

# 2018-2019 Winter Outlook for Natural Gas

## Markets Matter

### Executive Summary

The Natural Gas Supply Association's (NGSA) 2018-2019 Winter Outlook for Natural Gas summarizes the association's view of natural gas market conditions and fundamentals. The analysis covers the key points that can affect supply and demand dynamics, which ultimately impact all consumers of natural gas.

Based on publicly available information, NGSA forecasts whether natural gas prices will be subject to upward, downward or level pressure for the upcoming winter of 2018-2019 compared to the winter of 2017-2018, but the association does not forecast actual prices.

Based on an analysis of the weather, economy, consumer demand, production and storage, **NGSA expects neutral price pressure on the natural gas market in winter 2018-2019 compared to last winter, when the average wholesale price for natural gas at the Henry Hub was \$2.99 per MMBtu.**

An expectation for growth in electric sector demand and increased exports are the most significant factors impacting this winter's forecast for record natural gas demand, while slightly warmer temperatures and soaring production set the stage for supply to ably meet demand.

Record production is expected to provide flexibility and optionality to compensate for below-average storage inventories at the beginning of the winter heating season.

Winter-over-winter increases in demand are forecasted in the electric and industrial sectors, as well as in exports. The biggest increase in demand is expected to come from the export sector in the form of LNG exports and pipeline exports to Mexico. Industrial demand will also contribute to the increase, the result of new natural gas-intensive industrial projects and expansions, as well as stronger industrial activity all around, with plants running at greater capacity than in recent years.

#### **A glance at the natural gas market's major pressure points for winter 2018-2019 reveals:**

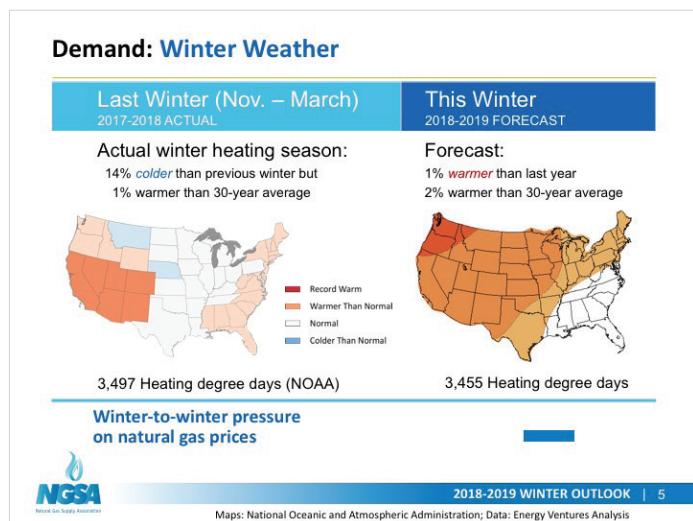
- **WEATHER:** Based on the National Oceanic and Atmospheric Administration (NOAA), Energy Ventures Analysis (EVA) predicts that the continental United States will on average experience a winter heating season that will be 1 percent warmer than last winter and 2 percent warmer than the 30-year average. Comparing winter-over-winter, total heating degree days (HDDs) are estimated to be very similar, leading to a projection that weather will place **neutral pressure** on prices.
- **ECONOMY:** Public data anticipates the economy will continue to strengthen, with forecasted GDP growth rate of 3.2 percent but not quite strong enough to exert significant pressure on natural gas prices compared to last winter's 2.5 percent. The economy is expected to put **neutral pressure** on prices compared to last winter.
- **DEMAND:** When all sectors are combined, **overall natural gas demand** is projected to be more than 102 Bcf/day. Although that is a record amount of winter demand, it is only 3 percent more than the winter of 2017-2018, thus, customer demand is expected to place **neutral pressure** on natural gas prices. Individual customer sector forecasts show:
  - New natural gas combined cycle power plants – representing 19 Gigawatts (GW) – to increase demand from the electric sector by less than 1 Bcf/day, with new demand somewhat offset by the forecast for warmer temperatures.
  - Pipeline exports to Mexico to increase by 18 percent and net LNG exports to increase by 57 percent, compared to last winter.
  - Slight industrial demand growth of 0.4 Bcf/day, due to the construction of major gas-intensive facilities and capacity expansions in the petro-chemical and fertilizer industries.
- **STORAGE:** The natural gas industry is anticipated to finish out the injection season with 3.3 trillion cubic feet (Tcf) of natural gas in storage, the lowest level at this time of year since 2005 and the shale era. Storage is forecasted to place **upward pressure** on prices.
- **SUPPLY:** EVA projects an enormous increase in total supply of more than 7 Bcf/day due to surging production. The forecasted 10 percent increase in winter-over-winter production is expected to result in **downward pressure** on natural gas prices. NGSA emphasized that winter supply, combined with natural gas imports from Canada, are ample to meet record winter demand.

