Gas System Long Term Plan - Technical Conference

March 5, 2025

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Agenda

1. Welcome and Overview
    A. Introduction to GSLTP Team
    B. Purposes of Today's Technical Conference
2. Key Context for Corning Gas GSLTP
    A. Unique Factors for Corning Gas among NY LDCs
    B. Corning Gas Capital and Supply Planning
3. Reference Case
4. Corning Gas GSLTP Overview and Key Content
    A. Contents, Core Objectives
    B. Modeling Approach and Selection of Preferred GSLTP
    C. Assumptions and Results – Emissions Reductions, Costs, Bill Impacts, BCA
    D. Design Day Demand
5. Implementation Actions, Conclusion, and Questions

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Purpose of Today's Technical Conference

- Provide an overview of Corning's Gas System Long Term Plan ("GSLTP"), filed on January 31, 2025
- Describe "Preferred GSLTP," reflective of broader analysis of scenarios
- Identify key assumptions and planned actions/ activities from GSLTP process
- Describe key results from modeling and analysis that determined identification and selection of Preferred GSLTP and its various elements
- Welcome questions and input from stakeholders and provide responses now, as able, and/or flag for additional consideration/ follow up, as appropriate.
- **Logistical note**: please feel free to raise questions and/or comments during the presentation or following the presentation

Key Context for Corning Gas GSLTP – Unique Features Among NY Gas Utilities

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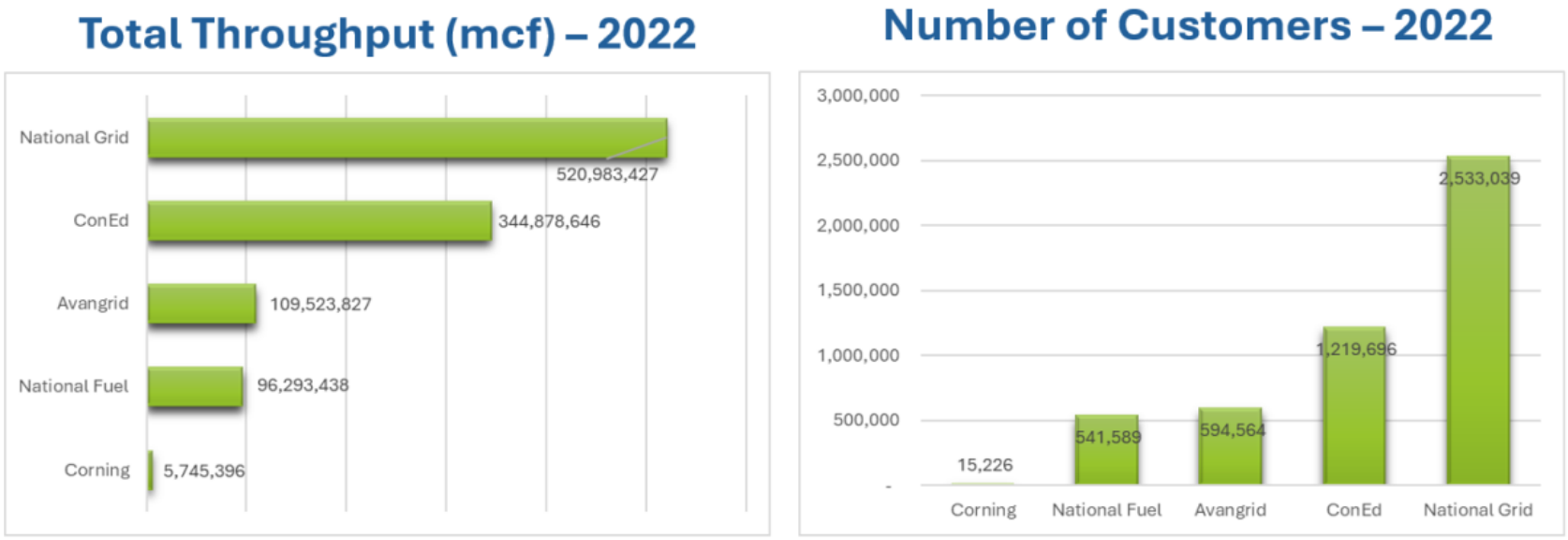
Unique Characteristics Make Corning Gas Different than Other NY Gas Companies

- Corning Gas is a small company with only 15,000 customers

FIGURE III-1

NEW YORK GAS UTILITY CUSTOMERS AND ANNUAL THROUGHPUT[53]

