CORPORATE RESPONSIBILITY REPORT | 2021

National Fuel®

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Glossary of Terms

Frequently used abbreviations, acronyms, or terms used in this report:

National Fuel Gas Companies

Company	National Fuel Gas Company and its subsidiaries its subsidiaries as appropriate in the context of the disclosure.
Distribution Corporation	National Fuel Gas Distribution Corporation
Downstream Segment	Downstream operations carried out by Distribution Corporation
Empire	Empire Pipeline, Inc.
Foundation	National Fuel Gas Company Foundation
Highland	Highland Field Services, LLC
Midstream Company	National Fuel Gas Midstream Company, LLC
Midstream Segment	Midstream operations carried out collectively by Supply Corporation, Empire and Midstream Company
National Fuel	National Fuel Gas Company
Seneca Resources	Seneca Resources Company, LLC
Supply Corporation	National Fuel Gas Supply Corporation
Upstream Segment	Upstream operations carried out by Seneca Resources

Regulatory Agencies

CalGEM	California Geologic Energy Management Division
CARB	California Air Resources Board
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
NYPSC	New York Public Service Commission
NYSERDA	New York State Energy and Research Development Association
PADEP	Pennsylvania Department of Environmental Protection
PaPUC	Pennsylvania Public Utility Commission
PHMSA	Pipeline and Hazardous Materials Safety Administration
OSHA	Occupational Health and Safety Organization
SEC	Securities and Exchange Commission

Other

AGA	American Gas Association
API	American Petroleum Institute
AXPC	The American Exploration and Production Council
BAT	Best available technology
Bbl	Barrel (of oil)
Bcf	Billion cubic feet (of natural gas)
Bcfe (Mcfe) – represents	The total heat value (Btu) of natural gas and oil expressed as a volume of natural gas.
Bcf (or Mcf) equivalent	The Company uses a conversion formula of 1 barrel of oil = 6Mcf of natural gas.
BMP	Best management practice
Capital expenditure	Represents additions to property, plant, and equipment, or the amount of money a company spends to buy capital assets or upgrade its existing capital assets.
CCAA	Nationwide Candidate Conservation Agreement with Assurances
CCUS	Carbon capture utilization and storage
CIP	Conservation Incentive Program
CISSC	Corporate Information Security Steering Committee
CLCPA	New York Climate Leadership and Community Protection Act, or Climate Act
Code	Company's Code of Business Conduct
COVID-19	Novel coronavirus
CQMS	Construction Quality Management System
DIMP	Distribution Integrity Management Program
EDM	Engineering Design Manual
EHS	Environmental, health and safety
EIA	United States Energy Information Administration
ERM	Enterprise Risk Management
ESCAMP	Erosion and Sedimentation Control and Agricultural Mitigation Procedure
ESA	Environmental Site Assessment
ESG	Environmental, social, and governance disclosures
GHG	Greenhouse Gas
GHGRP	United States EPA's Greenhouse Gas Reporting Program
GRI	Global Reporting Initiative
HCA	High consequence area
HFCs	Hydrofluorocarbons
IFC	International Finance Corporation
ILO	International Labor Organization
InfoSec	Information security

INGAA	Interstate Natural Gas Association of America
IPCC	Intergovernmental Panel on Climate Change
LiDAR	Light Detection and Ranging
LDAR	Leak Detection and Repair
LIHEAP	Low Income Home Energy Assistance Program
LIURP	Low Income Usage Reduction Program
MAOP	Maximum allowable operating pressure
MFC	Merchant Function Charge
MSC	Marcellus Shale Coalition
Mmbtu	One million British thermal units
MMcf	One million cubic feet
NGSI	National Gas Sustainability Initiative
NMFR	Near-miss frequency rate
NRCIP	Non-Residential Rebate Program
PFCs	Perfluorocarbons
PM_{10}	Particulate matter
PNDI	Pennsylvania Natural Diversity Inventory
PNHP	Pennsylvania Natural Heritage Program
PSE	Process safety event
PSMS	Pipeline Safety Management Systems
PPE	Personal protective equipment
PRT	Pandemic Response Team
RACT	Reasonably Available Control Technology
RCA	Root Cause Analysis
RDM	Revenue Decoupling Mechanism
ROW	Right-of-way
RNG	Renewable Natural Gas
RP	Recommended Practice
SASB	Sustainability Accounting Standards Board
SME	Subject Matter Expert
SMS	Safety Management System
STIMP	Storage Integrity Management Program
TCFD	Task Force on Climate-Related Financial Disclosures
TIMP	Transmission Pipeline Integrity Management Program Plan
TRIR	Total recordable incident rate
VOC	Volatile organic compound
WNC	Weather normalization clause
WEO	World Energy Outlook

Dear Stakeholder,

Thank you for taking the time to read National Fuel Gas Company's 2021 Corporate Responsibility Report ("Report"). This Report builds on our previous disclosures, highlighting the Company's significant efforts to further enhance the sustainability of our business and our ongoing focus on corporate social responsibility in our workplace and the communities in which we operate. Across our organization, initiatives continue to be driven by our guiding principles of Safety, Environmental Stewardship, Community, Innovation, Satisfaction and Transparency. With an operating history that spans over 120 years, and a workforce that lives and works alongside our critical energy infrastructure each day, we are deeply committed to ensuring that these core values are employed in a manner that highlights our important role as a corporate citizen across our operating footprint.

Embracing Our Role in the Energy Transition

As we look ahead, I strongly believe that natural gas, with its extensive infrastructure, low emissions intensity and high energy density relative to other reliable fuel sources, will continue to play an important role in meeting the world's increasing energy needs and reducing greenhouse gas (GHG) emissions. As is evident from recent events in Europe, energy security and availability is paramount. At the more local level, we are seeing continued growth in demand within our operating footprint of Western New York and northwest Pennsylvania, where natural gas' resilience, reliability, and affordability compared with other alternatives make it the energy of choice for both space heating needs and commercial and industrial processes.

Natural gas offers an abundant, resilient and affordable energy solution, and has been a critical component in the transition to a lower-carbon economy. For example, increased natural gas power generation has helped drive the approximate 39% reduction in electricity generation emissions since 2005. Moreover, with respect to National Fuel, our significant asset base, situated largely within Appalachia, one of the lowest emissions production basins in the United States, positions the Company well to further participate in the global energy transition.

However, to fully realize the benefits of natural gas as a lower carbon-intensive fuel and an integral part of the long-term energy complex, we too must lower the carbon footprint of our own operations across the value chain. Doing so will require us to continue to construct efficient and low-carbon intensity facilities, modernize our current systems, minimize fugitive methane emissions, and embrace low-carbon fuels like renewable natural gas (RNG) and hydrogen, and new solutions, like hybrid heating. We continue to take steps to achieve these important objectives.

Committed to Reducing Our Carbon Footprint

In 2021, we announced aggressive, yet credible, emissions reduction targets. We committed to reduce methane intensity at each of our major operating segments by 30% to 50% from 2020 levels, by 2030. We also established an absolute 25% GHG emissions reduction target by 2030 for our consolidated Company, using a 2020 baseline. Unlike the aspirational goals that have become commonplace, our targets, while challenging, are based on tangible initiatives the Company plans to implement. In calendar 2021, the Company made significant progress toward achieving these methane intensity targets, reinforcing our commitment to sustainably operating our assets.

The Company's success in reducing our methane intensity while substantially growing our business reinforces our commitment to constructing efficient and low-carbon intensity facilities and systems, and our continued focus on reducing the emissions profile of our existing operations. We plan to continue to build on our efforts, focusing on investments in emissions reducing work practice improvements, leveraging technology enhancements and exploring low-carbon initiatives.

Embedding Sustainability in Our Strategy

The Company continues to integrate sustainability-focused initiatives in our strategy across our operations while producing, transporting, storing and delivering affordable and reliable natural gas to our customers.

- **Responsible Natural Gas Production:** In early 2022, our Upstream Segment achieved certification of 100% of our natural gas production under Equitable Origin's EO100™ Standard for Responsible Energy Development, as well as certification of 121 wells under Project Canary's TrustWell™ responsibly sourced gas program. In addition, in August, Seneca Resources achieved an "A" grade for 100% of our natural gas production under MiQ's Standard for Methane Emissions Performance, the highest available certification level. These certifications position National Fuel to differentiate its responsibly sourced production in the marketplace and reinforces our commitment to efficient operations and reducing our carbon footprint.

- **Leveraging Existing Infrastructure:** Natural gas infrastructure has proven to be incredibly reliable and resilient and, as we look to the future, should be well suited to incorporate low and zero-carbon fuels. National Fuel is pursuing initiatives to help make these nascent technologies a practical reality. In March, the Company joined a newly-formed consortium, Building the Clean Hydrogen Economy, which will work together to create and launch innovative pilot projects that use clean hydrogen to decarbonize heavy transport, increase renewables integration, and decarbonize the U.S. energy sector more broadly. Additionally, in April, the Company joined a New York-led consortium of over 40 hydrogen ecosystem partners, to develop a proposal to become one of at least four regional clean energy hydrogen hubs designated through the federal Regional Clean Hydrogen Hubs program. Our membership in these important consortiums builds on our participation in energy technology-development groups such as the Low Carbon Resources Initiative, and the continuing efforts of the Company's Energy Transition Steering Committee, which is studying the feasibility and potential development of projects focused on RNG, hydrogen, and carbon capture utilization and storage.

- **Energy Efficiency:** Our Downstream Segment continues to develop and promote energy efficiency programs that encourage our customers to use less. Since its inception, our Conservation Incentive Program has resulted in a cumulative total reduction of approximately 1.6 million metric tons of carbon dioxide emissions for our New York utility customers. Additionally, we continue to advocate for additional energy efficiency initiatives across our service territory, including hybrid heating system installations and building envelope improvements.

Enhancing Our Sustainability Disclosures

National Fuel is committed to continuously improving our environmental, social, and governance ("ESG") performance. We report our progress in line with the Sustainability Accounting Standards Board (SASB) standards for each of our business segments, while also providing supplemental ESG information and metrics that align with key stakeholder priorities. In accordance with the Task Force on Climate-Related Financial Disclosures (TCFD) framework, the Company continues to enhance its disclosure surrounding governance of climate-related risks and opportunities, related risk management processes, and metrics and targets used to focus Company initiatives related to those factors. In March, the Company published our inaugural Climate Report, which further aligned our disclosures with TCFD. That report analyzes climate-related transitional and physical risks, and describes both our strategy for addressing climate-related risks and opportunities, as well as the resiliency of that strategy under a carbon constrained scenario.

The analysis detailed in the Climate Report – developed with the assistance of a third-party consultant using International Energy Agency (IEA) published scenarios – demonstrates that each of National Fuel's business segments can continue to operate profitably and generate free cash flow through 2050 even using the IEA's remarkably pessimistic assumptions on long-term demand for natural gas and long-term natural gas prices ($2.00 per dekatherm). Additionally, the physical risk analysis illustrates that our weather-hardened infrastructure is well-positioned to serve an essential role in addressing long-term energy reliability and resiliency needs, particularly during severe climate events.

Strengthening Our Safety Culture

Safety is a guiding principle and our top priority at National Fuel. We strive to establish a culture that is rooted in all aspects of safety. Throughout this report you will see the numerous programs and initiatives that we've undertaken to help ensure the safety of our customers, employees and operations. I'm proud to report that for the second year in a row, in fiscal year 2021, both our Utility and Pipeline & Storage businesses achieved an all-time combined best safety record for OSHA recordable incident metrics. Additionally, our Upstream Segment also saw an improvement in its employee OSHA recordable incident rate in calendar year 2021.

Furthermore, after more than two years, it looks like the pandemic is largely behind us. I am proud of the efforts of our 2,100 dedicated employees who have helped the Company further numerous new initiatives while continuing to provide safe and reliable natural gas service against the backdrop of the pandemic. Our employees make it possible for National Fuel to continue its long history of meeting our customers' needs, all while focusing on the efficiency and sustainability of our operations.

Focused on Diversity, Equity, and Inclusion

National Fuel believes that fostering a diverse, equitable and inclusive work environment directly correlates to our success. This Report marks our third year publishing workforce demographics data, in line with our guiding principle of transparency. We understand that progress toward improving our diversity metrics requires ongoing effort across all levels of our organization. To that end, I am pleased to announce that in January 2022, four employee resource groups were created to engage underrepresented employees. These groups are employee-led and made up of individuals with common backgrounds, interests, and demographic factors. The groups include EDGEFuel (ethnically diverse group of employees), FEMALEFuel, LGBTQ&AlliesFuel, and VETFuel (employees who serve(d) in the military).

Looking to the future, National Fuel is well-positioned to maintain its important role as a producer, transporter, and provider of vital energy supplies, as has been the case for well over a century. Our commitment to continuous improvement across all aspects of our organization, alongside our focus on the sustainability of our operations, the safety and reliability of our assets, and the diversity and inclusivity of our dedicated and talented workforce, fortifies the already strong foundation for our business, as well as for the achievement of our ESG initiatives and targets. We look forward to further reporting on our continued progress in the coming years.

David P. Bauer
President and Chief Executive Officer

EXECUTIVE SUMMARY

Report Overview and Highlights

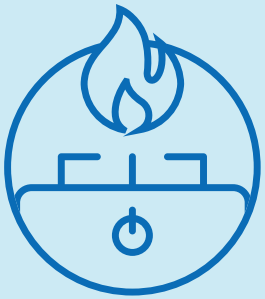
This Report provides discussion and analysis of National Fuel's ESG metrics, the Company's management of those metrics, and the programs and policies in place to achieve National Fuel's commitment to the safe and environmentally conscious operation of its business. The Report includes updated ESG disclosures from January 1 – December 31, 2021, and as appropriate, significant developments that have occurred since the end of this reporting period.

Disclosures within the Report are aligned with the Sustainability Accounting Standards Board (SASB) framework for each of National Fuel's principal business Segments, referred to within the Report as the Company's Downstream, Midstream, and Upstream segments, respectively, as well as certain disclosures under the Global Reporting Initiative ("GRI") standards. Additionally, in line with National Fuel's commitment to continuously improving our corporate responsibility and sustainability initiatives, including our ESG disclosures, the Report builds on our previous disclosures to include supplemental information in line with the TCFD framework, and enhances our emissions, and diversity and inclusion-focused, disclosures. A detailed listing of the location of the Company's ESG disclosures within this Report, by framework and subject area, is located in the Appendix.

Report Frameworks	**GRI-Referenced Standards** • Governance and Social metrics **SASB** • Downstream (Gas Utilities and Distributors) • Midstream (Oil & Gas – Midstream) • Upstream (Oil & Gas – Exploration & Production) **TCFD** • Governance of sustainability • Strategy concerning potential impacts of climate-related risks and opportunities, and resiliency of our strategy under climate-related scenarios • Risk management process to identify, assess and manage climate-related risks • Metrics and targets used to assess and manage climate-related risks and opportunities
Report Highlights	The Company is committed to continuously improving our corporate responsibility initiatives. Our Report further enhances past disclosures with a focus on: • Climate-related risks, opportunities, and resiliency • Progress towards emissions targets • Sustainability initiatives related to emissions reductions, low-carbon fuels, and responsibly sourced natural gas • Waste management program • Diversity, Equity, and Inclusion • Internal audit review prior to publication

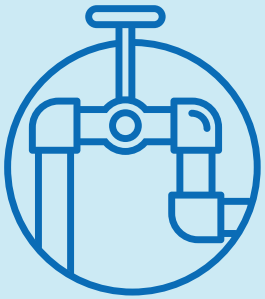
Company Overview

National Fuel is a holding company organized under the laws of the state of New Jersey and headquartered in Western New York. The Company is a diversified energy company engaged principally in the onshore production, gathering, transportation, and distribution of natural gas. The Company operates an integrated business, with assets centered in Western New York and Pennsylvania, being used for, and benefiting from, the production and transportation of natural gas from the Appalachian basin. Current natural gas production development activities are focused in the Marcellus and Utica shales, geological shale formations that are present nearly a mile or more below the surface in the Appalachian region of the United States. Pipeline development activities are designed to gather, store and transport natural gas production to new and growing markets. The common geographic footprint of the Company's subsidiaries enables them to share certain management, labor, facilities, and support services across various businesses and pursue coordinated projects designed to produce and transport natural gas from the Appalachian basin to markets in the eastern United States and Canada. The Company previously developed and produced oil reserves, primarily in California, prior to the divestiture of these assets on June 30, 2022. The Company reports financial results for four business segments: Exploration and Production, Pipeline and Storage, Gathering, and Utility.



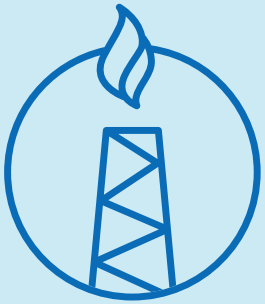
Downstream

National Fuel Gas Distribution Corporation ("Distribution Corporation" or "Downstream Segment"), a New York corporation, carries out the Company's Utility operations. Distribution Corporation provides natural gas utility services to approximately 754,000 customers through a local distribution system located in Western New York and northwestern Pennsylvania. The principal metropolitan areas served by Distribution Corporation include Buffalo, Niagara Falls and Jamestown, New York and Erie and Sharon, Pennsylvania.



Midstream

The Company's Midstream operations are carried out by the Company's Pipeline & Storage and Gathering subsidiaries (collectively the "Midstream Segment"). National Fuel Gas Supply Corporation ("Supply Corporation"), a Pennsylvania corporation, and Empire Pipeline, Inc. ("Empire"), a New York corporation, carry out the Company's Pipeline & Storage operations. Supply Corporation and Empire provide interstate natural gas transportation and storage services through integrated gas pipeline systems in Pennsylvania and New York. Wholly-owned subsidiaries of National Fuel Gas Midstream Company, LLC ("Midstream Company"), a Pennsylvania limited liability company, carry out the Company's Gathering operations. Through these subsidiaries, Midstream Company builds, owns, and operates natural gas gathering and compression facilities in the Appalachian region.



Upstream

Seneca Resources Company, LLC ("Seneca"), a Pennsylvania limited liability company, carries out the Company's Exploration & Production operations. Seneca is engaged in the exploration for, and the development and production of, natural gas in the Appalachian region of the United States.

Our Guiding Principles

National Fuel understands that to deliver long-term sustainable value for the benefit of stakeholders – shareholders, employees, customers, and communities where we operate – we must continue to conduct our business activities in a way that promotes our six guiding principles. These principles underpin all aspects of our operations, as well as our daily interactions with our stakeholders.

Safety

We value the safety of all our customers, employees and communities, and work diligently to establish a culture of safety that is embraced throughout the entire organization.

Environmental Stewardship

Environmental protection and conservation of resources are high priorities for National Fuel. We utilize procedures, technologies, and best management practices across our businesses to develop, build, and operate our assets in a manner that respects and protects the environment.

Community

We are committed to the health and vitality of the local communities where we operate. We work where we live and raise our families, and are constantly focused on the highest standards of corporate responsibility and accountability.

Innovation

We strive to exceed the standards for safe, clean and reliable energy development, embracing new technologies and investing in the future of our regions' energy resources. We envision a long and healthy future for our Company.

Satisfaction

We work to deliver reliable, high-quality service for our customers. We want our shareholders to see a strong return on their investment. We want our employees to work in a positive, safe and rewarding environment. We want our communities to be proud to call us neighbors.

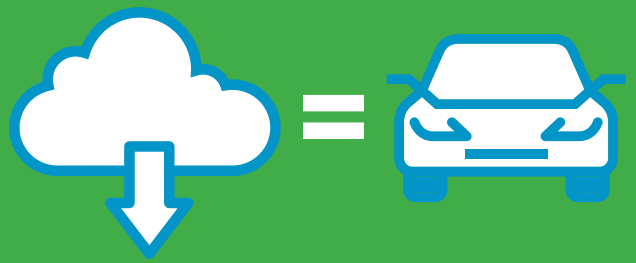
Transparency

We believe that open communication is key to maintaining strong relationships. We see value in educating our shareholders, employees, customers and communities about all aspects of our business.

CORPORATE RESPONSIBILITY HIGHLIGHTS | 2021

National Fuel has joined other natural gas companies that are voluntarily working toward **reducing methane emissions across the natural gas value chain to 1% or less by 2025.**

Downstream System Modernization Emissions Reductions Since 1990



8.43 Million MT CO_2e

1.83 Million Passenger Vehicles

Seneca announced it has achieved **certification of 100% of its Appalachian natural gas production**, over 1 billion cubic feet of daily gross production, under Equitable Origin's EO100™ Standard for Responsible Energy Development.

National Fuel® SAFE 4 the Right Reasons™

All Segments **improved performance** under OSHA safety metrics.

Focused on Utility Leak Management

Calendar Year-End 2016 - 2021

73%
Reduction in Year-End Outstanding Leaks

29%
Improvement in Year-End Discovered Leaks

Diverse and Independent Board of Directors

Board Independence
91% independent

Board Tenure
64% with more than 5 years of service

Board Diversity
27% diverse
Includes gender and racial/ethnic diversity.

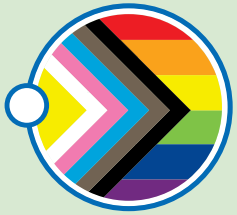
Supplier D&I Utility Spending

77% increase
in spending with diverse suppliers

Employee Resource Groups

FEMALEFuel

EDGEFuel



LGBTQ&Allies Fuel

VetFuel

$1.8 million

as donated by National Fuel, its Foundation and employees in 2021.

FACES OF FUEL VOLUNTEER PROGRAM

The "Faces of Fuel" volunteer program **provides opportunities for employees** to donate their time to charitable causes in their local communities.

GOVERNANCE AND RISK OVERSIGHT

The Company's strong corporate governance measures go hand-in-hand with our guiding principles of satisfaction and transparency. National Fuel's employees, managers and officers conduct the Company's business under the oversight of the Board of Directors to serve the long-term interests of the Company's shareholders and meet the needs of its customers. The Board has a fiduciary duty to oversee the management of the Company's operations and risks related thereto and to uphold those shareholder interests. The Board and Company management recognize that the long-term interests of stockholders are served by considering the interests of customers, employees and the communities in which we operate.

Strong Corporate Governance Practices

Our Diverse, Experienced and Independent Board of Directors

The Company's Board of Directors consists of individuals with extensive and diverse leadership experience within the energy industry, as well as complementary industries, including manufacturing and consulting. The Company believes that it is important for the make-up of the Board to reflect a diversity of experience related to the Company's business segments in which it operates, as well as a diversity of perspectives brought to the Board by the individual members.

Diverse and Independent Board of Directors[1]

Board Independence
91% independent

Board Tenure
64% with more than 5 years of service

Board Diversity
27% diverse
Includes gender and racial/ethnic diversity.

- Designated Lead Independent Director
- Separate roles of Chairman of the Board and Chief Executive Officer
- Average Director Tenure less than 7 Years
- Moving to Annual Election of Directors

1 The graph reflects the current makeup of the Company's Board of Directors as of September 1, 2022. In accordance with the NYSE Listed Company Manual, the Company does not consider a director independent if he or she is, or has been within the last three years, employed as an executive officer of the Company.

In addition, in recent years, National Fuel's Nominating/Corporate Governance Committee, which makes recommendations to the full Board on nominees for director positions, has invited qualified diverse candidates to stand for election to the Board, with successful results, as 3 of the last 6 directors who were added to the Board are diverse. Board member Rebecca Ranich also serves as Chair of the Nominating/Corporate Governance Committee and women have long occupied many of National Fuel's top corporate levels as described in the Female Leadership section.

The Board will continue its efforts to attract qualified diverse Board candidates whose expertise and personal characteristics align with the Company's long term business strategy. In 2021, the Board updated the Director Qualifications Guidelines, contained in the Company's Corporate Governance Guidelines, to clarify that "diversity of perspectives" includes all aspects of diversity, including, but not limited to, race, ethnicity, national origin and gender. The Board also updated the Nominating/Corporate Governance Committee's Process for Identifying and Evaluating Nominees for Director to include a commitment that the Nominating/Corporate Governance Committee will, when identifying and evaluating new candidates for election to the Board, include qualified racially, ethnically and/or gender diverse candidates in any initial board candidate pool when considering director candidates for nomination to the Board.

Diverse and Extensive Board of Directors Experience

Investment Community / ESG Engagement

In line with the Company's guiding principal of transparency, National Fuel believes that open communication and continued engagement with stakeholders is key to maintaining positive relationships and strong corporate governance practices.

Members of Company management, including members of the Company's Corporate Responsibility Executive Committee and Corporate Responsibility Executive and Management Committees, periodically engage with the investment community to obtain feedback on matters of interest to them. This includes engagement with shareholders and proxy advisory firms related to ESG matters in advance of the Company's proxy season. In addition, the Company engages in regular discussions with the investment community concerning National Fuel's operations, strategy, and sustainability-focused efforts, as well as overarching industry developments and trends. The Board has also directed management to continue to engage as appropriate with interested shareholders, and to inform it of any requests for meetings with members of the Board. The Board and management believe that this engagement facilitates important dialogue from which we gather various viewpoints.

Leadership and Governance – Business Ethics

National Fuel seeks to promote and maintain a culture committed to high standards of ethical conduct and integrity. The Company communicates its expectations for responsible and ethical conduct through our Code of Business Conduct and Ethics (the Code), which is applicable to the Company's directors, officers and employees. The Code reflects the Company's culture and long-standing commitment to adhere to high standards of ethics and integrity which meet, and frequently exceed, the requirements of law, and is designed to deter wrongdoing and to promote honest and ethical conduct.

Our Engagement Approach

National Fuel's Leadership Team ...

- Executive Leadership
- Senior Management
- Corporate Responsibility Committee Members
- Subject Matter Experts

Regularly Engages with Investment Community Stakeholders ...

- Institutional Investors
- Retail Shareholders
- Proxy Advisory Firms
- ESG Rating Agencies
- Credit Rating Agencies

On Important Operational, Strategic, and ESG Topics ...

- Climate/Sustainability
- Human Capital
- Executive Compensation
- Board Composition
- Business Strategy and Operations
- Key Industry Developments

Through Various Communication Mediums ...

- Investor Meetings
- Industry/Analyst Conferences
- Quarterly Earnings Calls
- Investor Relations Website
- Annual Shareholder Meeting
- Annual/Periodic Company Reports and Publications

Driving Further Discussion and Understanding .

- Board and Company management value and consider shareholder feedback
- Engagement allows the Company to address stakeholder comments and further enhance its disclosures and initiatives, where appropriate

Managing Business Ethics Internally

All Company employees share the responsibility for making ethical conduct central to our business operations and dealings.

The Company's internal Ethics Committee, chaired by the Company's Chief Compliance Officer who is also the Company's General Counsel, administers the Code as it relates to Company employees who are not executive officers and regularly reports on its activities to the Audit Committee. The Audit Committee is responsible for administering the Code as it relates to the Company's directors and executive officers. Additionally, the Audit Committee monitors compliance with the Company's Code and reviews management's response to violations of the Code. Discipline may be imposed for violations of the Code, including, where appropriate, termination of the offending individual's relationship and/or employment with the Company.

The Company's Employee Handbook Policy also explains and elaborates on what is expected of all employees to comply with the Code, and outlines Company policies relating to compliance with laws, rules and regulations on the following topics:

- Insider trading;
- Improper corporate payments, including bribes, kickbacks, and/or gifts;
- Political contributions;
- Equal employment opportunity;
- Non-discrimination and anti-harassment;
- Health and safety;
- Environmental compliance; and
- Business Records/Record Retention.

Additionally, on an annual basis, all National Fuel officers and supervisory employees are required to provide a personal statement of disclosure relating to any conflicts of interest and any known occurrences of fraud ("Annual Ethics Disclosure"). Officers and employees are reminded through their Annual Ethics Disclosure that they may use the toll-free hotline or dedicated website to anonymously report suspected wrongdoings, possible conflicts of interest or fraud. The same hotline and website are also publicized on the Company's investor relations website, internal intranet and common areas throughout National Fuel's offices. For calendar year 2021, the hotline received nine reports, which included three test reports conducted in conjunction with an upgrade by the hotline provider. External benchmarking evaluating the number of annual reports indicated that National Fuel is consistent with other companies. In addition to the Annual Ethics Disclosures, the Company requires employees to undergo additional ethics and compliance training with respect to conducting business with government officials.

Managing Business Ethics with Our Business Partners

The Company expects its business partners to comply with the standards of conduct set forth in the Code, the Company's Code of Vendor Conduct, National Fuel's Labor & Human Rights Guidelines and contractual obligations to National Fuel. The Company sends an annual letter to vendors, suppliers and contractors highlighting the Code, the standards therein, and the Company's expectation that vendors are aware of and comply with those standards (the "Vendor Ethics Letter"). The Vendor Ethics Letter communicates the Company's expectation that vendors, suppliers and contractors carefully consider, and comply with, National Fuel's business ethical standards. Among other standards, the Vendor Ethics Letter highlights that National Fuel employees may not, under any circumstances:

- Use their position as a National Fuel representative for personal gain through preferential treatment of vendors, suppliers, or contractors;

- Place themselves in a position that compromises their integrity or represents a conflict of their personal interest with National Fuel's interests; or

- Require vendors, suppliers or contractors to participate in or support any group, activity, political campaign, or organizations as a requirement of doing business with National Fuel.

Additionally, as part of National Fuel's commitment to promoting responsible business operations, the Company expects its suppliers, vendors and contractors to conduct business with integrity and in accordance with the Company's Code of Vendor Conduct. The Code of Vendor Conduct communicates to our business partners the Company's expectations that they conduct business with integrity and ensure that their employees, workers, representatives and subcontractors do the same. The Code of Vendor Conduct is not all inclusive, but provides guidelines for business partners to follow and serve as an overview of National Fuel's expectations for all those who do business with the Company. Among other things, the Code of Vendor Conduct addresses the Company's expectations with respect to the following:

- Code of Business Conduct and Ethics;
- Safety;
- Environment;
- Diversity;
- Labor Practices and Human Rights;
- Information Security; and
- Compliance.

Governance – Political Advocacy

As part of National Fuel's ethical and integrity driven culture, the Company is committed to maintaining the highest ethical standards when engaging in political activity. As the natural gas industry is highly regulated at the local, state and federal levels, the decisions made by policy makers can directly impact all aspects of the Company's operations. National Fuel advocates for policies to our business that benefit our customers, employees, shareholders, and the communities we serve. We believe our participation in the political process serves all of our stakeholders' interests by creating a more informed policy-making process. National Fuel's Political Activities Principles further address the Company's fundamental engagement principles, political contributions program, the Company's political action committees and lobbying activities, membership in organizations, political expenditures, and trade/business association expenditures, including dues allocated to lobbying.

Governance – Information Security

National Fuel believes that a strong information security program is critical to the Company's success and therefore is committed to continuously reevaluating and strengthening the Company's cybersecurity posture. To fulfill this commitment, the Corporate Information Security Steering Committee ("CISSC") meets quarterly to discuss emerging information security risks and the Company's corresponding mitigation and defense efforts. The CISSC is led by the Company's Chief Information Officer ("CIO") and Chief Information Security Officer ("CISO") and comprised of Information Security (InfoSec) professionals, leadership from key departments and the Company's senior management. The Company's CIO regularly provides information security updates to the Board. Information security risks are also identified and assessed as part of the Company's enterprise risk management program, which the Board is briefed on quarterly.

National Fuel's Information Security Program is aligned to the Cybersecurity Framework published by the National Institute of Standards and Technology. The InfoSec team is dedicated to promoting security awareness through personnel training and regularly reviewing internal information security policies, monitoring for anomalous behavior, investigating potential security events, mitigating

vulnerabilities, and assisting business partners with the goal of providing secure and resilient systems. The InfoSec team meets weekly with key Information Technology leadership to discuss information security issues.

Information Security Focus	Company Initiatives
Training & Internal Policies	• All employees with user access, and contractors with unsupervised system access to Company systems, complete annual information security training • InfoSec provides additional training to high-value targets • InfoSec reviews and updates company information security and device policies regularly

External Audits	• Annually engages Mandiant, an independent cybersecurity consultant, to assess aspects of Company technology
	• Voluntarily participated in one-off assessments focused on different information security issues performed by various U.S. federal agencies:
	  • Cybersecurity and Infrastructure Security Agency
	  • Transportation Security Administration
	  • Department of Homeland Security
	  • Federal Energy Regulatory Commission
	• Annually perform New York Public Service Commission (NYPSC) review of third party attestation as it relates to Case 13-M-0178 (protection of personally identifiable customer information)

Information Security Breaches	• Performs ongoing comprehensive investigations of our systems, and to the best of our knowledge the Company has not experienced an information security breach to its systems within the last three years • Maintains contracted relationship with forensic investigation, crisis communications, credit monitoring and legal service providers in the event of a breach • Conducts annual tabletop drill to test our Information Security Incident Response Plan and Procedures • Maintains cybersecurity liability insurance

National Fuel periodically reevaluates the cybersecurity program and roadmap to assess that planned initiatives are appropriate for the ever-changing threat landscape, and to ensure defense in depth.

Governance of Corporate Responsibility, Sustainability, and Climate Risk

The Board's structure and responsibilities are outlined in the Company's Corporate Governance Guidelines. Individual committees offer expertise and oversight on specific ESG factors.

Committee	ESG Factor Overview
Audit	• Financial Statement Integrity • Internal Control Systems • Audit Processes • Enterprise Risk Management Process (ERM)[1]
Compensation	• Compensation Philosophy and Practices • Executive Compensation tied to ESG metrics
Nominating/ Corporate Governance	• Corporate Governance and Performance • Oversight of Corporate Responsibility and Sustainability • Board Composition and Diversity

100% of members of the Audit, Compensation and Nominating/Corporate Governance committees are independent.

1 The ERM process is reviewed quarterly during the Audit Committee meetings, which all directors are invited to attend. However, the entire Board of Directors maintains oversight and responsibility of enterprise risks.

Nominating/Corporate Governance Committee

The Nominating/Corporate Governance Committee specifically has oversight for corporate responsibility matters that are significant to the Company and its stakeholders. The Company conducts business consistent with our six guiding principles of safety, environmental stewardship, community, innovation, satisfaction, and transparency. To that end, corporate responsibility and ESG matters are a standing agenda item at Nominating/Corporate Governance Committee meetings, which are typically attended by the full Board.

Organizational responsibility for corporate responsibility and sustainability flows from the Nominating/Corporate Governance Committee of the Board to our CEO and President, and throughout the Company via our Corporate Responsibility Executive Committee, of which the CEO is Chair. The Executive Committee is made up of the Company's senior executive team and our Corporate Responsibility Officer.

"Our strong governance and risk oversight practices have allowed us to identify, evaluate, and implement various corporate responsibility and sustainability initiatives across our businesses. We remain committed to providing fulsome ESG disclosures that communicate these initiatives and our sustainability-focused strategy to stakeholders."

Sarah Mugel
General Counsel, Corporate Secretary and Corporate Responsibility Officer

Our Governance of Sustainability

Nominating/Corporate Governance Committee
Oversees and provides guidance of Corporate Responsibility and Sustainability initiatives, strategies and decision-making.

Corporate Responsibility Executive Committee
Accountable to the Board for implementation and development of corporate responsibility and sustainability strategies. Participates in the enterprise risk management process.

Senior Officer Responsible for Corporate Responsibility
Executive responsible for corporate responsibility disclosure and advancing the Company's sustainability agenda.

General Manager of Corporate Responsibility
Responsible for identifying improvement opportunities and enhancing Company disclosure.

Corporate Responsibility Management Committee
Responsibility for prioritizing progression of corporate responsibility and sustainability agenda in specific SME areas, as well as updating Company disclosures.

- Governance and Risk Management SMEs
- Human Capital Development SMEs
- Environmental, Health and Safety SMEs
- Energy Transition SMEs

Audit Committee

The Audit Committee discusses guidelines and policies governing management's process for assessing and managing the Company's exposure to risk, and on a quarterly basis, at meetings which are attended by the entire Board, reviews the ERM described below. The Audit Committee also oversees the scope of work of the Company's Audit Services Department, which includes review of the internal audit function's annual risk-based audit plan. The Audit Services Department considers significant risk categories identified through the ERM process when creating its internal audit plan. Additionally, in conjunction with its review of the integrity of the Company's financial statements, the Audit Committee discusses with management major financial risk exposures and the steps taken to monitor and control those exposures. The Audit Committee also provides assistance to the Board in fulfilling its oversight responsibility relating to the integrity of the Company's financial statements, and the Company's compliance with legal and regulatory requirements.

Compensation Committee

The Compensation Committee is responsible for various aspects of executive compensation including approval of the base salaries and incentive compensation of the Company's executive officers. The Committee is authorized to evaluate director compensation and make recommendations to the full Board regarding director compensation. Additionally, the Committee may form subcommittees and delegate to those subcommittees such authority as the Compensation Committee deems appropriate, other than authority required to be exercised by the Compensation Committee as a whole. The Compensation Committee also assesses and approves short and long-term executive compensation measures, including GHG-related performance measures, which affect management compensation.

Risk Oversight and Risk Management

Risk Oversight

The Board retains oversight of strategic, financial, operational and regulatory risks. An important aspect of the Board's oversight role is the ERM process, under which enterprise-wide risks have been identified, including climate-related risk, along with mitigative measures to address and manage such risks. Through its ERM process, the Company identifies specific foundational risks, critical risks and potentially emerging risks and assesses these risks, along with any newly identified risks, on a quarterly basis with the Board. Management also reports quarterly to the Board on significant matters within these risk categories. In addition, management provides a detailed presentation on a topic related to one or more risk categories at each Board meeting. Additional review or reporting on enterprise risks is conducted as needed or as requested by the Board. The Board and management consider enterprise risks and opportunities in their strategic and capital spending decision process, and the Board directs management to integrate corporate responsibility concerns into decision-making throughout the organization.

Risk Management

National Fuel Gas Company has a long-standing risk management process to manage potential risks to our business, including potential risks related to climate change. The Company's General Counsel leads an internal ERM Team that manages the ERM process and reports to the Board. The ERM Team works with senior management to facilitate the identification and monitoring of foundational risks, and the assessment, management and monitoring of critical risks and potentially emerging risks within the major categories of strategic, financial, operational, safety and regulatory risks.

Foundational risks are the key risks that the Company constantly monitors and mitigates. As a result, these risks are not assessed as either critical or potentially emerging. Within these major risk categories, the Company also identifies physical and transitional risks and their potential financial impact under the TCFD subcategories. For this purpose, the Senior Management Team consists of the following:

- President and Chief Executive Officer
- Chief Operating Officer
- Presidents of the Company's primary subsidiaries
- Principal Financial Officer
- Principal Accounting Officer
- Chief Information Officer
- General Counsel

To identify foundational, critical and potentially emerging risks, each member of the senior management team meets with business unit leaders, business segment officers and department heads in their individual subsidiaries or functional areas of responsibility, to identify and provide an initial assessment for segment specific and functional area specific risks. The senior management team then discusses the identified risks and develops a list of the most material risks, both on a consolidated basis and by segment. Critical and potentially emerging risks are rated within an ERM matrix according to the following criteria:

- **Likelihood:** Measures how likely a risk will occur within the risk assessment period with current controls and mitigation measures in place.

- **Severity:** Measures how significant the risk impact is to the Company (primarily considers financial impact, impact to stock price, and reputational risk).

Based on this analysis, the senior management team assesses the significance of the identified risks to the Company. Risks are categorized as either critical or potentially emerging based on their position within the ERM matrix (based on likelihood of occurrence and severity of impact). Each identified risk is assessed on a 1-year, 5-year and 20-year basis.

- **Critical Risks:** Any identified risks assessed with a high severity in the 1-year or 5-year assessment regardless of likelihood, or any risks that have a sustained high likelihood of occurrence in the 1-year and 5-year assessments regardless of severity.

- **Potentially Emerging Risks:** Any risks with a low severity and likelihood in the 1-year and 5-year assessments, or any risks that have a sustained low severity in the 1-year and 5-year assessments, but a high likelihood of occurrence in the 5-year assessment.

In addition, the Company had identified foundational risks that are overarching risks that the Company regularly monitors and works to mitigate. Each identified critical risk feeds into one of these foundational risks. For those identified as critical risks, a more detailed narrative of the risk, outstanding items of interest taken into consideration when assessing that risk, and the current mitigation measures for that risk are provided.

On a periodic basis, the senior management team reviews the foundational, critical and potentially emerging risks and decides, based on individual discussions with the segment or functional area business leaders, whether any revisions or additions are warranted and whether there are any changes to the individual risk assessments. A member of the ERM team presents this reviewed document to the Board of Directors during Audit Committee meetings, and Directors provide input on risk identification and assessment.

Risk Management – Business Continuity Planning

National Fuel maintains a comprehensive business continuity program to ensure the Company can respond effectively to a crisis, which the Company mobilized during the COVID-19 pandemic. An extensive Incident Management Plan and a diverse, interdepartmental Incident Management Team (Team) support the program.

The Team proactively tests the Plan annually to verify the Company's readiness to respond to natural disasters or large-scale pipeline or information technology system events. In 2021, the Team conducted an in-depth simulation of, and response to, a realistic pipeline system incident and resultant widespread outage. When simulating its response to this scenario, the Team discussed critical topics, including but not limited to emergency response, curtailment, operational priorities, coordinating with emergency responders and regulatory investigators, mutual aid to restore service, logistics (lodging, meals, material), community assistance such as warming shelters, and internal and external communications.

The Team identified opportunities for improvement during the simulation to further strengthen National Fuel's ability to respond to a major incident in accordance with our guiding principles.

Management of Environmental Legal and Regulatory Risks

As part of the risk identification process, the Company has identified regulatory risks that could impact the Company financially. The Company's businesses are subject to regulations under a wide variety of federal, state and local laws, including regulations and policies related to environmental impacts and climate change. Existing statutes and regulations may be revised or reinterpreted and new laws and regulations may be adopted or become applicable to the Company, which may increase the Company's costs or affect its business in ways that are difficult to predict. The natural gas and oil industries are subject to regulatory requirements that are incredibly strict and rigorous with respect to environmental and ecological impacts. The Company regularly reviews and evaluates the impact that proposed environmental regulations may have on our business segments. Climate-related risks and the potential impacts associated with those risks are summarized above, as well as in the Company's periodic filings with the federal Securities and Exchange Commission.

