

Northeast Natural Gas Winter Outlook

October 2018

KEY POINTS

- *The natural gas supply situation is secure, nationally and in the Northeast. Storage levels nationally are below average heading into winter, but production is expected to remain robust during the coming months. The region's natural gas utilities are on track to secure their storage supplies by their winter deadline.*
- *U.S. EIA is projecting slightly higher consumption regionally this winter, and relatively stable natural gas heating bills. The key variable is weather. NOAA is projecting slightly colder temperatures for the region this winter (as measured in heating degree days).*
- *Natural gas has consistent benefits in terms of deliverability, reliability, cost-effectiveness and environmental advantages.*
- *Natural gas utilities have programs in place to advise their customers on ways to help prepare for, and manage, their heating bills this winter. These include budget billing, efficiency and conservation tips, and advice on eligibility for energy assistance funds for low-income customers and others.*
- *A challenge remains this winter in New England in particular for the "non-firm" capacity sector of the market, principally the power generation sector.*
- *Safety remains the industry priority, at all times.*

Stable Winter Outlook for Natural Gas Utility Customers

The natural gas supply situation for the U.S. and the Northeast is stable. U.S. production output remains strong. Storage levels are below average, but gas utility storage refills remain on-track in the region.

The commodity price for natural gas has been relatively stable throughout 2018 although higher than the prior year. The expectation is that consumption and expenditures for all fuels will be higher than last winter, according to U.S. EIA.

This paper by the Northeast Gas Association (NGA) outlines the recent market developments shaping natural gas costs, discusses what local natural gas utilities in the Northeast U.S. are doing to assist customers, and identifies some steps that customers can take to manage home heating bills. [Note: NGA's analysis is based on publicly

reported data; NGA does not project actual figures for wholesale or retail markets.]

Natural Gas Wholesale Prices Have Been Relatively Moderate This Year

A stability in commodity prices has characterized the U.S. natural gas wholesale market in recent years. As of October 10, the daily average commodity price regionally was just under \$3.00 per million Btu (MMBtu).¹

The U.S. Energy Information Administration (EIA) is projecting that the average natural gas com-



modity price for all of 2018 will be in the range of \$3.00 per MMBtu.²

Higher Energy Prices, Slightly Colder Weather Anticipated This Winter

EIA is projecting "that average U.S. household expenditures for most major home heating fuels will be higher this winter compared with last winter." Average increases vary by fuel, with natural gas expenditures forecast to rise by 5%, home heating oil by 20%, electricity by 3%, and propane to be consistent with last year. Most of the increase reflects expected higher forecasted energy prices. A warmer-than-forecast winter would see lower increases in expenditures, and a colder-than-forecast winter would see higher increases in expenditures.³

The local gas utilities work throughout the year to purchase a reliable, diverse and cost-effective supply of natural gas in advance of the winter heating season.

U.S.—and Northeast—Natural Gas Production Has Been Strong

In terms of U.S. natural gas supplies, the news remains positive. The Northeast U.S., long accustomed to being "at the end of the pipeline," now finds itself connected to one of the largest natural gas basins in the U.S.

Advances in drilling technology, such as horizontal drilling and hydraulic fracturing, have enabled natural gas producers to access the U.S. shale gas resource in a significant way. As a result, the

U.S. has become the largest producer of natural gas in the world. Production in the Marcellus region of Pennsylvania and West Virginia continues to grow.

