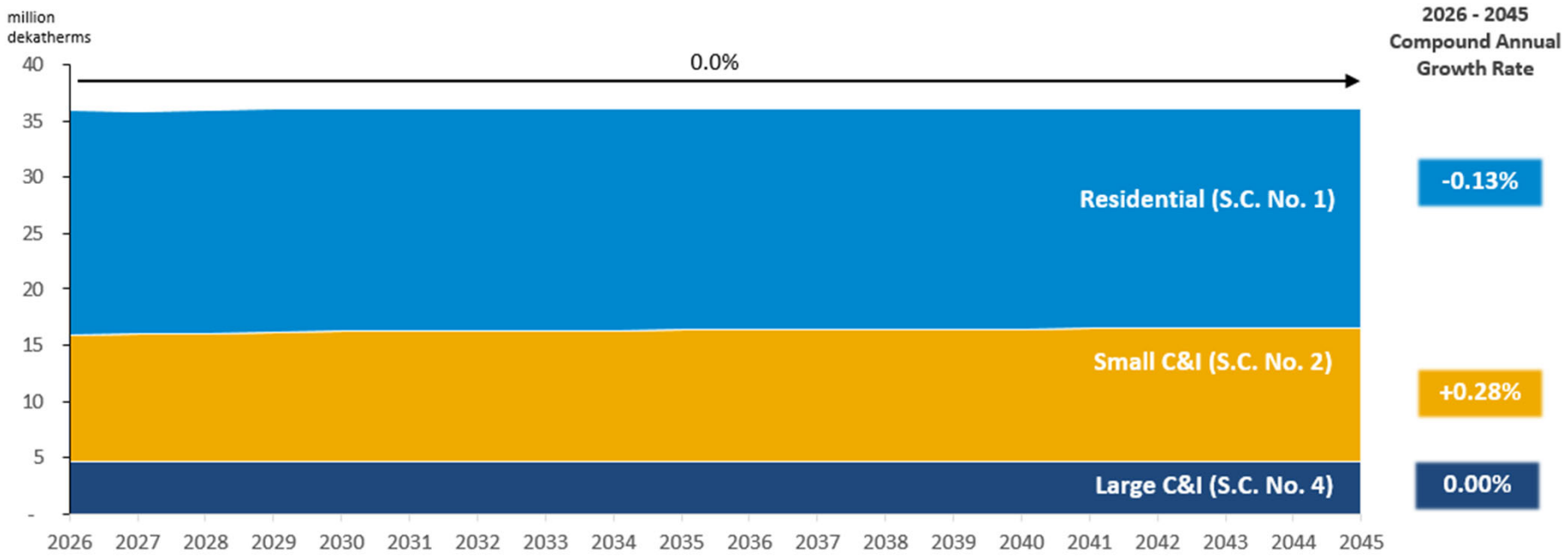
*Gas Forecasts*

# Baseline (20 Year Forecast)

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

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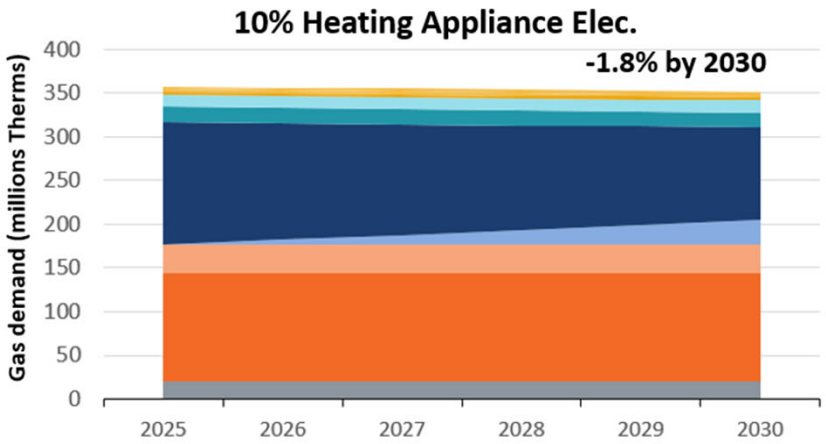
# Alternative Scenarios