As indicated in the *Management of Climate-Related Risks and Climate Strategy* section, the regulatory and legislative developments related to climate change may affect the Company's operations and financial results. Additionally, the trend toward increased conservation, competition from renewable energy sources, and technological advances to address climate change may reduce the demand for gas and oil. Listed below are different state requirements within our operating territories that could affect the Company's operations, and therefore are considered during the ERM process.

- **New York:** The Climate Act, which created emissions reduction and electric generation mandates, and related regulatory actions, could impact the Downstream Segment's customer base and inhibit the Midstream Segment's ability to develop new projects or facilities.

- **Pennsylvania:** Methane reduction framework for the oil and gas industry that has resulted in permitting changes with the stated goal of reducing methane emissions from well sites, compressor stations and pipelines.

Legislation or regulation that aims to reduce greenhouse gas emissions could also include GHG emissions limits and reporting requirements, carbon taxes, severance taxes, restrictive permitting, increased energy efficiency standards, and incentives or mandates to conserve energy or use renewable energy sources.

Our Senior Management Team is responsible for reviewing the application of the Company's ERM process and for reviewing the effectiveness of corporate strategy in prioritizing, addressing, and mitigating critical risks, including those climate risks related to sustainability. Business unit leaders are responsible for ensuring compliance with current risk management plans, and considering and developing, where warranted, additional mitigative measures for critical risks depending on the senior management's decision with respect to the risk ranking. Critical and potentially emerging risks are listed within the ERM matrix based on their impact to the Company. Critical risks are then prioritized based on their impact to the Company and the Company's ability to mitigate, transfer or control identified risks.

Management of Climate-Related Risk and Climate Strategy

The Company has elected to implement the recommendations of the Task Force on Climate Related Financial Disclosures, aligning our climate-related risk reporting with the four central themes of the TCFD – Governance, Strategy, Risk Management, and Metrics and Targets. In furtherance of these efforts, in March 2022, the Company published its inaugural Climate Report. Overall, the Company continues to take important steps to position its business to play a meaningful role in a lower carbon economy. The Company's Climate Report describes many of those efforts, highlighting the resilience of its operations to potential risks associated with climate change, and identifying opportunities to further participate in the ongoing energy transition.

Building on our sustainability governance and risk oversight disclosures, National Fuel has enhanced its climate-risk disclosure in its Climate Report through 1) identifying climate-related risks and opportunities, 2) describing how these climate-related risks and opportunities may impact the Company's strategy and financial planning, 3) describing how these climate-related risks are identified, assessed and managed through our ERM process, and 4) disclosing metrics and targets related for each of our business.

Climate Risk Assessment

The Company recognizes the ongoing developments and risks surrounding climate change, as well as the corresponding opportunities with the transition to a low-carbon economy. As described in *Risk Management*, the Board and management consider these risks and opportunities and their corresponding impacts on the organization's businesses and strategy through the enterprise risk management program, strategic planning process and capital spending decision process.

When evaluating the impact of climate-related risks, the Company considers short-, medium- and long-term time horizons and whether the identified risks could have a potential financial impact on the Company within those time horizons.

The climate-related risks for medium-term and long-term time horizons that have the potential to be the most impactful for the Company are summarized on the following page.

Medium-Term Risks

- **Policy and Regulatory Changes:** Regulatory changes at the federal, state, and/or local levels could require facility modifications, including potential new requirements aimed at reducing emissions for new and existing facilities, increasing capital needs or operating costs, or restricting existing operations.
- **Project Opposition:** Opposition during the project/facilities planning phase, or during or after construction, could limit growth opportunities if projects become difficult to construct due to prolonged timelines and increased construction costs.
- **Decreased Demand for Natural Gas and Oil:** Demand for fossil fuels could decrease through renewable energy adoptions and subsidization, which could lead to decreased revenues, or the inability to recover the Company's financial investment in plant.

Long-Term Risks

- **Policy and Regulatory Changes:** Evolving federal, state, and local statutory and/or regulatory approaches could negatively impact the Company's ability to grow or maintain its operations and assets. Potential developments could include regional or statewide moratorium(s) on natural gas; increased restrictions on certain operating practices; and cap-and-trade, severance tax and/or carbon tax implementation.
- **Financial Counterparty Restrictions for Carbon-Intensive Industries:** Access to and cost of capital could be negatively impacted due to limitations and restrictions on sources of funding, or insurer divestment from carbon-intensive industries could lead to increased insurance premiums.
- **Project Opposition (see Medium -Term Risks)**
- **Decreased Demand (see Medium -Term Risks)**

Climate-Related Risks and Potential Impacts

The Company considers climate-related risks as part of its ERM process, which ultimately informs corporate strategy and the capital spending decision process. The Company's process for identifying, assessing and managing climate-related risks is described in greater detail in the *Risk Management* section. The TCFD identifies two categories of climate-related risks – physical risks and transitional risks.

TCFD Physical Risks

Physical risks include acute event-driven physical risks (e.g. severe weather event) and chronic longer-term physical risks (e.g. shifts in climate patterns and sustained higher temperatures).

Climate-Related Physical Risks	Risk	Potential Impact
Acute	More frequent and severe weather events	• Business interruption or system shutdown leads to reduced revenues • Increased costs for operational damage that are unrecoverable • Increased insurance premiums
Chronic	Long-term shift in climate patterns resulting in new storm patterns or chronic increased temperatures	• Decreased revenues as a result of warmer weather/less degree days • Supply chain disruption

TCFD Transitional Risks

Transitional risks are those risks that arise from a transition to a lower-carbon economy.

Climate-Related Transitional Risks	Risk	Potential Impacts
Policy and Legal (Regulation, legislation and litigation)	**Regulatory and Legislative Initiatives** • Carbon taxes, and cap-and-trade programs • Lack of support for system modernization • More stringent emissions regulations or regulatory changes require major system remediation or changes in operating practices • Revisions to federal statutes, laws, or policies related to the drilling or completion of oil or natural gas wells **Political Risks Associated with Climate Pledges** • Regional or statewide moratoriums • Limited geographic footprint • Ban on hydraulic fracturing or increased permitting/operating requirements • Increased permitting requirements surrounding water usage and management for production operations **Increased Government Subsidies for Alternative Energy Sources**	• Increased costs and reduced revenue from reduction in consumer demand based on incremental costs for usage • Negative rate case results • Increased costs for system changes without rate recovery • Lower throughput/demand for natural gas and oil • Production curtailment and related revenue impacts • Decreased revenues • Inability to recover financial investment in plant • Limits pool of potential investors to finance growth • Access to and cost of capital negatively impacted • Increased insurance premiums • Increased shareholder activism leads to increased costs • Prolonged project timelines and increased construction costs • Limits growth opportunities • Impact on stock price
Technology (Improvements or innovations that support decarbonization)	• Decreased natural gas and oil demand due to renewable energy adoption / technology developments	
Markets (Shifts in supply and demand for fossil fuels)	• Shifts in supply and demand for fossil fuels	
Reputation (Changes in customer and community perceptions and behaviors)	• Investors shift away from carbon-intensive industries • Financial counterparty restrictions for carbon-intensive companies • Increased opposition to new projects/facilities • Employee attraction and retention • Litigation and lobbying aimed against carbon-intensive companies	

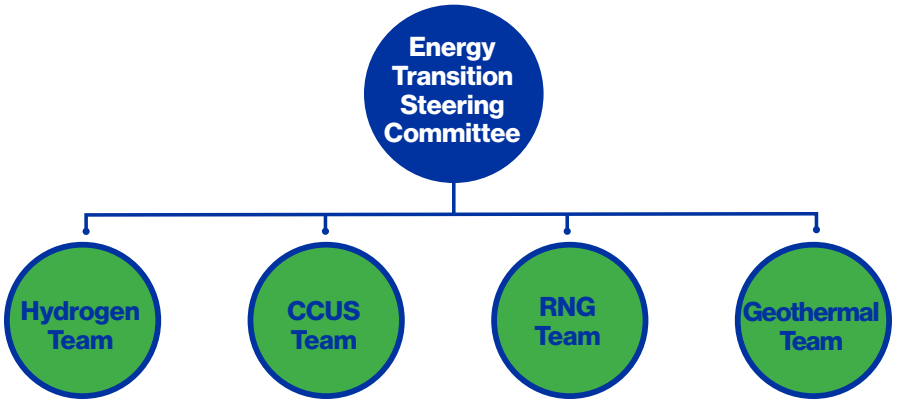
Identification and Evaluation of Climate-Related Opportunities

Natural gas has played a pivotal role to date in decarbonizing our economy, driving significant reductions in regional and national GHG emissions over the past decade. The Company believes that natural gas will continue to remain an important part of the future energy solution as the economy moves toward decarbonization, with continued coal plant retirements and conversions from heating oil to natural gas. Climate-related opportunities arise through the Company's pursuit of mitigating climate-related risks, as well as the Company's consideration of business development opportunities presented as part of the transition to a low-carbon economy.

The Company's Energy Transition Steering Committee guides Company investment opportunities as the economy moves toward decarbonization. The Committee's goal is to reduce the Company's emission profile and find new business development opportunities. The Steering Committee is made up of the following:

- President and Chief Executive Officer
- Chief Operating Officer
- Presidents of the Company's primary subsidiaries
- General Counsel
- Treasurer of the Downstream and Midstream Segments
- Vice President of Commercial Services - Pipeline & Storage business

The Company has also developed specific teams made up of technical, regulatory and business development subject matter experts focused on hydrogen, Carbon Capture, Utilization and Storage (CCUS), RNG and geothermal. Each team reports up to the Energy Transition Steering Committee, which is tasked with reviewing the team's progress, establishing next steps, and providing direction on time and resource allocation that will best position the Company for the future.



Currently, the Company is pursuing ways to improve resource efficiency and lower emissions, as well as exploring alternative low- and zero carbon fuel sources. The potential impact of these climate-related opportunities could include operational efficiencies resulting in increased revenue and lower costs, greater access to capital at a potentially lower cost due to the Company's reduced carbon footprint, and increased revenues, earnings, and cash flows driven by execution of business development opportunities.

Identified Opportunities under the TCFD Framework

TCFD Category	Climate-Related Opportunities
Resource Efficiency	• Modernize existing equipment to minimize emissions • Install low-emissions technology on new facilities • Minimize freshwater consumption and usage • Promote customer efficiency • Use more efficient distribution and production processes
Energy Source	• Leverage alternative energy sources and efficiency initiatives to reduce the Company's energy usage
Products and Services	• Explore leveraging our existing infrastructure to transport RNG and alternative low-carbon fuel sources, such as blue and green hydrogen • Explore carbon capture utilization and storage opportunities
Markets	• Access to capital for best-in-class ESG performers • Access to markets seeking responsibly sourced natural gas production
Resilience	• Improved efficiencies for natural gas development and gathering operations within contiguous acreage position

Ensuring the Resilience of our Business to Climate Risk

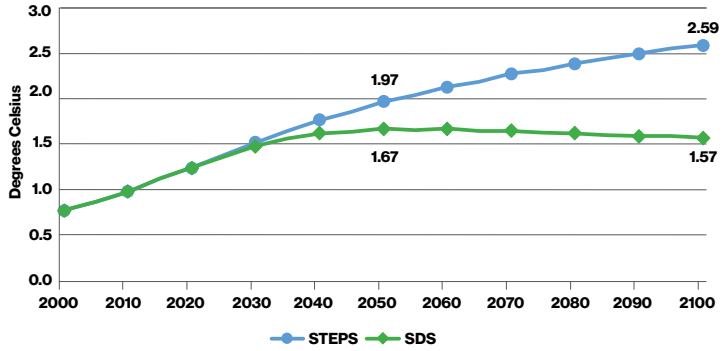
Transitional Risk Analysis

In March 2021, National Fuel commissioned a study, which was published by Guidehouse Inc., assessing the New York Climate Leadership and Community Protection Act's ("CLCPA" or Climate Act") impacts on New York's energy system and communities, including our New York utility service territory. The Guidehouse study—Meeting the Challenge: Scenarios for Decarbonizing New York's Economy—evaluated scenarios for meeting the state's 2050 GHG emission reduction goal, focusing on the interplay of energy efficiency, electrification, hybrid heating solutions and low-carbon fuels to leverage existing utility infrastructure and provide cost-efficient solutions. In short, the Guidehouse study concluded that multiple pathways could achieve the state's decarbonization targets, but a pathway that deploys a wide range of technologies can provide crucial resilience and reliability benefits. Specifically, the study illustrates how increasing the supply of renewable natural gas and hydrogen in the existing gas system can help in decarbonizing sectors that would be difficult to convert to electricity (e.g., the industrial sector).

Additionally, in connection with the publication of the Company's 2022 Climate Report, in 2021, National Fuel retained ERM, an independent third party consultant, to conduct a climate scenario analysis across all segments of its business. The TCFD Guidance directs companies to: "[d]escribe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario."

For the purposes of this analysis, National Fuel utilized future energy market scenarios developed by the International Energy Agency (IEA): the Stated Policies Scenario (STEPS), and the Sustainable Development Scenario (SDS) to test the resiliency of the Company's assets and operations against potential future climate-related transitional risks. Each scenario assumes a different set of policy changes, as well as market trends (demand), energy efficiencies and technology advancements. Subject matter experts from National Fuel worked with ERM to evaluate the implications of decarbonization pathways consistent with the carbon constrained SDS from the World Energy Outlook 2021.

IEA Estimated Global Median Surface Temperature Rise (World Energy Outlook 2021)



The SDS is a low-carbon scenario, consistent with limiting the average global temperature increase well below 2°C from pre-industrial levels. Many companies rely on the SDS scenario for climate risk assessment because it charts an ambitious transition to a low-carbon energy system, consistent with the goals of the Paris Climate Agreement. In the IEA SDS demand-constrained scenario, steep declines in oil and natural gas demand combined with a large increase in renewable energy production put downward pressure on oil and natural gas prices. The trajectory for emissions in the SDS scenario is consistent with reaching global net zero CO_2 emissions in 2070. Under the SDS scenario, natural gas prices in the U.S. are projected to be around $2/MMBtu from 2030 to 2050.

IEA Scenario Assumptions (World Energy Outlook 2021)

	2020	2030	2035	2040	2045	2050
Stated Policies (STEPS)						
IEA crude oil ($/barrel)	44	77	82	85	87	88
US natural gas ($/MMBtu)	2.0	3.6	3.7	3.8	3.9	4.3
North America natural gas production (Tcf)	41.1	46.1	45.6	44.7	43.0	41.9
Sustainable Development (SDS)						
IEA crude oil ($/barrel)	44	56	54	53	51	50.0
US Natural gas ($/MMBtu)	2.0	1.9	2.0	2.0	2.0	2.0
North America natural gas production (Tcf)	41.1	35.5	25.9	20.7	17.0	15.3

Importantly, the assumptions above are those of the IEA, and are not depictions of the Company's expectations and forecasts as to natural gas demand and pricing over the respective time periods considered, nor the expected profitability or cash flow generation potential of our business over the long-term. For example, it is difficult to reconcile the IEA's use of a $2.00 MMBtu long-term natural gas price assumption (well below current pricing levels and the longer-term natural gas strip) under the SDS, particularly when considering the critical function that pricing serves in incentivizing producers, including those in key production basins such as Appalachia, to continue to deploy capital to meet demand. The Company expects that there will be a long-term need for natural gas, particularly in cold weather regions such as the Northeastern United States, due to its reliability and affordability, and that Appalachian natural gas production, which has a much lower carbon intensity than other basins within North America, will remain a fuel of choice for consumers. We also expect that natural gas will play a long-term, critical role complementing the expansion of renewable energy – providing a readily dispatchable and reliable fuel source during periods where renewables are unable to meet increased energy demand or are otherwise unavailable.

Under the SDS, our analysis showed that National Fuel can continue to operate profitably and generate free cash flow through 2050 even using the IEA's remarkably pessimistic long-term natural gas price of $2.00 per dekatherm and dramatically reduced demand.

Furthermore, due to the national focus of the SDS, our analysis did not take into account significant potential regional benefits or other key positive differentiators for National Fuel's operations, including the proximity of our pipelines to large winter-focused energy demand markets, our significant depth of prospective natural gas drilling locations within Appalachia, and our large fee-acreage position in the Marcellus and Utica shales, which provides a cost advantage versus peers. These key differentiators, along with our analysis under the respective scenarios, provide the Company with further confidence in our portfolio's resilience.

Further details on the Company's segment specific transitional climate-risk analysis is available in the Company's 2022 Climate Report.

Physical Risk Analysis

Similar to transitional climate risks, the Company has also undertaken a review of future physical risks from climate driven hazards across Upstream, Midstream, and Downstream assets in its portfolio. Specifically, these risks were evaluated using climate change projections assuming various global warming scenarios. Climate change projections generated from global climate models (GCM) were used to estimate how climate hazards and climate extremes may fluctuate in the future and pose risk to assets and operations. For this physical risk climate assessment, the Company used the most recent GCM, the Coupled Model Intercomparison Project Version 6 (CMIP6),

GCMs, like CMIP6, include "scenarios" which represent different climate projections based on the ways society could react to climate change. These scenarios take into account both the societal drivers of human interface with climate change, known as the Shared Social Pathways (SSPs), as well as the potential amount of GHG concentrations, known as Representative Concentration Pathways (RCPs).

The TCFD recommends using multiple scenarios when conducting physical risk assessments to evaluate the range of possible risks that a company could experience. The Company conducted a physical risk assessment with two climate scenarios from CMIP6, in alignment with TCFD recommendations:

- **SSP3-RCP7.0:** Business-as-usual scenario. Society follows a regional rivalry trend with competition among regions, low technological advancement, and high challenges to both adaptations and mitigations. Global temperatures are held below 4°C by 2100.

- **SSP1-RCP2.6:** Optimistic and attainable scenario. The world follows a sustainable path with low challenges to mitigations or adaptations. Global temperatures are held below 2°C by 2100.

The Company stress tested a representative sample of its critical assets to evaluate its exposure to climate physical risk by analyzing the 4-degree Celsius scenario. In addition, the 2-degree Celsius scenario is used to evaluate the range of possible climate exposures.

Climate Hazards

Acute	Chronic
• Flooding	• Extreme Heat
• Landslides	• Extreme Cold
• Hurricanes	• Water Stress & Drought
• Wildfires	

To further understand the mid- and long-term physical risks, the Company reviewed the 30-year average risks under both scenarios at two-time horizons: 2030 and 2050. Both acute hazards (hurricanes, riverine flooding, coastal flooding, wildfires, landslides, extreme rainfall) and chronic hazards (water stress, extreme heat, and extreme cold) were evaluated under each scenario and at each time horizon. The analysis drew on the most recent climate projections available for each climate hazard to create modeled outcomes based on publicly available datasets.

Asset vulnerability to each type of hazard was also a critical metric considered during the physical risk assessment. Climate hazards derived from the projections were combined with vulnerabilities associated with each of the Company's asset classes to generate a normalized climate physical risk score for 2030 and 2050 under each scenario. These physical risks were compared against each assets criticality to business operations to understand potential impact on the Company.

In accordance with TCFD recommendations, the analysis calculated the indicative financial risks due to direct damage or business interruptions from future climate driven hazards. These financial risks were derived based on the physical risk calculated from asset exposure and hazard intensity/frequency. Limitations of this analysis include variability, accuracy, and uncertainties inherent in the climate projections and relating those projections to potential impacts on the Company's assets and operations.

This comprehensive review of future physical risks from climate-driven hazards across critical assets within our Upstream, Midstream and Downstream Segments indicated that there is relatively low financial risk from climate hazards in 2030 and 2050 to our facilities and operations. This is largely due to the location of our assets, coupled with the fact that the vast majority of our infrastructure is designed to withstand severe weather. Further details on the Company's segment specific transitional climate-risk analysis is available in the Company's 2022 Climate Report.

Climate-Related Metrics and Targets

In connection with the Company's ongoing sustainability efforts, which include its enhanced TCFD disclosures, the Company evaluated key metrics and developed targets to measure and monitor its performance and progress in the future in managing GHG and methane emissions. National Fuel has established targets on a consolidated basis and at the segment level: a corporate-level Scope 1 & 2 GHG emissions reduction target (2020 baseline), and segment-level Scope 1 & 2 methane emissions intensity targets (2020 baselines). Additionally, the Utility Segment set Scope 1 reduction targets for delivery system emissions (1990 baseline). Through the risk management process, the Company identified these metrics as the most useful in managing climate-related risks and established corresponding targets to further our emissions reduction strategy.

- Methane Intensity Reduction Targets at each of our businesses
- GHG Emissions Reduction Target for the consolidated Company
  - 25% reduction in total GHG emission by 2030
- Utility Delivery System GHG Emissions Targets
  - 75% reduction by 2030
  - 90% reduction by 2050

In calendar 2021, the Company made significant progress against its various methane intensity targets as shown on the following page. At the corporate level, the Company's goal is to reduce GHG emissions 25% by 2030. Notwithstanding the significant growth of our federally-regulated pipeline business – placing into service a 330,000 dekatherm/day expansion project – and a significant increase in our natural gas production, the Company-wide GHG emissions were flat versus 2020 (increased by 0.01%). Maintaining flat emissions while meaningfully growing

our business illustrates the Company's efforts to construct efficient and low-carbon intensity facilities and systems, with a continuing focus on reducing the emissions profile of our existing operations. We plan to continue to build on our efforts to meet each of these targets in the years ahead.

More information pertaining to the Company's GHG emissions can be found in the *Downstream Segment's Greenhouse Gas Emissions* disclosure, the *Midstream Segment's Greenhouse Gas Emissions* disclosure, and the *Upstream Segment's Greenhouse Gas Emissions* disclosure.

Progress Toward Methane Intensity Targets

2030 targets based on implementation of expected emissions reduction initiatives

Methane Intensity

	Exploration & Production	Gathering	Pipeline & Storage	Utility
Reduction Since 2020	4.9% Reduction	11.4% Reduction	24.1% Reduction	6.2% Reduction
2030 Target	40% Reduction	30% Reduction	50% Reduction	30% Reduction

OUR EMPLOYEES AND COMMUNITIES

Human Capital Management

The ongoing success of National Fuel and its subsidiaries is the direct result of our employees' hard work and dedication. National Fuel employs over 2,100 full-time employees across its New York, Pennsylvania, and Texas locations. The Company prides itself on being a local employer that never compromises its integrity and commitment to the Company's guiding principles.

Culture Focused on Safety and Engagement

Safety Culture

National Fuel continuously works to establish a culture that focuses on all aspects of safety. The Company has implemented numerous safety programs and management practices to foster a safety culture embraced throughout the whole organization. See *Integrity of Gas Delivery Infrastructure*, *Operational Safety, Emergency Preparedness & Response*, and *Workforce Health & Safety* for more information related to the Company's safety programs and management practices.

Throughout the COVID-19 pandemic, the Company has prioritized the safety of and support for our workforce. As a provider of an essential service, National Fuel remains committed to the safe and reliable delivery of natural gas to our communities while maintaining the safety of our employees and customers. Throughout the pandemic, the Company's Pandemic Response Team (PRT) has monitored and implemented a comprehensive response plan to ensure continued operations and to protect the health and safety of our employees.

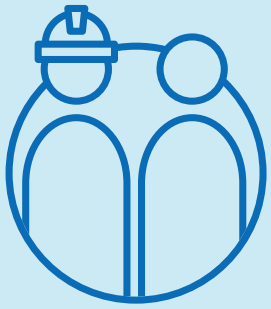
Continued Employee Engagement

- **Focus on Flexibility:** Following the high participation rate from the Company's 2021 employee engagement survey, the Company will continue to make listening to employees a priority. In response to a strong desire for more flexible work arrangements, the Company formally introduced hybrid work schedules into the many areas of our business where remote work could be an option. There is a high level of participation in the hybrid work model, and we continue to look for ways to create a flexible, inclusive work environment that is responsive to our employee engagement.

- **Focus on Inclusion:** Companies thrive when employees are valued and respected. In 2021, we asked employees about the Company's focus on diversity and inclusion and its integration within our Company culture. We believe the positive sentiments received from our workforce reflect our increased diversity, equity, and inclusion initiatives. To further our inclusion initiatives, in January 2022, the Company created four employee resource groups (ERGs) to engage and connect with underrepresented employees. The groups are voluntary, employee led, and are comprised of individuals who join based on common interests, backgrounds, and/or demographic factors, as well as group allies. The groups provide employees an opportunity for professional development through networking and mentoring opportunities, community involvement, as well as a vehicle for employees to communicate their perspectives directly to senior management, with an executive sponsor for each group.

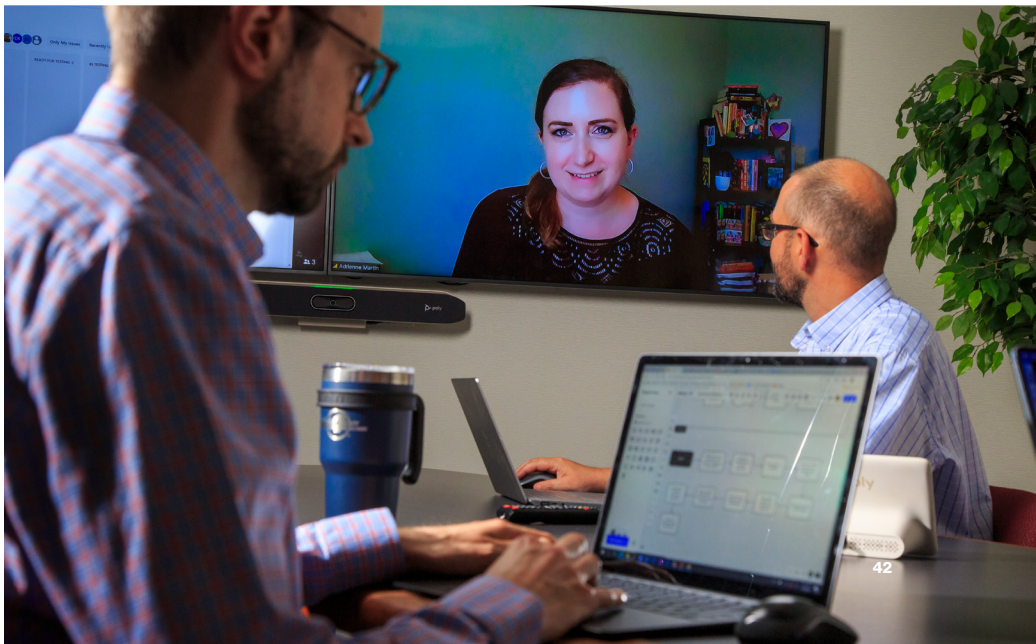
FEMALEFuel **EDGE**Fuel **LGBTQ&Allies**Fuel **Vet**Fuel

2021 Employee Engagement Survey



93%
Feel the work they do is important to National Fuel and our customers.

91%
Agree their co-workers treat them with respect.



EMPLOYEE RESOURCE GROUPS

In early 2022, **National Fuel created and launched four employee resource groups (ERGs)** — voluntary, employee-led groups made up of individuals who join together based on common interests, backgrounds and/or demographic factors.

These ERGs gather, share, learn, and network, with the goal of strengthening our culture of inclusion.

FEMALEFuel

"The members of FemaleFuel are engaged and committed to making a positive impact for women at National Fuel and in the communities we serve. We are excited to network and mentor our coworkers to help promote women at all levels of the organization."

Rachael Sebesta, Senior Engineer

"It is encouraging to see diverse and minority employees from across the Company, at varying levels of employment, come together to support each other and the Company's DEI initiatives. One of our goals is to help educate our colleagues on the importance of cultural awareness both in the workplace and the communities where we operate."

Sarah Washington, Senior Attorney

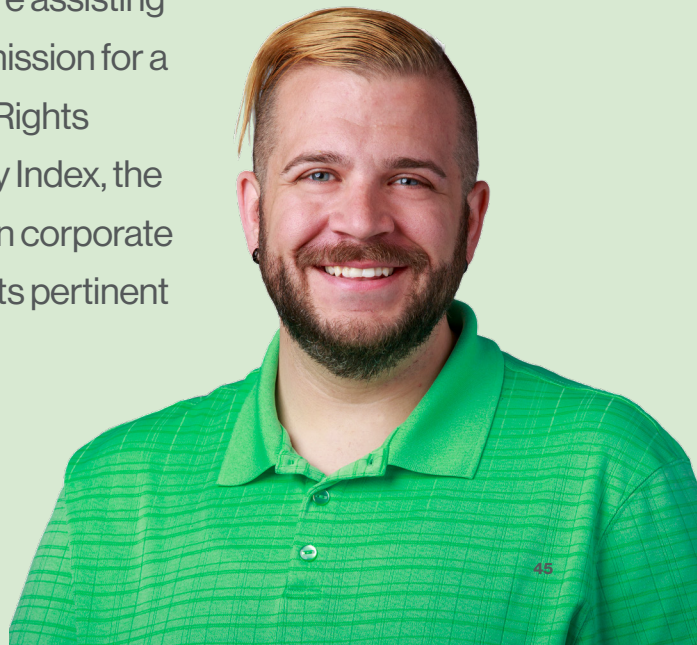
EDGEFuel

(Ethnically Diverse Group of Employees)

LGBTQ&AlliesFuel

"National Fuel has made great strides in supporting LGBTQIA+ employees by creating this resource group and by offering inclusive benefits for all. We are assisting Human Resources in its submission for a rating from the 2023 Human Rights Campaign Corporate Equality Index, the national benchmarking tool on corporate policies, practices and benefits pertinent to LGBTQIA+ employees."

Alex Sphon, Accountant



"VetFuel recognizes the importance of supporting veteran and active military employees by providing opportunities to connect with one another and share experiences. We are focused on assisting members through professional development and networking, as well as supporting veterans within the communities where we operate."

Robert Young, Operations Supervisor

National Fuel has been an avid supporter of the Buffalo Niagara Honor Flight for more than 5 years as it recognizes United States veterans for their sacrifices and achievements by flying them to Washington, DC to see the monuments built in their honor at no cost to the veteran.

VetFuel

Human Capital Management – Employee Attraction and Retention

The ongoing success of National Fuel is the direct result of our employees' hard work and dedication. The Company aims to attract the best employees and to retain those employees by striving to offer competitive benefits and compensation packages, as well as career development and training opportunities. The Company also prioritizes employee safety and wellness, and strives to create a safe, inclusive, and productive work environment for everyone.

In 2021, the Company created an Employee Referral Program for its Midstream and Downstream Segments that offers bonus incentives to referring employees if their referral gets hired. The Company believes that this program will help identify talented individuals as part of the recruitment process and reflects referring employees' endorsement of the Company's culture and workforce development.

Invested in our Employees

National Fuel is only as strong as the human capital that we retain and develop. To attract employees and meet the needs of our workforce, National Fuel offers a robust benefits package at all our subsidiaries, as well as tools and development resources to enhance their skills and careers. Our benefits package options may vary depending on type of employee (full-time versus part-time) and date of hire. Additionally, the Company continuously looks for ways to improve employee work-life balance and well-being.

Our Employee Benefits and Development Opportunities

Benefits	Lifestyle	Development
Healthcare • Medical and prescription drug • Dental • Vision **Insurance** • Life insurance • Accidental death and disability • Short-term disability • Long-term disability • Optional life insurance • Business travel accident **Financial** • 401(k) with matching company contribution • Company funded retirement savings account • Flexible spending account for medical care reimbursement • Flexible spending accounts for daycare and adoption expense	• Paid time off ("PTO") • Alternative work schedules • Flex hours • Matching charitable giving program • Family and medical leave (includes parental leave) • Faces of Fuel volunteer program • Lactation friendly workplace • Fertility care benefits • Professional part time employment track • Hybrid in-office/ remote work options, where feasible • Employee Resource Groups	• Tuition aid program for educational pursuits related to present work or possible future positions including sponsorship of Professional Engineer Licensing • Continuous talent review and succession planning • Professional development and possible cross-training areas discussions encouraged during annual performance reviews • Corporate and technical training programs based on position and employee need • Opportunities for on-the-job growth, through stretch assignments or temporary projects • Supervisory employees meet at least annually one-on-one with a member of the leadership team to discuss potential career paths and employee development

Diversity and Inclusion

National Fuel is committed to hiring and developing qualified individuals who can enhance and contribute to the diversity of our workforce and reflect the diverse communities we serve. The Company recognizes that a diverse talent pool provides the opportunity to gain a diversity of perspectives, ideas, and solutions to help the Company succeed. To further our commitment to diversity and our guiding principle of transparency, National Fuel tracks diversity indicators and shares that demographic data within this report. National Fuel believes that being transparent is one way we can remain accountable and show progress in future years that reflect our diversity and inclusion commitment. To build on that accountability, beginning in fiscal year 2021, the Compensation Committee adopted specific performance goals as part of the Company's at-risk executive incentive compensation, including diversity and inclusion goals for each officer.

Community Outreach Focused on Diversity

The Company considers diversity when making hiring and promotional decisions. National Fuel endeavors to cast a wide net of potential candidates to ensure we are considering all qualified individuals. Due to the rural nature of many of our service locations and employment opportunities associated with those locations, the Company faces unique hiring challenges in attracting qualified individuals for those locations.

National Fuel Scholar: Charles Morrison

Charles' love of learning through life experiences grew as he was a part of Buffalo Prep, a rigorous program that provides access to and prepares students to achieve success in college preparatory schools and college. The 2019 St. Joseph's Collegiate Institute graduate credits his school and Buffalo Prep for motivating him with the drive to excel in all that he does, fueling his desire for a well-rounded education.

In 2019, Charles was awarded a National Fuel Gas Company Foundation Scholarship, allowing him to continue his education. He will graduate in December 2022 with a Business Management degree from Davis and Elkins College in West Virginia. This scholarship has shown Charles that there are people, especially his family, invested in supporting him and his educational goals. A leader, Charles is in the Investment Club, Black Student Union Vice President, and part of Alpha Sigma Theta Fraternity. He spent the summer as an intern in National Fuel's Finance Department, and after he graduates, Charles will pursue a Master's in Urban Planning.

"I am grateful to National Fuel for encouraging me to continue learning in the classroom and beyond, and for helping me make obtaining a college degree a reality."

The Company continues to collaborate with community groups and organizations to help promote awareness of job opportunities within diverse communities and hopes to continue to build on this trend with the initiatives outlined below.

- Participates in community outreach events to educate job seekers about our commitment to equitable employee representation.
- Encourages employees to consider diversity when making referrals through the Employee Referral Program.
- Partners with community organizations to sponsor scholarship programs, which provides significant financial support to underrepresented individuals pursuing college degrees in STEM or business-related fields.
    - Since 2019, the Company has awarded a $15,000 scholarship per year for a total of four years to college bound seniors. In 2021, 8 students received the scholarship, and 2 of these students also participated in the Company's summer internship program.
    - The Company maintains touchpoints with the scholarship recipients to provide support throughout their college experience, as well as opportunities to learn about National Fuel and potential job opportunities.

Additionally, the management and executive groups regularly participate in the interview process and are actively involved in the promotion process, which helps reinforce their accountability for equitable representation. Internally, the Company maintains a job posting program, in which many openings are posted publicly for the employee group to see, and which provides an opportunity for individuals to self-identify for positions throughout the organization. Additionally, Company officers are encouraged to recommend individuals for cross-training opportunities within the organization.

Inclusion Commitment Reinforced Through Policies

To address the social risks inherent in any workplace, the Company has developed a robust compliance program and set of policies designed to create a safe, inclusive, and productive work environment, and reinforce our commitment to workplace inclusion.

- **Employee Handbook Policy:** Includes equal employment opportunity commitments and non-discrimination and anti-harassment disclosures, which communicate the Company's expectations with respect to maintaining a professional workplace free of harassment.
- **Nondiscrimination Statement:** Provides notice of the Company's policy on nondiscrimination and accessibility requirements, as well as notice of free language assistance services available to stakeholders.
- **Nondiscrimination and Anti-Harassment Policy:** Prohibits discrimination or harassment against any employee or applicant based on sex, race/ethnicity, or the other protected categories.[1] This policy is sent to employees annually through the employee survey and attestation process.
- **Labor and Human Rights Guidelines:** Guided by the International Labor Organization's (ILO) core labor principles concerning nondiscrimination, freedom of association and collective bargaining, forced labor and underage workers in the workplace. The Company also includes information with respect to grievance reporting.

1 The Company's Non-Discrimination and Anti-Harassment Policy lists the following protected categories: age, race, creed or religion, color, national origin, sexual orientation, gender identity or expression, military or veteran status, sex or gender (including pregnancy, childbirth or related conditions), disability, predisposing genetic characteristics, familial status, marital status, status as a victim of domestic violence, and employee or dependent's reproductive health decision making.

- **Prevention Training:** Educates on and reinforces commitment to a harassment free workplace, which is further supported through regular communication of policies prohibiting discriminatory practices.

- **Executive Support:** Annually, the CEO reinforces the Company's commitment to equal employment opportunity by signing a corporate Non-Discrimination and Anti-Harassment Policy and EEO Policy Statement. Both the Non-Discrimination and Anti-Harassment Policy and EEO Policy Statement are then displayed at all Company locations, included in all employee handbooks, and discussed with all new hires during their onboarding process.

2021 Diversity and Inclusion Initiatives

The Company understands that creating a diverse and inclusive workforce is critical to our success. As we continue the journey to having a more diverse and equitable organization, the Company continues to reimagine our current processes so that we may be a company that is relatable and a reflection of the communities we serve. In furtherance of our diversity commitments, the Company instituted the initiatives on the following page.

"I'm proud of the efforts and initiatives the Company has embraced to make diversity and inclusion integral parts of our business. Continuing to raise cultural awareness and promote diversity will help strengthen our culture of inclusion and better reflect the communities we operate in."

Annika Samuels
Director Diversity and Inclusion

Company Diversity & Inclusion Initiatives

Ongoing D&I Initiatives	Progress
Focus on Diverse Recruitment	• Executive team receives a monthly report about the composition of the Company's salaried (non-hourly) applicant pools. • D&I Director and Officer in charge of Human Resources meet weekly to discuss diverse recruitment strategies. • D&I Director also meets weekly with the General Manager of Human Resource to discuss opportunities and resources for the recruiting team.
Initiatives of D&I Director	• Supports Employee Resource Groups and their leaders. • Develops Internal Talent Pipelines: Maintains close partnerships with the employment teams to develop talent pipelines, sponsorships, and support activity for diverse employees. • Partners with Corporate Communications: Collaboration to ensure that Company communications and branding initiatives offer diverse perspectives and are inclusive in targeting the communities we serve and our employee base. • Enhancing Scholarship Programs: The D&I Director works to enhance the depth of the scholarship programs granted to students. Scholarship recipients are offered priority consideration for paid internships, mentorship, and exposure to a variety of fields within the Company. • Implemented the Meter Reader Intern in Training (MRIIT) Program: High school student participate in the onsite utility paid internship the summer after completing their junior year. Students will be exposed to different job opportunities within the Operations department. • Assists the Purchasing and Accounts Payable Department in pursuing their supplier diversity goals.
Diversity and Inclusion Training	• Executive Team: Completed Racial Equity Impact Analysis Training (REIAT), which evaluates the policies, protocols, strategies, decisions, and practices throughout the Company. The REIAT tool consists of five questions to encourage the organization to ensure all parties are at the table and are carefully considered when making decisions at the Company. This user -friendly tool can be used for race, gender, religion, sexual orientation, veteran status, and other measures of diversity. • Department Managers and Human Resources Department: Completed unconscious bias training, which showed participants that humans create mental shortcuts leading to biases – mostly based on gender and race. The training also gave tools for participants to minimize their biases, practice new behaviors, and discuss their findings with a team member. • Recruiting Team: Completed training focused on removing hiring bias. After completing this training, they revamped job descriptions, revised the equal employment opportunity statement that accompanies job postings, and discussed more equitable hiring practices with hiring managers. • Diversity Symposium: Employees invited to participate in courses addressing: - Unconscious Bias Training - Microaggressions - Building an Inclusive Culture - 21 Day Racial Equity Challenge

Female Leadership

Women have long served in many of National Fuel's top corporate levels. Female representation in leadership positions highlights the Company's commitment to inclusion at all corporate levels. Today, four of the Company's ten designated executive officers are women who hold the following important policy-making positions: President of the Company's Utility segment; General Counsel, Secretary and Corporate Responsibility Officer; Treasurer and Principal Financial Officer; and Controller and Principal Accounting Officer.

As of December 31, 2021, the Company's workforce was 27.25% female and 72.75% male. The Company believes that numbers alone do not represent the whole picture, but they do inform management on the continued need to invest in and commit to improving our diversity and inclusion.

EEO-1 Job Category	2019 Female	2019 Male	2020 Female	2020 Male	2021 Female	2021 Male
Executive/Senior Level Officials	20.14%	79.86%	21.43%	78.57%	22.37%	77.63%
First/Mid-Level Officials	18.75%	81.25%	19.17%	80.83%	20.05%	79.95%
Professionals	34.52%	65.48%	34.13%	65.87%	32.88%	67.12%
Technicians	17.24%	82.76%	16.13%	83.87%	16.13%	83.87%
Craft Workers	6.52%	93.48%	5.56%	94.44%	4.55%	95.45%
Operatives	2.35%	97.65%	2.17%	97.83%	2.66%	97.34%
Laborers and Helpers	7.41%	92.59%	8.65%	91.35%	5.56%	94.44%
Administrative Support Workers	79.21%	20.79%	76.92%	23.08%	80.58%	19.42%

Prior to 2021, 26% of employees were female. For 2021, 35% of newly hired employees were women. In assessing the Company's commitment to improve diversity, the Company understands that building an inclusive culture is important to diversity retention. As part of that assessment, the Company considers the average retention period for female employees versus their male counterparts. The average number of years employed by the Company as of December 31, 2021 is as follows:

Gender	Average Years of Service
Female	11.33
Male	9.75

Racial and Ethnic Diversity

National Fuel recognizes the need to improve its diversity levels throughout the organization. The Company believes that measuring and sharing this demographic data shows our commitment to our guiding principle of transparency and offers the Company the opportunity to show progress in the future. As of December 31, 2021, the Company's workforce was 8.22% racially and ethnically diverse.