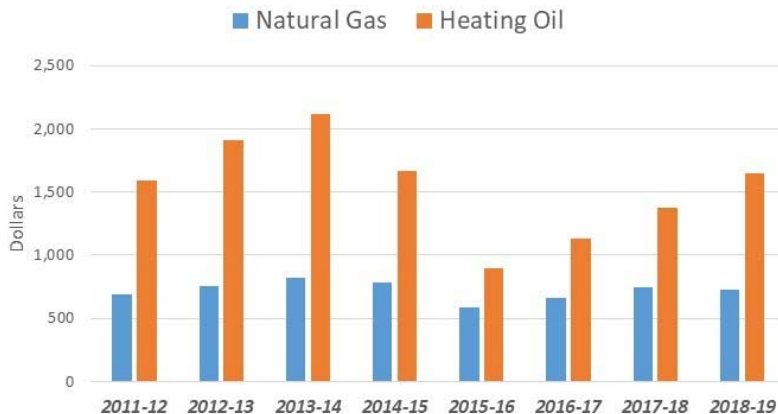
These new supplies are having a positive market impact, resulting in lower commodity prices and greater U.S. supply security. Moving the new production to market via pipelines is an industry priority and market need.

Converting to Natural Gas from Other Fuels Continues

While natural gas is the leading home heating fuel in the U.S. as a whole, it still has room to grow in the Northeast U.S. In New England for instance, natural gas heats nearly 40% of all homes in the six-state region—compared to the national average of about 47%. Prices of all fuels can vary and fluctuate over time, but the consistent benefits of natural gas are leading numerous homeowners and businesses to appreciate the value of natural gas systems. These benefits include reliability, ease of delivery, cleanliness, lower environmental impacts (over 30% less CO₂ emissions compared to oil), and cost-effectiveness. The spot commodity price of natural gas compared to that of oil shows a positive differential.

Conversions and new installations continue onto the system. Natural gas prices have been consistently below heating oil in recent years, and the outlook for this winter is for gas to continue to be the lowest cost heating fuel option (see chart below). Since the year 2010, the number of homes

Average Consumer Expenditures for Leading Heating Fuels, Northeast, 2011-18



Source: U.S. EIA, 10-10-18. Natural gas data is 9 Northeast states. Heating oil is U.S. average. 2018-19 data is forecasted.

This chart, based on data from the U.S. Energy Information Administration (EIA), compares the residential heating fuel expenditures of natural gas (blue) and heating oil (orange) in recent years. Natural gas has been well below oil in recent years, and is forecast to be lower again this winter. Source: EIA, October 10, 2018.

in the Northeast region heating with natural gas has increased by one million; the regional total is now over twelve million heating customers.⁴

The winter of 2017-18 was fairly average in terms of overall temperatures, but it was marked by some of the coldest weather in decades for a two-week period in late December 2017 and early January 2018. Virtually all of the natural gas utilities in the region set new sendout records during that time. Indeed, the New England natural gas utilities collectively set three new peak days in the first week of January 2018. This reflects high demand, challenging weather, and customer growth.

This extreme cold weather period last winter, known as the "Bomb Cyclone," resulted in some extreme spot price volatility in regional gas markets. In October 2018 the FERC observed: "Should similar cold weather materialize this winter, pipeline constraints on Algonquin Gas Transmission, Transcontinental Pipeline, and Tennessee Gas Pipeline could result in high gas prices at Transco Zone 6 near New York City, Algonquin Citygates in ISO New England Inc. (ISO-NE), and Transco Zone 5 South in PJM Interconnection LLC (PJM)."⁵

Multiple Factors Impact Natural Gas Prices

What are the factors that go into the price of natural gas?

The American Gas Association (AGA) has summarized it concisely: "The price paid for natural

gas by consumers depends on the price of the gas commodity itself, and the cost of transporting that gas from production areas to customers."

There are many factors that can affect the market price of natural gas:

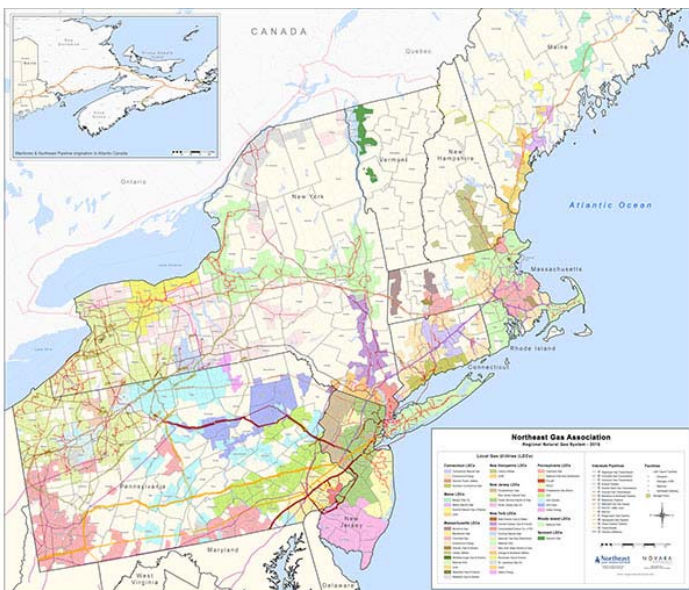
- Seasonal natural gas demand
- Weather
- Gas storage levels
- Alternative fuel prices
- Producer economics
- Market structure
- Pipeline capacity and costs
- Futures markets
- Market psychology.

The Weather Remains a Key Factor in Supply & Price Fluctuations

Perhaps the greatest factor in determining the ultimate supply and price dynamic remains the weather.

How cold the winter is determines to a great extent how volatile the price for the natural gas commodity might be over a period. As the U.S. FERC has observed: "As always, weather is one of the primary and least predictable drivers for natural gas and electricity markets."⁶

NOAA is forecasting U.S. heating degree days this winter to be 1.1% higher than last winter. In the Northeast, heating degree days are similarly projected to be 1.1% higher this winter.⁷



This map illustrates the interstate natural gas pipeline system in the Northeast along with the gas distribution service areas. The pipelines deliver gas supplies to the local gas utilities, who in turn service local customers, from homes to businesses. The pipelines deliver gas from multiple supply points: Appalachia, Canada and LNG. In the past few years, new supply enhancements in the region, principally from the Marcellus production area of Pennsylvania, have expanded the region's supply portfolio.

Map prepared by Northeast Gas Association.



is a direct pass-through, subject to regulatory oversight. The residential customer's bill is regulated by the state public utility/public service commission (PUC, PSC, DPU or BPU).

The American Gas Association (AGA) states: "Changes in the prices paid by utilities for gas, whether based on fuel prices, the

spot market, or the comparative price of other fuels, do not have an immediate impact on residential gas customers because of the structure of regulation and the industry. This is true for several reasons":

- Utilities' gas supply portfolios are diversified among spot purchases, long-term contract gas, storage gas, peak-shaving gas and other sources;
- State regulation of gas cost recovery generally tends to spread out short-term increases or decreases over time.

The U.S. EIA has noted:

"Residential customers see less [price] variation because their bills reflect monthly average prices, which do not fluctuate as much as daily prices. Also, many residential customers stabilize their monthly bills by participating in yearly budget plans provided by their local gas distribution companies."

Significance of Infrastructure Additions

In recent years, the Northeast region has made additions to its supply and delivery network. Infrastructure enhancements are under development in the region to transport Appalachian production to regional markets. More infrastructure would help reduce constraint points and system "bottlenecks," resulting in lower costs and greater reliability.

In several recent winters, the Mid-Atlantic and New England areas experienced high spikes in the "spot" market for natural gas on numerous days, as cold weather led to high demand and constrained pipeline delivery. U.S. EIA observed in March 2017 that "Historically, both the Boston and New York natural gas markets have experienced winter price spikes because of pipeline constraints during periods of peak demand. Natural gas pipeline expansion projects that were completed in recent years may have reduced, but did not eliminate, sharp price increases with anticipated cold weather."⁸

The FERC noted this fall: "Basis futures prices in New York City and Boston averaged \$6.03/MMBtu and \$8.21/MMBtu, up \$0.47/MMBtu and \$3.40/MMBtu respectively from last year. This suggests a market expectation that both regions may face pipeline transportation constraints this winter."⁹

Utility Bill Components

The price of the natural gas commodity at the wellhead makes up generally the largest share of the total price a residential customer pays. Other costs include commodity costs of other supply sources, interstate pipeline capacity (or transportation) costs and charges for the LDCs' transportation service.

