America's Energy

Natural Gas Utilities Deliver

AGA

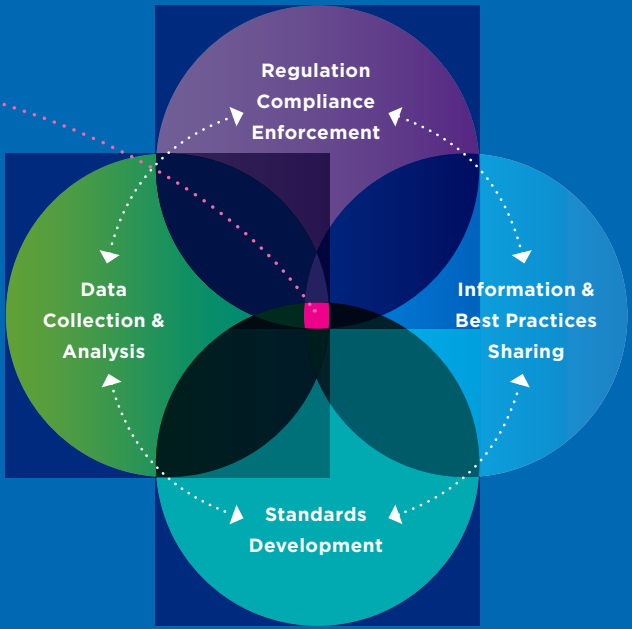
American Gas Association

2015 PLAYBOOK

Safest

Energy Delivery System in America

The natural gas industry has a long-standing record of providing natural gas service safely and effectively to more than 177 million Americans and is dedicated to the continued enhancement of pipeline safety.



A Message from

AGA Chairman of the Board

Terry McCallister

Chairman and CEO
WGL Holdings, Inc.
and Washington Gas

Chairman,
American Gas Association

It's a great time to be in the natural gas business. My first job out of college was as a petroleum engineer, drilling wells in the lower 48 and in Alaska. In all my years in the upstream business back then, I would have never predicted you could get adequate volumes of oil and gas from shale. But technology advances have yielded the good fortune and abundance of clean and domestic natural gas that exists today. It has been more than 36 years and I have worked upstream, midstream and downstream, and I have never seen opportunities like we have today.

Natural gas is America's new energy foundation. I believe it will be the preferred source of energy in this country for decades.

We will continue to earn the social license to operate by doing the right thing – from our commitment to enhancing safety to our ongoing efforts to make delivering natural gas even cleaner and more efficient. This is a recipe for growth in our industry and a bright future for natural gas in the United States.

A Message from **Dave McCurdy**

Dave McCurdy

President and CEO
American Gas Association

In the ongoing conversation about how the United States will retain its leadership role in the 21st Century, the question in my mind is not if but how will we seize this opportunity. There are many elements of national power, but in order to be a leader on a global stage, it is essential to have a vibrant and strong economy, a secure and stable supply of affordable energy and an engaged citizenry with a vision for the future.

Natural gas provides our nation with a foundation of affordable energy, makes our economy more competitive, our homeland more secure and offers the opportunity to reduce our carbon footprint while working with other forms of renewable energy. Our domestic abundance of this fuel and what it means for our nation is the envy of the world.

America's natural gas utilities provide a vision for the country where our robust natural resources are a source of strength and the benefits of natural gas are available in every corner of our nation. We will continue to deliver natural gas safely and reliably and lead the conversation about how we achieve our national goals.

Fueling the Future

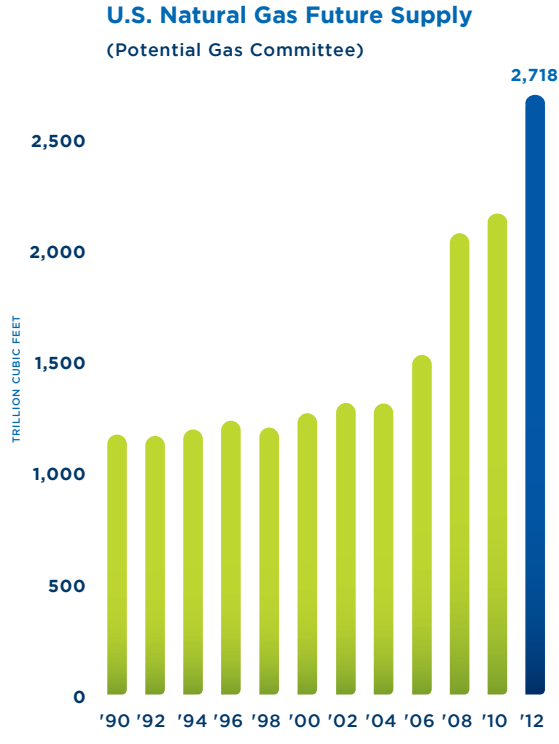
Natural gas is clean, domestic, abundant, efficient and affordable, making it the perfect foundation fuel to help strengthen America's economic recovery, meet our environmental challenges and improve our overall national security by reducing our dependence on foreign energy sources.

Natural gas homes pay $693 less on average per year than homes using electricity for the same applications.

Natural Gas

Stable and affordable prices well into the future

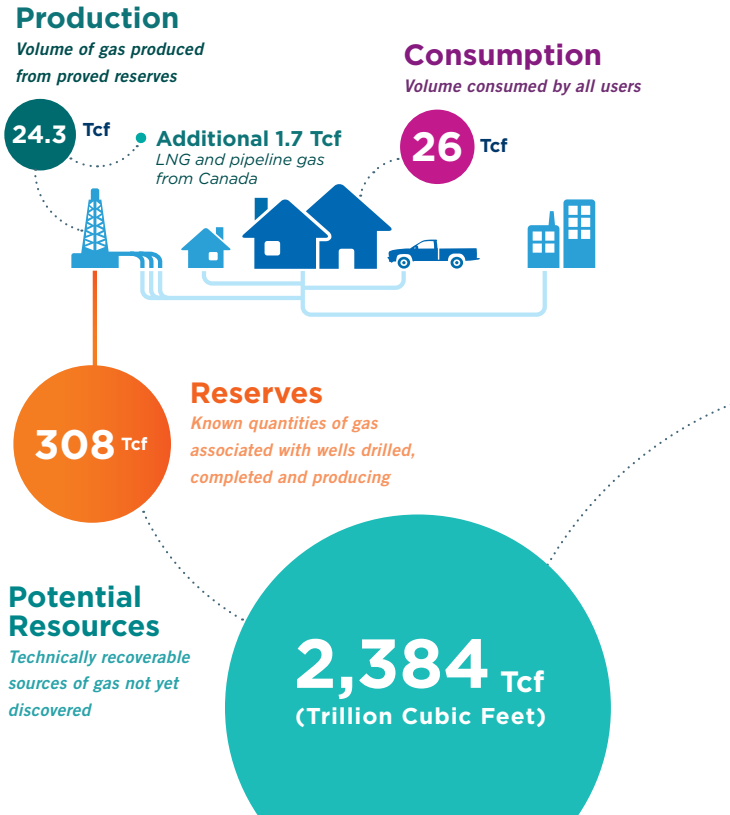
Technological advances, a newly accessible and abundant domestic resource, and the world's most extensive and reliable delivery infrastructure have created a fundamental shift in the natural gas marketplace. Our nation's abundance of home-grown natural gas provides an opportunity to satisfy significant new demand at affordable prices well into the future.



And Then

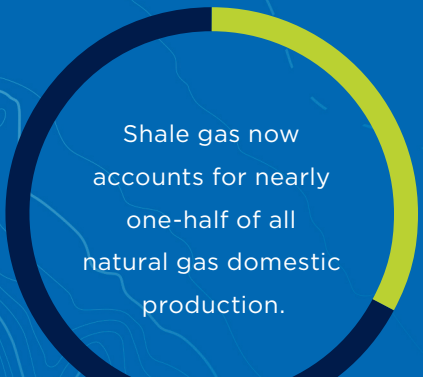
There Was Abundance

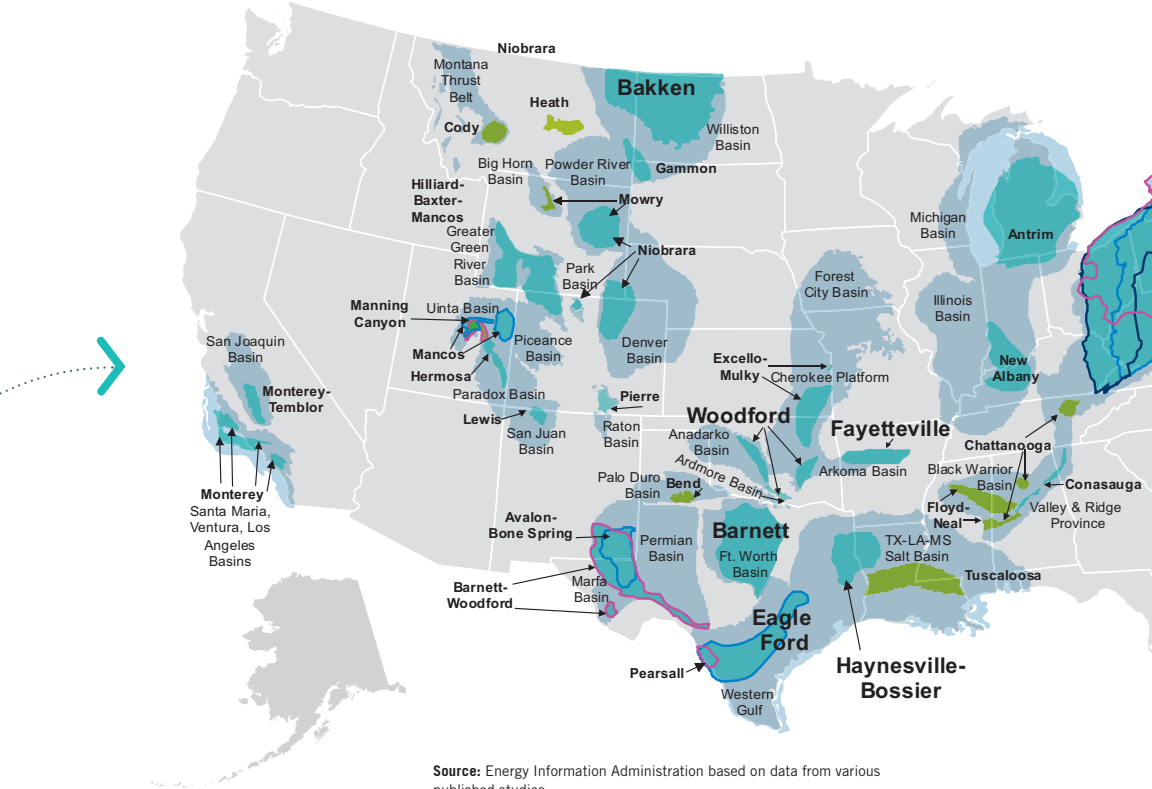
According to the Energy Information Administration and the Potential Gas Committee, a nonprofit supported by the Colorado School of Mines, the U.S. estimated future supply of natural gas (reserves plus resources) stood at 2,692 Tcf at year end 2012 – enough natural gas to meet America's diverse energy needs for more than 100 years. Estimated future supply has more than doubled for the period 1990-2012 average.