EEO-1 Job Category	Asian	Black/ African American	Hispanic/ Latino	Other[1]	White
2019					
Executive/Senior Level Officials	0.00%	1.44%	0.00%	0.00%	98.56%
First/Mid-Level Officials	0.28%	1.42%	1.99%	0.28%	96.02%
Professionals	2.47%	1.10%	3.01%	0.82%	92.60%
Technicians	0.00%	1.72%	5.17%	0.00%	93.10%
Craft Workers	0.00%	3.80%	0.54%	1.09%	94.57%
Operatives	0.00%	1.96%	2.35%	1.17%	94.52%
Laborers and Helpers	0.00%	9.26%	4.63%	0.93%	85.19%
Administrative Support Workers	0.00%	15.94%	3.70%	1.15%	79.21%
2020					
Executive/Senior Level Officials	0.00%	1.95%	0.65%	0.00%	97.40%
First/Mid-Level Officials	0.56%	1.39%	1.67%	0.28%	96.11%
Professionals	2.67%	1.07%	2.93%	0.80%	92.53%
Technicians	0.00%	1.61%	4.84%	0.00%	93.55%
Craft Workers	0.00%	3.33%	0.56%	1.67%	94.44%
Operatives	0.00%	1.63%	2.36%	1.09%	94.93%
Laborers and Helpers	0.00%	13.46%	2.88%	0.00%	83.65%
Administrative Support Workers	0.24%	15.63%	3.37%	0.72%	80.05%
2021					
Executive/Senior Level Officials	0.00%	1.97%	0.66%	0.00%	97.37%
First/Mid-Level Officials	0.51%	1.54%	1.29%	0.26%	96.40%
Professionals	3.26%	1.90%	2.72%	1.09%	91.03%
Technicians	0.00%	1.61%	4.84%	0.00%	93.55%
Craft Workers	0.00%	3.41%	0.57%	1.70%	94.32%
Operatives	0.00%	1.24%	2.66%	1.24%	94.86%
Laborers and Helpers	0.00%	14.44%	1.11%	1.11%	83.33%
Administrative Support Workers	0.49%	13.83%	3.16%	0.24%	82.28%

1 Other includes the following classifications: Native American or Alaska Native, Native Hawaiian or Pacific Islander and Two or More Races.

Prior to 2021, 5.45% of salaried employees were racially and ethnically diverse. For 2021, 11.94% of newly hired salaried employees were racially and ethnically diverse. Like gender diversity, the Company considers the average retention period for racial and ethnic minorities when measuring diversity retention. The average number of years employed by the Company as of December 31, 2021 is as follows:

Race/Ethnicity	Average Years of Service
Black/African American	11.33
White	10.33
Hispanic/Latino	10.17
Other[1]	8.73
Asian	5.84

Multi-Generational Workforce

The Company is also committed to fostering an inclusive work environment where our multi-generational workforce can succeed. The Company offers family-friendly programs to promote flexibility, where possible without interfering with business operations. For example, the Company allows flexible time to begin and end the workday and alternative work schedules, which help employees balance work and personal commitments. Additionally, the Company's parental leave policy and paid family leave benefits provide flexibility to the generations represented below if they need to care for a family member.

Age	2019	2020	2021
56 and older	16.37%	16.16%	15.00%
41-55 years old	33.44%	33.27%	33.39%
26-40 years old	42.84%	43.08%	44.83%
25 and younger	7.35%	7.49%	6.78%

Supplier Diversity

Supplier diversity is an important part of National Fuel's commitment to diversity and inclusion. To further contribute to our diversity initiatives, National Fuel leverages its resource to engage diverse suppliers that reflect the communities we serve. We look to provide access and opportunities for diverse suppliers, by fostering relationships with those that fall within the following categories:

- Minority-owned
- Women-owned
- Disability-owned
- Veteran-owned
- LGBTQ+-owned

Annually, the Company contacts its suppliers to promote diversity and inclusion, while communicating expectations that suppliers observe the same non-discriminatory practices to which the Company is fully committed. By encouraging and supporting diverse businesses in our Company's supply chain, National Fuel helps create opportunity, promotes innovation, and stimulates growth that enriches the marketplace. The Company instituted and continues to execute the following initiatives, to help promote supply chain diversity.

2021 D&I Supply Chain Initiative	Progress
Enterprise Resource Planning (ERP) System Enhancements	• Implemented tracking process that allows National Fuel to track diversity and inclusion statuses of suppliers and counterparties • Executed a communications campaign across new and existing suppliers, to capture current diversity and inclusion statuses
Supplier Communication	• Emphasizing diversity and inclusion amongst suppliers in the on-boarding process and in formal communications
Leveraging Partnerships	• Broadening affiliations with external organizations to promote the importance of utilizing diverse suppliers and actively identifying new suppliers • Partnered with New York & New Jersey Minority Supplier Development Council (NY&NJMSDC), the National Minority Supplier Development Council (NMSDC), the Buffalo Niagara Partnership, the American Gas Association, the Northeast Gas Association, and the Institute for Supply Management • Leveraging these partnerships has helped the Company's Utility business increase its spending with diverse suppliers by 77%, comparing calendar 2021 to calendar 2020
Strategic Supplier Sourcing Program	• Focused on identifying actionable business opportunities for diverse suppliers • Opportunities are identified based on scheduled bids, the performance of existing suppliers, longer than anticipated lead times, market price increases and item replicability, among others • The Company identifies suppliers via matchmaker meetings facilitated by the NY&NJMSDC and the NMSDC

Human Capital – Labor Practices

National Fuel respects its employees' right to self-organization, to form, join or assist labor organizations, to bargain collectively through representatives of their own choosing, and to engage in other concerted activities for the purpose of collective bargaining or other mutual aid or protection, as well as their right to refrain from any or all such activities, without fear of reprisal, intimidation, or harassment.

As of December 31, 2021, 47.4% of the Company's active workforce was covered under collective bargaining agreements. During calendar year 2021, National Fuel did not incur any work stoppages (strikes or lockouts) and therefore experienced zero idle days for the year.

Serving Our Communities and Customers

For more than a century, National Fuel has been the hometown energy team, providing safe, reliable, and affordable gas service to the communities where we live and work. Our relationships with our customers and local communities are central to our mission and ongoing success as a company.

Serving Our Customers

Quality Customer Service

Our goal is to deliver quality service that our customers expect and deserve. A National Fuel employee promptly answers our customer service calls physically located in the Downstream Segment's service territory – not an automated voice or an offshore call center. Distribution Corporation's telephone response rates have ranked among the best for utilities in both New York and Pennsylvania.

As a result of this customer driven approach, we have achieved high levels of utility customer satisfaction and a remarkably low customer complaint rate that is amongst the lowest in the states in which we operate. In fiscal year 2021, our Downstream Segment achieved a 94% residential customer satisfaction rate in New York and a 93% rate in Pennsylvania.

Service Affordability

Our Downstream Segment has been successful in keeping natural gas utility service affordable for our customers. Our utility customers have seen the direct benefit of regional shale natural gas development in the form of lower energy costs.

With the competitive services provided by Supply Corporation and Empire, Distribution Corporation utilizes its pipeline assets to access and store some of the lowest priced natural gas in the region. U.S. Energy Information Administration ("EIA") analysis found that in 2020, the Company had the lowest residential delivery gas rate in New York and Pennsylvania and ranked #1 and #3, respectively, in the entire northeastern United States. Distribution Corporation, with the support of the New York and Pennsylvania state commissions, has also prioritized the development and administration of programs designed to reduce energy costs for low-income utility customers. See *Energy Affordability* for more information about these programs.

Within the Company's operating territory, where low temperatures are the norm for the three coldest months of the winter, the need for reliable, weather-hardened infrastructure is critical to serve the energy needs of the region. The resiliency of the Company's delivery systems, coupled with access to affordable energy supplies due to regional shale development, ensure that the Company continues to provide affordable and reliable service to our customers.

Service Reliability

Distribution Corporation's success in serving utility customers depends heavily on the depth of its storage and transportation portfolio and the reliability of its upstream pipelines to provide these services. Given their vital role in the overall gas supply picture, storage services are particularly critical to the successful operation of any utility. Distribution Corporation currently subscribes ~30 Bcf of storage capacity on Supply Corporation, which allows competitively priced gas to be stored economically until it is needed to serve markets in times of high demand.

Through careful system planning and operation, our Midstream Segment met firm storage and transportation service obligations with near 100% reliability during FY21. Neither Supply Corporation nor Empire issued a single Operational Flow Order (OFO) during the winter of 2020-2021 and served peak demand without incident. This high level of reliability ensures that all on- and off-system customers have the tools necessary to meet market demand throughout the year, and most importantly, provides dependable service to utility customers during peak winter conditions when they need it most.

Serving Our Communities

In 2021, the National Fuel Gas Company Foundation (Foundation), and our employees supported the communities where we live and work by donating more than $1.8 million. The Foundation is a 501(c)(3) private foundation funded entirely by shareholders. The Foundation's Pillars or areas of giving focus include underserved/economically disadvantaged, education, community vitality/economic impact and veteran services. Since its inception in 2005, the Foundation and our employees have given more than $23 million to more than 800 organizations.

Again, this year, in addition to its focus areas, the Foundation continued to direct funding to support nonprofits responding to the impacts of the COVID-19 pandemic, including increased giving to food banks, human service and community organizations, hospitals and first responders. In New York, for example, grants were provided to the United Way of Buffalo and Erie County, and the Boys & Girls Club of Buffalo. In Pennsylvania, support was given to multiple United Ways across northwestern Pennsylvania, the Susquehanna Health Foundation, and the Erie Community Foundation Helping Today Program.

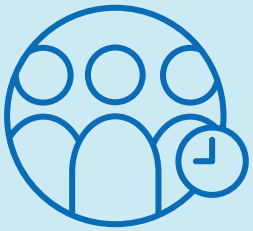
The Foundation also remains committed to its community partnership scholarship programs via the BISON Children's Scholarship Fund, Buffalo Urban League and Buffalo Prep. These annual scholarships help students at the high school and college levels achieve academic opportunities and success by providing significant financial awards to assist with their scholastic pursuits.

The Foundation's Employee Charitable Giving Program aligns a large portion of National Fuel's charitable support with the wishes and generosity of our employees. Through this gift program, the Foundation matches employee donations dollar for dollar up to $750 a year to the employee chosen nonprofits.

National Fuel also supports numerous fundraisers held by local nonprofits each year and participates in various community programs and events, professional associations, chambers of commerce and business development groups.

To further align our community support and investments, National Fuel's Faces of Fuel volunteer program provides opportunities for employees to participate in philanthropic efforts in their local communities. In the wake of the pandemic, we worked to provide virtual opportunities as well as socially distanced, outdoor events that complied with local, state, and federal safety guidelines. A recent survey of National Fuel employees revealed an enthusiasm to reinvigorate the Faces of Fuel Volunteer Program and to create new opportunities to give back to our communities. Employees said they wanted more opportunities to volunteer with colleagues and their families and to become involved with human and youth services, food banks, animal shelters, environmental and many other organizations. More than 330 employees completed the survey, and a vast majority indicated a willingness to volunteer both at work and outside of work.

2021 Employee Charitable Giving Program



+1,000
employees participated

+$960,000
Donated to local and national nonprofits by employees with Company match

American Red Cross
Junior Achievement of Western New York
KEVIN GUEST HOUSE
MERCY CENTER for WOMEN
PRESQUE ISLE PARTNERSHIP
ROSWELL PARK COMPREHENSIVE CANCER CENTER
SPCA SERVING ERIE COUNTY
Providing care and compassion since 1867


FACES
OF
FUEL

Volunteer examples include:

- In New York, for 13 years, dozens of National Fuel employees have taken the plunge in ice-capped Lake Erie every December to benefit Special Olympics New York where athletes with intellectual disabilities can challenge themselves in fair and even competition.

- In Pennsylvania, employees participated in the French Creek Valley Conservancy's Annual French Creek Cleanup where hundreds of event volunteers dispersed throughout the watershed to pick up trash–both on and in the main stem of French Creek and on many of the tributaries and French Creek Valley Conservancy's properties.

Food banks:

The Foundation is committed to initiatives that sustain health and vitality across our service territory. Food insecurity is a vital and continuous need that only has been exacerbated by the pandemic. Each year, the Foundation proudly supports the food banks in the communities where we live and work. These include:

- FeedMore WNY
- Second Harvest Food Bank of Northwest Pennsylvania
- Central Pennsylvania Food Bank
- Community Food Warehouse of Mercer County

The Foundation recently announced a 5-year commitment to FeedMore WNY to help further its mission to alleviate hunger in Cattaraugus, Chautauqua, Erie and Niagara counties. Our Faces of Fuel volunteers regularly help at local food banks.

National Fuel has **donated more than $300,000** to food banks in both NY and PA through sponsorships and Foundation grants.

Buffalo Together
Community Response Fund

Supporting a Grieving Community

On May 14, 2022, the Buffalo community suffered a devastating act of violence when a gunman opened fire at the Tops Friendly Market on Jefferson Avenue in East Buffalo, killing 10 people and wounding three. This horrific tragedy affected everyone in different and very personal ways. Buffalo's communities of color experienced a form of grief and fear that cannot be overstated.

National Fuel recognizes its duty to respond swiftly when circumstances injure the wellbeing of our communities. It is during such times when our corporate social responsibility is most needed to help our neighbors.

In the immediate aftermath, National Fuel Gas Company Foundation made a $100,000 donation to the Buffalo Together Community Response Fund. This collaborative effort was fostered by the Community Foundation for Greater Buffalo, in partnership with United Way of Buffalo & Erie County and dozens of philanthropic partners, to take action and address immediate community needs, long-term community rebuilding and the systemic issues that have marginalized communities of color.

National Fuel additionally matched dollar-for-dollar all employee donations made to this fund or to the Buffalo 5/14 Survivors Fund. The Survivors Fund was established by Tops, in partnership with the National Compassion Fund, to provide financial assistance to the survivors of the deceased and those directly affected by this tragedy.

National Fuel Faces of Fuel volunteers stepped up and responded to the Jefferson Community Support Center to provide resources, information, and assistance to the impacted community.

Our Environmental Justice Focus

In addition to supplying reliable and affordable natural gas, the Company recognizes its important role in protecting the environment and the communities where we operate. The Company supports the goals of environmental justice of identifying and addressing disproportionate adverse human health or environmental effects and cumulative impacts of its operations on minority populations and low-income populations. For example, the Company's Pipeline and Storage Business follows FERC's guidance on identifying and mitigating impacts to environmental justice communities in pipeline projects. Additionally, the Company notifies landowners on certain pipeline project webpages of the availability of language assistance services that the Company provides to landowners with any questions about the project. This posting provides notification in the top five languages of that state in an effort to make our landowner assistance more inclusive. These same translation services are also offered to the Downstream Segment's customers that may have questions pertaining to their service. The Company is closely monitoring for the latest environmental justice requirements and guidance on both the federal and state level.

"We are currently exploring the technical and economic feasibility of distributed geothermal systems in low-income communities, which could allow for potential retirement of aging gas facilities while still serving customers' heating needs."

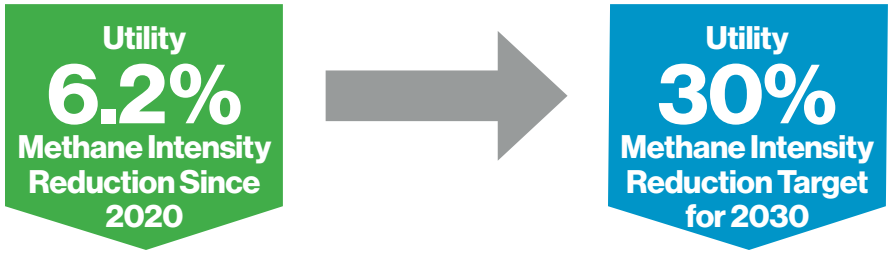
Matthew Wisotzky
Civil Engineer

DOWNSTREAM SEGMENT

Greenhouse Gas Emissions

For nearly 120 years, National Fuel and its employees have been committed to operating safely and responsibly as important members of our local, national, and members of our communities. One of our six guiding principles is Environmental Stewardship, which reflects our understanding of the vital role that we play in upholding standards of environmental protection. In furtherance of this principle, in 2021, Distribution Corporation, along with National Fuel's other business segments, announced methane emissions intensity targets. Distribution Corporation has made meaningful strides towards its target goal of a 30% reduction in methane intensity by 2030.

Progress Towards 2030 Methane Emissions Intensity Target (2020 Baseline)



Scopes 1 & 2 Emissions Intensity (kg CO_2e/BOE)

		2020	2021
Utility (NY)	Methane Emissions Intensity	14.0	13.2
	Greenhouse Gas Emissions Intensity	14.5	13.7
Utility (PA)	Methane Emissions Intensity	15.6	14.5
	Greenhouse Gas Emissions Intensity	16.1	15.0
Utility (All)	Methane Emissions Intensity	14.5	13.6
	Greenhouse Gas Emissions Intensity	15.0	14.1

Additionally, each of National Fuel's subsidiaries, including Distribution Corporation, made independent emissions reduction commitments under the U.S. Environmental Protection Agency's (EPA)'s Methane Challenge Program by entering into partner agreements with the EPA in 2018. This voluntary program promotes and tracks ambitious, transparent commitments to reduce methane emissions beyond regulatory requirements.

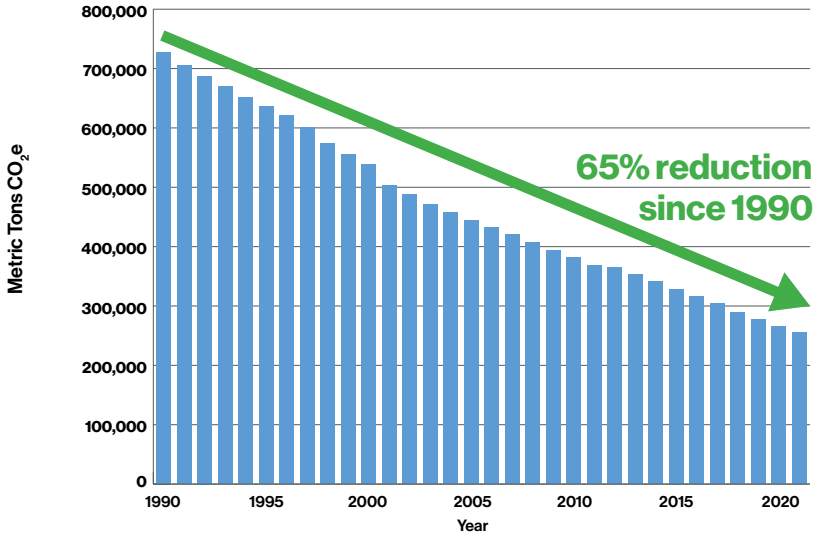
These agreements outline National Fuel's commitment to methane mitigation that include measures strategically selected for each of the business units based on the unique aspects of their operations and emissions sources. As part of the Methane Challenge, Distribution Corporation has committed to:

- Replacing or retiring cast/wrought iron and unprotected steel mains at an average rate of 3% per year for the period 2019 to 2023. With respect to leak-prone pipe, in 2021, Distribution Corporation reduced its inventory of unprotected steel mains by 4.3% and cast/wrought iron mains by 6.7%. Our overall reduction of these facilities was 4.6%.
- Replacing or retiring unprotected steel services when leaking or when the associated main is replaced/retired. Our reduction in unprotected steel services in 2021 was 6.0%.

Additionally, in 2021, Distribution Corporation set GHG emissions reduction targets of 75% by 2030, and 90% by 2050, from 1990 levels for its utility distribution system, driven by its ongoing system modernization efforts, including continued replacement of older vintage mains and services.[1]

Utility EPA Subpart W Emissions[2]

Estimated Emissions as CO_2e [AR5]
1990-2021: Mains & Services Only

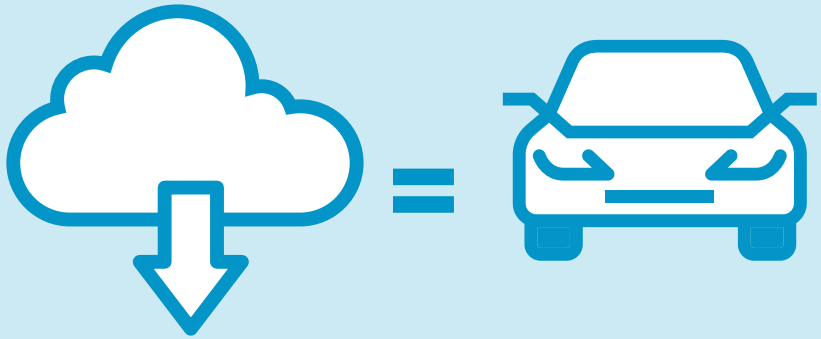


- **GHG Emission Reductions CO_2e:** Since 1990, the baseline year for EPA GHG Inventory (GHGI) reporting, Distribution Corporation's System Modernization Program has reduced annual GHG Emissions by 65%.

1 Baseline emissions and emissions reduction target for Scope 1 emissions are calculated pursuant to the reporting methodology under the United States Environmental Protection Agency's GHG Reporting Program (current Subpart W), primarily Distribution pipeline mains and services.
2 CO_2e values for Utility Scope 1 Subpart W Emissions for pipeline mains and services have been calculated in accordance with the published 100-year time horizon global warming potential values from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5, 2014) as preferred by SASB, as opposed to using the IPCC Fourth Assessment Report (AR4) as required by the U.S. EPA, which is approximately 12% lower on a CO_2e basis.

Downstream System Modernization Emissions Reductions

(Cumulative CO_2e GHG Emissions Reductions Since 1990)



8.43 Million MT CO_2e

1.83 Million Passenger Vehicles[3]

3 Based on EPA estimated annual emissions of 4.6 MT CO2 for a typical passenger vehicle. Source: "Greenhouse Gas Emissions form a Typical Passenger Vehicle," document #EPA-420-F-18-008, March 2018.

Scope 1 Greenhouse Gas Emissions (Metrics Tons CO_2e)

		2019	2020	2021
Utility (NY)	EPA Mandatory Reporting Sources[1]	178,300	169,887	162,059
	Additional EPA Sources[2]	1,473	1,448	1,408
	Other Sources[3]	65,512	67,234	66,525
	Total Utility (NY)	**245,285**	**238,569**	**229,992**
Utility (PA)	EPA Mandatory Reporting Sources	99,469	96,861	94,088
	Additional EPA Sources	329	110	0
	Other Sources	29,760	30,226	30,190
	Total Utility (PA)	**129,558**	**127,197**	**124,278**
Utility (ALL)	EPA Mandatory Reporting Sources	277,769	266,748	256,147
	Additional EPA Sources	1,802	1,558	1,408
	Other Sources	95,272	97,460	96,715
	Total Utility (All)	**374,843**	**365,766**	**354,270**

Scope 1 Methane Emissions (Metric Tons CH_4 as CO_2e)

		2019	2020	2021
Utility (NY)	EPA Mandatory Reporting Sources[1]	6,360	6,060	5,781
	Additional EPA Sources[2]	53	52	50
	Other Sources[3]	2,104	2,167	2,125
	Total Utility (NY)	**8,517**	**8,279**	**7,956**
Utility (PA)	EPA Mandatory Reporting Sources	3,549	3,456	3,356
	Additional EPA Sources	12	4	0
	Other Sources	950	963	953
	Total Utility (PA)	**4,511**	**4,423**	**4,309**
Utility (ALL)	EPA Mandatory Reporting Sources	9,909	9,516	9,137
	Additional EPA Sources	65	56	50
	Other Sources	3,054	3,130	3,078
	Total Utility (All)	**13,028**	**12,702**	**12,265**

1 Emissions subject to the Greenhouse Gas Mandatory Reporting program (40 CFR Part 98, Subpart W) include mains, services, M&R stations (PA), and large combustion units in the natural gas distribution segment (LDC's).
2 Includes emissions from: 1) National Fuel Gas Distribution Corporation-owned transmission pipeline and gathering segments that are subject Subpart W, but do not meet the reporting threshold, 2) Blowdown emissions are included from the transmission pipeline segment, and 3) in the gathering segment, emissions from blowdowns, dehydrator vents, and equipment leaks.
3 'Other Sources' include emissions from sources not subject to EPA reporting. Sources include: customer meters, pressure relief valves, blowdowns (LDC), dig-ins, pipeline leaks (transmission), M&R stations (NY), small combustion units, fleet, and natural gas space heating.

Scope 2 Emissions (Metric Tons Co_2e)

	2020[4]	2021
New York	730	603
Pennsylvania	552	506
Utility (All)	**1,282**	**1,109**

Waste Management

In furtherance of our environmental stewardship guiding principle, National Fuel is committed to reducing the quantities of wastes, both hazardous and non-hazardous, generated through our operations. To this end, the Company tracks the wastes generated at its facilities and evaluates ways to reduce the rate of, or eliminate where possible, the generation of certain wastes. Our routine business operations generate various types of waste, including:

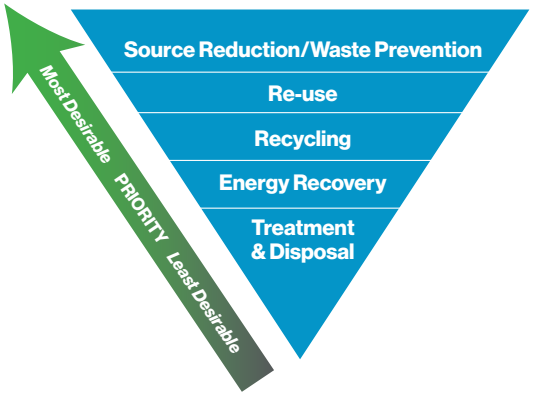
- Universal waste (e.g. used batteries, fluorescent light bulbs);
- Hazardous liquids and solid waste (e.g. spent solvents, hydrocarbon liquids);
- Used oil;
- Construction and demolition debris;
- Scrap steel; and
- Non-hazardous waste and Residual waste (e.g. brine, glycol).

Executive level oversight is incorporated into the Company's waste minimization plans to further highlight the level of importance the Company places on this issue. Our risk environmental team manages waste streams from our core operations in the Company's Downstream and Midstream Segments, including collecting and monitoring waste-related data. The US EPA requires generators of hazardous wastes to certify whether they qualify as a large or small quantity generator.

4 Values for 2020 are revised from the values included in the report year 2020 disclosure. Electricity usage for affiliated business units was incorrectly attributed to Distribution Corporation. Total Scope 2 values on a consolidated basis were unaffected.

The majority of our Downstream and Midstream Segment locations either do not generate any hazardous wastes or small amounts of hazardous wastes, placing them in the *Very Small Quantity Generators*[1] category. Occasionally, a facility may generate enough hazardous waste to meet the *Small Quantity Generator*[2] or *Large Quantity Generator*[3] threshold, however, those instances are rare.

In addition to monitoring waste-related data, the Company evaluates ways to reduce or eliminate waste generation as opportunities are identified. We have adopted the EPA's Waste Management Hierarchy to prioritize waste minimization preferences.



- **Source Reduction/Waste Prevention:** National Fuel's commitment to waste reduction begins with the practice of reducing or eliminating the waste altogether by product substitution, inventory control, good housekeeping, equipment maintenance, and equipment and technology upgrades. Operational personnel who generate and manage wastes are trained in the proper waste handling, marking, and storage. In addition, the Company has specific written procedures for the management of several waste types such as universal wastes, and waste aerosols. We reduce and prevent waste sources through effective vendor selection, periodic product evaluations, product substitutions, and inventory control.

- **Re-use:** National Fuel encourages product re-use through periodic inventory assessments and environmental audits. These assessments have identified products that are no longer of use at one location, but may be of need at another. Re-use alternatives also include the sale or transfer of unneeded products or wastes to a product broker. Re-use varies from simple repurposing of a used item, to regenerating of fluids used in our gas system equipment. The most significant reuse stream involves Seneca's produced water, which is further detailed in the *Water Management* section.

- **Recycling:** When waste prevention, source reduction and product re-use are not possible, the Company minimizes wastes through recycling. Recycling can occur either in-house, onsite, or off-site at a recycling facility. A large majority of our waste streams are recycled including used batteries, fluorescent light bulbs, used oil, electronic equipment, and scrap steel.

- **Treatment:** This can range from simple physical separation of multiphase liquids to chemical treatments of wastes to render them less hazardous or non-hazardous. Some of the treatment methodologies we incorporate into our waste management processes include the decanting of natural gas condensates, separating the water from the hydrocarbon/oil.

- **Disposal:** When the other options within the waste management hierarchy are not feasible, the Company strives to properly dispose of all waste. This includes landfill disposal, incineration, injection or discharging through proper permitting.

The *Waste Management* and *Water Management* sections further discuss the processes our Upstream Segment uses to manage waste streams and reuse produced water.

1 Generate no more than 220 pounds of hazardous waste in a calendar month.
2 Generates more than 220 pounds and less than 2,200 pounds of hazardous waste in a calendar month.
3 Generates more than 2,200 pounds of hazardous waste in a calendar month.

Ecological Impacts

At National Fuel, we strive to meet the needs of our customers through the safe and reliable delivery of natural gas. We regularly complete projects to modernize and upgrade our pipeline facilities, during which we employ robust and effective environmental management policies and practices. In addition, these construction activities often entail significant coordination with local, state, and federal authorities, including environmental agencies. See *Environmental Management Policies and Practices*.

Energy Affordability

Distribution Corporation has a strong record of providing safe and reliable supply and delivery of natural gas at affordable rates. An analysis of data published by the EIA found that in 2020 the Company had the lowest residential gas rate in New York and Pennsylvania, and ranked #1 and #3 respectively in the entire northeastern United States.[1] Within Distribution Corporation's New York and Pennsylvania service territories, the Company provides natural gas service to approximately 93% and 84% of households, respectively. Distribution Corporation, in conjunction with the state commissions in both NY and PA, continues to focus on just and reasonable rates for our customers." As poverty rates in our service territories are above the national average, reliable access to affordable energy supplies is, and will continue to be, critical to promoting the welfare of the communities we serve and ensuring energy equity for all of our customers.

Focus on Affordability

New York
#1 (out of 8)
Northeast – #1 (out of 27)

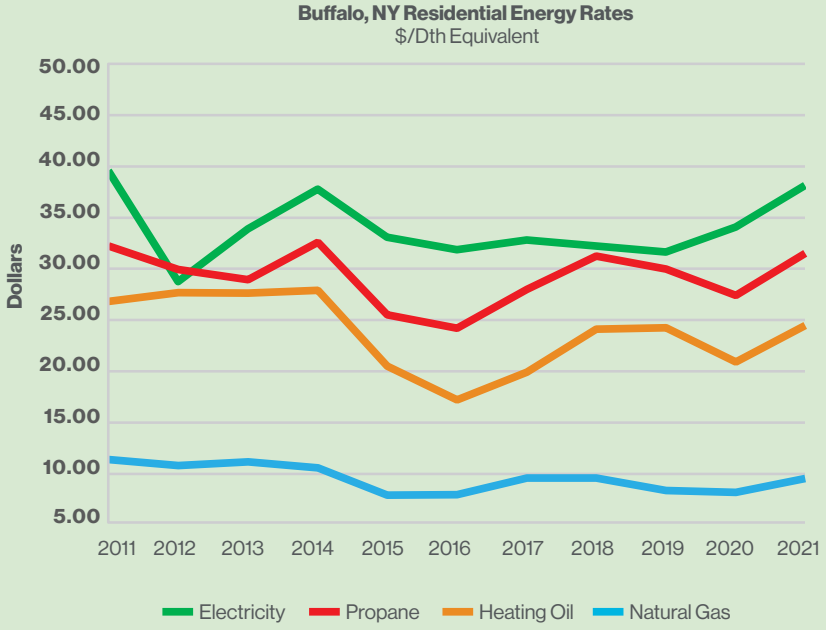
Pennsylvania
#1 (out of 6)
Northeast – #3 (out of 27)

Our utility customers continue to benefit directly from the shale development in the Appalachian region, which has improved the availability and affordability of natural gas supplies. Distribution Corporation also has been effective at managing its utility systems efficiently and controlling costs, which has limited the occurrence of delivery rate increases. Since 2009, the average retail residential customer in New York and Pennsylvania has seen a decrease of $590 and $611, respectively, on their annual natural gas bills. These savings help to reduce the economic burden of energy on our customers and contribute to the local economies.

1 EIA's analysis calculates price as total revenues divided by sales volume. Reported revenues are based on volumes sold and delivered directly to the end-user. Revenues are gross, including any and all demand charges, commodity charges, taxes, surcharges, adjustments or other charges billed for gas delivered.

Maintaining the **affordability of energy supplies** and the **reliability of energy delivery systems** are critical during the energy transition.

Affordability of Natural Gas



Reliability

94%[1]

Of all energy used in Western New York on the coldest winter day is natural gas

45% colder[2]

Western New York weather vs. Downstate

99.99%[3]

National Fuel utility service reliability

1 CJ Brown analysis using an average outdoor air temperature of 2.2°F, a 90% AFUE furnace, and natural gas for water heating and clothes drying.
2 Value is calculated using the average of the actual heating degree days for calendar years 2012-2021 as reported by the National Oceanic and Atmospheric Administration for the Buffalo Niagara Airport and LaGuardia Airport locations.
3 Value is for twelve months ended December 31, 2021 and represents the percentage of New York Distribution customers with no unscheduled outages due to the Company's error.

External Factors Impacting Affordability

There are a number of external factors outside of our Downstream Segment's direct control that could impact the affordability of natural gas and/or Distribution Corporation's utility services. The following is a discussion of the nature of these external factors and the potential impact on this Segment.

Regional Economic Conditions

Our Downstream Segment's utility service territories are located in Western New York and northwestern Pennsylvania, principally serving the Buffalo, New York and Erie, Pennsylvania metropolitan markets. While these markets have experienced some modest improvement after an extended period of economic decline that started in the 1970's, the Buffalo and Erie markets have historically lagged most of the larger U.S. markets in several key economic factors shown in the following table. Additionally, the impacts of COVID-19 have continued to weigh on the economies for both regions. Distribution Corporation recognizes that some of our customers may be dealing with financial hardship during the pandemic. As a result, and consistent with recently passed legislation in New York as well as other guidance from state regulators, Distribution Corporation suspended service disconnections in 2021, and offered customers flexible repayment agreements, waived late fees when requested, and reconnected services that had been previously disconnected.

	Buffalo-Niagara, NY		Erie, PA		U.S.
	Region	City	Region	City	
Median Household Income[1]	$58,358	$39,677	$52,863	$38,655	$64,994
Poverty Rate[1]	12.5%	28.3%	13.4%	25.1%	11.4%
Unemployment Rate[2]	3.3%		4.8%		3.9%

1 April 2020 figures from U.S. Census Bureau
2 December 2021 figures from the Bureau of Labor Statistics

Commodity Prices

Costs to purchase, transport, store, and deliver natural gas supplies are passed along to Distribution Corporation's customers through a commodity supply charge. Volatility in national and regional commodity markets, upstream disruptions in the natural gas supply chain, pipeline constraints, and general imbalances in supply and demand have the potential to increase the cost of natural gas supplies and ultimately the rate charged to customers as natural gas is consumed. During calendar year 2021, the average commodity price per mcf for New York and Pennsylvania increased over the prior year, as calendar year 2020 provided historically low natural gas prices.

Average Residential Commodity Rates per Mcf

	CY 2019	CY 2020	CY2021
New York	$2.89	$2.10	$3.43
Pennsylvania	$2.93	$2.30	$3.06

Weather

Our service territories are known for harsh winters. Of the customers served within New York and Pennsylvania, 83% and 73% use natural gas to heat their homes, respectively. As a result, a colder than normal winter generally increases customer consumption and has the potential to increase a customer's average bill through higher natural gas supply and delivery charges. Additionally, extreme weather has the potential to generate price spikes on natural gas supplies purchased in daily spot markets to meet the increased customer demand. The impact of weather variations on delivery charges billed to its New York customers is mitigated by that jurisdiction's Weather Normalization Clause ("WNC"). The WNC, which covers an eight-month period during the winter heating season, is a mechanism that has a stabilizing effect on customers' bills and utility revenues by mitigating the bill impacts of colder- and warmer-than-normal weather.

Additionally, each year Distribution Corporation engages in a comprehensive winter planning process in both New York and Pennsylvania to ensure that our Downstream Segment has adequate pipeline capacity, supplies in storage, and long-term purchase contracts in place to meet the anticipated winter demand, including the coldest winter day. Distribution Corporation's planning process ensures supply reliability while reducing the risk of potential commodity price spikes.

Regulation

Our Downstream Segment's delivery rates are regulated and set by the state utility commissions in New York and Pennsylvania. While the rate setting process is designed to produce rates that are just and reasonable for all customers, the ratemaking process is subject to political and policy influences that may apply upward pressure on customer rates. There are a number of other circumstances where legislation and government policy at the federal, state and local levels could directly or indirectly impact our rates. These include environmental regulations that restrict natural gas production or the development and operation of transmission pipelines, the implementation of additional taxes, including a carbon tax, on natural gas services, and income tax policy.

Distribution Corporation believes the best emissions reduction pathway is one that provides both **environmental and economic sustainability**, achieving the State's targets while providing energy delivery system resiliency, integrity, and reliability, and offering options for **more affordable carbon reduction measures.** Our "All-of-the-Above Pathway" is a more affordable and practical way to meet New York's Climate Act goals for Western New York homeowners and businesses.

National Fuel's Three Part Plan

1. **Energy Efficiency**
   Scale-up investment in energy efficiency measures that emphasize weatherization and building shell retro-fits.

2. **Hybrid HVAC Systems**
   Wide-spread adoption of hybrid/dual-fuel gas furnace and electric air-source heat pump HVAC systems.

3. **Existing Infrastructure**
   Use existing, modernized natural gas infrastructure to incorporate low-carbon fuels like RNG and hydrogen.

Achieving a Low-Carbon Future in New York State

CLCPA Goals and Objectives	Consumer Impacts
70% Renewable Energy by 2030	Safety and Reliability
100% Zero-emission Electricity by 2030	Resiliency and Delivery Security
85% GHG Reduction by 2050	Energy Affordability

"All-of-the-Above" Carbon Reduction Approach

Leveraging Existing Infrastructure

Promoting RNG and Hydrogen

Through Fiscal 2020
Awarded three RNG grants for $1.2 million through the Utility's Area Development Program

October 2020
Petitioned NY PSC to include RNG in the supply mix and recover purchased RNG costs through gas supply rates

July 2021
Accepted first RNG deliveries into NY system from anaerobic digester project (receipts estimated to be ~50 MMcf/year)

Ongoing
Continue to advance RNG and evaluate investment opportunities

Continuing to Work with Regulators and Third Parties to Advance Zero and Low Carbon Opportunities

- Distribution Corporation received approval from NY and PA utility commissions to accept RNG into its distribution system
- Low Carbon Resources Initiative (LCRI) expected to provide opportunities for NFG to leverage technology acceleration within its regional footprint
- Focused on the development of potential hydrogen projects through membership in the Clean Hydrogen Economy consortium led by Guidehouse and NYSERDA-led Regional Clean Hydrogen Hub consortium

Significant Potential for RNG within New York State

New York RNG Potential (Bcf/Year)[1]

	Low Resource Scenario	High Resource Scenario	Technical Potential
Landfill	20	33	50
Animal/ Food Waste	7	13	37
Wastewater	2	3	7
Other	24	56	177
All Sources	53	105	271

In July 2021, Distribution accepted its first RNG deliveries into our New York system from a local anaerobic digester project.

1 American Gas Foundation – Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment (December 2019).

The previously discussed external factors impacting affordability could significantly increase our rates and potentially place stress on our customers' ability to pay their monthly natural gas bills, which may result in higher costs for the Company in the form of uncollectible accounts. To mitigate these risks and ease the burden on our customers, our Downstream Segment has implemented a number of customer service initiatives, such as budget billing and extending deferred payment arrangements, designed to stabilize customer bills and encourage customer payments.

The Utility has also been attentive to providing assistance for its low-income customers. Some examples include:

- **Low-Income Home Energy Assistance Program (LIHEAP)** — Distribution Corporation has been an industry leader in providing outreach and support to our low-income customers to help them secure federal LIHEAP funding to pay their winter heating bills. Since the winter of 2009-2010, our Downstream Segment customers have received more than $500 million in assistance. In response to the pandemic, we have continued to work closely with state agencies to connect customers that have been negatively impacted by COVID-19 with additional LIHEAP and other available utility payment assistance.

- **Extraordinary COVID Relief** — Throughout the pandemic, Distribution Corporation has actively assisted our low-income customers in securing available additional assistance. Through June of 2022, Distribution Corporation customers have received over $21.9 million in assistance through the Home Energy Assistance Program - Regular Arrears Supplement and over $4.2 million of assistance through the Emergency Rental Assistance Program.

- **Low-Income Customer Affordability Programs** — Distribution Corporation also provides robust programs for its low-income customers, offering monthly bill discounts, reduced rates and debt forgiveness opportunities.

- **Neighbor for Neighbor Heat Fund** — A program that offers grants to customers in need that is funded by contributions from National Fuel Gas Company, its customers, employees, and other private entities.

Average Retail Gas Rates

The following table shows the average retail gas rates per thousand cubic feet (Mcf) for (1) residential, (2) commercial and (3) industrial customers, as well as transportation only services for those respective customer groups:

Utility Average Retail Gas Rates per Mcf [1,2]

	CY 2019	CY 2020	CY2021
Bundled Retail Sales[3]			
Residential	$8.14	$7.91	$8.97
Commercial	$7.36	$7.07	$8.11
Industrial	$6.41	$6.28	$7.45
Total Retail	**$8.02**	**$7.79**	**$8.85**
Transportation Sales			
Residential	$3.63	$3.99	$4.10
Commercial	$2.04	$2.18	$2.25
Industrial	$0.73	$0.76	$0.77
Total Transportation	**$1.61**	**$1.69**	**$1.63**

1 Bundled retail revenues and consumption by customer type for total Distribution Corporation are reported quarterly and on a fiscal year basis in the Company's Securities and Exchange Commission (SEC) filings Forms 10-Q/10-K. Revenues and consumption are also reported on a calendar year basis for total Distribution and the New York Division in the annual report to the NYPSC. This Report's Downstream Segment section utilizes Mcf as the volumetric unit of measure to remain consistent with Distribution Corporation's public disclosures to state utility commissions and SEC filings.
2 Average retail rate for each bundled customer class is calculated on a calendar year basis by dividing the revenues by the consumption attributed to each customer class as reported in the respective utility commission reports.
3 Recent trends in bundled rates are largely driven by fluctuations in gas prices and the related impact on gas supply revenues. Distribution Corporation's New York and Pennsylvania service territories have been operating under the same base rates for the last five, and fifteen calendar years, respectively.