All of these projected pressure points are interrelated and a deviation in one affects the other assumptions in this equation.

The following pages provide more detailed information about each of the five factors analyzed in NGSA's 2018-2019 Winter Outlook, as well as a look at possible "wild card" factors and a discussion of natural gas industry trends that transcend this winter.

## Weather/Demand

Based on NOAA's current projections for warmer winter temperatures, Energy Ventures Analysis (EVA) forecasts that on a national average, the winter months will be 1 percent warmer than the winter of 2017-2018.



On a regional basis, NOAA's weather forecast shows warmer-than-average temperatures stretching over two thirds of the country, with only some mid-Atlantic and southern states experiencing more typical, cool winter weather. As a nation, over the full five-month winter heating season (November 2018-March 2019), EVA is forecasting 3,455 heating degree days (HDDs) this winter, compared 3,497 HDDs last winter. The number of heating degree days is defined as the difference between 65 degrees Fahrenheit and the average outside temperature for that day. Based on the similarity in winter-over-winter heating degrees, the forecast is for weather to put neutral pressure on natural gas prices.

## Economy/Demand

This winter, public forecasts anticipate a solidly strengthening economy.

A key component of economic health is the Gross Domestic Product (GDP). According to IHS Markit, a nationally recognized economic forecasting firm, U.S. GDP is expected to increase 3.2 percent compared to the winter of 2017-2018, when GDP expanded by 2.5 percent.

IHS Markit also predicts that manufacturing, an important influence on the GDP, will grow 2.5 percent compared to the winter of 2017-2018. And finally, NGSA for the first time is including global GDP as a factor influencing the natural gas market. Global GDP is expected to be 3.3 percent, quite similar to last winter's 3.2 percent.

In addition, the latest Consumer Sentiment Index (CSI) shows that consumers feel strikingly positive about the economy, with the CSI tracking at 98 percent, reflecting consumer optimism that is likely the result of a strong labor market (3.5 percent unemployment), low inflation and a stronger GDP. The Consumer Sentiment Index is a gauge of consumer confidence in the economy conducted for more than 40 years by the University of Michigan.

While these economic indicators generally reflect good news for consumers, the changes are not quite large enough to pressure natural gas prices, although an unexpected upshift in GDP could change the direction of the arrow from flat to upward. NGSA anticipates the **economy will place level winter-over-winter pressure** on natural gas prices.

## Overall Customer Demand

An independent demand analysis performed by EVA notes that total demand for natural gas will reach a record that exceeds even the Polar Vortex winter of 2013-2014. EVA forecasts overall winter 2018-2019 demand for natural gas at 102.7 billion cubic feet per day (Bcf/d) compared to 99.3 Bcf/d last winter. A sector-by-sector breakdown follows.

**Demand: Customer Demand**

Winter Season Period-to-period change	Last Winter 2017-2018 ACTUAL	This Winter 2018-2019 FORECAST
<b>Customer Gas Demand*</b>	<b>99.3 Bcf/d</b>	<b>102.7 Bcf/d</b>
▪ Residential/Commercial	37.8 Bcf/d	36.9 Bcf/d
▪ Electric	24.1 Bcf/d	24.8 Bcf/d
▪ Industrial	24.1 Bcf/d	24.5 Bcf/d
▪ Pipeline exports- Mexico	4.4 Bcf/d	5.2 Bcf/d
▪ LNG exports (net)	3.0 Bcf/d	4.7 Bcf/d
<b>Growth sector</b>	Res/Comm+12% Electric + 13%	LNG Exports +57%
Winter-to-winter pressure on natural gas prices		

\*Includes "Lease, Plant and Pipeline Fuel"

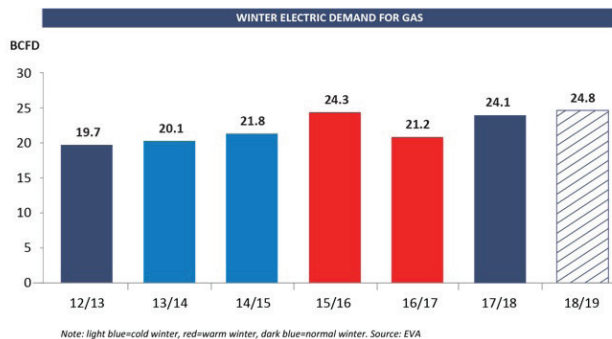
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Data Source: Energy Ventures Analysis

