Gas System

Long-Term Plan

CORNING
NATURAL GAS CORPORATION
A Corning Energy Company

CONTENTS

I. EXECUTIVE SUMMARY

A. Corning Gas' Approach and Priorities for Gas System Long-Term Plan

Corning Gas Corporation ("Corning Gas" or the "Company") presents this Gas System Long-Term Plan ("GSLTP") in accordance with the New York Public Service Commission's ("Commission") May 12, 2022, Order Adopting a Gas System Planning Process ("Gas Planning Order").[1] The Gas Planning Order establishes a gas system planning process for gas local distribution companies ("LDCs") in New York and includes, among other things, a requirement for each LDC to file a long-term plan. The Gas Planning Order identifies overall objectives for the gas planning process, including a requirement that gas planning be consistent with the Climate Leadership and Community Protection Act ("CLCPA") and the outline of a robust stakeholder engagement process to inform the development of GSLTPs.[2]

The foremost objective of Corning Gas' approach to this planning process is to ensure the delivery of safe, reliable, and affordable gas service for all customers, while setting forth a GSLTP that aligns with the CLCPA's objectives. Corning Gas looks forward to engaging with stakeholders (customers, environmental and other advocacy groups, legislators, the Commission, and other state agencies) on its GSLTP, which outlines Company-specific strategies and analyses for reducing greenhouse gas ("GHG") emissions, while preserving a viable energy system. This involves evaluating and identifying an appropriate balance between numerous factors.

Given the significant uncertainties associated with decarbonization timing and outcomes, including future policy developments, technology developments, customer behavior, electric infrastructure development, and costs, Corning Gas believes it is appropriate to preserve optionality throughout its GSLTP. Corning Gas commits to supporting its customers and their ability to choose energy options. We understand that customers value the ability to make their own energy choices, such as heating fuel, and that

[1] Order Adopting Gas System Planning Process ("Gas Planning Order") issued on May 12, 2022, in Case No. 20-G-0131.

[2] Gas Planning Order, p. 10.

an optimal approach may be based on preserving choice and raising standards (e.g., equipment efficiency standards[3]).

The development of any long-term plan begins with establishing a clear vision of the desired outcomes for the Company's customers and communities served. The following list outlines Corning Gas' core objectives for its GSLTP and the planning process.

Corning Gas Core Objectives for its GSLTP

- **Safety, reliability, and resiliency for Corning Gas' customers and communities are the core objectives of our corporate principles and are noted throughout this GSLTP.** This priority cannot be compromised.
- **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.** This GSLTP is designed to pursue progress toward supporting CLCPA goals, recognizing the context of facilitating safe and reliable service. While New York's climate laws are laudable, this GSLTP takes on the challenge of balancing the goals of the CLCPA while avoiding unintended consequences regarding costs, safety, and reliability.
- **Corning Gas is focused on affordability for all customers. The Company must remain** affordable for the customers and communities it serves, including an emphasis on low and moderate income ("LMI") customers Disadvantaged Communities ("DACs") and industrial customers. This is done in recognition of the customer demographics and economic drivers of our service territory and aligning appropriately with the goal of preserving the economic base in our communities. Corning Gas' service territory's economic viability is dependent on large industrial manufacturing plants that are sensitive to costs and rely on low-cost natural gas to remain competitive in the global market.
- **Corning Gas will complete its Leak Prone Pipe Replacement Program ("LPP") for the safety of its customers.** The LPP Replacement Program is expected to be complete by 2029, reducing methane leaks to nearly zero.

[3] The Company's Reference Case and Preferred GSLTP assume average furnace and boiler efficiency rates of 80% and conservatively do not capture expected natural efficiency improvements as older furnaces and boilers are gradually replaced with new furnaces and boilers with higher efficiency rates ranging from 94% to 95% or gas heat pumps with efficiency rates as high as 140%.

- **Corning Gas is using its pipe for other uses.** Corning Gas is currently bringing renewable natural gas ("RNG") and responsibly sourced gas ("RSG") into its gas distribution system.
- **Energy Efficiency programs will be initiated by Corning Gas.** The Company will administer and otherwise support energy efficiency and will continue to do so, subject to ongoing regulatory processes.
- **Focus on supply-based decarbonization actions that target "core" residential and small commercial retail customers, for which Corning Gas procures gas supply.** Corning Gas has limited ability, absent legislative mandates or regulatory changes, to modify the gas supply of transportation customers, as these customers procure their own 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.** Corning Gas is an important employer of Steuben County with 65 employees.[4] The Commission has allowed Corning Gas to facilitate an abbreviated GSLTP process, recognizing that as a small utility, Corning Gas is especially sensitive to its customers costs.

B. Corning Gas is unique among New York State gas LDC's

Corning Gas is uniquely positioned in New York State, serving approximately 15,000 gas customers in portions of three counties. Corning Gas is located in South Central New York State on the border of Pennsylvania, where cold winters point to the continued need for reliable natural gas supply as a source of heat. As noted above, more than half of the Company's load is transport-related and therefore, the Company does not have direct control of the gas supply in the jurisdiction.

The Company currently has no peaking supplies, no interruptible customers, and its lost and unaccounted for ("LAUF") gas is almost zero percent. Corning Gas purchases locally produced natural gas, which connects directly to its distribution system, along with local storage. The combination of near zero LAUF, approximately only 13 leaks at the end of 2024, and buying locally produced gas drastically reduces the greenhouse gas emissions associated with delivering gas to our customers.

Relative to supply planning, Corning Gas has no gas supply acquisition constraints now or in the foreseeable future. Additionally, the Company has no plans or needs for

[4] https://www.corninggas.com/files/2023/01/Company_Overview.pdf

additional pipeline capacity. The Company operates in an area of the state where the electric system is projected to experience peak demand in the winter in the near future.[5] Thus, customer movement to electric heat will substantially increase peak electricity requirements. This would inevitably mean that electric customers may incur large price increases as gas customers decarbonize. The current cost to customers of natural gas heat and hot water is significantly lower than the same services provided by electricity. A large-scale conversion to electricity would be financially burdensome to customers in Corning Gas' service territory, especially during the late fall, winter, and early spring, when temperatures are very cold. Within Corning Gas' service territory, the current cost to customers for electric heat and hot water is between two and four-times the cost of gas heat and hot water. A large-scale customer movement to electric heat via non-pipe alternatives ("NPAs") or mandatory electrification programs would only widen this cost differential. In addition, any large-scale customer movement to electric heat could increase the market for natural gas powered standby/backup generators for use during electric black-outs, requiring the need to maintain natural gas transmission and distribution infrastructure.

As a result of Corning Gas' location, the Company is exploring several options to augment gas supplies with RNG and increase reliance on locally produced gas. The addition of RNG and increased locally produced gas will further reduce the Company's carbon footprint and enhance its supply portfolio. The combination of Corning Gas' size, projected winter electric peaking service territory, direct access to an abundant supply of locally produced gas and storage fields, and the elimination of LAUF and/ gas leaks, sets us apart from other New York gas distribution companies. Therefore, in formulating new gas planning procedures, we believe the Commission 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

C. Corning Gas' Environmental Efforts and Progress to Date

In conjunction with state, federal, and local policies and targets, Corning Gas has adopted a reduction of greenhouse gas emission as a primary objective throughout this GSLTP. The Company has explored numerous clean energy programs and initiatives to reduce the GHG emissions and environmental impacts associated with its gas distribution system. Advancements pertaining to its gas system operations include methane reduction through the Company's ongoing LPP replacement program and the selection of supply

[5] 2024 Load & Capacity Data, NYISO Gold Book, projects baseline demand for Zone C will become winter peaking in 2027-2028.

resources, such as RNG, RSG, and locally sourced gas. As an outcome to our most recent finalized rate case, the Company has begun incorporating other ways to reduce emissions as discussed further in Chapter II and Chapter V. Corning Gas plans to include these alternative fuels, along with hydrogen blending, in its proposed GSLTP as viable options to make sustainable reductions in GHG emissions.

Corning Gas is fully supportive of the Northeast Gas Association's interconnect guidelines,[6] which outline the processes RNG suppliers must follow in working with New York LDCs to supply RNG. This interconnect guide considers the most current research across the industry to outline appropriate requirements for RNG developers. As of December 2022, NGA, with the help of multiple utilities, have enhanced the interconnect guidelines to encompass other alternative fuels as well, including hydrogen.

D. Corning Gas GSLTP Modeling

Corning Gas recognizes the importance of engagement with regulators, policy makers, and other stakeholders in the GSLTP process. All analyses in the GSLTP reflect data and assumptions regarding what is feasible considering current technology and costs, including the feasibility of customer adoption, allowing the Company to present realistic, achievable plans that will continue to provide safe, reliable, cost effective, and resilient service for customers. The GSLTP also provides a basis for requesting approval for specific investments and programs, with a particular focus on necessary actions during the next several years. In short, the GSLTP must be technically feasible and provide valid projections of costs, bill impacts, and GHG emission reductions that can inform subsequent utility proposals and decisions. Potential improvements or new challenges related to policy, markets, technology, customer behavior, infrastructure development, and other developments that may evolve over time will be incorporated into future GSLTP filings.

E. High Level Results

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

[6] Northeast Gas Association, Interconnect Guide for Renewable Natural Gas (RNG) in New York State, Final Report, August 2019.

Incremental benefits include decreased emissions per participating customer and decreased emissions per unit of RNG, hydrogen, or RSG.

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.

Hybrid heating is preferred over full electrification because it enhances service reliability, energy resilience, and reduces costs. Full electrification raises concerns about heat reliability during winter outages and requires substantial electric infrastructure investment. Hybrid heating cuts natural gas use, lowers GHG emissions, and reduces electric demand on cold days, keeping costs down and customers safe.

Table I-1 summarizes the specification of the Preferred GSLTP.

TABLE I-1

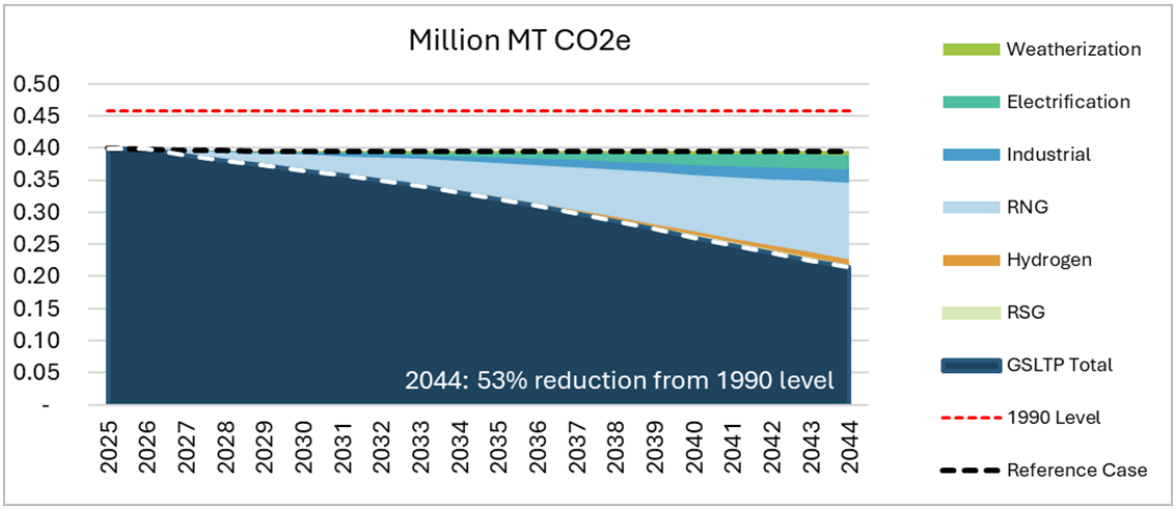
SPECIFICATION OF THE COMPANY'S PREFERRED GSLTP

	ACTION	PREFERRED GSLTP ASSUMPTIONS
1	**Weatherization**	• **Residential:** 1% of homes/year. • **Commercial:** 0.5% incremental heat load reduction/year.
2	**Electrification**	• All 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 the Company's service territory). 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.

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

FIGURE I-1

CALENDAR YEAR, CO2E EMISSION REDUCTIONS FROM 1990 LEVEL



As shown in Figure I-1 above, the Company's Reference Case (black dotted line), projects a 14% decrease in CO2e emissions from 1990 baseline levels (red dotted line) by 2044. Since 1990, Corning Gas' GHG emission reductions have been achieved through improvement in the Company's LAUF to near zero levels through its system replacement program and displacement of long-haul imported gas from the Gulf of Mexico with closer proximity, dryer Marcellus Shale gas, and addition of locally produced RNG and RSG.

Also shown in Figure I-1 above, over 60% of the Company's Preferred GSLTP projected additional decrease in CO2e emissions from the Reference Case by 2044 could be achieved through locally sourced RNG (with environmental attributes) and RSG supply-based decarbonization measures, alone.

More than 40% of the Company's Preferred GSLTP's projected decrease in CO2e emissions from the Reference Case could still be achieved by 2044 assuming a lesser amount of locally sourced RNG with environmental attributes than what is included in the Company's Preferred GSLTP and replacement of imported long-haul gas supply with local supply. For example, if Corning Gas focused only on acquiring new locally sourced RNG with environmental attributes to serve 20% of its approximate two BCF per year of core residential and commercial retail load within its service territory, split 50/50 between farms and landfill gas and replacing imported long-haul gas supply for the remaining 80% of core residential

and commercial retail load with local supply, CO2e emissions associated with core residential and commercial customers would decrease by 65% compared to 1990 levels.

As noted above, the Company's Preferred GSLTP is projected to achieve a 53% reduction in CO2e emissions from 1990 levels by 2044. This estimate encompasses reductions from all of Corning Gas' customers within the Company's service territory (with the exception of NYSEG and BEGWS), including core residential and small commercial retail customers, as well as large industrial manufacturing transport customers who procure their own gas supply. When excluding the two largest industrial manufacturing customers who self-report GHG emissions directly to the EPA and procure their own gas supply, the Preferred GSLTP would result in an 81% reduction in CO2e emissions from 1990 levels by 2044, at a net present value cost of $173 million ($308/MT CO2e).

It is also possible that the projected percent reductions in GHG emissions from 1990 levels presented above are understated for the following two reasons. First, Corning Gas acquired the Finger Lake Gas Company, which served the Village of Hammondsport in 1995, and established a franchise in the town of Virgil in 2009. The Company's estimated 1990 levels of load and GHG emissions have not been adjusted to account for these acquisitions that occurred after 1990. Second, the Company's Reference Case and Preferred GSLTP do not consider the naturally occurring energy efficiency resulting from the gradual replacement of older furnaces and boilers with new appliances for customers who opt for like-in-kind replacement at the time of gas appliance failure, instead of electrification.[7]

The Company's Preferred GSLTP includes both supply-based and demand-based decarbonization measures that aim to reduce GHG emissions across all customer segments. However, based on the Initial GSLTP modeling results and considering Corning Gas' unique attributes – such as its small size, large proportion of industrial load, projected winter electric peaking service territory, and direct access to an abundant supply of locally produced gas and storage fields, it will be most cost-effective and supportive of the local economy for Corning Gas to prioritize supply-based decarbonization measures for core residential and commercial retail load. This includes increasing reliance on locally sourced RNG and replacing imported long-haul gas supplies with local gas supplies.

[7] The Company's Reference Case and Preferred GSLTP assume average furnace and boiler efficiency rates of 80% and conservatively do not capture expected natural efficiency improvements as older furnaces and boilers are gradually replaced with new furnaces and boilers with higher efficiency rates ranging from 94% to 95% or gas heat pumps with efficiency rates as high as 140%.

II. INTRODUCTION

A. CONTEXT FOR GSLTP

This GSLTP represents Corning Gas' commitment to provide safe, reliable, and affordable energy service to its 15,000 customers that delivers sustainable reductions in GHG emissions.

B. POLICY GUIDANCE

The GSLTP is influenced by policy guidance that takes many forms. It includes the CLCPA legislation and the associated compliance proceeding, the Commission's Gas Planning Order, the GSLTP Orders for National Fuel Gas Distribution Corp.'s ("NFG") GSLTP, and Consolidated Edison and Orange and Rockland's ("Con Edison and O&R") GSLTP, the order in the Company's recent 2021 rate proceeding, its current rate proceeding and other ongoing Commission proceedings and directives that address specific elements related to the GSLTP Relevant cases are summarized below:

1. CLCPA Legislation and Compliance Proceeding (Case 22-M-0149)

Under New York Public Service Law, gas and electric utilities have the obligation to provide service that is "safe and adequate and in all respects just and reasonable."[8] In 2019, the CLCPA established New York statewide goals to reduce GHG emissions from a 1990 baseline by 40 percent by 2030 and 85 percent by 2050. The CLCPA codified specific objectives for the electricity sector but did not establish GHG emissions reductions targets for the gas sector or for specific gas LDCs.[9] The Commission has recognized that the CLCPA "contains no mandates or guidelines directly related to emissions associated with the State's gas distribution system or gas supplied by utilities."[10] The Gas Planning Order also declined to establish specific GHG emissions reductions goals for the gas sector or individual LDCs, stating that, "the CLCPA does not impose specific requirements on the State's gas distribution system," and instead indicated that, "planning must be conducted in a manner consistent with the recently enacted Climate Leadership and Community Protection Act (CLCPA)..."[11]. Moreover, the Gas Planning Order clarified that requests to

[8] New York Public Service Law – PBS §65.1.

[9] CLCPA § 66-p (2), p. 17.

[10] Case 22-M-0149, in the Matter of Assessing Implementation of and Compliance with the Requirements and Targets of the Climate Leadership and Community Protection Act ("CLCPA Compliance Proceeding"), Implementation of the Climate Leadership and Community Protection Act (issued May 12, 2022), p. 23.

[11] Gas Planning Order, p. 4.

establish "clear goals for gas reduction" were beyond the scope that had been established in the Order Initiating Proceeding.[12]

The CLCPA also established the Climate Action Council ("CAC"), which was tasked with developing a scoping plan to outline recommendations on regulatory measures and other state actions to ensure attainment of the statewide CLCPA goals.[13] The CAC adopted the final scoping plan on December 19, 2022 ("Final Scoping Plan").[14] While the Final Scoping Plan provides economy-wide and sector-specific recommendations, its recommendations are not legally binding. Further, the recommendations require subsequent actions by state and local organizations and governments, including the New York State Legislature, before they can be implemented.[15] The Final Scoping Plan also recognized the challenges and need to balance multiple priorities as part of natural gas decarbonization efforts and recommends a well-planned and strategic transition of the gas system. The Final Scoping Plan notes that this transition will require integrated planning to coordinate with the buildout of the electric generation, transmission, and distribution systems to meet increases in electricity demand, while ensuring the transition is equitable and cost-effective for workers and consumers without compromising reliability, safety, energy affordability, and resiliency.[16]

The Final Scoping Plan also recommends establishing a Cap-and-Invest program that will set an annual limit on the amount of greenhouse gas emission emitted in New York. In December 2023, the New York Department of Environmental Conservation ("DEC") and New York State Energy Research Development Authority ("NYSERDA") issued a Pre-Proposal Outline detailing initial program leanings for stakeholder feedback. In January of 2024, DEC and NYSERDA published preliminary scenario analyses for pre-proposal consideration and to support program development and associated rulemakings. Currently, the program is in the "Assess Input and Develop Proposal" stage. DEC and NYSERDA have hosted outreach sessions to inform stakeholders and allow for public feedback. In the January 2025 State of the State, Governor Hochul, "shifted the timeline for the release of the primary regulations

[12] Gas Planning Order, p. 18.