The following table shows the typical monthly gas bill for residential customers for (1) 50 Mcf and (2) 100 Mcf of gas delivered per year.[1]

Typical Monthly Gas Bill for Residential Customers	CY 2019	CY 2020	CY 2021
New York – 50 Mcf – Bundled Residential			
Delivery	$ 30.24	$ 30.32	$ 30.24
Supply	$ 17.93	$ 14.98	$ 18.75
Surcharges/(Refunds)[2]	$ (0.38)	$ 0.02	$ 0.85
Avg. Monthly Bill	**$ 47.79**	**$45.32**	**$49.84**
New York – 100 Mcf – Bundled Residential			
Delivery	$ 37.07	$ 37.27	$ 37.14
Supply	$ 35.86	$ 29.96	$ 37.50
Surcharges/(Refunds)[2]	$ (0.76)	$ 0.04	$ 1.71
Avg. Monthly Bill	**$ 72.17**	**$ 67.27**	**$ 76.35**
Pennsylvania – 50 Mcf – Bundled Residential			
Delivery	$ 23.77	$ 23.88	$ 23.32
Supply	$ 19.13	$ 16.89	$ 20.76
Surcharges/(Refunds)[2]	$ (0.55)	$ (0.45)	$ (1.03)
Avg. Monthly Bill	**$ 42.35**	**$40.32**	**$43.05**
Pennsylvania – 100 Mcf – Bundled Residential			
Delivery	$ 33.05	$ 33.26	$ 32.45
Supply	$ 38.31	$ 33.84	$ 41.57
Surcharges/(Refunds)[2]	$ (1.11)	$ (0.90)	$ (2.05)
Avg. Monthly Bill	**$ 70.25**	**$66.20**	**$ 71.97**

1 The calculation methodology used is consistent with reporting to state commissions and disclosures on the Company's corporate website, and better captures the impact of seasonal rates and delivery patterns, and the recovery and/or refund of regulatory deferrals.

2 In New York, surcharge/refund items may include the recovery of the system modernization tracker and costs to administer the CIP, and the benefits of tax reform to ratepayers. In Pennsylvania, these items may include the impact of various rate riders for low income customer programs and the state tax adjustment.

Residential Customer Gas Disconnections

As our Downstream Segment meets its obligation to provide safe, reliable natural gas services at affordable rates, Distribution Corporation has the right to charge, collect and receive just compensation for its services. New York and Pennsylvania state laws and regulations allow Distribution Corporation to disconnect service to a customer due to non-payment, subject to certain restrictions and requirements that Distribution Corporation must carefully manage. As such, our Downstream Segment and state commissions have implemented a number of policies and programs designed to comply with state laws and regulations on collections and disconnections, improve affordability for vulnerable customers, and ultimately limit the number and reduce the duration of residential customer disconnections resulting from non-payment, which are described below.

Low Income Customer Affordability Programs

- New York State Low Income Program (NY SLIP) provides bill discounts designed to ensure that a low-income customer's energy burden does not exceed a targeted level;
- Pennsylvania Low Income Residential Assistance Program (LIRA): provides customers with bill discounts, arrearage forgiveness, and energy conservation education;
- Distribution Corporation collaborates with local Health and Human Services agencies to connect low-income customers with available federal LIHEAP funding and other financial assistances through social services; and
- Sponsor of the National Fuel Neighbor for Neighbor program, which provides energy grants to customers with special needs.

Policies/Programs Aimed at Limiting Number of Disconnections

- Suspension of disconnections during extreme winter weather events, prolonged periods of extreme cold, and the holidays;
- Suspension of disconnections to low-income customers during winter months;
- Suspension of disconnections to known Elderly, Blind or Disabled (EBD) coded accounts in New York during the time between September 1st and April 15th; and
- Recent laws / emergency orders banning, and regulatory guidance regarding, the shutoff of residential utility services during the COVID-19 crisis.

Policies/Programs Aimed at Reducing Duration of Disconnections

- Providing flexible, deferred payment arrangements coupled with LIHEAP assistance to accelerate turn-ons;
- Restoration of service for medical emergencies and suspected serious impairments; and
- Company Gatekeeper Program that identifies and assists vulnerable customers.

The following table shows the number of residential customer gas disconnections for nonpayment, as well as the percentage of those disconnections that were reconnected within 30 days. Distribution Corporation tracks and reports these disconnections due to non-payment to the NYPSC and Pennsylvania Public Utility Commission (PAPUC). As a result of the COVID-19 pandemic, for New York customers, Distribution Corporation suspended disconnections for non-payment during calendar 2020 and 2021 and as a result, the metrics reported in the table below for the percentage of customers reconnected within 30- days is not meaningful. For Pennsylvania customers, Distribution Corporation suspended disconnections for 2020, but reinstated for 2021, thus there are significant fluctuations for the periods reported. As discussed above, Distribution Corporation continues to have strong customer service programs in place for customers struggling to pay their bills and facing potential disconnection, including LIHEAP assistance, low-income bill discount programs, and deferred payment arrangement opportunities.

Utility Disconnections/Reconnections	**CY 2019**	**CY 2020**	**CY2021**
New York Division			
Disconnections for Non-Payment[1]	25,973	0	0[2]
Reconnections within 30-days	12,826	0	0
% Reconnected within 30-days[3]	**49.4%**	**—**	**—**
Pennsylvania Division			
Disconnections for Non-Payment[1]	7,533	0	7,091
Reconnections within 30-days	3,433	0	1,356
% Reconnected within 30-days[3]	**45.6%**	**—**	**19.1%**

1 Trends in customer disconnections are driven by a number of factors, which can vary from year to year. In 2019, there was an increase in disconnections as normal collections resumed and Distribution Corporation refocused its efforts and procedures around the summer disconnection and collection cycles. In 2020, disconnections were suspended as a result of the COVID-19 pandemic, thus the total disconnections for non-payment are zero. In Pennsylvania, disconnections commenced during summer 2021, however, there remained a moratorium in New York, thus an increase occurred in Pennsylvania only for 2021.

2 Excluded from the CY 2021 number are nine disconnections that were completed for safety purposes due to mandated leak and corrosion safety inspection requirements. These disconnections were performed in accordance with New York Public Service Commission Orders in Case 15-G-0244.

3 Distribution Corporation does not currently track and report disconnections that are reconnected within 30 days. The Company was able to generate a query from its internal billing system of all reconnections that occurred during the calendar year that generated both the disconnection and reconnection date for each record. The Company then determined the number of records where the reconnection had occurred within 30 days and divided that number by the total disconnections determined above.

End-Use Efficiency

Our Downstream Segment has been focused on promoting energy efficiency and conservation. We partner with our regulators, industry groups and local businesses to develop and administer outreach and incentive programs designed to reduce our customers' energy usage through improved appliance efficiency and consumption habits.

In New York, Distribution Corporation's energy efficiency activities have centered on our Conservation Incentive Program ("CIP"). Adopted by the NYPSC in 2007, the CIP was the first of its kind in New York State. The CIP budget is funded by ratepayers through a monthly bill surcharge. Since inception, the Company's CIP has resulted in a cumulative total reduction of approximately 1.6 million metric tons of carbon dioxide emissions.

The Company's Conservation Incentive Program has resulted in a cumulative total **reduction of approximately 1.6 million metric tons of carbon dioxide emissions**.

The Company's CIP is comprised of the following programs:

- **Residential Rebate Program:** An equipment replacement program that offers rebate incentives to replace aging and inefficient space heating and water heating equipment with high efficiency appliances in single-family residential dwellings.
- **Non-Residential Rebate Program (NRCIP):** An equipment replacement program that offers businesses rebate incentives to replace aging and inefficient space, water and process heating equipment with high efficiency appliances. Through the program, the Company is also able to offer customized incentives that provide natural gas savings.
- **The Statewide Low-Moderate-Income Portfolio (LMI) f/k/a Low Income Usage Reduction Program (LIURP):** A weatherization program that is specifically designed to help low income residential customers lower their energy consumption. The program, which is administered through New York State Energy and Research Development's (NYSERDA) EmPower New York program, offers qualifying customers heating system checks, energy audits, and weatherization measures.
- **Outreach and Education:** Our Downstream Segment has developed an extensive outreach program, which includes marketing across a variety of media and platforms, to educate customers about their energy usage habits, promote energy efficiency and the CIP programs.

Customer Gas Savings from Efficiency Measures

The following table shows the total amount of gas savings delivered to customers from the CIP in our Downstream Segment's New York Division.

NY CIP Gross Savings (Mcf)[1]

	CY 2019	CY 2020	CY 2021
Residential Rebate Program	153,112	181,699	177,847
NRCIP	36,760	42,195	51,424
LIURP	28,674	31,411	22,092

Our Downstream Segment has seen steady growth in its residential rebate programs while non-residential programs appear to fluctuate year to year based on activity. The recent Energy Efficiency proceeding in New York provided utilities with additional rate payer funding for energy efficiency programs over and above current CIP budgets. Distribution Corporation expects to spend nearly $58 million on energy efficiency programs and initiatives between 2022 and 2025. In line with the Climate Act's GHG reduction requirements, our Downstream Segment continues its focus on, and to direct resources to, efficiency programs and activities. Notably, for program years 2021-2025, Distribution is offering a rebate for a hybrid heating system, which is expected to be an effective measure for reducing GHG emissions without compromising resiliency.

Between 2022 and 2025, Distribution expects to spend nearly $58 million on **energy efficiency programs** and **initiatives**.

1 Gas savings are calculated on a gross basis consistent with the New York energy efficiency proceeding (NY 07-M-0458).

Promoting Energy Efficiency Programs

In line with the Climate Act's GHG reduction requirements, our Downstream Segment continues its focus on, and is directing resources to, efficiency programs and activities.

MyHeat Pilot Demonstration Project:

- Online platform provides customers with overhead visual information to understand energy loss of their home and provides links to local efficiency programs aimed at increasing efficiency, reducing consumption, and saving money.
- Through December 2021, nearly 60,000 customers received messaging regarding scores of their home's heat loss and energy waste. Additionally, 39,042 customers received behavior messaging with their home's energy waste score comparing historical energy use to homes with the same heat loss score.

MyHEAT
Energy Made Visible™

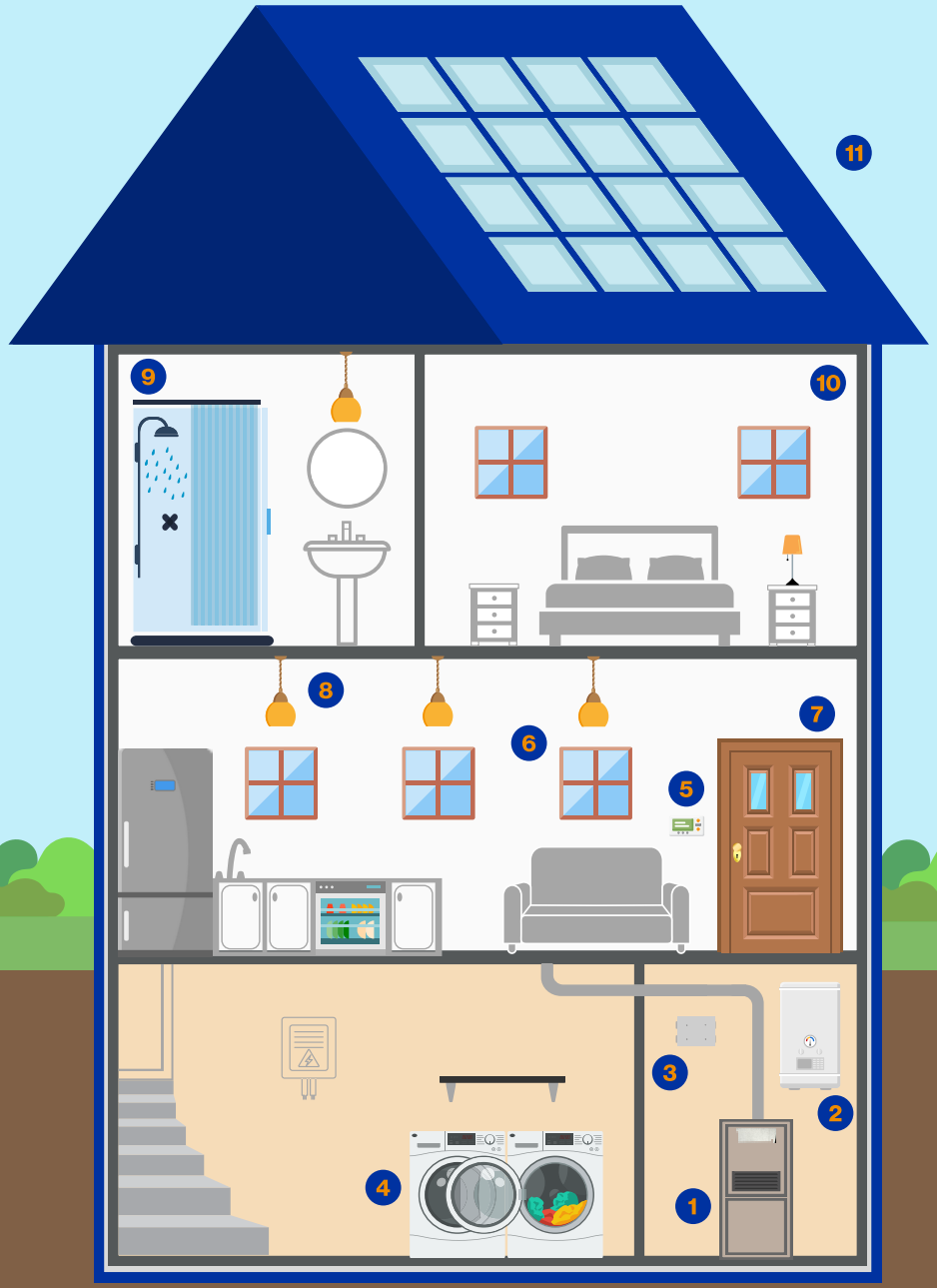
Sealed

SEALED Partnership:

- SEALED specializes in building shell and equipment upgrades. The company offers prospective customers financing for these upgrades, and in some cases no upfront costs or changes to a monthly budget. SEALED pays for the installation improvements to a customer's home and gets reimbursed with the savings from the customer's energy bills. According to SEALED, National Fuel had the highest initial response rate and qualified prospects from any other New York utility they have partnered with.

Zero Net Energy (ZNE) Home Demonstration Projects:

- Demonstrates how natural gas can help builders reach Zero Net Energy at a lower cost than a typical all-electric design, while also yielding lower energy bills. On an annual basis, ZNE homes must minimally produce the same amount of energy as they consume through:
  - Smart design, energy modeling and advanced building techniques;
  - Highly insulated building, windows, and doors;
  - Energy efficient fresh air supply;
  - Energy efficient heating and cooling systems; and
  - Renewable energy use.
- Distribution Corporation is currently partnering with Niagara County Habitat for Humanity on two ZNE homes (one restoration and one new build). The expected results estimate that the homes are between 89%-100% ZNE and anticipate CO_2 emissions being 60% less than the average home.



Features of a Net Zero Home

1. **High Efficiency Furnace**
   Creates more heat with less energy
2. **Tankless Water Heater**
   Heats water efficiently
3. **Heat Recovery Ventilation**
   Distributes fresh air throughout the home
4. **Tier Three Appliances**
   Represents highly efficient household appliances
5. **Energy Management**
   Optimizes energy use throughout home
6. **High Performance Doors and Windows**
   Reduces heat loss and increases daylight into home
7. **High Quality Air Sealing**
   Reduces largest source of heat loss
8. **LED Lighting**
   Provides low energy, high quality lighting
9. **Low-Flow Water Fixtures**
   Reduces amount of hot water being utilized
10. **Double Insulation**
    Reduces heating and cooling demand
11. **Solar/Photovoltaic Panels**
    Converts and stores energy to meet demand

Hybrid Heating System Demonstration Projects:

With respect to a residence that utilizes a hybrid heating system, annual home energy costs are expected to be more affordable using electricity and gas for space heating. This would avoid the significant costs associated with full electrification.

- Electric air-source heat pumps become less efficient as outdoor temperatures decrease, increasing demands on the electric grid, consumer costs and emissions. This emissions reduction pathway uses a hybrid system consisting of high efficiency gas furnaces coupled with a high efficiency electric air source heat pump (ASHP).

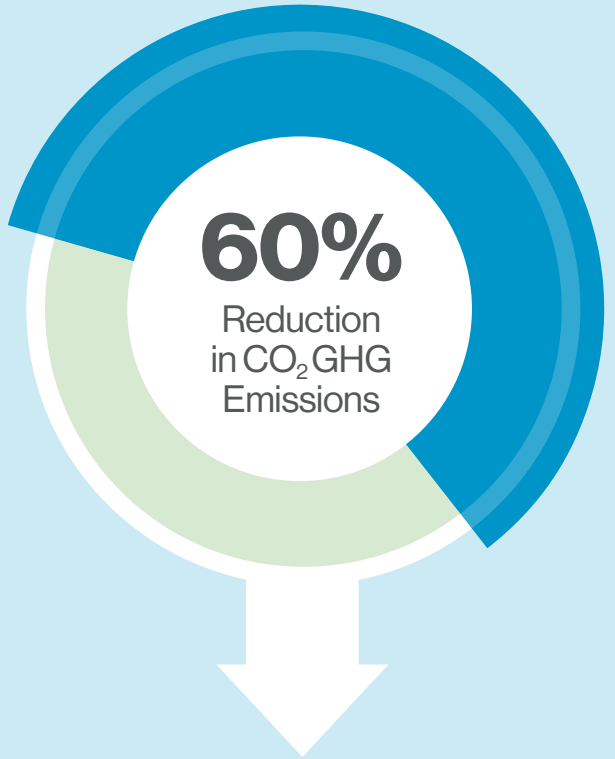
- The hybrid system is designed to switch heating from an electric heat pump to a gas furnace at temperatures below 30 degrees. As a result, gas consumption and associated emissions can be significantly reduced. A $1,000 rebate is added to the energy efficiency program for combination 14 SEER ASHP/95% furnace.

Percentage of Gas Utility Revenues from Decoupled Rate Structures

Our Downstream Segment has a Revenue Decoupling Mechanism (RDM) in place in its New York Division that is designed, in part, to limit any financial benefit that Distribution Corporation could receive by increased customer usage while ensuring that the Company is able to earn its regulatory approved revenue requirement. Distribution Corporation's RDM is based on usage per account targets for residential and certain non-residential customer service classifications. To the extent that our customers' actual usage decreases as a result of energy efficiency measures and programs, the Downstream Segment's revenues would be adjusted under the RDM to match the usage per account target.

Emissions Reduction Potential of a ZNE Home

The use of clean, emission-free renewable electric power, in combination with reduced emissions from high efficiency natural gas appliances, will reduce carbon dioxide (CO_2) GHG emissions by an estimated 60% from a conventional home of the same size.



Based on the SASB definitions of "decoupled revenues," the Company determined that the New York Division has three sources of revenues that are earned on a volumetric basis, but have adjustment mechanisms that reconcile the actual revenues earned and collected during any given period back to a target that was based on the revenue requirement set in the last rate case. These mechanisms are in place, in part, to limit any financial incentives to increase customer usage. There are no revenues or rate mechanisms in place at this time in Distribution Corporation's Pennsylvania Division that would meet the scope of this standard.

Decoupled Revenues as % of Total Revenues

	CY 2019	CY 2020	CY 2021
Total Utility Revenues ($000s)	$701,610	$644,474	$715,009
Decoupled Utility Revenues ($000s)	$166,762[1]	$166,347[1]	$165,573
Decoupled Revenues as a % of Total	23.8%	25.8%	23.2%

The Company did not include the revenues earned from fixed monthly minimum bill charges. The three revenue sources and their corresponding adjustment mechanisms are as follows:

- **Residential and Non-Residential Block Margin Revenues:** Distribution Corporation's RDM adjusts delivery revenues based on normalized usage per account targets set for residential and certain non-residential customers in the Company's 2016 rate proceeding. Additionally, Distribution Corporation's WNC adjusts delivery revenues to limit the impact of weather that is colder or warmer than normal.
- **Industrial Margin Revenues:** Distribution Corporation's 90/10 Symmetrical Sharing mechanism in its 2016 rate proceeding set a target for industrial revenues of approximately $27 million per year. To the extent that actual revenues are below the target, Distribution Corporation can surcharge ratepayers to recover 90% of the shortfall. To the extent that actual revenues are above the target, Distribution Corporation is required to refund 90% of the overage.
- **Merchant Function Charge Revenues (MFC):** Distribution Corporation's last rate proceeding set a target of approximately $16 million per year to recover the Record and Collection - Procurement of Commodity component of the MFC each year. The MFC rate is charged to ratepayers volumetrically. Distribution Corporation can surcharge/refund the difference between the target and actual collections as a result of lower/higher usage.

The percentage of decoupled revenues relative to total utility revenues has remained roughly between 20-26% of total revenues. The fluctuations in the percentage are primarily due to changes in purchased gas costs, which are market driven and passed on to retail customers at cost. Absent a rate case filing in either of the New York or Pennsylvania jurisdictions, the percentage range of decoupled revenues is unlikely to change significantly over the near-term.

1 Decoupled utility revenues for CY 2020 were adjusted as a result of actual billed margin, which was unavailable at the time the 2020 report was filed.

Integrity of Gas Delivery Infrastructure

At National Fuel, our highest priority is the safety of our customers, employees and the communities we serve. Distribution Corporation operates approximately 36,116 kilometers of pipelines, including service lines, which serve approximately 754,000 customers in Western New York and northwestern Pennsylvania as of the close of calendar 2021. We are proud of our safety record and have worked hard to establish a culture that embraces continuous improvement in all aspects of safety, including the following programs which will be discussed in more detail in this report:

- Aggressive System Modernization Program;
- Leak Management Program;
- Comprehensive Integrity Management Program;
- Customer Outreach and Education on Safety;
- Rapid Emergency Response;
- Accelerated Leak Surveys;
- Damage Prevention Programs;
- Pipeline Safety Management System;
- Employee and Contractor Training and Qualification; and
- Safety Culture Programs.

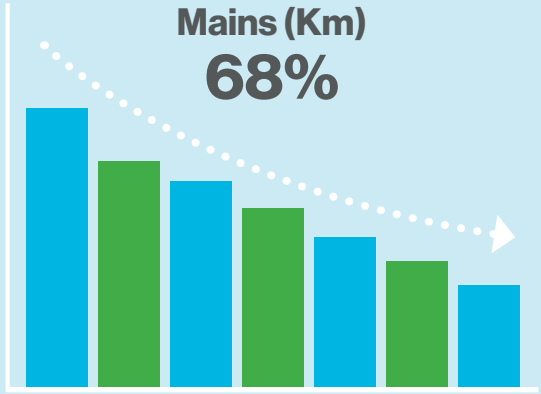
System Modernization – Percentage of that is Cast and/or Wrought Iron or Unprotected Steel [1]

Distribution Corporation began accelerating the replacement of unprotected bare steel, cast iron, and wrought iron distribution mains on its system in the mid-1990s with the implementation of a system modernization program ("System Modernization Program"). The Company designed this program to identify and prioritize pipeline replacements system-wide based on historic leakage rates and

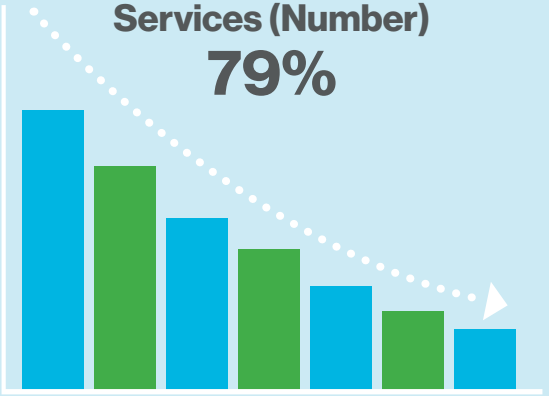
1 U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration, 2020 Gas Distribution Annual Report for National Fuel Gas Distribution Corporation (Operator IDs 13061 and 13062).

Downstream System Modernization Progress

Bare Steel, Cast Iron and Wrought Iron Pipe Reduction since 1990



7,321 Km (Modernized)



187,458 Services (Modernized)

risk to ensure the safety and reliability of our system, and, in turn, reduce leakage rates and emissions.

Since 1990, Distribution Corporation has made significant and consistent progress in system modernization, with special emphasis placed on replacing cast iron mains which have been shown to leak at higher rates than other pipe material types. The Company does not have any cast iron mains in its Pennsylvania service area and anticipates replacing its remaining New York cast iron over the next year.

With respect to system modernization, Distribution Corporation is focused on maximizing system safety and reliability. Distribution Corporation looks to develop larger scope projects with better economies of scale rather than multiple smaller projects with higher unit costs. Distribution Corporation also maximizes replacement with medium-pressure pipe installation to reduce pipe diameter size, which allows insertion of new medium pressure plastic mains into the larger low-pressure bare steel, cast iron and wrought iron mains being retired. This reduces excavation and restoration costs, and future excavation damage to plastic mains. An additional benefit to expanding the medium pressure system is the relocation of gas meters to the outside of homes and businesses for improved safety and easier operation and maintenance. Distribution's continued steady pace of system modernization lowers construction, operations, and maintenance costs, and enhances system reliability and safety.

Over the past five years, Distribution Corporation has invested over $358 million in the safety of our utility pipeline network, including system modernization. Distribution Corporation's inventory of unprotected bare steel, cast iron, and wrought iron distribution pipelines is currently 12.2% as shown in the following table.

Distribution Unprotected Bare Steel, Cast Iron and Wrought Iron Pipeline Inventory

Distribution Pipelines As of December 31, 2021	Unprotected Bare Steel	Cast Iron	Wrought Iron	Total System
Distribution Mains (Kilometers)	2,924	25	469	23,553
% by Material	12.4%	0.1%	2.0%	14.5%
Services (Number)	50,867	–	–	656,243
Services (Kilometers)	965	–	–	12,354
% by Material	7.8%	–	–	7.8%
Total Distribution Pipelines (Kilometers)	3,889	25	469	35,907
% by Material	10.8%	0.1%	1.3%	12.2%

The System Modernization Program has resulted in significant annual GHG emission reductions, as shown in the *Greenhouse Gas Emissions* section.

Managing the Integrity of Our Natural Gas Delivery and Transmission Infrastructure

National Fuel has been building and operating natural gas pipelines for more than a century and continues to embrace a culture of "safety first." Our pipeline maintenance efforts are designed to meet or exceed safety requirements and we continue to make significant investments to improve the safe operation of our systems. The following highlights the major programs and systems our Downstream and Midstream Segments utilize to ensure pipeline integrity and the safety of our employees, business partners, and the communities we serve.

Customer Safety

Every day through every season, National Fuel places the highest priority on the safety of our employees, customers, and the communities we serve. From our local call center representatives to construction and customer service personnel in the field, our employees are dedicated to delivering natural gas to our customers safely and efficiently. National Fuel has a long-standing culture of safety that encourages continuous improvement of our safety performance, with demonstrated success in the following core areas of customer safety.

Smell Gas Leave Fast

To ensure our customers know what to do if they smell gas, we have an ambitious public safety awareness campaign with a simple message: "Smell Gas? Leave Fast!" This campaign is one element of our Public Awareness programs that engage stakeholders through direct mailings, bill inserts, billboards, radio, print, and social media advertisements. Stakeholder engagement is also an essential element of our Pipeline Safety Management System (PSMS). Our field personnel play a critical role in reinforcing this message while interacting face-to-face with our customers. Beginning in 2022, our field personnel leave customers with a "Smell Gas? Leave Fast!" magnet for their home and reiterate that if they smell gas they should immediately leave the premise and proceed to a safe distance away (about the length of a football field) and call National Fuel at 800-444-3130 for a free leak investigation.

Smell Gas?

Leave fast and call 1-800-444-3130 for a free leak investigation

National Fuel®

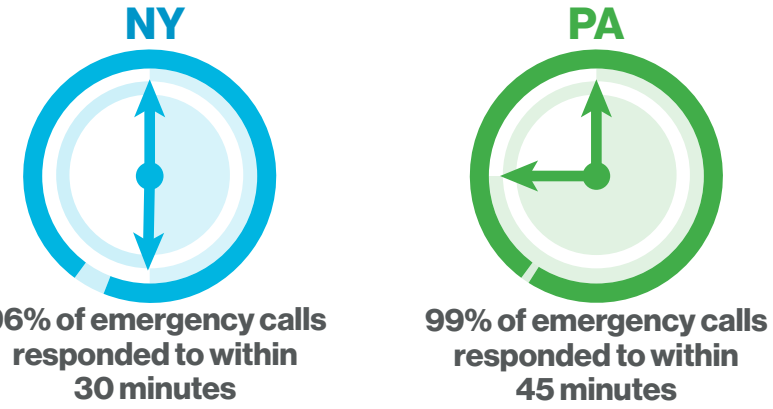
Emergency Response

Distribution Corporation places a high priority on having a rapid response to emergencies and a thorough investigation once onsite. As a result of our commitment to emergency response, Distribution Corporation is among industry leaders in this area as confirmed by annual industry benchmarking and statewide regulatory performance measure reporting.

In 2021, Distribution Corporation responded to over 96% of emergency calls within 30 minutes in its New York service territory. In Pennsylvania, where our Downstream Segment's service territory is more rural than in New York, Distribution Corporation responded to emergency calls within 45 minutes over 99% of the time.

Distribution Corporation offers multiple free training alternatives for emergency response personnel in the communities we serve to promote safe identification and response to incidents involving natural gas facilities. These include online first responder natural gas safety trainings, as well as free in-person training for first responders and emergency management agencies in our service territory. We also sponsor and participate in regional meetings covering pipeline safety with

2021 Emergency Response Time



local excavators, emergency responders, and public officials. Our Pipeline Safety webpage serves as a "one-stop shop" for pipeline safety resources for affected stakeholders and the general public.

When investigating pipeline incidents, Distribution Corporation utilizes a comprehensive Root Cause Analysis (RCA) process to determine the cause of the incident and identify lessons learned to prevent future incidents. The process includes the use of trained facilitators and the oversight of an RCA Standards Team.

National Fuel utilizes Standards Teams to ensure continuous improvement in our operations. Standards Teams are comprised of subject matter experts (SMEs) from various functional areas across the organization, including Engineering, Operations, Safety, Training, Fleet, IT, Control Room, Legal, Executive, etc. Thirteen Standards Teams involving more than 140 SMEs are responsible for investigating and resolving issues, developing and revising procedures to ensure safety and regulatory compliance, and recommending process and program Improvements. Standards Teams meet on a regular basis under the direction and oversight of the Administrative and Advisory Teams comprised of Department Managers and Executives.

Standards Teams

Leak Management

An effective leak management program is essential to ensure safety and to reduce GHG emissions.

The federal Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2020 (PIPES Act) requires new regulations for leak detection and repair programs to identify, locate, and categorize all leaks that are hazardous to human safety or the environment. Further, the PIPES Act requires pipeline operators to update their inspection and maintenance plans with respect to public safety, eliminating hazardous leaks, minimizing releases of natural gas, and the replacement or remediation of pipelines that are known to leak based on the material, design, or past operating and maintenance history of the pipeline.

Distribution Corporation has a comprehensive leak management program consistent with the goals of the PIPES Act including:

- Prompt identification of leaks, or conditions that may lead to leaks, or other unintentional releases of natural gas from pipeline facilities;
- Rapid response to emergencies and a thorough investigation once onsite;
- Accelerated leak surveys exceeding regulatory requirements that target facilities with a higher potential to leak or that have potentially higher consequences should a leak occur;

Continuous Improvement through Utility Leak Management Program

Calendar Year-End 2016 - 2021

73% **Reduction** in Year-End Outstanding Leaks

29% **Improvement** in Year-End Discovered Leaks

- Comprehensive leak classification and repair procedures for above ground and below ground leaks;
- Plastic system integrity program that targets leaking plastic facilities for additional accelerated actions to prevent future leaks;
- Robust damage prevention program to minimize large volume leaks caused by excavation;
- Aggressive system modernization program and annual targets to replace leaking and leak prone mains and services; and
- Annual leak backlog goals to drive year over year improvement, which are also tied to annual executive compensation goals.

Over the past five years, our Downstream Segment's Leak Management Program has resulted in continuous improvement in annual reported leaks and year-end leak backlogs. At calendar year-end 2021, Distribution Corporation had 73% fewer outstanding leaks than at calendar year-end 2016. Distribution Corporation also experienced a 29% reduction in new leak discoveries over this same period demonstrating that our program has been effective in improving the health of our system.

Methane Emissions Reduction Program

In 2021, Distribution implemented the Methane Emission Reduction Program (MERP). The MERP is used to determine appropriate best management practice(s) (BMPs) to minimize the release of methane from pipeline and station shutdowns. The MERP targets higher volume pipeline blowdowns. BMPs include:

- Pipeline pressure draw down into adjacent pipeline or system using portable compressor equipment or existing regulator stations;
- Minimizing pipeline segment blowdown lengths through the use of existing valves and/or installation of controllable fittings and squeeze off of plastic pipe;
- Use of hot taps for tie-ins versus shut-down and cutting in tees; and
- Coordinating shut-downs for multiple projects/tasks to minimize shut-down and purging events.

Damage Prevention

National Fuel dedicates significant resources to educate and train contractors, our customers, and the public on the importance of damage prevention and safe excavation practices through our "Call Before You Dig" awareness campaigns. These awareness campaigns have included customer newsletters in multiple languages, radio and print advertisements, social media posts, billboards, and educational outreach to local municipalities and third party excavators. Our Downstream Segment responded to over 180,000 requests for pipeline marking prior to excavation in 2021. As a result of our focus on public education and continuous improvement, our Downstream Segment has achieved a 26% decrease in excavation damage rates over the last five years. Additionally, operations personnel attend pre-construction meetings with contractors and facility owners to emphasize safe excavation practices. Company personnel also perform standby inspection during excavation near critical facilities such as transmission and high-pressure pipelines, or where trenchless construction near gas facilities is utilized.

To mitigate the impact of damages on service lines, over the past five years, Distribution Corporation has installed more than 46,300 Excess Flow Valves (EFVs), on all new and replaced medium and high pressure service lines[1], which automatically shut-off the flow of gas if the service line is damaged.

Nearly all National Fuel operations personnel and every contractor employee are required to attend a class on operator excavation and backfilling in the vicinity of a pipeline. This class covers the safe operation of mechanized equipment in the vicinity of a gas facility, One-Call regulations, facility marking colors, proper support of pipelines, and backfilling procedures. After class completion, operations field employees are considered "Damage Prevention Ambassadors" when interacting with excavators.

1 EFVs are installed on all new and replaced medium and high pressure services meeting the requirements of 49 CFR § 192.383.

26% decrease in excavation damage rates over the last 5 years

In 2015, National Fuel implemented a "Look Out for the Mark Out" program, which encourages employees to intervene in any excavation activity near Company facilities that is being performed without a One-Call request. Employees are incented to participate by a series of tiered monetary awards. National Fuel employees have intervened in excavations ranging from landscaping done with hand tools to large-scale building projects with heavy equipment. These efforts have prevented damages to gas facilities ranging from utility service lines to high-pressure transmission lines. Since the inception of the program, employees have discovered nearly 1,700 occurrences in which excavators were working without a valid One-Call ticket, with the potential to result in damage to our facilities.

In 2020, to further enhance our damage prevention program, National Fuel began a new Damage Prevention Inspector (DPI) pilot in our New York service area. The program utilizes artificial intelligence computed risk scoring to rank One-Call tickets based on, among other things, excavator history, location of excavation, and the type of work being performed. High-risk tickets are then dispatched to a DPI who performs a site visit on the date of excavation to reinforce proper excavation practices and answer any questions in addition to notifying a qualified National Fuel locator if stand-by during excavation is warranted, to ensure proper excavation practices are followed. Excavators can also call a DPI to review marks onsite and answer questions.

Our Public Awareness Program

Our Downstream and Midstream Segments' Public Awareness Program was established in 2006 and is designed to enhance public safety by increasing the public's knowledge of pipeline locations and safety issues. By sharing information with key stakeholder audiences, including the affected public, emergency responders, excavators, and public officials, National Fuel endeavors to raise the awareness of our pipeline facilities and help the public better understand the role they can play in pipeline safety.

Public Awareness Program

Educational Objectives	
• Use of a One-Call notification system prior to excavation and other damage prevention activities. • Identification of possible hazards associated with unintended releases from a gas pipeline facility.	• Recognition of physical indications of a possible release. • Steps to be taken for public safety in the event of a gas pipeline release, and procedures to report such an event.
Major Elements	
• Establishing and maintaining liaisons with appropriate fire, police, public officials, and utility owners. • Direct mail program, whereby audience-specific pipeline safety brochures are mailed to: - Landowners, residents, schools, and businesses within 660-feet of DOT jurisdictional transmission pipelines, and - Excavators, emergency officials, and local public officials located in counties within National Fuel's service territory. - In 2021, pipeline safety brochures were mailed to over 85,000 stakeholders. • Collaboration with the Northeast Gas Association on a regional pipeline safety media campaign for the Northeast United States. • Bill stuffers, newspaper and online ads, and news releases regarding pipeline safety. • Meetings with municipal planning and permitting officials, to encourage them to: - Make permit applicants aware of one-call regulations and require inclusion of natural gas pipelines and easements on subdivision and site plans to prevent excavation damages and future encroachments.	• Entering into Encroachment Agreements with excavators, drilling operators, loggers, other pipeline operators and utilities, and homeowners allowing them to encroach upon National Fuel's pipeline right-of-way provided certain safety and insurance measures are followed. • Land Department and Operations personnel participate in regional pipeline safety meetings for the benefit of excavators and emergency responders. • Mailings to plumbers and drain cleaning services, advising them of the potential hazards associated with sewer cross bores as well as preventative measures. National Fuel mailed cross bore safety materials to 2,980 stakeholders in 2021. • Personal visits and/or written correspondence to school principals including a sampling of National Fuel's pipeline safety brochures for distribution to student body and/or educators, along with contact information if additional brochures are desired. In 2021, National Fuel contacted 157 schools in its service territory regarding pipeline safety. • New initiative in 2021 included mailings to landscapers, advising them of the potential hazards associated with working near gas meters, as well as preventative measures. In 2021, National Fuel mailed meter safety and landscaping awareness information to 3,088 stakeholders.

System Safety

Our Downstream and Midstream Segments maintain robust integrity management programs to identify and mitigate risks and ensure safety in the operation of our distribution and transmission pipeline systems and underground gas storage assets. In addition to the integrity management programs discussed below, these segments maintain a high level of pipeline safety and integrity during day-to-day operations, and regularly scheduled inspection and maintenance activities.

Distribution Integrity Management Program

The purpose of the Distribution Integrity Management Program (DIMP) is to enhance safety by identifying and reducing risks to the gas distribution pipeline system. The Company integrates available information about its pipelines to inform its risk decisions, including but not limited to pipeline material, leakage history by cause, and historical excavation activity. The DIMP was designed to promote continuous improvement in pipeline safety by identifying and investing in risk control measures beyond prescriptive regulatory requirements. Seven essential elements of the DIMP are highlighted in the table on the following page.

Ongoing enhancements to the DIMP include the implementation of a probabilistic risk model. Using the latest technology, the new model interfaces with the National Fuel Geographic Information System (GIS) to better evaluate asset risk across the entire distribution system, including risks associated with low-probability, high-consequence incidents. The new model allows our engineers to run "what-if" scenarios to evaluate pipeline and station replacement and other mitigative measures, such as increased leak survey frequency, to focus efforts on measures that provide the greatest impact to safety.

In addition to the risk model implementation, many programs within the DIMP are in the process of being implemented into a Pipeline Safety Management System (PSMS) to encourage safety and integrity across the system as well as continuous improvement within the business segment.

Transmission Integrity Management Program

Distribution Corporation operates seven transmission pipelines totaling 109 kilometers in length. Over 90% of this pipeline length is characterized as low stress, which means it operates with a higher level of safety compared to similar higher-pressure pipelines. Only 8.9 kilometers of Distribution's transmission lines are in High Consequence Areas (HCAs), requiring regular integrity assessments at least once every 7-years. The table below shows Distribution's pipelines inspected under our integrity management assessment program, including both HCA and non-HCA pipe segments.

Percentage of Downstream Segment Transmission Pipelines Inspected [1]

	2019	2020	2021
Transmission Pipelines (Kilometers)	110	110	109
Pipelines Inspected (Kilometers)	0[2]	7	0.7
% of Pipelines Inspected	0.0%	6.4%	0.6%
% HCA Pipeline Inspected	0	29.8%	7.9%

Distribution Corporation's transmission pipelines are operated under the National Fuel Gas Company Transmission Pipeline Integrity Management Program along with the transmission pipelines of National Fuel's Midstream Segment subsidiaries. See *Operational Safety, Emergency Preparedness & Response* for additional information on our Transmission Pipeline Integrity Management Program.

1 PHMSA 2021 Gas Transmission and Gathering Annual Report for the Utility subsidiary. The Pipeline Inspected Length and Percentage may count the same mileage twice in limited instances where a different inspection method is utilized on the same segment of pipe, in the same year, to inspect for multiple threats.
2 No mileage scheduled for assessment in 2019 based on Baseline/Reassessment Plan.

Pipeline Safety Management System

The American Petroleum Institute (API) developed a safety management system standard specific to the pipeline industry. A Safety Management System (SMS) provides a systematic approach to managing safety, including the processes, policies, and procedures an organization uses to direct and control its activities. Stakeholders from across the pipeline industry including operators, regulators, industry trade associations and safety experts representing the public collaborated in the development of API Recommended Practice (RP) 1173 on Pipeline Safety Management Systems (PSMS).

API RP 1173 provides a systematic approach to safety and continuous improvement through 231 requirements organized into ten essential elements outlined in the table on the following page.