**ELECTRIC DEMAND:** EVA projects a small increase in winter **electric** demand of 0.7 Bcf/day, primarily due to the addition of approximately 19 Gigawatts of new natural gas-fired electric capacity going in service in 2018. More than 90 percent of that new capacity is in the form of highly-efficient and reliable combined-cycle gas turbines (CCGTs), with the remainder represented by natural gas "peaking" plants that can quickly ramp up and down to backstop renewable energies. The forecast for a slightly warmer winter will mean that power plants may not run as much as last winter, slightly dampening demand.

**INDUSTRIAL DEMAND:** EVA expects to see a small but meaningful increase in **industrial** demand of 0.4 Bcf/day this winter. While a small winter-over-winter increase, nevertheless overall industrial demand for natural gas is record-setting. This winter's growth in industrial demand is linked to the completion of major natural gas- intensive facilities and capacity expansions in

the petro-chemical and fertilizer industries, as industries continue to take advantage of affordable natural gas in the United States.

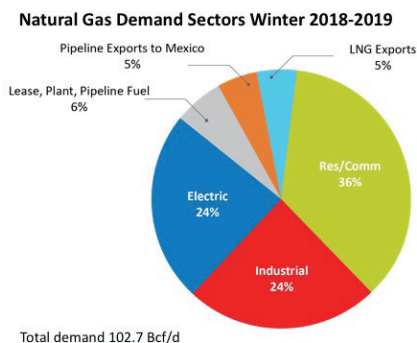
### FOCUS: Record-Setting Winter Electric Sector Demand



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EVA's analysis of industrial demand includes a look beyond this winter at projected demand from new industrial builds and capacity. EVA forecasts that from 2018-2023, natural gas will spur industrial investment of almost \$80 billion to build 46 new projects, primarily in the petrochemical, fertilizer, steel and gas-to-liquids sectors, which would be an overall increase of 2.1 Bcf/day in demand by 2023. This increased demand from new industrial projects does not include the 33 new projects already completed between 2015 and 2017, which by themselves represent an investment of \$53 billion and additional industrial consumption of 1.5 Bcf/day.

### FOCUS: Big Increase in Exports, But Remain Small Share of All Natural Gas Demand



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**EXPORTS:** The largest increase in demand is anticipated to come from the **export** sector. In addition to exporting an expected 5.2 Bcf/day by pipeline to Mexico this winter, the U.S. is also forecasted to be a net exporter of 4.7 Bcf/day of liquefied natural gas (LNG). Although an historic amount, the amount of LNG to be exported is projected to remain merely a small (5 percent) slice of overall demand.

**RESIDENTIAL/COMMERCIAL DEMAND:** Finally, EVA expects that demand from the **residential and commercial** sectors will slightly decrease compared to last winter due to warmer weather.

When customer demand from **exports**, the **electric**, **industrial**, and **residential/commercial** sectors are combined, overall demand averages 102.7 Bcf/day – about 3 percent more than last winter. **Overall customer demand is expected to place neutral pressure on prices this winter.**

## Storage/Supply

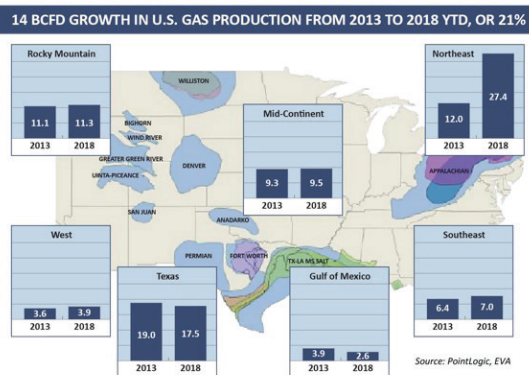
Traditionally, underground natural gas **storage** has allowed companies to purchase and physically stockpile natural gas supplies in the spring and summer for use during the winter when demand for natural gas space heating is at its peak. Storage also serves as an important hedging and reliability tool during the winter heating season.

Going into the winter heating season, it is projected that 3,302 Bcf of natural gas will be in storage. This level is 13 percent lower than last year's inventories and the lowest level of natural gas in storage at the beginning of the winter heating season since 2005, prior to the shale revolution. **Although the lower level of natural gas in storage is likely to place upward pressure on natural gas prices**, the robust production and flexibility offered by the natural gas delivery system provides optionality and alternatives to storage this winter.