[13] CLCPA § 75-0103 (13), p. 9.

[14] Available at: https://climate.ny.gov/-/media/project/climate/files/NYS-Climate-Action-Council-Final-Scoping-Plan-2022.pdf .

[15] See pages 21-22 of the Final Scoping Plan for a description of some of the activities required to implement its recommendations.

[16] New York State Climate Action Council, "New York State Climate Action Council Scoping Plan," December 2022, Chapter 18. Gas System Transition, p. 350.

under New York's Cap-and-Invest program."[17] To date, no formal proposal has been issued, and it is impossible to determine if, how, and when a Cap-and-Invest program might be implemented in New York.[18]

The CLCPA also requires state agencies to take actions to ensure that: (1) at least 35% of benefits from energy program spending (e.g., energy efficiency and electrification) be directed to disadvantaged communities ("DACs") with a goal of 40% and (2) their decisions will not "disproportionately burden disadvantaged communities."[19] The Commission noted that LDCs should provide necessary information to assess the potential benefits and burdens of their long-term plans on DACs.[20]

On May 12, 2022, the Commission initiated a proceeding (Case 22-M-0149) to measure and track compliance with and development of the provisions of the CLCPA across all jurisdictional utilities (including electric and gas) and established several key workstreams including one to develop an annual GHG Emissions Inventory Report related to gas operations.[21] In December 2022 and supplemented in May 2023, the Joint Utilities', including Corning Gas, filed initial proposals for Annual GHG Emissions Inventory filings and guidance on emission inventory reporting, including annual reporting of attributable emissions, avoided emissions, upstream emissions, and end-user combustion related to the natural gas distribution system.[22] The Company has continued to monitor the developments this workstream and have incorporated these insights into the GHG emissions accounting methodology used in this GSLTP.

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[17] Environmental Defense Fund, "Governor Hochul Delays Cap-and-Invest Program, Withholding Billions in Benefits as Climate Targets Slip Further Out of Reach," January 14, 2025. (https://www.edf.org/media/governor-hochul-delays-cap-and-invest-program-withholding-billions-benefits-climate-targets)

[18] Given that a Cap-and-Invest program has not been approved, it is premature to quantitively assess the impact of this initiative on Corning Gas. The Company will continue to monitor the developments associated with Cap-and-Invest and provide relevant updates in future LTP filings.

[19] CLCPA § 75-0117 Investment of funds, p. 16; CLCPA §7 Climate change actions by state agencies, p. 19.

[20] Gas Planning Order, p. 39-40.

[21] Case 22-M-0149, In the Matter of Assessing Implementation of and Compliance with the Requirements and Targets of the Climate Leadership and Community Protection Act, Order on Implementation of the Climate Leadership and Community Protection Act, pp. 47-49.

[22] Case 22-M-0149, In the Matter of Assessing Implementation of and Compliance with the Requirements and Targets of the Climate Leadership and Community Protection Act, Joint Utilities' Supplement to Proposal for an Annual Greenhouse Gas Emissions Inventory Report, pp. 1-2.

2. *Gas Planning Proceeding (Case 20-G-0131), NFG GSLTP Order (Case 22-G-0610), Con Edison & O&R GSLTP Order (Case 23-G-0147), and NFG Rate Case Order (Case 23-G-0627)*

The Commission initiated a Gas Planning Proceeding on March 19, 2020 in response to multiple utilities having moratoria on connecting new customers due to gas system constraints. As discussed above, the Commission issued the Gas Planning Order on May 12, 2022, which establishes a gas system planning process for gas LDCs in New York and requires each LDC to file a gas system long-term plan. The purpose of the gas system long-term plans is to ensure that residents of New York can continue to have their energy needs met in the long-term, and the Gas Planning Order directs that the Commission, Staff, and stakeholders should have the information necessary to appropriately evaluate the potential GHG emissions of gas utility long-term plans and alternatives.[23] The process established in the Gas Planning Order requires each LDC to file a 20-year long-term plan every three years plus annual updates in the interim years. The three-year cycle is designed to provide for future comprehensive updates to reflect new information and insights that inform the long-term plan. Therefore, while the Company's GSLTP necessarily incorporates a 20-year forecast of many data inputs and assumptions, the focus should be on whether the Company's three-year action plan is reasonable given current facts and circumstances. The Gas Planning Order also addresses the methodology to be applied when performing a benefit-cost analysis ("BCA").[24]

On December 14, 2023, the Commission issued an order addressing the first gas long-term plan filed pursuant to the Gas Planning Order, which was filed by NFG.[25] While the order focuses on the specific circumstances facing NFG, the NFG GSLTP Order bears some relevance on filings of other LDCs, including the Company's Initial GSLTP. Notably, the Commission reaffirmed overriding policy objectives by stating: "[t]he Commission recognizes that progress toward decarbonization will take time and must be done with care to ensure that customers continue to have access to safe, adequate, and reliable gas service as allowed under the State's laws."[26] The Commission also reaffirmed its standard of "consistency with CLCPA" for GSLTPs rather than requiring a specific level of GHG emissions

[23] Gas Planning Order, p. 47.

[24] The Commission directs LDCs to apply the methodology established in the BCA Framework Order, Case 14-M-0101, Reforming the Energy Vision, Order Establishing the Benefit Cost Analysis Framework (issued January 21, 2016).

[25] Case 22-G-0610, In the Matter of a Review of the Long-Term Gas System Plan of National Fuel Gas Distribution Corporation ("NFG LTP Proceeding"), Order Implementing Long-Term Gas Plan with Modifications (issued December 14, 2023) ("NFG LTP Order").

[26] NFG LTP Order, p. 24-25.

reductions in the NFG GSLTP Order.[27] Moreover, among other things, the Commission indicated a desire to have long-term gas plans address reliability, provide bill impacts for various service classifications, incorporate RNG and hydrogen, include a no-infrastructure scenario, address demand response and energy efficiency, incorporate NPAs, and provide results for the Rate Impact Measure ("RIM") and Utility Cost Test ("UCT") tests.[28]

On September 20, 2024, the Commission issued an order addressing Con Edison and O&R's long-term plan.[29] Similar to the NFG GSLTP Order, the Con Edison and O&R Order and its directives bear relevance to filings from other LDCs, including Corning Gas' GSLTP. In this Order the Commission provides clarification on several key issues specific to the Company's proposed decarbonization actions. Regarding the use of RNG, the Commission restates the position taken in the Gas Planning Order noting, "RNG remains a developing issue, and it should remain in consideration for planning purposes."[30] The Commission further recognized that "customers may pursue partial electrification" and that "customers are also installing air source heat pumps to supplement existing fossil fuel space heating equipment, instead of removing the fossil fuel equipment."[31]

The Commission provides further guidance on developing issues such as RNG, RSG, and hydrogen in NFG's recent rate proceeding.[32] The Commission approved NRG's Joint Proposal, with minor modifications, which include provisions for the Company to solicit purchases of RNG[33], implement a pilot program for the purchase of RSG, and develop hydrogen demonstration projects.[34] The Commission emphasizes that, "utility driven demonstration projects can provide real value to ratepayers."[35]

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[27] NFG LTP Order, p. 59.

[28] NFG LTP Order.

[29] Case 23-G-0147, In the Matter of a Review of the Long-Term Gas System Plan of Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. ("ConEd and O&R LTP Proceeding"), Order Regarding Long-Term Natural Gas Plan and Requiring Further Action (issued September 20, 2024) ("ConEd and O&R Order").

[30] ConEd and O&R Order, p. 39.

[31] ConEd and O&R Order, p. 52.

[32] Case 23-G-0627 Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of National Fuel Gas Distribution Corporation for Gas Service, Order Adopting Terms of Joint Proposal and Establishing Gas Rate Plan with Minor Modifications ("NFG Rate Case Order").

[33] Provided that any such purchases of RNG are priced equal to or less than the weighted average cost of gas in NFG's existing portfolio, NFG Rate Case Order, p. 92.

[34] NFG Rate Case Order, pp. 92-95 and 104.

[35] NFG Rate Case Order, p. 104.

3. *Joint Petition to Modify and Streamline the Process for Upcoming Long-Term Gas Plans and Order on Joint Petition (Case 20-G-0131)*

On May 17, 2024, Corning Gas along with St. Lawrence Gas filed a Joint Petition to Modify and Streamline the Process for Upcoming Long-Term Gas Plans.[36] The Commission issued an Order regarding the Joint Petition on October 17, 2024.[37] In the Order, the Commission recognizes there are significant differences between gas utilities that serve a smaller customer population, re-emphasizes the importance of customer access to clean energy solutions, and provides directives regarding Corning Gas' and St. Lawrence Gas' GSLTPs including: Requiring the companies to file only an initial and final GSLTP, and eliminating the revised GSLTP that would have been filed between the initial and final versions as required in the Gas Planning Order. The Order also noted the following:

- Exempting the companies from including a no-infrastructure scenario and only requiring two scenarios: the reference case and preferred GSLTP.
- Allowing the companies to rely on some information from larger utilities if data for their specific service area is not available.
- Requiring the companies to contract with an independent consultant to review their GSLTP filings
- Reducing the "annual" report requirements to only one filing during the GSLTP 3-year iteration cycle.[38]

4. *Corning Gas 2021 Rate Case (Case 21-G-0394)*

Corning Gas filed a petition for a rate increase in July of 2021. This proceeding was later settled and approved by the Commission in June of 2022.[39] The rate case outcomes associated with this proceeding have an impact on several areas of the Company's business, including the Company's revenue requirement, capital

[36] Docket No. 20-G-0131, Proceeding on Motion of the Commission in Regard to Gas Planning Procedures, Joint Petition to Modify and Streamline LTP ("Joint Petition"), filed May 17, 2024.

[37] Docket No. 20-G-0131, Proceeding on Motion of the Commission in Regard to Gas Planning Procedures, Joint Order on Joint Petition Regarding the Process for Upcoming Long-Term Gas Plans ("Streamlined Order"), filed October 17, 2024.

[38] Streamlined Order.

[39] Cases 21-G-0394 and 21-G-0260, Proceeding on the Motion of the Commission as to the Rates, Charges, Rules, and Regulations of Corning Natural Gas Corporation for Gas Service and Joint Petition of Corning Natural Gas Holding Corporation, Corning Natural Gas Corporation, ACP Crotona Corp. and ACP Crotona Merger Sub Corp. for Approval, Pursuant to Section 70 of the New York Public Service Law, of the Merger of ACP Crotona Merger Sub Corp. into Corning Natural Gas Holding Corporation with Corning Natural Gas Holding Corporation as the Surviving Corporation and Wholly-Owned Subsidiary of ACP Crotona Corp.,, Order Adopting Terms of Joint Proposal Establishing Rate Plan and Approving Merger ("Settlement Order"), filed June 16, 2022.

expenditures, depreciation, cost of capital, and safety and reliability.[40] The rate case settlement includes several elements that are particularly relevant to the GSLTP. This includes the development of a Strategic Plan for Decarbonization which will include actions such as exploring the use of low carbon alternatives, like RNG, the development of a gas demand response program that provides inquiring customers with contact information for energy efficiency programs of the customer's electric utility, and working with customers in an effort to reduce their reliance on natural gas.[41] The Settlement also provides guidance regarding the implementation of Non-Pipe Alternatives. Specifically, it outlines that Corning Gas should consider alternatives to any proposed line extension exceeding 500 feet.[42] Elements of this rate proceeding and its outcome have been incorporated into the GSLTP in several ways including in the development of the preferred GSLTP, as well as in the development of the GSLTP supporting components like bill impacts, depreciation, and cost of capital.

5. *Corning Gas Current Rate Case (Case 24-G-0447)*

   In July of 2024, Corning Gas announced a proposed gas revenue increase of approximately $11.4 million for the rate year ending June 30, 2026.[43] Corning gas has included proposals in this case that could impact the GSLTP in important ways. This includes a proposal for accelerated depreciation in alignment with CLCPA targets[44], proposed leak prone pipe replacement schedules[45], and updates on the Company's efforts regarding the exploration of low carbon alternatives, such as RNG.[46] Due to the ongoing nature of this proceeding, the Company will continue to monitor and

[40] The programs included in the Company's Preferred GSLTP, as outlined in this report, have not been included in the ongoing rate proceeding. Implementation details (including funding) associated with the programs included the Preferred GSLTP will need separate regulatory approval in future rate cases or other relevant proceedings.

[41] Settlement Order, Appendix U, pp.1-2.

[42] Settlement Order, Appendix U, p. 1.

[43] Case 24-G-0447, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Corning Natural Gas Corporation for Gas Service ("Corning Gas Pending Rate Case"). Revised revenue increase cited in Corning Gas Pending Rate Case, Accounting Panel Cost of Service Rebuttal Exhibits, Exhibit_ AP-1R Schedule J.

[44] Corning Gas Pending Rate Case, Direct Testimony of Paul Normand, pp. 13-16.

[45] Corning Gas Pending Rate Case, Direct Testimony of Gas Infrastructure and Operations Panel, pp. 4-6.

[46] Corning Gas Pending Rate Case, Direct Testimony of Gas Supply Panel, pp. 5-6.

provide updates regarding the outcomes that are relevant to the GSLTP as they become available.

6. *Other Commission Proceedings*

Discussed below are several other ongoing Commission proceedings that address topics that are relevant to specific areas of the Company's GSLTP:

Energy Efficiency and Building Electrification (Case 18-M-0084): Initiated in February 2018, this proceeding addresses issues related to energy efficiency targets and policy.[47] Most recently, on July 20, 2023, the Commission issued an Order Directing Energy Efficiency and Building Electrification ("EE/BE") Proposals.[48] The EE/BE Order requires NYSERDA and select Utilities to submit budget bounded EE/BE portfolio proposals for 2026 through 2030.[49] Corning Gas does not participate in this proceeding due to its small size. As detailed in the Order Adopting Accelerated Energy Efficiency Targets, these directives "specifically appl[y] to the large jurisdictional investor-owned utilities."[50] As a result, Corning Gas does not have an EE/BE budget or energy savings target as directed in this proceeding.

Utility Thermal Energy Networks (Case 22-M-0429): On September 15, 2022, the Commission issued an Order requiring New York's largest gas utilities to submit utility thermal energy network ("UTEN") pilot project proposals for Commission review, and to comply with the requirements of the 2022 Utility Thermal Energy Network and Jobs Act ("UTENJA").[51] The UTENJA Order is intended to advance broader and more scalable approaches to building electrification including active engagement of regulated utilities, and to ultimately inform the Commission's rulemaking decisions with respect to utility-owned thermal energy networks. Corning Gas is not required to participate in this docket due to its small size, and as a result has not explored opportunities to develop UTEN projects at this time.

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[47] Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Notice of New Case Number and Announcing Stakeholder Forums, p.1.

[48] Case 14-M-0094, Proceeding on Motion of the Commission to Consider a Clean Energy Fund and Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiatives, Order Directing Energy Efficiency and Building Electrification Proposals ("EE/BE Order"), July 20, 2023.

[49] EE/BE Order pp. 92-94.

[50] Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative, Order Adopting Accelerated Energy Efficiency Targets, p. 3.

[51] Case 22-M-0429, Proceeding on Motion of the Commission to Implement the Requirements of the Utility Thermal Energy Network and Jobs Act, Order on Developing Thermal Energy Networks Pursuant to the Utility Thermal Energy Network and Jobs Act, ("UTENJA Order") (issued and effective September 15, 2022).

C. Regulatory & Stakeholder Engagement

The Gas Planning Order provides for a robust stakeholder engagement process to inform the development of LDC long-term plans. Corning Gas is committed to undergoing detailed analysis and sharing information and results with stakeholders as part of this GSLTP process and consistent with the Gas Planning Order. Below are key filings in this process and their approximate dates:[52]

- GSLTP Filing: January 31, 2025
- Preliminary Consultant Report Filing: April 9, 2025
- Final Corning Gas Report Filing: End of June 2025
- Final Consultant Filing: August 7, 2025
- Corning Gas Final Report Comments: September 22, 2025

The process established in the Gas Planning Order begins a continuing cycle with each LDC filing a long-term plan every three years. The three-year cycle is designed to provide for future comprehensive updates that reflect new information and insights that inform the long-term plans.

D. Content of GSLTP and Appendices

This GSLTP is comprised of six major sections. Following the Executive Summary (I.) and this Introduction (II.), the remaining sections are: III. Corning Gas' Service Territory and Customers, IV. Reference Case; V. GSLTP Methodology and Results; VI. Conclusions and Implementation Actions.

The Executive Summary provides an overview of the Company's GSLTP and a summary of the results. This Introduction includes a discussion of policy guidance, and key requirements established by the Gas Planning Order. Chapter III describes the characteristics of Corning Gas' service territory that influence the GSLTP. Chapter IV presents the Reference Case forecast. Chapter V explains the methodology that Corning Gas employs to developing its GSLTP, the results of the quantitative analysis and a description of the decarbonization actions that comprise the GSLTP. Finally, Chapter VI presents the Company's Conclusions and implementation actions.

In addition, Corning Gas' GSLTP includes the following appendices

[52] Filing dates are subject to change and are not guaranteed to be exact.

- Appendix A – Modeling of Decarbonization Actions
- Appendix B – Energy Prices
- Appendix C – Benefit-Cost Analysis Methodology
- Appendix D – GSLTP Modeling Outputs
- Appendix E – Reference Case Documentation

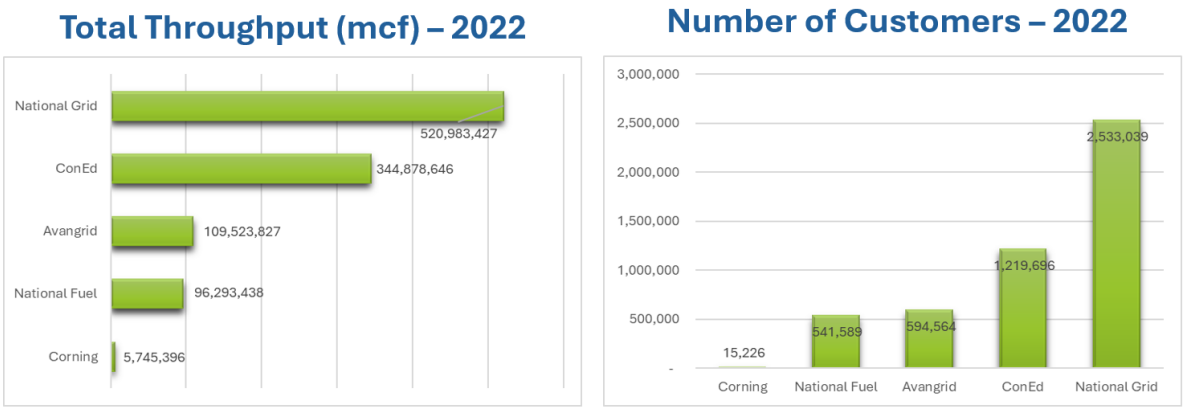
III. CORNING GAS SERVICE TERRITORY AND CUSTOMERS

A. About Corning Gas

Corning Gas is a privately-owned natural gas utility headquartered in Corning, New York. The utility was originally incorporated in 1904 as Crystal City Gas Company. Corning Gas is distinctive in that it is a small utility compared to most others in the state, serving a little over 15,000 customers in portions of 3 counties. In contrast, other major gas utilities in New York have between 590,000 customers (Avangrid), up to 2.5 million customers (National Grid). Because of its size, Corning Gas has been exempted from other natural gas mandates in the state. For example, the utility was excluded from implementing the Comprehensive Energy Efficiency Initiative in Case 18-M-0084, as the order applied only to large investor-owned utilities. Given this distinguishing feature, the Company must be viewed with a unique perspective for its GSLTP as it moves toward New York State's climate and pollution reduction goals. Figure III-1 presents the differences between the number of customers and throughput for Corning Gas and other large utilities in New York State.