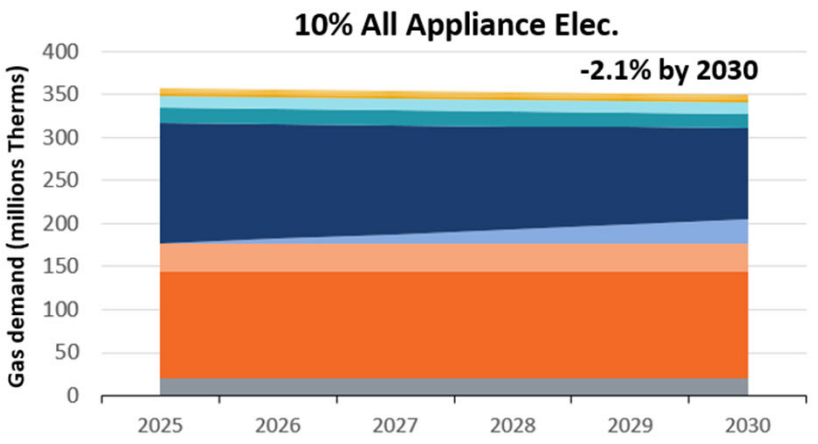
| Scenario | Description |
|---|---|
| Business as usual | • No appliances are electrified<br>• Residential heating appliances replaced with more efficient appliance on breakage<br>• No customer growth or attrition – fixed number of customers through 2030<br>• Used to calibrate to North Shore's baseline forecast |
| 10% Heating Electrification | • 10% of residential *heating* appliances are electrified on breakage<br>• No non-heating appliances electrified<br>• Other residential heating appliances replaced with more efficient appliance on breakage |
| 10% Electrification | • 10% of residential *heating* appliances are electrified on breakage<br>• Non-heating appliances in these households are also electrified<br>• Other residential heating appliances replaced with more efficient appliance on breakage |
| 25% Electrification | • 25% of residential *heating* appliances are electrified on breakage<br>• Non-heating appliances in these households are also electrified<br>• Other residential heating appliances replaced with more efficient appliance on breakage |

Notes
1. These scenarios incorporate the inputs and results from the most recent North Shore Gas Market Potential Study prepared in 2024 in collaboration with Applied Energy Group (AEG)
2. C&I load constant in all scenarios

*Gas Forecasts*

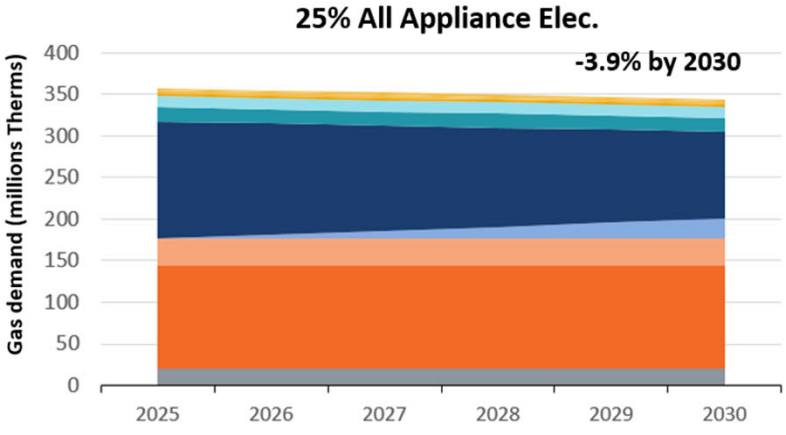
# Alternative Scenarios – Short Term Forecasts (Preliminary)




End Use Type (Color)

- Other Non-Heating Loads
- Large Water Heater
- Small Water Heater
- Legacy Stock – Gas Space Heating
- New Stock – Gas Space Heating
- Industrial Load
- Commercial Load