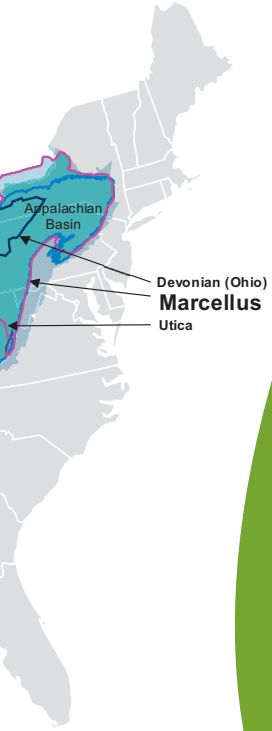
Shale Gas Resources in the United States

MAP





Source: Energy Information Administration based on data from various published studies.

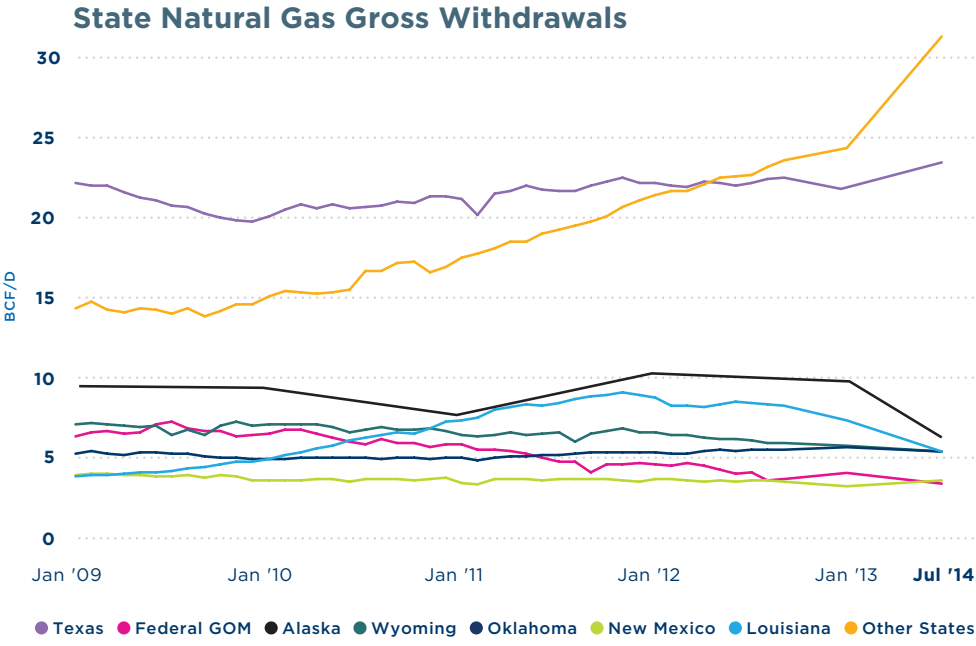


Shale Gas Resources

- 33 states are now producing or have produced natural gas.
- The United States produces approximately 14 Bcf per day more natural gas than 12 years ago.
- Domestic gas production accounts for about 93% (66.6 Bcf per day) of all natural gas consumed in the United States, and shale gas production now accounts for more than 40% of gas produced.
- Canada provides about 5 Bcf per day (7%) of gas consumed.
- The economic impact of the shale revolution is significant. It is expected that by 2035 shale gas extraction will account for more than 2.4 million jobs.

2.4 MILLION *shale gas extraction jobs by 2035*

Less Traditional Areas Now Making the Biggest Impact



Responsible Resource Development

"Responsible development of natural gas is an important part of our work to curb climate change and support a robust clean energy market at home. It also has huge potential to help power our factories and our vehicles while at the same time cutting our dependence on foreign oil."

Gina McCarthy
EPA Administrator

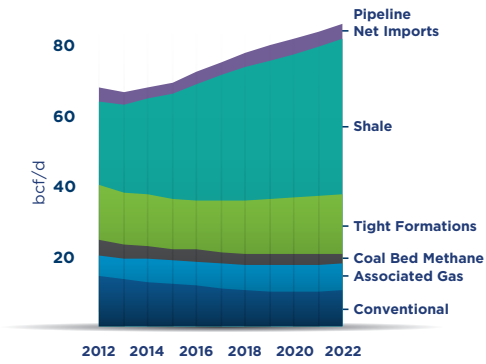
Natural gas utilities are founded on principles of community stewardship. We believe it is critical to engage all stakeholders, including consumers, in the process of meeting environmental and regulatory goals, while continually refining and improving safety and environmental practices.

As part of that stewardship, natural gas producers must work toward a culture of best practices that demonstrates a commitment to safe, environmentally sound and responsible natural gas resource development.

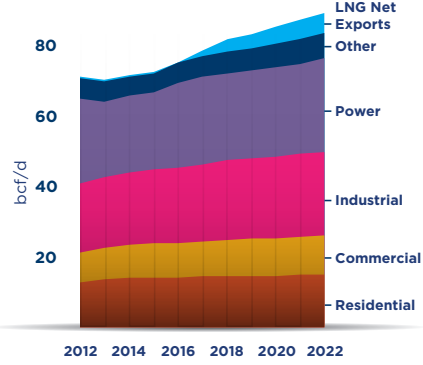
The Promise **of Natural Gas**

For the next decade and beyond, domestic natural gas supplies are expected to be sufficiently robust to meet growth in demand across all sectors.

Natural Gas **Supply**



Natural Gas **Use**



Natural Gas **Price Outlook**

North American supplies of natural gas have resulted in a lower and more stable price environment for customers compared to years past. Our nation's strong natural gas supply fundamentals and robust and reliable natural gas delivery infrastructure suggest that over the next decade, a range of demand scenarios can be met by a diverse and responsive supply market within an estimated price band of $4.00-$6.50 per MMBtu — a level well below the peak market prices of the preceding decade.

Source: *Rethinking Natural Gas, A Future for Natural Gas in the U.S. Economy,* p.6, American Gas Association, ©2012, Citing Source: Wood MacKenzie Spring 2012. See paper for outlook limitations.

Fueling the Future

with Natural Gas

Our nation's abundance of domestic natural gas has created a new energy landscape that can address many of the challenges facing our economy and environment. But our regulatory environment still functions as it did during a time of natural gas constraint. It is critical that business models, fuel choices, regulation and energy policy be re-evaluated in light of the new opportunities presented.

Natural gas utilities, through their roles in communities across the nation, are already bringing the benefits of natural gas to homes and business. We are fueling the future where wise and efficient growth of natural gas consumption will help address many of our energy challenges.

To learn more, visit **www.FuelingTheFuture.org**

"According to IHS CERA, low natural gas prices are expected to increase real disposable income per household by approximately $2,000 in 2015 and more than $3,500 by 2025."

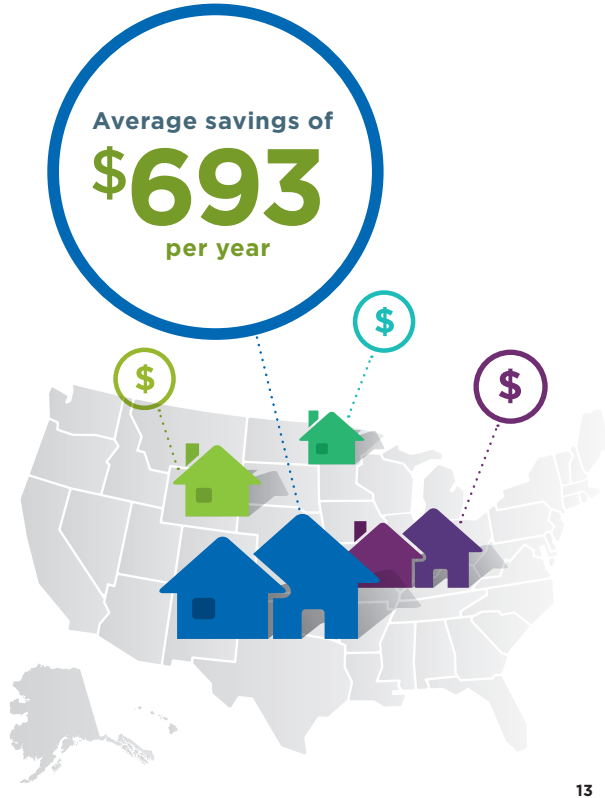
American Gas Foundation
Fueling the Future with Natural Gas: Bringing it Home

Natural Gas Means

Savings for Consumers

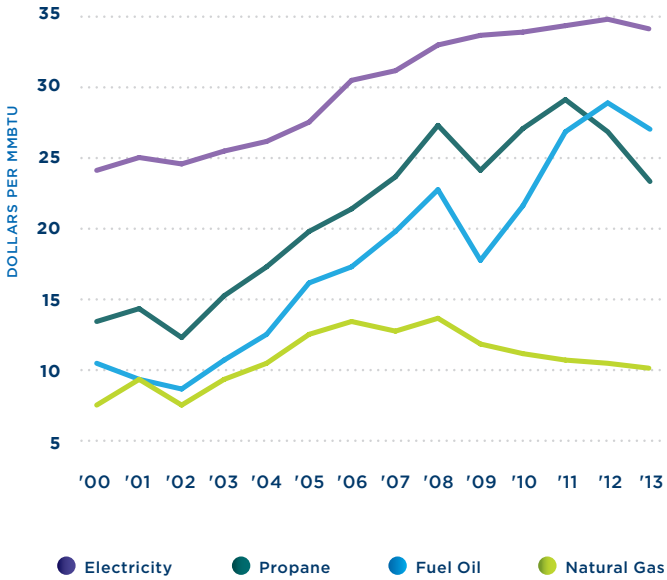
Households that use natural gas for heating, water heating, cooking and clothes drying spend an average of $693 less per year than homes using electricity for those applications.

Low domestic natural gas prices have led to savings of almost $65 billion for residential natural gas customers over the past five years.



Annual Energy Prices

to Residential Consumers



Abundant Positive Natural Gas Supply Means Consumer Savings and an Optimistic

View for Long-term Potential

Our nation's strong supply position is the primary reason that prices are expected to be lower and more stable this winter than in past years.

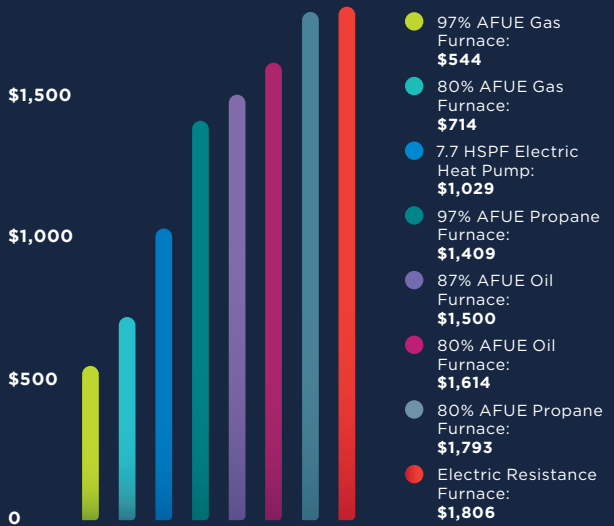
The U.S. Department of Energy forecast for the average residential gas customer during the 2014–2015 winter indicates savings in annual heating costs of $169 compared to the higher-priced winter of 2008-2009. These savings represent a more than 20% advantage for consumers.

With strong natural gas supplies, the annual cost savings to the consumer is expected to be $169.

Heating Value

Compared to Other Energy Sources

Natural gas costs less to use than other major home energy sources.



A piece of equipment with a higher annual fuel utilization efficiency (AFUE) rating provides greater savings for customers.

Source: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy

"Plentiful supplies of natural gas from shale have created a decisive competitive advantage for America's chemical manufacturers that is attracting billions in new investment to the United States, increasing exports of manufactured goods and creating jobs."