In 2019, our Downstream and Midstream segments, along with American Gas Association (AGA) membership, committed to implementing an API RP 1173 compliant PSMS within three years. The Company first performed a gap analysis evaluating alignment of existing programs and procedures with API RP 1173 requirements, followed by the ongoing development of a web-based SMS to support our PSMS implementation. SMS development commenced in 2021 with a team of internal subject matter experts from a variety of functional areas working collaboratively with our SMS vendor. Modules focusing on corrective and preventative actions as well as surveys and inspections were developed first and will be followed by subsequent modules which will enable us to:

- Enhance inspections and observations of work activities to validate compliance with, safety and work procedures,
- Enhance safety event reporting including incidents, near misses and safety observations by employees and contractor personnel,
- Facilitate root cause analysis and implementation of lessons learned from within our Company and our industry,
- Track and report key performance indicators across all pipeline and employee safety programs,
- Manage change throughout the organization using standardized workflows and action tracking, and
- Facilitate two-way safety communications with front line company and contractor personnel.

One of the key elements of a PSMS is investigating events and near misses that led or could have led to an incident, and evaluating lessons learned to improve processes and procedures to prevent a reoccurrence. This includes learning from external events like the 2018 Merrimack Valley overpressure incident. As a result of the federal investigation of that incident and subsequent Pipeline and Hazardous Materials Safety Administration (PHMSA) Advisory Bulletin to low pressure distribution system operators, National Fuel undertook a failure modes and effects analysis (FMEA) approach to assess our low-pressure district regulator stations to identify and evaluate conditions that could lead to a potential system failure. As part of the analysis a field survey is being conducted to gather pertinent station data to aid in the overall assessment.

In addition to the FMEA initiative above Distribution also took the following proactive measures based on lessons learned from Merrimack Valley:

- Removed all buried sense lines at low-pressure regulator stations;
- Installed full-capacity relief valves at all single-feed worker monitor stations feeding low-pressure systems;
- Installing full-capacity relief valves at all worker monitor stations feeding low-pressure systems (in progress);
- Implemented an enhanced engineering design/review approval process;
- Implemented a project planning/pre-construction checklist in operations; and
- Implemented a highly successful professional engineer (PE) compensation program to incent engineers to obtain and maintain their PE license.

Safety Program Elements

Inspection and Maintenance Programs	DIMP Essential Elements	API RP 1173 Elements
• Quarterly, semi-annual and annual pipeline patrols; • Leakage surveys, including business district, public buildings and frost surveys, as well as additional targeted risk-based quarterly and semi-annual leak surveys; • Monthly leak surveys of schools, hospitals and nursing homes; • Annual regulator and valve inspections; • Annual pressure regulating station inspections; • Continuous SCADA and remote monitoring of operating pressures; • Atmospheric corrosion inspections; • Odorant inspections; • Bi-monthly and annual cathodic protection monitoring; • Annual emergency valve inspections; • Underwater inspections of waterbody crossings; • Incident investigation and root cause analysis; and • Plastic system leak analysis and remediation program.	• System knowledge including material, construction practices, and operational data; • System threats including corrosion, excavation damage, other outside force damage, natural force damage, pipe, weld or joint failure, equipment failure, incorrect operation; • Evaluating and ranking risks based on the probability and consequence of failure; • Identifying and implementing measures to address risks through new safety programs and targeted accelerated actions; • Measuring performance, monitoring results, and evaluating effectiveness using performance measures and reviewing data trends; • Meriodic evaluation and improvement through annual program reviews; and • Reporting results through management and regulatory reporting.	• Leadership and management commitment; • Stakeholder engagement; • Risk management; • Operations controls; • Incident investigation, evaluation and lessons learned; • Safety assurance; • Management review and continuous improvement; • Emergency preparedness and response; • Competence awareness and training; and • Documentation and record keeping.

Employee and Contractor Operational Training

National Fuel's Training and Qualification process maintains the Company's highest priority of safety to our customers, employees and the communities we serve. Whether the individual be a meter reader, a contractor foreman, or an operations supervisor, this ideal serves as the foundation for our Operator Qualification Program. The Company recognizes that a comprehensive training program is a prerequisite to a best-in-class qualification program. The Company has held this view long before recent state and federal emphasis on training. Our contractors receive the same level of training as our own employees, with this training occurring at Company training centers by National Fuel trainers. Contractor and employees sit side by side during lectures and cooperate hand in hand throughout the practical skills and experience components built into each class.

Our Operational Compliance Program (OCP) plays a vital role in our safety commitment. OCP is designed such that the material presented within each part of training will be up to date with current regulations and Company procedures. Our Quality Assurance Group (QA) ensures the appropriate changes, when required, are made to training content and classroom material. Not only does QA assess the trainers and class content throughout the year, but they also manage hundreds of field assessments performed by Operations supervisors throughout the year, including investigation and resolution of identified exceptions and summary reporting to Operations management. Trending exceptions allows QA to identify areas for improvement in our training program and operating procedures.

Training classes are designed to build off each other, starting with the basics and taken sequentially. There is also an expectation that between each part, the material and concepts covered in the previous part are bolstered with on-the-job reinforcement/training. The flowchart to the right is an example of the progression necessary for a newly hired Gas Mechanic to become fully qualified to perform DOT covered tasks.

Extensive Operator Qualification Training

Example - Gas Mechanic Training

Part 1 — **First Month of Employment** (3 Days)
- Basic Properties of Gas
- O & M Initial Training

Part 2 — **2-6 Weeks After Part 1** (6 Days)
- Joining of Plastic Pipe
- Installation of Pipe

STOP! FIELD TRAINING REQUIRED
Minimum 6 weeks of On the Job Training (OJT) prior to taking additional classes

Part 3 — **Once Field Training Completed** (5 Days)
- Relighting Gas Appliances
- Operation of Valves

Part 4 — **4 Months of OJT Prerequisite- Parts 1 & 2** (2 Days)
- Purging/Pigging
- Pressure Testing

Part 5 — **6 Months of OJT Prerequisite- Parts 1, 2, 3 & 4** (5 Days)
- Tapping/Stopping
- Squeezing/Bagging
- Leak Repair

Part 6 — **6 Weeks of OJT Prerequisite- Part 1** (3 Days)
- Leak Survey
- Leak Reporting

Other Required Classes (Part 1 is Prerequisite)
- Line Locating (4 Days)
- Work Area Protection (1 Day)
- Trenching and Shoring (1 Day)
- Fire School (1/2 Days)

The Training Department, along with the Field Operations Development Department, accompany individuals into the field following completion of an Operator Qualification Training Part. This additional reinforcement under real world conditions helps lock in the points covered during lecture and practical skills sessions built into each class.

With safety as a guiding principle at National Fuel, it is imperative that every employee and contractor return home safely each day.

Over the past three years, our Downstream and Midstream Segments have invested more than 457,000 hours on safety meetings, training and operator qualification for our hourly field personnel. In 2020, National Fuel completed a $1.6 million capital expansion of its NY training facilities to increase training capacity and to accommodate live hands-on that simulates real-world conditions.

Safety Meeting, Training and Operator Qualification Hours	2019	2020	2021
Training Hours	143,719	148,231	165,434
Average Hourly Operations Employees	742	758	784
Average Training Hours/Employee	194	196	211

Employee and Contractor Safety

Across the Company, we implemented safety programs and management practices to ensure that a culture of safety is prioritized and embraced throughout the entire organization. These important initiatives include:

- Safe 4 the Right Reasons™ Safety Culture Program[1] promotes safe behaviors at work and at home, and its core principles have been incorporated into every element of our safety programs. In 2022, Safe 4 the Right Reasons 2.0 was rolled out through live presentations focused on inspiring teamwork for safety, with the executive management team participating in the live trainings to endorse the program and reemphasize safety as a core value.

1 The Safe 4 the Right Reasons™ Safety Culture Program is a product of DiVal Safety Equipment, Inc.

- Comprehensive web-based operating procedures designed for ready access by employees and contractors to ensure safety and compliance, including our Operational Compliance Program (OCP) to ensure gas safety requirements of laws, regulations and orders are incorporated into procedures and that employees are trained to any new procedures, and that compliance is audited in the field with annual "roll-up" certifications;
- Weekly Safety Tips Published by Safety Department including submissions from employees and industry peers; used to share lessons learned, raise safety awareness, and build safety culture;
- Construction site work rules, safety procedures and guidelines pertaining to personal protective equipment (PPE);
- Occupational dog bite safety training with live dogs;
- Multi-level employee and management interactions to identify and review incidents, safety concerns and lessons learned, and to set safety expectations and deliver timely safety messages, to raise safety awareness and build safety culture. This includes Bi-weekly Safety Calls including senior management, management, supervision and union safety coordinators, Labor-Management Safety Coordinator meetings, and "All Employee" Safety Calls including senior management, supervision and hourly employees;
- Corporate Officer Health and Safety Goals tied to executive compensation to promote safety;
- Intranet Safety Resource Center which provides ready access to the Employee Safety Handbook and other safety procedures, safety forms, safety training resources, and PPE information;
- "Stop Work Responsibility" expected of all employees and contractors in the event they observe an unsafe practice or condition;

- Tabletop simulations and live drills for emergency response preparedness including participation of local first responders;
- Vehicle safety programs and driver safety training, including the use and review of driver cameras;
- Interstate Natural Gas Association of America (INGAA) Safety Culture Survey; performed every 3-years, and next scheduled in 2023, the survey is utilized to monitor our progress in cultivating a culture of safety across our organization, and to identify areas for improvement; and
- Extensive employee safety training and awareness, including the following topics:[1]

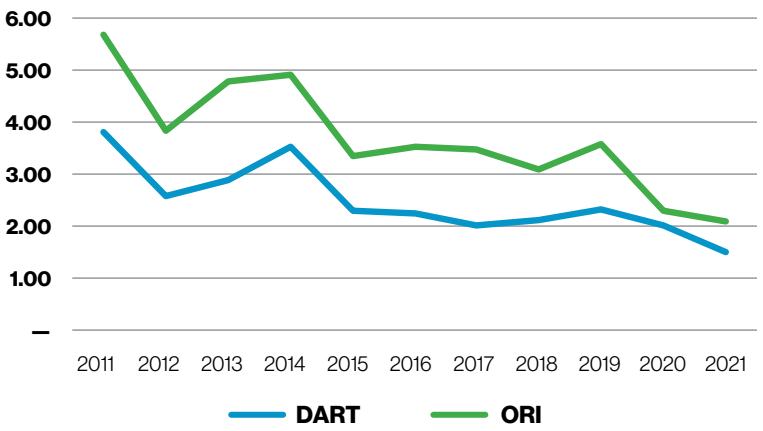
• Hazardous Energy Control	• Respirator Use
• Confined Space Awareness	• Asbestos Awareness
• HAZCOM (Hazard Communication)	• Hydrogen Sulfide Awareness
• Hearing Loss Prevention	• Coal Tar Pipe Removal
• HAZWOPER (Hazardous Waste Operations and Emergency Response)	• Powered Industrial Material Handling Vehicles
• First Aid/CPR/AED	• Fall Protection
• NORM (Naturally Occurring Radioactive Materials)	• Work Area Protection & Flagging
• Emergency Response Plan and Drills	• Excavation Competent Person
• Incident Command System	• Crane Operation
• Wild Well Control	• Ergonomics
• New Employee Safety Orientations	• Vehicle Recovery & Winching
• Dog Bite Prevention	• PCBs
• Safety Leadership	• Aerial Work Platforms
• Smith System Driver Training (In vehicle)	• Fire School
• ATV / UTV Safety	

The Company requires contractor safety pre-qualifications and reporting on environmental, health and safety (EHS) performance. In addition to complying with all Operator Qualification and insurance requirements, our core group of pipeline contractors are pre-qualified for safety by an independent, third-party service provider specializing in this function. Contractors are required to submit documentation verifying compliance with all Occupational Safety and Health Administration (OSHA) and other mandated safety training, as well as information related to injuries and incidents on a quarterly basis. The third-party specialist audits the contractor safety programs and utilizes statistical information to develop composite safety scores for each contractor. Our Downstream and Midstream Segments review contractor safety scores prior to awarding bids to ensure contractors have appropriate and effective safety programs in place. In the event contractor safety scores become unsatisfactory, we work collaboratively with contractors to implement safety improvement plans and increase inspection levels to ensure safety on our jobsites. Although rare, if safety performance does not improve to acceptable levels, a contractor will be removed from our qualified bidder list.

The workplace safety record in the Midstream and Downstream Segments has improved significantly over the last ten years. For the second year in a row, Supply and Distribution Corporation achieved an all-time best safety record with combined OSHA recordable injury and DART injury rates of 2.09 and 1.49, respectively, representing a 63% decline in the OSHA recordable injury rate and 61% decline in the DART injury rate since 2011.

1 Employee safety training is directed based on employee roles, responsibilities and needs.

Preventing Serious Injuries and Fatalities (SIF[1])



To prevent SIF or potential SIF (PSIF) incidents from occurring in the workplace, the Safety Department for the Downstream and Midstream Segments performs a thorough investigation of all injuries and incidents to identify the contributing factors and lessons learned. Examples of corrective actions include equipment/tooling upgrades, material changes, procedure revisions and training. Most corrective actions include a combination of safety controls aimed at protecting our workers and we involve front-line workers who are most familiar with the activities to get their perspectives, input and suggestions.

In 2021, the Company worked with the INGAA Foundation to complete the first-of-its-kind industry consensus guidelines for the prevention of serious injuries and fatalities in the natural gas industry. National Fuel played a leadership role in developing the document which was introduced at an INGAA Foundation workshop in 2021. When PSIF incidents or near-misses occur, the Company carefully analyzes the causal factors, implements changes when necessary and shares lessons learned to stakeholders throughout the organization. Implementation of the SMS will enhance the Company's ability to track, analyze and report lessons learned related to PSIF exposures.

1 A work-related injury or illness resulting in a fatality, or required immediate life-preserving rescue action, and if not applied immediately would likely result in the death of that person (life-threatening) or would result in the permanent and significant loss of a major body part or organ function that permanently changes or disables that person's normal life activity (life-altering).

Safety Leadership

National Fuel has played a significant safety leadership role in our industry through our participation with trade associations such as the AGA and INGAA.

Most recently, National Fuel has served in a leadership capacity with the AGA in the development of emergency response and building evacuation protocols for our industry. Our General Manager of Safety served as Vice-Chair on AGA Gas Filled Occupancy (GFO) Task Force to: (1) evaluate and learn lessons from past incidents of GFO incidents; (2) investigate technology options to identify GFO's; and (3) provide data useful for natural gas utility companies to make informed decisions when developing or enhancing GFO response procedures, to reduce the potential for injuries and fatalities. As a result of the lessons learned from the AGA GFO initiative, in 2021 National Fuel implemented enhanced procedures and tooling for responding to GFO incidents to reduce the risk to our customers, employees and the public.

Future Direction

National Fuel recognizes that the absence of injuries does not necessarily indicate the presence of safety. Even though our injury rates have declined substantially over recent years, we recognize the need to avoid complacency and we embrace continuous improvement throughout our organization. The planned implementation of web-based Safety Management System software will provide the tools necessary to improve our programs for identifying and controlling employee exposures to hazards and improve on the delivery of safety training and messaging for management and hourly workers. Sustaining the Company's safety culture through robust management support and programs like "Safe 4 the Right Reasons" will ensure all levels of the organization remain aligned around the guiding principle of safety for our co-workers, our customers, and our pipeline system.

Gatekeepers

At National Fuel, the safety of employees, customers and community is our top priority. As gatekeepers, our field personnel encounter hundreds of customers daily and are able to identify unusual or suspicious situations when elderly or diminished capacity customers are in need of assistance. Under the Gatekeeper program, employees are on the lookout for warning signs below as they interact with our customers and are encouraged to contact their supervisor if they believe someone requires assistance.

- Unshoveled driveways/walkways;
- Snow covered home vents/exhausts;
- Mail piling up;
- Difficulty paying bills;
- Declining condition of home/lawn;
- Difficulty seeing, speaking, hearing or moving; and
- Unattended pets.

OSHA Rate

The OSHA rates reported here are for Direct Full-Time Employees for National Fuel's Downstream and Midstream Segments, excluding Midstream Company, which comprises less than 1% of the Downstream and Midstream Segment employees and who did not have any recordable injuries over the past three years.

OSHA Total Recordable Incident Rate (TRIR)[1]

	2019	2020	2021
Downstream			
TRIR	4.34	2.88	2.45
Injuries	56	37	31
Hours Worked	2,578,155	2,572,247	2,525,864
Midstream			
TRIR	1.02	0.49	0.98
Injuries	4	2	4
Hours Worked	785,616	813,044	820,130
Total Utility & Midstream			
TRIR	3.56	2.31	2.09
Injuries	60	39	35
Hours Worked	3,363,771	3,385,291	3,345,994

OSHA Days Away, Restricted or Transferred Rate (DART)[1]

	2019	2020	2021
Downstream			
DART	2.87	2.57	1.74
Incidents	37	33	22
Hours Worked	2,578,155	2,572,247	2,525,864
Midstream			
DART	0.51	0.25	0.73
Incidents	2	1	3
Hours Worked	785,616	813,044	820,130
Total Utility & Midstream			
DART	2.32	2.01	1.49
Incidents	39	34	25
Hours Worked	3,363,771	3,385,291	3,345,994

Fatality Rate

	2019	2020	2021
Total Utility & Midstream			
Fatality Rate	0.00	0.00	0.00
Fatalities	0	0	0
Hours Worked	3,363,771	3,385,291	3,345,994

1 OSHA metrics for Downstream and Midstream Segments (excluding Midstream Company) are measured on a fiscal year basis of October 1 to September 30.

Distribution, Service, and Transmission Pipeline Data

The following tables include the distribution pipeline, including service lines, and transmission and regulated gathering pipeline lengths for Distribution Corporation.

Utility Distribution Pipeline Length (kilometers) – by Year[1]

	2019	2020	2021
Mains	23,466	23,510	23,553
Services	12,288	12,332	12,354
Total	35,754	35,842	35,907

Utility Transmission and Regulated Gathering Pipeline Length (kilometers) – by Year[2]

	2019	2020	2021
Transmission	110	110	109
Regulated Gathering	100	100	100

Total Utility Pipeline Length (kilometers) – by Year[3]

	2019	2020	2021
Distribution Mains (Kilometers)	23,466	23,510	23,553
Distribution Services (Number)	654,745	655,492	656,243
Distribution Services (Kilometers)	12,288	12,332	12,354
Transmission Pipelines (Kilometers)	110	110	109
Regulated Gathering Pipelines (Kilometers)	100	100	100
Total Utility Pipelines (Kilometers)	35,964	36,052	36,116

1 DOT Gas Distribution Annual Report Form PHMSA F 7100.1-1 (2020).
2 DOT Gas Transmission and Gathering Annual Report Form PHMSA F 7100.2-1 (2020).
3 DOT Annual Reports (2018-2020).

National Fuel received **multiple safety awards** from the Energy Association of Pennsylvania, recognizing the Company's efforts and **dedication to safety**.

Reportable Pipeline Incidents, Corrective Action Orders and Notices of Probable Violations

The following table summarizes the number of PHMSA Reportable Pipeline Incidents, Corrective Action Orders, and Notices of Probable Violation for Distribution Corporation during the period 2019 through 2021.

Distribution Corporation Incident and Compliance Summary

	2019	2020	2021
Reportable Gas Distribution Pipeline Incidents[1]	2	1	0
Corrective Action Order Cases Initiated	–	–	–
Notices of Probable Violation Cases Initiated	–	–	–

Activity Metrics

Number of Customers

	CY 2019	CY 2020	CY 2021
New York			
Residential	496,318	500,300	504,817
Commercial	34,953	35,063	35,367
Industrial	428	427	445
Total Customers	**531,699**	**535,790**	**540,629**
Pennsylvania			
Residential	195,448	197,051	197,091
Commercial	15,915	15,987	16,102
Industrial	594	597	593
Total Customers	**211,957**	**213,635**	**213,786**
Total Distribution			
Residential	691,766	697,351	701,908
Commercial	50,868	51,050	51,469
Industrial	1,022	1,024	1,038
Total Customers	**743,657**	**749,425**	**754,415**

1 Distribution Corporation had three natural gas pipeline incidents self-reported to PHMSA, in accordance with 49 CFR §191, from 2019 to 2021. All three incidents were reported because of property damage that exceeded the PHMSA reporting threshold. None of the incidents were a "PHMSA serious incident" as defined by SASB.

Amount of Natural Gas Delivered (MMcf)

	CY 2019	CY 2020	CY 2021
New York			
Bundled Retail Sales			
Residential	46,498	43,806	43,823
Commercial	6,178	5,605	5,805
Industrial	479	210	193
Total Retail	**53,155**	**49,621**	**49,821**
Transportation Sales			
Residential	7,432	5,847	4,418
Commercial	20,489	18,248	17,846
Industrial	17,936	17,317	17,193
Total Transportation	**45,857**	**41,412**	**39,457**
Pennsylvania			
Bundled Retail Sales			
Residential	17,026	16,107	16,298
Commercial	3,277	2,909	2,951
Industrial	236	263	252
Total Retail	**20,539**	**19,279**	**19,501**
Transportation Sales			
Residential	2,774	2,370	1,916
Commercial	6,805	6,179	6,280
Industrial	18,877	15,690	18,018
Total Transportation	**28,456**	**24,239**	**26,214**

	CY 2019	CY 2020	CY 2021
Total Distribution			
Bundled Retail Sales			
Residential	63,524	59,913	60,121
Commercial	9,455	8,514	8,756
Industrial	715	473	445
Total Retail	**73,694**	**68,900**	**69,322**
Transportation Sales			
Residential	10,206	8,217	6,334
Commercial	27,294	24,427	24,126
Industrial	36,813	33,007	35,211
Total Transportation	**74,313**	**65,651**	**65,671**

MIDSTREAM SEGMENT

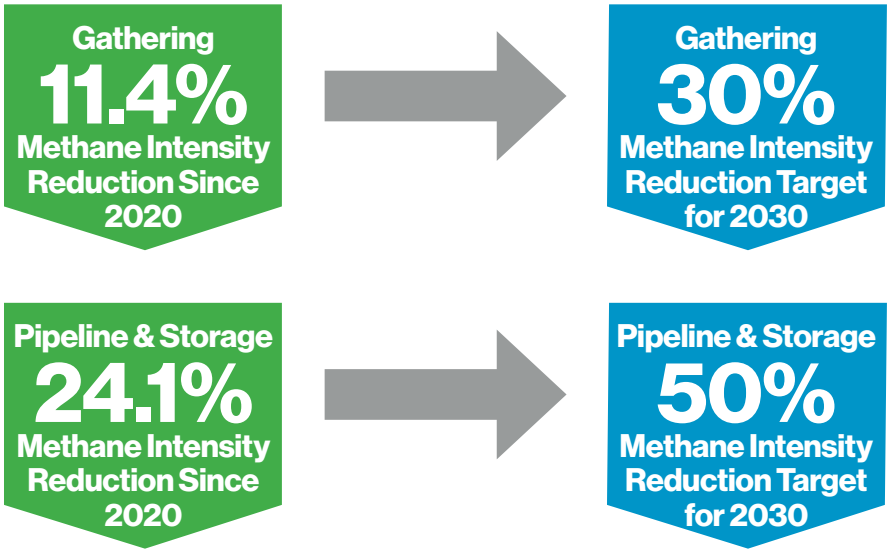
Greenhouse Gas Emissions

Our Midstream Segment is committed to reducing GHG emissions. The ongoing modernization of our infrastructure helps to ensure the reliability of our natural gas pipeline systems, while driving further emissions reduction as we install more efficient and low emissions facilities. Additionally, the further expansion of our pipeline system allows the Company to transport additional energy supplies to demand centers, facilitating regional and national emissions reduction efforts due to the low carbon intensity of natural gas versus other readily-dispatchable fuels.

In 2021, both the Gathering and Pipeline & Storage businesses made significant strides towards accomplishing their 2030 methane intensity reduction targets. As we continued to grow our business, adding throughput on our pipeline systems, we focused on installing efficient and low-methane intensity facilities. Our emissions reported for 2021 include the 205,000 dekatherm/day Empire North Project that we placed into service in September 2020. In addition, Supply Corporation placed into service the 330,000 dekatherm/day FM100 expansion and modernization project in December 2021, which will primarily be captured in the data reported for 2022.

Major drivers of this initial success in emissions intensity reductions were the success of our EPA certified BMP for fugitive emissions at compressor stations, selected BMPS under the Methane Challenge program for pneumatic devices and rod packing, and an increase in throughput (with relatively low emission facilities). Maintaining flat GHG emissions and lowering methane emissions intensity while meaningfully growing our business illustrates the Company's efforts to construct efficient and low-carbon intensity facilities and systems, and our continued focus on reducing the emissions profile of our existing operations. While we expect the rate of change to slow in coming years, we plan to build on this initial success, focusing on investments in emissions reducing work practice improvements, maintaining our system modernization efforts and efficiencies leveraging technology enhancements and exploring low-carbon initiatives.

Progress Towards 2030 Methane Emissions Intensity Targets (2020 Baseline)



Greenhouse Gas Emissions Reduction Initiatives

Scopes 1 & 2 Emissions Intensity (kg CO_2e/BOE)

		2020	2021
Pipeline & Storage (Empire & Supply Corporation)	Methane Emissions Intensity	2.49	1.89
	Greenhouse Gas Emissions Intensity	4.82	4.33
Gathering (Midstream Company)	Methane Emissions Intensity	2.45	2.17
	Greenhouse Gas Emissions Intensity	9.01	8.38
Midstream Segment	Methane Emissions Intensity	2.47	1.99
	Greenhouse Gas Emissions Intensity	6.22	5.70

National Fuel has numerous initiatives underway to accomplish its emissions reduction targets, including our participation in the EPA's Methane Challenge Program. Through this program, we are analyzing new and innovative approaches for further methane reductions, including technology enhancements and work practice improvements. In 2020, Supply Corporation and Empire adopted a BMP for fugitive emissions at compressor stations (both transmission and storage industry segments), which focuses on addressing specific leak sources to maximize methane emissions reductions by targeting compressor unit isolation and blowdown valve leakage. Supply Corporation and Empire routinely monitor and evaluate leaking valves for enhanced maintenance and potential replacement. Since fiscal year 2020, Supply Corporation and Empire have replaced 18 blowdown and isolation valves and are on pace to replace a total of 49 valves by the end of fiscal year 2022, driving further expected direct emissions reductions.

With respect to the Methane Challenge, each Midstream Segment subsidiary submitted its second annual progress report for reporting year 2020 to the EPA in December 2021. The following tables include a summary of reported methane reductions for reporting year 2020.

2020 Methane Reductions via EPA's Methane Challenge (Metric Tons CO_2e)[1,2,3]

	2019	2020
Pipeline & Storage (Empire & Supply Corporation)	9,604	10,004
Gathering (Midstream Company)	4,732	7,732
Total Midstream Segment	**14,336**	**17,736**

1 EPA's Methane Challenge Program submission window for Reporting Year (RY) 2020 did not open until mid-October 2021 for each of National Fuel's Midstream Segment subsidiaries. It is anticipated RY 2021 will follow the same timeline and will be noted in next year's report.
2 For RY 2019 and 2020, the reductions came from the selected BMPs under the Methane Challenge program for pneumatic devices and rod packing.
3 CO_2e values have been calculated based on those values in accordance with the published 100-year time horizon global warming potential (GWP) values from the IPCC Fifth Assessment Report (AR5, 2014) as preferred by SASB.

Using Technology to Minimize Methane Emissions

Farmington, NY

- Empire incorporated a VGR system for planned compressor blowdown events during the design and planning phase of its Farmington Compressor Station, which went into service in 2020.
- The VGR system shown captures the gas typically vented during a planned and routine compressor unit blowdown, and that volume of gas is then routed and recompressed into the station suction header piping for recovery, reducing operational emissions.

In addition to our Methane Challenge commitments, our Midstream Segment employs the following regulatory and voluntary measures to minimize methane emissions:

Measures to minimize methane emissions	Regulatory	Voluntary
Minimize pipeline blowdowns • Developed internal program to assess and select BMPs, where practicable • BMPs include: Linepack draw down, portable compression, flaring, etc.		X
Leak Detection and Repair ("LDAR") programs	X	
Installation of low-bleed, zero-bleed, or air-driven pneumatic devices at new facilities wherever technically and practically feasible		X
Supply Corporation and Empire's use of vent gas recovery ("VGR") systems for planned compressor blowdown events at several facilities whenever technically and practically feasible		X
Installation of VGR systems on turbine dry seals whenever technically and practically feasible		X
Investigate and install technologies to capture and route rod packing vents for a beneficial use whenever technically and practically feasible		X
Investigate and install engine upgrade packages to improve fuel efficiency and/or reduce methane emissions from engine exhaust whenever technically and practically feasible		X
Application of Best Available Technology ("BAT") for new/modified equipment	X	X
Application of Reasonably Available Control Technology ("RACT") at existing major source assets	X	

Supply Corporation is a member of INGAA and actively participates in INGAA's Environmental Committee, including the committee's GHG Task Force that seeks to develop and share best practices among industry peers. Our Pipeline & Storage businesses adhere to INGAA's voluntary Methane Emissions Commitments, as well as INGAA's Integrity Management - Continuous Improvement (IMCI) initiatives focused on safely supporting the energy transition. As further described in *Operational Safety, Emergency Preparedness and Response*, these initiatives focus on modernizing natural gas gathering, transmission and storage networks with the goal of reducing emissions and minimizing climate impacts.

In August 2021, National Fuel and its subsidiaries joined Our Nation's Energy Future (ONE Future) Coalition. This Coalition is comprised of natural gas companies that are working to voluntarily reduce methane emissions across the value chain to 1%, or less. Additionally, National Fuel has committed to the Gas Technology Institute's (GTI) Project Veritas as an Initiative Partner. Project Veritas aims to expedite methane emission reductions by developing transparent technical protocols for calculating methane emission methodologies and intensities across the natural gas value chain.

Scope 1 Greenhouse Gas Emissions

Our Midstream Segment reports GHG emissions from both stationary and fugitive sources at our operating facilities, including all sources under the EPA's Mandatory Greenhouse Gas Reporting, as well as sources covered under the AGA, Natural Gas Sustainability Initiative (NGSI) and ONE Future protocols.[1] Our Midstream Segment's Scope 1 GHG emissions disclosure also includes mobile sources/fleet vehicles and office buildings.

Scope 1 emissions data is provided in units of metric tons on a carbon dioxide equivalent (CO_2e) basis, as the sum of three of the seven GHG pollutants covered under the Kyoto Protocol (CO_2, CH_4, and N_2O).[2,3] In addition to gross Scope 1 emissions, we are providing the percentage of those emissions from methane. Gross emissions are GHGs emitted to the atmosphere.

1 Midstream Segment's facilities are subject to Greenhouse Gas Mandatory Reporting (40 CFR Part 98). Our facilities fall under the Petroleum and Natural Gas Systems source category (i.e., 40 CFR Part 98 Subpart W), which consists of the following impacted industry segments: onshore natural gas transmission compression, underground natural gas storage, onshore natural gas gathering and boosting, and onshore natural gas transmission pipeline. Facilities with actual GHG emissions greater than 25,000 metric tons of CO2e (i.e., GHGRP reporting threshold) are subject to monitoring and reporting of GHG emissions. Facilities with actual GHG emissions less than 25,000 metric tons of CO2e are not subject to reporting of GHG emissions.

2 HFCs, PFCs, and SF6 emissions have been evaluated for this report and determined to be de minimis. As these emissions are not material, the Midstream Segment has not included them in the data. Nitrogen trifluoride (NF3) is associated with a few specialized industrial processes (e.g., manufacture of solar panels, lasers, semiconductors, etc.) and is not applicable to National Fuel operations.

3 Emissions for each pollutant have been calculated in accordance with the methodology prescribed by the U.S. EPA's GHGRP (40 CFR Part 98, as applicable). CO_2e values have been calculated based on those values in accordance with the published 100-year time horizon global warming potential (GWP) values from the IPCC Fifth Assessment Report (AR5, 2014) as preferred by SASB. The U.S. EPA requires CO_2e to be calculated using IPCC Fourth Assessment Report (AR4) under the GHGRP.

Scope 1 Greenhouse Gas Emissions (Metric Tons CO_2e)

		2019	2020	2021
Empire	EPA Mandatory Reporting Sources	27,863	31,145	94,816
	Additional EPA Sources[1]	17,454	24,129	3,814
	Other Sources[2]	2,549	4,605	7,482
	Total Empire	**47,866**	**59,879**	**106,112**
Supply Corporation	EPA Mandatory Reporting	301,112	288,389	256,773
	Additional EPA Sources[3]	187,264	184,517	156,643
	Other Sources[4]	9,553	10,375	10,786
	Total Supply	**497,929**	**483,281**	**424,202**
Midstream Company	EPA Mandatory Reporting	466,712	506,979[5]	514,740
	Additional EPA Sources	1,134	8,221	12,660
	Other Sources	592	615	665
	Total Midstream Company	**468,438**	**515,815**	**528,065**
Total Midstream Segment	EPA Mandatory Reporting	795,687	826,513	866,329
	Additional EPA Sources	205,852	216,867	173,117
	Other Sources	12,694	15,595	18,933
	Total Midstream Segment[6]	**1,014,233**	**1,058,975**	**1,058,379**

Scope 1 Methane Emissions (Metric Tons CH_4 as CO_2e)

		2019	2020	2021
Empire	EPA Mandatory Reporting	3,070	3,573	5,194
	Additional EPA Sources[1]	17,436	4,011	3,315
	Other Sources[2]	2,546	4,600	7,475
	Total Empire	**23,052**	**12,184**	**15,984**
Supply Corporation	EPA Mandatory Reporting	133,621	111,394	96,270
	Additional EPA Sources[3]	155,004	152,378	114,826
	Other Sources[4]	7,004	7,186	7,442
	Total Supply	**295,629**	**270,958**	**218,538**
Midstream Company	EPA Mandatory Reporting	164,273	138,582[5]	122,234
	Additional EPA Sources	1,031	1,217	14,360
	Other Sources	502	511	526
	Total Midstream Company	**165,806**	**140,310**	**137,120**
Total Midstream Segment	EPA Mandatory Reporting	300,964	253,549	223,698
	Additional EPA Sources	173,471	157,606	132,501
	Other Sources	10,052	12,297	15,443
	Total Midstream Segment	**484,487**	**423,452**	**371,642**

1 EPA Part 98 sources that do not reach minimum threshold to mandate annual reporting.
2 Other sources included by NGSI and ONE Future, along with fleet and office buildings.
3 2019 and 2020 values are restated to include additional EPA Part 98 sources that were identified in 2021, and that do not reach the minimum annual reporting threshold.
4 2019 and 2020 values are restated to include additional other sources.
5 Values from 2020 are restated from the original 2020 disclosure to include small internal and external combustion sources.
6 Total values between charts may vary slightly due to conventional rounding.

"Our team remains focused on investing in work practice improvements and leveraging technologies to accomplish our emissions reduction targets."

Emily Emmons
Environmental Engineer

Flared Hydrocarbons, Other Combustion, Process Emissions, Other Vented Emissions, and Fugitive Emissions

The following table shows a breakdown of GHG emissions by major source category for the Midstream Segment subsidiaries. The largest contribution to CO_2e emissions overall is from combustion sources, primarily compressor station engines, with respect to which our Midstream Segment utilizes various mitigation strategies to minimize CO_2e emissions. In September 2020, the Company significantly grew its FERC-regulated pipeline business with Empire placing into service the 205,000 dekatherm/day Empire North Project, which drove the increase in combustion emissions. In an effort to mitigate emissions from combustion sources for that project, Empire placed into service its first electric-driven compressor station. We are continuing to evaluate the environmental benefits and the technical and economic feasibility of this technology for similar projects in the future, where adequate commercial power is available and reliable. Additionally, we are exploring the impacts of hydrogen fuel blending as it relates to the engine performance and exhaust stack emissions and even further, the feasibility of producing hydrogen.

The next largest source categories contributing to overall GHG emissions are vented sources (which would include, among other things, pneumatic devices and blowdowns) and fugitive sources (which would include, among other things, component leaks, compressor seal/rod packing venting, and compressor unit isolation and blowdown valve leakage). For this reason, we strategically selected BMPs under the Methane Challenge program for pneumatic devices, rod packing, and isolation valves for methane reduction strategies.

Scope 1 GHG Emissions by Source Category (Metric Tons CO_2e)

		2019	2020	2021
Empire	Flared Hydrocarbons	1	3	2
	Combustion Sources	24,805	47,710	90,165
	Process Emissions	–	–	-
	Vented Emissions	18,856	4,258	7,218
	Fugitive Emissions	4,205	7,908	8,727
	Total Empire	**47,867**	**59,879**	**106,112**
Supply Corporation	Flared Hydrocarbons	410	386	397
	Combustion Sources	201,835	211,903	205,422
	Process Emissions	179	357	291
	Vented Emissions	94,106	88,181	71,886
	Fugitive Emissions	201,398	182,455	146,207
	Total Supply	**497,928**	**483,282**	**424,203**
Midstream Company	Flared Hydrocarbons	–	4,011	8,860
	Combustion Sources	300,909	374,104	388,316
	Process Emissions	80,619	41,816	34,040
	Vented Emissions	83,860	92,312	92,466
	Fugitive Emissions	3,050	3,571	4,382
	Total Midstream Company	**468,438**	**515,814**	**528,064**
Total Midstream Segment	Flared Hydrocarbons	411	4,400	9,259
	Combustion Sources	527,549	633,717	683,903
	Process Emissions	80,798	42,173	34,331
	Vented Emissions	196,822	184,751	171,570
	Fugitive Emissions	208,653	193,934	159,316
	Total Midstream Segment[1]	**1,014,233**	**1,058,975**	**1,058,379**

1 Total values between charts may vary slightly due to conventional rounding.

Scope 2 Greenhouse Gas Emissions

The chart below reflects the Midstream Segment Scope 2 emissions data from our operating facilities.[1]

Scope 2 Emissions (Metric Tons CO_2e)

	2020[2]	2021
Empire	881	1,634[3]
Supply Corporation	4,738	4,490
Midstream Company	629	794
Total Midstream Segment	**6,248**	**6,918**

Air Quality

Criteria Pollutants (Metric Tons) - NO_x, SO_x, Volatile Organic Compounds (VOCs), and Particulate Matter (PM_{10})

As part of our air quality compliance program, we are required to calculate and report emissions from stationary and fugitive emissions sources at operating facilities meeting specified reporting criteria, which varies by state, i.e., New York Department of Environmental Conservation and Pennsylvania Department of Environmental Protection (PADEP). This includes all Midstream Segment compressor stations and other facilities with stationary sources (e.g., interconnects with engines or dehydration units) in Pennsylvania and New York. Emissions from fleet vehicles are also included.

Emissions are calculated using the best available data in accordance with agency guidelines and accepted methods, which include, but are not limited to:

- Records of source operating hours, fuel consumption, and other key operating parameters (e.g., throughput, temperature and pressure, etc.);
- Site-specific analyses, periodic monitoring, and stack test results;
- Emissions modeling software (e.g., GRI-GLYCalc, TankESP, ProMax, etc.); and
- Published emission factors (e.g., Manufacturer, AP-42, 40 CFR 98 Subpart W).

We are committed to minimizing emissions by operating our facilities in a manner consistent with applicable air quality control standards. All new sources are designed to be controlled to stringent BAT or better emission standards. Existing sources at Title V facilities have incorporated requirements to meet RACT standards for NOX and VOC emissions. In addition to regulatory mandates to reduce emissions, each of National Fuel's subsidiaries has made voluntary emission reduction commitments under EPA's Methane Challenge Program, which are expected to reduce methane and VOC emissions over the upcoming years.

1 Scope 2 emissions were calculated using Sub-Region Emission Factors from US EPA GRID Power Profiler, https://www.epa.gov/egrid/power-profiler#/.
2 Values for 2020 are restated from the values included in the report year 2020 disclosure. Electricity usage for affiliated business units were incorrectly distributed. Total Scope 2 values on a consolidated basis were unaffected.
3 This increase includes Scope 2 emissions from Farmington Compressor Station, Empire's first electric driven compressor station placed in to service in September 2020 as part of the Empire North Project.

The following table includes emissions from stationary sources at all Midstream Segment (Pennsylvania and New York) facilities and fleet vehicles.

Air Emissions (Metric Tons)[1]

		2019	2020	2021
Empire	NO_X	–	18	24
	SO_X	–	2	3
	VOC	–	3	4
	PM_{10}	–	1	2
Supply Corporation	NO_X	348	448	402
	SO_X	2	4	3
	VOC	268	260	244
	PM_{10}	22	25	14
Midstream Company	NO_X	253	317	320
	SO_X	2	3	2
	VOC	66	91	74
	PM_{10}	13	13	14
Total Midstream Segment	**NO_X**	**601**	**783**	**746**
	SO_X	**4**	**9**	**8**
	VOC	**334**	**354**	**322**
	PM_{10}	**35**	**39**	**30**

1 Included are air emissions from all Midstream Segment compressor stations and other facilities with stationary sources (e.g., interconnects with engines or dehydration units) in PA, and all Midstream Segment compressor stations in NY. Facility emissions are calculated in accordance with standard agency-accepted methods using best available data. Fleet emissions are calculated using EPA MOVES3.

Ecological Impacts

Management of Environmental Program, Policies and Practices

Environmental stewardship is one of National Fuel's guiding principles. We utilize procedures, technologies, and BMPs across our businesses to develop, build, and operate our assets in a manner that respects and protects the environment. National Fuel stresses the criticality of environmental compliance throughout all levels of the Company, as well as with our contractors. This includes, but is not limited to, executives, managers, inspectors, engineers, union employees, contractors, and the environmental team. The environmental team at National Fuel consists of educated and experienced personnel that vary in backgrounds. The team specializes in the following fields: EHS, environmental engineering, botany, biology, stream and wetland ecology, environmental law, sustainability, forestry, and environmental science. The environmental team's main role within the Company is to ensure that effective environmental management policies and practices are properly implemented. To that end, the Company maintains guidance relating to resource impact minimization and environmental compliance such as National Fuel's Engineering Design Manual (EDM) and its Erosion and Sedimentation

Control and Agricultural Mitigation Procedure (ESCAMP). Additionally, the construction, maintenance and expansion of natural gas facilities often entails coordination with local, state, and federal authorities, along with other non-governmental environmental agencies and stakeholders.