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*Gas Forecasts*

# Summary

Analyze and calibrate short term forecasts

Extend the forecasts through 2045

**Preliminary alternative scenario forecasts project minimal erosion in load**

# North Shore Gas Planned Projects

**Molly Sompolski**
Engineering Supervisor
Transmission Engineering

**Todd Duffield**
Market Strategist
Natural Gas Infrastructure

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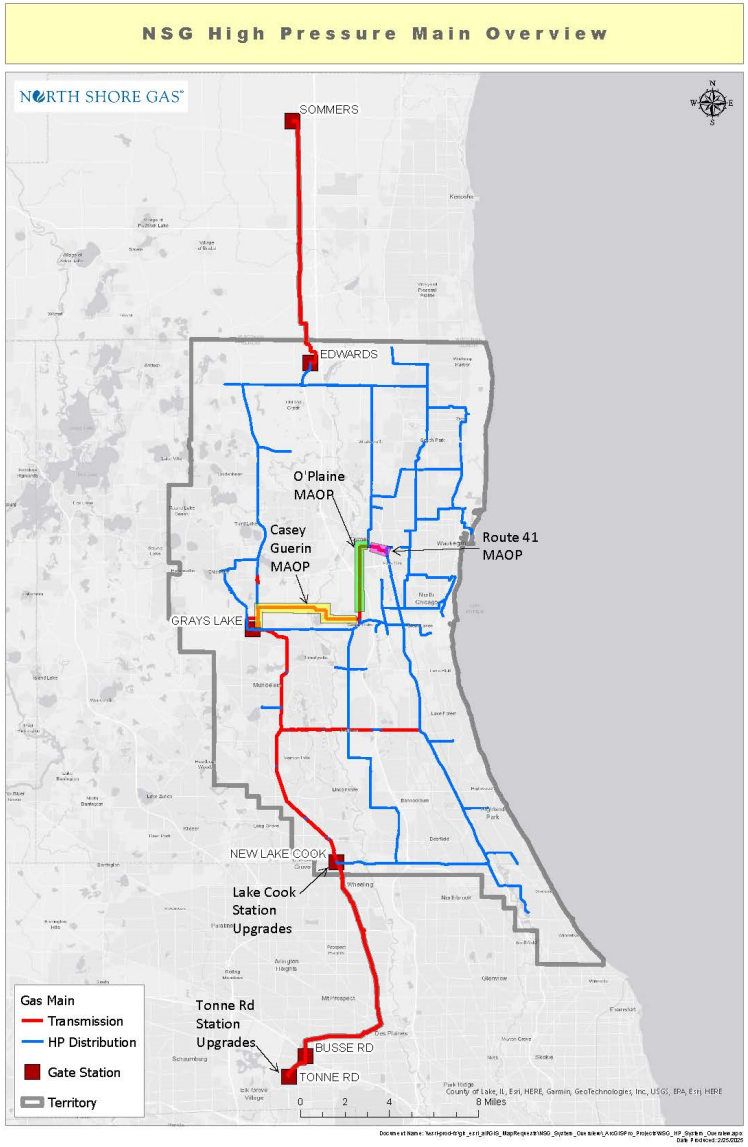
*Planned Projects*

# Project Overview

- O'Plaine MAOP*
- Route 41 MAOP*
- Casey Guerin MAOP*
- Tonne Road station upgrades
- Lake Cook station upgrades
- Peterson Road Propane-Air Plant
- Basic service obligations

*MAOP = maximum allowable operating pressure



*Planned Projects*

# MAOP Reconfirmation

- Safety concerns from San Bruno, California, incident Sept. 9, 2010
- Rule effective July 1, 2020, requiring implementation plan in place by July 2021
- Requires reconfirmation of maximum allowable operating pressures (MAOP) for existing pipelines
- Filed MAOP Compliance & Cost Recovery Plan under Docket Nos. 23-0068 / 23-0069 (cons.)
- North Shore Gas has 17.47 miles of transmission pipeline that require MAOP reconfirmation by July 2, 2035
  - 8.74 miles must be completed by July 3, 2028
  - 2.94 miles have been completed to date
- Methods of reconfirmation
  - Hydrostatic testing
  - Pipeline replacement

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*Planned Projects*

# MAOP — O'Plaine

| Scope | Duration | Alternatives Considered |
|---|---|---|
| Hydrotest approximately 3.6 miles of 20-inch high-pressure steel pipe to meet new federal regulations | To be completed in 2026 | Retire existing section of main and replace<br>• More expensive than hydrotest |

*Planned Projects*

# MAOP — Route 41

| Scope | Duration | Alternatives Considered |
|---|---|---|
| Replace approximately 0.9 miles of 20-inch high-pressure steel pipe | To be completed in 2026 | Perform a hydrotest<br>• Hydrotesting of multiple small segments costs more than replacement |