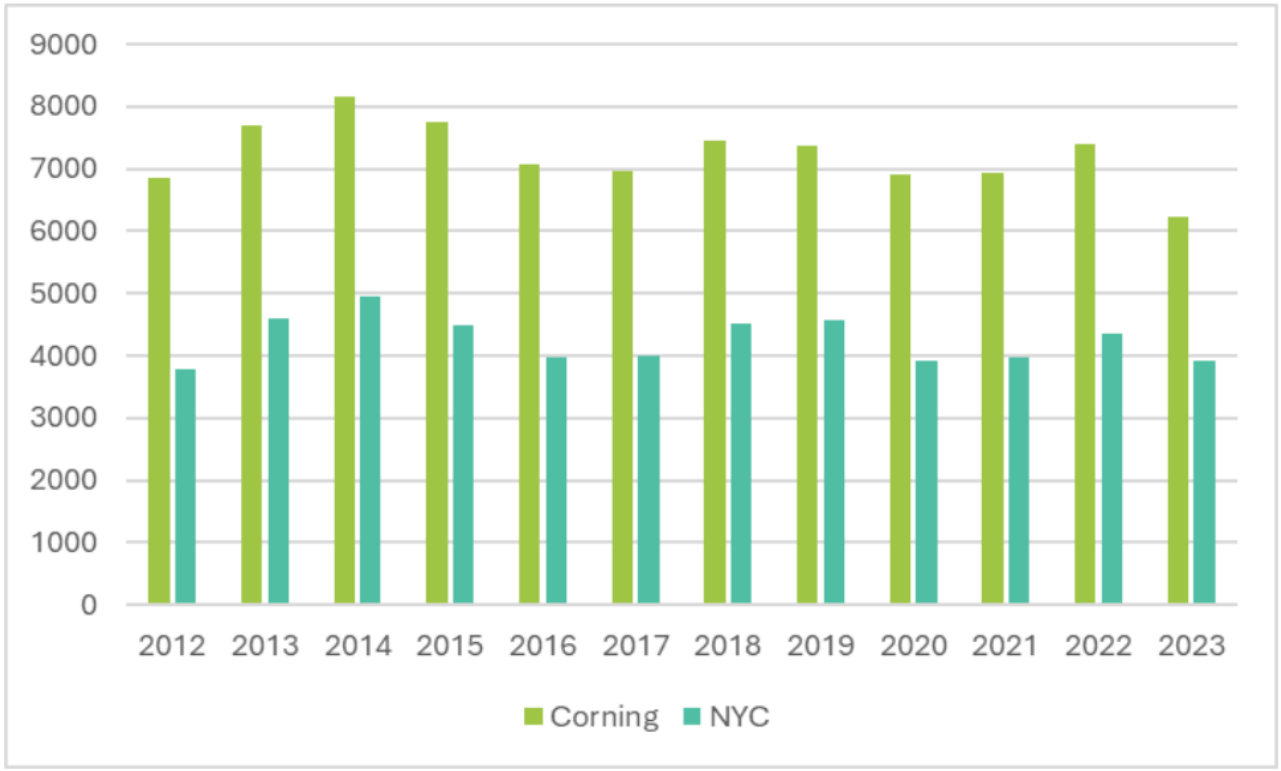


As is described in this presentation, Corning Gas is unique among the NY gas utilities. As the NY Public Service Commission formulates new gas planning procedures, it should view Corning Gas differently than most other New York gas utilities, by placing more focus on supply-based decarbonization measures that target GHG emission reductions from core residential and small commercial retail customers, for which Corning Gas procures gas supply and is able to modify their gas supply portfolio.

Unique Characteristics Make Corning Gas Different than Downstate Gas Companies

FIGURE III-3

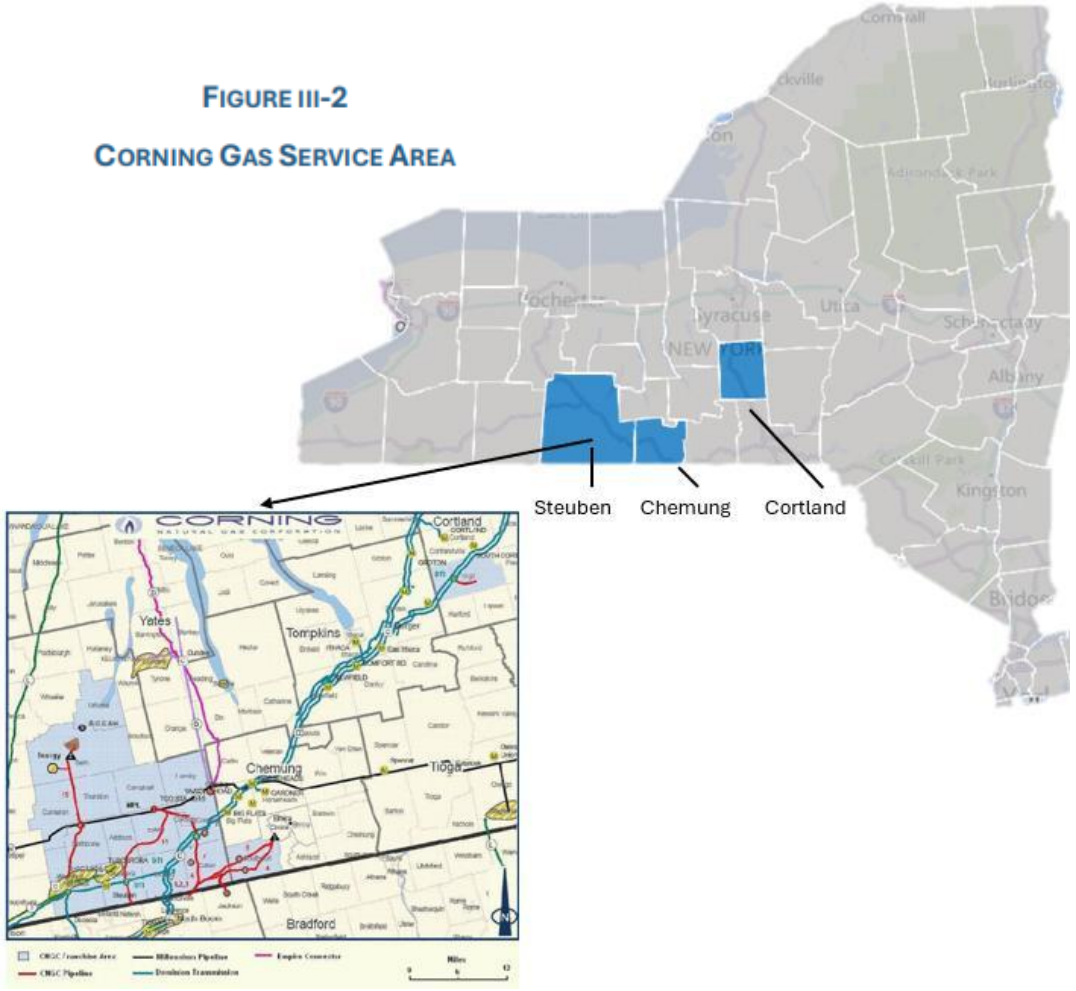
ANNUAL HDDS – CORNING VS NEW YORK CITY



- It is significantly colder in Corning than downstate New York
- Electric heat pumps are less efficient and effective in cold weather, with less favorable customer economics

Unique Characteristics Make Corning Gas Different than Other NY Gas Companies

- Gas-only utility limits opportunity for electrification efforts in Corning Gas' service territory
- Natural gas is the lowest-cost energy in the region
  - This makes natural gas more economical for households and businesses
- Dependable supply with local production
  - Local gas storage supply
- Very different than downstate New York
  - Higher cost of gas with larger demand



Additional Requirements/ GSLTP Elements

Disadvantaged Communities ("DACs"), Low- and Moderate-Income ("LMI") Customers

- Corning Gas has approximately 400 customers living in DACs in its service territory, which represents 2.7% of the Company's total customer base
- The Company will continue to pursue LMI-focused energy efficiency and clean energy programs regardless of whether these customers reside within a DAC.
- For example, Corning Gas has two affordability programs aimed at helping LMI customers pay for their utility bills.
  - The Home Energy Assistance Program ("HEAP") is a statewide program that provides funding to income-qualified residential customers to help pay their heating bill. There are approximately 1,500 customers enrolled in the HEAP program.
  - These customers are also eligible for the Low Income Credit Program. The program applies monthly credit to each customer's bill based on income level and other factors.