Regulatory Review Practices

We continue to review and evaluate the impact that existing and proposed environmental regulations may have on our environmental management program. Teams composed of our construction managers, environmental team, legal counsel, and executive management routinely meet to discuss such issues and actively maintain internal tracking systems to follow proposed regulations and policies, log project-specific compliance tasks and conditions, and conduct rigorous ongoing and future monitoring/inspections. Additionally, we routinely engage with organizations such as the Interstate INGAA, AGA, NGA and the Marcellus Shale Coalition (MSC) to discuss these important industry issues. In addition to regulatory compliance, National Fuel also voluntarily commits to many natural gas industry best practices including:

- INGAA Methane Emissions Commitments
- INGAA Commitments to Responsible Pipeline Construction
- INGAA Commitments to Pipeline Security
- INGAA Commitments to Landowners
- INGAA Commitment to Pipeline Safety
- INGAA Foundation Environmental Inspection Guidelines

Project Planning and Development

Before a project commences, a project-specific support request is forwarded along to our environmental team's managers. These requests include a description of the project's proposed location, purpose, duration, and anticipated workspace requirements. When presented with a project, the environmental team evaluates the potential environmental impacts. The team utilizes industry accepted and/or BMPs to properly mitigate the impacts. These early efforts are facilitated through coordination with applicable environmental permitting agencies and industry ecological experts. These experts specialize in areas that include but are not limited to, the following:

- *air emissions*;
- soil and geology;
- noise impacts;
- spill prevention and response procedures;
- water resource identification, and delineation of aquatic and freshwater (stream and wetland) resources;
- threatened and endangered species and critical habitats;
- other vegetation and wildlife impacts;
- waste generation;
- aesthetics;
- *environmental justice*;
- cultural and historic resource identification; and
- surveying, routing, and siting practices to avoid or minimize impacts to identified resources.

Some of the many environmental agencies that the environmental team coordinates with include: the United States Army Corps of Engineers (USACE), Federal Energy Regulatory Commission (FERC), NYSDEC, PADEP, U.S. Fish and Wildlife Service (USFWS), the New York Natural Heritage Program, the PA Fish and Boat Commission (PAF&BC), the PA Game Commission, and the PA Department of Conservation and Natural Resources (DCNR).

Land Use in Areas of High Biodiversity and Critical Habitat

During our project coordination process, substantial effort is made to avoid high value habitat areas for protected, threatened, and endangered species, or generally high ecological value areas for species richness or diversity, such as scrub shrub or forested wetlands. For example, with respect to threatened, endangered, and protected species, we consult directly with agencies such as the USFWS, the New York Natural Heritage Program, PAF&BC, PA Game Commission, and PA Department of Conservation and Natural Resources. These consultations yield critical habitat location information, survey requirements, and recommendations for avoidance and impact minimization for species including, but not limited to:

- Timber Rattlesnake (*Crotalus horridus*);
- Northern Long-eared Bat (*Myotis septentrionalis.*);
- Northern Riffleshell Clam (*Epioblasma torulosa rangiana*);
- Blue-spotted Salamander (*Ambystoma laterale*); and
- Log-fern (*Dryopteris celsa*).

Areas that have high ecological value, such as sole source aquifers, high quality streams and wetlands are considered during project planning and impacts to these areas are minimized or avoided where possible. Effective project scoping, routing, and agency consultation are necessary to protect natural ecosystems and species. Where these areas cannot be avoided, the environmental team undertakes an enhanced planning process to identify measures that either meet or exceed the mitigation standards the permitting agency provides. Proper implementation, monitoring, and completion of these mitigation efforts often spans several years, which we treat as a vital component of the project-closeout process.

Project Specific Considerations and Stakeholder Engagement

When developing a project scope and plan for the construction of a facility, we routinely engage in the following:

Environmental Stakeholder Engagement

- Early identification of, and coordination with private, local, state, and federal authorities and stakeholders;
- Engagement with applicable ecological experts/agencies to assess potential impacts to stream and wetland resources, cultural and historic resources, threatened and endangered species, and to consider potential storm water, civil engineering, and steep slope stabilization/mitigation concerns; and
- Engagement in project routing and rerouting exercises to assist with resource avoidance, impact minimization, and development of project-specific alternatives analyses, where practicable.

Community Outreach and Landowner Engagement

- Early and regular contact, review, engagement, coordination, negotiation, and issue-resolution with affected landowners, tenants, and others that may be potentially affected by the proposed project;
- Engagement with local government officials, to both make them aware of the proposed project, and to help them address questions from their constituents;
- Review of facility locations and safety procedures with emergency responders;
- Establishing a National Fuel point of contact for stakeholders to communicate with throughout the life of the project; and
- Conducting and participation in public meetings to discuss potential short term and long term environmental and landowner considerations with the general public, affected landowners, local, state, and federal authorities, tribal representatives as well as any other stakeholders.

Project Construction and Restoration

Pre-Construction

Once initial screening and planning issues have been identified, the project moves into the pre-construction phase. The Company first holds a pre-construction meeting to review all finalized approvals and agreements. These are often held with permitting agencies to review the project-specific considerations such as permit conditions, construction techniques, timelines, and restoration expectations. Additionally, this is where construction plan implementation, monitoring, and

remediation procedures are discussed in detail with the project's internal project management personnel, general contractor(s), and sub-contractor(s), where applicable. To facilitate transmittal of important environmental permitting information and other environmental issues, National Fuel often hosts a pre-construction training, and requires contractors, subcontractors and company personnel who are involved with the project to attend and complete the training. National Fuel retains a list of attendees who complete the training onsite and issues attendees a project-specific sticker to adhere to their hard hats as proof of attendance.

Construction

Once construction commences, in addition to the adherence to agency-approved permits and plans, the Company demands full compliance and implementation of all applicable environmental management policies and practices. In addition to our internal ESCAMP and EDM, some of these policies and practices may include site-specific erosion and sedimentation control, site restoration, and/or post-construction stormwater management plans, often developed by third-party environmental consulting firms utilizing applicable local, state, and federal codes and guidance.

Restoration

At National Fuel, one of the most important goals is to establish, strengthen, and enhance positive relationships with all project stakeholders. To help accomplish this goal, we pride ourselves on fulfilling commitments made to agency personnel and landowners. This means restoring resources and property using native vegetation to a condition as good, or better, than prior to project commencement. We view landowners as long-term partners with equal and mutual interests. To ensure that concerns are heard and acted upon, our procedures include grievance reporting mechanisms for landowners.

Timber Rattlesnake identified on Midstream Company construction project

From an agency perspective, many projects require follow-up inspections, monitoring, and reporting on the status of vegetative growth, invasive species mitigation, stream/wetland restoration, and post-construction stormwater control effectiveness. Project site restoration may enhance existing habitat through special wetland seeding and planting practices; or create additional species habitat through proper placement of timber, brush, stone, and streambank stabilization techniques to adjacent freshwater resources. For example, in areas where there is potential Timber Rattlesnake habitat, National Fuel creates additional habitat through the proper placement of stone beyond agency or permit requirements.

Inspection

To ensure project compliance, employees and contractor personnel perform routine project site inspections throughout the duration of the project. It is through this inspection, construction management overview, and thorough internal review of these efforts, that the Company establishes a project-wide culture of environmental protection, safety, quality, and transparency. Similarly, as we are subject to frequent agency inspections on our project sites, we view these agency-led and often unannounced inspections as a useful platform to demonstrate our compliance with the respective agencies themselves.

Facility Operation

After construction or maintenance of a facility is complete and associated areas have been restored, the facility moves into the operational phase. During this phase, routine maintenance, monitoring, and audit practices help ensure that the installed facilities remain incorporated into, and often enhance, the natural environment. In addition to habitat creation through plantings, invasive species mitigation efforts and timely mowing and ROW maintenance practices ensure that these often-remote areas flourish with native plant species. These include pollinators and provide habitat for migratory bird species, sensitive plant and animal species, and allow for the proper restoration of valuable wetland and stream resources.

Incidents of Non-Compliance with Environmental Permits, Standards, and Regulations

For calendar year 2021, National Fuel's Midstream Segment was subject to six Notices of Violation (NOV) for instances associated with permits, standards, and/or regulations. The NOVs received in 2021 were minor and were either completely rectified that day or National Fuel immediately started the process to remediate the issue. All are completely closed out and none of the NOVs reached the level of enforcement action or monetary penalties. Upon receipt of a NOV, a corrective action plan is put in place to remediate the issue as soon as possible. This plan is continuously discussed with regulatory agencies to ensure effective remediation occurs.

All NOVs are analyzed, and actions are implemented to reduce the recurrence of similar issues on National Fuel projects. In addition, lessons learned meetings focus on the implementation of proactive measures to avoid future NOVs for similar incidents. These proactive measures (1) address waste, air quality/emissions, water discharges, water withdrawals, effluent limits, wastewater pretreatment requirements, oil or hazardous substance spills, land use and endangered species, and (2) include:

- Executive-level environmental compliance sponsorship;
- Enhanced agency coordination;
- Development of improved, internal environmental inspection management procedures; and
- Enhanced training for project team members, members of the environmental compliance team, management staff, and contractor personnel, as appropriate.

National Fuel strives to achieve zero incidents of environmental non-compliance associated with the thousands of construction and maintenance-based field activities undertaken annually by the Company. We believe it is important to use past experiences, both positive and negative, to shape our plans and policies with the goal of of zero incidents.

Biodiversity Enhancement and Habitat Conservation

In addition to the routine restoration and maintenance procedures our Midstream Segment undertakes to retain and protect habitat within our operating area, there are often additional opportunities to further engage with applicable stakeholders to create, conserve, or enhance natural areas, or otherwise offer additional ecological protection. Recent examples include:

Bennett Branch Streambank Stabilization Mud Sill Repair

National Fuel partnered with Headwater's Resource Conservation & Development Council to assist and provide funding to Clearfield County Conservation District to repair an eroding mud sill that occurred on a failed streambank stabilization device along the Bennett Branch of the Sinnemahoning Creek in Penfield, Huston Township Clearfield County. The erosion caused a large hole to develop behind the face logs of the sill, leading to a potential safety hazard to nearby residents. The eroding mud sill (not caused by or affiliated with National Fuel activities) was remediated using large stone to fill in behind and brace the log structure which will prevent further stream bank erosion.

FM100 Project – YM58 Pipeline Restoration

As part of the FM100 Project, National Fuel constructed YM58, a 29.1 mile, 20-inch pipeline. Below are highlights of the Project:

- **General Right-of-way Restoration:** Of the approximately 310 acres temporarily disturbed because of the installation of the YM58 Pipeline, 98% of this acreage was fully restored prior to the onset of winter months with many areas of the ROW exhibiting full growth in 2021.
- **Pollinator Seed Mixes:** In efforts to increase the amount of suitable pollinator habitat along our pipeline corridor, National Fuel consulted with a local seed distributor as well as landowners along the pipeline route to promote the application of a specialized seed mix and, ultimately, the propagation of numerous pollinator plant species such as milkweed and various native wildflowers. Following the YM58 installation, the Company restored approximately 120 acres using the pollinator mix.
- **Wetland Restoration Areas:** Although not formally required through our PADEP permit authorization, National Fuel voluntarily sourced and applied "Facultative Wetland Meadow Mix" to all wetland areas associated with pipeline installation. Totaling approximately 15 acres across the project corridor, this native wetland mix was applied upon final restoration and contains an abundance of species native to the area, with the goal of increasing species richness and diversity within the wetland areas temporarily impacted for the project.
- **Timber Rattlesnake Habitat:** In specific areas where larger stone was unearthed during the topsoil stripping and/or ditching phases of construction, these materials were used to create new gestation habitat for timber rattlesnakes under the direct supervision of an environmental inspector. Over a half-dozen separate habitat areas were created.

Tioga County Wetland Restoration Project

National Fuel "donated" its pipeline ROW on a 22.51-acre parcel in Osceola Township, Tioga County, Pennsylvania to help aid in the development of a large wetland restoration project. National Fuel fully surrendered its ROW, at no cost to the third party. The ROW surrender agreement also contained no ROW relocation provision, which will allow the property to be utilized for future wetland restoration activities or expansion opportunities without having a pipeline ROW encumbrance.

Line C46S Replacement and Streambank Stabilization

National Fuel replaced approximately 240-feet of 16-inch diameter pipeline that was exposed in Eighteenmile Creek in Boston, New York. In addition to the replacement, National Fuel proposed to stabilize an eroding section of the streambank within and beyond the ROW. The executed streambank stabilization design includes rip-rap, rock vanes, and rock riffle. Native live-stakes were planted above the ordinary high-water mark as a bioengineering component to provide stabilization in combination to the structural features installed.

Former Heath Station Fish Nursery

Supply Corporation signed an agreement in 2017 with the Heath Township Sportsman Club to allow continued access and use of land at the former Supply Corporation Heath Compressor Station for a fish nursery. In 2021, the Heath Township Sportsman Club constructed a new hatchery building and related facilities on the property.

Elk State Forest Native Planting

As shown in the table, the Midstream Segment continues to increase the amount of overseed areas to establish native pollinator plants on our existing and fully vegetated ROWs. This is a combined effort with the DCNR to improve habitat and diversity along existing ROWs. DCNR noted an increase in use of the overseeded areas by wildlife and pollinators within Elk State Forest. The Midstream Segment intends to continue to work with DCNR to introduce pollinator mixes along existing vegetated areas of the ROW to promote plant biodiversity.

Elk State Forest Native Planting

	2019	2020	2021
Areas overseeded (acres)	2.00	3.28	5.15
Total Overall Acres Planted	10.43		

Land Owned, Leased, or Operated Located within Sites with Protected Conservation Status or Endangered Species Habitat (acres)

Our Midstream Segment strives to minimize impacts to protected conservation areas and endangered species habitat. This is accomplished through continual agency consultation, a thorough analysis of appropriate avoidance, minimization, and mitigation measures. Through implementation of modified construction techniques, we minimize species habitat impacts. The *Environmental Management Policies and Practices* portion of this section further discusses the processes our Midstream Segment uses to build, operate, and maintain the system while taking into consideration the effects on the environment and sensitive areas.

Restoration Focused on Pollinators

- Planted approximately 347 acres of native pollinator seed mixes in 2021.
- Enrolled in Nationwide Candidate Conservation Agreement with Assurances (CCAA), 16,000 acres are included as enrolled lands.
- Intent of the CCAA is to enhance and expand available monarch butterfly habitats through conservation measures.
- Our conservation measures include conservation mowing, idle lands and set asides, and use of pollinator seed mixes during restoration.

The following table shows the percentage of land operated near or within areas of protected conservation status or critical endangered species habitat ("Designated Areas"). Although approximately 50% of land that our Midstream Segment owns, leases, and operates is near (within 5 kilometers of) a Designated Area, only approximately 2% is within Designated Areas. This reduced percentage is due to our efforts related to project siting, scoping, and resource avoidance measures.

	Total Operating Footprint (Acres)[1]	Operating Footprint (Acres) Near Designated Areas[2,3]	% of Total	Operating Footprint (Acres) Within Designated Areas[2,4]	% of Total
Empire	1,639	1,047	64%	47	3%
Supply	13,002	6,728	52%	220	2%
Midstream Company	1,726	474	27%	0	0%
Total	**16,367**	**8,249**	**50%**	**267**	**2%**

1 Operating Footprint includes acreage that is owned, leased and operated, and excludes land that is owned but not operated. Total acres include a calculation of all Pipeline ROW mileage with an average 50-foot buffer on the pipeline's centerline, as well as a 50 foot buffer of all wells and all station points. Large station acreage is calculated from the actual footprint of the station operation and is defined as area inside the station fencing. Leased storage acreage with no facilities is not included in this analysis. Acreage includes regulated and unregulated gathering pipelines.

2 World Database on Protected Areas (WDPA) and Ramsar Wetlands of International Importance data was used to determine areas of protected conversation status. The United States Fish and Wildlife Service Environmental Conservation Online System (USFWS ECOS) was used to analyze land considered to be active proposed and final critical habitat for endangered species. This database was used in lieu of the IUCN Red List of Threatened Species defined in the SASB standard due to USFWS's involvement and review of our Midstream Segment's projects. These datasets were accessed on March 15th, 2022.

3 Acreage within 5 kilometers of the boundary of lands designated as a protected conservation area or as endangered species habitat.

4 Acreage within the boundary of lands designated as a protected conservation area or as endangered species habitat.

Acreage Disturbed and Restored

The table provided below displays the total terrestrial acreage restored by our Midstream Segment as a percentage of impacted area. The acreage of disturbed land was calculated by totaling the acreage associated with projects requiring a state earth disturbance permit in the calendar year of 2021. If restoration is initiated after October 15 , areas are winterized, or temporarily restored and stabilized until the seasonal conditions allow for permanent restoration. Permanent restoration is generally conducted after April 1. Generally, project areas are fully restored within one year of the in-service date. National Fuel's ESCAMP is a guide used during construction and restoration unless specific requirements are given by regulatory agencies or landowners. For more discussion on the restoration practices that our Midstream Segment follows, see *Environmental Management Policies and Practices* portion of this section.

Acreage Disturbed and Restored	Empire	Supply	Midstream Company	Total Midstream Segment
Acres not Permanently Restored from prior years[5]	—	9	8	17
Acres Disturbed in current year	—	410	106	516
Total Acres Impacted	—	419	114	533
Acres Permanently Restored in current year[6]	—	362	14	376
% of Impacted Area Temporarily Restored in current year[7]	—	14%	88%	29%
% of Impacted Area Permanently Restored in current year	—	86%	12%	71%

5 Projects requiring state earth disturbance permits were included in this analysis. For New York, this includes projects involving over one acre of earth disturbance (SPDES), and for Pennsylvania, this includes projects over five acres of earth disturbance (ESCGP-3).

6 Includes acreage associated with projects that commenced permanent restoration in 2021. This includes initiating permanent restoration on projects that were constructed 2020 that only had temporary restoration completed during that year. Permanent restoration is defined as areas for which final decompaction, grading, topsoil replacement, installation of permanent erosion control structures, lime, fertilization, and seeding have been completed, even if monitoring is on-going. Areas where impervious surfaces or stormwater controls have been installed are also considered to be permanently restored.

7 If seasonal conditions or other factors did not allow for permanent restoration, the area was temporarily stabilized or winterized until conditions were suitable for permanent restoration, generally after April 1st.

Number and Volume of Hydrocarbon Spills

The Midstream Segment works diligently to prevent the occurrence of hydrocarbon spills on projects and at worksites. Specific plans, such as a Spill Prevention and Response Procedures Plan (SPRP), a Spill Prevention, Control, and Countermeasure Plan (SPCC), and an Inadvertent Return Plan are in place, as applicable, to prevent spills from occurring and give guidance on procedures to follow when remediating a spill. In the event a spill or leak occurs, personnel and response teams are quickly notified, the spill is contained and properly remediated to control exposure to the environment, and appropriate agencies and personnel are notified as required by plans, procedures, and/or regulations. Spills are remediated according to federal, state, and local regulatory requirements.

	2019	2020	2021
Number of Spills Greater than 1 bbl[1]	0	2	1
Total Volume of Spills Reported (bbl)	n/a	3.69	3.57
Total Volume of Spills Recovered[2] (bbl)	n/a	3.67	3.39
Total Volume of Spills Occurring in the Artic[3]	n/a	n/a	n/a
Total Volume of Spills Impacting Unusually Sensitive Resources (bbl)[4]	n/a	2.38	n/a

1 A spill is defined as greater than 1bbl (42 U.S. gallons or 159 liters). Spills include those that reached the environment and exclude spills that were contained within impermeable secondary containment.
2 The number of spills recovered is the amount of spilled hydrocarbons removed from the environment through short-term spill response activities, excluding amounts that were recovered during longer-term remediation at spill sites and amounts that evaporated, burned, or were dispersed.
3 The Midstream Segment does not operate in the Artic, which is considered to be the area north of the Arctic Circle.
4 Unusually Sensitive Areas in the U.S. is characterized using the definition provided by PHMSA.

Operational Safety, Emergency Preparedness and Response

The Company's highest priority is the safety of our customers, employees, and the communities we serve. National Fuel has worked diligently to establish a culture that embraces continuous improvement in all aspects of safety.

Safety Management Systems

Our pipeline and facilities are built and maintained to ensure the highest level of safety and reliability for our customers and the communities where we operate. Federal and state pipeline safety codes require that pipeline operators comply with extensive requirements for material quality, design, construction, testing, inspection, and operations and maintenance for all facilities. Our Midstream Segment meets or exceeds the requirements of all state and federal laws and regulations applicable to the construction and operation of natural gas infrastructure. In carrying out our responsibilities, we value community perspective and have extensive and transparent outreach to stakeholders involved in or affected by pipeline construction and maintenance activities.

In addition to the Safety Management Systems and Programs explained in the following sections, see *Integrity of Gas Delivery Infrastructure* for additional information about our safety management systems and programs, including the Pipeline Safety Management System and extensive safety training and public outreach programs that also apply to the Midstream Segment.

Remote Control Valve Installation

According to PHMSA, pipelines are the safest, most environmentally friendly, and most efficient and reliable mode of transportation for gas and hazardous liquids. Although rare, pipeline accidents, including ruptures, could occur. To address this, our Midstream Segment has implemented an ongoing program to mitigate the potential effects by installing remote control valves ("RCVs") to protect higher populated areas. RCVs allow for a rapid shutdown of pipeline facilities when an incident has been confirmed. Our Midstream Segment currently has 130 RCVs across our transmission systems with 71 RCVs installed in the past 5 years.

System Modernization

Corrosion, together with manufacturing and construction related defects, often associated with early vintage pipelines, are leading causes of significant incidents. To reduce the risk associated with these early vintage pipelines, the Midstream Segment has committed to the ongoing modernization of older bare steel pipelines, especially those pipelines operating at higher pressures in populated areas. Over the past 5-years, the Midstream Segment has invested over $466 million improving system safety and reliability.

Leak Patrol and Surveillance

Our Midstream Segment devotes considerable resources to leak patrol and surveillance of its pipelines and facilities. Regular foot and aerial patrols are conducted to look for indications of leakage, and to identify any population growth or third-party encroachment activity along our pipeline corridors. Additional patrolling is conducted after severe weather events to evaluate right-of-way conditions for erosion or land subsidence that could impact pipeline integrity or environmental resources.

Facility Design and Construction Management

To ensure safety and quality during construction and post construction facility operations, National Fuel maintains a robust construction management program and processes. Our program is designed to ensure that the facilities we build will provide safe and reliable service now and for many years into the future.

Facility Design and Construction Management Major Elements
• Engineering Design Manual for steel facilities;
• Design Approvals Process for new or replacement facilities;
• Construction Inspection Training program for all inspectors;
• Design and Construction Specifications and Procedures;
• Ensuring quality materials through purchasing from an approved manufacturers list, placing inspectors at manufacturing plant facilities and conducting factory acceptance tests of critical highly engineered manufactured equipment;
• All Steel Transmission Facility Inspectors Certified to API 1169;
• Certified Welding Inspection ("CWI") training and certification for select individuals;
• Design and testing protocols for remote control valve installations;
• Construction Quality Management System including internal construction audits and lessons learned;
• Periodic audits of radiography and other non-destructive examination procedures and results by third parties;
• Geohazard analysis and mitigation measures implemented during design and construction phases for new transmission facilities in landslide prone areas. Consultants with civil engineering and geotechnical expertise are under contract to provide these services for initial design as well as for post construction short notice "on-call" mitigation;
• Preconstruction planning checklist to ensure personnel qualifications and adherence to project specific commissioning and abandonment plan; and
• Comprehensive commissioning and start-up procedures.

Construction Quality Management System

The Construction Quality Management System (CQMS) helps to ensure that any new high pressure steel facilities will be designed, constructed and commissioned such that, collectively, they provide a safe, reliable and long-lasting delivery system of natural gas. The CQMS plan is comprised of several key elements:

- **Internal Construction Audits/Assessments:** The plan defines a targeted percentage of jobs to assess, and a targeted frequency of assessments per selected project. These assessments are performed by immediate project staff as well as by staff who are not involved in the project. Assessments evaluate construction compliance with company specifications and procedures. If a non-compliance is observed during an assessment, it is typically remediated at the time of discovery, or if it cannot be remediated immediately, reported for further evaluation using the Non-Conformance Reporting process.

- **Non-Conformance Reporting:** Project staff report instances of non-conformance to the Quality Team for further evaluation. A non-conformance may be (1) a deviation from a specification or procedure and is typically found after construction or cannot be "immediately" corrected, or (2) a deviation from specification or procedure that is deemed acceptable using sound engineering judgement and an appropriate approval process.

- **Quality Moment Distribution:** Quality team identifies, compiles, and distributes summaries of certain unique construction instances or issues to a group of internal engineering, operation, and construction personnel. This shares knowledge and experiences to a larger audience, who otherwise may not have heard of or learned from these experiences.

- **Continual Improvement and Lessons Learned Review:** Non-conformances and exceptions or deviations from Company processes and procedures are analyzed and reviewed throughout construction so that appropriate remedial actions can be implemented prior to a job going in service. In addition, these instances are also reviewed collectively on an annual basis after they have been effectively remediated. This annual review is used to identify quality trends and develop continual improvement measures which may include revising company procedures, updating or expanding training for engineering and construction personnel, or updating the CQMS plan to address specific needs.

- **Senior Management Summary:** Annually, the results of the CQMS Program are summarized and provided to the Midstream Segment's senior management. This annual summary and review process allows senior management to provide leadership feedback to the CQMS team to continue to improve the effectiveness of the program.

Together the elements of the CQMS plan ensure facilities are constructed to meet our internal specifications and regulatory requirements while also establishing a process to measure, analyze and report results for relevant projects, document the results of this process in a "lessons learned" format, and ultimately implement appropriate changes as part of a continuous improvement program.

Transmission Integrity Management Program

The integrity of Midstream and Downstream transmission pipelines is maintained under a comprehensive Transmission Pipeline Integrity Management Program and Plan (TIMP) that was developed in accordance with the requirements of the PHMSA Integrity Management Rule, in 49 CFR Part 192 Subpart O – Pipeline Integrity Management.

The Integrity Management Rule specifies how transmission pipeline operators must identify, prioritize, assess, evaluate, and mitigate threats to validate the integrity of gas transmission pipelines in High Consequence Areas (HCAs) and Moderate Consequence Areas (MCAs).

The National Fuel TIMP Plan includes elements and comprehensive procedures which ensure a consistent and thorough approach to identifying and managing threats to the transmission pipeline system (i.e. corrosion, excavation damage, other outside force damage, natural force damage, pipe, weld or joint failure, equipment failure, or incorrect operation).

TIMP Program Major Elements	
• Defined Roles and Responsibilities; • High Consequence Area Identification; • Threat Identification Process; • Risk Analysis and Prioritization; • Assessment Method Selection; • Baseline Assessment Plan and Schedule; • Procedures for Conducting Assessments;	• Remediation of Threats; • Preventive and Mitigative Measures; • Continual Evaluation and Reassessment; • Management of Change; • Performance Measurement; and • Quality Assurance.

Under the TIMP Plan, our Downstream and Midstream Segments perform regular integrity assessments on over 1,384 kilometers of pipelines, which include 372 kilometers of HCAs and cover over 92% of the population living, working, or congregating within the area potentially impacted by an incident on our transmission pipelines. These assessments are generally conducted every 7 years or less using one of the following inspection methods:

- **In-line Inspection ("ILI"):** uses electronic inspection tools called "smart pigs" which are propelled through the line using gas pressure, air pressure or sometimes robotic propulsion. The sensors on the smart pig can detect dents, internal and external metal loss, cracks and crack like features, and certain manufacturing defects.

- **Pressure Test:** generally uses pressurized water for safety (i.e. hydrotest). During a hydrotest the pipeline is taken out of service, cleaned and filled with water which is then pressurized to a minimum 1.5 times the maximum allowable operating pressure of the pipeline for a period of at least 8 hours.

- **Direct Assessment:** uses specialized tools to identify potential coating defects that could result in corrosion, which are then excavated, examined and repaired as required.

Based on assessment results, any discovered anomalies that impact the integrity of the pipeline are repaired or replaced. When the assessment is complete, the results are analyzed to determine if any identified threats may be present in other areas of the pipeline within or outside of the HCAs and if so additional preventive and mitigative measures such as additional cathodic protection, installation of line markers, increased patrolling or more frequent assessments may be implemented to ensure the integrity of the pipeline into the future.

Industry Focused on Safety with Respect to Energy Transition

The Pipeline & Storage business adheres to INGAA's guiding principles for pipeline safety. Recently, INGAA made further strides to their industry safety initiatives through the IMCI program, which focuses on building a foundation for pipelines to safely support the energy transition as the industry endeavors to help meet the goal of a net zero economy. This includes a continued focus on the safety and integrity of existing gas transmission systems, as well as efforts to ensure reliability and resilience for next generation fuels. These safety initiatives include:

- Regular Stakeholder Engagement
- Transportation and Storage of Renewable Natural Gas
- Transportation and Storage of Hydrogen
- Rupture Detection and Response
- Managing Emissions from Integrity and Maintenance Work
- Development of ANSI Standard for Managing Geohazards
- Integration of Electro-Magnetic Acoustic Transducer (EMAT) In-Line Inspection (ILI) into Standards
- Regulatory Acceptance of Non-Traditional Pipe

Keeping Pace with Changing Technology

As National Fuel strives to continuously improve pipeline safety, our Integrity Management Program has been an important tool for validating our pipeline network's fitness for service. Fundamental to an Integrity Management Program is the understanding of how various threats of concern can impact a facility and how to appropriately assess for these threats and gauge their seriousness. The most useful means of assessing threats are through use of ILI, a program that has grown significantly since ILI tools were first utilized by the company in the late 1980's.

To date, the company has expanded its use of this technology beyond traditional magnetic flux leakage (MFL) and deformation tools to include the use of ultrasonic technology (UT), hard spot detection, and inertial measurement units (IMU), with EMAT technology expected to be used in the near future. These ILI technologies allow National Fuel to understand the extent of and appropriately react to the threats of corrosion, manufacturing or construction defects, dents and other deformations, crack-like features, or land slips and other outside forces. In 2021, National Fuel completed its first robotic ILI of a pipeline. Based on this successful experience, National Fuel expects to expand the use of this technology to other sections of pipeline that were previously unavailable for in-line inspection.

In addition to a robust ILI program, National Fuel has expanded its long-standing Existing Facility Analysis (EFA) program, which includes laboratory analysis to determine material properties of pipe samples collected from pipe replacement projects, to the use of non-destructive in-situ material testing of in-service pipelines using the latest industry technology. Material property information is used to ensure that a given facility can safely operate at its maximum allowable operating pressure. In 2021, National Fuel completed 84 material tests (both destructive and in-situ) resulting in 72 KM of pipeline with previously non-traceable, verifiable and complete material properties to be accurately attributed.

The efforts that National Fuel has made to enhance its Integrity Management Program has allowed the Company to gain a better understanding of the overall health of our pipeline network and improve confidence in the condition of our facilities.

Regulatory Focus

Our Midstream Segment remains focused on developing the procedures and compliance programs necessary to fully comply with new regulatory requirements and enhance the safety of our pipeline system. Information related to compliance with new environmental regulations can be found in the *Integrity of Gas Delivery Infrastructure* section of the report. Recent new pipeline safety regulations with ongoing compliance activities include:

- **PHMSA Mega Rule Part 1:** Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments - Published October 1, 2019, requiring MAOP reconfirmation, expansion of assessment requirements to locations outside of HCAs, and verification of pipeline material properties and attributes, for certain pipelines in higher populated areas.

- **PHMSA Mega Rule Part 3:** Safety of Gas Gathering Pipelines: Extension of Reporting Requirements, Regulation of Large, High-Pressure Lines, and Other Related Amendments - Published November 15, 2021, establishes new regulated Type C and Type R Gathering Line classifications, requirements for leak survey, cathodic protection, and safety related condition reporting for Type C Lines, and new reporting requirements for Type R gathering lines.

- **PHMSA Valve Rule:** Requirement of Valve Installation and Minimum Rupture Detection Standards - Published April 8, 2022, requiring installation of rupture mitigation valves (RMVs) on certain new and replaced pipelines, new rupture detection, notification and response criteria, and new risk assessment requirements related to RMV installation.

Pending new regulations impacting the Midstream Segment include:

- **PHMSA Mega Rule Part 2:** Focusing on repair criteria in HCAs and the creation of new repair criteria for non-HCAs, requirements for inspecting pipelines following extreme events, updates to pipeline corrosion control requirements, codification of a management of change process, and clarification of certain other integrity management and assessment requirements.

- **PHMSA Class Location Rule:** Pipes Act of 2020, Section 115 - establishing alternative requirements operators could use, based on implementing integrity management principles and pipe eligibility criteria to manage certain pipeline segments where class location has changed from a Class 1 to Class 3.

- **PHMSA Gas Pipeline Leak Detection Rule:** PIPES Act of 2020, Section 113 - establishing minimum performance standards for leak detection and repair to ensure public safety and protection of the environment.

Regulatory Compliance Assurance Program

In addition to tracking and implementing new regulatory requirements from PHMSA, in 2020, National Fuel enhanced its existing pipeline safety compliance focus through the creation of a Regulatory Compliance Assurance Program (RCAP), comprised of a cross-departmental team of subject matter experts. The RCAP team has developed a compliance program framework that identifies and implements proactive measures to minimize risk of non-compliance and potential regulatory enforcement actions. In its first two years, the RCAP has centered its review and analysis on recent PHMSA enforcement actions, including assessing our current internal processes and procedures, and developing feedback loops and compliance memoranda to continually improve our pipeline safety compliance assurance.

Underground Storage Integrity

National Fuel developed the first underground natural gas storage facility in the U.S. in 1916. As an operator of 29 storage fields, and over 100 years of experience, Supply Corporation has a proven track record for safely operating our storage assets. Storage well integrity has always been an important aspect of our operating and maintenance program for storage fields. In 2018, our Supply Corporation further enhanced its long-standing storage integrity program with the development of a comprehensive Storage Integrity Management Program ("STIMP"), which complies with the PHMSA Safety of Underground Natural Gas Facilities Final Rule published in February 2020, and with API Recommended Practice 1171, as required by 49 CFR §192.12 – Underground Natural Gas Storage Facilities. As of 2021, National Fuel completed baseline risk assessments on all 29 storage fields, 6 years ahead of the mandated PHMSA deadline.

Line VD Robotic ILI In Erie County, PA

STIMP Plan Major Elements

- Annual wellhead and wellsite inspections to identify existing or potential hazards and encroachments in the vicinity of surface facilities;
- Annual functional testing of master gate and pipeline isolation valves to verify isolation capability;
- Storage inventory verification performed on several storage fields each year using a third-party consultant;
- Casing integrity inspections using wireline tools;
- Identification and evaluation of corrosion impacts of wellbore or pipeline fluids or solids;
- Annual plugged and abandoned well inspections within the storage boundary and buffer;
- Weekly indicator well inspections to monitor reservoir pressures;
- Monthly storage well site inspections of surface facilities to identify and repair leaks, evaluate integrity and monitor well head pressures; and
- Periodic storage integrity meetings with a multifunctional group representing Gas Storage, Operations, Design and Integrity Engineering, Corrosion, and Gas Control to review system operations, risk assessment results and scheduled remediation or other storage field work to ensure the work is coordinated between the various groups.

A large part of the STIMP involves inspecting the integrity of the metal casings that contains the storage pressure within the wellbore. This is accomplished by running a high-resolution logging wireline tool down the wellbore to provide important information about the well. The wireline tool can detect metal loss and the geometry of the anomaly, which are used to calculate the remaining strength of the casing and to help determine if any remedial work will be required.

Supply Corporation has been running electronic logging tools to inspect storage well casing integrity since the early 1970's. The program currently targets running 75 casing integrity logs each fiscal year. Through 2021, over 92% of our active storage wells have had modern casing inspection logs, with inspection of 100% of our storage wells scheduled to be completed by 2027.

National Fuel is also playing an active role with the underground storage industry and regulatory agencies with respect to revisions to API Recommended Practice 1171 Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs, which is the basis for regulatory requirements for underground storage safety.

Underground Storage Facility Attributes and Casing Inspections (2019 - 2021)

Fields Operated	Capacity (Top gas) Bcf	Wells Operated	Casing Inspections		
			2019	2020	2021
29	81.8	1,165	94	78	80

Upcoming Changes to the STIMP

Midstream Segment has begun to modernize the annual storage well and plugged and abandoned well inspections leveraging Geographic Information System (GIS) technology. The Company anticipates updating both inspections with a cell phone application that alerts the Storage Group with pertinent time sensitive information. These updates are expected to decrease the necessary manhours to complete well inspections and the risk assessment process.

Well Plugging and Decommissioning Program

The Well Plugging and Decommissioning Program is an extension of the Underground Storage Integrity Program. Storage wells that are deemed to have higher risk due to high casing metal loss down-hole or have other integrity related concerns are either reconditioned or plugged and abandoned. The plugging and abandonment of a storage well involves sealing the wellbore permanently with cement to prevent the release of gas from the storage reservoir rock to the surface. Additionally, plugged and abandoned wells existing within the storage field boundaries are inspected annually for leaks from the storage formation to the surface. If a leak is identified, the old plugs will be drilled out to bottom and re-plugged to surface.

Over the past 5 years, Supply Corporation has plugged and abandoned a total of 27 storage wells with another 6 wells scheduled for abandonment by the end of calendar year 2022. The Well Plugging and Decommissioning Program continues to reduce the overall risk of underground storage fields and as a result has made Supply Corporation's storage system safer for our employees and the public.

Well Plugging and Decommissioning Program Statistics (2017 – 2021)

	2017	2018	2019	2020	2021
Plugged wells due to integrity related concerns	8	5	6	7	1

Reportable Pipeline Incidents

Our Midstream Segment places a high priority on having a rapid response to emergencies and a thorough investigation of incidents once onsite. When investigating pipeline emergencies and incidents, our Midstream Segment utilizes a comprehensive Root Cause Analysis (RCA) process, which is further described in *Integrity of Gas Delivery Infrastructure.* The following table summarizes the number of PHMSA Reportable Pipeline Incidents, Corrective Action Orders and Notices of Probable Violation for our Midstream Segment initiated during the period 2019 through 2021.

Midstream Segment Incident and Compliance Summary

	2019	2020	2021
Reportable Onshore Gas Transmission Pipeline Incidents	0	0	0
% Significant[1] Onshore Gas Transmission Pipeline Incidents	0%	0%	0%
Corrective Action Order Cases Initiated	0	0	0
Notices of Probable Violation Cases Initiated	0	0	1[2]

1 Significant is defined as an accident or incident that resulted in (1) fatality or injury requiring in-patient hospitalization, (2) $50,000 or more in total costs, measured in 1984 U.S. dollars, (3) highly volatile liquid releases of 5 bbls or more or other liquid releases of 50 barrels or more, or (4) liquid releases resulting in an unintentional fire or explosion.
2 Case was closed out with no penalty assessed due to remedial actions taken.

During the three year period 2019 through 2021, our Midstream Segment had no natural gas pipeline incidents reported to PHMSA, as defined and reported in accordance with 49 CFR §191.

Midstream Segment Transmission Pipeline Inspection[3]

Our Midstream Segment's transmission pipelines are operated under the National Fuel Gas Company Transmission Pipeline Integrity Management Program.

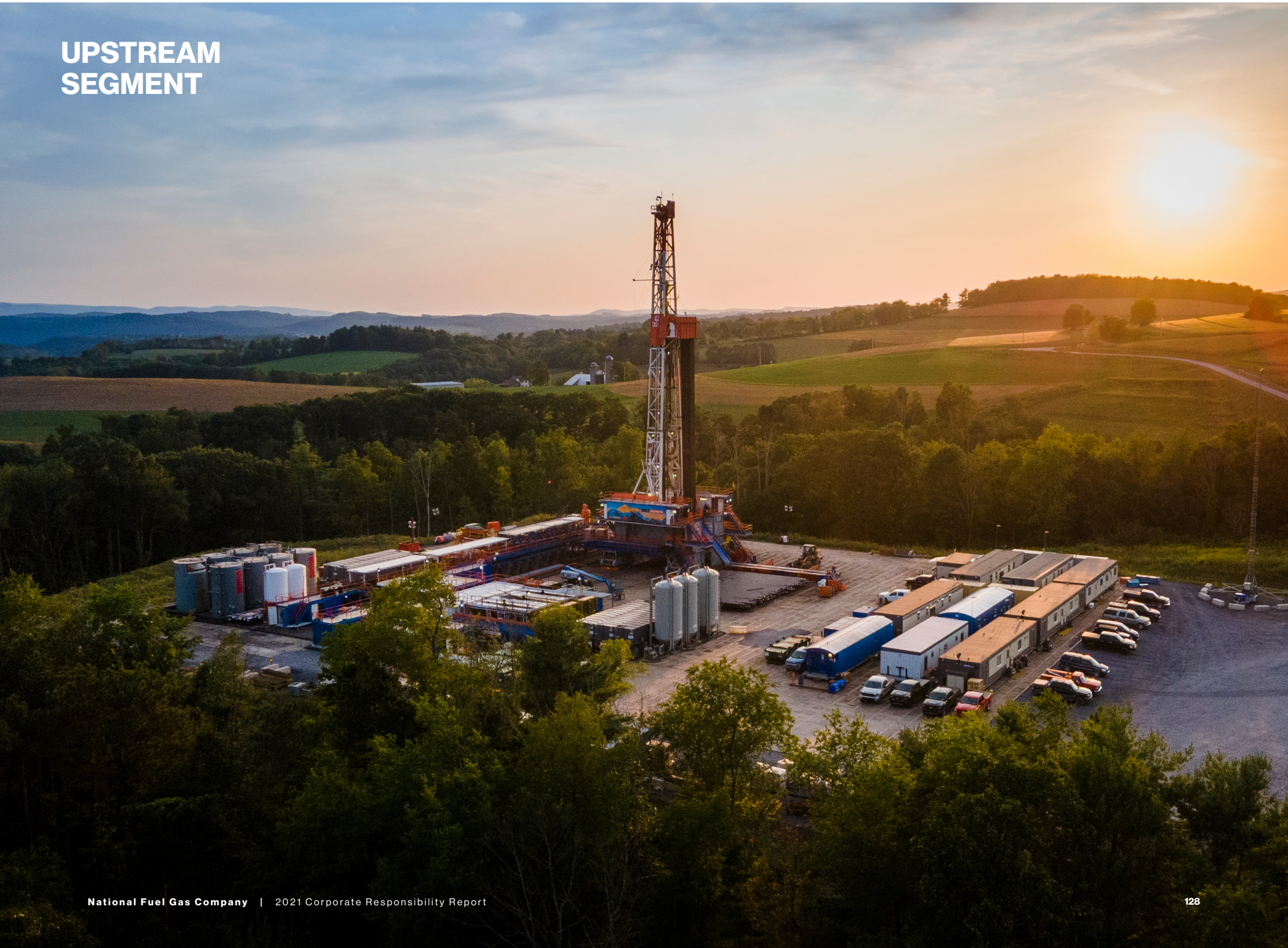
	2019	2020	2021
Transmission Pipelines (Kilometers)	3,094	3,097	3,145
Pipelines Inspected (Kilometers)[4]	285	110	160
% of Pipelines Inspected	9.2%	3.6%	5.1%

Activity Metrics

New York	Natural Gas Throughput (MMcf)	Regulated Pipelines (Kilometers)	Total Pipelines (Kilometers)	Compression Hoirsepower
Empire	226,717	435	435	74,074
Supply	516,325	2,656	3,411	118,208
Midstream Company	378,781	106	558	119,920
Midstream Segment	**1,121,823**	**3,197**	**4,404**	**312,202**

3 PHMSA 2019 Gas Transmission and Gathering Annual Report for the Midstream subsidiaries. The Pipeline Inspected Length and Percentage may count the same mileage twice in limited instances where a different inspection method is utilized on the same segment of pipe, in the same year, to inspect for multiple threats.
4 Annual pipeline mileage inspected is determined by a risk based assessment plan and schedule and may vary on an annual basis due to the number of projects, assessment method utilized, and pipeline lengths scheduled for assessment in a given year.