Figure III-1

New York Gas Utility Customers and Annual Throughput[53]



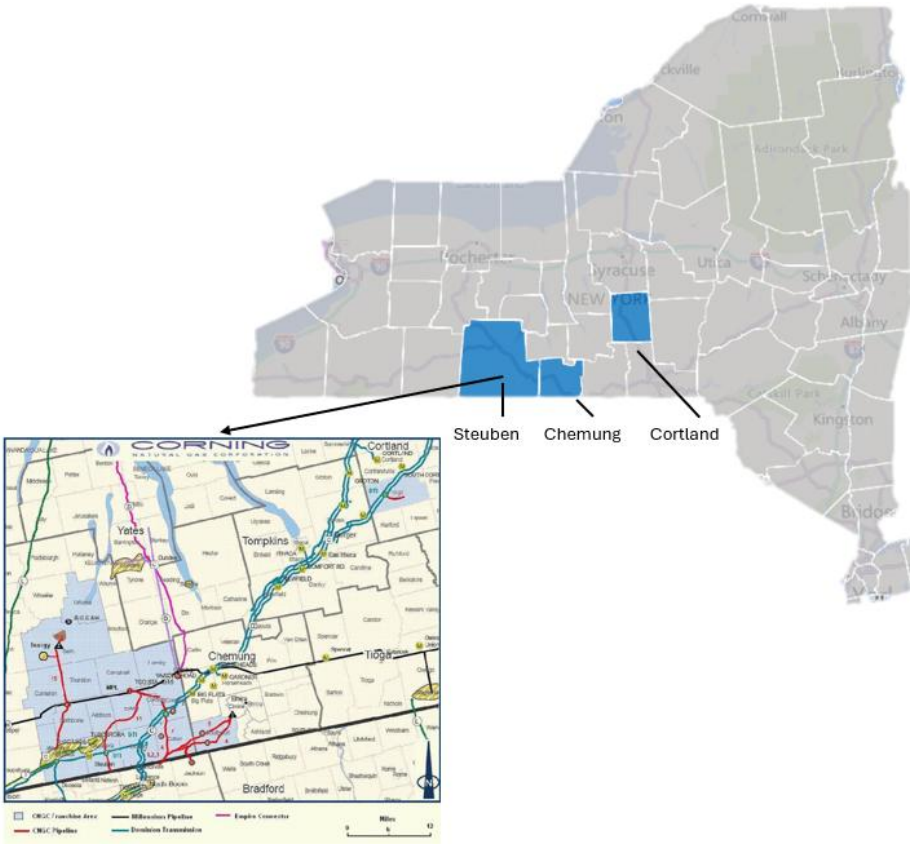
B. Natural Gas Service Areas

Corning Gas is in South Central New York State on the border of Pennsylvania. It serves customers in portions of Steuben, Cortland and Chemung counties. The Company owns 431 miles of gas transport and distribution pipeline. Their service area is shown in the figure below.

[53] U.S. Energy Information Administration - EIA - Independent Statistics and Analysis

FIGURE III-2

CORNING GAS SERVICE AREA



C. CLIMATE CONDITIONS

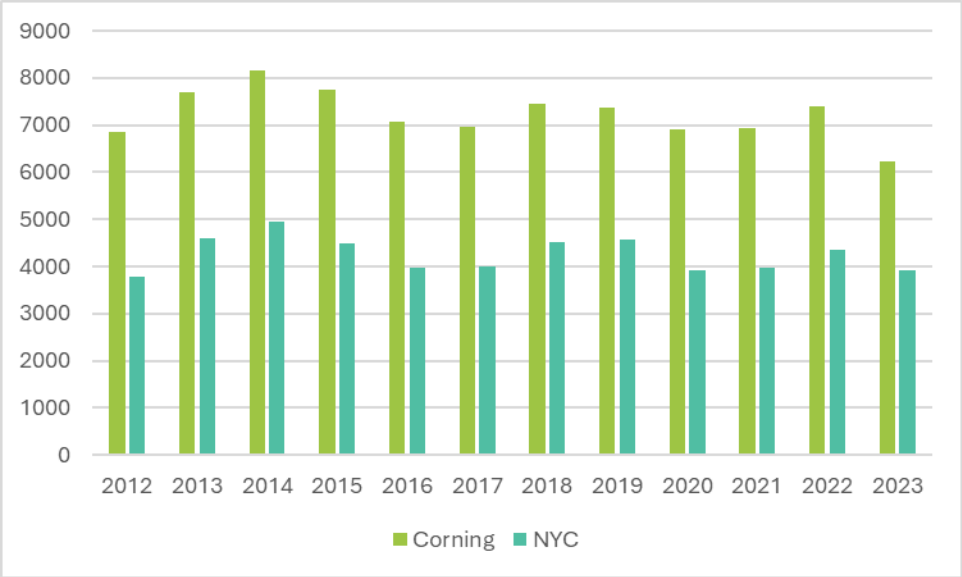
In Corning Gas' territory, the temperatures in the summer are cooler than other areas of the U.S., with an average overnight low of 52°F and daily high of 76°F. Winters tend to be cold with significant snowfall, an average low of 14°F and high of 31°F.[54] The climate is colder than the average statewide temperature for New York, and significantly colder than New York City. Over 2019-2023, Corning Gas averaged 6,970 heating degree days ("HDDs") per year, while New York City averaged 4,148 HDDs per year.[55] The cold winters point to the continued need for reliable natural gas supply as a source of heat. Figure III-3 compares the annual number of HDDs in the City of Corning versus New York City.

[54] https://www.usclimatedata.com/climate/corning/new-york/united-states/usny2896

[55] https://www.nyserda.ny.gov/About/Publications/Energy-Analysis-Reports-and-Studies/Weather-Data/Monthly-Cooling-and-Heating-Degree-Day-Data

FIGURE III-3

ANNUAL HDDS – CORNING VS NEW YORK CITY



D. CUSTOMERS AND DEMAND

Corning Gas' customer base includes both retail and transport customers. Most of the customer base is residential customers. Only 7.5% of the customer base is commercial, and industrial customers make up less than 1%.

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**	

The 12 industrial customers account for the largest portion of the load, at 62.8%. Corning Gas is the only utility in New York where industrial gas accounts for over 50% of its total throughput. This is due to the large size of the manufacturing industry in the area. The residential customer class comprises 23.9% of the total yearly demand, and commercial customers make up another 13.3%.

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**	

Industrial companies will likely be given special consideration in subsequent climate policies, because sudden or large increases in their operational costs could result in industrial companies relocating outside of New York State. The CLCPA acknowledged that manufacturing industries face unique challenges in reducing their GHG emissions by establishing the Energy-Intensive and Trade-Exposed ("EITE") Industries Advisory Panel. This panel was created to provide recommendations on strategies to reduce GHG emissions from industries that are both highly energy-intensive in their production processes and significantly exposed to international market competition. While no specific strategies have been mandated yet, the EITE Industries Advisory Panel, as noted in the CAC Final Scoping Plan, has recommended the need to avoid "placing unattainable compliance burdens on the industrial sector in ways that simply drive emissions."[56] EITEs will likely be given special consideration, because sudden or large increases in their operational costs could result in industrial companies relocating outside of New York State, resulting in loss of local jobs and "leakage", a phenomenon where a climate policy aimed at reducing emissions in one region unintentionally causes those emissions to shift to another region with less stringent regulations, as people will continue to purchase the same goods from out-of-state or foreign companies. The CLCPA, by establishing the EITE Industries Advisory Panel, acknowledges the risks of global competition to Energy-Intensive and Trade-Exposed manufacturing companies and the need to mitigate leakage.

Given that Corning Gas has limited ability, absent legislative mandates or regulatory changes, to modify the gas supply of its twelve large industrial customers that procure their own gas supply and that industrial companies will likely be given special consideration as EITE entities in subsequent climate policies, the Company's Preferred GSLTP prioritizes

[56] Climate Action Council Final Scoping Plan, Appendix E: Just Transition Working Group Recommendations to the Council on Issues and Opportunities Related to the Energy-Intensive and Trade-Exposed Entities, p. E-3.

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

E. Economic Conditions

Corning Gas' service territory and the surrounding area of Steuben, Chemung and Cortland counties have a population of approximately 250,000 people.[57] Manufacturing, education and health care are the largest employment sectors in the area.[58] The economy has been declining for the last two decades, with jobs decreasing by 5.2% from 2019 to 2023. Corning Gas' service territory is in a unique area, where the local economy is primarily dependent on manufacturing. Natural gas load from Corning Gas' industrial manufacturing customers has increased since 1990, despite the number of manufacturing jobs in Steuben, Chemung and Cortland counties declining by 50% since 1990 and more recently 10% since 2013.

The population of the area has also been decreasing steadily, declining 7.2% from 2013 to 2023.[59] The median income in the Company's service territory is below the state average, with $61,017 for the City of Corning and $64,740 for Steuben County. The median income in New York State is $81,400,[60] which is $17,000 higher than those in the communities served by Corning Gas.

F. Disadvantaged Communities and LMI Customers

The CLCPA requires state agencies to take actions to ensure that: (1) at least 35% of benefits from energy program spending (e.g., energy efficiency and electrification) be directed to DACs with a goal of 40% and (2) their decisions will not "disproportionately burden disadvantaged communities".[61] The Climate Action Council established a Climate Justice Working Group tasked with developing a set of criteria to define DACs. These criteria include socioeconomic, environmental, public health and other considerations, identifying specific metrics that guide the determination of DACs.[62] NYSERDA applied the criteria to

[57] United States Census Bureau, Steuben, Chemung and Cortland Counties, 2023.

[58] https://www.census.gov/programs-surveys/acs/

[59] https://www.newyorkfed.org/regional-economy/profiles/elmira

[60] U.S. Census Bureau QuickFacts: Corning city, New York; New York

[61] CLCPA § 75-0117 Investment of funds, p. 16; CLCPA §7 Climate change actions by state agencies, p. 19.

[62] "NYSERDA Low-to-Moderate-Income Market Characterization Study Special Topic Report – Income Status for LMI Households", 2016, P. 3.

identify DACs at the census tract level.[63] Corning Gas has approximately 400 customers living in DACs in its service territory, which represents 2.7% of the Company's total customer base.

FIGURE III-4

DISADVANTAGED COMMUNITIES

The Company has also Low- and Moderate-Income ("LMI") customers that do not reside within DACs. NYSERDA defines LMI as earning less than 80% of the area median income and 80% of state median income.[64] 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 based on many factors. There is a base credit of $13.25 per month for all enrolled customers, and additional benefits for up to $23.50 per month for elderly or disabled residents, young children in the home, or a lower income threshold.

[63] New York State Climate Justice Working Group Finalizes Disadvantaged Communities Criteria to Advance Climate Justice, New York Department of Environmental Conservation, Press Release, March 27, 2023.

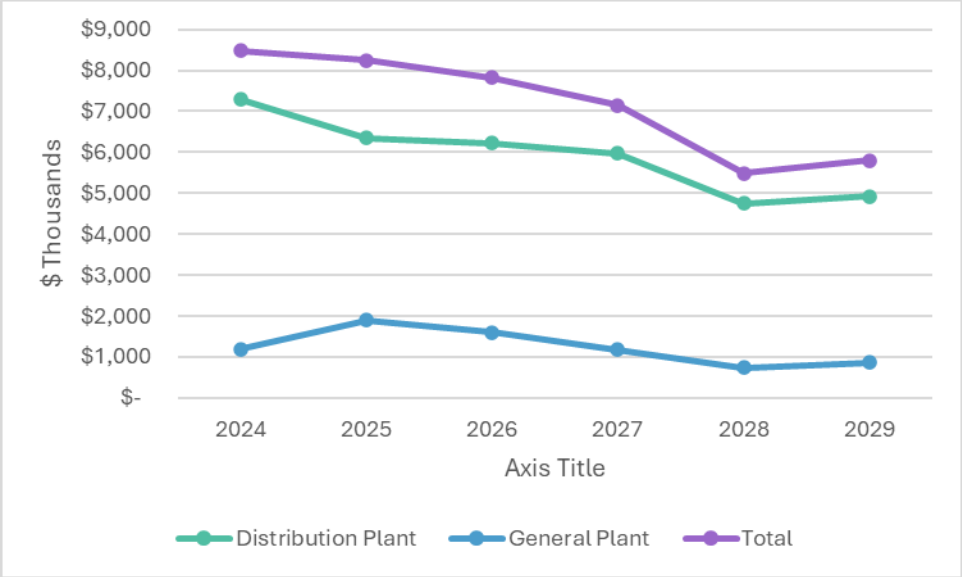
[64] NYSERDA "Low-to-Moderate-Income Market Characterization Study Special Topic Report- Income Status for LMI Households", 2016, p. 3.

G. Capital Investment Plan

The Company filed a rate case in July 2024 outlining upcoming capital investment projects. Nearly 60% of all capital spending in the 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. Figure III-5 shows the forecasted capital expenditures in the recently-filed rate case through 2029, the last applicable year in the case.

Figure III-5

Capital Expenditures Forecast



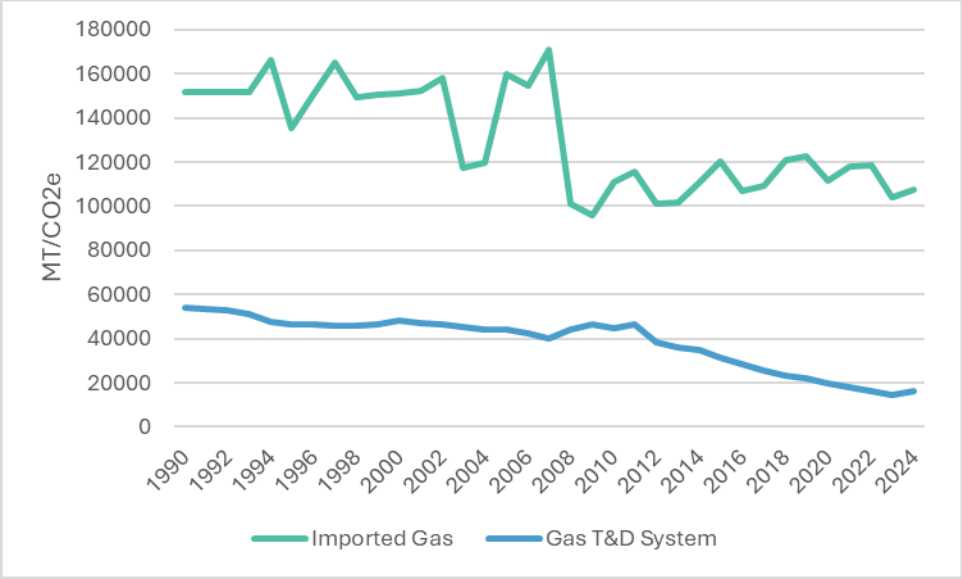
H. Energy Efficiency and Emissions Reductions

The small size of Corning Gas discerns the services and programs that the Company can offer to its customers. As described above, the utility was excluded from implementing the Comprehensive Energy Efficiency Initiative in Case 18-M-0084 due to its size. The LPP program is a large portion of the capital spend in the pending rate case, signifying the commitment to reducing GHG emissions by eliminating methane leaks from the Company's

pipeline system. In addition, 37% of Corning Gas' supply is certified low-methane emissions. Almost half of the low-emissions gas is being produced locally, which means that the improvements made in the gas processing procedure reduce methane emissions in the local area. Corning Gas is also flowing RNG into its system from the Steuben County landfill. In addition, the Company provides energy efficiency resources to customers through a variety of channels. Energy efficiency measures and bill saving tips such as "Energy Saving Tips" are posted on the Company's website for easy customer access.[65] Corning Gas provides information about how to access home energy audits and weatherization through two different organizations county-level organizations and NYSERDA.[66] Figure III-6 below shows the reduction in GHG emissions in Corning Gas' system since 1990. Notably, the gas transmission and distribution emissions have decreased significantly, in part due to implementation of the LPP program. Additionally, the imported gas emissions are reduced by purchasing certified low-emissions gas, as described above.

FIGURE III-6

CORNING GAS EMISSIONS, METRIC TONS/CO_2-EQUIVALANT



I. SUPPLY PORTFOLIO

The Company's principal gas supply goals are: (1) to provide least-cost gas supply; (2) to provide reliable gas supply; (3) to mitigate gas supply cost volatility consistent with our gas supply plan and policies of the Commission; and (4) to maximize customer capacity

[65] Energy Conservation Tips | Corning Gas Corporation (corninggas.com)

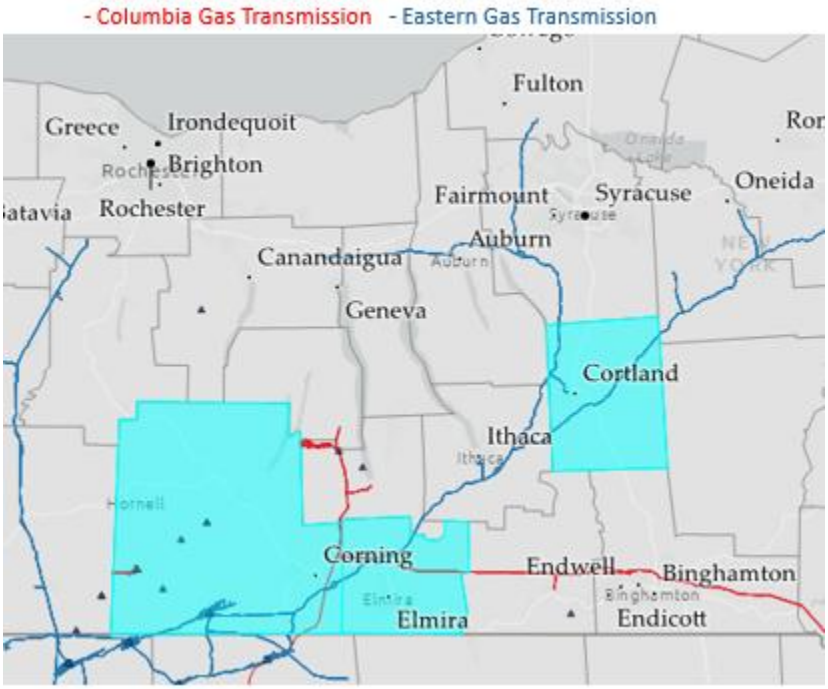
[66] Energy Audits & Weatherization | Corning Gas Corporation (corninggas.com)

release credits while limiting potentially stranded assets. Much of Corning Gas' interstate gas supply is sourced from the Marcellus Basin. Corning Gas has firm transportation capacity on Eastern Gas Transmission and Storage and Columbia Gas Transmission. Corning Gas also has storage on EGTS and CGT, and the Arlington storage facility. Corning Gas is directly connected to the Marcellus Basin, which accounts for approximately 20% of the total natural gas production in the U.S.[67] Additionally, around 13% of the throughput on the transmission and distribution systems is locally-produced natural gas, provided a steady amount of natural gas that feeds directly into the transmission and distribution, providing a primary source of gas supply for customers.