Vulnerable Locations and Non-Pipe Alternatives ("NPAs")

- A vulnerable location is a portion of the system where gas may not be able to be delivered safely and reliably.
- Vulnerable locations can be a good site to evaluate for implementation of a non-pipeline alternative.
- Corning Gas' service territory does not have any vulnerable locations; therefore there were not any suitable places to implement an NPA solution in this GSLTP

Corning Gas' Industrial Load

- Industrial load makes up 60% of Corning Gas's annual throughput
- The Company has no control over the end-use of industrial processes and does not procure gas supply for these customers
  - Industrial process load is hard to electrify
  - Costs to electrify industrial customers are extremely high and specific to each customer
- Corning Gas proposes to work with customers to use locally-produced gas or RNG

TABLE III-1

NUMBER OF CUSTOMERS BY SEGMENT - 2023

	CUSTOMERS	% OF TOTAL
Residential	13,997	92.42%
Commercial	1,136	7.50%
Industrial	12	0.08%
Total	**15,145**	

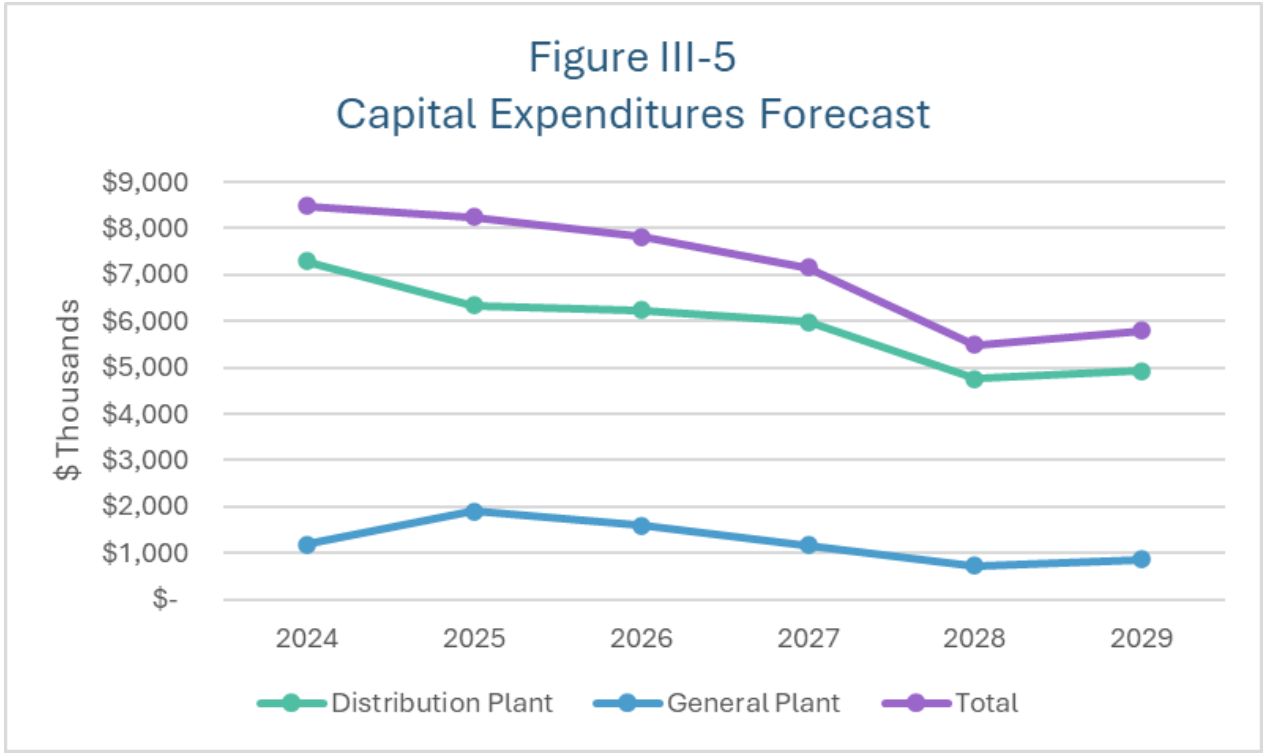
TABLE III-2

DEMAND BY CUSTOMER SEGMENT - 2023

	DEMAND (MCF)	% OF TOTAL
Residential	1,210,297	23.9%
Commercial	673,827	13.3%
Industrial	3,181,211	62.8%
Total	**5,065,335**	

