

The Growing Importance of Natural Gas

The natural gas industry is experiencing a revolution. Fueled by advances in drilling technology, natural gas has become an abundant energy source and is quickly becoming America's domestic energy solution. In fact, it is believed that we now have a 100-year supply in the U.S. – even with increasing demand.¹

Recent changes in the natural gas industry have significant implications in the way individuals and businesses consume energy and view energy independence in America. In this paper, we provide an overview of this transformation and offer a glimpse of the impact on the U.S economy.

Executive Summary

Natural gas is undergoing a revolutionary transformation. Due to advances in drilling technology, vast amounts of the commodity have been unlocked. With a 100-year supply within the U.S. borders and under America's control, natural gas is quickly replacing other fossil fuels as America's energy source of choice.

In just a few years, demand has risen appreciably and is expected to continue to do so for decades to come. Natural gas is environmentally friendly, relatively inexpensive and has wide application in American commerce. Demand drivers are far-reaching and include numerous industries and initiatives. Currently, natural gas is making headway as a replacement for coal in power generation. Captive truck fleets and buses are turning to natural gas for its environmental and cost advantages relative to gasoline and diesel. Even the maritime and railroad industries are exploring operating ships and locomotives using natural gas rather than diesel fuel.

With abundant supplies available, America has the opportunity to be energy independent and become a net exporter of natural gas. Natural gas has enabled America to rethink its energy needs, and numerous changes sparked by technological advances across multiple industries are underway.

We believe that we are currently in the early stages of a major energy transformation in the U.S. and that natural gas will play a primary role over the next several decades.



NATURAL GAS – AMERICA’S ENERGY SOURCE OF CHOICE

Due to advances in drilling technology over the past few years, vast reserves of natural gas have been found in the United States. This discovery has significant implications for the usage of natural gas as compared to other fuel sources and paves the way for natural rising demand. With an estimated supply of over 100 years within U.S. borders, the possibilities for natural gas to transform domestic energy consumption are far-reaching.¹

Three Important Advantages

I. ENVIRONMENTALLY FRIENDLY

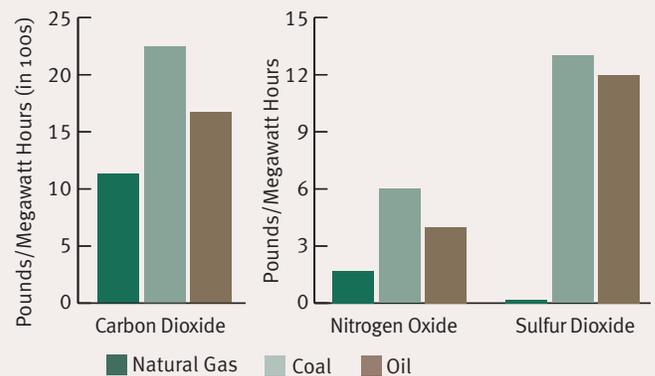
The environmental impact of America’s various energy sources causes much debate with regard to global warming, natural climate change and potential contributing factors caused by burning fossil fuels. Compared to coal and oil, natural gas offers important environmental advantages:

- 1. Less Carbon Dioxide** - Natural gas as a fuel source is much “greener” than alternative fossil fuels. A byproduct of the combustion of fossil fuels is carbon dioxide (CO₂). Burning any organic matter will emit levels of CO₂, but the amounts vary widely. When used as fuel, natural gas produces roughly half as much CO₂ as coal and 32% less than oil, according to the Environmental Protection Agency (EPA).
- 2. Fewer Pollutants** - In addition to emitting lower levels of CO₂, natural gas emits far fewer pollutants into the air. Burning natural gas produces less than 1% of the amount of sulfur dioxide compared to coal or oil.

Sulfur dioxide is a major pollutant that has been linked to respiratory disorders and heart disease. Additionally, natural gas emits less than half the amount of nitrogen oxide (the main component of smog) of oil and less than a third than that of coal.

POLLUTANT EMISSIONS FROM FOSSIL FUEL COMBUSTION

The combustion of natural gas emits far fewer harmful chemicals than the burning of coal or oil.



Source: U.S. EPA, eGRID 2000

II. LOWER RELATIVE COST DRIVES NEW INITIATIVES

Due to abundant reserves within U.S. borders, natural gas has seen a steady decline in price and is often less expensive than equivalent units of alternative fuels.