UPSTREAM SEGMENT



Achievement of Responsible Natural Gas Production Certifications

Seneca has a long history of environmental stewardship, safety, innovation, transparency, and community involvement. In 2021, Seneca began pursuing responsibly sourced gas designations to differentiate our production and provide independent, credible verification of our ESG related policies, procedures, and practices.

Equitable Origin Certification

In December 2021, Seneca achieved certification of 100% of its Appalachian production, over 1 billion cubic feet of daily gross production, under Equitable Origin's EO100™ Standard for Responsible Energy Development, a series of rigorous ESG performance targets. The EO100™ Standard for Responsible Energy Development includes five principles that encompass the entire spectrum of ESG:

- Corporate Governance, Transparency and Ethics;
- Human Rights, Social Impact and Community Development;
- Indigenous People's Rights;
- Fair Labor and Working Conditions; and
- Climate Change, Biodiversity and Environment.

TrustWell by Project Canary

In March 2022, Seneca achieved certification under Project Canary's TrustWell™ responsibly sourced gas program with Platinum or Gold ratings for all 121 wells included in the pilot, which combined, produced approximately 300 million cubic feet per day of the Company's Appalachian production. As part of the certification process, Seneca achieved both the Low Methane Verified Attribute and the Freshwater Friendly Verified Attribute. Verified Attributes focus on a single attribute of a facility or operator, highlighting exceptional performance through qualitative and quantitative metrics.

- **Low Methane Verified Attribute:** Highlights performance surrounding emissions monitoring, methane intensity, and corrective actions.
- **Freshwater Friendly Verified Attribute:** Focuses on competitive freshwater usage and mitigating the effects of operations on local water sources.

MiQ Methane Emissions Performance Certification

In August 2022, Seneca achieved certification of 100% of its Appalachian natural gas production under the MiQ Standard for Methane Emissions Performance at the highest certification level, an "A" grade. The MiQ Standard is an independent framework for assessing methane emissions and practices for oil and gas facilities and is a trusted and credible way to differentiate natural gas production based on methane emissions. The standard scores production, using an A – F letter grade, based on how well operators deploy integrated technologies to detect, measure, and abate emissions while also including a detailed assessment of policies and work practices that evaluate an operator's preparedness to prevent future methane emissions.

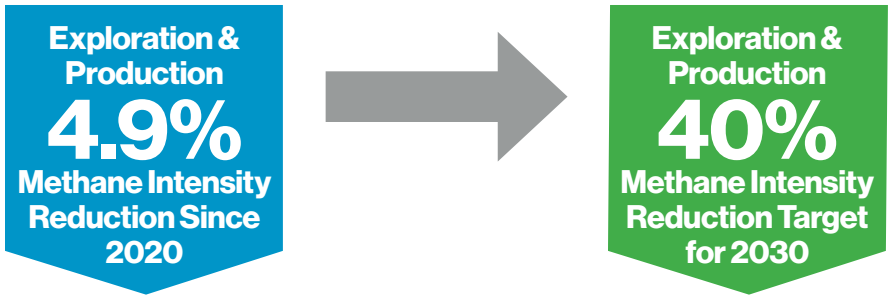
Business Transactions Impacting Future Disclosures

On June 30, the Company completed the sale of its California properties, which were largely focused on oil production. The divestiture of these assets further focuses the Company's exploration and production operations on its highly-economic Appalachian natural gas development program. In addition, this sale is expected to meaningfully change Seneca's total GHG emissions (and related GHG intensity), and water withdrawn and produced water from operations, which will be updated in next year's report published for calendar year 2022.

Greenhouse Gas Emissions

Our Upstream Segment is committed to reducing methane emissions and continues to develop and incorporate best-in-class emissions controls to reduce the methane intensity of our operations.

Progress Towards 2030 Methane Emissions Intensity Targets (2020 Baseline)



Scopes 1 & 2 Emissions Intensity (kg CO_2e/BOE)[1]

		2019	2020[2]	2021
Appalachia	Methane Emissions Intensity	2.49	2.70	2.58
	Greenhouse Gas Emissions Intensity	4.38	4.36	4.30
California	Methane Emissions Intensity	1.39	1.48	0.86
	Greenhouse Gas Emissions Intensity	109.92	111.73	119.72
Seneca (All)	Methane Emissions Intensity	2.44	2.64[3]	2.51
	Greenhouse Gas Emissions Intensity	9.24	9.65	9.25

As part of these efforts, over the past several years, Seneca has committed to the following voluntary emission reduction programs: EPA Natural Gas STAR (2015), EPA Methane Challenge (2018), The Environmental Partnership (2018), ONE Future (2021), and Veritas, a GTI Energy Differentiated Gas Measurement and Verification Initiative (2021). Since joining EPA voluntary methane reduction programs, Seneca has documented cumulative methane emissions reduction strategies totaling over 5,605,541 Mcf (approximately 2,690,660 metric tons of CO2e) under the Natural Gas STAR program.[4]

In connection with its participation in the Natural Gas STAR and Methane Challenge programs, Seneca makes publicly available program data on its emission reduction activities through the EPA's website.

1 GHG Intensity represents total CO_2e/Gross Production as reported to EPA. Methane Intensity represents methane as CO_2e/Gross Production.
2 GHG and Methane Intensity for 2020 were revised in the 2021 report to exclude natural gas production from non-operated Joint Ventures in Appalachia.
3 2020 saw an increase in emissions intensity from 2019, that can be attributed to the acquisition of the SWEPI assets into the emission profile. Since the acquisition occurred mid-year, generalized emission factors were utilized to account for the complete reporting year. As Seneca incorporated best management practices and data gathering process for emissions, reporting improvements were seen in categorical emissions.
4 www.epa.gov/system/files/documents/2022-05/Seneca_Resources_Natural_Gas_Star_Summary_RY2020_508.pdf

Ongoing Emissions Reductions Initiatives

Emissions Reduction Program	Commitments/Initiatives
EPA Natural Gas Star	• Installing flash tank separators on glycol dehydrators • Eliminating unnecessary equipment and/or systems • Improving system design • Identification and replacement of pneumatic devices with zero-bleed devices • Replacement of orifice meters with ultra-sonic meters • Replacements of natural gas pneumatic pumps with electric pumps • Leak detection and repair (LDAR) surveys • Testing and repair of pressure safety valves • Implementation of artificial lift • Utilization of EPA-approved reporting on well pad equipment design to bulk/test versus single well separators
EPA Methane Challenge	• Committed to various EPA-approved best management practices related to: • Pneumatic controllers • Fixed roof, atmospheric hydrocarbon tanks • Replacing rod packing vents for reciprocating compressors

Other Seneca Emissions Controls	• Control measures in place for combustion and non-combustion equipment to abate and/or to mitigate methane emissions:
	  • Use of bi-fuel drilling rigs, completion equipment and fleet vehicles
	  • State-of-the-art catalytic converters for engines
	  • Ultra-low-emissions burners for heater treaters and steam generators
	  • Installation of compressed air systems
	  • Utilization of no/low bleed pneumatics controls/actuators
	  • Use of capture and recovery systems for glycol dehydrators and tanks

As part of Seneca's standard well pad design in Appalachia, ultrasonic leak detectors and Lower Explosive Limit (LEL) gas detectors are installed to detect methane emissions. The detectors provide an alarm and shut-in the pad so that appropriate investigation can be performed to ensure the area is safe and leaks have been remediated. In addition to the detectors that are part of the Company's standard pad design, Seneca installed continuous emissions monitors on three well pads in Appalachia in November 2021. The continuous emissions devices monitor, measure, and record methane emissions and are just one monitoring technology application that has been trialed. Seneca also piloted aerial Light Detection and Ranging (LiDAR) and drone monitoring technologies in the summer of 2022.

A Canary X continuous emissions monitoring device on an Appalachian well pad.

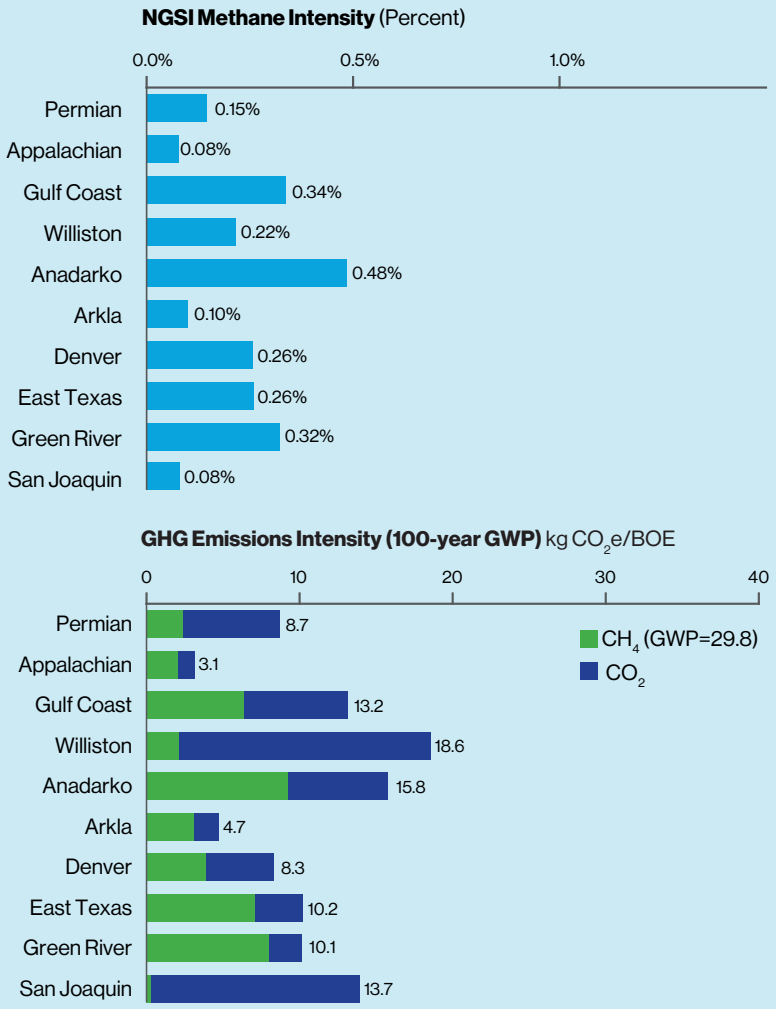
In 2021, Seneca operated in two uniquely different basins, namely the Appalachia and San Joaquin (California) basins. In the Appalachia basin, production is from unconventional dry gas wells. With the sale of our California properties, 100% of Seneca's production is expected to be in this basin in the coming years. The Appalachian basin boasts the lowest GHG and methane intensities across all basins in the continental United States. Seneca's ability to develop low-cost and low-emissions intensity natural gas reserves in the basin illustrates the sustainability of our operations and positions Seneca well for the future.

Additionally, Seneca's 2021 NGSI Appalachia Production Sector methane intensity of 0.083%, which includes additional non-EPA sources, was substantially lower than the One Future goal of 0.283% and the reported 2020 weighted average Production Sector methane intensity rate of 0.105%.

A large contributor to our methane intensity in the Appalachia production operations results from our use of field gas for the operation of pneumatic controllers. In 2021, this contributed over 71% of the total methane emissions reported in Appalachia. However, through Seneca's adoption of the use of bulk and test separation on multi-well pads, we have been lowering the use of these devices on a per well basis. We have also started to implement the use of electronic controllers and instrument air systems, which eliminate this source of methane emissions. Fortunately, technology is presenting various solutions for the elimination of these field gas operated controllers for both existing and new wells. We plan to make meaningful reductions in this source category as a result.

Additionally, the mitigation technologies mentioned earlier in this section are aimed at reducing Seneca's overall carbon dioxide, methane, and nitrous oxide emissions.

GHG Emissions Intensity of Appalachia vs. Other Top U.S. Production Basins[1]



1 Benchmarking Methane and Other GHG Emissions of Oil & Natural Gas Production in the United States – July 2022. Basins are ranked in descending order of hydrocarbon production (BOE). Available at www.sustainability.com/globalassets/sustainability.com/thinking/pdfs/2022/oilandgas-benchmarking-report-2022.pdf.

Scope 1 Greenhouse Gas Emissions (Metric Tons CO_2e)[1,2]

		2019	2020	2021
Appalachia	EPA Mandatory Reporting Sources[3]	233,870	229,950	247,575
	Other Sources[4]	41,592	26,439	16,044
	Fleet	932	1,065	1,082
	Office	41	42	29
	Total Appalachia	**276,435**	**257,496**	**264,730**
California	EPA Mandatory Reporting Sources	312,638	318,834	310,796
	Other Sources	11,946	10,661	9,030
	Fleet	400	499	475
	Office	—	—	—
	Total California	**324,984**	**329,994**	**320,301**
Seneca (All)	EPA Mandatory Reporting Sources	546,508	548,784	558,371
	Other Sources	53,538	37,100	25,074
	Fleet	1,332	1,564	1,557
	Offices	41	42	29
	Total Seneca	**601,419**	**587,490**	**585,031**

Scope 1 Methane Emissions (Metrics Tons CH_4 as CO_2e)

		2019	2020	2021
Appalachia	EPA Mandatory Reporting Sources[3]	156,350	159,109	158,700
	Other Sources[4]	1,376	406	446
	Fleet	3	2	1
	Office	0	0	0
	Total Appalachia	**157,729**	**159,517**	**159,147**
California	EPA Mandatory Reporting Sources	3,745	3,865	1,985
	Other Sources	479	573	383
	Fleet	0	0	0
	Office	0	0	0
	Total California	**4,224**	**4,438**	**2,368**
Seneca (All)	EPA Mandatory Reporting Sources	160,095	162,974	160,685
	Other Sources	1,855	979	829
	Fleet	3	2	1
	Offices	0	0	0
	Total Seneca	**161,953**	**163,955**	**161,515**

Scope 2 Greenhouse Gas Emissions (Metric Tons CO_2e)[5]

	2019	2020	2021
Total Appalachia	401	430	404
Total California	10,954	11,477	11,089
Total Seneca	**11,355**	**11,907**	**11,493**

Methane emissions reduced 1.5% while production increased 3.8%. Our efforts continue to deliver results that align with our sustainable values across the organization.

1 Excludes emissions from Highland Field Services, LLC, Seneca's water management subsidiary, whose 2021 emissions are de minimis.
2 CO_2e values calculated in accordance with the published 100-year time horizon global warming potential (GWP) values from the IPCC Fifth Assessment Report (AR5, 2014) as preferred by SASB.
3 Emissions as reported under EPA GHG Reporting Rule Subpart W, with the exception of the source category "Well Venting for Liquids Unloading," which utilized the Pennsylvania Unconventional Natural Gas Emission Inventory.
4 Other Sources include sources identified under NGSI and small sources that do not meet EPA Subpart W Reporting requirements.
5 Scope 2 represents emissions associated with purchased electricity. The purchased electricity data for SWEPI assets prior to the acquisition in 2020 was not available and is not included in the table.

Flared Hydrocarbons, Other Combustion, Process Emissions, Other Vented Emissions, and Fugitive Emissions (Metric Tons CO_2e)

	2019	2020	2021
Flared Hydrocarbons[1]	16,288	15,648	6,751
Other Combustion (Combustion Equipment, Compressors, Fleet, Office)	424,762	409,647	418,110
Process Emissions (Dehydration)	4,951	4,525	2,407
Other Vented Emissions (NG Pneumatics, Well Venting for Liquid Unloading, Storage Tanks, Well Testing, Venting from Completions and Workovers, NGSI Sources)	150,843	151,516	153,449
Fugitive Emissions	4,575	6,155	4,314
Total	**601,419**	**587,491**	**585,031**

Air Quality

Criteria Pollutants (Metric Tons) - NO_x, SO_x, Volatile Organic Compounds (VOCs), and Particulate Matter (PM_{10})[2,3]

Our Upstream Segment, where practical, looks for mechanisms to reduce criteria emissions. In 2021, Seneca saw an increase in most criteria pollutants, which was attributable to its increased drilling and completions activity. During future drilling and completions operations we intend to maximize the substitution of diesel fuel with field gas, which should result in a decrease in criteria pollutant emissions. For stationary engines, Seneca maintains emission source testing and screening programs to ensure engines are meeting permit and regulatory thresholds for emissions. Seneca also completed a comprehensive emission study on the various types of completions equipment to understand further the emissions associated with the frac pump technologies. This study was the first of its kind and included a review of criteria pollutants to assist in decision making as Seneca looks to reduce its emission footprint.

Criteria Pollutant Emissions (Metric Tons)

	2019	2020	2021
CO	130.11	122.28	134.20
NO_x	360.61	355.88	474.79
PM-10	19.34	17.21	21.77
SO_x	1.78	1.76	1.47
VOCs	43.69	44.39	51.17

Air Quality Practices

Seneca has a robust air quality control, management, and improvement program, with dedicated resources available to ensure that controls are in place and monitored to ensure best practices in air quality management.

As part of our air quality practices, various plans have been created and are available to assist in defining the myriad of air quality requirements, as well as the methods utilized and implemented to comply with applicable requirements, to ensure quality control of procedures and data collection, and to review for improvement.

This includes Seneca's GHG Monitoring Plan, which establishes procedures for accurate monitoring and reporting of GHGs in accordance with 40 CFR §98.3(g)(5) and 17 CCR §95105(c), as applicable. Specifically, the plan identifies the following items:

1 In 2019, 2020 and 2021, California flared emissions made up 76%, 94% and 99% respectively of flared hydrocarbons.
2 With respect to Appalachia, data is per PA DEP Air Emissions Report under 25 Pa. Code § 135.3. With respect to California, data is per San Joaquin Valley Unified Air Pollution Control District, Emission Inventory Report. California criteria emissions include permitted combustion sources including engines, steam generators, heater treaters, and flares. Appalachia criteria emissions include stationary engines, flares, tanks, dehydrators, reboilers/heaters, pneumatics, venting and blowdowns, fugitives, completions, and drill rigs.
3 Methods utilized for calculation are based on MSC Guidelines for PA DEP Air Emissions Inventory and generally recognized and accepted standards for emission calculation of stationary engines and heaters.

- Identification of positions of responsibility (i.e., job titles) for collection of the emissions data;
- Explanation of the processes and methods used to collect the necessary data for the GHG calculations; and
- Description of the procedures and methods used for quality assurance, maintenance, and repair of all continuous monitoring system, flow meters and other instrumentation used to provide data for the GHGs reported.

Additionally, in connection with Seneca's full LDAR program, Seneca follows a LDAR Monitoring Plan, which defines the requirements for our LDAR program, detailed procedures on how LDAR surveys will be conducted, and the process for leak identification and repair.

Water Management

For a detailed discussion of Seneca's best-in class water management practices, see *Biodiversity Impacts*.

In connection with Seneca's operations, we attempt to minimize our use of freshwater. In Appalachia, all of our freshwater is sourced from locations without high water risk due to the abundance of groundwater. In 2021, Seneca significantly increased its completions activity in the Eastern Development Area (EDA), due to increased focus on highly-prolific acreage acquired from Shell, this increased completion activity and resulted in increased freshwater usage. We acquired an additional EDA water handling facility in 2021, which will increase produced water storage capabilities to help maximize opportunities for reuse.

Freshwater Withdrawn and Freshwater Consumed (Thousands of Cubic Meters)[1,2]

		2019	2020	2021
Appalachia	Total Water Withdrawn	811	428	1,149
	% of Water from Locations with High or Extremely High Water Risk	0%	0%	0%
	Total Freshwater Consumed	793	770	1,166
	% of Water Consumed from Locations with High or Extremely High Water Risk	0%	0%	0%
California	Total Water Withdrawn	114	115	106
	% of Water from Locations with High or Extremely High Water Risk	100%	100%	100%
	Total Freshwater Consumed	114	115	106
	% of Water Consumed from Locations with High or Extremely High Water Risk	100%	100%	100%
Seneca (All)	Total Water Withdrawn	925	543	1,255
	% of Water Withdrawn from Locations with High or Extremely High Water Risk	12%	21%	8%
	Total Freshwater Consumed	907	885	1,272
	% of Water Consumed from Locations with High or Extremely High Water Risk	13%	13%	8%

1 With respect to Seneca's California operations, freshwater is acquired through local water utility company providers, and to a lesser extent from agricultural water sources. Freshwater withdrawn and consumed is reported to the California Geologic Energy Management Division (CalGEM). Produced water is reported to the California Air Resources Board (CARB), and CalGEM. Recycled and disposed water volumes are measured and recorded daily as per standard field operating procedures, and disposed volumes are reported to CalGEM

2 With respect to our Appalachian operations, freshwater withdrawn and consumed is tracked per PA DEP bi-annual and annual reports, and volumes are reported to the PA DEP and Susquehanna River Basin Commission. Recycled water and disposed water volumes are measured and recorded daily as per standard field operating procedures, and disposed volumes are reported to PA DEP.

Volume of Produced Water and Flowback Generated (Thousands Cubic Meters)[1,2]

		2019	2020	2021
Appalachia	Produced Water and Flowback	1,229	1,294	1,620
	% Discharged	0.0%	0.0%	0.0%
	% Injected	5.5%	3.5%	7.4%
	% Recycled	94.5%	96.5%	92.6%
California	Produced Water and Flowback	3,843	4,269	4,305
	% Discharged	0.0%	0.0%	0.0%
	% Injected	39.7%	48.7%	48.3%
	% Recycled	60.3%	51.3%	51.7%
Seneca (All)	Produced Water and Flowback	5,072	5,563	5,925
	% Discharged	0.0%	0.0%	0.0%
	% Injected	31.4%	38.2%	37.1%
	% Recycled	68.6%	61.8%	62.9%

Public Disclosure of Fracturing Chemicals Used

Since February 2011, 100% of the chemicals used in Seneca's hydraulically fractured wells have been disclosed on www.fracfocus.org, the chemical registry website created by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. This site contains detailed information about the hydraulic fracturing process and a listing on a well-by-well basis specifying the contents of hydraulic fracturing fluids used at each location.

Chemical Usage

Seneca has adopted the use of non-toxic "green" friction reducer and scale inhibitor formulas during completions operations. In addition, the volume of chemicals being utilized is regularly evaluated and opportunities to reduce the volume and/or concentration of chemicals is a priority.

Seneca's completions fluids are in full compliance with both EPA and state regulations. As discussed in *Water Management*, Seneca voluntarily participates in www.fracfocus.org, an independent website that provides information to help stakeholders understand the additives in the water used for each of Seneca's shale development operations in Appalachia.. Seneca also voluntarily provides this data to the PADEP.

Water Management Practices

Seneca prides itself on being an industry leader in managing water assets. For calendar 2021, based on a survey of environmental performance conducted by The American Exploration and Production Council ("AXPC") - a national trade association representing the largest independent oil and natural gas exploration and production companies in the United States - Seneca Resources ranked 2nd best out of 25 companies for our recycled water[3] rate.

1 No Hydrocarbon content in discharges water, as Seneca does not discharge produced fluid.
2 The prior year's volumes were restated using the correct thousand cubic meter conversion factor.

3 Recycled Water includes water that was produced and reused in the field (whether or not it was purchased from a 3rd party).

Protecting Fresh Water Aquifers

Seneca performs pre-drilling water samples on any water source within a 4,000-foot radius from the center of the pad to obtain a baseline measurement. Seneca's horizontal drilling practices use only water-based drilling fluid or air when drilling through freshwater zones. During other stages of drilling, a synthetic oil-based mud system is used once freshwater zones are protected by casing and cement.

"Zero Surface Discharge" Policy

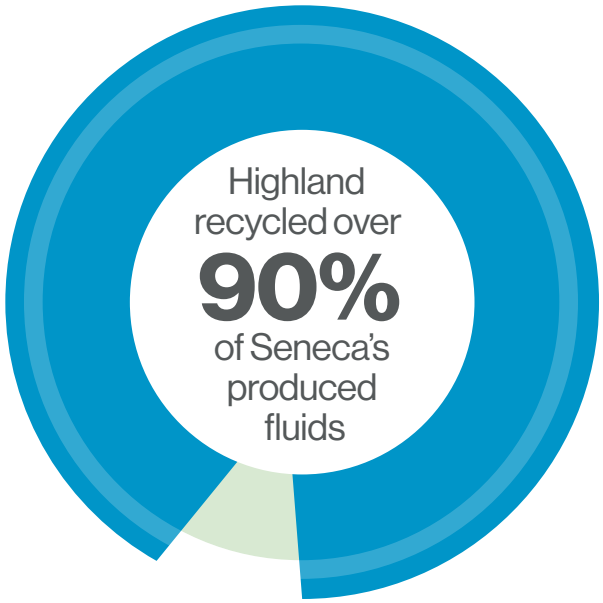
For all unconventional operations, Seneca follows a strict "Zero Surface Discharge" policy, which requires containment for any liquids or solids that may be considered residual waste in all aspects of our operations, as a means of protecting surface and groundwater resources throughout the life of a well. All wastes are managed in "primary containment" vessels, which are placed inside of secondary containment systems, and often tertiary containment, designed to capture and control spills or leaks.

Highland Field Services

In 2014, our Upstream Segment formed its own water logistics company, Highland Field Services, LLC ("Highland"), to manage the sourcing, handling, and recycling of fluids generated by and used in its Appalachian operations. Since then, Highland has invested over $90 million in water infrastructure in Pennsylvania, including storage and treatment facilities, on-pad tanks and containment vessels, injection wells, and a network of water distribution pipelines. The environmental, operational and economic goals and achievements of Highland include:

- **Recycling Produced Fluids:** Seneca plans its development schedule and works closely with Highland and Seneca's other third-party service companies to optimize Seneca's ability to utilize recycled produced fluids. Highland also receives and recycles produced volumes generated from third-party operators who would otherwise need to transport their produced fluids for out-of-state disposal. In calendar year 2021, Highland recycled over 90% of Seneca's produced fluids, or 9.45 million barrels, plus an additional 1.65 million barrels of fluids that were generated by and received from third-party operators.

- **Minimizing Freshwater Used in New Well Completions:** Seneca's ability to reuse recycled fluids in new well completions has significantly reduced the amount of freshwater consumed by our operations. In 2021, Seneca's Marcellus and Utica shale well completions used 61% recycled fluids and only 39% freshwater. The freshwater consumed in our completions was sourced from Seneca-owned groundwater wells and permitted stream withdrawal locations.



- **Reducing Environmental Footprint:** Highland manages the movement of approximately 850,000 barrels of fluid every month. In the Western Development Area, approximately 89% is pumped through Highland's pipeline distribution system to deliver fluids from storage facilities directly to Seneca's Marcellus and Utica development pads. Highland plans to replicate this model in the EDA. As a result, Seneca was able to avoid an estimated 74,000 truck trips in 2021, eliminating the associated air emissions and reducing the impact on local roads and public infrastructure.

- **Developing Innovative, Environmentally Sound Disposal Solutions:** While our goal is to recycle 100% of the produced fluids generated by Seneca's production, it is important to have disposal capabilities available to cover any potential operational delays or other issues. As such, Seneca and Highland have been actively developing their own underground disposal well capabilities under an underground injection control (UIC) program designed to manage Seneca's disposal needs in an environmentally sound manner, and currently have operating UIC wells in Pennsylvania and Ohio.

- **Promoting Transparency and Regulatory Compliance:** All fluid handled by Highland, including type, volume, origin and destination, is tracked for regulatory and internal reporting purposes. In Pennsylvania, we are required to report the fluid movement and usage in various forms including downhole volumes for well completion, incoming/outgoing loads at the storage facilities and pads, fluids utilized by third-party operators, and freshwater storage levels across our operations.

- **Lowering Fluids Management Costs:** The environmental benefits derived from Highland's efforts to recycle and avoid the disposal of produced fluids also results in significant economic benefits for Seneca and its third-party operator customers.

74,000
less truck trips in 2021, which leads to reduced air emissions and impact on local roads.

"Highland's storage facilities and network of pipelines allow us to move water throughout our operations while minimizing truck traffic, which improves safety and reduces emissions."

Marisa Passerrello
Highland Field Services
Environmental Engineer

Biodiversity Impacts

Environmental Management Policies and Practices

Environmental Management System Overview

Environmental stewardship is a guiding principle, which is clearly defined in Seneca's EHS Values and included in Seneca's EHS Policy. All Seneca executives, Division heads, and EHS Managers, review, approve and sign off on the EHS Policy on a regular basis. Quarterly meetings are held at the executive level to discuss environmental matters across all segments of the company and quarterly management review meetings are also held between the Seneca EHS team and senior leadership to discuss environmental, health, safety and sustainability activities, metrics, and opportunities.

The Seneca Integrated Management System ("IMS") is a comprehensive system that applies to all aspects and phases of our operations. This system is modeled after ISO Standards, Equitable Origin's EO100TM Standard for Responsible Energy Development, and the International Finance Corporation Performance Standards.[1] Although Seneca does not formally participate in or apply for certification in ISO 14001 (Environmental Management), or ISO 45001 (Occupational Health & Safety Management), our IMS is used as the foundation for creating a complete management system for our upstream operations. Seneca also has a set of BMPs for critical operations such as containment construction and flowback operations. These BMPs are in addition to our standard operating procedures and other guidance documents for normal activities.

Development and Risk Management

Before our Upstream Segment acquires any property, EHS professionals conduct an Environmental Site Assessment (ESA). This ESA consists of a detailed review of potential environmental liabilities (e.g. underground storage tanks, landfills, hazardous material, pesticides, sumps, asbestos, lead paint, PCBs, and radon), identification of biological habitats, environmental condition of the soil/vegetation, and the condition of any equipment (e.g. wells, pipelines, tanks, facilities, etc.). This information is presented so that any economic assessments may include these environmental considerations.

Seneca is committed to minimizing impacts on biodiversity and regularly goes beyond regulatory requirements to understand, maintain, and increase biodiversity throughout our operating areas. Once Seneca decides to develop an area, environmental considerations are a top priority. We have conducted and continue to conduct in-depth biological assessments to identify protected habitats. We also conduct wetland surveys to identify any wetlands and/or streams. We work closely with federal, state, county, and local agencies as well as non-profit environmental organizations to ensure that we have identified habitats and have taken steps to protect them. Seneca also provides its employees and contractors with regular training regarding environmental responsibilities and wildlife to increase awareness of biodiversity considerations.

1 Seneca complies with the majority of the provisions of the International Finance Corporation (IFC) Performance Standards, particularly IFC Performance Standard No. 1 (IFC PS1). While many of the provisions are designed to address global and diverse operations, Seneca's environmental management system focuses on those items applicable to our activities and operating areas. For example, Seneca has strong emergency preparedness and response programs that include planning, training, and community involvement. As such, compliance with these IFC PS1 provisions (Nos. 20 and 21) could be classified as complete. However, as Seneca does not operate in areas with indigenous peoples, Seneca's environmental management system does not focus on that provision (No. 32). IFC Performance Standards Nos. 3, 4, and 6 pertain to resource efficiency/pollution prevention, community health, safety, and security, and biodiversity, respectively. As discussed throughout this report, Seneca Resources has robust systems for achieving each of those items. Seneca's compliance with the respective IFC PS is similar to IFC PS1.

Natural Resources Consumption

Seneca recognizes the need to use resources prudently and to find opportunities to reduce and improve our use of natural resources. In this regard, Seneca was the first company in the Appalachian Basin to use a bi-fuel drilling rig. Our Upstream Segment has since expanded that use to include bi-fuel frac pumps that use field gas in lieu of diesel as a fuel source. Seneca estimates that during these operations it can run on field gas about 60% of the time, which drives significant reductions in emissions. This technology allows us to reduce energy usage and extend the life of our equipment.

In addition, Seneca has identified opportunities to leverage solar to power continuous emissions monitoring devices, thermoelectric generators, and other devices in its Appalachian operations.

Waste Management

Seneca operations generate various waste streams, and most of these are being actively managed to reduce, reuse, and/or recycle. Seneca Resources generates very little hazardous waste. In fact, in Appalachia, no hazardous wastes are produced. Generated wastes are classified as non-hazardous, or "residual waste," according to the PADEP.

Seneca performs sampling to characterize the physical, chemical, and radiological properties of the waste in accordance with permit requirements. In 2015, the PADEP announced the results of its Technically Enhanced Naturally Occurring Radioactive Material (TENORM) Study, which analyzed the naturally occurring levels of radioactivity associated with oil and natural gas development in Pennsylvania. The study concluded there is little potential for harm to workers or the public from radiation exposure due to oil and gas development.

Solar panels charge batteries which power the compressed air pneumatic system at a well pad in Elk County.

Seneca continuously looks for opportunities to reduce the amount of waste it generates and tries to reuse materials, if possible. Drilling mud, for example, is extracted from drill cuttings through centrifugation and reused repeatedly, even being transferred from one location to the next for continual reuse. Drill cuttings have been classified as having no beneficial use, and the PADEP will not allow any reuse of that waste stream for Seneca and other Pennsylvania operators. Oils used in equipment such as compressor engines gets gathered at a central location and reused/recycled. Other products such as pipe/steel will be sold as scrap and reused or recycled as well.

Seneca has identified opportunities within the community to donate items for reuse. For example, Seneca recently donated 50 computer monitors to the Education Partnership, a non-profit organization that provides school supplies for students and teachers in low-income school districts throughout southwestern PA.

Perhaps the most significant reuse stream involves Seneca's produced water. Statistics and specifics about this activity are described further in the *Water Management* section.

Ecological and Biodiversity Impacts

As there is the potential for habitats of various endangered species to be encountered within Seneca's operating areas, we have conducted biological surveys with respect to a large portion of our operations footprint to identify these specific habitats. Our development groups use these surveys in site selection – more specifically to avoid areas where there are known habitats or nests. In the event it is not possible to avoid disturbance, we work with professional biologists and botanists to develop mitigation measures, including natural barriers (e.g. a ridgeline or stand of trees), artificial barriers (e.g. biologic protective fencing) and other measures (e.g. offset acreage).

As a best practice, we generally avoid sensitive areas that would require additional permitting and protective requirements. A number of environmental protection lists (e.g. IUCN Redlist) describe general habitats and areas where protected species may be present, and our practice is to review these lists to ensure we are avoiding impacts to protected flora and fauna to the extent reasonably possible. The foundation of our practices is built around our compliance with applicable federal, state, and local laws and regulations.

Number and Volume of Hydrocarbon Spills – (Bbls)[1,2]

	2019	2020	2021
Number of Spills Greater than 1 Bbl	4	0	2
Total Volume of Spills Reported Above	4.6	0	22
Total Volume of Spills Occurring in the Artic	n/a	n/a	n/a
Total Volume of Spills Impacting Environmentally Sensitive Shoreline	0	0	0

1 Includes reported spills from produced hydrocarbons greater than 1 bbl; total volume of spill is the volume off secondary containment. On occasion, Seneca may experience a spill of non-produced hydrocarbons, such as when an engine leaks motor oil onto the ground.

2 Seneca has not had any spills into areas where total recovery of hydrocarbons is not possible. Accordingly, we estimate that 100% of spilled hydrocarbons are recovered and disposed of in accordance with applicable regulations. The State of California Office of Spill Prevention and Response has a defined method of calculation of recovery, but we have not had any incidents that have required testing of contaminated soil/vegetation following this method.

Environmental Impacts of Project Development

Seneca maintains a constant focus on compliance with all applicable environmental laws, regulations, and other requirements, which includes monitoring by an internal Compliance Department that is focused on ensuring such compliance, as well as participation in industry groups such as the AXPC and MSC.

In Pennsylvania, our Upstream Segment operations are subject to applicable regulation and oversight from the PADEP, Susquehanna River Basin Commission, PA Fish and Game Commission, DCNR, PA Department of Labor and Industry, and the EPA.

In 2021, Seneca was inspected a total of 4,835 times by the following agencies: PADEP, San Joaquin Valley Unified Air Pollution Control District, CalGEM, and the Kern County Department of Environmental Health. In Pennsylvania, Seneca had 2,693 PADEP inspections with the lowest rate of inspections with violations out of its 12 peers in the Appalachian Basin at 0.59%[1].

Reserves Located Within Sites with Protected Conservation Status or Endangered Species Habitat (Bcfe)

Appalachia

Seneca has submitted over 200 Pennsylvania Natural Diversity Inventory (PNDI) permits over the past 5 years. These PNDIs are a part of the Pennsylvania Natural Heritage Program (PNHP) partnership between various state regulatory agencies which reviews these submittals for potential impacts to threatened, endangered, special concern species and special concern resources in PA.

Permits are submitted and reviewed against the varying agencies' mapping of protected habitats statewide. If there is not a threatened or endangered species in the submitted permit's area, the permit is approved. If threatened or endangered species do show up on this review, Seneca contracts a third-party environmental engineering firm to survey the area. A biological survey will then confirm whether the species of special concern is present in the permit area. If these species are found, mitigating actions are taken, including route avoidance, special fencing, or other restrictions.

Approximately 2% of PNDI permits over the past 5 years were in areas of confirmed endangered species habitat; however, in all cases Seneca was able to mitigate the impact to these known species. These mitigation efforts coupled with alternate routing options and horizontal drilling has minimized impact to critical habitat while ensuring efficient reserves extraction. Within Appalachia, currently 58.2 Bcfe of proved reserves are located on or adjacent to land which is designated as known endangered or threatened species habitat. This constitutes approximately 1.51% of Seneca's total reserves base as of the close of fiscal 2021.

Total Seneca Reserves Near Sites with Protected Conservation Status or Endangered Species Habitat

Total Reserves (Bcfe) at fiscal year-end 2021	3,853
Reserves Within Sites with Protected Conservation Status[1]	18.5
% of Reserves	0.48%
Reserves Within Areas In Which Endangered Species Habitat Identified [2]	88.2
% of Reserves	2.29%

1 Per the PA DEP Oil & Gas Compliance Report for the period 1/1/2021 – 12/31/2021. Peers include Repsol Oil & Gas USA LLC, SWN Production Co LLC, PennEnergy Resources LLC, JKLM Energy LLC, Coterra Energy Inc., Chief Oil & Gas LLC, XTO Energy Inc., Exco Resources PA LLC, Chesapeake Appalachia LLC, Range Resources Appalachia LLC, EQT Production Co., and CNX Gas Co LLC.

Workforce Health and Safety

Total Recordable Incident Rate (TRIR), Fatality Rate, and Near-Miss Frequency Rate (NMFR)

Seneca provides employees and contractors with training on near misses and regular communications to emphasize the importance of near miss reporting. In addition, safety communications highlighting significant near misses and lessons learned are shared.

TRIR

	2019	2020	2021
Full-Time Employees	0.41	0.76	0.40
Contract Employees	0.99	0.73	1.23
Short-Service Employees[1]	—	—	—

Fatality Rate

	2019	2020	2021
Full-Time Employees	0.00	0.00	0.00
Contract Employees	0.00	0.21[2]	0.00
Short-Service Employees[1]	—	—	—

NMFR[3]

	2019	2020	2021
Full-Time and Contract Employees	8.86	16.00	12.66

1 Seneca does not categorize individuals as Short-Service Employees for metrics.
2 In 2020, there were two fatalities of third-party contractor employees: (1) A contractors' employee that was working on a roof replacement project at an office location fell off the roof and sustained fatal injuries. At the time the fall occurred, the contractor was wearing a harness but was not tied off to an anchor point, a violation of OSHA's fall protection standard. (2) A contractors' employee was unloading a contractor owned piece of heavy equipment and sustained fatal injuries when the hydraulic ramp on the contractor's truck trailer came down on top of him. The contractor was improperly positioned behind the ramp when he attempted to manually lower it due to a failed hydraulic system.
3 Seneca tracks near misses reported by contractors and employees as a single metric.

Improving Worker Safety and the Environment

- Seneca employees partnered with the PADEP and the DCNR to reconstruct a culvert along the South Fork West Branch Potato Creek, located in our WDA.
- The previous culvert was too small, making it hard for heavy truck traffic to navigate the stream crossing safely, it required constant maintenance and restricted streamflow, preventing aquatic life from passing through.
- The larger culvert will dramatically improve stream ecology and watershed conditions while creating safer driving conditions for Seneca employees and contractors.

Average Hours of Health, Safety, and Emergency Response Training

In 2021, on average, Seneca employees received 13.27 hours of health, safety, and emergency training. In addition, Seneca provides significant training to its contractors (approximately 5,960 total hours in 2021), including an annual contractor safety meeting, annual EHS site orientation, and contractor safety stand downs.