Corning Gas primarily uses firm flowing supply contracts (i.e., supplies delivered via upstream transportation), storage contracts, marketer provided supplies, and both RNG and other local production to meet design day demand. Spot gas purchases from Energy Service Companies ("ESCOs") and/or local producers are relied on for supplemental supply, as needed. Corning Gas does not expect to expand or add significant growth to their system and is holding growth constant in the most recent rate case. Figure III-7 presents the gas pipelines serving Corning Gas' service territory.

FIGURE III-7

INTERSTATE GAS PIPELINES SERVING CORNING GAS

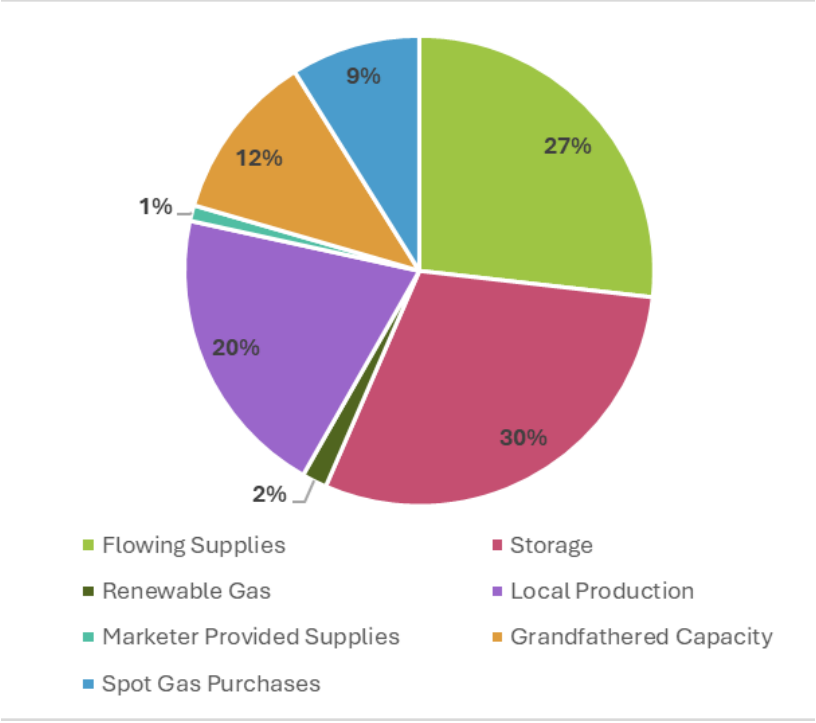


[67] https://www.eia.gov/naturalgas/weekly/archivenew_ngwu/2022/01_27/

Peak day considerations are important to maintain reliable service to customers who need natural gas to heat their homes and businesses. Corning Gas supplies its peak day gas from many sources to minimize the impacts of possible supply interruptions. Storage reserves are important, as they provide supply on high-load days. Local production provides redundant supply if there are issues on the interstate pipelines, and Corning Gas also has recallable capacity if needed. Figure III-8 shows the breakdown of gas resources used to serve customers on a peak demand day.

FIGURE III-8

2024-2025 WINTER TOTAL SYSTEM PEAK DAY CAPACITY



J. DISTRIBUTION SYSTEM OPERATIONS

As discussed throughout this GSLTP, Corning Gas' key priorities are safety, reliability, and superior customer service. Corning Gas' pipeline network has ongoing monitoring, inspection, maintenance and safety measures, which include:

- Pressure regulator stations and overpressure protection devices;

- Leak surveying of the distribution system through ground patrols and surveys using vehicle-mounted and handheld detectors;
- Corrosion control teams that measure and test cathodic protection on steel mains and services;
- Adding odorant to make natural gas detectable by scent; and
- Active participation in the Dig Safely New York program, which identifies excavations near the Company's facilities and promotes damage prevention awareness.

Corning Gas operates and maintains 427 miles of pipeline in its service territory and has almost 15,000 services connected to its distribution system. The Company has planned upgrades to several system operating tools in the coming years, including SCADA and telemetry updates, RTU's, and additional pressure monitoring capability. Corning Gas has been transitioning its remaining distribution system from low pressure to intermediate pressure operations. This allows for the removal of aging district regulator stations. Table III-3 shows the miles of pipeline and number of services in Corning Gas' territory, broken down by type of material.

TABLE III-3

CORNING GAS PIPELINE AND SERVICE CHARACTERISTICS

2024	Unprotected Steel	Protected Steel	Plastic
Mains (Miles)	24	133	270
Services (No. of Services)	1,050	812	12,799

K. VULNERABLE LOCATIONS AND NPA'S

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 plan.

IV. REFERENCE CASE

The Reference Case represents the Company's baseline, business-as-usual expectations over the next 20 years (2025-2044) and does not include the impact of CLCPA actions that have not yet been planned or implemented. In that vein, passed legislation and Commission orders implementing programmatic changes have been incorporated into the Reference Case forecast, but proposed legislation and proposed programs are not reflected in the Reference Case. For example, the Reference Case includes the impacts of legislation passed in May 2023 that prohibits the installation of fossil-fuel equipment in new buildings not more than seven stories and less than 100,000 sq ft starting in 2026 and in all buildings starting in 2029.[68]

As discussed in more detail below, the Reference Case forecast addresses total distribution system demand, supply and GHG emissions (i.e., associated with retail sales customers plus transportation customers) since Corning Gas' distribution system delivers gas to both retail sales and transportation customers, regardless of what entity is responsible for procuring the natural gas. However, Corning Gas' Reference Case forecasts and GHG emissions calculations exclude gas supply associated with two Corning Gas customers, New York State Electric & Gas ("NYSEG") and Bath Electric, Gas and Water Systems ("BEGWS"). Corning Gas provides gas transportation to NYSEG and gas supply and transportation to BEGWS; however, the Company's GSLTP will reflect costs, revenues, gas volumes, and GHG emissions for end users located within Corning Gas' service area only. It is assumed throughout this GSLTP that NYSEG and BEGWS will independently account for their GHG emissions in any respective company-specific reporting.

As will be discussed in the GSLTP Methodology and Results Chapter, the Reference Case provides a baseline that can be used to measure the impact of the GSLTP on the Company's operations, costs, and GHG emissions. More detailed information about the Reference Case methodology and results is presented in Appendix E.

In addition to the 20-year Reference Case forecast for 2025 through 2044, estimated 1990 levels of load and associated GHG emissions provide the baseline for measuring GHG emission reductions as required by the CLCPA. Corning Gas acquired the Finger Lake Gas Company, which served the Village of Hammondsport in 1995, and established a franchise in the town of Virgil in 2009. The Company's estimated 1990 levels of load and GHG emissions have not been adjusted to account for these acquisitions that occurred after 1990. Furthermore, the Company's Reference Case and Preferred GSLTP do not consider

[68] S4006C containing amendments to New York Energy Law §11-104 and New York Executive Law §378, passed May 2023.

the naturally occurring energy efficiency resulting from the gradual replacement of older furnaces and boilers with new ones for customers who opt for like-in-kind replacement at the time of gas appliance failure, instead of electrification.[69] Therefore, the projected percent reductions in GHG emissions from 1990 levels in the Company's Reference Case and Preferred GSLTP are likely understated.

A. Demand Forecast

Corning Gas' Reference Case natural gas demand forecast is based on trends in historical customer counts and usage and does not reflect the potential impacts of future decarbonization efforts or naturally occurring energy efficiency resulting from gradual replacement of older furnaces and boilers with new furnaces or boilers. As stated above, the Reference Case represents the Company's baseline, business-as-usual expectations over the next 20 years. Customer counts are forecasted separately for three customer segments (i.e. residential, commercial, and industrial), and summed together to produce a total, company-wide customer count. Consistent with the Company's 2024 initial rate case,[70] the Reference Case forecast assumes a flat customer count forecast within each segment, which represents the combined effect of both customer growth and customer attrition. Residential and commercial customer attrition results from the passage of legislation in May 2023 regarding the prohibition of fossil fuel in new buildings. Usage is also forecasted for the same four segments separately and summed to produce total, company-wide demand. The charts below show that Reference Case total gas customer counts and annual demand are expected to remain flat throughout the 20-year forecast period.

[69] The Company's Reference Case and Preferred GSLTP assume average furnace and boiler efficiency rates of 80% and conservatively do not capture expected natural efficiency improvements as older furnaces and boilers are gradually replaced with new furnaces and boilers with higher efficiency rates ranging from 94% to 95% or gas heat pumps with efficiency rates as high as 140%.

[70] Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Corning Natural Gas Corporation for Gas Service, Case No. 24-G-0447, July 31, 2024.

FIGURE IV-1

REFERENCE CASE ANNUAL CUSTOMER COUNT

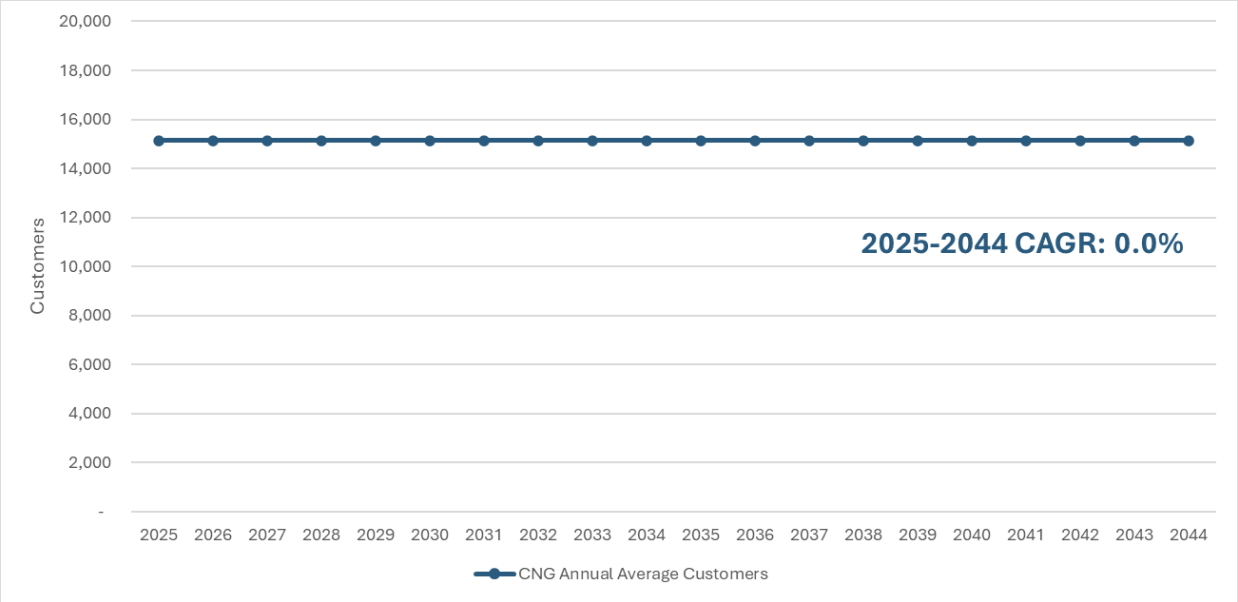
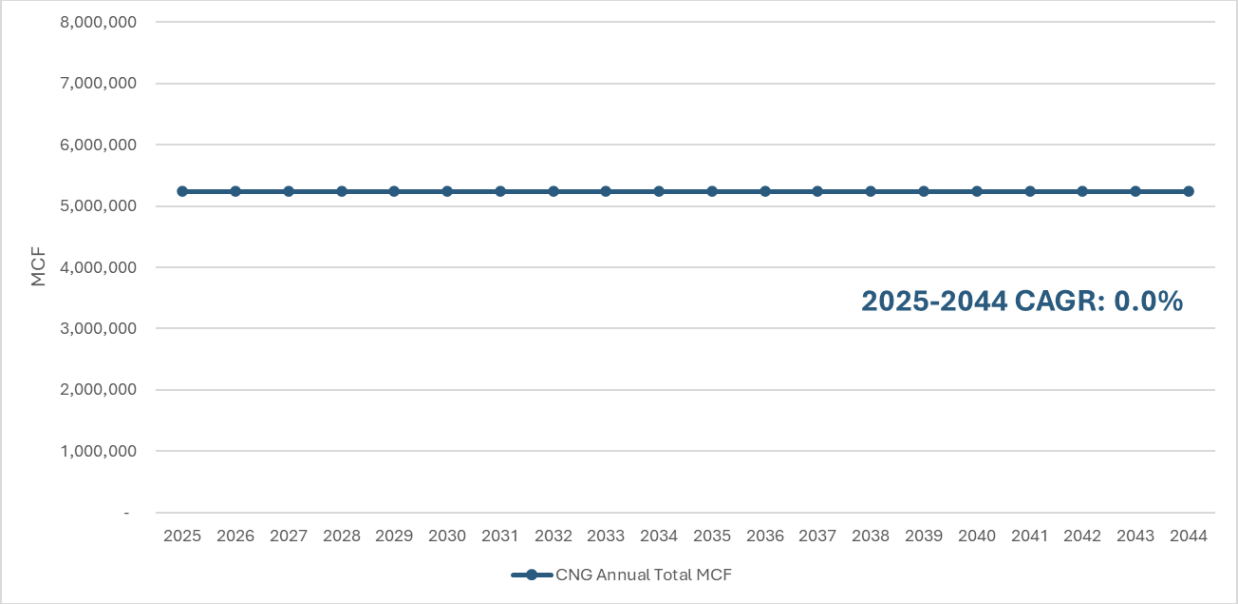


FIGURE IV-2

REFERENCE CASE ANNUAL DEMAND (MCF)



As shown in Table IV-1, Corning Gas' Reference Case customer counts are expected to remain flat in all customer sectors.

TABLE IV-1

CORNING GAS REFERENCE CASE CUSTOMER COUNTS

	2025	2030	2035	2040	2044	2025-2044 CAGR
Residential	13,997	13,997	13,997	13,997	13,997	0.00%
Commercial	1,136	1,136	1,136	1,136	1,136	0.00%
Industrial	12	12	12	12	12	0.00%
Total	15,145	15,145	15,145	15,145	15,145	0.00%

As shown in Table IV-2, Reference Case annual demand for all customer sectors is expected to, similarly, remain flat.

TABLE IV-2

CORNING GAS REFERENCE CASE ANNUAL DEMAND (MCF)

	2025	2030	2035	2040	2044	2025-2044 CAGR
Residential	1,298,196	1,298,196	1,298,196	1,298,196	1,298,196	0.00%
Commercial	715,753	715,753	715,753	715,753	715,753	0.00%
Industrial	3,220,572	3,220,572	3,220,572	3,220,572	3,220,572	0.00%
Total	5,234,522	5,234,522	5,234,522	5,234,522	5,234,522	0.00%

B. DESIGN DAY DEMAND AND SUPPLY/DEMAND BALANCE

Natural gas demand is highest on the coldest days of the winter due to the current reliance on natural gas as a fuel for heating in New York. As such, the consequences of a natural gas outage can be severe and even life-threatening. Therefore, maintaining deliveries during several-day cold snaps, the coldest day, and the highest use peak hours is critical. LDCs address this requirement by developing design planning criteria to meet demand on a "design day" (i.e., an extremely cold day for which utilities ensure they can serve demand). It is imperative to plan for enough supply on the coldest days when there is the most demand, otherwise the supply portfolio may be unable to meet customer needs, which would cause serious safety and reliability issues for customers.

The Company's design day weather is based on the coldest weather experienced historically in the City of Corning, which corresponds to Corning Gas' compact service

area.[71] Design day weather is measured in heating degree days ("HDD"), which is defined as 65 degrees minus the average daily temperature (with a floor of zero when the temperature is above 65 degrees). For example, 85 HDD corresponds to a day with an average temperature of negative 20 degrees and zero HDD is a day with an average temperature of 65 degrees or higher. The Company's design day HDD for Corning is provided in Table IV-3.

TABLE IV-3

DESIGN DAY HDD

Area	Design HDD
Corning	74

Corning Gas' design day demand forecast is updated every six months to ensure it incorporates current information about customer usage and weather conditions. The design day demand forecast for the first year of the Reference Case is based on the relationship between historical sales and daily weather. The change in forecasted design day demand over time is based on forecasted annual demand growth.

As shown in Table IV-4, Reference Case design day demand is expected to remain flat over time, consistent with annual demand projections.

TABLE IV-4

CORNING GAS REFERENCE CASE DESIGN DAY DEMAND (MCF)

	2025	2044	CAGR
Total	41,708	41,708	0.00%

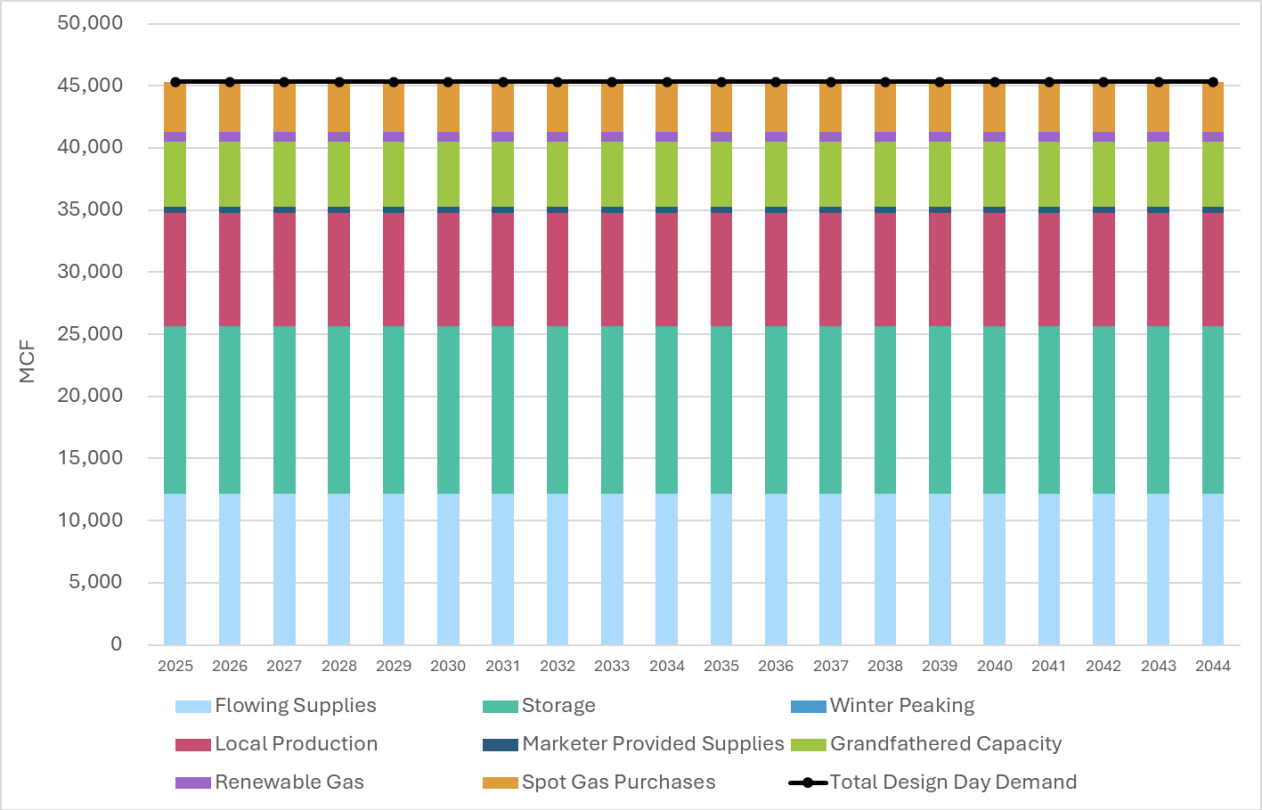
The following figure compares Corning Gas' Reference Case design day demand and peak firm capacity portfolio over the 20-year period. As mentioned in Chapter II, the Company structures its supply portfolio to align with expected design day demand and any spot gas purchases needed to meet that demand. Corning Gas will evaluate the need for spot gas purchases from ESCOs, local production, and any additional gas supply needed from marketers based on forecasted demand and the availability of other supply assets. As

[71] Corning Gas currently uses Cornell University's Northeast Regional Climate Center database for Corning's temperature data.

shown in Figure IV-3, the Company is expected to have sufficient resources to meet the Reference Case design day demand on a total system basis.