*Planned Projects*

# MAOP — Casey Guernin Road West

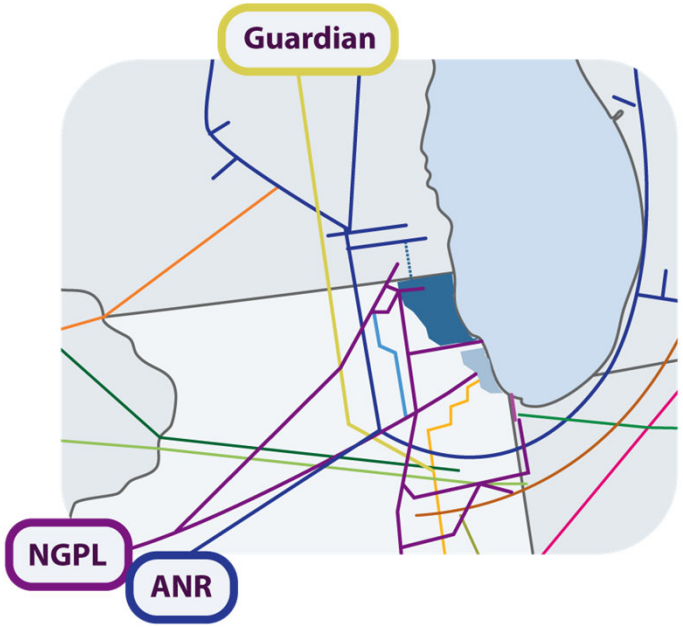
| Scope | Duration | Alternatives Considered |
|---|---|---|
| Hydrotest approximately 2.3 miles of 24-inch high-pressure steel pipe to meet new federal regulations | Start: 2028<br>End: 2031 | Retire existing section of main and replace<br>• More expensive than hydrotest |

# Resiliency study

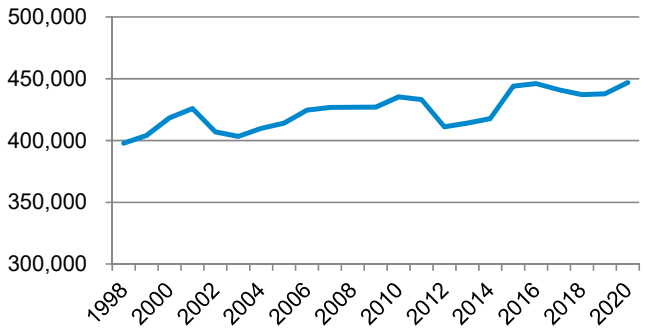
- Periodically evaluate gas supply chain resilience for each market area
  - Evaluate upstream and on-system factors
  - Address bottlenecks and aging plant
- Goals
  - Increase resilience for up to 20% of design day capacity
  - Diversify supply paths - relieve heavy reliance on single pipeline systems and stations
  - Determine path forward for aging Peterson Road propane-air plant
- Evaluate alternatives
  - Small supply increase to respond to market growth
  - Medium supply increase to respond to supply interruption (aging infrastructure)
  - Large supply increase to respond to larger supply interruption and create competitive market position

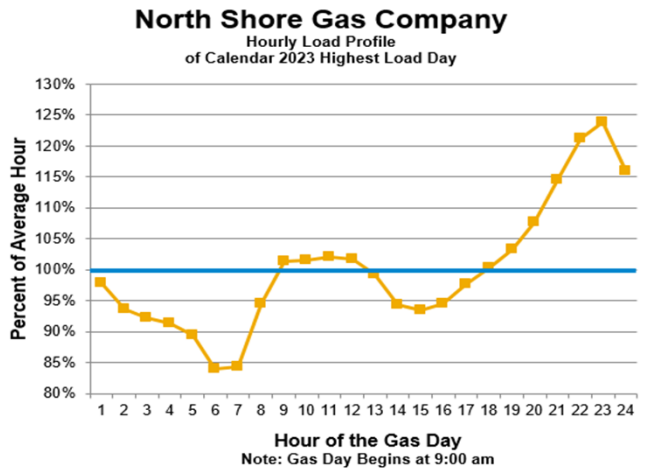
*Planned Projects*

# Resiliency Study — Assess and enhance gas supply chain

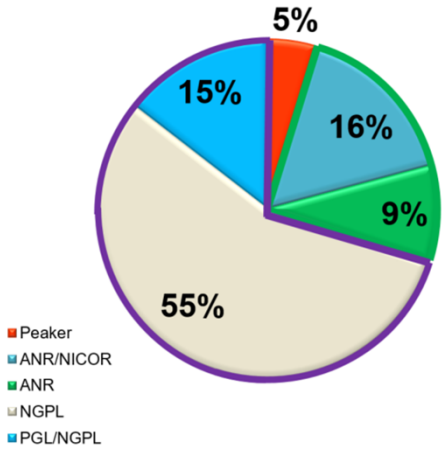



**North Shore Gas design day forecast**




**Supply sources**




**Enhance Resilience**

- 26 supply alternatives
- 15 engineering cases for on-system upgrades
- Capital cost $0 to $170 M