After years of having closely aligned prices, natural gas has become a less expensive energy source relative to crude oil. The disparity in price began in 2005 and by 2012, Brent crude oil was approximately seven times the price of natural gas on an energy equivalent basis, according to the U.S. Energy Information Administration (EIA). Because of the growing supplies of natural gas, the EIA expects this gap to continue for the next few decades.

Not only is natural gas priced lower than oil, natural gas is also less expensive in the U.S. compared to many other countries. In fact, even after shipping, natural gas has been about three times cheaper than it is in Europe, and about four times less expensive than natural gas in Asia.² Both of these regions represent a huge potential market for U.S.-based exporters.

III. THE POSSIBILITY OF ENERGY INDEPENDENCE

The vast supply of the natural gas within U.S. borders may provide America the opportunity to become energy independent and less reliant on politically unstable countries for its energy needs. For example, while the U.S. has significant oil reserves, the OPEC countries, including Iran, Iraq and Venezuela, still dominate oil production. As such, these nations have a significant influence on oil prices. A natural gas-based economy can allow America the opportunity to control its own energy destiny.

THE NATURAL GAS PRICE ADVANTAGE

The U.S. appears to have an economic advantage as it relates to natural gas, as it sells for much less in the U.S. than in many other countries, including Japan and Europe.



Source: World Bank



NEW DEMAND INITIATIVES

Because of the advantages that natural gas offers, it has quickly become the energy source of choice for many applications. In fact, we believe we are only at the beginning of a long-term secular trend that favors natural gas over alternative fuels. Many industries, including transportation and shipping, are turning to natural gas to increase efficiency and operate at a lower cost. Soon the U.S. will be at the stage where natural gas can be exported to Europe and Asia.

Technological advances seem to favor the use of natural gas and the possibilities are vast. The following provides a brief overview of select applications that are quickly transforming the way we use natural gas in the United States.

1. POWER PLANTS: One of the largest demand drivers for natural gas is its application as a fuel source for power plants due to its lower relative costs. From 2013-2017, the EIA estimates that there will be approximately 240 new natural gas-powered plants built as opposed to only 11 new coal powered plants. When comparing the number of new plants to retired plants, this results in a change of 89 new natural gas powered plants compared to a loss of 180 coal-fired plants during the five-year period. The shift to natural gas follows a trend that occurred from 2002 through 2012, during which time the number of power plants fueled by coal dropped by 76 plants while 65 new natural gas plants were built.

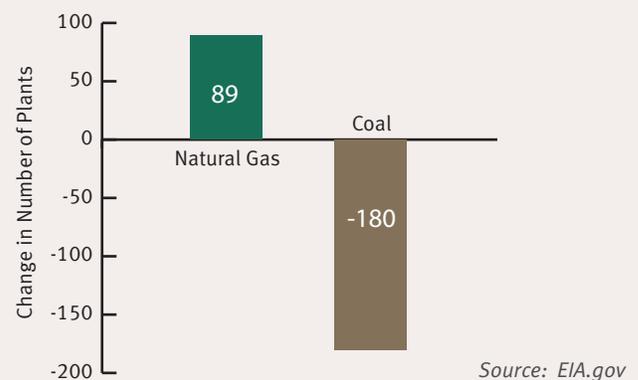
2. EXPORTATION: Despite the surge in natural gas production and at least a century's worth of supply within U.S. borders, America is currently a net importer of natural gas.

However, with the price of natural gas being less expensive even after shipping in the U.S. as compared to prices in Europe and Asia, this dynamic is about to change. As the U.S. natural gas industry becomes more developed, production should increase to not only satisfy domestic demand but allow the U.S. to export natural gas in liquefied form (LNG). It is estimated that the U.S. could become a net exporter of natural gas as early as 2020.¹

In order to be exported, natural gas must be transformed into LNG and shipped abroad in large tankers. However, some political hurdles, such as Free-Trade Agreements (FTA), need to be considered before exportation becomes

PROJECTED NUMBER OF NET POWER PLANT ADDITIONS/RETIREMENTS, 2013 - 2017

A vast number of new power plants are expected to burn efficient natural gas, which over time, may ensure a steady, built-in demand driver.



commonplace. We believe the tide should quickly change. Of about 30 applications under current review by the Department of Energy, seven non-FTA applications have been evaluated and approved as of March 2014.³