FIGURE IV-3

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



C. CAPITAL EXPENDITURE FORECAST

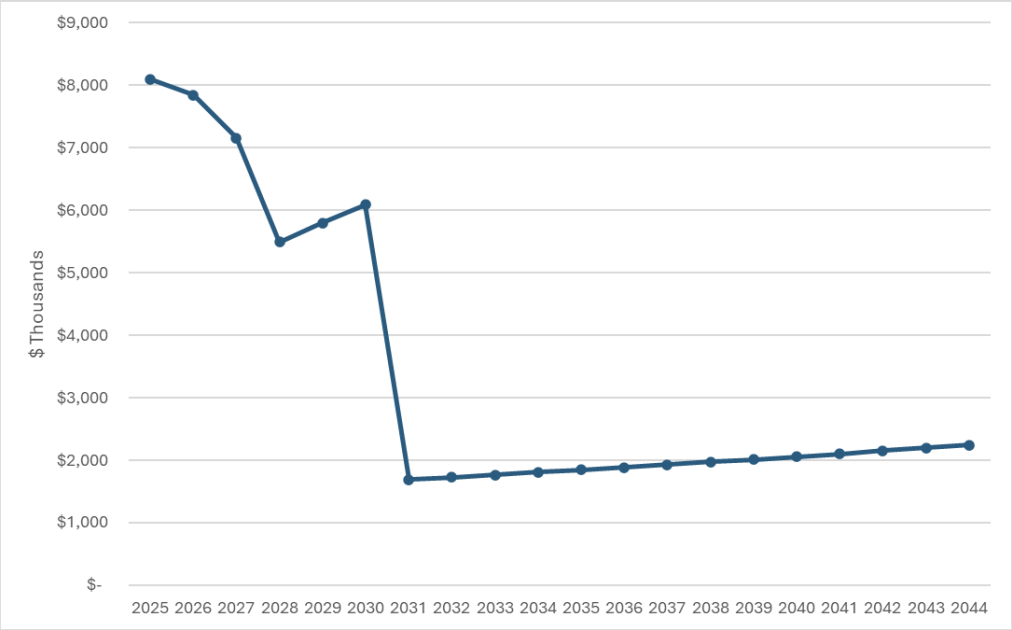
Figure IV-4shows Corning Gas' capital expenditure forecast for the next 20 years. The forecasts for 2025 through 2029 are sourced from the Company's recently filed rate case.[73] To estimate the capital expenditures for 2030, the 2029 capital budget is escalated by 5%, consistent with Corning Gas' construction escalator provided in Case No. 24-G-0447. The 2030 forecast is then adjusted to exclude 2029 expansion projects, account for Corning Gas' construction escalator, and include inflation for the years 2031 through 2044. More detailed information about the Company's capital expenditures forecast is presented in Appendix B.

[72] The design day demand presented in Figure IV-3 accounts for demand associated with BEGWS and, therefore, differs from the design day demand used in GSLTP modeling.

[73] Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Corning Natural Gas Corporation for Gas Service, Case No. 24-G-0447, July 31, 2024.

FIGURE IV-4

CORNING GAS CAPITAL EXPENDITURES FORECAST ($ THOUSANDS)



D. REFERENCE CASE GHG EMISSIONS

GHG emissions associated with the Company's Reference Case are estimated for the entire natural gas lifecycle from production through consumption.[74] The categories of emissions are defined below.

- **Scope 1:** Emissions from Company-owned and controlled resources such as mains and services (pipes), metering and regulator stations, combustion units (heaters, etc.), and fleet vehicles (gasoline, diesel, natural gas, etc.)

- **Scope 2:** Emissions released from use of "purchased" electricity in Company-owned systems such as business offices, measuring and regulator stations, and corrosion systems

- **Scope 3:** Emissions from non-Company-owned "upstream and downstream" entities such as production and transmission of natural gas and customer usage/combustion of natural gas

[74] The GHG emissions included in Corning Gas' GSLTP include emissions from all sales and transportation customer excluding BEGWS and NYSEG as these entities are responsible for reporting their own GHG emissions.

Reference Case GHG emissions for this GSLTP are projected using Corning Gas' Reference Case forecasted system characteristics including the number of customers, energy use, and supply. Therefore, Reference Case emissions are reduced due to the impacts associated with reduced customer counts and demand resulting from the May 2023 legislation that prohibits fossil fuel in certain new buildings. Emissions are computed by applying appropriate emission factors to projected system characteristics based on the Company's proposed Annual GHG Emissions Inventory filings.[75] Annual emissions are presented for carbon dioxide ("CO2"), methane ('CH4"), and nitrous oxide ("N2O"). Total CO2 equivalent ("CO2e") emissions are calculated by converting CH4 and N2O emissions to CO2e assuming a 20-year global warming potential ("GWP").[76]

As depicted in Table IV-5, over 96% of Corning Gas' Reference Case CO2e emissions are associated with Scope 3. Over time, Scope 1 emissions are projected to decrease as the Company continues to replace leak prone mains and services. Scope 2 emissions are projected to decline over time due to projected changes in the emissions associated with electric generation. Scope 3 emissions are projected to remain constant over time as demand is constant.

[75] As discussed above, the Commission directed Staff to work with the utilities to develop a proposal for GHG emissions reporting that is consistent with the CLCPA requirements. Proposals were filed on December 1, 2022, and supplemented in May 2023, and await a decision by the Commission. (Case 22-M-0149)

[76] The GWP allows comparisons of the global warming impacts of different gases that have different effects on the Earth's warming (e.g., CO2, CH4, and N2O). Two factors include the ability to absorb energy ("radiative efficiency"), and how long they stay in the atmosphere ("lifetime"). Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb relative to the emissions of 1 ton of CO2 over a specific period of time. Corning Gas reports CO2e emissions using the 20-year GWP as defined in the CLCPA. (ECL § 75-0101(2)) The 20-year GWP AR5 values are 1 for CO2, 84 for CH4 and 265 for N20. As an illustrative example, a measure with GHG emissions of 1 Metric Ton ("MT") of CO2, 1 MT of CH4, and 1 MT of N20, would result in a C02e value of 350 MT, which is equal to 1 x 1 MT CO2 + 84 x 1 MT CH4 + 265 x 1 MT N20. Many sources report CO2e using a 100-year GWP, so care should be used when comparing the GHG emissions numbers in this report with other sources.

TABLE IV-5

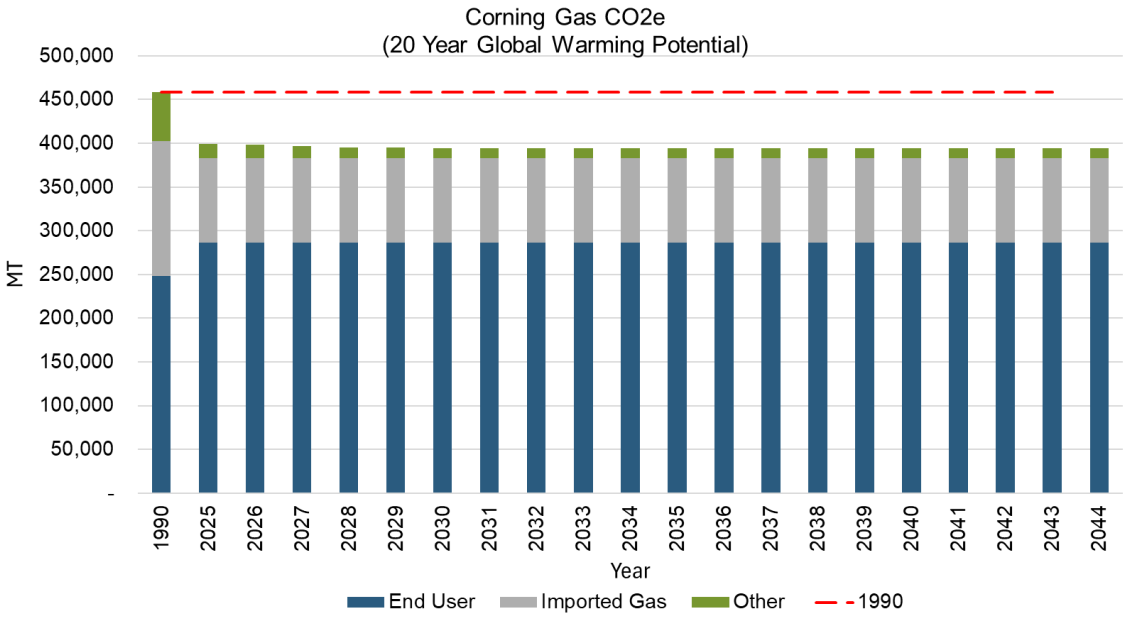
CORNING GAS REFERENCE CASE GHG EMISSIONS (MT CO2E)

Corning Gas		
	2025	**2044**
Scope 1	16,600	11,739
Scope 2	25	20
Scope 3		
End User	286,042	286,042
Imported Gas	96,932	96,932
Scope 3 Total	382,975	382,975
Total Emissions	**399,599**	**394,734**

As shown in Figure IV-5 Corning Gas' CO2e emissions are primarily comprised of emissions from end user combustion of natural gas, followed by emissions associated with production and transportation of gas. End user combustion accounts for 72% of CO2e emissions in 2025 for Corning Gas. Figure IV-5 also contains the Company's 1990 level of CO2e emissions (red dashed line), which serves as the baseline for CLCPA GHG emission reductions reporting. As previously mentioned, Corning Gas acquired the Finger Lake Gas Company, which served the Village of Hammondsport in 1995, and established a franchise in the town of Virgil in 2009. The Company's estimated 1990 level of GHG emissions has not been adjusted to account for these acquisitions that occurred after 1990. Furthermore, the Company's Reference Case and Preferred GSLTP do not consider the naturally occurring energy efficiency resulting from the gradual replacement of older furnaces and boilers with new ones for customers who opt for like-in-kind replacement at the time of gas appliance failure, instead of electrification. Therefore, the projected percentage reductions in GHG emissions from 1990 levels in the Company's Reference Case and Preferred GSLTP are likely understated.

FIGURE IV-5

CORNING GAS REFERENCE CASE GHG EMISSIONS



The approximate 12.8% decline in GHG emissions from 1990 to 2025 for Corning Gas, primarily relates to reductions driven by the Company's system modernization and changes to upstream supply, including displacement of long-haul imported gas from the Gulf of Mexico with closer proximity, drier Marcellus Shale gas, and addition of locally produced RNG and RSG.[77]

[77] This decline in emissions incurred despite the Company's acquisition of the Finger Lake Gas Company serving the Village of Hammondsport in 1995 as well as the establishment of a franchise in the town of Virgil in 2009.

V. GSLTP METHODOLOGY AND RESULTS

A. OVERVIEW

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).

It is worth noting that each LDC is required to submit a gas system long-term plan instead of a "pathway study" in New York State and that there are clear differences between the two. A decarbonization pathway study evaluates hypothetical strategies to achieve pre-determined GHG emissions reductions targets over time. In contrast, the LDCs are expected to develop gas system long-term plans that will allow them to make meaningful progress toward GHG emissions reductions subject to safety and reliability requirements, cost pressures, and other practical considerations. The GSLTP cannot be merely aspirational; it must be technically feasible and provide valid projections of costs, bill impacts, and GHG emissions reductions to inform subsequent utility proposals and Commission decisions. Furthermore, a GSLTP must focus on what is "achievable," reflecting realistic expectations of customer acceptance and adoption, infrastructure development and implementation challenges, market and technology availability, and costs. The Commission acknowledged the need for LDC plans to be subject to real-world limitations when it noted in the Gas Planning Order, "[w]e appreciate the planning processes developed by Synapse, PIOs and others, but these entities do not have an obligation to ensure reliability when an LDC's system experiences peak demand conditions."[78] Moreover, the GSLTP must achieve an appropriate balance among objectives (e.g., meaningful emissions reductions will require significant investment, which will necessarily challenge affordability). This balance is especially important given the increased reliance on both natural gas and electric systems for the advancement of the state's economy.

[78] Gas Planning Order, pp. 29-30.

B. Gas System Long-Term Plan Process

As discussed in Chapter II, the Commission's Streamlined Order,[79] reduces certain requirements for Corning Gas due to its small size. Specifically, according to the GSLTP analysis, Corning Gas only has to file two scenarios (the Reference Case and its Preferred GSLTP) and is not required to file a no-infrastructure scenario. In addition, Corning Gas is permitted to rely on information from larger utilities when Corning Gas specific data is not available.

The resulting streamlined process still encourages a highly collaborative approach between the Company, the Commission, Staff, the Independent Consultant, and Stakeholders, including extensive discussions, opportunities to ask discovery questions and file written comments, and incorporation of feedback in Corning Gas' Final GSLTP.

In October of 2022, Corning Gas filed its Strategic Plan for Decarbonization[80] in accordance with terms of the Joint Proposal in Cases 21-G-0394 and 21-G-0260.[81] As outlined in Appendix U of the Joint Proposal, the Strategic Plan for Decarbonization included several key actions the Company plans to promote and/or implement including:

- Ceasing active, unsolicited gas marketing activities;
- Exploring the potential use of low carbon alternatives such as locally produced RNG, RSG, and hydrogen;
- Developing a demand response program by providing customers with contact information for the energy efficiency programs of the customer's electric utility;

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[79] Streamlined Order, p. 13.

[80] Cases 21-G-0394 and 21-G-0260, Proceeding on the Motion of the Commission as to the Rates, Charges, Rules, and Regulations of Corning Natural Gas Corporation for Gas Service and Joint Petition of Corning Natural Gas Holding Corporation, Corning Natural Gas Corporation, ACP Crotona Corp. and ACP Crotona Merger Sub Corp. for Approval, Pursuant to Section 70 of the New York Public Service Law, of the Merger of ACP Crotona Merger Sub Corp. into Corning Natural Gas Holding Corporation with Corning Natural Gas Holding Corporation as the Surviving Corporation and Wholly-Owned Subsidiary of ACP Crotona Corp., Draft Strategic Plan for Decarbonization ("Strategic Plan for Decarbonization") , filed October 26, 2022.

[81] Cases 21-G-0394 and 21-G-0260, Proceeding on the Motion of the Commission as to the Rates, Charges, Rules, and Regulations of Corning Natural Gas Corporation for Gas Service and Joint Petition of Corning Natural Gas Holding Corporation, Corning Natural Gas Corporation, ACP Crotona Corp. and ACP Crotona Merger Sub Corp. for Approval, Pursuant to Section 70 of the New York Public Service Law, of the Merger of ACP Crotona Merger Sub Corp. into Corning Natural Gas Holding Corporation with Corning Natural Gas Holding Corporation as the Surviving Corporation and Wholly-Owned Subsidiary of ACP Crotona Corp., Cases 21-G-0394 and 21-G-0260 Second Revised Joint Proposal ("Joint Proposal"), filed May 3, 2022.

- Providing inquiring customers with contact information for heating electrification programs offered by the local electric utility;
- Encouraging gas conservation via messaging materials to its customers;
- Maintaining and updating the portion of its website that contains links to refer customers to other entities and resources that can assist customers with reducing energy consumption;
- Actively direct customers to these resources through its regular customer outreach and education materials;
- Referring its new gas applicants to the New York State Clean Heat Program Manager for NYSEG; and
- Exploring the availability of and potential benefits of Demand Side Management ("DSM"), with emphasis on low-income customers.[82]

In addition, the Plan also outlines guidance regarding the consideration of NPAs stating Corning Gas will consider alternatives to any proposed line extension exceeding 500 feet, including referring customers to clean heat programs conducted by applicable electric utilities. Corning Gas will also consult with DPS Staff prior to construction of line extensions exceeding 500 feet and will file a report with the Secretary to the Commission after consulting with Staff to indicate the cost of any proposed extension and what alternatives were considered.[83]

In the development of the GSLTP, the Company's Strategic Plan for Decarbonization served as the foundation. Corning Gas' proposed GSLTP incorporates the progress the Company has already made, including the use of locally produced supply options, and builds upon it. Accordingly, the following decarbonization actions are considered in the Company's GSLTP:

- Weatherization
- Hybrid Electrification
- Industrial Customer Programs

[82] Strategic Plan for Decarbonization, pp. 3-5.

[83] Strategic Plan for Decarbonization, pp. 5-6.

- Renewable Natural Gas
- Hydrogen Blending
- Responsibly Sourced Gas

Corning Gas will identify which of these potential decarbonization actions are the most effective in reducing GHG emissions, taking into consideration its unique company characteristics, such as customer population, economic conditions, and service area location when estimating customer adoption and the rate of implementation.

Under the Company's streamlined GSLTP approach, only two scenarios are presented in this Initial GSLTP: the Reference Case and the Preferred GSLTP. In lieu of performing additional scenario analyses, Corning Gas reviewed recent GSLTP Filings from larger NY gas utilities, particularly NYSEG and RG&E's Final Gas LTP,[84] which presents numerous results for its company-driven scenarios. Insights from this review are leveraged to understand the relative cost and emission impacts associated with each decarbonization action listed above. The following figure, included in NYSEG and RG&E's Final Gas LTP,[85] compares the cost per GHG emissions reduction for each decarbonization action within NYSEG's presented scenarios.