Cal Dooley
President and CEO
American Chemistry Council

Natural Gas:
A Smart Business Decision

Businesses, both commercial and industrial, can save when they transition to the use of natural gas:

- In 2012, the average commercial customer saved nearly $2,500 on their annual bill due to low natural gas prices compared to 2008.
- According to IHS CERA, affordable natural gas can help the nation's chemicals sector over the next dozen years, creating more than 300,000 jobs and driving half a trillion dollars in production through 2025.

Natural gas can help create more than

300,000 jobs

Jobs, Jobs, JOBS

The new era of abundant and affordable natural gas has impacted our economy through customer savings and significant job creation. The natural gas industry employs people in all 50 states, and it supports direct, indirect and induced jobs.

622,000

jobs are directly involved in exploring for, producing, transporting and distributing natural gas (direct employment). Natural gas distribution employment provided between 116,000 and 122,000 (nearly 20%) of these direct jobs.

723,000

additional jobs are created in industries such as agriculture and manufacturing that support and supply goods and services to the natural gas industry (indirect employment).

1,500,000

jobs are supported when direct and indirect natural gas employees introduce their income back into the economy and create demand for further goods and services (induced employment).

"Our view, the Administration's view, my personal view, is that the gas revolution has had multiple benefits: CO_2 benefits, obviously economic benefits, jobs benefits."

Ernest Moniz
U.S. Secretary of Energy

Safe & Reliable

Safety is the core value for the natural gas distribution and transmission industry.

A CULTURE OF SAFETY

"AGA and its member companies are committed to promoting positive safety cultures among their employees throughout the natural gas distribution industry. All employees, as well as contractors and suppliers providing services to AGA members, are expected to place the highest priority on employee, customer, public and pipeline safety."

- Excerpt from AGA Safety Culture Statement

Terry McCallister *(far left) leads the way during a tour of WGL's Pipetown Training Facility with Prince William County, Virginia, first responders and other visitors.*

Enhancing Safety:
A Joint Effort

AGA and its members are dedicated to the continued enhancement of pipeline safety. Safety is a joint effort, a partnership that engages customers, regulators and policymakers at every level. We are committed to proactively collaborating with public officials, emergency responders, excavators, consumers, safety advocates and the public to continue to improve the industry's long-standing record of providing natural gas service safely and effectively to more than 177 million Americans.

Photo: Corky Miller

Safely Transported

Across the Country

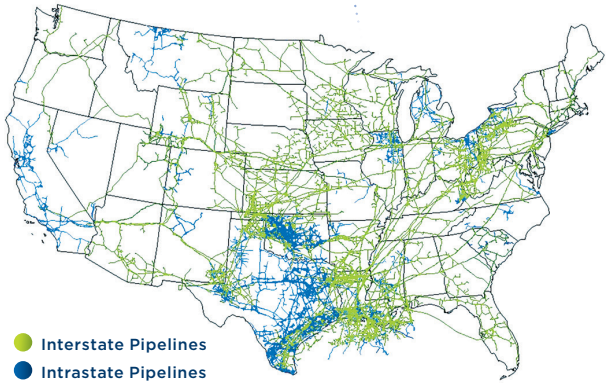
Natural gas pipelines, which transport approximately one-fourth of the energy consumed in the U.S., are an essential part of the nation's infrastructure. Transportation by pipeline is the safest form of energy delivery in the country.

Natural gas utilities spend $19 billion annually to help enhance the safety of natural gas distribution and transmission systems.

Natural gas is delivered to customers through a 2.4-million-mile underground pipeline system. This includes 2.1 million miles of local utility distribution pipelines and 300,000 miles of transmission pipelines that stretch across the country, providing service to more than 177 million Americans.

2.4 MILLION

miles of pipeline



Regulatory Oversight

There is significant oversight and regulation focused on the natural gas industry to help ensure public safety.

The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) establishes federal safety standards for pipelines, and PHMSA partners with state pipeline safety agencies on inspections and enforcement of intrastate pipelines. Individual states can regulate intrastate pipeline systems above and beyond federal requirements, and there are hundreds of state-specific pipeline safety regulations currently in place.

AGA supports continuous improvements to the safe delivery of natural gas through:

Information sharing among emergency responders and the public that effectively informs and enhances pipeline safety

Research and development of safety-enhancing technologies

Collaboration with key stakeholders

Advocating for the effective enforcement of "Call 811"

Conducting forums for the industry that facilitate the sharing of leading practices

Industry Safeguards

The industry has put in place a number of safeguards to help better detect a potential natural gas leak.

All natural gas pipeline operators are required to develop and implement a pipeline safety public awareness program to help educate the public living and working in the vicinity of a pipeline, as well as state and local emergency response personnel, public officials and excavators.

Utilities odorize natural gas

with Mercaptan — which smells similar to rotten eggs — in order to provide an added layer of safety for leak detection purposes.

According to the Common Ground Alliance, a member-driven association co-founded by AGA and dedicated to excavation damage prevention, excavation damages for all underground facilities have decreased by approximately 50% since 2004, due in large part to the work done by the pipeline industry in promoting the use of "Call 811," the national number for people to call before they begin any excavation project.

Excavation damage is the leading cause of serious pipeline accidents, but progress is being made.

Customer
Involvement is Key

While the industry has multiple safeguards in place to protect its customers, it is important that customers actively participate through these methods:

- Maintaining gas appliances and fuel lines
- Calling 811 before embarking on any excavation project
- Reporting the smell of natural gas immediately
- Being attentive to safety communications provided by utilities

Industry Action

AGA members are advancing the safety of the industry through a number of voluntary actions, such as “AGA’s Commitment to Enhancing Safety,” which outlines AGA’s and its member companies’ commitment to proactively collaborate with public officials, emergency responders, excavators, consumers, safety advocates and members of the public to continue to improve the industry’s long-standing record of providing natural gas service safely and effectively.

Safety is the core value of the natural gas distribution and transmission industry, and the industry continues to take action to further enhance the safety and reliability of its systems.

Working Together to Further Increase Safety

AGA created a Safety Alert Notification System that allows AGA or its members to quickly notify other AGA members of safety issues that require immediate attention.

National Peer Review Program

In 2014, AGA launched a national Peer Review Program through which companies receive a review, based on the observations of peer companies, focused on industry-wide safety and operational practices.

Protecting Natural Gas Systems:

Cybersecurity

Cyber threats are real and unrelenting for all critical infrastructure. The natural gas industry must continue to employ prudent policies and practices to help ensure the resiliency and safety of natural gas systems.

Cybersecurity efforts must constantly acclimate to persistently dynamic threats. Only through an environment that fosters increased operator awareness and training, enhanced government-private cybersecurity information sharing and partnership, and flexibility to deploy appropriate strategic platforms and mechanisms can operators effectively protect, detect, mitigate, respond to and recover from cyber attacks.

The Oil & Natural Gas Sector Coordinating Council Cybersecurity Working Group, chaired by AGA, is an operators' forum supported by DOE, in coordination with DHS, to promote effective cybersecurity strategies and activities, policy and communication across the oil and natural gas sector to achieve the nation's homeland security mission.

"Information sharing is a fundamental pillar of a robust cyber and physical defense effort. The DNG ISAC is tailored to address the distinct operational needs of the downstream natural gas sector and provides the technological sophistication and coordination necessary to meet the ever-changing threats of the 21st century."

Dave McCurdy
AGA President and CEO

In 2014, AGA launched the Downstream Natural Gas Information Sharing and Analysis Center.

The DNG ISAC is an online platform for sharing cyber and physical threat intelligence and tools to help further enhance the security of natural gas utilities. The DNG ISAC will help natural gas utilities share and access timely, accurate and relevant threat information as part of its continued commitment to the safe and reliable delivery of natural gas to the more than 177 million Americans who rely on it to meet their daily needs.

The Safest Energy Delivery System in the Nation

Safety is the core value for America's natural gas utilities. We take a number of steps to help maintain our longstanding record of safely and reliably delivering natural gas to homes and businesses across the nation.

Continued work with regulators and key stakeholders to help enhance industry safety.

Best Practices

AGA's member companies work together to identify and share best practices to help enhance safety and reliability.

Modernized Pipeline

Materials

In the past decade, natural gas utilities have installed updated plastic lines at a rate of **30,000 miles per year.**

Natural gas utilities spend $19 billion annually to help enhance the safety of natural gas distribution and transmission systems.

Infrastructure

Since 1990, *natural gas utilities added more than 600,000 miles of distribution and services to serve over 17 million new customers.*

+600,000 miles

Peer Review Program

In 2014, AGA launched a national Peer Review Program to further increase safety.

The dedicated efforts of natural gas utilities **over the past three decades** have led to an approximately 40% decline in pipeline incidents over the past ten years.

Information Sharing

AGA's member companies work together to identify and share best practices to enhance safety and reliability.

Investments in Infrastructure

Delivering Natural Gas Safely and Reliably.

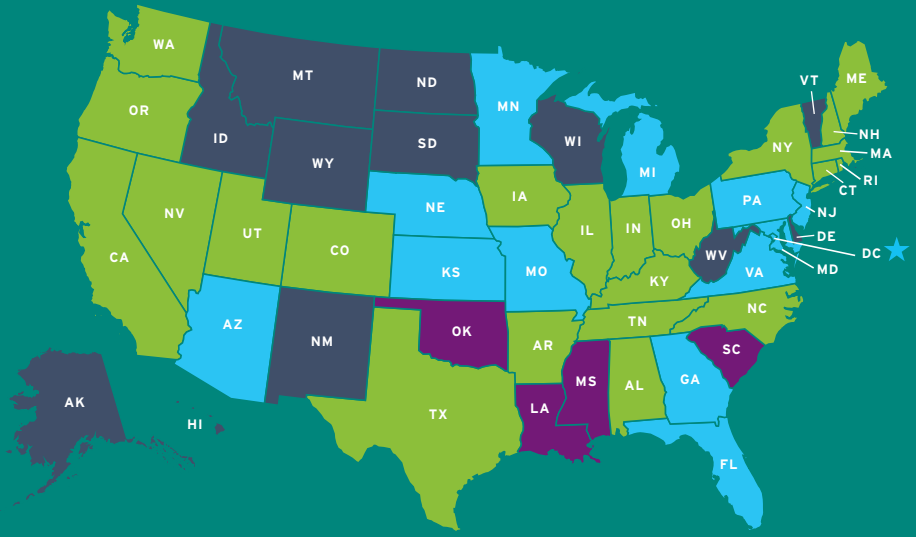
Natural gas utilities work every day to maintain the safety and reliability of their systems, investing billions in our nation's 2.4 million miles of natural gas pipeline infrastructure — the most extensive, integrated, safe and reliable in the world — which provides access to this natural resource to homes and businesses across the nation. Working with governors, legislators and state regulators around the country, utilities are developing innovative models for making these capital investments possible.

"The way we produce, transmit and distribute natural gas is changing radically here in the U.S. The natural gas industry has taken a leadership role in working with numerous stakeholders to develop world class safety protocols and provide reliable energy to millions of Americans every day. In my state, it has been a work in progress that has delivered direct benefits to consumers both in terms of affordability and reliability. The economics of natural gas are yielding huge benefits to the Commonwealth of Pennsylvania and across the nation, and leading us down a path to economic prosperity."