3. TRANSPORTATION: Another major source of growing demand is the transportation industry. Because natural gas is often lower in price than an equivalent unit of gasoline and is cleaner to burn, many state and local governments as well as businesses are using natural gas to fuel their fleets. In fact, public transit buses are currently the largest users of natural gas, with about 20% running on compressed natural gas (CNG) or LNG. While buses have captive filling stations where vehicles can refuel at will, the availability of fueling stations for commercial fleets is limited. Currently, vehicles

have access to approximately 1,100 filling stations, with additional stations are underway located along major trucking corridors, according to Clean Energy Fuels Corp. National fleets currently using natural gas include well-known companies, such as Waste Management, FedEx, UPS and AT&T.⁴

For consumers, automakers are developing cars that run on natural gas, but new filling stations need to be built or current stations need to be retrofitted. Gas stations currently do not offer natural gas as a fuel option throughout much of the U.S. and only a limited number of natural gas fueling stations are available for public use.

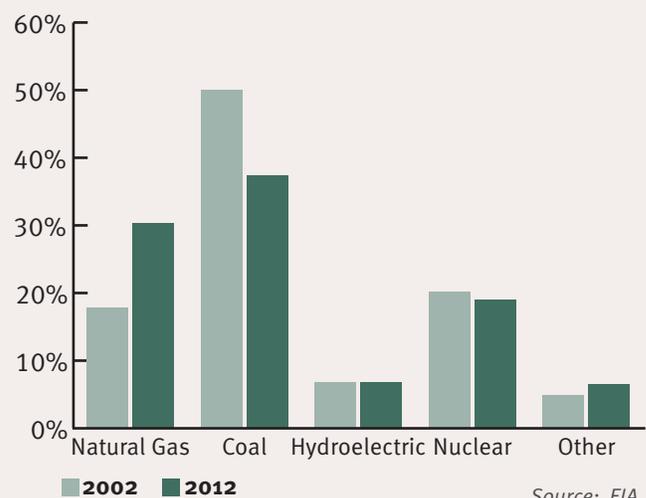
4. RAILROADS: The top three U.S. rail carriers, Union Pacific, Norfolk Southern and Burlington Northern Santa Fe, are developing natural gas powered locomotives in conjunction with General Electric and Caterpillar. Burlington Northern was expecting to begin trials by 2013. Currently freight railroads are almost exclusively powered with diesel fuel that is refined from crude oil. Burlington Northern estimates that it is the second largest domestic user of diesel fuel behind only the U.S. Navy. The initial task of retrofitting locomotives could be costly, but as the trend takes hold, economies of scale should make natural gas an easy choice. It is estimated that the annual fuel cost savings could be between 50-75%.⁵

5. MARINE VESSELS: As one of the biggest commercial consumers of fuel in the U.S., the maritime industry represents an additional source of growing natural gas demand. According to the EIA, marine vessels consumed 2.1 billion gallons of diesel fuel in 2011. This is in comparison to the railroad industry in the U.S., which used 3.1 billion gallons and the country's construction industry, which consumed 1.8 billion gallons.⁶

THE ENERGY SOURCE OF CHOICE

What a difference a decade makes in U.S. energy. While total energy generation only grew by 5% from 2002 to 2012, natural gas generation grew 44% over that 10-year period. This occurred at the expense of coal generation, which declined by approximately 25% during that time.

A COMPARISON OF AMERICA'S POWER SOURCES IN 2002 AND 2012



The maritime industry continues to use mostly oil-based products for its fuel, but with increasingly restrictive emissions rules and abundant natural gas, ship owners may convert to natural gas. According to DNV GL, a leading advisor to the oil and gas industry, the global fleet of 42 LNG-powered ships is anticipated to nearly triple by 2015 and increase 42-fold to almost 1,800 vessels by 2020.

LNG advocates say the use of natural gas by marine vessels could occur faster than in commercial trucks, which require an extensive network of filling stations to support interstate travel. Ships remain in service for decades, giving operators more time to recover the higher switchover cost of LNG engines and refrigerated storage.