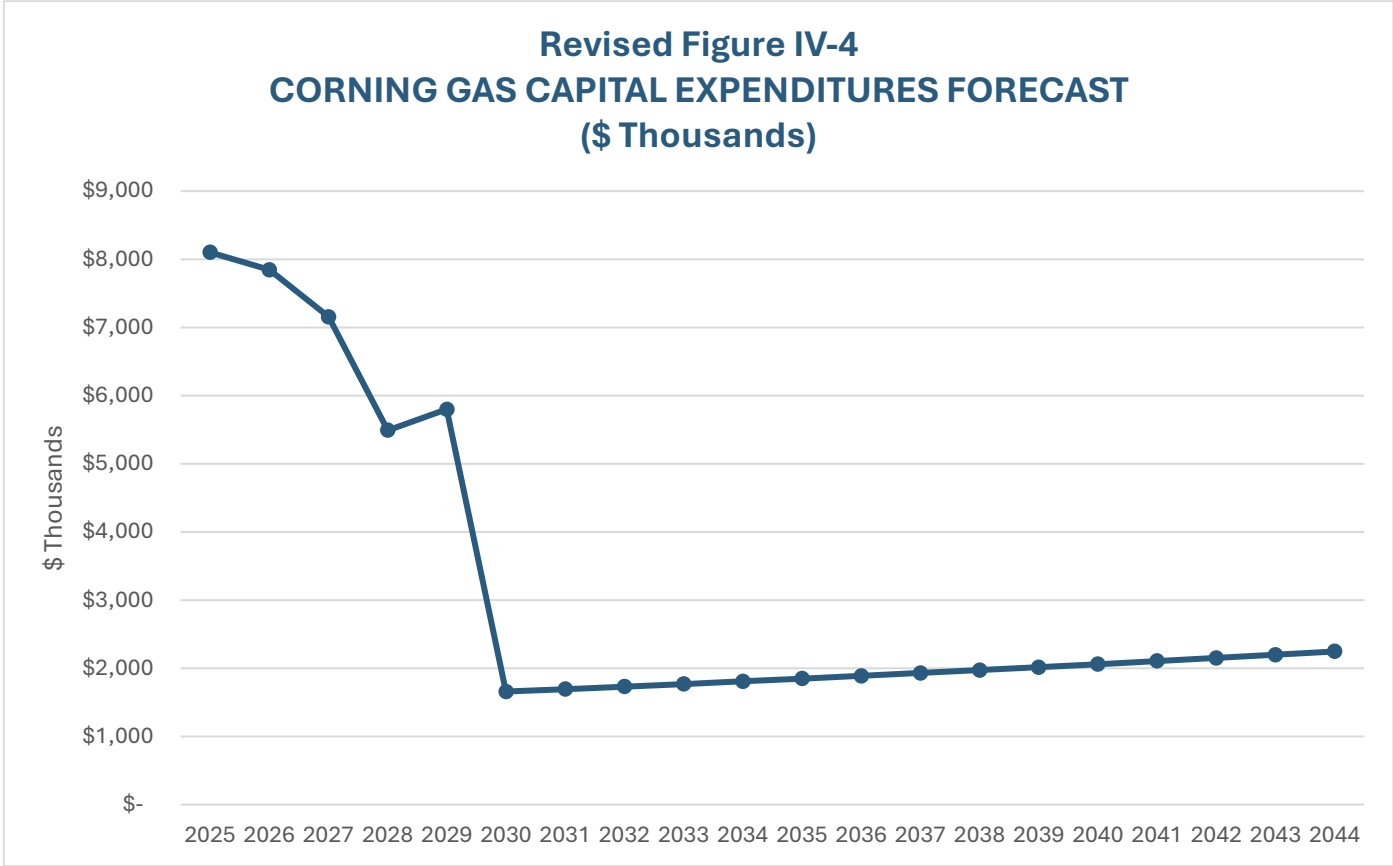
Capital Planning

- Nearly 60% of all capital spending included in the July 2024 rate case is for distribution infrastructure, including the Leak Prone Pipe ("LPP") replacement program.
- Corning Gas has invested a significant amount of capital into its LPP replacement program over the last 20 years. The program will be complete in 2029, with 7 miles replaced in 2025 and 5 miles replaced in the final four years of the program.
- At the end of 2006, Corning Gas had 400 methane leaks; in 2024, this has been reduced to only thirteen.
- Additional upcoming distribution projects include replacing major pipe interconnections that are outdated and developing projects for RNG integration into their pipeline.



Capital Planning - Forecast

- Figure IV-4 shows Corning Gas' capital expenditure forecast for the next 20 years.
- The forecasts for 2025 through 2029 are sourced from the Company's recently filed rate case.
- To estimate the capital expenditures for 2030 and later, the 2029 capital budget is adjusted to exclude 2029 expansion projects (to reflect end of Leak Prone Pipe Replacement) and then escalated by 5%, consistent with Corning Gas' construction escalator provided in Case No. 24-G-0447.



Reference Case

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Reference Case

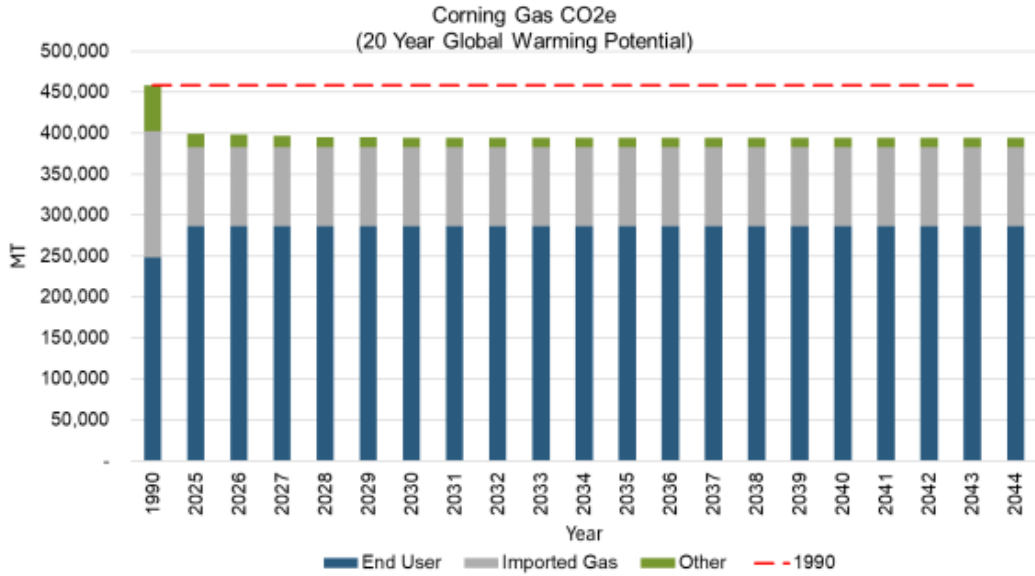
- Both demand and customer counts are expected to remain flat throughout the forecast period (0.00%).
- Corning Gas supplies its peak day gas from many sources to minimize the impacts of possible supply interruptions. Local production provides redundant supply if there are issues on the interstate pipelines.
- 12.8% emissions reduction from 1990 to 2025 due changes to upstream supply.