*Planned Projects*

# Resiliency Study — Assess and enhance gas supply chain

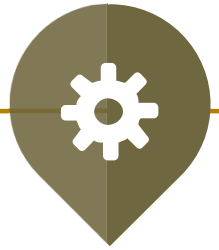
| Attributes | Current state | Impact of loss | 2025 | 2026-2027 | 2028 | Long-term if necessary | | |
|---|---|---|---|---|---|---|---|---|
| | | | Interstate pipeline capacity expansion | Tonne Road & Lake Cook station expansion | Secure pipeline capacity and retire propane plant | Edwards to Grayslake link (Hwy 45) | Hwy. 45 and Lewis/Mcaree | Expand with larger diameter |
| Reliability | | | | | | | | |
| Flexibility | | | | | | | | |
| Expandability | | | | | | | | |
| System management | | | | | | | | |
| Economic | | | | | | | | |
| Risk | | | | | | | | |

- Reliability (plant age, plant condition, core competency)
- Flexibility (ability to manage/react near term disruptions — loss of third-party systems, Liquid Propane (“LP”) plant)
- Expandability (ability to manage/react to intermediate losses or large customer gains)
- System management (system control, system planning)
- Economic (direct customer impact, rate control, local benefit)
- Risk (regulatory, environmental, safety)

*Planned Projects*

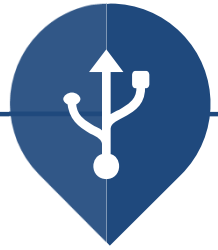
# Resiliency Study Recommendations

Secure capacity on ANR Pipeline expansion project



Unlock access to upstream capacity

Expand Tonne Road to Lake Cook path



Secure pipeline capacity from Peoples Gas

Retire aging Peterson Road propane-air plant

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# Tonne Road Lateral Expansion — Tonne and Lake Cook Stations

## Scope

Maximize access to interstate pipeline grid

Expand Tonne Road Meter

- Requires replacement of meters, regulators, valves and buildings

Expand Lake Cook Regulator

- Replace obsolete heater and upgrade meters, regulators and valves

## Duration

Start: 2025
End: 2026

## Estimated Cost

| | |
|---|---|
| Tonne | $9.3M |
| Lake Cook | $3.0M |

## Alternatives Considered

1. Medium volume —
   - 9.7 miles 16-inch and 1.3 miles 24-inch Highway 45 upgrades: $62M
2. Large volume —
   - 15.7 miles 16-inch and 1.3 miles 24-inch Highway 45, Edwards Road lateral: $120M
3. Do nothing —
   - Risk multiyear loss of up to 15% of capacity

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# Peterson Road Propane-Air Plant Study

**2021 network strategy**
Aging plant requires substantial improvement or replacement

**April 2022**
Vaporizer failure

**2022 mitigation**
North Shore Gas secures interstate pipeline capacity held by Peoples Gas

**Non-pipeline alternatives**

| | |
|---|---|
| Propane-air upgrade | $$ |
| Compressed natural gas | $$$ |
| Liquefied natural gas | $$$$ |

Alternatives

**Recommended alternative $**

Secure additional pipeline capacity from Peoples Gas
Dependent on Peoples Gas' Segment 1A completion