## Winter Sources/Production and Imports

Turning to natural gas winter supply, EIA expects domestic **production** to increase tremendously compared to last winter, reflecting increased drilling activity and takeaway capacity. As a result, average domestic natural gas supply this winter is forecasted to reach 84.9 Bcf/day, a 10 percent increase over last winter's 77.4 Bcf/day. Vast supply growth across the United States is reflective of continuous improvement in technology and drilling efficiencies.

### Supply: Record Growth in Production Continues



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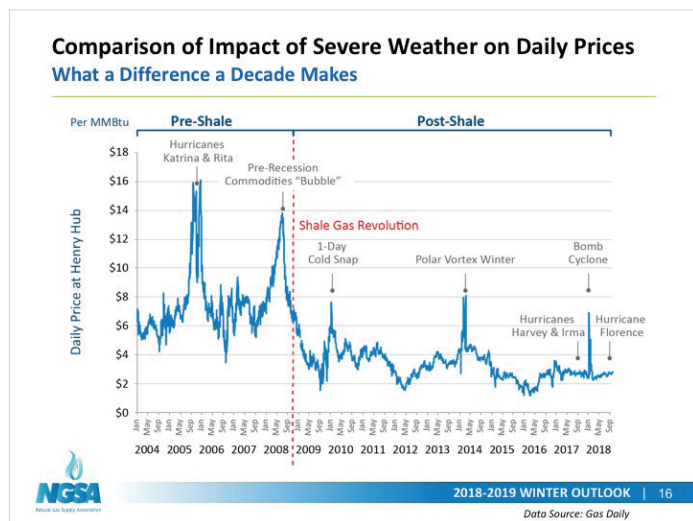


The 2018-2019 Winter Outlook also predicts a moderately-sized, but important, contribution from Canadian imports of 5.2 Bcf/day.

In summary, record-setting winter production and imports will place **downward pressure** on natural gas prices compared to the winter of 2017-2018.

## Natural Gas Weather Resilience

NGSA's forecast also examined the impact of recent hurricanes and deep freezes on natural gas prices, finding that market impacts were generally limited to the demand side, instead of the supply side, which quickly rebounded. The chart below contrasts the remarkable difference in the impact of hurricanes on the natural gas market since the shale revolution.



## "Wild Card" Market Factors

There are always a few "wild card" factors that can influence the market, in addition to the fundamentals addressed in this Outlook. This winter's wild cards include:

- Unexpected early winter cold snaps;
- Geopolitical events that affect the economy.

NGSA emphasized that winter supply remains ample to meet customer demand, with natural gas storage providing further responsiveness and flexibility in the market.

## Summary of Key Factors

**In conclusion, NGSA's analysis of varying data indicates overall flat pressure on natural gas prices this winter compared with last winter's average Henry Hub price of \$2.99 per MMBtu.** A recap of the five major pressure points reveals:

- Slightly warmer winter weather than last winter. — NEUTRAL PRESSURE
- Overall demand — Overall record demand exceeding 102 Bcf/day. LNG exports to grow 57 percent; electric and industrial sectors to grow 2-3 percent; residential/commercial demand expected to drop slightly. — NEUTRAL PRESSURE
- Supply surges compared to last winter, due to increased drilling activity. — DOWNWARD PRESSURE
- Economy grows steadily. — NEUTRAL PRESSURE
- Storage at below-average levels compared to last winter. — UPWARD PRESSURE

## OVERVIEW: Responsive Flexible Natural Gas Market

- Record demand to surpass Polar Vortex winter 2013-2014
  - Exports – LNG and pipeline—increase, but remain small slice of overall demand; provide stability in market demand
  - New gas-fired generation helps push electric demand to new winter record, despite warmer weather
  - Growth in electric and industrial sectors buoyed by new plants and expansions
- Robust winter supply ample to meet demand
  - Efficiencies in drilling and production continue to make wells productive at low cost
  - Storage lowest since 2005 but production takes pressure off
  - Diverse supply sources contribute to greater flexibility and resilience despite hurricanes

*The Natural Gas Supply Association (NGSA) represents integrated and independent companies that produce and market natural gas in the United States. Founded in 1965, NGSA is the only national trade association that solely focuses on producer-marketer issues related to the downstream natural gas industry.*

**For more information, please visit [www.ngsa.org](http://www.ngsa.org) or contact us directly.**

Markets Matter: Representing America's Major Producers and Suppliers of Natural Gas Since 1965.