Robert F. Powelson
Chairman, Pennsylvania Public Utility Commission

States with Innovative

Infrastructure Cost Recovery Mechanisms



Cost Recovery Tracker (22)

Surcharge (12)

Rate Stabilization Mechanism (4)

No Cost Recovery Tracker or Surcharge (12)

** As of December 2014*

Promise Delivered

RECORD PERFORMANCE

The United States faced sustained cold and record-setting natural gas consumption during the winter of 2013-2014.

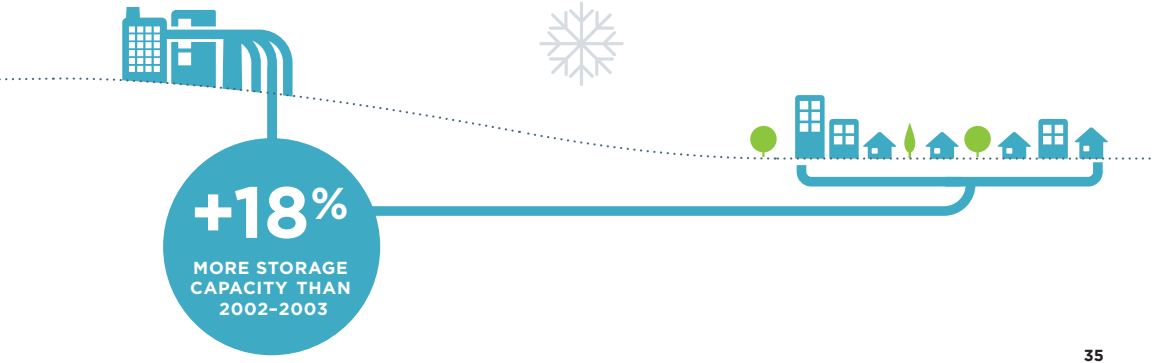
THE RESULT

Natural gas reliability was tested and across the country local utility customers continued to receive dependable service at affordable prices.

PLANNING AND PREPARATION

Natural gas utilities employ a portfolio approach to help ensure they can meet the needs of their customers at affordable prices. Through the use of natural gas storage to secure supply to firm pipeline transportation that helps ensure the demand needs of their customers can be met, utilities are prepared for the coldest day of the year every day of the year.

Natural gas is a reliable natural resource that customers can depend on to heat their homes, warm their water and cook their food.



Natural Gas and Electric System Coordination

The use of natural gas to generate electricity has grown substantially in recent years, raising some concern about potential electric reliability, specifically in areas that have insufficient pipeline infrastructure to support the gas-fired generation.

AGA and its members are working with the Federal Energy Regulatory Commission to address how electricity markets in regions with constrained pipeline systems can support investment in natural gas infrastructure to help ensure this fuel can be used to meet our nation's energy needs.

FERC is focused on:

- Information sharing among system operators
- Scheduling and nomination procedures for natural gas and electricity
- The investment environment for building infrastructure

Natural Gas Systems:
Safe and Reliable

Systematic infrastructure investments and prudent planning support enhanced safety and reliability of natural gas delivery systems. Continued technological developments also help increase the efficiency of natural gas use in homes, businesses and communities across the country. The adoption of innovative cost recovery mechanisms by public utility commissions enables utilities to accelerate the modernization of the nation's underground infrastructure delivering natural gas to homes and businesses across the nation.

38 STATES

have specific rate mechanisms that foster accelerated replacement of pipelines no longer fit for service.

Expanding the Reach

With an abundant supply of natural gas providing cost savings and environmental benefits across the nation, many states are now looking at ways to expand natural gas infrastructure so that more citizens and businesses can access this domestic fuel source.

25 STATES *have adopted or considered innovative expansion proposals, and that number continues to grow.*

American Energy

Local natural gas utilities operate an extensive and integrated pipeline system that enables the safe and reliable delivery of this foundation fuel to homes and businesses across the country, ensuring the daily energy needs of customers are met.

P46

HOT WATER

Natural gas vs. electric resistance.

P66

What's the price at the pump?

See how natural gas prices compare to gasoline at the pump.

P48

New furnace standards, what do they mean for consumers?

How much oil could we save if all 7.4 million fuel oil households in the Northeast were converted to natural gas?

P53

RAISE THE ROOF

Pop the top of the average house and see the many everyday uses for natural gas.

P42

Clean Natural Gas

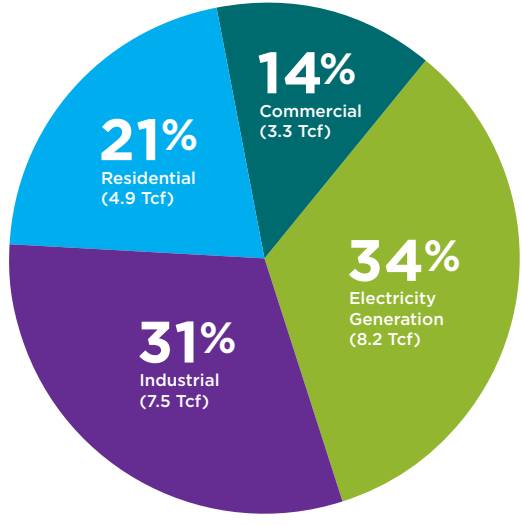
Touching Every Segment of American Life

Natural gas touches nearly every segment of American life. It is the dominant source of energy for heat, hot water and cooking in homes and businesses in the U.S. Whether through its use in heat or cooking or in manufacturing everyday products — from cell phones and credit cards to tires and trash bags — the benefits of natural gas touch **every American** every day.

The natural gas industry supports the employment of nearly 3 million Americans in all 50 states.

2013 NATURAL GAS

U.S. Consumer Consumption by Sector = 23.9 Tcf



We rely on natural gas

every day

Did You Know?

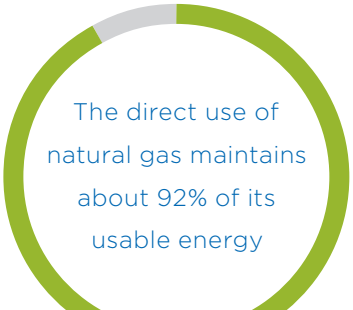
Fuel cells can generate electricity from hydrogen obtained from natural gas. Fleet vehicles and public transportation also often rely on natural gas to keep us moving.

- Water Heaters
- Cars, Trucks, Vans & SUVs
- Clothes Dryers
- Gas Ranges, Ovens & Cooktops
- Furnaces
- Fireplaces
- Standby Generators
- Lighting
- Outdoor Living Spaces

Direct Use of Natural Gas
Is the Clean, Efficient Choice

Direct use, which can cut carbon emissions nearly in half, refers to natural gas consumed directly in appliances for heating and cooling, water heating, cooking and clothes drying.

The direct use of natural gas in America's homes and businesses maintains about 92% of its usable energy, and a household with natural gas versus all-electric appliances produces 37% lower greenhouse gas emissions. Converting natural gas or any other fossil fuel into electricity to power comparable electric end-use products only maintains 32% of usable energy.



Consumers can immediately save on their monthly utility bills through converting their households to natural gas.

Natural Gas

SOURCE ENERGY	EXTRACTION, PROCESSING & TRANSPORTATION	GENERATION	DISTRIBUTION	DELIVERED TO CUSTOMER
100 MMBtu	▼7% Energy Loss 93 MMBtu	No energy conversion necessary, therefore no energy is lost	▼1% Energy Loss 92 MMBtu	92 MMBtu

Electricity

SOURCE ENERGY	EXTRACTION, PROCESSING & TRANSPORTATION	GENERATION	DISTRIBUTION	DELIVERED TO CUSTOMER
100 MMBtu	▼5% Energy Loss 95 MMBtu	▼64% Energy Loss 34 MMBtu	▼6% Energy Loss 32 MMBtu	32 MMBtu

*Based on 2009 actual generation mix of all energy sources

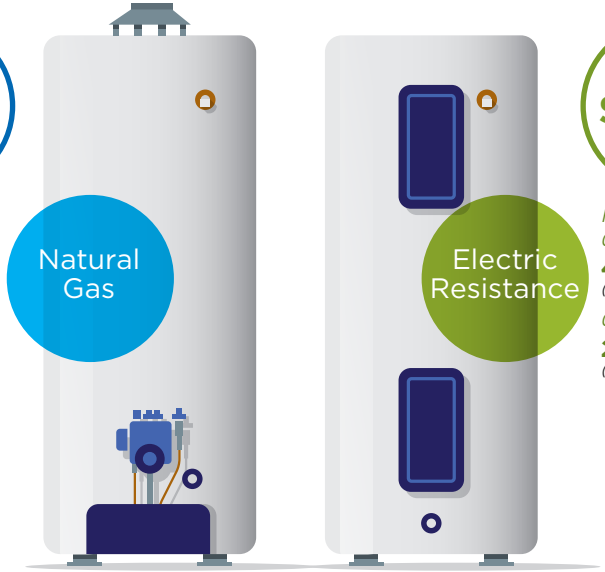
Extraordinarily Efficient

Comparing Residential Water Heater Efficiency*

*Energy Cost**
$275
(annually)

*Full-Fuel-Cycle Energy Consumption**
26.2 MMBtu
(annually)

*CO_2 Emissions**
1.5 tons
(annually)



*Energy Cost**
$576
(annually)

*Full-Fuel-Cycle Energy Consumption**
49.8 MMBtu
(annually)

*CO_2 Emissions**
2.9 tons
(annually)

*on average

"For appliances for which there is a choice of fuel, such as storage water heaters and heating equipment, efficiency ratings should be calculated using the extended site measure of energy consumption...."

Recommendation of the National Academies

Converting a water heater from electric to gas results in a 48% CO_2 emissions reduction.

In typical home appliances, the direct use of natural gas results in energy consumption that is 32% less than a similar home with all electric appliances.

Full-Fuel-Cycle Energy Comparison

Natural gas water heaters are nearly twice as efficient as electric resistance water heaters on a full-fuel-cycle energy comparison, yet the federal minimum efficiency ratings for natural gas water heaters (40 gallons) (.62 EF) and electric water heaters (50 gallons) (.95 EF) are calculated at the point of use and do not take into account the full-fuel-cycle, or journey from production to customer.