**Expansion of pipeline capacity $$$$**

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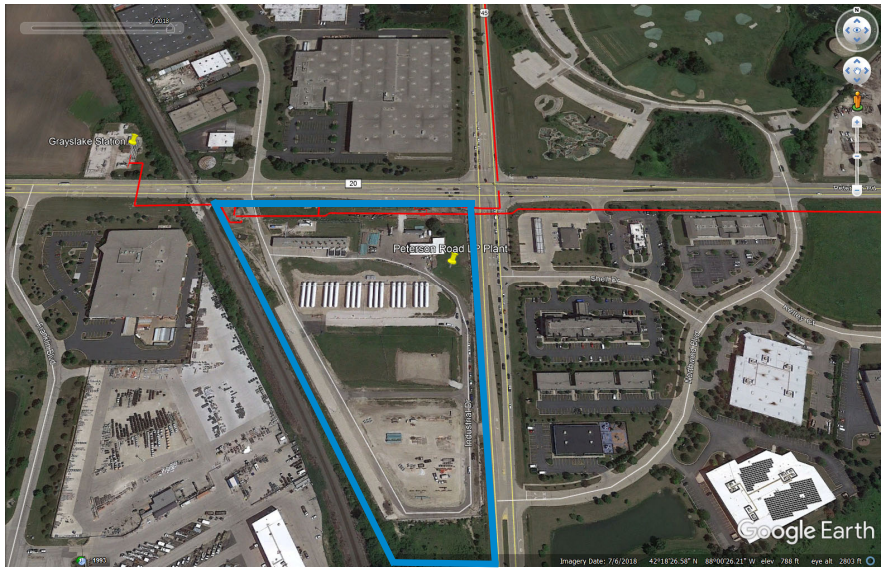
# Peterson Road Propane-Air Plant

Retirement allows removal of propane storage from growing suburban environment


**April 1993**




**July 2018**

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# Peterson Road Propane-Air Plant

| Scope | Duration | Alternatives Considered |
|---|---|---|
| Retire propane-air plant and acquire pipeline capacity release from Peoples Gas<br><br>Contingent on:<br>1. Station upgrades at Tonne Road and Lake Cook Road<br>2. Completion of Peoples Gas Segment 1a project | Start: 2027<br>End: 2028<br><br>**Estimated Cost**<br>$300,000 net | 1. Upgrade propane plant $48M net present value (NPV)<br>2. New liquefied natural gas (LNG) plant $187M NPV<br>3. New compressed natural gas (CNG) plant $111M NPV<br>4. Pipeline expansion $93M-$159M NPV |

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# Basic Service Obligations

| | | |
|---|---|---|
| **System improvement** addresses specific targeted problems and is focused on active leaks or where operational issues threaten to disrupt service to customers. | **Public improvement** work involves situation in which other underground users of the municipal right-of-way are performing work under the streets, which may require relocation of the company's facilities. | **System expansion** installs new mains and services required to serve new customers. |

Work will be performed throughout the year as needed. Plans are created based on system needs but are dependent on external parties.

# Customer Impact

**Deb Egelhoff**
Manager
Gas Regulatory Compliance and Advocacy

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*Customer Impact*

# Customer Impact Analysis


The revenue requirements and rates analyses in the LTGIP will be pro forma and intended to indicate general cost trends. They will not represent actual future revenue requirements or rate impacts.

2026-2030 incremental investments
= **$0.024/therm**

Total revenue requirement with incremental investments
= **$0.363/therm** or **7% increase**

# Non-Pipeline Alternatives

**Frank Graves**
Brattle

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# Approach — North Shore Gas Decarbonization Potential

Brattle evaluated major technologies (existing and emerging) available to reduce or eliminate $CO_2$ emissions on burning gas, as well as upstream $CO_2e$ from wellhead methane leakage.

- North Shore Gas Scope 1 emissions are 1,787,000 metric tons $CO_2$/year
- Scope 2 emissions range from 475,000 metric tons (using low leakage rate and GWP100) to 2,678,000 metric tons (high leakage and GWP20)

Each technology assessed using public sources as to:

- Current and future cost, efficacy in gas demand reductions or emissions abatement, approximate quantity available to the Chicago metro area and the state of Illinois, suitability of technology for particular demand sectors, and rank-order cost-effectiveness in mitigating emissions ($ cost/ton of avoided $CO_2e$)