FIGURE IV-3

CORNING GAS TOTAL SYSTEM FIRM PEAK DAY CAPACITY AND DESIGN DAY DEMAND (MCF)[72]

FIGURE IV-5

CORNING GAS REFERENCE CASE GHG EMISSIONS



- Upon request, the following slide gives an in-depth overview of Corning Gas' design day demand calculations used in the GSLTP and how those relate back to the Company's 2024-25 Winter Supply Plan filing.

Corning Gas Reference Case Design Day Demand

Corning Gas' GSLTP Reference Case Design Day Demand forecast is based on the Company's 2024-25 Winter Supply Plan ("WSP"), filed on July 10, 2024, in Docket No. 24-M-0205. The table below presents the Company's design day demand, as presented in Table 2 of the WSP.

Design Day Demand, MDT (incl. BEGWS)	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Sales	20.6	20.6	20.6	20.6	20.6	20.6
Transportation	26	26	26	26	26	26
Total	46.6	46.6	46.6	46.6	46.6	46.6

The design day demand forecast presented in the Company's WSP includes the gas supply associated with one of Corning Gas' customers Bath Electric, Gas and Water Systems ("BEGWS"), which for the purposes of this GSLTP, has been removed from all analyses. To remove gas supply associated with BEGWS from the Company's design day demand forecast, Corning Gas removed the proportion of normalized demand associated with BEGWS, resulting in the following forecast.

Design Day Demand, MDT (excl. BEGWS)	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Sales	17.5	17.5	17.5	17.5	17.5	17.5
Transportation	25.4	25.4	25.4	25.4	25.4	25.4
Total	42.9	42.9	42.9	42.9	42.9	42.9

Using the Company's gas heating value, provided in Corning Gas' Initial GSLTP Appendix A, Table A-1, the above design day demand forecast was converted to MCF and forecasted out to year 2044 based on forecasted Reference Case annual demand growth (0.00%).

Reference Case Design Day Demand, MCF (excl. BEGWS)	2025	2044	CAGR
Total	41,708	41,708	0.00%

GSLTP Overview and Key Content

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Corning Gas Initial LTP

Report Section	Key Content/ Highlights
i. Executive Summary	• Approach and Priorities for GSLTP • Corning Gas unique among New York gas LDCs • Environmental Efforts and Progress to Date • GSLTP Modeling • High Level Results
ii. Introduction	• Context for GSLTP • Policy Guidance
iii. Corning Gas Service Territory and Customers	• Overview of the Company's service territory and customers • Describes disadvantaged communities and low- and moderate-income customers in Corning's service territory • Reviews Corning Gas' current capital investment plan • Reviews economic and climate conditions for the service territory • Overview of gas supply and distribution operations • Discussion of vulnerable locations and Non-Pipeline Alternatives (NPAs)

Report Section	Key Content/ Highlights
iv. Reference Case	• Provides reference case for GSLTP, including demand forecast, design day demand, supply and demand balance • Capital expenditure forecast • GHG Emissions
v. GSLTP Methodology and Results	• GSLTP Decarbonization Actions and GHG Emission Reductions • Model Results and Gas System Long-Term Plan • Preferred GSLTP Cost and Bill Impacts • Benefit Cost Analysis
vi. Conclusion & Implementation Actions	• Conclusion and Implementation Actions
Appendices	A. Decarbonization Action Modeling B. Energy Prices C. Benefit-Cost Analysis D. LTP Modeling Outputs E. Reference Case

Corning Gas GSLTP Core Objectives

Safety, reliability, and resiliency for Corning Gas' customers and communities are the core objectives of our corporate principles and are noted throughout this GSLTP.

Corning Gas supports NY policy objectives to reduce the State's GHG emissions and the development of programs to address the CLCPA's statewide targets.

Corning Gas is focused on affordability for all customers

Corning Gas will complete its Leak Prone Pipe Replacement Program ("LPP") for the safety of its customers.

Corning Gas is using its pipe for non-traditional sources like renewable natural gas ("RNG") and responsibly sourced gas ("RSG") into its gas distribution system.

Energy Efficiency programs will be initiated by Corning Gas.

Focus on supply-based decarbonization actions that target "core" residential and small commercial retail customers, for which Corning Gas procures gas supply.

Preserve natural gas infrastructure and Corning Gas as a NY Corporation, locally headquartered as a major employer and contributor of economic vitality to its service territory. We are the 4th largest tax payer in Steuben County

GSLTP Modeling Overview

Summary of Approach

The GSLTP methodology is designed to examine and communicate how alternative "decarbonization actions" can contribute to GHG emissions reductions and how the most promising and efficient options can best be sized and staged in a responsible manner (i.e., balancing safety, reliability, resilience, energy affordability, and customer choice throughout the GSLTP period).

The Company's GSLTP was developed using a **bottom-up approach** to estimate **incremental costs and benefits** for **each decarbonization action.**

Incremental <u>benefits</u> include:

- decreased emissions per participating customer
- decreased emissions per unit of RNG, hydrogen, or RSG.

Incremental <u>costs</u> include:

- equipment costs and
- changes in energy bills per participating customer, as well as
- the incremental cost above conventional supplies per unit of RNG, hydrogen and RSG.

GSLTP Modeling Overview

Relative Cost-effectiveness Drives GSLTP Actions

The **relative cost effectiveness** of reducing GHG emissions **differs across decarbonization actions**.

The Company's GSLTP focuses on

- **maintaining affordability** by **prioritizing decarbonization actions that have relatively low cost per GHG emission reductions** (measured as $/MT CO2e).

The GSLTP should **prioritize:**

- **lower cost per GHG emission reduction decarbonization actions** like RNG and hydrogen, which offer the **most cost-effective GHG reductions.**

However, these methods **have limited impact due to current technological constraints**.

Therefore, it's essential to also:

- **incorporate higher cost decarbonization actions per GHG emission reductions**, such as **hybrid electrification**, to achieve greater emissions reductions while managing overall costs.