The gas utility, or LDC, passes on the actual commodity cost to customers; the LDC does not make any margin from the purchasing of the gas commodity and reselling it to retail customers. It

State Regulatory Oversight and Coordination Contributes to Customer Protection

State public service / public utility commissions have oversight over the distribution costs of natural gas utilities. Utilities submit cost of gas adjust-

There are steps that customers can take today to help manage their energy bills. Contact your local gas utility for suggestions on:

- Budget billing;
- Efficiency and conservation tips;
- Eligibility for low-income assistance.

Look on NGA's web site for links to the gas utilities in the region:
www.northeastgas.org/ldc_members.php/

ments to the commissions during the year as appropriate, to reflect different seasonal costs of the gas commodity. If the cost of gas itself rises or falls over a given period, that variation is reflected in the cost of gas adjustment provision. State oversight provides an additional measure of consumer protection.

Steps for Customers on Ways to Prepare to Manage Winter Heating Bills

There are steps that customers can take to manage their energy bills.

Customers are encouraged to contact their local gas utility for suggestions on budget-billing and bill payment plans. A budget-billing option allows customers to equalize monthly payments. For example, a customer's annual bill can be estimated based on past energy use and then divided into equal monthly payments. The local utilities also offer tips and have programs in place to help customers reduce their bill through energy-efficiency and conservation measures.

Energy bills are a particular concern for lower-income citizens, who are the most vulnerable to energy costs. They are encouraged to contact their utility to find out how to apply for state and federal energy assistance programs. In addition,



many social service agencies and charitable organizations accept energy assistance applications for the winter heating season. A list of providers can be obtained by contacting your local utility.

Importance of Low-Income Home Energy Assistance Program (LIHEAP)

The Low-Income Home Energy Assistance Program – or LIHEAP – has been particularly important to the Northeast region. LIHEAP remains essential. The U.S. Congress passed a funding bill in late September for the upcoming winter at slightly higher levels than the prior year.

Value of Energy Efficiency

Energy efficiency remains a cornerstone of energy policy in the region. Utilities have made con-

siderable investments over the years in offering their customers more efficient equipment and technologies. And efficiency gains have been achieved. Over one-third (39%) of all natural gas efficiency investments in the U.S. come from the nine Northeast states.¹⁰ AGA notes that average natural gas use per residential customer has declined by about one-third since 1980.

Infrastructure Enhancements and Accelerated Replacement

Accelerated repair and/or replacement of older natural gas distribution system components is an issue of focus for local utilities and regulatory agencies. As the utilities strive to build their systems to meet growing market demand, they also are working to replace older system components to increase efficiency, safety and environmental integrity. It's a priority area for the LDCs.

A Word About Transportation Contract Arrangements and the Ongoing Power Sector Challenge in New England

In reviewing winter gas supply, it is important to remember the distinction between "firm" and "non-firm" gas supply transportation contract arrangements, especially as it relates to the power generation sector.

Natural gas is provided under contract terms between a supplier and a customer. The contract terms are considered "firm" or "non-firm"/"interruptible." **Service to residential customers, for example, is firm.**

Larger commercial or industrial customers, such as a power generator, on the other hand, have the option of contracting for either firm or interruptible transportation service, or buying gas delivered at their facility from a third-party that holds the transportation capacity.

Interruptible transportation service includes in its contract terms the possibility of interruption under certain operational and market conditions. Those customers who elect to take interruptible service in any form often have alternative fuel capability for their operation.

In New England, where about 50% of power generation is linked to natural gas, there has been concern for a long time over the mismatch between power generator demand and contracted pipeline delivery capacity. The rising demand for natural gas within the region's electric market has not been sufficiently matched by a commitment to



securing adequate reliable natural gas supplies and firm pipeline capacity contractual obligations. The electric power sector has not participated sufficiently in terms of investments in securing natural gas supplies for their generating units.