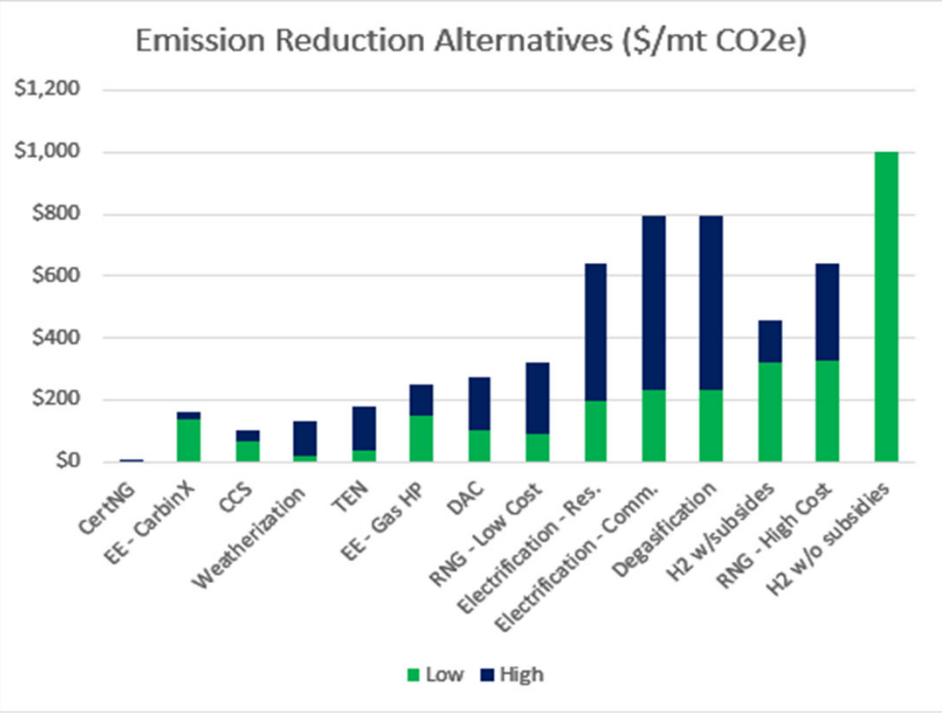
Results are approximate, as technologies are evolving and customer behavior is very uncertain, but indicative of scale and order of best opportunities.

*Non-Pipeline Alternatives*

# Avoided Costs of Carbon by Mitigation Tech

Lower cost opportunities for decarbonization mostly involve gas enhancements (CertNG, CCS, possibly TENs, weatherization and EE, gas HPs) which could eliminate 1/3-2/3 but not all emissions.

- CertNG is quite inexpensive and eliminates about as much $CO_2e$ as all of Scope 1.
- CCS, TEN, and DAC may be becoming cost-competitive, and there is some low-cost RNG.
- Full-elimination possibilities (electrification, all-RNG, H2) are very expensive — $300 to $1000/ton $CO_2$ — and often require substantial changes in legislation and regulatory authorizations for them to be feasible for a gas company to pursue.
- Electrification costs per household vary from $17K to $61K depending on condition; 100% residential electrification of NSG would cost about $4.6B.




Note – last official governmental estimate of the social cost of carbon was $190/ton, as of begin of 2024.

*Non-Pipeline Alternatives*

# Acronyms for Decarbonization Technologies

| Acronym | Definition, Application |
|---|---|
| CertNG = Certified Natural Gas | Wellhead gas that has been certified to have no methane leakage in production |
| EE = Energy Efficiency | Appliances that improve the efficiency of gas consumption, such as gas heat pumps, CarbinX (a commercial scale carbon capture device that recycles heat and so reduces consumption while it captures 40-60% of CO2 emissions) |
| CCS = Carbon Capture and Sequestration | Industrial boiler post-processing equipment to extract CO2 from the effluent stream; allows continued use of natgas as feedstock fuel |
| HP = Heat Pump | Electric or gas HVAC units that transfer heat between internal and external sinks |
| TENs = Thermal Energy Networks | Urban neighborhood-scale ground source electric heat pumps |
| RNG = Renewable Natural Gas | Gas recaptured from landfills or agricultural waste with little or no net CO2 |
| DAC = Direct Air Capture | Removes CO2 directly from air, without being attached to or affecting energy end use or production equipment |
| H2= Hydrogen | Alternative clean fuel to natural gas, if made with renewable power; could be slightly blended with conventional gas or used directly by industrial loads |
| Weatherization | A variety of methods for insulating homes and businesses, ideally done before electrification to improve efficacy of new electrical devices |

# Closing

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*Closing*

# What's Next

Plan currently scheduled to be filed July 1, 2025

Submit comments by April 15:

Long Term Gas Infrastructure Plan | North Shore Gas

## Send comments and/or attend a planning workshop

If you want to participate in a workshop or submit questions or comments, complete this form:

• = Required

Name •

Email •

Organization •

Comments/Questions

☐ I would like to be added to the long-term gas infrastructure plan distribution list to be notified of upcoming workshops. I provide my consent to receive marketing communications.

Send Cancel

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# Q&A

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