GSLTP Modeling Overview

Relative Cost-effectiveness & GSLTP Actions - Examples

Hybrid heating is preferred over full electrification because it:

- enhances service reliability
- enhances energy resilience
- reduces costs

Hybrid heating:

- cuts natural gas use,
- lowers GHG emissions,
- reduces electric demand on cold days, keeping costs down and customers safe,
- supports customer choice and addresses customer resistance.

UTENs and Carbon Capture Not Included

- Given their high level of costs per GHG savings, the GSLTP does not include
  - utility thermal energy networks ("UTENs") for residential customers
  - carbon capture technologies for industrial customers

Full electrification:

- raises concerns about heat reliability during winter outages and
- requires substantial electric infrastructure investment.
- Higher cost (including up front cost)

Decarbonization Actions

- The GSLTP proposed decarbonization actions must be achievable, reflecting realistic expectations and assumptions
- The Company will update future GSLTPs to reflect the evolution of decarbonization action costs, technology enhancements, and relative efficiencies.
- Corning Gas leveraged key results from NYSEG RG&E Final GSLTP to efficiently inform its process and selection of decarbonization action (e.g., analyses and results related to cost per GHG emissions and by various electrification level of scenarios)
- Unlike larger NY Gas LDCs, Corning Gas was required to assess and provide a reference case and a Preferred GSLTP (i.e., and not other scenarios) only.
- The following slide provides the assumptions of the GSLTP analysis of Decarbonization Actions

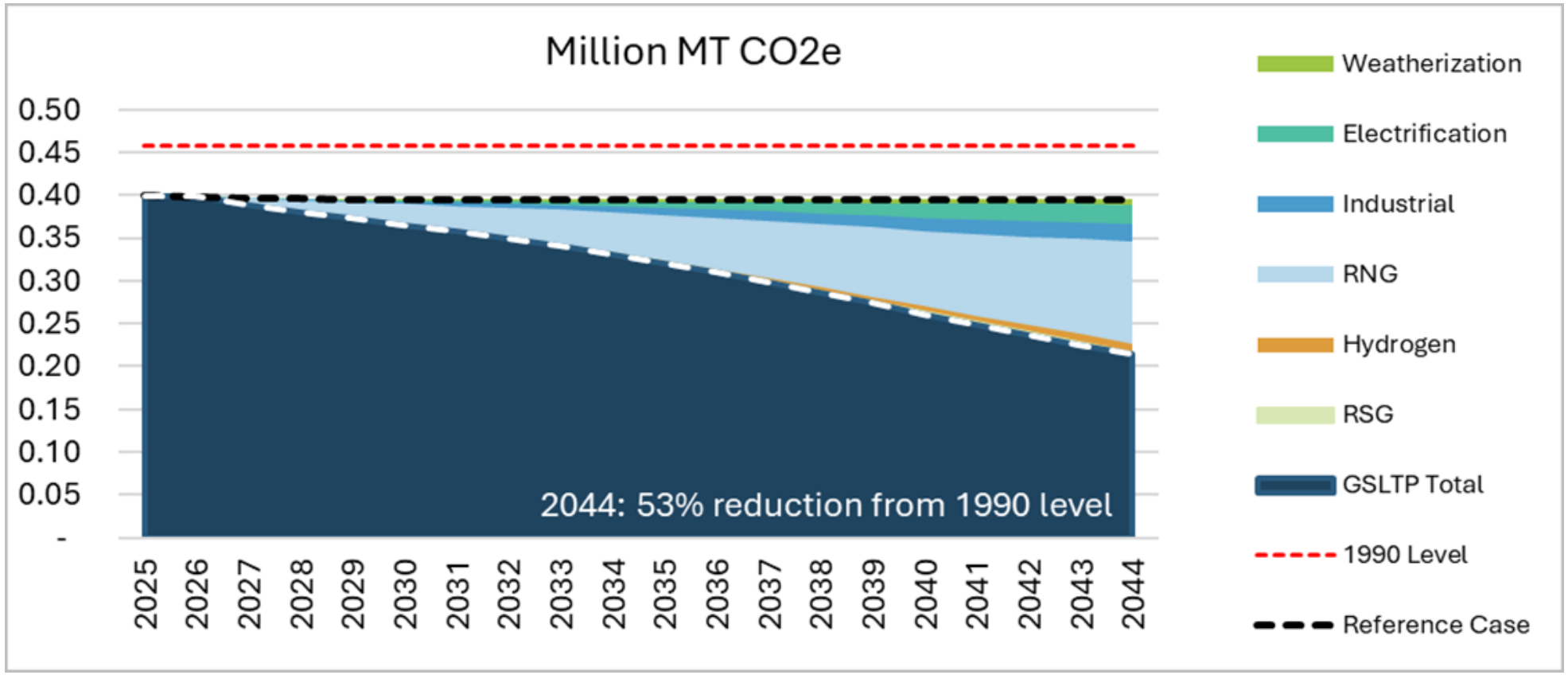
The Company's Preferred GSLTP

	Action	Preferred GSLTP Assumptions
1	**Weatherization**	• **Residential:** Weatherize 1% of homes/year. • **Commercial:** 0.5% incremental heat load reduction/year.
2	**Electrification**	• Residential and Commercial customer segments convert a proportion of customers with furnaces to hybrid heating systems (standard ASHP paired with gas furnace) at or near equipment end-of-life (Boilers: No conversions) • **Residential:** Pace of conversions at appliance end-of-life ramps up at 5.4%/year until it reaches a peak of 75% of failed appliances in a year • **Commercial**: Pace of conversions at appliance end-of-life ramps up at 2.1%/year until it reaches a peak of 30% of failed appliances in a year.
3	**Industrial Customer Programs**	• **Energy Efficiency of Process Load:** 0.5% process load reduction/year • **Electrify Space Heating**: Convert customers with furnaces to hybrid heating systems (standard ASHP paired with gas furnace) at or near equipment end-of-life at a pace that ramps up at 2.1%/year until it reaches a peak of 30% of failed appliances in a year. • **Carbon Capture:** None
4	**UTENs**	None
5	**RNG**	• Add new RNG supplies (including attributes) starting in 2027 linearly to 100% of Optimistic Growth level of RNG by 2044 (from landfill gas, animal manure, and food waste sourced from within NY state). Assume procurement of attributes from existing RNG projects starting in 2027 increasing linearly to 100% of physical RNG in 2044. Assume new RNG supplies with attributes from Pennsylvania starting in 2027.
6	**Hydrogen**	• 2034 start, blend incremental 0.5%/year, increasing to 1.0%/year in 2036 to max supply volume hydrogen blend of 10% by 2044.
7	**RSG**	• 2030 start, incremental substitution displacement of non-RSG imported gas; resulting in 100% replacement of imported gas by 2044 with RSG.