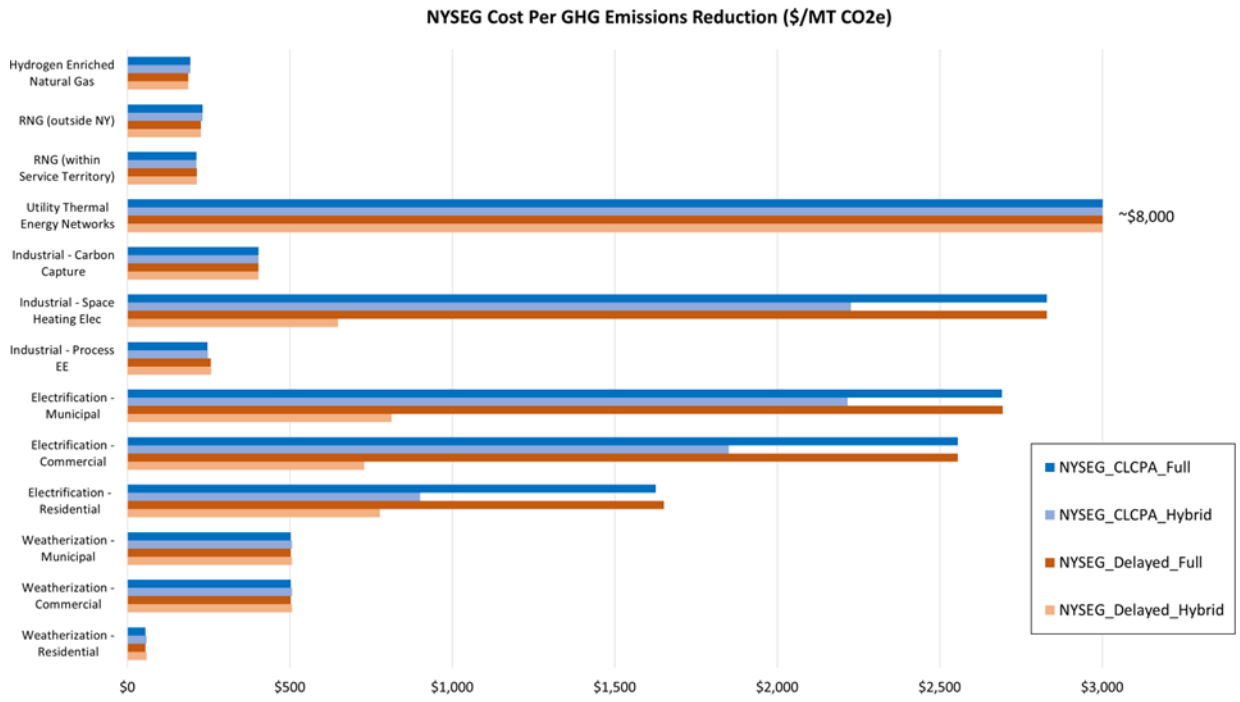
The NYSEG scenario results presented below demonstrate that the relative cost effectiveness of reducing GHG emissions (illustrated by the length of the bars) differs considerably across all decarbonization actions (listed on the left of the chart).

[84] In the Matter of a Review of the Long-Term Gas System Plan of New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation, NYSEG and RG&E Final Gas LTP, Case No. 23-G-0437, April 26, 2024.

[85] NYSEG and RG&E Final Gas LTP, Case No. 23-G-0437, Figure VI-1, p. 88, and Appendix D, Tables D-1 and D-2, April 26, 2024. (Note: results for RG&E are similar to the results for NYSEG. Results for only NYSEG are shown for efficiency.)

FIGURE V-1

COST PER GHG EMISSIONS REDUCTION BY DECARBONIZATION ACTION AND SCENARIO IN NYSEG'S FINAL GSLTP



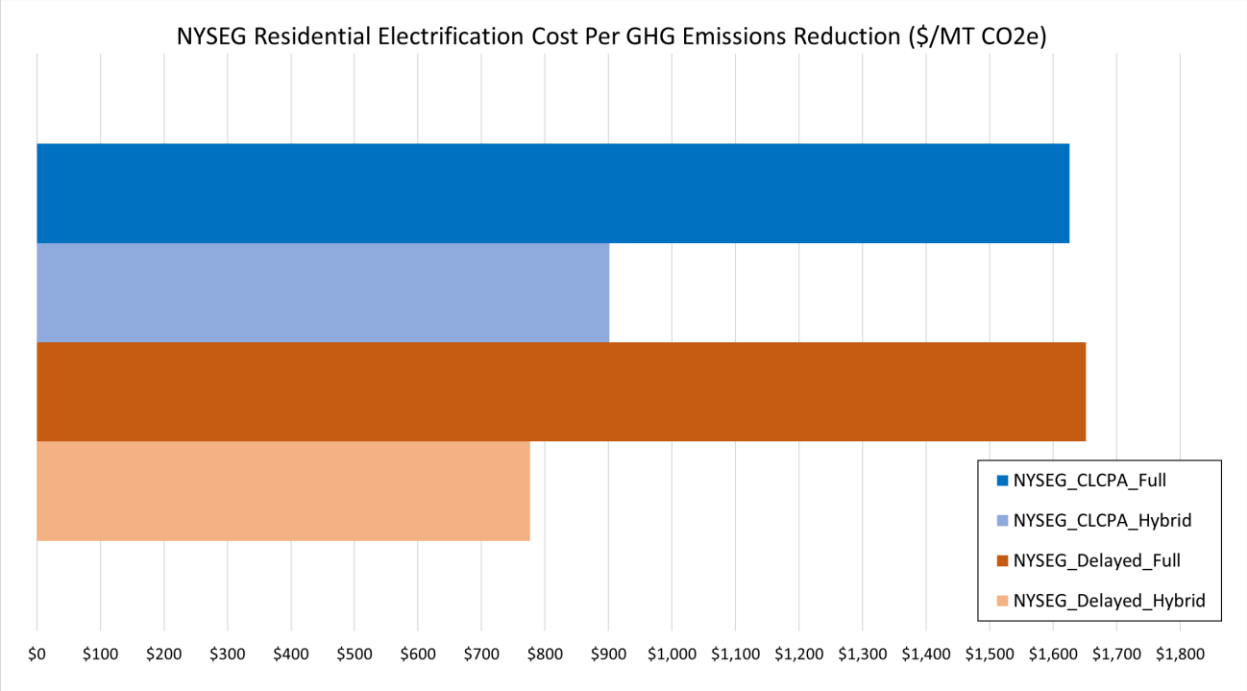
In using this comparison as a tool, Corning Gas focuses its GSLTP on decarbonization actions that have relatively low cost per GHG emissions reductions, providing benefits to Corning Gas' customers by mitigating affordability concerns. For example, RNG and hydrogen have remarkably low costs per GHG emissions reduction in NYSEG's Final LTP compared to UTENs and electrification. Therefore, it will be more affordable to reduce GHG emissions with RNG and hydrogen as compared to electrification and UTENS.

In addition, NYSEG's Final Gas LTP demonstrates that there is considerable variability in cost per GHG emissions reduction between hybrid heating and full electrification approaches. Figure V-2 below shows the average cost per GHG emissions reduction across the four company-driven scenarios presented in NYSEG's Final Gas LTP. The most notable differences lay between NYSEG's "Full Electrification" (noted in dark blue and dark orange) and "Hybrid Electrification" (noted in light blue and light orange) options, which demonstrate the respective cost effectiveness of using hybrid heating in comparison to full

electrification.[86] As shown in the Figure V-2, pursuing residential electrification through hybrid heating is nearly half the cost per MT CO2e emission reduction in both of NYSEG's CLCPA and Delayed Achievement scenarios and lowest in the NYSEG Delayed Achievement hybrid heating scenario, where only furnace-based heating systems (and not boilers) are converted.

FIGURE V-2

COST PER GHG EMISSIONS REDUCTION FOR RESIDENTIAL ELECTRIFICATION IN NYSEG'S FINAL GSLTP[87]



Although NYSEG and Corning Gas have some different company characteristics, the comparison of cost per GHG emissions reduction across decarbonization metrics as shown above provides Corning Gas with the necessary framework and resources to achieve an appropriate balance between GHG emissions reductions and costs, make informed

[86] In NYSEG's Final LTP, the "NYSEG_CLCPA_Full" and "NYSEG_CLCPA_Hybrid" scenarios achieve the same emissions reductions as one another at the end of the 20-year forecasting period, with the "Full" scenario uses full electrification and the "Hybrid" scenario uses hybrid heating. Similarly, NYSEG's "NYSEG_Delayed_Full" and "NYSEG_Delayed_Hybrid" scenarios achieve the same emissions reductions as one another, differing only in electrification approach. The "Delayed" scenarios take a more conservative approach to the timing of decarbonization actions and those decarbonization actions included in each scenario compared to the "CLCPA" scenarios.

[87] NYSEG and RG&E Final Gas LTP, Case No. 23-G-0437, Figure VI-2, p. 89, and Appendix D, Tables D-1 and D-2, April 26, 2024.

decisions on appropriate sizing and timing of each decarbonization action, and identify feasible decarbonization actions to include in its Preferred GSLTP.

C. GSLTP Decarbonization Actions and GHG Emission Reductions

It is too soon to definitively determine which technologies will represent the most viable, cost-effective approaches over the long-term, so it is important to embark on activities that have the potential to push the energy transition forward while maintaining customer optionality and balancing the cost and risk associated with prematurely selecting a single action. As a result, the Company's Preferred GSLTP emphasizes the decarbonization actions that represent more cost-effective approaches to reducing GHG emissions. The Company will update future GSLTPs to reflect the evolution of decarbonization action costs, technology enhancements, and relative efficiencies. The Company leveraged insights regarding relative cost efficiencies of various decarbonization actions and scenario analyses from the NYSEG/RG&E Final Gas LTP Report to inform the specific levels, types, and timing of each decarbonization action included in the Company's Preferred GSLTP while accounting for the specific characteristics of the Company's system, service territory, customer base, and market. The Company strives to be as aggressive as possible with respect to achieving GHG emissions reductions, subject to the Company's relatively small size, exemptions from certain pilot programs, and affordability concerns as well as confidence that the Preferred GSLTP can feasibly be executed.

Given the significant uncertainty associated with major factors that will impact decarbonization timing and outcomes, including future policy developments, technology development, customer behavior, electric infrastructure development, and costs, the Company believes it is appropriate to focus its Preferred GSLTP on the most cost-effective approaches to achieving GHG emission reductions. As a result, the Company excludes UTENs, the most expensive decarbonization action per unit of GHG emissions reductions, and carbon capture for industrial customers, recognizing that there is a benefit in delaying implementation of these decarbonization actions to leverage experience gained from other utilities. For similar reasons, the Company focuses electrification efforts on conversions of gas furnace heating systems to hybrid heating systems.[88]

[88] Converting a furnace to an Air Source Heat Pump is generally easier than converting a boiler because a furnace already utilizes ductwork, which is a key component of a heat pump system, while a boiler requires significant modifications to its plumbing and radiator system to integrate with a heat pump, making the conversion process more complex and expensive.

It is important that the Company's GSLTP maximizes implementation of decarbonization actions that have the lowest cost per GHG emissions reductions (weatherization, industrial energy efficiency, RNG, and hydrogen) as these actions have the "biggest bang for the buck" for customers. Unfortunately, these lower cost per GHG emissions reduction decarbonization actions are expected to have a limited impact on emissions reductions given current technologies (e.g., RNG is limited by the quantity of existing feedstocks and is not expected to be produced in large enough quantities to replace all existing traditional gas use). Therefore, it is necessary to balance between including higher cost decarbonization actions to increase GHG emissions reductions and considering the associated costs, recognizing that Corning Gas is unique with near zero LAUF and that all gas supplies purchased by Corning Gas could be RNG, RSG, and/or locally sourced gas. The GSLTP also recognizes the importance of electrifying buildings in the most cost-effective manner.

The specific assumptions for each decarbonization action included in the Company's Preferred GSLTP, barring existing supply procurement and cost recovery restrictions that exist today, are described below.

1. Weatherization

Overall Approach: Installing weatherization measures, such as insulation, at residential and commercial premises, will reduce energy use, and therefore reduce GHG emissions. The Company models new weatherization programs targeting the residential and commercial customer segments. The key weatherization assumptions include program start date and participation rates, which incorporate anticipated program development and initial program participation lag.

- **Residential:** The residential weatherization model reflects assumptions regarding the cost per natural gas usage reduction ($/MMBtu) and gas reduction per home associated with installing insulation and air sealing measures based on a weatherization program proposed in NFG's EE/BE Portfolio proposal. Customer participation ramp rates are assumed to increase linearly by 1% each year with the anticipated program start date of 2028.

- **Commercial:** The commercial weatherization model is based on assumptions regarding cost per unit of natural gas usage reduction consistent with National Grid's Upstate New York Total Building Comfort Program. Customer participation ramp rates are assumed to increase linearly by 0.5%

each year with an anticipated program start date of 2028. The Company anticipates proposing new weatherization programs in its next rate case.

Reasoning:

Consistent with recent policy guidance, Corning Gas has placed a focus on energy efficiency in the form of weatherization.[89] Given the relatively high efficiency of this decarbonization action in achieving GHG emission reductions for the cost, Corning Gas has included optimistic levels of participation in its GSLTP. In addition, weatherization allows for a reduction in energy consumption, leading to the most efficient form of GHG emission reduction: by eliminating energy usage in total. Aside from this, weatherization is also a mutually beneficial decarbonization action with customers observing the impact firsthand with a reduction in annual energy bill. The Company's GSLTP focuses on residential and commercial weatherization for these reasons.

The Company has relied on cost and natural gas savings assumptions from Utilities participating in the Case 18-M-0084 due to lack of available company specific data. By doing so, Corning Gas is able to leverage the experience of larger utilities in implementing a program of this type.

2. Electrification

Overall Approach: Electrifying natural gas heating systems by installing air-source heat pumps ("ASHP") and electrifying other gas appliances will reduce natural gas use and increase electric use, providing a net decrease in GHG emissions, assuming the electric generation mix is emissions-free. The Company models the electrification of existing space heating loads for residential and commercial segments. The goal is to design flexible programs to start in 2028 that will encourage existing gas customers to choose to convert gas heating and other gas equipment to run on electricity.

The Company's program will focus building electrification efforts on converting existing customers with furnaces to hybrid heating systems (standard ASHP paired with gas furnaces). The use of hybrid heating systems will maintain gas heat for use on cold days for reliability and safety reasons, minimize electric system impacts and mitigate electrification costs as heat pump efficiencies deteriorate at very cold temperature. Boiler-based heating systems are not an initial focus because it is less economic to electrify boiler-based

[89] Case 14-M-0094, Proceeding on Motion of the Commission to Consider a Clean Energy Fund and Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiatives, Order Directing Energy Efficiency and Building Electrification Proposals ("EE/BE Order"), July 20, 2023.

systems, nonetheless, boiler-based customers or gas heat pumps will not be excluded from the Company's programs.

The Company's Preferred GSLTP assumes the following related to electrification:

- **Residential:** Convert customers with furnaces to hybrid heating systems (standard ASHP paired with gas furnace) at or near equipment end-of-life (heating or air conditioning system) at a pace that ramps up at 5.4%/year until it reaches a peak of 75% of customers with equipment failures converting/year in 2041 through 2044.

- **Commercial:** Convert customers with furnaces to hybrid heating systems (standard ASHP paired with gas furnace) at or near equipment end-of-life (heating or air conditioning system) at a pace that ramps up at 2.1%/year until it reaches a peak of 30% of customers with equipment failures converting/year in 2041 through 2044.

Reasoning:

Because electrification has a relatively high cost per GHG emissions reduction overall, the Company's Preferred GSLTP assumes that electrification programs prioritize conversions that have a lower cost per GHG emissions reduction, which is the installation of hybrid heating systems (standard ASHP paired with gas furnaces) for existing customers with gas furnaces.

One critical conclusion leveraged from NYSEG/RGE Final Gas LTP analysis is that electric peak demand impacts will depend on the state's approach to electrification. Full electrification of heating loads will require substantial investments to increase capacity on the electric system to accommodate the additional peak electric load on cold winter days. There is consensus that the New York electric grid will become winter-peaking if heating loads are "fully" electrified (e.g., using a cold climate ASHP ("ccASHP") with electric resistance backup for cold winter days). The impacts of full electrification on peak electricity demand, additional strain on the local and regional electric system, and the need to invest to increase capacity on electric transmission and distribution systems will be substantial. The impacts on electric peak demand and customer energy bills will be significantly tempered if customers install hybrid heating systems.[90] Under hybrid heating, the natural gas heating equipment operates as an electric demand response solution that reduces the

[90] The impact on the need for electric investment in a particular area will also depend on several factors including the current capacity status of substation and circuit infrastructure, additions to demand from electric vehicle charging, and projected load profiles.

electric peak in the winter and therefore reduces the investment in capacity required on the electric system.

While full electrification with ground source heat pumps ("GSHPs") would result in less electrical load requirements than full electrification with ccASHPs, the high up-front installation costs and land requirements of GSHPs are notable barriers. NYSEG/RG&E's Final Gas LTP Report indicates an average installed cost for a GSHP system of $51,118 per home, which is more than double the average installed cost of a ccASHP and more than eight times the cost of a standard ASHP. The Company's Preferred GSLTP will initially focus on electrifying newer homes that currently heat with furnaces (which represent almost 60% of the Company's residential customers) because homes with boilers are more expensive to convert.

Focusing on hybrid heating has secondary, but important, benefits of providing gas supply for the coldest days of the year; preserving reliability of heat during winter storm power outages, maintaining greater comfort compared to full electrification and lowering heating bills. There are reliability, energy resilience, and public safety concerns associated with reliance on full electrification for residential customers, especially during cold winter periods that are experienced in the Company's service territory. These concerns are mitigated by the use of hybrid heating systems that maintain gas backup for use on cold days.

Although there are cost and market challenges, the Company will not prevent any customer from fully electrifying, and the Company's electrification programs will not exclude customers who choose to fully electrify or customers currently heating with gas boilers or any other existing gas customers. In addition, the Company's electrification and weatherization programs will work together to accommodate customers who would benefit from and want to weatherize prior to electrification but will not exclude customers who may not want to or cannot weatherize. These customer service focused program design elements demonstrate flexibility and are consistent with the Company's goal of maintaining customer choice. The Company's Preferred GSLTP acknowledges that, at least in the short term, converting existing gas furnaces to hybrid heating systems is the most cost-effective and favorable option for reducing GHG emissions through electrification.

There is considerable uncertainty regarding the rate at which customers will choose to electrify, in large part due to the high up-front cost, and lack of awareness of electrification options by both customers and contractors. While conversion rates are modest today, it is expected that with greater awareness and greater incentives, conversion rates will increase in the future. For purposes of the Preferred GSLTP, the Company assumes that its electrification programs start to demonstrate savings in 2028 with conversion rates

increasing linearly until they reach a peak in 2044 and remain flat for the final years of the analysis. Residential conversions are assumed to reach a peak of 75% of customers with heating or central AC equipment failures converting, while commercial conversions are expected to reach a peak of 30% during the timeline of this GSLTP. Residential customers are assumed to reach a peak of 75% because it is assumed that 100% participation will not be achievable without a mandate in which customers are forced to switch to electrification. Commercial customers are assumed to achieve lower conversion rates than residential customers because they face significant competitive pressures, especially if electric rates increase resulting from decarbonization.