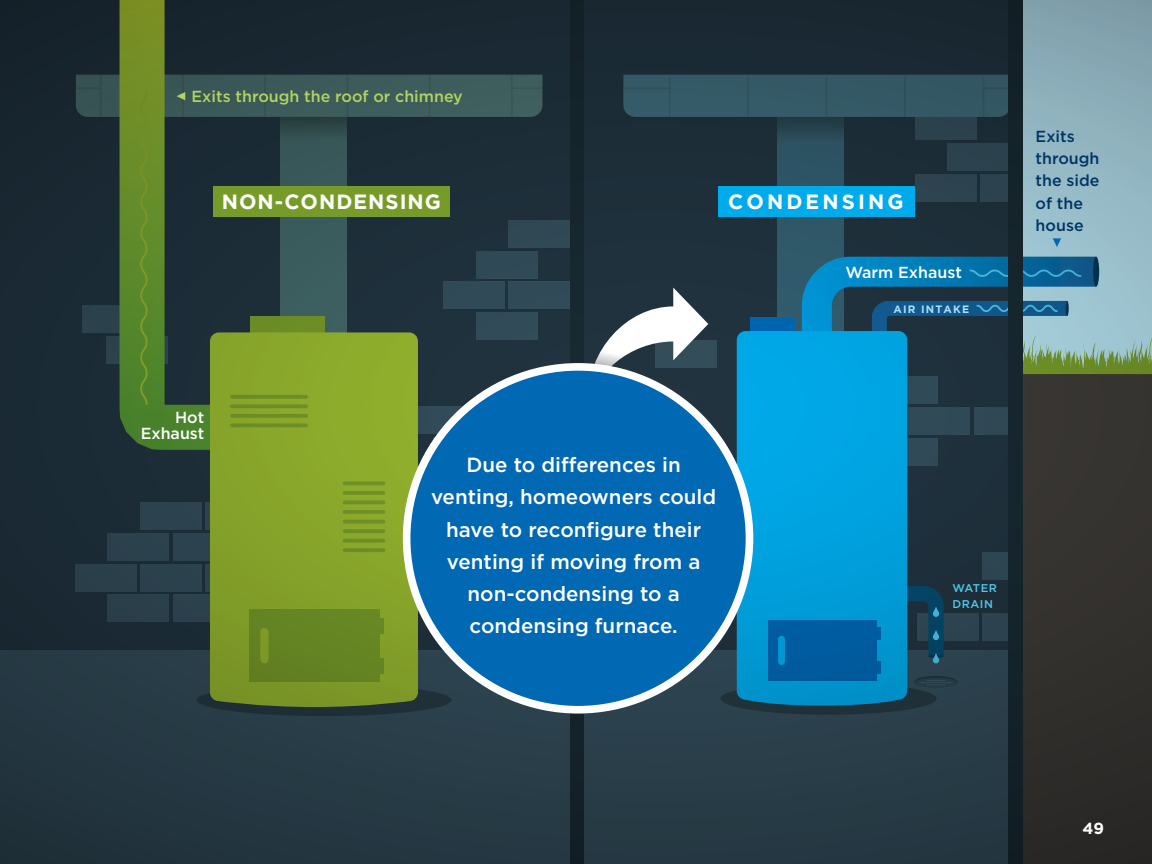
Efficient Heating

Despite its affordability, efficiency and environmental benefits, new standards by the U.S. Department of Energy could lead to switching away from natural gas to other fuels that could negatively impact consumer costs and the environment.

New standards could mean that non-condensing natural gas furnaces would become unavailable. Because of different installation requirements related to venting, moving to a condensing natural gas furnace could impose significant costs, or be incompatible with the home's characteristics. This could drive homeowners away from natural gas to alternative fuel furnaces that would be ultimately less efficient, and less cost effective.

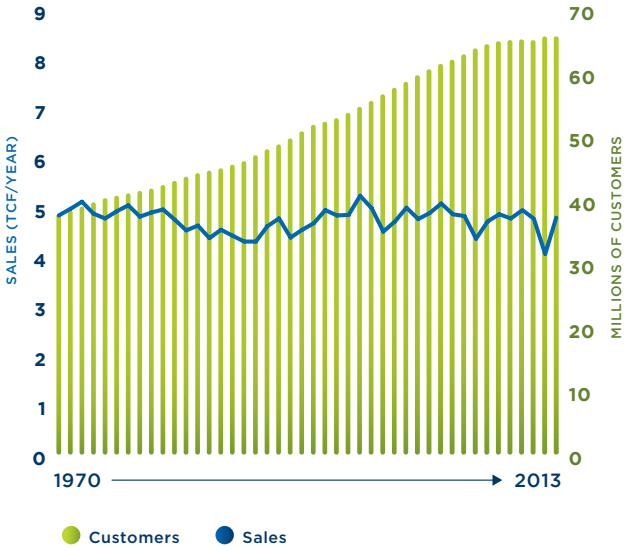
Most furnaces in the U.S. are non-condensing and vent through the roof or chimney of a home.

Condensing furnaces vent through the side of the house along with a separate water drain.


Exits through the roof or chimney
NON-CONDENSING
CONDENSING
Exits through the side of the house
Warm Exhaust
AIR INTAKE
Hot Exhaust
Due to differences in venting, homeowners could have to reconfigure their venting if moving from a non-condensing to a condensing furnace.
WATER DRAIN

Residential Natural Gas Use:

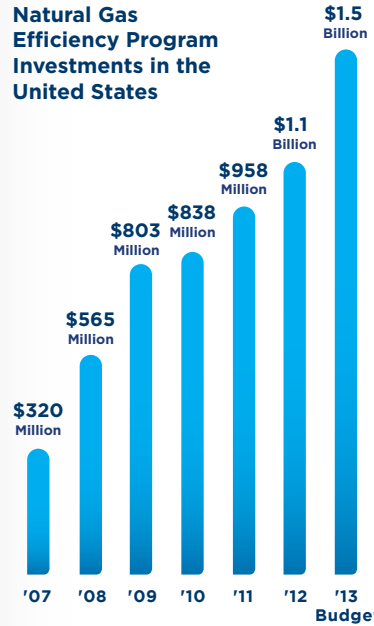
An Efficiency Success Story



Natural gas usage per household has decreased even as overall demand for energy has risen. This trend is due in part to installation of tighter-fitting windows and doors, better insulation, utility sponsored energy efficiency programs, and the development of increasingly more efficient natural gas appliances.

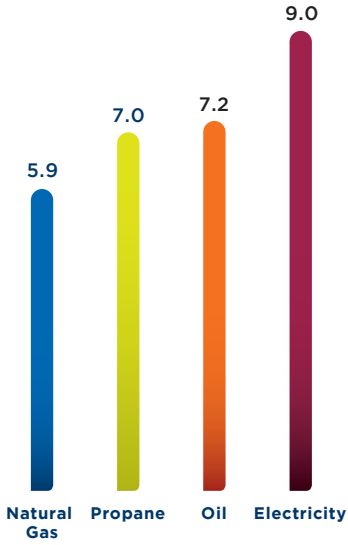
Commitment to Efficiency

Natural gas utilities continue to support efficiency programs, with investments nearing $1.1 billion in 2012 and 2013 budgets reaching $1.5 billion. Through these efficiency investments, utilities helped customers save 136 trillion Btu of energy and offset 7.1 million metric tons of carbon dioxide emissions in 2012.



Using natural gas in homes reduces greenhouse gas emissions.

Full-Fuel Cycle Greenhouse Gas Emissions of a Typical Household



Metric Tons CO_2-Equivalent per Year per Household

Fuel Oil to Natural Gas

In 2010, 7.4 million households used fuel oil for heating in the Northeast. Converting those customers to natural gas could reduce approximately 4.9 billion gallons of annual distillate fuel oil consumption, the equivalent of 0.3 million barrels of distillate fuel oil per day, which represents 2.5% of total imports.

If all 7.4 million homes in New England converted to natural gas, the fuel savings alone could potentially spur more than 30,000 new jobs in the U.S. while increasing GDP by $9 billion annually.

REDUCE OIL CONSUMPTION TO
ENHANCE ENERGY SECURITY

7.4 MILLION
fuel oil households
(Northeast)

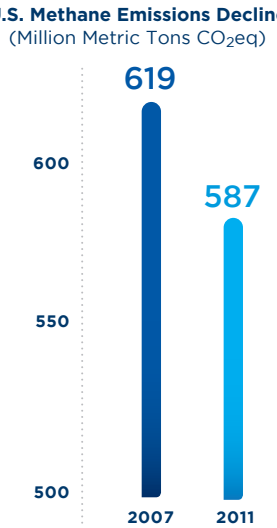
666 GALLONS
of fuel oil used
(winter)

IF CONVERTED TO NATURAL GAS

4.9 BILLION
gallons distillate reduced
***or 2.5% of imports** (winter)*

The Declining Trend of Natural Gas Emissions

Emissions from natural gas systems represent a small share of annual U.S. greenhouse gas emissions, and a concerted effort by America's natural gas utilities to upgrade and modernize our nation's pipeline network to enhance safety has contributed to a declining trend in emissions from natural gas distribution systems.



Distribution system emissions have dropped 22% since 1990

even as the industry has added more than 600,000 miles of distribution and services to serve over 17 million more customers, an increase of 30% in both cases.

Cleaner Air and Reduced Emissions

According to the Energy Information Agency and the Environmental Protection Agency, less than 1.3% of natural gas is emitted as it travels from where it is produced to the point of use in homes and businesses. Of that, less than 0.24% of produced natural gas is emitted from systems operated by local natural gas utilities.

Less than 0.24% of produced natural gas is emitted from systems operated by local natural gas utilities.

Proactive Efforts to

Reduce Emissions

In 2014, AGA's Board of Directors approved a set of voluntary guidelines that may lead to further emissions reductions.

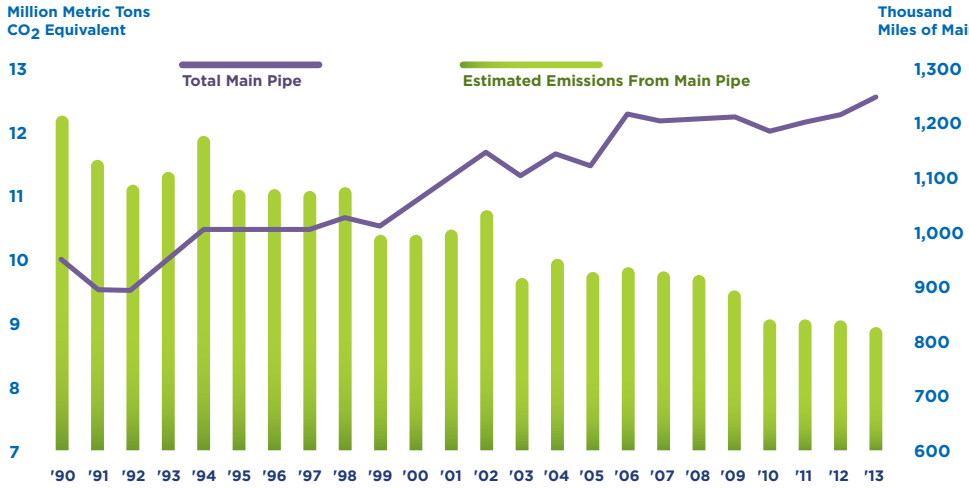
AGA has been a strong supporter of EPA's Natural Gas STAR program, a voluntary partnership that encourages natural gas companies to adopt cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions, since its inception in 1993.

According to the EPA, the 49 AGA member companies participating in the Natural Gas STAR program reduced natural emissions by 1.0 Bcf in 2012 and a total of 45.4 Bcf since 1993.

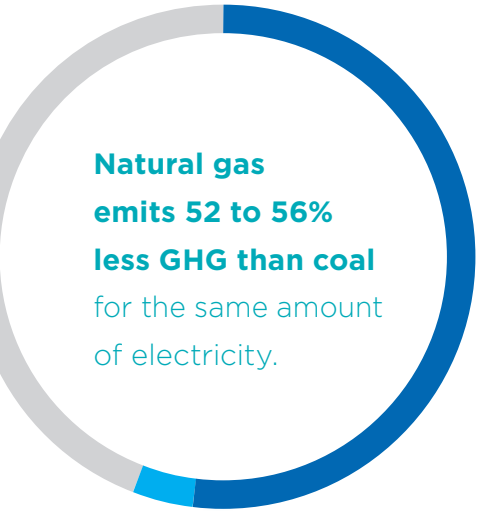
AGA has been a strong supporter of EPA's Natural Gas STAR program since its inception in 1993.

The natural gas industry is actively engaged in science-based analyses to help improve the quality of data publically available regarding natural gas emissions to help ensure an understanding of the valuable role this fuel will play in our nation's clean and secure energy future.

Emissions Have Declined Even as Pipelines Have Expanded



Replacing pipelines with protected steel and plastic materials can reduce emissions more than 95%.