Safety Management Systems

As described in detail in *Integrity of Gas Delivery Infrastructure*, safety is a guiding principle and our highest priority at National Fuel. Additionally, Seneca has an Environmental Health, and Safety Mission, Vision, and Principles, which provides a further foundation for its safety program.

The overall objective of Seneca's oil and gas operations is to maximize the value of its mineral and human capital. The accomplishment of this objective is a function of conducting its business in a manner that provides for a healthful environment for its employees, contractors, and the public, in accordance with laws and regulations governing environmental and safety compliance.

Safety Leadership – Tone at the Top

- Executive messaging in a monthly EHS Report that is distributed companywide;
- Quarterly EHS-Executive Management Review Meetings, which are attended by EHS staff as well as senior management;
- Senior management presentations on various EHS topics at annual Contractor Safety Meetings which are attended by both employees and contractors;
- Safety messaging by senior management during staff meetings and all employee town hall meetings;
- Management participation in the Management Audit Program which is comprised of teams of various disciplines that perform quarterly safety inspections; and
- Executive and employee bonus program metrics tied to safety initiatives.

Safety Communications and Training

- Monthly safety training covering a variety of topics, including driving safety, ergonomics, and winter weather hazards;
- EHS Intranet site dedicated to safety;
- Frequent safety alerts and safety communications are distributed to all employees;
- Periodic safety stand downs in the field to discuss safety issues; and
- Annual EHS Site Orientation for employees and contractors to reinforce safety expectations.

Compliance and Contractor Management

- Before onboarding, contractor's safety metrics and written safety programs are reviewed against established criteria. Once onboarded, metrics continued to be reviewed and concerns are addressed through variances and performance improvement plans;
- Regular safety inspections are performed by EHS Representatives;
- Job Safety Analysis reviews are performed to ensure adequate hazard identification and risk mitigation efforts are in place;
- Safety audits of contractor safety programs and activities are performed;
- Pre-job planning meetings and field reviews are conducted prior to commencing operations such as rig moves, fracs, and flowback;
- Annually, an external assessment of an aspect of Seneca's operations is performed by a third-party subject matter expert; and
- Seneca actively participates in industry groups such as the MSC, AXPC, and CIPA.

Engagement Processes and Due Diligence Practices with Respect to Human Rights, Indigenous Rights, and Operation In Areas of Conflict

Seneca does not currently explore for or develop any oil and gas reserves located within indigenous lands or an area of conflict. Seneca is committed to ensuring that all people are treated with respect and fairness and expects all employees, contractors and vendors to maintain the same standard of inclusion that Seneca supports.

Community Relations

Management of Risks and Opportunities Associated with Community Rights and Interests

Most of the considerations concerning community economic and social impacts of oil and gas development in Pennsylvania are codified by the respective governing and regulatory bodies that oversee such operations. In addition, Seneca utilizes recommended practice guidelines from the various trade associations such as MSC and AXPC where we operate.

Seneca maintains a corporate giving program designed to leverage community capital, both in-kind and financial, simultaneously addressing issues that affect our community, constituents and business objectives. Many Seneca employees and vendors live near our operations and facilities. Seneca strives to foster relationships and financially support these communities, collaborating in their preparations for effective emergency response while ensuring compliance with statutes and regulations. These community grants support this effort and generally fall into four core areas: Health and Human Services / Health Recreation;

The Well Done Foundation

- Seneca Resources joined with the Well Done Foundation to address orphaned/abandoned oil and gas wells in PA.
- In the fall of 2021, Seneca sponsored the organization's first abandoned gas well plugging in PA.
- Eliminating approximately 660 tonnes of CO_2e per year from the atmosphere.
- This collaboration exemplifies the Company's longstanding dedication to sustainable business practices.

Emergency Response and Disaster Relief; Community, Employee, Pedestrian and Child Safety; and Education.

In 2021, Seneca Resources provided more than $270,000 in donations by ways of continuing to expand educational opportunities, engaging in conservation efforts and general community support.

Seneca Resources uses a variety of tools to educate elected officials at all levels of government. These include videos, brochures, in person meetings, site visits and operational tours. Seneca also continues to further engage its communities to provide resources and information about our exploration and production activities.

Resuming in-person tours was a welcomed opportunity to strengthen our partnership with educational institutions, such as the University of Pittsburgh at Bradford and Penn State Extension. Seneca was able to showcase its operations to students, professors, and stakeholders. Seneca has always understood the importance of agriculture in our communities and continues to support programs like 4-H and the Future Farmers of America (FFA) by donating funds to help establish new FFA chapters and scholarships. Contributions to local agriculture extension offices further enhance our ability to educate the public on the critical role that natural gas plays in our everyday lives. The funding also helps this same agency offer additional STEM education opportunities to the rural areas where Seneca operates in Pennsylvania.

Seneca Resources also provided an equipment donation to Bradford Area High School's petroleum technology class, helping students gain hands-on experience and prepare the next generation of industry professionals. Other educational support included a partnership with the Pennsylvania Grand Canyon Snowmobile Club to provide college scholarships to local high school seniors.

The Pennsylvania Grand Canyon Snowmobile Club scholarship was one of two introduced during the pandemic. Seneca also formed a partnership with Keystone Elk Country Alliance to offer a $1,000 scholarship to high school seniors who reside in Pennsylvania and are majoring in or pursuing a career in an environmental field (including but not limited to: Environmental Science, Biology, Chemistry, Geography, Geology, Earth Science, Education, Environmental Engineering, Forestry, Botany, Wildlife and Fisheries Science, Sustainability, Parks and Recreation).

Additionally in 2021, Seneca was hard at work ensuring our community giving efforts remained in the areas of outdoor recreation and conservation. Our commitment to protecting and enhancing the environment is demonstrated through projects we support, such as a sensory trail in Cook Forest, PA, which will create a unique paved trail with guide ropes and braille signage, providing an inclusive handicap accessible outdoor experience for all. Whether it's sponsoring a youth mentored fishing derby, stocking streams, adopting-a-highway or protecting wildlife habitats, examples like these continue to demonstrate that Seneca Resources is a leader in the industry promoting conservation efforts and takes pride in giving back to our local communities.

Impacts from Non-Technical Delays

Seneca builds additional lead time into its projects to account for anticipated delays. For example, changing legislation and regulation at the state level has created the need to build in additional time for permitting. As described more fully in the Company's *Risk Management* Section, the Company identifies legislative and regulatory risks that could impact the Company's strategic planning and capital spending processes.

Reserves Valuation and Capital Expenditures

Sensitivity of Reserve Levels to Scenarios that Account for a Price on Carbon Emissions

Seneca reviewed sensitivities to its reported fiscal 2021 year-end reserves utilizing crude oil and U.S. natural gas pricing for four different scenarios outlined in the 2021 World Energy Outlook (WEO) Report – the Announced Pledges, Stated Policies, Sustainable Development, and Net-Zero by 2050 scenarios. The WEO Announced Pledges Scenario reflects all of the global climate policy commitments and targets, assuming these goals are met in full within the intended target timeline. The WEO Stated Policies Scenario reflects announced policy intentions and targets, insofar as they are backed up by detailed measures for their realization. The WEO Sustainable Development Scenario assumes a surge in clean energy policies and investment puts the energy system on track to achieve sustainable energy objectives in full, including the Paris Agreement, energy access and air quality goals. The new WEO Net Zero by 2050 Scenario examines a pathway to net zero emissions or the global energy sector consistent with minimizing global temperature rise to 1.5 °C.

Fossil Fuel Prices by Scenario

			Net Zero Emissions by 2050		Sustainable Development		Announced Pledges		Stated Policies	
Real Terms (USD 2020)	**2010**	**2020**	**2030**	**2050**	**2030**	**2050**	**2030**	**2050**	**2030**	**2050**
IEA Crude Oil (USD/ barrel)	92	42	42	24	56	50	67	64	77	88
Natural Gas (USD/MBtu)										
United States	5.2	2.0	1.9	2.0	1.9	2.0	3.1	2.0	3.6	4.3
European Union	8.8	4.2	3.9	3.6	4.2	4.5	6.5	6.5	7.7	8.3
China	7.9	6.3	5.3	4.7	6.3	6.3	8.5	8.1	8.6	8.9
Japan	13.0	7.9	4.4	4.2	5.4	5.3	7.6	6.8	8.5	8.9

For purposes of Seneca's review, Seneca reviewed the impact of the oil and natural gas prices included in the WEO Report commodity pricing table on its fiscal 2021 reported reserves. All associated operating costs and capital inputs assumed in calculating Seneca's SEC-reported reserves were held constant for the WEO scenarios.

Based on the above assumptions, Seneca calculated net fiscal year 2021 reserves for the four WEO Report policy scenarios. As shown in the table to the right, with respect to both Appalachia and California production, and Seneca overall, the pricing shown in each of the WEO Report Scenarios would not be expected to have a material negative impact on Seneca's reported fiscal 2021 reserves, as the pricing in the WEO Report scenarios is above the prices used in Seneca's SEC 2021 reserves report.

Seneca Estimated Net Proved Reserves (Bcfe) Under WEO Report Scenario Analysis

Appalachia	SEC Reserves Report	3,693
	Announced Pledges	3,690
	Stated Policy	3,695
	Sustainable Recovery	3,688
	Net-Zero by 2050	3,688
California	SEC Reserves Report	159
	Announced Pledges	161
	Stated Policy	166
	Sustainable Recovery	156
	Net-Zero by 2050	138
Seneca (All)	SEC Reserves Report	3,852
	Announced Pledges	3,851
	Stated Policy	3,861
	Sustainable Recovery	3,844
	Net-Zero by 2050	3,826

Impacts of Hydrocarbon Price and Demand, and Climate Regulation on Capital Expenditures

As detailed in the Company's 2022 Climate Report, the Company monitors developments surrounding climate change and associated climate-related risks, including financial and regulatory impacts on the oil and gas industry. The Board and management consider these risks, commodity prices, demand and opportunities in their strategic and capital spending decision process. Further, since the Company operates an integrated business with assets being utilized for, and benefiting from, the production, transportation and consumption of natural gas, the Board and management consider the impact of climate change developments on future natural gas usage.

Critical Incident Management

Process Safety Event (PSE) Rates for Loss of Primary Containment

In 2021, Seneca Resources had one event that is classified as a Tier 1 process safety event ("PSE"). To determine classification of PSEs, Seneca used the International Association of Oil & Gas Producers Publication 456: Process Safety – Recommended Practice on Key Performance Indicators.[1] This event happened on November 29, 2021 at a South Lost Hills PDET facility in California when a tank overflowed primary and secondary containment. In total, 25 barrels of hydrocarbon liquids were released from primary containment; 5 barrels remained on secondary containment and 20 barrels were off containment. The contaminated area was remediated immediately. This equated to a PSE Rate of 0.07.[2]

Management Systems Used to Identify and Mitigate Catastrophic and Tail-End Risks

As indicated in the *Risk Management* section, the Company identifies, assesses and manages risks through its ERM framework. In addition to the corporate ERM process, Seneca Resources has the following processes (on the next page) in place to identify and mitigate risks.

1 In 2021, only one spill exceeded the threshold quantity for classification as a Tier 1 PSE.
2 PSE Rate is calculated using SASB Exploration & Production Standard EM-EP-540a.1 (5), which is (Number of PSE Tier I Events x 200,000)/(Sum of employee and contractor total hours worked).

Risk Identification Processes
• Hazard Operability Studies (HAZOPs) and Hazard Identification Studies (HAZIDs) are performed to identify and rank risks and safeguards; • Job Safety Assessments (JSAs) or Job Hazard Assessments (JHAs) are performed before tasks are started so that specific hazards can be identified and mitigative measures identified; • Simultaneous Operations (SimOps) planning and field reviews are conducted to ensure proper communication and coordination between parties working at the same location at the same time; • Pre-Startup Safety Reviews (PSSRs) are completed before turning on a new well pad or facility; • A Management of Change (MOC) process is in place to evaluate proposed changes and verify that no new hazards are being introduced; • Mechanical integrity assessments of each well are documented and completed quarterly; • Leak detection and repair inspections using a FLIR infrared camera are performed quarterly to identify leaks; and • Automation equipment at well sites and facilities detect abnormal levels and send alarms.
Risk Mitigation Mechanisms
• General and Site-Specific Emergency Response Plans and Spill Plans; • Employees receive safety and environmental training including well control, first aid, and spill response. In addition, Seneca provides a spill response trailer to all personnel in our CRV operating area. This spill trailer contains spill sock, boom, overpack drums and tools to assist in uncontrolled releases. Seneca follows an ICS structure when responding to spill incidents; • Emergency response drill plans are developed for both east and west division. Management is given quarterly updates on status and findings of each emergency response drill. Verbal and tabletop emergency response drills and conducted regularly; • Contracts with Well Control and Spill Response specialists are in place; • Regular safety inspections are performed to identify potential hazards and issues of non-compliance; non-compliance items are assigned to foreman or supervisors of each activity group for corrective actions; • Risks identified during the SimOps planning and review process are addressed through the use of mitigative measures such as cages over wellheads, additional gas detection, physical barriers, portable emergency shutdown devices, etc.; • Automation equipment at well sites and facilities detect abnormal levels and send alarms; • Management Audit Program safety inspections are completed quarterly; • Annual operational assessments are performed by third-party subject matter experts; • Active participation in industry groups (MSC, CIPA) and committees; • Contractor vetting and management (ISNetworld); • An annual EHS Site Orientation is required for all employees and contract employees that perform work on site in Appalachia; and • Contractor Safety Meetings are conducted annually to review topics such as safety expectations, near misses, and best practices.

Activity Metrics

	2019	2020	2021
Net Gas Production (MMcf/day)	566.70	679.62	860.82
Net Oil Production (Mbbl/day)	6.44	6.31	6.09
Number of Offshore Sites	0	0	0
Number of Terrestrial Sites	2,475	2,765	2,782

Cautionary Note on ESG Data and Forward-Looking Statements

All information included in this Corporate Responsibility Report is being provided on a voluntary basis, and as such, the Company has included and excluded certain topics to customize the sustainability template to our specific needs. The decision to include data for historical and future years is at the discretion of the Company and its subsidiaries, and the specific years used as a historical baseline were chosen as appropriate for each reporting segment. The ESG data included in this report does not constitute financial data calculated in accordance with generally accepted accounting principles ("GAAP"). This Corporate Responsibility Report also contains "forward-looking statements" as defined by the Private Securities Litigation Reform Act of 1995. Forward-looking statements are all statements other than statements of historical fact, as well as statements that are identified by the use of the words "anticipates," "estimates," "expects," "forecasts," "intends," "plans," "predicts," "projects," "believes," "seeks," "will," "may" and similar expressions. This Corporate Responsibility Report and the statements contained herein are submitted for the general information of Company stakeholders and are not intended to induce any sale or purchase of securities or to be used in connection therewith. While the Company's expectations, beliefs and projections are expressed in good faith and are believed to have a reasonable basis, actual results may differ materially from those projected in forward-looking statements. Furthermore, each forward-looking statement speaks only as of the date on which it is made. In addition to other factors, the following are important factors that could cause actual results to differ materially from those discussed in the forward-looking statements: (1) the Company's ability to estimate accurately the time and resources necessary to meet the reporting and testing standards applicable to the additional measures we expect to include in future reports; (2) the Company's ability to estimate accurately the time and resources necessary to meet emissions targets, (3) disallowance by applicable regulatory bodies of appropriate rate recovery for system modernization, (4) governmental/regulatory actions and/or market pressures to reduce or eliminate reliance on natural gas, and (5) the other risks and uncertainties described in (i) the Company's most recent Annual Report on Form 10-K at Item 7, MD&A, and Quarterly Reports on Form 10-Q at Item 2, MD&A, under the heading "Safe Harbor for Forward-Looking Statements," and (ii) the "Risk Factors" included in the Company's most recent Annual Report on Form 10-K at Item 1A, as updated by the Company's Forms 10-Q for subsequent quarters at Item 1A. The Company disclaims any obligation to update any forward-looking statements to reflect events or circumstances after the date hereof. Because of these risks and uncertainties, readers should not place undue reliance on these forward-looking statements or use them for anything other than their intended purpose. This report contains references to National Fuel's website and other reporting documents. National Fuel is not incorporating this report by reference into any other document and is not incorporating any other document posted on the website into this report. Except where specified, this report and the data presented have not been externally audited, assured, attested or verified. The Company makes no warranty, express or implied, regarding the accuracy, adequacy, completeness, legality, reliability or usefulness of this report.

Appendix A: Index of Sustainability Reporting Topics, by Segment

Climate-Related Financial Disclosures (TCFD)

TCFD Pillar	Metric	Report Section
Governance	Describe the board's oversight of climate-related risks and opportunities.	• Governance of Corporate Responsibility and Sustainability
	Describe management's role in assessing and managing climate-related risks and opportunities.	• Governance of Corporate Responsibility and Sustainability • Risk Management
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	• Climate-Related Risks and Potential Impacts • Climate-Related Opportunities
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	• Climate-Related Risks and Potential Impacts • Climate-Related Opportunities
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	• Resiliency
Risk Management	Describe the organization's processes for identifying and assessing climate-related risks.	• Risk Management
	Describe the organization's processes for managing climate-related risks.	• Risk Management
	Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.	• Climate-Related Strategy
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	• Metrics and Targets
	Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas emissions and the related risks.	• Downstream Greenhouse Gas Emissions • Midstream Greenhouse Gas Emissions • Upstream Greenhouse Gas Emissions
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	• Metrics and Targets • Downstream Greenhouse Gas Emissions • Midstream Greenhouse Gas Emissions • Upstream Greenhouse Gas Emissions

Governance and Consolidated Company Disclosures

Topic	SASB(a)	GRI (Core)(b)
Statement From Senior Decision Maker	—	102-14
Organizational Profile	—	102-1, 102-2, 102-3, 102-4, 102-6
Governance Structure	—	102-18
Delegating Authority	—	102-19
Executive-Level Responsibility	—	102-20
Risk Management	EM-EP-540a.2	102-15, 102-30
Ethics and Integrity	EM-EP-510a.2	102-16
Mechanisms for Advice and Concerns about Ethics		102-17
Management of the Legal and Regulatory Environment	EM-EP-530a.1	102-30
Human Capital – Labor Practices	IF-WM-310a.1, IF-WM-310a.2	102-41
Human Capital – Employee Benefits		401-2, 403-6
Human Capital – Employee Development		404-2
Human Capital – Diversity and Inclusion	TC-SI-330a.3	405-1
Human Capital – Employee Engagement	TC-SI-330a.2	
Social Capital – Data Security	TC-SI-230a.2	

Downstream Segment Appendix

Topic	SASB(a)	GRI (Core)(b)
Greenhouse Gas Emissions		
Ecological Impacts		
Integrity of Gas Delivery Infrastructure	IF-GU-540a.1, IF-GU-540a.2, IF-GU-540a.3, IF-GU-540a.4	203-1
Energy Affordability	IF-GU-240a.1, IF-GU-240a.2, IF-GU-240a.3, IF-GU-240a.4	
End Use Efficiency	IF-GU-420a.1, IF-GU-240a.2	
Activity Metrics	IF-GU-000.A, IF-GU-000.B, IF-GU-000.C	102-6

Midstream Segment Appendix

Topic	SASB(a)	GRI (Core)(b)
Greenhouse Gas Emissions	EM-MD-110a.1, EM-MD-110a.2	305-1
Air Quality	EM-MD-120a.1	305-7
Ecological Impacts	EM-MD-160a.1, EM-MD-160a.2, EM-MD-160a.3, EM-MD-160a.4	103-2, 304-1, 304-3, 306-3
Competitive Behavior	EM-MD-520a.1	
Operational Safety, Emergency Preparedness and Response	EM-MD-540a.1, EM-MD-540a.2, EM-MD-540a.4	103-22
Activity Metrics	EM-MD-000.A	

Upstream Segment Appendix

Topic	SASB(a)	GRI (Core)(b)
Greenhouse Gas Emissions	EM-EP-110a.1, EM-EP-110a.2, EM-EP-110a.3	305-1, 103-2
Air Quality	EM-EP-120a.1	305-7
Water Management	EM-EP-140a.1, EM-MP-140a.2, EM-EP-140a.3, EM-EP-140a.4	303-3, 306-1
Biodiversity Impacts	EM-EP-160a.1, EM-EP-160a.2, EM-EP-160a.3	103-2, 306-3
Security, Human Rights, and Rights of Indigenous Peoples	EM-EP-210a.1, EM-EP-210a.2, EM-EP-210a.3	
Community Relations	EM-EP-210b.1, EM-EP-210b.2	
Workforce and Health Safety	EM-EP-320a.1, EM-EP-320a.2	103-2
Reserves Valuation & Capital Expenditures	EM-EP-420a.1, EM-EP-420a.2, EM-EP-420a.3, EM-EP-420a.4	201-2
Business Ethics & Transparency	EM-EP-510a.1, EM-EP-510a.2	102-16
Management of Legal & Regulatory Environment	EM-EP-530a.1	102-30
Critical Incident Risk Management	EM-EP-540a.1, EM-EP-540a.2	306-3, 102-15, 102-30
Activity Metrics	EM-EP-000.A, EM-EP-000.B, EM-EP-000.C	102-4

Appendix B: Consolidated Data Tables

Posted: September 12, 2022

This workbook contains a consolidated view of our ESG metrics for years 2019, 2020, and 2021. Our disclosure primarily uses the standards of the Sustainability Accounting Standard's Board (SASB), but it also encompasses sustainability data considered under our Task Force on Climate-Related Financial Disclosures (TCFD) reporting. This information is presented in our Report in more detail.

Post Divestiture Emissions Data

Accounting Metric	2019	2020	2021
Scope 1 & 2 Emissions Intensity (kg CO_2e/BOE)			
Utility (Distribution Corporation)			
Methane Emissions Intensity	—	14.5	13.6
Greenhouse Gas Emissions Intensity	—	15.0	14.1
Pipeline & Storage (Supply Corporation & Empire)			
Methane Emissions Intensity	—	2.49	1.89
Greenhouse Gas Emissions Intensity	—	4.82	4.33
Gathering (Midstream Company)			
Methane Emissions Intensity	—	2.45	2.17
Greenhouse Gas Emissions Intensity	—	9.01	8.38
Exploration & Production (Seneca)[1]			
Methane Emissions Intensity	2.49	2.70	2.58
Greenhouse Gas Emissions Intensity	4.38	4.36	4.30
Total Scope 1 Greenhouse Gas Emissions (Metrics Tons CO_2e)			
Utility (Distribution Corporation)	374,843	365,766	354,270
Pipeline & Storage (Supply Corporation & Empire)	545,795	543,160	530,314
Gathering (Midstream Company)	468,438	515,815	528,065
Exploration & Production (Seneca)[1]	276,435	257,496	264,730
Consolidated Total	**1,665,511**	**1,682,237**	**1,677,379**

continued

1 Following the June 30, 2022 divestiture of Seneca's California assets, emissions data includes only Appalachian natural gas development program.

Post Divestiture Emissions Data

Total Scope 1 Methane Emissions (Metrics Tons CH_4 as CO_2e)			
Utility (Distribution Corporation)	13,028	12,702	12,265
Pipeline & Storage (Supply Corporation & Empire)	318,681	283,142	234,522
Gathering (Midstream Company)	165,806	140,310	137,120
Exploration & Production (Seneca)[1]	157,729	159,517	159,147
Consolidated Total	**655,244**	**595,671**	**543,054**
Total Scope 2 Emissions (Metrics Tons CO_2e)			
Utility (Distribution Corporation)	—	1,282	1,109
Pipeline & Storage (Supply Corporation & Empire)	—	5,619	6,124
Gathering (Midstream Company)	—	629	794
Exploration & Production (Seneca)[1]	401	430	404
Consolidated Total	**401**	**7,960**	**8,431**

1 Following the June 30, 2022 divestiture of Seneca's California assets, emissions data includes only Appalachian natural gas development program.

Consolidated Emissions Data (Includes California Assets)

Accounting Metric	2019	2020	2021
Scope 1 & 2 Emissions Intensity (kg CO_2e/BOE)			
Utility (Distribution Corporation)			
Methane Emissions Intensity	—	14.5	13.6
Greenhouse Gas Emissions Intensity	—	15.0	14.1
Pipeline & Storage (Supply Corporation & Empire)			
Methane Emissions Intensity	—	2.49	1.89
Greenhouse Gas Emissions Intensity	—	4.82	4.33
Gathering (Midstream Company)			
Methane Emissions Intensity	—	2.45	2.17
Greenhouse Gas Emissions Intensity	—	9.01	8.38
Exploration & Production (Seneca)			
Methane Emissions Intensity	2.44	2.64	2.51
Greenhouse Gas Emissions Intensity	9.24	9.65	9.25
Total Scope 1 Greenhouse Gas Emissions (Metrics Tons CO_2e)			
Utility (Distribution Corporation)	374,843	365,766	354,270
Pipeline & Storage (Supply Corporation & Empire)	545,795	543,160	530,314
Gathering (Midstream Company)	468,438	515,815	528,065
Exploration & Production (Seneca)	601,419	587,490	585,031
Consolidated Total	**1,990,495**	**2,012,231**	**1,997,680**
Total Scope 1 Methane Emissions (Metrics Tons CH_4 as CO_2e)			
Utility (Distribution Corporation)	13,028	12,702	12,265
Pipeline & Storage (Supply Corporation & Empire)	318,681	283,142	234,522
Gathering (Midstream Company)	165,806	140,310	137,120
Exploration & Production (Seneca)	161,953	163,955	161,515
Consolidated Total	**659,468**	**600,109**	**545,422**
Total Scope 2 Emissions (Metrics Tons CO_2e)			
Utility (Distribution Corporation)	—	1,282	1,109
Pipeline & Storage (Supply Corporation & Empire)	—	5,619	6,124
Gathering (Midstream Company)	—	629	794
Exploration & Production (Seneca)	11,355	11,907	11,493
Consolidated Total	**11,355**	**19,437**	**19,520**

Consolidated Diversity Metrics

Race and Ethnic Diversity	Asian	Black/ African American	Hispanic/ Latino	Other[1]	White
EEO-1 Job Category – 2019					
Executive/Senior Level Officials	0.00%	1.44%	0.00%	0.00%	98.56%
First/ Mid-Level Officials	0.28%	1.42%	1.99%	0.28%	96.02%
Professionals	2.47%	1.10%	3.01%	0.82%	92.60%
Technicians	0.00%	1.72%	5.17%	0.00%	93.10%
Craft Workers	0.00%	3.80%	0.54%	1.09%	94.57%
Operatives	0.00%	1.96%	2.35%	1.17%	94.52%
Laborers and Helpers	0.00%	9.26%	4.63%	0.93%	85.19%
Administrative Support Workers	0.00%	15.94%	3.70%	1.15%	79.21%
EEO-1 Job Category – 2020					
Executive/Senior Level Officials	0.00%	1.95%	0.65%	0.00%	97.40%
First/ Mid-Level Officials	0.56%	1.39%	1.67%	0.28%	96.11%
Professionals	2.67%	1.07%	2.93%	0.80%	92.53%
Technicians	0.00%	1.61%	4.84%	0.00%	93.55%
Craft Workers	0.00%	3.33%	0.56%	1.67%	94.44%
Operatives	0.00%	1.63%	2.36%	1.09%	94.93%
Laborers and Helpers	0.00%	13.46%	2.88%	0.00%	83.65%
Administrative Support Workers	0.24%	15.63%	3.37%	0.72%	80.05%
EEO-1 Job Category – 2021					
Executive/Senior Level Officials	0.00%	1.97%	0.66%	0.00%	97.37%
First/ Mid-Level Officials	0.51%	1.54%	1.29%	0.26%	96.40%
Professionals	3.26%	1.90%	2.72%	1.09%	91.03%
Technicians	0.00%	1.61%	4.84%	0.00%	93.55%
Craft Workers	0.00%	3.41%	0.57%	1.70%	94.32%
Operatives	0.00%	1.24%	2.66%	1.24%	94.86%
Laborers and Helpers	0.00%	14.44%	1.11%	1.11%	83.33%
Administrative Support Workers	0.49%	13.83%	3.16%	0.24%	82.28%

Average Years of Service by Race and Ethinic Diversity	Asian	Black/ African American	Hispanic/ Latino	Other[1]	White
Years	5.84	11.33	10.17	8.73	10.33

	2019		2020		2021	
Gender Diversity	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**
Executive/Sr Level Officials	20.14%	79.86%	21.43%	78.57%	22.37%	77.63%
First/Mid Level Officials	18.75%	81.25%	19.17%	80.83%	20.05%	79.95%
Professionals	34.52%	65.48%	34.13%	65.87%	32.88%	67.12%
Technicians	17.24%	82.76%	16.13%	83.87%	16.13%	83.87%
Craft Workers	6.52%	93.48%	5.56%	94.44%	4.55%	95.45%
Operatives	2.35%	97.65%	2.17%	97.83%	2.66%	97.34%
Laborers and Helpers	7.41%	92.59%	8.65%	91.35%	5.56%	94.44%
Administrative Support Workers	79.21%	20.79%	76.92%	23.08%	80.58%	19.42%

Average Years of Service by Gender Diversity	
Female	**Male**
11.33	9.75

Age Diversity	2019	2020	2021
56 and older	16.37%	16.16%	15.00%
41-55 years old	33.44%	33.27%	33.39%
26-40 years old	42.84%	43.08%	44.83%
25 and younger	7.35%	7.49%	6.78%

1 Other includes the following classifications: Native American or Alaska Native, Native Hawaiian or Pacific Islander and Two or More Races.

Downstream Segment

	2019	2020	2021
Scope 1 & 2 Emissions Intensity (kg CO_2e/BOE)			
Utility (NY)			
Methane Emissions Intensity	—	14.0	13.2
Greenhouse Gas Emissions Intensity	—	14.5	13.7
Utility (PA)			
Methane Emissions Intensity	—	15.6	14.5
Greenhouse Gas Emissions Intensity	—	16.1	15.0
Utility (All)			
Methane Emissions Intensity	—	14.5	13.6
Greenhouse Gas Emissions Intensity	—	15.0	14.1
Scope 1 Greenhouse Gas Emissions (Metrics Tons CO_2e)			
Utility (NY)			
EPA Subpart W Mandatory Reporting	178,300	169,887	162,059
Additional EPA Subpart W Facilities	1,473	1,448	1,408
Other Sources	65,512	67,234	66,525
Total Utility (NY)	**245,285**	**238,569**	**229,992**
Utility (PA)			
EPA Subpart W Mandatory Reporting	99,469	96,861	94,088
Additional EPA Subpart W Facilities	329	110	0
Other Sources	29,760	30,226	30,190
Total Utility (PA)	**129,558**	**127,197**	**124,278**
Utility (All)			
EPA Subpart W Mandatory Reporting	277,769	266,748	256,147
Additional EPA Subpart W Facilities	1,802	1,558	1,408
Other Sources	95,272	97,460	96,715
Total Utility (All)	**374,843**	**365,766**	**354,270**

continued

Downstream Segment

	2019	2020	2021
Methane (CH_4) Emissions (Metrics Tons)			
Utility (NY)			
EPA Subpart W Mandatory Reporting	6,360	6,060	5,781
Additional EPA Subpart W Facilities	53	52	50
Other Sources	2,104	2,167	2,125
Total Utility (NY)	**8,517**	**8,279**	**7,956**
Utility (PA)			
EPA Subpart W Mandatory Reporting	3,549	3,456	3,356
Additional EPA Subpart W Facilities	12	4	0
Other Sources	950	963	953
Total Utility (PA)	**4,511**	**4,423**	**4,309**
Utility (All)			
EPA Subpart W Mandatory Reporting	9,909	9,516	9,137
Additional EPA Subpart W Facilities	65	56	50
Other Sources	3,054	3,130	3,078
Total Utility (All)	**13,028**	**12,702**	**12,265**
Scope 2 Emissions (Metrics Tons CO_2e)			
New York	—	730	603
Pennsylvania	—	552	506
Total Utility (All)	—	**1,282**	**1,109**
Average Emergency Response Time (Minutes)			
New York	16.5	16.6	16.5
Pennsylvania	19.7	20.8	19.4

continued

Downstream Segment

	2019	2020	2021
OSHA Total Recordable Incident Rate (TRIR) (Fiscal Year October 1 to September 30)			
TRIR	4.34	2.88	2.45
Injuries	56	37	31
Hours Worked	2,578,155	2,572,247	2,525,864
OSHA Days Away, Restricted or Transferred Rate (DART) (Fiscal Year October 1 to September 30)			
DART	2.87	2.57	1.74
Incidents	37	33	22
Hours Worked	2,578,155	2,572,247	2,525,864
Average Retail Gas Rates (per MCF)			
Bundled Retail Sales			
Residential	$8.14	$7.91	$8.97
Commercial	$7.36	$7.07	$8.11
Industrial	$6.41	$6.28	$7.45
Total Retail	**$8.02**	**$7.79**	**$8.85**
Transportation Sales			
Residential	$3.63	$3.99	$4.10
Commercial	$2.04	$2.18	$2.25
Industrial	$0.73	$0.76	$0.77
Total Transportation	**$1.61**	**$1.69**	**$1.63**

Midstream Segment

	2019	2020	2021
Scope 1 & 2 Emissions Intensity (kg CO_2e/BOE)			
Pipeline & Storage (Supply Corporation & Empire)			
Methane Emissions Intensity	—	2.49	1.89
Greenhouse Gas Emissions Intensity	—	4.82	4.33
Gathering (Midstream Company)			
Methane Emissions Intensity	—	2.45	2.17
Greenhouse Gas Emissions Intensity	—	9.01	8.38
Midstream Segment			
Methane Emissions Intensity	—	2.47	1.99
Greenhouse Gas Emissions Intensity	—	6.22	5.70
Scope 1 Greenhouse Gas Emissions (Metrics Tons CO_2e)			
Empire			
EPA Mandatory Reporting Sources	27,863	31,145	94,816
Additional EPA Sources	17,454	24,129	3,814
Other Sources	2,549	4,605	7,482
Total Empire	**47,866**	**59,879**	**106,112**
Supply Corporation			
EPA Mandatory Reporting Sources	301,112	288,389	256,773
Additional EPA Sources	187,264	184,517	156,643
Other Sources	9,553	10,375	10,786
Total Supply Corporation	**497,929**	**483,281**	**424,202**
Gathering (Midstream Company)			
EPA Mandatory Reporting Sources	466,712	506,979	514,740
Additional EPA Sources	1,134	8,221	12,660
Other Sources	592	615	665
Total Midstream Company	**468,438**	**515,815**	**528,065**
Midstream Segment			
EPA Mandatory Reporting Sources	795,687	826,513	866,329
Additional EPA Sources	205,852	216,867	173,117
Other Sources	12,694	15,595	18,933
Total Midstream Segment	**1,014,233**	**1,058,975**	**1,058,379**

continued

Midstream Segment

	2019	2020	2021
Scope 1 Methane Emissions (Metrics Tons CH_4 as CO_2e)			
Empire			
EPA Mandatory Reporting Sources	3,070	3,573	5,194
Additional EPA Sources	17,436	4,011	3,315
Other Sources	2,546	4,600	7,475
Total Empire	**23,052**	**12,184**	**15,984**
Supply Corporation			
EPA Mandatory Reporting Sources	133,621	111,394	96,270
Additional EPA Sources	155,004	152,378	114,826
Other Sources	7,004	7,186	7,442
Total Supply Corporation	**295,629**	**270,958**	**218,538**
Midstream Company			
EPA Mandatory Reporting Sources	164,273	138,582	122,234
Additional EPA Sources	1,031	1,217	14,360
Other Sources	502	511	526
Total Midstream Company	**165,806**	**140,310**	**137,120**
Midstream Segment			
EPA Mandatory Reporting Sources	300,964	253,549	223,698
Additional EPA Sources	173,471	157,606	132,501
Other Sources	10,052	12,297	15,443
Total Midstream Segment	**484,487**	**423,452**	**371,642**
Scope 2 Emissions (Metrics Tons CO_2e)			
Empire	—	881	1,634
Supply Corporation	—	4,738	4,490
Midstream Company	—	629	794
Total Midstream Segment	—	**6,248**	**6,918**

continued

Midstream Segment

Air Emissions (Metric Tons)			
Empire			
NO_x	—	18	24
SO_x	—	2	3
VOC	—	3	4
PM	—	1	2
Supply			
NO_x	348	448	402
SO_x	2	4	3
VOC	268	260	244
PM	22	25	14
Midstream Company			
NO_x	253	317	320
SO_x	2	3	2
VOC	66	91	74
PM	13	13	14
Midstream Segment			
NO_x	601	783	746
SO_x	4	9	8
VOC	334	354	322
PM	35	39	30
OSHA Total Recordable Incident Rate (TRIR) (Fiscal Year October 1 to September 30)			
TRIR	1.02	0.49	0.98
Injuries	4	2	4
Hours Worked	785,616	813,044	820,130
OSHA Days Away, Restricted or Transferred Rate (DART) (Fiscal Year October 1 to September 30)			
DART	0.51	0.25	0.73
Incidents	2	1	3
Hours Worked	785,616	813,044	820,130

Upstream Segment (Includes California Assets)

	2019	2020	2021
Scope 1 & 2 Emissions Intensity (kg CO_2e/BOE)			
Appalachia			
Methane Emissions Intensity	2.49	2.70	2.58
Greenhouse Gas Emissions Intensity	4.38	4.36	4.30
California			
Methane Emissions Intensity	1.39	1.48	0.86
Greenhouse Gas Emissions Intensity	109.92	111.73	119.72
Seneca (All)			
Methane Emissions Intensity	2.44	2.64	2.51
Greenhouse Gas Emissions Intensity	9.24	9.65	9.25
Scope 1 Greenhouse Gas Emissions (Metrics Tons CO_2e)			
Appalachia			
EPA Mandatory Reporting Sources	233,870	229,950	247,575
Other Sources	41,592	26,439	16,044
Fleet	932	1,065	1,082
Office	41	42	29
Total Appalachia	**276,435**	**257,496**	**264,730**
California			
EPA Mandatory Reporting Sources	312,638	318,834	310,796
Other Sources	11,946	10,661	9,030
Fleet	400	499	475
Office	0	0	0
Total California	**324,984**	**329,994**	**320,301**
Seneca (All)			
EPA Mandatory Reporting Sources	546,508	548,784	558,371
Other Sources	53,538	37,100	25,074
Fleet	1,332	1,564	1,557
Office	41	42	29
Total Seneca	**601,419**	**587,490**	**585,031**

Upstream Segment

	2019	2020	2021
Scope 1 Methane Emissions (Metrics Tons CH_4 as CO_2e)			
Appalachia			
EPA Mandatory Reporting Sources	156,350	159,109	158,700
Other Sources	1,376	406	446
Fleet	3	2	1
Office	0	0	0
Total Appalachia	**157,729**	**159,517**	**159,147**
California			
EPA Mandatory Reporting Sources	3,745	3,865	1,985
Other Sources	479	573	383
Fleet	0	0	0
Office	0	0	0
Total California	**4,224**	**4,438**	**2,368**
Seneca (All)			
EPA Mandatory Reporting Sources	160,095	162,974	160,685
Other Sources	1,855	979	829
Fleet	3	2	1
Office	0	0	0
Total Seneca	**161,953**	**163,955**	**161,515**
Scope 2 Emissions (Metrics Tons CO_2e)			
Total Appalachia	401	430	404
Total California	10,954	11,477	11,089
Total Seneca	**11,355**	**11,907**	**11,493**
Criteria Pollutant Emissions (Metric Tons)			
CO	130.11	122.28	134.20
NO_x	360.61	355.88	474.79
PM-10	19.34	17.21	21.77
SO_x	1.78	1.76	1.47
VOC	43.69	44.39	51.17

continued

Upstream Segment

	2019	2020	2021
Freshwater Withdrawn and Freshwater Consumed (Thousands of Cubic Meters)			
Appalachia			
Total Water Withdrawn	811	428	1,149
% of Water from Locations with High or Extremely – High Water Risk	0%	0%	0%
Total Freshwater Consumed	793	770	1,166
% of Water from Locations with High or Extremely – High Water Risk	0%	0%	0%
California			
Total Water Withdrawn	114	115	106
% of Water from Locations with High or Extremely – High Water Risk	100%	100%	100%
Total Freshwater Consumed	114	115	106
% of Water from Locations with High or Extremely – High Water Risk	100%	100%	100%
Seneca (All)			
Total Water Withdrawn	925	543	1,255
% of Water from Locations with High or Extremely – High Water Risk	12%	21%	8%
Total Freshwater Consumed	907	885	1,272
% of Water from Locations with High or Extremely – High Water Risk	13%	13%	8%
Volume of Produced Water and Flowback Generated (Thousands of Cubic Meters)			
Appalachia			
Produced Water and Flowback	1,229	1,294	1,620
% Discharged	0.0%	0.0%	0.0%
% Injected	5.5%	3.5%	7.4%
% Recycled	94.5%	96.5%	92.6%
California			
Produced Water and Flowback	3,843	4,269	4,305
% Discharged	0.0%	0.0%	0.0%
% Injected	39.7%	48.7%	48.3%
% Recycled	60.3%	51.3%	51.7%
Seneca (All)			
Produced Water and Flowback	5,072	5,563	5,925
% Discharged	0.0%	0.0%	0.0%
% Injected	31.4%	38.2%	37.1%
% Recycled	68.6%	61.8%	62.9%

continued

Upstream Segment

	2019	2020	2021
Number and Volume of Hydrocarbon Spills (Bbls)			
Number of Spills Greater than 1 Bbl	4	0	2
Total Volume of Spills Reported Above	4.6	0	22
Total Volume of Spills Occurring in the Artic	Not Applicable	Not Applicable	Not Applicable
Total Volume of Spills Impacting Environmentally Sensitive Shoreline	0	0	0
Total Recordable Incident Rate (TRIR)			
Full Time Employees	0.41	0.76	0.40
Contract Employees	0.99	0.73	1.23
Short-Service Employees	—	—	—
Fatality Rate			
Full Time Employees	0.00	0.00	0.00
Contract Employees	0.00	0.21	0.00
Short-Service Employees	—	—	—
Near Miss Frequency Rate (NMFR)			
Full-Time and Contract Employees	8.86	16.00	12.66

National Fuel

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