The Company has assumed in its GSLTP modeling that current heat pump costs remain flat in constant dollars and that heat pump technology remains at current efficiency levels. The Company's assumptions are consistent with information released by the U.S. Energy Information Administration ("EIA") in 2023, which shows little improvement in heat pump technology between 2023 and 2050 and flat to increasing installed costs in constant dollars.[91] More detailed information regarding heat pump assumptions is provided in Appendix A.

The GSLTP Model assumes zero emission generation in New York State by 2040, consistent with the CLCPA, as discussed in Appendix A. Costs required to achieve zero emissions generation are added to electric rates as discussed in Appendix B. With hybrid electrification, the GSLTP model assumes no reduction in reference case pipeline and storage fixed costs, O&M or capital expenditures, which already assume no new residential or commercial buildings with gas appliances as of 2026 in compliance with recent legislation.

3. Industrial Customer Programs

Overall Approach: The industrial sector is generally recognized as the most challenging sector to decarbonize, particularly with respect to process loads that require extremely high temperatures and for facilities that face internal and external competition. The Preferred GSLTP includes two programs to address industrial customer emissions related to burning natural gas. The first industrial program involves installing energy efficiency measures for industrial process load, starting in 2028. The second industrial program involves converting existing customers with furnaces to hybrid heating systems, also starting in 2028. Boiler-based heating systems are not an initial focus for electrification

[91] EIA Updated Buildings Sector Appliance and Equipment Costs and Efficiencies, Appendix A and B, Residential Air-Source Heat Pumps, "EIA – Technology Forecast Updates – Residential and Commercial Building Technologies – Reference Case (and Advanced Case)," prepared by Guidehouse and Leidos (March 3, 2023).

because it is less economic to convert boiler-based systems. More specifically, the Company's Preferred GSLTP assumes the following related to industrial customer programs:

- **Energy Efficiency of Process Load:** 0.5% incremental industrial process load reduction/year starting in 2028 achieving 8.5% process load reduction by 2044.

- **Electrification of Heating Load:** Convert industrial customers with furnaces to hybrid heating systems at or near heating equipment end-of-life starting in 2028 at a pace that ramps up at 2.1%/year until it reaches a peak of 30% of customers with equipment failures converting/year in 2041 through 2044.

Reasoning:

Industrial customers are extremely cost-sensitive to competition, cash flow, and financing. Industrial businesses typically require paybacks of 1-3 years, and many corporations have options to move production to existing plants in other states or to another country in the mid- to long-term. There is always the risk that industrial customers could leave the service territory. However, certain industrial customers that have corporate sustainability goals may invest in decarbonization measures. The cost and effectiveness of projects to reduce emissions for industrial customers are highly dependent on the nature of the business, product and site-specific factors.

The Company's GSLTP focuses on process load energy efficiency, because it is one of the most cost-efficient methods of reducing GHG emissions from industrial customers. As with the residential and commercial sectors, the Preferred GSLTP focuses on converting customers with furnaces to hybrid heating systems rather than on converting boilers due to economic and logistical benefits.

Carbon capture for industrial customers is not included in the Company's Preferred GSLTP. The Company believes it would be beneficial to monitor and learn from industrial carbon capture projects conducted by others before including carbon capture in its Preferred GSLTP.

4. Utility Thermal Energy Networks ("UTENs")

Overall Approach: UTENS are not included in the Company's Preferred GSLTP for multiple reasons. First, as discussed above, analysis included in the NYSEG/RG&E Final Gas LTP report indicates that UTENs is an expensive decarbonization approach in terms of cost per GHG emissions reduction, therefore Corning Gas excluded UTENs in an effort to be sensitive to affordability concerns. Second, the Company has been exempt from the UTENs

Pilot proceeding (Case 22-M-0429), so it has not conducted analysis to identify sites in its service territory that could potentially be candidates for UTENs, and it does not have other information or experience related to designing UTENs projects. Third, the Company believes it would be beneficial to monitor and learn from successful UTENs projects conducted by other utilities before including UTENs in its Preferred GSLTP.

5. RNG

Overall Approach: RNG is biogas that has been converted into pipeline-quality gas and is considered a "drop in" replacement for natural gas. Using RNG as a substitute for natural gas eliminates the GHG emissions from the biogas feed source that would have otherwise been emitted to the atmosphere.

The Company already has experience blending RNG into its distributions system and has two operational RNG projects currently flowing landfill gas, animal waste, and food waste feedstocks. Corning Gas has experienced a strong interest from RNG developers associated with additional landfills and farms within its service area who want to supply RNG to the Company's system.

Supply availability, timing, and per unit production cost assumptions for the development of RNG are based on the Optimistic Growth Scenario from a recent NYSERDA study[92] as well as the Company's experience to date. The Company assumes that it will procure all RNG from within its service territory as well as a proportional share of RNG from Pennsylvania. The Company also assumes that current rules governing third-party marketer supplies that could limit the Company's ability to flow additional RNG will be modified. Given Corning Gas' experience with blending RNG and the characteristics of its service territory, the Company has limited the RNG included in its Preferred GSLTP from within its service territory to RNG produced from animal manure, landfill gas and food waste, and has excluded RNG from other feedstocks such as wastewater and thermal gasification projects. RNG from Pennsylvania is limited to anaerobic digestion-based feedstocks and also excludes thermal gasification projects.

GHG emissions impacts and costs of RNG are modeled separately for existing RNG projects for which Corning Gas does not procure environmental attributes versus new RNG projects that are assumed to include environmental attributes. These differences are outlined in bullets below, along with the start date and incremental annual quantities of RNG blended into the system.

[92] "Potential of Renewable Natural Gas in New York State," Final Report, Report Number 21-34, ICF Resources, L.L.C., April 2022.

Existing RNG:

- The RNG currently purchased by Corning Gas does not include environmental attributes. For RNG in this category, GHG emissions reflect RNG as a local source of gas supply, which offsets the need for importing natural gas produced out-of-state.[93] Costs are consistent with traditional natural gas costs.
- The procurement of environmental attributes from existing RNG projects on Corning Gas' system is assumed to start in 2027 and increase over time to reach 100% by 2044 to reflect time necessary to renegotiate existing contracts to include the environmental attributes.

New RNG:

- It is assumed that future RNG projects will include the environmental attributes starting in 2027. For RNG in this category, GHG emissions are captured on a life-cycle basis, consistent with both the Scoping Plan[94] and the California Low Carbon Fuel Standard ("CA LCFS"). Specific emissions factors are used to capture the emissions impacts associated with the RNG feedstocks. Costs, including environmental attributes, reflect the cost of producing the RNG and represent a substantial premium over the cost of traditional natural gas.
- Increase new RNG quantities in 2027 to double existing quantities from within Corning Gas' service territory and then linearly increase from 2028 to 2044 to reach NYSERDA's Optimistic Growth amounts for animal manure, landfill gas, and food waste in Corning Gas' service territory. All new RNG supplies are assumed to include attributes starting in 2028.

Out of State RNG from Pennsylvania:

- RNG sourced from out-of-state is assumed to have higher emissions than RNG sourced from within the Company's service area to reflect the added use of upstream transportation to deliver the out-of-state RNG.
- Starting in 2027, increasing 5.6% per year to 100% of the optimistic growth potential in 2044. The optimistic growth potential for each feedstock is presented below in

[93] 2023 NYS Statewide GHG Emission Report, Appendix: Emission Factors for Use by State Agencies and Applicants Table A3.

[94] Climate Action Council, Scoping Plan, p. 213.

Table V-1. All new RNG supplies from Pennsylvania are assumed to include attributes starting in 2027.

TABLE V-1

CORNING GAS' RNG POTENTIAL FROM PENNSYLVANIA

	Landfill Gas	Animal Manure	Food Waste	Waste Water
Optimistic Growth (TBtu/yr)	0.07	0.03	0.02	0.00

Reasoning:

One of the benefits of RNG is that it can be easily blended into the gas supply and does not require building-by-building installations of equipment. As a result, RNG has a relatively low cost per emissions reduction, can be easily scaled based on existing technology, and allows for material decarbonization without having to implement changes at individual customer premises. Therefore, the Preferred GSLTP focuses on obtaining as much RNG as possible given feedstock limitations within and near Corning Gas' service territory. It is assumed that these supplies will be supplemented by a relatively small percentage of RNG supplies from neighboring Pennsylvania can be delivered using the Company's upstream gas transportation assets. The Company's GSLTP relies on agricultural and landfill biogas feedstocks (anerobic digestion) and excludes RNG potential associated with thermal gasification as it is not as market-ready as anaerobic digestion-based feed stocks.

6. Hydrogen

Overall Approach: Pursue green hydrogen blending starting at a level of 0.5% (by volume) in 2034, increasing by 0.5%/year in 2035 and then by 1%/year starting in 2036, achieving a blend of 10% by volume in 2044.

Reasoning:

Hydrogen has one of the lowest costs per emissions reduction of the decarbonization actions, and a significantly lower cost per GHG emissions reduction than electrification, so therefore it is included in the Company's Preferred GSLTP. The slow ramp rate allows for validation that increased blending levels can be accommodated by Corning Gas' system. Specific engineering and safety studies will be required to identify the amount of hydrogen that can safely be blended into the Company's distribution systems without creating

operational issues. The introduction of hydrogen into the Company's systems will be carried out using a technical and systematic approach that considers safety, O&M requirements, the impact of hydrogen's properties, material compatibility, system capacity analysis, end-user equipment, and other factors. A 10% blending of green hydrogen in the Company's distribution systems is not assumed to be achieved until 2044 and hydrogen blending is not to begin until 2034 to allow time for system-specific studies.

Current technology and the current composition of U.S. gas distribution systems suggests that 10% hydrogen could be blended into natural gas systems. There are several hydrogen blending projects that are successfully delivering hydrogen-enriched natural gas to customers throughout North America. For example, Hawaii Gas has been blending up to 15% hydrogen into its system for decades. New Jersey Natural Gas has been blending hydrogen into its system since October 2021. Enbridge Gas has been blending up to 2% hydrogen into its gas distribution system in Markham, Ontario since 2022. The 2022 IRA contains subsidies for clean hydrogen production, which are expected to facilitate additional hydrogen development. Most recently, the U.S. Department of the Treasury released final rules for the clean hydrogen production tax credit, which is anticipated to accelerate deployment of clean hydrogen and allow hydrogen producers to continue to move their projects forward.[95] As hydrogen research advances and demonstration projects are being undertaken globally, increased understanding and lessons learned will be incorporated into future GSLTPs.

7. RSG

Responsibly sourced gas (or "RSG") is natural gas that an independent third party has verified as meeting the highest standards and practices to minimize its environmental footprint. The focus of RSG is to quantify, reduce and monitor methane emissions associated with the RSG value chain, from wells to processing facilities, transmission and distribution systems.

The Company currently sources approximately 17% of its gas supply from imported RSG from State Line Appalachian and non-State Line Appalachian sources. Based on current contracts, State Line and non-State Line RSG are assumed to provide 13% and 9% reductions in methane (CH4) emissions over conventional gas, respectively, compared to similar locational sources. Based on current contracts, RSG has a cost premium over

[95] U.S. Department of the Treasury Releases Final Rules for Clean Hydrogen Production Tax Credit. Available at: U.S. Department of the Treasury Releases Final Rules for Clean Hydrogen Production Tax Credit | U.S. Department of the Treasury

conventional natural gas of $0.06/MMBtu. Over the 20-year GSLTP analysis, this premium is assumed to increase by the Company's inflation forecast.

Overall Approach: Starting in 2030, the GSLTP assumes that an incremental 10% of projected remaining 2044 annual supply sourced from non-RSG imported Appalachian natural gas (both State Line and non-State Line[96]) is replaced by RSG from similar locational sources each year, resulting in 100% of replacement of imported conventional natural gas with RSG by year 2044.

Reasoning:

Maximizing RSG supplies is the most cost-effective method for reducing GHG emissions.

8. Summary of the Company's Preferred GSLTP

A summary of the Company's Preferred GSLTP, organized by each decarbonization action, is presented in Table V-2. All decarbonization actions are assumed to start producing savings in 2028 unless otherwise noted.

[96] In the GSLTP model, the Company's Imported (Non-State Line) Long Haul Appalachian conventional natural gas supply requirements are assumed to be reduced by the amount of natural gas use reduction resulting from all other non-RSG decarbonization actions included in the Company's GSLTP.

TABLE V-2

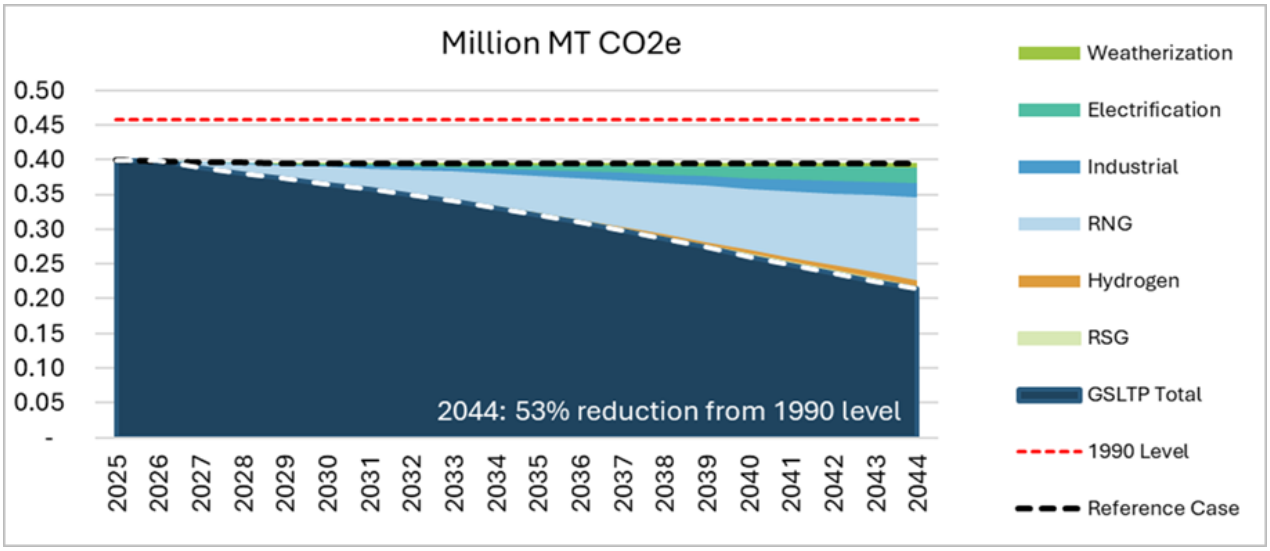
SPECIFICATION OF THE COMPANY'S PREFERRED GSLTP

	ACTION	PREFERRED GSLTP ASSUMPTIONS
1	**Weatherization**	• **Residential:** 1% of homes/year. • **Commercial:** 0.5% incremental heat load reduction/year.
2	**Electrification**	• All 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 the Company's service territory). 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.

Taken together, the decarbonization actions included in the Company's Preferred GSLTP are projected to reduce Corning Gas' emissions by 53% by the end of the 20-year horizon (2044) compared to 1990 levels as shown in Figure V-3. The emissions reductions start modestly and increase over time as constraints on deploying technology are resolved. Emissions reductions are expected to continue after 2044 through 2050 and beyond. Where necessary, the Company will seek appropriate regulatory approval(s) for implementation of these initiatives. Based on the likely time necessary to obtain regulatory approvals and design and implement programs or projects, all decarbonization actions, except for RNG, are scheduled to start in 2028 or later.

FIGURE V-3

PREFERRED GSLTP CONTRIBUTIONS TO GHG EMISSION REDUCTIONS



As shown in Figure V-3 above, the Company's Reference Case (black dotted line), projects a 14% decrease in CO2e emissions from 1990 baseline levels (red dotted line) by 2044. Since 1990, Corning Gas' GHG emission reductions have been achieved through improvement in the Company's LAUF to near zero levels through its system replacement program and displacement of long-haul imported gas from the Gulf of Mexico with closer proximity, drier Marcellus Shale gas, and addition of locally produced RNG and RSG.

Also shown in Figure V-3 above, over 60% of the Company's Preferred GSLTP projected additional decrease in CO2e emissions from the Reference Case by 2044 could be achieved through locally sourced RNG (with environmental attributes) and RSG supply-based decarbonization measures, alone.

It is also possible that the projected percent reductions in GHG emissions from 1990 levels presented above are understated for the following two reasons. First, Corning Gas acquired the Finger Lake Gas Company, which served the Village of Hammondsport in 1995, and established a franchise in the town of Virgil in 2009. The Company's estimated 1990 levels of load and GHG emissions have not been adjusted to account for these acquisitions that occurred after 1990. Second, the Company's Reference Case and Preferred GSLTP do not consider the naturally occurring energy efficiency resulting from the gradual replacement of older furnaces and boilers with new appliances for customers who opt for like-in-kind replacement at the time of gas appliance failure, instead of electrification.[97]

The Company's Preferred GSLTP includes both supply-based and demand-based decarbonization measures that aim to reduce GHG emissions across all customer segments. However, based on the Initial GSLTP modeling results and considering Corning Gas' unique attributes – such as its small size, large proportion of industrial load, projected winter electric peaking service territory, and direct access to an abundant supply of locally produced gas and storage fields, it will be most cost-effective and supportive of the local economy for Corning Gas to prioritize supply-based decarbonization measures for core residential and commercial retail load. This includes increasing reliance on locally sourced RNG and replacing imported long-haul gas supplies with local gas supplies.

D. Model Results and Gas System Long-Term Plan

1. Preferred GSLTP Cost and Bill Impacts

The Company's Preferred GSLTP strives to provide safe, reliable, and affordable energy service while delivering sustainable GHG emissions reductions and preserving customer choice throughout the plan period. The key metrics are GHG emissions reductions and costs (total costs and gas bill impacts). In general, the Company strives to be as aggressive as possible with respect to achieving GHG emissions reductions, subject to total cost and energy affordability concerns.

The Company's Preferred GSLTP was developed using a bottom-up approach to estimate incremental costs and benefits for each decarbonization action, relative to the Reference Case. Incremental costs include equipment costs and changes in energy bills per participating customer, as well as the incremental cost above conventional supplies per unit

[97] The Company's Reference Case and Preferred GSLTP assume average furnace and boiler efficiency rates of 80% and conservatively do not capture expected natural efficiency improvements as older furnaces and boilers are gradually replaced with new furnaces and boilers with higher efficiency rates ranging from 94% to 95% or gas heat pumps with efficiency rates as high as 140%.

of RNG, hydrogen and RSG. Incremental benefits include decreased emissions per participating customer and decreased emissions per unit of RNG, hydrogen, or RSG. An estimate of the relative efficiency of each decarbonization action in contributing to GHG emissions reductions is produced by comparing its incremental costs to its emission benefits. This relative efficiency is expressed as $/metric ton ("MT") of GHG emissions reduction ("CO2e"), with both numerator and denominator expressed as NPV values. This metric reflects the cost per unit of GHG emissions reduction produced for each decarbonization action plus the collection of actions that comprise the Company's Preferred GSLTP. The total cost of the Preferred GSLTP is the sum of the incremental impact on Corning Gas' revenue requirements (relative to the Reference Case) and the cost of decarbonization actions.