Natural Gas is a

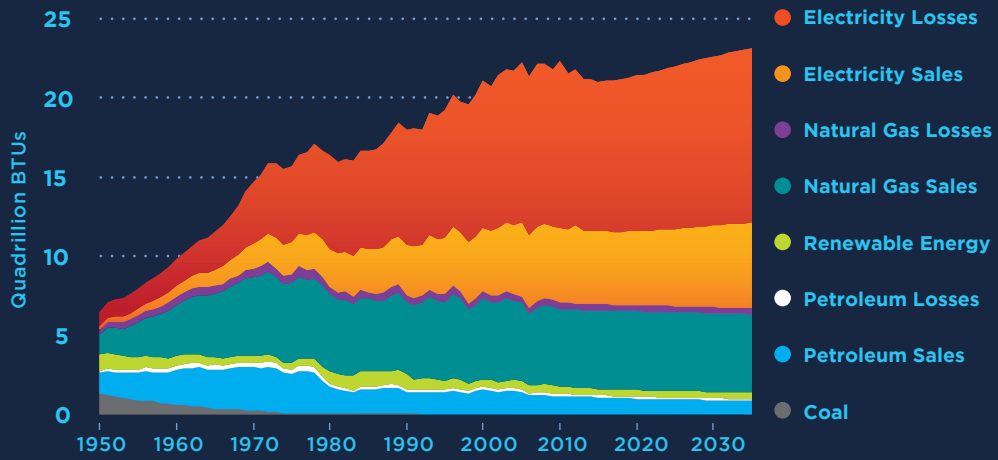
CLEANER
Generating Choice

- In 2013, natural gas accounted for more than 27% of electricity generation in the U.S.
- Based on EPA estimates, electric generation total greenhouse gas emissions per MMBtu of natural gas consumed on a CO_2-equivalent basis were 129 pounds, compared with 212 pounds for coal.
- Due to the higher efficiency of natural gas combined cycle generation compared with coal-fired boilers, natural gas emits 52 to 56% less GHG than coal for the same amount of electricity.
- While the benefits of natural gas are significant, AGA supports a portfolio approach for generation to help address and find balanced solutions for the energy challenges facing our nation.

Efficient Energy Use

Residential Energy Consumption

Expanding the direct use of natural gas in homes and businesses can reduce the energy lost in the generation and distribution of electricity.



Source: U.S. Department of Energy, Energy Information Administration

Combined Heat & Power
Technologies

Combined Heat and Power (CHP) is an efficient and clean approach to generate electric power and useful thermal energy from a single source.

Combined heat and power (CHP) technologies, using American energy, labor and knowledge, generate electricity and capture useful heat simultaneously to increase the overall efficiency of an energy system.

An Executive Order

put in place by President Obama in 2012 directed the U.S. Department of Energy and the U.S. Environmental Protection Agency to support and coordinate a national goal of adding 40GW of combined CHP applications by 2022.

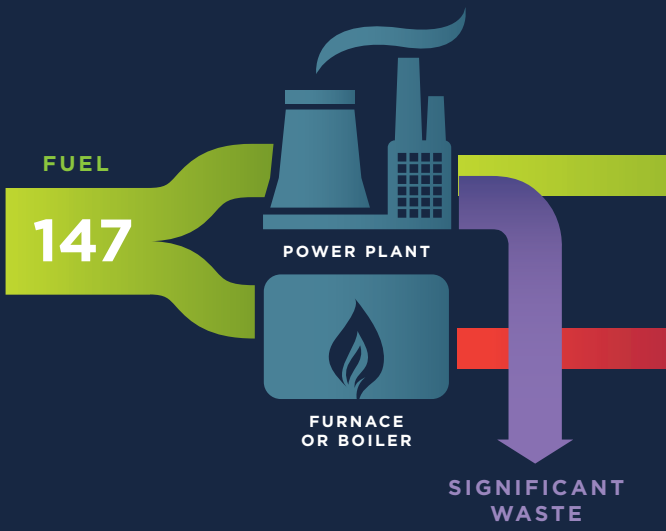
This achievable target would increase total CHP in the market to 122GW and result in:

- Billions of dollars in new capital investment in American manufacturing and facilities, resulting in savings of at least $100 billion for manufacturers.
- Annual savings to energy users of $10 billion compared to current energy use.
- Additional annual energy savings of about 1 quadrillion Btu of energy.
- Annual reduction of 150 million metric tons of CO_2 — the equivalent to removing 25 million cars from the road.

Natural gas is the preferred fuel choice for CHP systems that reliably serve the energy needs of commercial and industrial facilities at costs up to 50% less than traditional, separate production of electricity and heat.

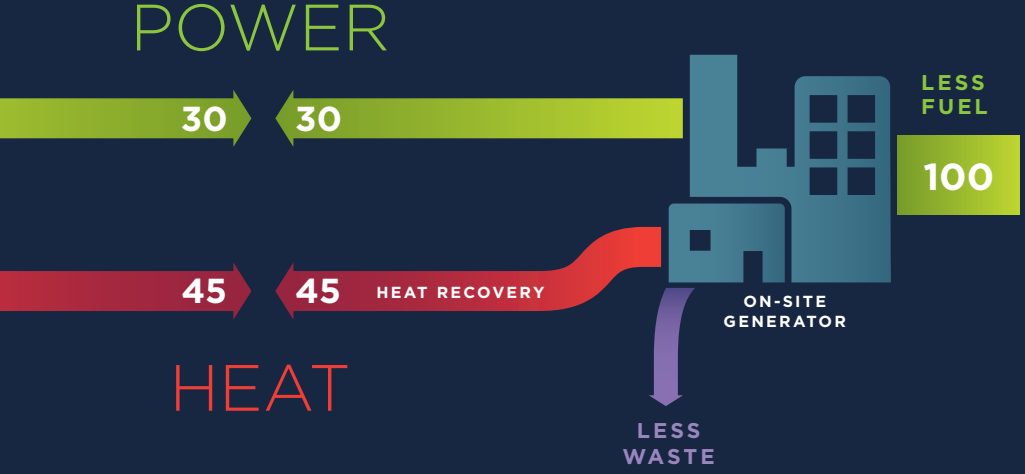
Separate Production of Electricity and Heat

TOTAL EFFICIENCY: **51%**



Combined Heat and Power Systems

TOTAL EFFICIENCY: **75%**



Natural Gas

Increasing America's Energy Security

The use of natural gas for transportation is seeing exponential growth, which can offer significant long-term cost savings for drivers, contribute to greater use of American energy, greater energy security and cleaner air.

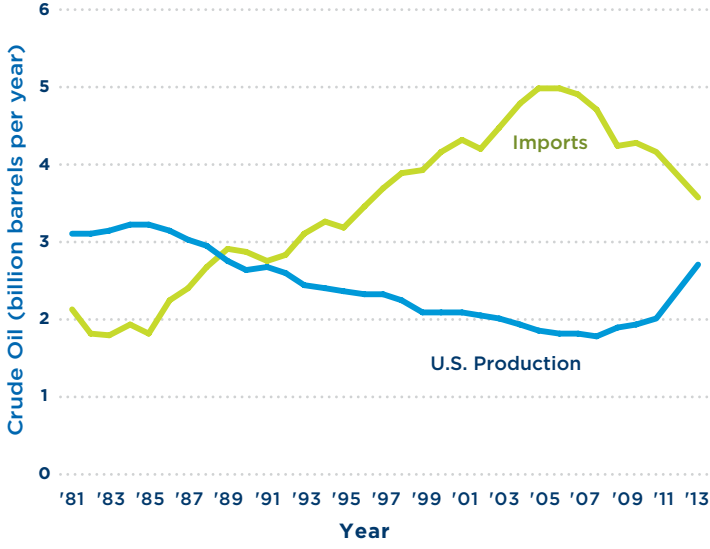
NGVs produce 20 to 30% fewer tailpipe emissions than today's gasoline vehicles.

"Companies are looking for alternatives to reduce carbon output and fuel costs and meet their environmental objectives. Natural gas offers an option to meet all of these goals: it's cost effective, clean and, equally important, domestically produced."

Scott Perry

Vice President of Supply Management, Ryder System, Inc.

Our dependence on foreign oil still outpaces domestic production.



Last year, the United States imported 1.5 billion barrels of oil from dangerous, unstable nations.

Sources: U.S. Energy Information Administration, U.S. Department of State

The Benefits of Converting are Clear

With frequent use and a return-to-base routine, fleet vehicles have a great deal to gain from a conversion to natural gas, which is about 50% less expensive than an equivalent gallon of gasoline.

Communities and businesses across the nation are turning to NGVs to improve local air quality and improve the bottom line for their budgets. A number of governors have signed a Memorandum of Understanding seeking to use NGVs in their fleets, working to help stimulate the economy by creating jobs and providing an environmentally friendly and affordable transportation fuel alternative.

What it would cost to convert your fleet?

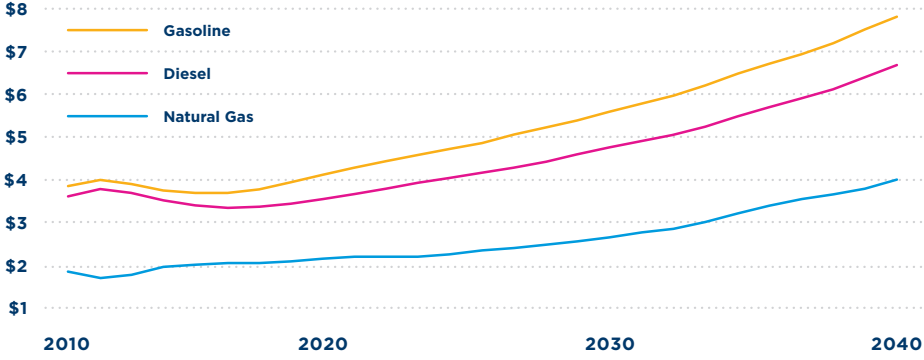
Calculate the payback period for converting a fleet to natural gas.

www.aga.org/fleetsavings

Affordable and Stable

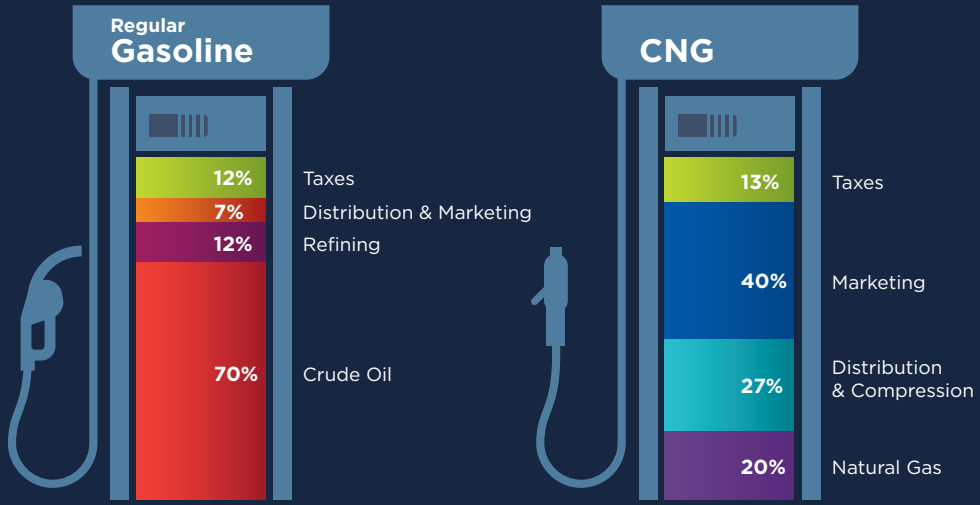
In recent years, natural gas for vehicles costs about 50% less than gasoline and about 60% less than diesel, on average, a price advantage that is expected to remain stable for some time due to our nation's abundant supply.