Emissions Reductions

The Preferred GSLTP will contribute to New York's decarbonization goals. It aims for a 53% reduction in GHG emissions from 1990 levels by 2044 at a net present value cost of $195 million ($310/MT CO2e).

Calendar Year, CO_2e Emissions Reductions From 1990 Level



PREFERRED GSLTP DECARBONIZATION ACTIONS AND GHG EMISSION REDUCTION EFFICIENCY

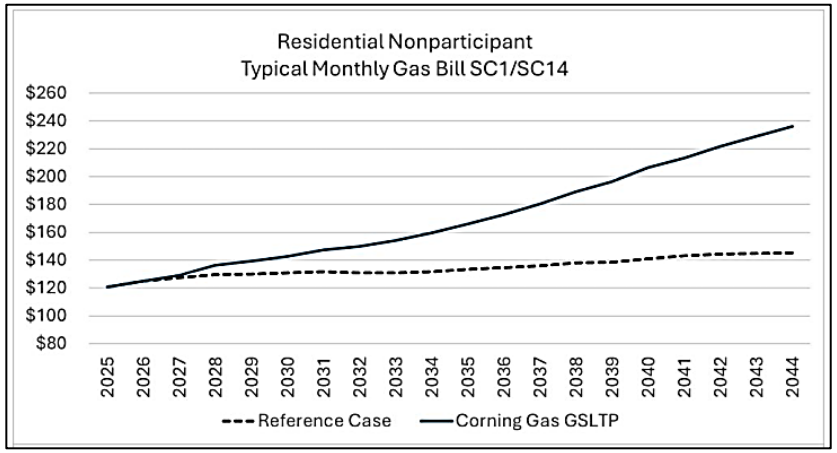
This figure shows the relative cost efficiency, 2044 GHG emissions reduction, and total cost for each decarbonization action in the Preferred GSLTP.

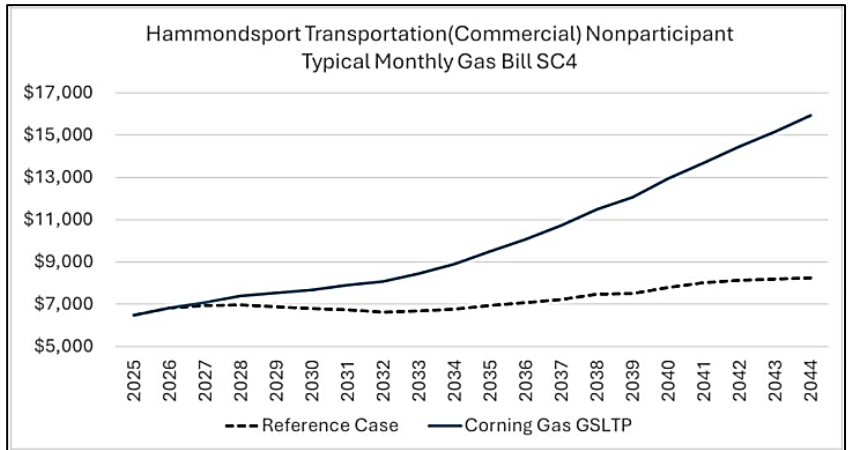
Total incremental costs of Preferred GSLTP are approximately $195 million on NPV basis over the next 20 years. Weighted average cost per GHG emissions reduction is estimated to be $310/MT CO2e

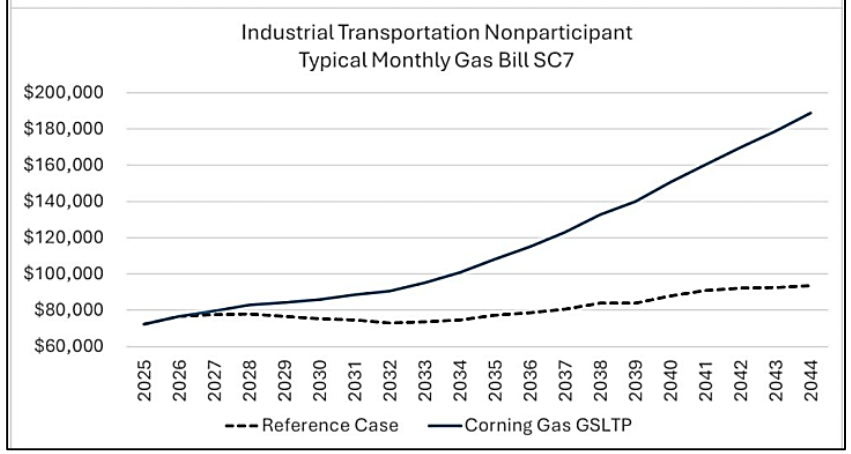
	Corning Gas GSLTP		
	$/MT CO2e	2044 CO2e (000s MT)	Total Cost NPV ($M)
Reference Case	n/a	635	n/a
Weatherization			
Residential	$288	(3)	$2.8
Commercial	$547	(3)	$5.6
Electrification			
Residential	$870	(21)	$50.6
Commercial	$868	(2)	$5.5
Industrial			
Process Energy Efficiency	$323	(16)	$19.4
Space Heating Electrification	$760	(4)	$6.5
RNG			
RNG (within Service Territory)	$217	(108)	$87.7
RNG (outside NY)	$282	(10)	$11.7
Hydrogen Enriched Natural Gas	$226	(11)	$5.0
RSG	$74	(2)	$0.7
Scenario Total	$310	214	
Change from Ref Case	n/a	(181)	$195.3
% Change from Ref Case		-46%	
% Change from 1990 Level		-53%	