AN INDUSTRY COMPRISED OF MANY COMPONENTS

With the natural gas boom, growing consumer demand and America's competitive advantage, we believe investors may benefit from having natural gas exposure through companies involved in the production, transportation and storage of natural gas. Each plays an important role in extracting and delivering natural gas to the end user. With a highly developed supply chain, natural gas companies can generally be segmented by their function into the following categories:

- 1. EXTRACTION & PRODUCTION (E&P):** E&P firms are involved in locating land with natural gas reserves and extracting natural gas through hydraulic fracking and other methods.
- 2. PIPELINE:** Pipeline companies transport natural gas. They build and operate the high capacity interstate pipelines that carry the gas from the extraction site to the distribution firms that control the supply to the end user.
- 3. DISTRIBUTION:** As the name implies, distribution firms deliver natural gas to customers. While some larger industrial customers may receive natural gas directly from a high capacity pipeline, most users obtain their natural gas supply from their local gas utility company. Local companies are either owned by investors or are operating as public gas systems owned by regional and local governments. Distribution firms take delivery of gas from large high volume pipelines and distribute it to end users for heating, transportation or power generation.
- 4. STORAGE:** Like many other commodities, natural gas can be stored for almost indefinite periods of time. Storage firms are in the business of storing natural gas reserves. There are several reasons that firms may do this: One reason is to maintain the orderly flow of natural gas in the pipelines, and another is to meet and balance the supply of natural gas given rising demand.
- 5. LIQUEFIED NATURAL GAS (LNG):** The process of converting gaseous natural gas to its liquid form is important for transporting purposes. LNG takes up 1/600th the volume of natural gas in its gaseous state and is therefore much easier to transport over great distances to places not currently serviced by pipelines. The growing importance of LNG provides the opportunity for U.S. operators to export natural gas overseas where the current price of the commodity is much higher.

Final Thoughts

In just a few short years, natural gas has changed the way America consumes energy. With our new-found vast domestic supply, we believe natural gas' advantages relative to alternative fuels are becoming readily apparent. Numerous industries are turning to natural gas because it is clean, cheap, abundant and under our political control. With consumption of natural gas rising and projected to do so for decades to come, we believe that investors may potentially have the opportunity to benefit from the growing importance of natural gas well into the future.

About Hennessy Funds

Founded in 1989, Hennessy Funds has a longstanding track record of proven performance and offers a broad range of mutual funds, with strategies that can play a role in nearly every investor's portfolio allocation. Our line-up includes traditional equity, specialty category and sector funds, as well as more conservative balanced and fixed income products. Each of the Hennessy Funds employ a consistent and repeatable investment process, combining time-tested stock selection strategies with a highly disciplined, team-managed approach. Our goal is to provide products that investors can have confidence in, knowing their money is invested as promised, with their best interest in mind.

Hennessy offers our Hennessy Gas Utility Index Fund (GASFX) to offer exposure to the natural gas sector. The Hennessy Gas Utility Index Fund owns all publicly-traded companies that comprise the American Gas Association (AGA) Stock Index. The American Gas Association is comprised of energy companies that deliver natural gas throughout the U.S., supplying over 90% of American natural gas customers. The AGA Stock Index is market cap weighted and adjusted for the percentage of natural gas assets on each company's balance sheet. The Fund invests in companies approximately in the same proportion as its weighting in the Index, with no company representing greater than 5% of its assets.

Shareholder Services
800-966-4354
fundsinfo@hennessyfund.com

Financial Professional Help Desk
800-890-7118
advisors@hennessyfund.com



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Important Disclosure

Investors should consider the investment objectives, risks, charges and expenses carefully before investing. This and other important information can be found in the Fund's statutory and summary prospectuses. To obtain a free prospectus, please call 800-966-4354 or visit hennessyfund.com. Please read the prospectus carefully before investing.

Mutual fund investing involves risk; Principal loss is possible. A non-diversified fund, one that may concentrate its assets in fewer holdings than a diversified fund, is more exposed to individual stock volatility than a diversified fund. Investments are focused in the natural gas distribution and transmission industry, which may be adversely affected by rising interest rates, weather, and the wholesale pricing of alternative fuels. Investments in foreign securities may involve greater volatility and political, economic and currency risk and differences in accounting methods.

As of the most recent quarter end, the Hennessy Gas Utility Index Fund holds 0.00% in net assets of the following companies: Waste Management, FedEx, UPS, AT&T, Union Pacific, Norfolk Southern, Burlington Northern Santa Fe, General Electric and Caterpillar.

AGA Stock Index is a market capitalization weighted index consisting of member companies of the American Gas Association (AGA). One cannot invest directly in an index. Fund holdings and sector weightings are subject to change and should not be considered a recommendation to buy or sell any security.

The Hennessy Funds are distributed by Quasar Distributors, LLC.

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