Challenges may exist again this winter during cold weather periods for those gas-fired generators and other "non-firm" users that have not secured capacity. As temperatures fall, operational flexibility also declines for those not prudently prepared under sufficient contractual arrangements.

Natural gas has become a preferred power generation fuel in New England and its role is only likely to grow in coming years, especially as several non-gas-fired units retire from the grid.

Safety

Safety is the industry priority. Be sure to have your heating systems maintained annually. Look for the "Gas Safety Public Awareness" link on the NGA web site for general safety information.

Important Safety Messages

If you smell gas in your home or building, please move to a safe location and call your local gas company.

More information can be found here:

http://www.northeastgas.org/leak_recognition.php#suspect

In case of a snowstorm, be sure to clear snow and ice from external natural gas equipment at your home or building.

More information can be found here:

http://www.northeastgas.org/snow_ice_removal.php

Finally, be aware of carbon monoxide risks.

More information can be found here:

<http://www.nfpa.org/safety-information/for-consumers/fire-and-safety-equipment/carbon-monoxide>

End-Notes:

1. U.S. Department of Energy, "Daily Energy Prices," October 10, 2018
2. U.S. Energy Information Administration (EIA), "Short-Term Energy Outlook," October 10, 2018
3. U.S. Energy Information Administration (EIA), "Winter Fuels Outlook," October 10, 2018
4. Ibid.
5. U.S. Federal Energy Regulatory Commission (FERC), "Winter 2018-19 Energy Market Assessment," October 2018
6. U.S. Federal Energy Regulatory Commission (FERC), "Winter 2015-16 Energy Market Assessment: Report to the Commission," October 2015
7. U.S. Energy Information Administration (EIA), "Winter Fuels Outlook," October 10, 2018
8. U.S. Energy Information Administration (EIA), "Natural Gas Weekly Update," March 16, 2017
9. U.S. Federal Energy Regulatory Commission (FERC), "Winter 2018-19 Energy Market Assessment," October 2018
10. ACEEE, "State Energy Efficiency Scorecard," October 4, 2018

FURTHER INFORMATION ON EFFICIENCY TIPS & CUSTOMER ASSISTANCE PROGRAMS

For further information, contact the following organizations, or visit their web sites.

Local Distribution Companies:

Contact your local natural gas utility by linking through the NGA web site. From www.northeastgas.org, go to the "Member Companies" link, and select the hyperlink to your local natural gas utility. The utility sites have information on specific programs that the companies offer, as well as, in many cases, links to other energy assistance agencies in their service areas.

Northeast Gas Association

The Northeast Gas Association represents the local natural gas utilities that serve customers in the six New England states, New Jersey, New York and Pennsylvania. Visit www.northeastgas.org.

American Gas Association

The American Gas Association represents more than 200 local energy utility companies that deliver clean natural gas throughout the United States. Visit www.aga.org.

New York State Energy Research and Development Authority (NYSERDA)

The New York State Energy Research and Development Authority (NYSERDA) has extensive information on energy efficiency and "smart energy" tips. Visit www.nyserda.ny.gov

National Energy Assistance Directors' Association

The National Energy Assistance Directors' Association (NEADA) is the primary educational and policy organization for the state and tribal directors of the Low-Income Home Energy Assistance Program (LIHEAP). LIHEAP is a federal program providing formula grants to states to help low-income families pay their heating and cooling bills. Its site is: www.neada.org

U.S. Department of Energy (DOE)

The U.S. Department of Energy has a helpful web link providing energy-saving tips for homeowners and others. The information is located at: <https://www.energy.gov/energysaver/energy-saver>

U.S. Energy Information Administration (EIA)

The EIA is the statistical agency of the U.S. Department of Energy. Publications of particular interest include its "Short-Term Energy Outlook," updated monthly, and its weekly "Natural Gas Market Update." Its site is located at: www.eia.gov.