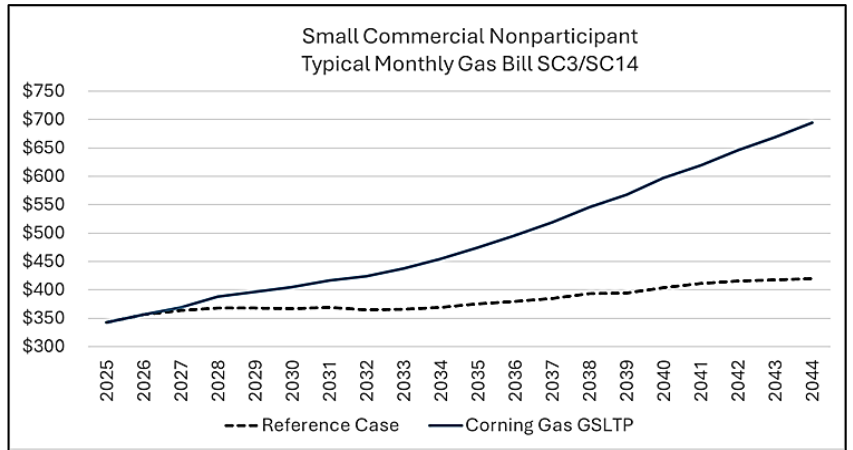
Bill Impacts

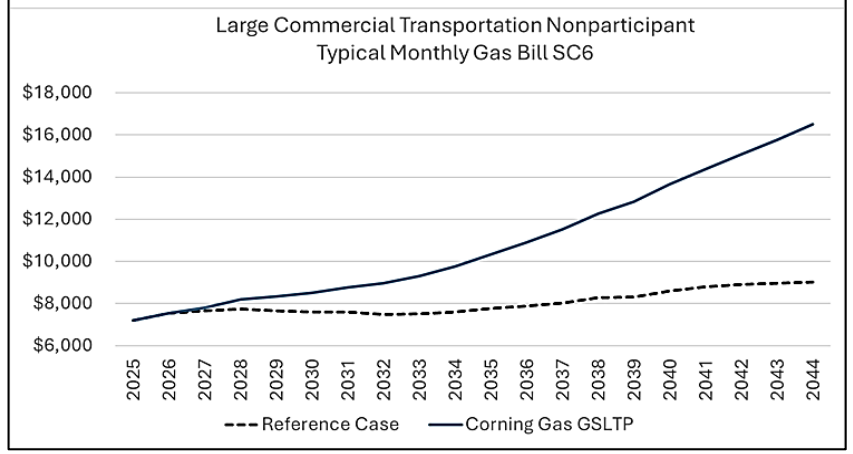
Customer bill impacts are a key elements in the development of the GSLTP. These figures show the bill impacts of customers whose usage would not change through participation in one of the decarbonization action programs described in the GSLTP.











Benefit-Cost Analysis

BENEFIT COST ANALYSIS – NPV ($000)	SCT	UCT	RIM
Benefit: Avoided Gas Costs	$(57,922)	$(57,922)	$(57,922)
Benefit: Avoided Emissions, Societal Cost	$(73,451)	N/A	N/A
Total Benefit ($000)	$(131,373)	$(57,922)	$(57,922)
Cost: Incremental Electricity Cost	$41,917	N/A	N/A
Cost: Weatherization Cost	$9,543	$7,004	$7,004
Weatherization Cost - Federal & State Incentive	$1,598	N/A	N/A
Weatherization Cost – Utility Incentive	$7,004	$7,004	$7,004
Weatherization Cost – Participant Customer	$941	N/A	N/A
Cost: Net Installed Cost	$44,452	$13,848	$13,848
Net Installed Cost - Federal & State Incentive	$15,150	N/A	N/A
Net Installed Cost -Utility Incentive	$13,848	$13,848	$13,848
Net Installed Cost – Participant Customer	$15,454	N/A	N/A
Cost: Hydrogen Cost	$6,254	$6,254	$6,254
Cost: RNG Production Cost	$115,240	$115,240	$115,240
Cost: RSG Cost	$33,433	$33,433	$33,433
Cost: Lost Utility Revenue - Base Distribution	N/A	N/A	$10,264
Cost: Lost Utility Revenue - Pipeline and Storage Fixed Costs	N/A	N/A	$1,357
Cost: Increased Emissions, Societal Cost	$9,950	N/A	N/A
Total Cost ($000)	$260,789	$175,779	$187,400
Benefit/Cost Ratio	**0.50**	**0.33**	**0.31**

Implementation Actions, Conclusions, Questions

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Implementation Actions

Implement Pilots and Related Programs

- Hybrid heating system pilot (residential, commercial and industrial customers)
- Hydrogen blending pilot
- New interconnects to local gas production
- New RNG interconnects
- A pilot program for RSG

Design, Propose and Implement Customer and Supply Programs

- Refinement of gas supply procurement and cost recovery, including RSG, RNG and attributes
- Weatherization programs (all customers)
- Shift gas supply purchases to be locally-sourced
- Additional H2 and RNG on Corning Gas' distribution system

Engagement, Communication and Collaboration

- Stakeholders
  - Local government officials
  - Environmental and conservation organizations
- Residential customers
- Commercial and Industrial customers
- Electric utilities in Corning Gas' service territory

Conclusion

The Preferred GSLTP performs well regarding GHG emissions reductions, reliability, resiliency, and affordability.

Major cost efficiency gains are achieved by focusing the GSLTP on decarbonization actions that are more cost-effective per GHG emissions reduction, including maximizing weatherization, RNG, local production, RSG, and hydrogen, and strategically applying approaches to building electrification, including focusing on hybrid heating, which provides for added reliability and resilience compared to full electrification.

The Future is Not Certain

- Technology may change and/or advance
- Many pathways toward decarbonization
- LTP will need to be re-evaluated and changed for optimal results
- Costs should be an important part of the decision-making process in order to maintain affordable service for customers
- Reliability can't be compromised

Questions?

Thank you!

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