Projected Fuel-Price Differentials



Source: U.S. Energy Information Administration (2014)

Price at the Pump



Source: U.S. Energy Information Administration

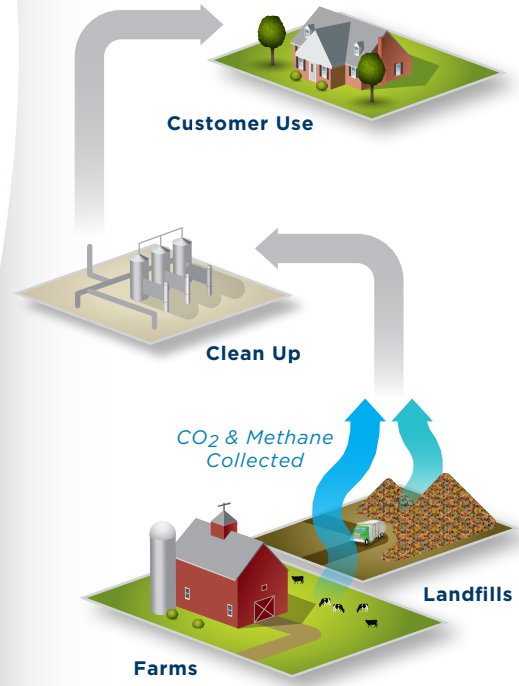
Source: General Electric, Rethinking Your Transportation Equation

Natural Gas

It's Renewable, Too

Renewable gas is natural gas or biomethane produced from existing waste streams and a variety of renewable and sustainable biomass sources, including animal waste, landfills, crop residuals and food waste. Once processed, it is interchangeable with traditional pipeline-quality natural gas. It is carbon neutral, extremely versatile and can be fully compatible with the U.S. pipeline infrastructure.

An analysis conducted by the Gas Technology Institute in 2011 determined that renewable gas has the potential to add up to 2.5 quadrillion Btu annually — enough to meet the natural gas needs of half of all American homes.



Terry McCallister
helps pile some of the garbage and recyclables he, company employees and AGA staff cleared from Four Mile Run Park in Arlington, Virginia.

Natural Gas
In Your Community

Natural gas utilities serve more than 177 million Americans and are a true partner in the communities they serve. Many utilities have served their customers for more than 100 years.

The Low Income Home Energy Assistance Program (LIHEAP) is a block grant program under which the federal government gives states annual grants to operate home energy assistance programs. This important program helps the most vulnerable utility customers pay their energy bills, enabling them to keep their homes warm, cook their food and have access to hot water. AGA and its members advocate for resources to protect those in need.

In 2013, AGA launched a $1 million scholarship program, which will provide funding over five years to students focused on fields related to energy.

Natural Gas Utilities

A Solid Investment

Reliable dividends are a cornerstone of the natural gas utility industry and a fundamental driver for investment in utilities. In addition to direct shareholders, lower dividend tax rates also benefit tens of millions of Americans who own stock indirectly through mutual funds, and positively affect the value of stock held in IRAs, pension funds and 401(k) plans.

Natural gas utilities make long-term investments and need long-term tax policies in place to help ensure that they can bring value to their dividend holders, their investors and their customers. AGA has advocated consistently for low dividend tax rates. In January of 2013, Congress passed the American Taxpayer Relief Act, making permanent low tax rates for dividends and maintaining parity between dividends and capital gains. This helps create a level playing field and allows investors to make decisions rather than creating a tax-code-driven bias for one over the other.

Sound tax treatment for dividends allows access to capital utilities need to continue to make long-term investments in the energy infrastructure that will serve as the foundation for our nation's economic prosperity over the coming decades.

GASFX

The Hennessy Gas Utility Index Fund (GASFX) comprises the publicly traded natural gas distribution and transmission member companies of AGA, whose common stock, or parent company's common stock, is traded on a United States stock exchange.

Natural gas utilities are a regulated industry and are governed by a rate base set at the state or local level. Local natural gas utilities do not earn a profit on the natural gas commodity – the price they pay for natural gas is the price they charge customers. Local natural gas utilities only earn a financial return on the delivery service they provide to customers.


Natural
Gas 101

P**77**

WHAT IS 1 MCF

AND WHAT DOES IT GET US?

P**73**

Today's natural gas began millions of years ago as microscopic plants and animals.

Learn how natural gas is delivered to your house.

P**74**

Natural Gas

The Earth's Cleanest Fossil Fuel

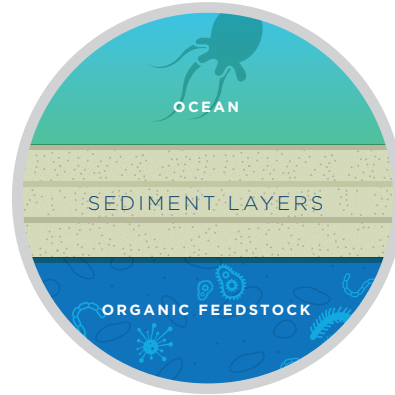
Natural gas is composed of four hydrogen atoms and one carbon atom (CH_4 or methane); natural gas is the earth's cleanest fossil fuel and is colorless and odorless in its natural state.

Origin

Much of the natural gas we find and use today began as microscopic plants and animals living in shallow marine environments millions of years ago. As living organisms, they absorbed energy from the sun, which was stored as carbon molecules in their bodies. When they died, they sank to the bottom of the sea and were covered by layer after layer of sediment. As this organic feedstock became buried deeper in the earth, heat, combined with the pressure of compaction, converted some of the biomaterial into natural gas.

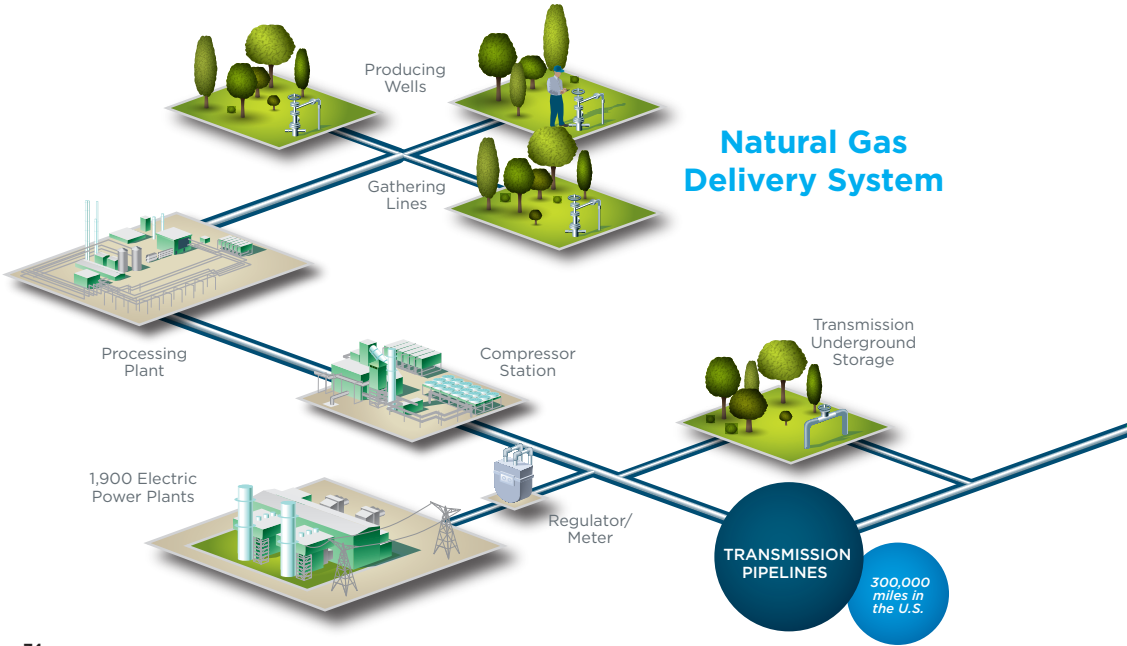
Migration

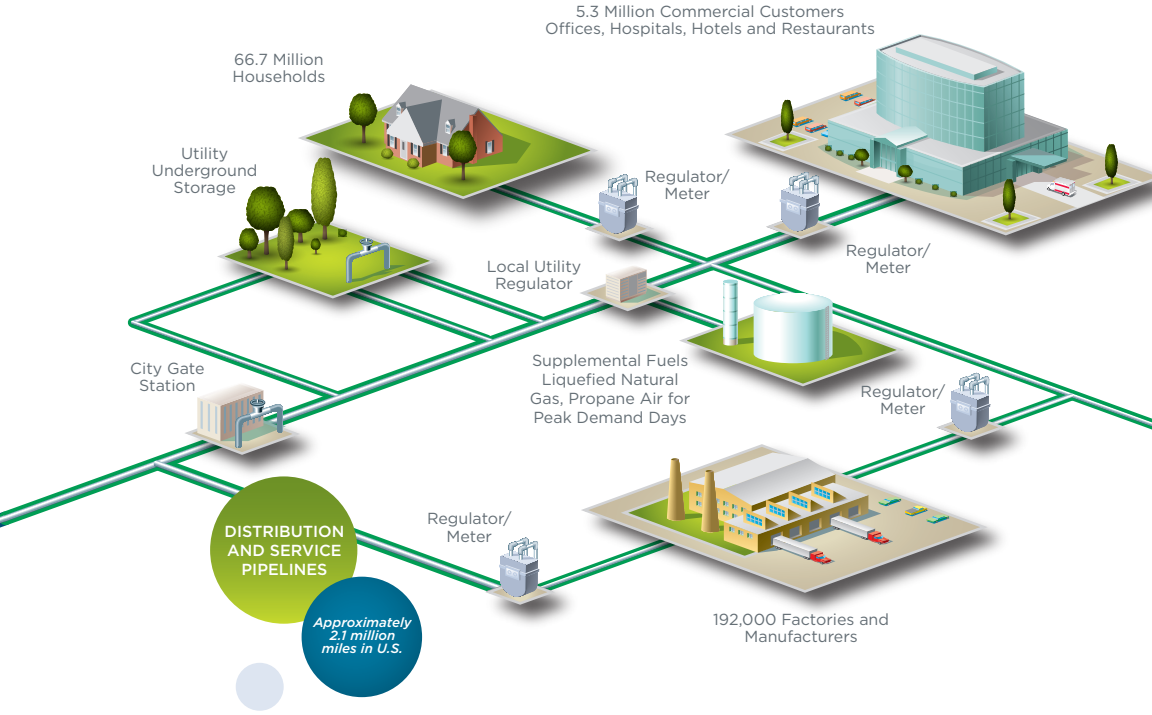
Once natural gas has been generated in nature, it tends to migrate within the sediments and rocks in which it was created, using the pore space, fractures and fissures that occur naturally in the subsurface. Some natural gas actually makes it to the surface and shows up in seeps, while other gas molecules travel until they are trapped or impeded by impermeable layers of rock, shale, salt or clay. These trapped deposits are the reservoirs where we find natural gas today.



Natural Gas

Getting It to Homes and Businesses and to Work for America




5.3 Million Commercial Customers
Offices, Hospitals, Hotels and Restaurants
66.7 Million
Households
Utility
Underground
Storage
Regulator/
Meter
Regulator/
Meter
Local Utility
Regulator
Supplemental Fuels
Liquefied Natural
Gas, Propane Air for
Peak Demand Days
Regulator/
Meter
City Gate
Station
DISTRIBUTION
AND SERVICE
PIPELINES
Approximately
2.1 million
miles in U.S.
Regulator/
Meter
192,000 Factories and
Manufacturers

Measuring Natural Gas

The amount of natural gas consumed by an entire country or a single home appliance can be measured in several different ways.