Table V-3 details the relative cost efficiency, 2044 GHG emissions reduction, and total cost for each decarbonization action included in the Company's Preferred GSLTP. Detailed model outputs are provided in Appendix D. The total incremental costs associated with the Company's Preferred GSLTP are approximately $195 million on a net present value basis over the next 20 years. The weighted average cost per GHG emissions reduction is estimated to be $310/MT CO2e.

TABLE V-3

PREFERRED GSLTP DECARBONIZATION ACTIONS AND GHG EMISSION REDUCTION EFFICIENCY

	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%	

The Company's 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, 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.

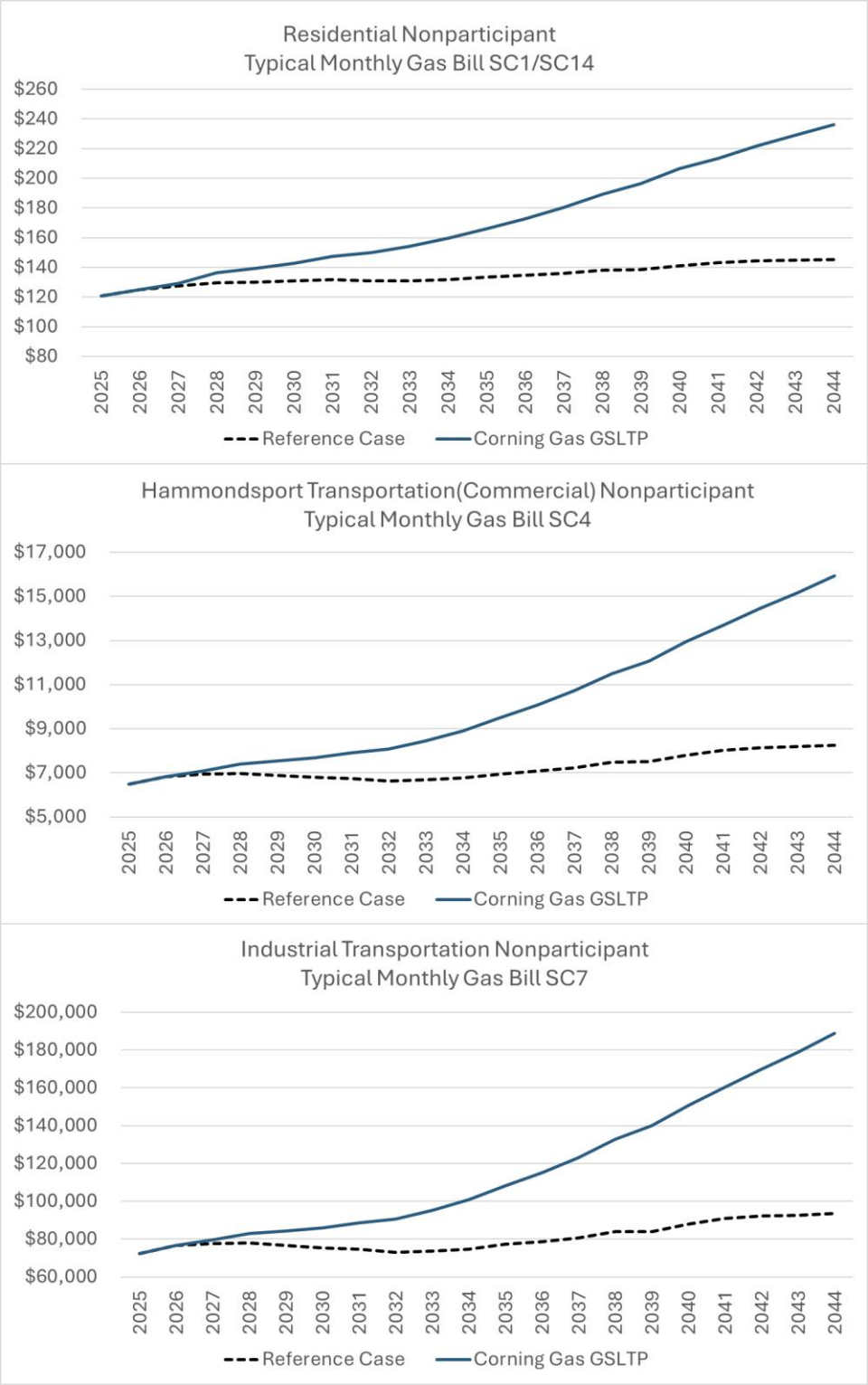
Gas bills for non-participating customers (i.e., customers whose gas usage remains the same because they do not choose to weatherize or electrify) will increase as a result of decarbonization. These increases are due to (1) higher revenue requirements associated with utility incentive programs, (2) recovering existing fixed costs over lower throughput, and (3) higher gas costs associated with RNG, RSG, and hydrogen blending. As shown in Figure V-4, the Preferred GSLTP shows varying levels of bill impacts by service class for non-participating customers. Gas rate impacts are estimated based on existing cost recovery ratemaking principles and existing allocations of revenue requirement, while assuming that the Company will recover an authorized return on invested capital and a return of investment based on existing depreciation methodologies from the Company's most recently approved

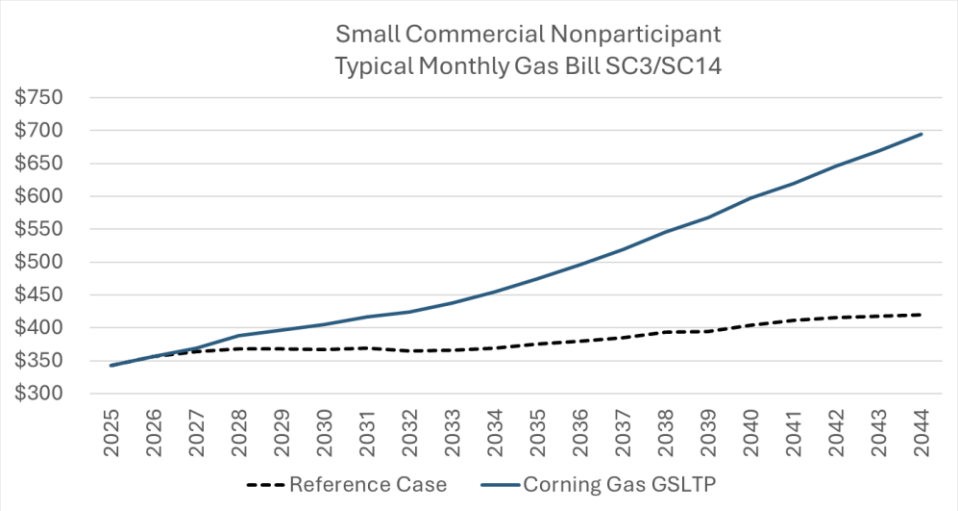
rate case. Resulting rates are for illustrative purposes only because changes to cost recovery and rate design are better addressed in the context of a rate case.

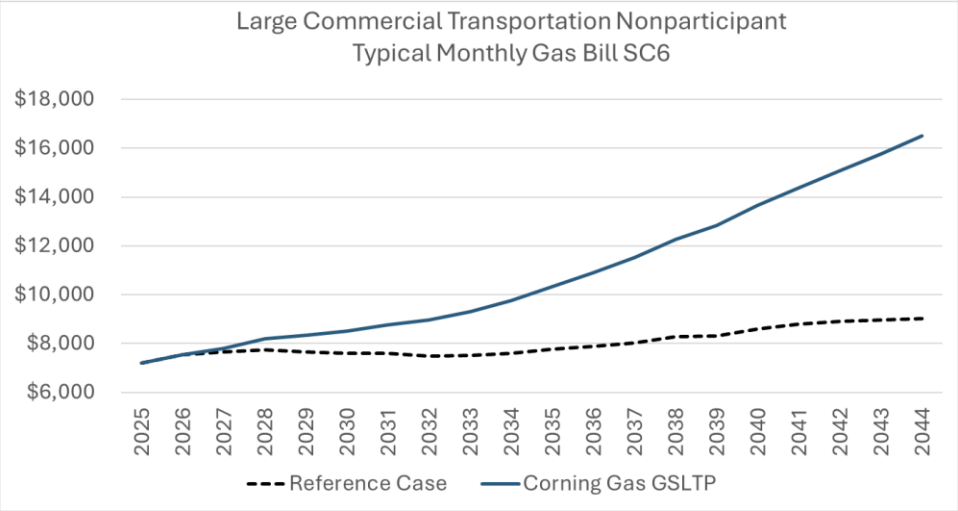
As noted, the bill impacts shown below include depreciation rates from the finalized 2021 rate case filing. In its current rate case filing, the Company has included accelerated depreciation rates to show how the shortened lifecycle of gas investments could increase rates over the next several years. The Company believes these types of alternative depreciation approaches need to be considered and addressed expeditiously as do other cost recovery issues related to decarbonization actions. Without Commission action related to alternative depreciation strategies, gas customers that remain on the Company's system could see intergenerational equity issues and be forced to cover escalating costs of the decarbonization actions (including reduced throughput).

FIGURE V-4

BILL IMPACTS FOR PREFERRED GSLTP







2. Benefit Cost Analysis

While customers are focused on the impact of decarbonization on their individual financial situations (e.g., up-front costs, impacts on gas and electric bills), the Gas Planning Order also requires gas utilities to include a BCA in their long-term plan filings. The Commission's BCA Framework Order[98] designated the Societal Cost Test ("SCT") as the primary BCA method. The Company has also performed the Utility Cost Test ("UCT") and Ratepayer Impact Measure ("RIM"), consistent with practices in other recent GSLTP filings. The SCT is the broadest measure and attempts to quantify all the benefits and costs with the goal of determining whether society is better off as a whole as a result of implementing the plan. The SCT includes measures of direct costs and benefits (e.g., capital costs, customer installation costs, avoided gas costs, incremental electric costs) as well as broader indirect

[98] BCA Framework Order, Case 14-M-0101, Reforming the Energy Vision, Order Establishing the Benefit Cost Analysis Framework (issued January 21, 2016).

costs and benefits (e.g., avoided cost of GHG emissions). The UCT focuses on how gas utility costs will be affected by the plan and only includes costs that flow through the gas utility. The UCT excludes avoided costs of GHG emissions, customer installation costs, electricity costs, and federal and state incentives. The UCT could have a higher or lower result than the SCT, depending on the relative size of the cost and benefit items that are excluded. The RIM focuses on how gas utility rates will be affected by the plan. The RIM is similar to the UCT, but RIM includes the impacts of lost gas utility revenues on remaining customers. Since the RIM is the same as the UCT with added costs, the RIM will always result in a lower Benefit Cost Ratio result than the UCT.

The Company concurs with the Commission's desire to focus on the SCT in LDC long-term plans because the SCT attempts to capture all costs to society. Given that implementing plans to significantly reduce GHG emissions for gas utility operations will likely involve some level of electrification, it is important to consider the impact of increased electricity costs as well as full up-front installation costs when conducting a BCA. Both of these costs (as well as the value of GHG emissions impacts) are eliminated from the UCT and RIM, which demonstrates the limited value associated with those test results compared to the SCT.

Nevertheless, all three BCA tests (SCT, UCT, and RIM) were performed for the Company's Preferred GSLTP by comparing the NPV of each GSLTP's relevant incremental benefits and costs relative to the Reference Case over the 20-year planning horizon. The Benefit Cost Ratio must exceed 1.0 to "pass." The Preferred GSLTP does not pass the SCT test with a Benefit Cost Ratio of 0.50 and lower ratio results for the UCT and RIM. Assumptions used in the BCA are described in Appendix C. SCT, UCT, and RIM results for the Company's GSLTP are shown in Table V-4.

TABLE V-4

BCA RESULTS

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**

The SCT benefits accrue from avoided emissions as well as avoided gas costs, while the majority of the SCT costs accrue from RNG production costs and net installed costs (which is primarily comprised of the up-front costs associated with electrification).

The BCA Framework Order referenced in the Gas Planning Order was developed for the purposes of calculating BCAs for electric utilities. A corresponding BCA framework for gas utilities that addresses gas-specific issues, including treatment of RNG, has not been established.

The Company applied the electric BCA Framework Order when calculating the SCT but acknowledges that some items do not have clear guidelines, including the accounting of GHG emissions impacts associated with RNG. The Company accounted for the GHG emissions impacts of RNG in the SCT using the same emissions factors and life-cycle accounting methodology used to account for the GHG emissions impacts of RNG in the GSLTP modeling for consistency.

Up-front installation costs for weatherization and electrification are split into costs covered by federal and state incentives, costs covered by utility incentives, and costs not covered by incentives (i.e., covered by participant customers). Federal Incentives are supported by all taxpayers, including New York State residents. In addition, "society" is not limited to the state of New York (e.g., the societal benefits associated with GHG emissions from avoided natural gas production located outside of New York are included in the SCT). Further, the Commission's longstanding policy as reflected in all utility BCA Handbooks, advises inclusion of federal Incentives as costs in the SCT (i.e., "the cost of market interventions (e.g., state and federal incentives)" are components of costs in the SCT). Thus, the Company includes all incentives (including federal incentives) in the SCT as an offset to participant customer costs. Federal incentives, state incentives, and participant customer costs do not flow through the gas utility, so these costs are eliminated in the UCT and RIM, but the costs associated with utility incentives remain. Incentives are critical for any level of electrification. While federal and state incentives are assumed to continue at current levels throughout the 20-year GSLTP analysis period, continuation of these programs is uncertain. Any changes to current programs would shift costs between participating customers, the gas utility, and federal and state entities. While the total Social Cost and resulting Benefit Cost Ratio of the SCT test will remain the same, the UCT and RIM costs would increase, resulting in lower Benefit Cost Ratios in both the UCT and RIM tests.

The Preferred GSLTP does not pass the SCT test with a Benefit Cost Ratio of 0.50 and lower ratio results for the UCT and RIM. Assumptions used in the BCA are described in Appendix C. SCT, UCT, and RIM results for the Company's GSLTP are shown in Table V-4.

There are several items in the SCT that were not included as they are difficult to quantify, including changes in reliability/resiliency, non-energy benefits, non-energy costs, and health benefits. In the BCA Framework Order, the Commission concludes that other societal non-energy benefits, such as public health benefits, are "speculative" and "would not be reasonable to include in the BCA Framework." Therefore, Corning Gas has not included the quantification of health benefits in the BCA. In addition, the increased electric costs included in the SCT include higher electric rates resulting from decarbonization for the end-uses related to converting gas equipment to electric but increases in electric costs due to electric rates increasing for all customers for other electric use (e.g., to run existing

electric equipment such as refrigerators or new EVs) were not quantified or included in the SCT.

The SCT result for the Company's Preferred GSLTP is only 0.50 despite efforts to achieve GHG emissions reductions at a low cost. Given the high costs associated with most of the decarbonization actions, it is unlikely that most decarbonization actions would pass a SCT with a value greater than or equal to 1.0. Notwithstanding this outcome, the Company believes that the combination of decarbonization actions included in this GSLTP represent a responsible plan to reduce GHG emissions, enhance the resilience of the energy supply system, and deliver safe, reliable, and affordable energy service while preserving customer choice.

VI. CONCLUSION AND IMPLEMENTATION ACTIONS

Corning Gas believes that its Preferred GSLTP represents a responsible plan based on reasonable assumptions given the information available today. Ultimately, the Company will learn more about the development of decarbonization action markets, technologies, and costs over time and will adjust assumptions accordingly in future GSLTPs, consistent with the intent of the Gas Planning Order.

A. CORNING GAS' GSLTP IMPLEMENTATION ACTIONS

Corning Gas will pursue numerous activities that are designed to develop capabilities and implement the decarbonization actions included in its GSLTP. These include the following near term action items and commitments. The ultimate timing and execution of many of these actions will depend upon several factors, including the success and timelines of obtaining necessary regulatory approvals. These implementation actions include:

1. *Implement Pilots and Related Programs:*
    - Hybrid heating system pilot (including commercial and industrial customers as well as residential customers)
    - Hydrogen blending pilot

2. *Design, Propose, and Implement Customer and Supply Programs:*
    - Weatherization programs (for residential, commercial and industrial customers)
    - Refinement of gas supply procurement and cost recovery to include RNG environmental attributes and RSG
    - Shift gas supply purchases to be locally sourced by 2040
    - Modify third-party marketer terms and conditions as necessary to accommodate flow of hydrogen and additional RNG on Corning Gas' distribution system.

3. *Engage, Communicate, and Collaborate with:*
    - Stakeholders in the ongoing Gas Planning Proceeding
    - Customers regarding Corning Gas' GSLTP and its implications
    - Industrial customers to understand decarbonization opportunities, plans, and unique challenges
    - Electric utilities in Corning Gas' service territory regarding opportunities for coordination of planning activities

These implementation actions are consistent with and reinforce the Company's commitment to making meaningful progress towards New York's statewide climate goals.

B. Policy/New York's Response

Energy policy and decarbonization of New York's economy will likely continue to be the subject of legislation. In addition, regulatory policies will continue to evolve as New York's natural gas and electric utilities design plans to contribute to the state's GHG reduction goals. Accelerated depreciation, if implemented promptly may help to balance the effect the energy transmission will have on customers and the Company. Corning Gas will continue to monitor these developments and promote responsible GHG emission reduction policies and regulations that support safe, reliable, and affordable energy choices for its customers throughout New York.

The Gas System Long-Term Planning process will serve as a forum for stakeholders, utilities, and policy makers to collaborate and share their perspectives on the future of natural gas in New York. While the preparation of this Initial GSLTP has provided many valuable takeaways, one that is particularly relevant for Corning Gas and its GSLTP is the clear need for alternative fuels, such as RNG, hydrogen, and RSG. Alternative fuels are important to meaningfully engage in decarbonization while continuing to provide safe and reliable gas service. Corning Gas will continue to support its ongoing RNG blending and will place a focus on continued research and development into these supply options. The Company hopes to collaborate with all stakeholders to enable the clean energy transition, particularly as it relates to supporting these alternative fuels.

C. Corning Gas' Next GSLTP

This GSLTP recognizes Corning Gas' unique attributes – such as its small size, cold climate and projected winter electric peaking service territory, near zero LAUF due to the Company's system replacement program, and direct access to an abundant supply of locally produced RNG, natural gas and storage fields by prioritizing supply-based decarbonization measures for core residential and commercial retail load.

The Company's GSLTP provides a foundation for future investments and programs, with a particular focus on necessary actions during the next three years. The three-year cycle is designed to provide for future comprehensive updates to reflect new information and insights that inform the Gas System Long-Term Plan. In short, the GSLTP is technically feasible and provides valid projections of costs, bill impacts, and GHG emission reductions that can inform subsequent utility proposals and decisions. New developments related to policy, markets, technology, customer behavior, infrastructure development, costs, and

other changes to the business or regulatory landscape will be incorporated into future filings. Corning Gas will also have the opportunity to leverage other NY utilities' GSLTPs and their respective Commission directives, as well as stakeholder feedback to help inform future decisions and update assumptions regarding decarbonization technologies.