Energy Content

The energy content or the heating value (i.e., the potential heat that can be generated) from natural gas and other energy sources is measured in **British thermal unit, called "Btu,"** or in **"therm."** Typically, the monthly bills of natural gas customers show the number of therms consumed.

Quantity

Quantities of natural gas are usually described in **standard cubic feet (scf or in short, cf)**. Typical natural gas contracts are based on a price of 1 million Btus (1 MMBtus) or 10 therms, which is the heating value of approximately 1,000 cubic feet (1 Mcf) of natural gas. Typical natural gas contracts are made for a minimum of 10,000 MMBtus, which is approximately 10 million cubic feet (10 MMcf) of natural gas.

Here are some frequently used units for measuring natural gas:

1 cubic foot (cf) *= 1,025 Btu*

100 cubic feet (1 Ccf) *= 1 therm (approximate)*

1,000 cubic feet (1 Mcf) *= 1,025,000 Btu (1 MMBtu)*

1,000 cubic feet (1 Mcf) *= 1.025 dekatherm*

1 million (1,000,000) cubic feet (1 MMcf) *= 1,025,000,000 Btu*

MMBtu *= 1 million Btu*

*This is an average heating value of natural gas in the U.S. for 2014, published by U.S. Energy Information Administration. Actual heating value may differ depending on gas composition.

Direct Gas Utilization

4.6 Days
of space heat

warming a home to 65°F where average temperature is 45°F

Generating Electricity

24.36 Days
of hot water

from a 50-gallon electric water heater

What does 1 MCF 1,000 cubic feet of natural gas provide?

Fueling Vehicles

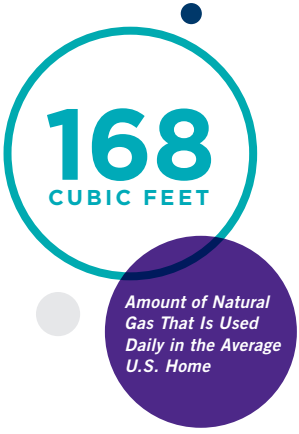
24 Miles
2012 transit bus on CNG

276 Miles
2012 natural gas Honda Civic

Producing Fertilizer

63 Pounds
of ammonia

producing enough fertilizer for 1/2 acre of corn



Natural Gas Usage in
The Average Household

- 1,000 cubic feet of natural gas is approximately enough to meet the natural gas needs of an average home (space heating, water heating, cooking, etc.) for five days.
- In 2012, the average U.S. home consumed 61,200 cubic feet of natural gas (or 62.7 million Btu). On a daily basis, the average U.S. home used 168 cubic feet of natural gas.

Looking at larger quantities:

- 1 billion cubic feet (Bcf) of natural gas is approximately enough to meet the needs of about 14,000 American homes for one year.
- 5 trillion cubic feet (Tcf) of natural gas is enough to meet the needs of 5 million households for 15 years.

The American Gas Association (AGA), founded in 1918, represents more than 200 local natural gas utilities that deliver natural gas to 177 million Americans nationwide. In addition, AGA's broader membership includes natural gas pipelines, Canadian local distribution companies, natural gas gatherers, marketers and storage companies, and more than 350 associate members who provide critical products and services to the natural gas industry.

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Contacts

PRESIDENT & CEO

Dave McCurdy

FEDERAL AFFAIRS

George Lowe, *Vice President*
glowe@aga.org

STATE & GOVERNMENT RELATIONS

Kyle Rogers, *Vice President*
krogers@aga.org

OPERATIONS & ENGINEERING

Christina Sames, *Vice President*
csames@aga.org

COMMUNICATIONS

Jennifer O'Shea, *Vice President*
joshea@aga.org

POLICY

Lori Traweek,
Senior Vice President & COO
ltraweek@aga.org

Kathryn Clay,
Vice President, Policy Strategy
kclay@aga.org

REGULATORY AFFAIRS

Andrew Soto, *Vice President*
asoto@aga.org

POLICY ANALYSIS

Christopher McGill, *Vice President*
cmcgill@aga.org

OFFICE

400 North Capitol Street, NW
Suite 450
Washington, D.C. 20001
(202) 824-7000

Members*

- AGL Resources, Inc.
  - Atlanta Gas Light
  - Chattanooga Gas
  - Elizabethtown Gas
  - Elkton Gas
  - Florida City Gas
  - Nicor Gas
  - Virginia Natural Gas Inc.
- Algonquin Power & Utilities Corp.
  - Liberty Utilities
- Allete
  - Superior Water, Light & Power Co.
- Alliant Energy
  - Interstate Power & Light Co.
  - Wisconsin Power & Light Co.
- AltaGas Ltd.
  - AltaGas Utilities
  - ENSTAR Natural Gas Co.
  - SEMCO Energy, Inc.
- Ameren Corp.
  - Ameren Illinois
  - Ameren Missouri
- Appalachian Natural Gas Distribution
  - Bluefield Gas Co.
- Arkansas Oklahoma Gas
- Atmos Energy Corp.
- Avista Corp.
  - Avista Utilities
- Bath Electric, Gas & Water Systems
- Berkshire Hathaway Energy
  - MidAmerican Energy Company
  - NV Energy
- Black Hills Corp.
  - Cheyenne Light, Fuel & Power
- CenterPoint Energy
- Chesapeake Utilities Corp.
  - Central Florida Gas Division
  - Chesapeake Utilities
  - Eastern Shore Natural Gas Co.
  - Florida Public Utilities Co.
  - Sandpiper Energy
- Citizens Energy Group
- City Gas Co.
- City of Charlottesville, Public Utilities Div.
- City of Corpus Christi
- City of Las Cruces
- City of Richmond Dept. of Public Utilities
- City of Rocky Mount
- City of Safford Utilities
- Clarke-Mobile Counties Gas District
- Clearwater Gas System
- CMS Energy Corp.
  - Consumers Energy
- Colorado Springs Utilities
- Consolidated Edison, Inc.
  - Consolidated Edison Co. of NY, Inc.
  - Orange & Rockland Utilities, Inc.
- Corning Natural Gas Corp.
  - Leatherstocking Gas Co. LLC
- CoServ Gas, Ltd.
- CPS Energy
- Delta Natural Gas Co., Inc.
- Dominion Energy
- DTE Energy
  - Citizens Gas Fuel Co.
  - DTE Gas Co.
- Duke Energy Corp.
- Easton Utilities
- Empire District Electric Co.
- Entergy Corp.
  - Entergy Gulf States Louisiana, LLC
  - Entergy New Orleans, Inc.
- Exelon Corp.
  - BGE
  - PECO Energy
- Fairbanks Natural Gas
- Fort Pierce Utilities Authority
- Fortis Inc.
  - Central Hudson Gas & Electric Corp.
  - FortisBC Natural Gas
  - UNS Energy
- Gainesville Regional Utilities
- Gas Natural, Inc.
  - Bangor Natural Gas
  - Brainard Gas
  - Cut Bank Gas Co.
  - ENERGY WEST Montana
  - ENERGY WEST Wyoming
  - Frontier Natural Gas
  - Northeast Ohio Natural Gas
  - Orwell Natural Gas
- Greenville Utilities
- Greenwood Commissioners of Public Works
- HAWAI'I GAS
- Henderson Municipal Gas
- Holyoke Gas & Electric
- Iberdrola
  - Maine Natural Gas
  - New York State Electric & Gas Corp.
  - Rochester Gas & Electric Corp.
- Illinois Gas Co.
- Integrys Energy Group
  - Michigan Gas Utilities
  - Minnesota Energy Resources
  - North Shore Gas
  - Peoples Gas
  - Wisconsin Public Service

** AGA's U.S. Natural Gas Utility Members as of January, 2015*

KNG Energy
Knoxville Utilities Board
Lumberport-Shinnston Gas Co., Inc.
MDU Resources Group, Inc.
- Cascade Natural Gas Corp.
- Great Plains Natural Gas Co.
- Intermountain Gas Co.
- Montana-Dakota Utilities Co.

Memphis Light, Gas & Water Div.
Metropolitan Utilities Dist.
MGE Energy, Inc.
- Madison Gas & Electric Co.

Middle Tennessee Natural Gas Utility District
Mobile Gas Service Corp.
Mountaineer Gas Co.
Mt. Carmel Public Utility Co.
National Fuel Gas Co.
- National Fuel Gas Distribution Corp.

National Grid
Natural Gas Processing Co.
- Wyoming Gas Co.
- Zia Natural Gas Co.

New Jersey Resources
- New Jersey Natural Gas Co.

NiSource Inc.
- Columbia Gas of Kentucky, Inc.
- Columbia Gas of Maryland, Inc.
- Columbia Gas of Massachusetts
- Columbia Gas of Ohio, Inc.
- Columbia Gas of Pennsylvania, Inc.
- Columbia Gas of Virginia
- NIPSCO

Northeast Utilities
NorthWestern Energy
NW Natural
Oak Ridge Utility District
Ohio Valley Gas Corp.
Okaloosa Gas District
ONE Gas Inc.
- Kansas Gas Service
- Oklahoma Natural Gas
- Texas Gas Service

Peoples Natural Gas
Pepco Holdings, Inc.
- Delmarva Power

PG&E Corp.
- Pacific Gas & Electric Co.

Philadelphia Gas Works
Piedmont Natural Gas Company, Inc.
- Nashville Gas Co.

PPL Corporation
- LG&E – KU

PSEG
- Public Service Electric & Gas Co.

Puget Sound Energy
Questar Corp.
- Questar Gas Co.

RGC Resources
- Roanoke Gas Co.

Richmond Utilities Board
San Diego Gas & Electric Co.
SCANA Corp.
- PSNC Energy
- South Carolina Electric & Gas

SourceGas LLC
- SourceGas Arkansas, Inc.

South Jersey Industries, Inc.
- South Jersey Gas Co.

Southern California Gas Co.
Southwest Gas Corp.
Southwestern Virginia Gas Co.
Summit Utilities, Inc.
- Colorado Natural Gas, Inc.
- Summit Natural Gas of Maine, Inc.
- Summit Natural Gas of Missouri, Inc.

TECO Energy, Inc.
- New Mexico Gas Co.
- TECO Peoples Gas

Terrebonne Parish Consolidated Government
The Energy Cooperative
The Laclede Group, Inc.
- Alagasco
- Laclede Gas Co.
- Missouri Gas Energy

UGI Corp.
- UGI Central Penn Gas, Inc.
- UGI Penn Natural Gas
- UGI Utilities, Inc.

UIL Holdings Corp.
- Berkshire Gas Co.
- Connecticut Natural Gas Corp.
- Southern Connecticut Gas Co.

Union Oil & Gas Inc.
Unitil
- Fitchburg Gas & Electric Light Co.
- Northern Utilities, Inc.

Valley Energy
Vectren Corp.
Vermont Gas Systems, Inc.
Westfield Gas & Electric Light Co.
WGL Holdings, Inc.
- Washington Gas Light Co.

Wisconsin Energy Corp.
- We Energies

Xcel Energy Inc.

American Gas Association

www.aga.org

The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 72 million residential, commercial and industrial natural gas customers in the U.S., of which 94 percent — over 68 million customers — receive their gas from AGA members. Today, natural gas meets more than one-fourth of the United States' energy needs.