Q&A: 2023-2024 Natural Gas Market Conditions and LNG

Winter Natural Gas Market Insights from

Natural Gas Supply Association President and CEO Dena Wiggins and Center for LNG Executive Director Charlie Riedl

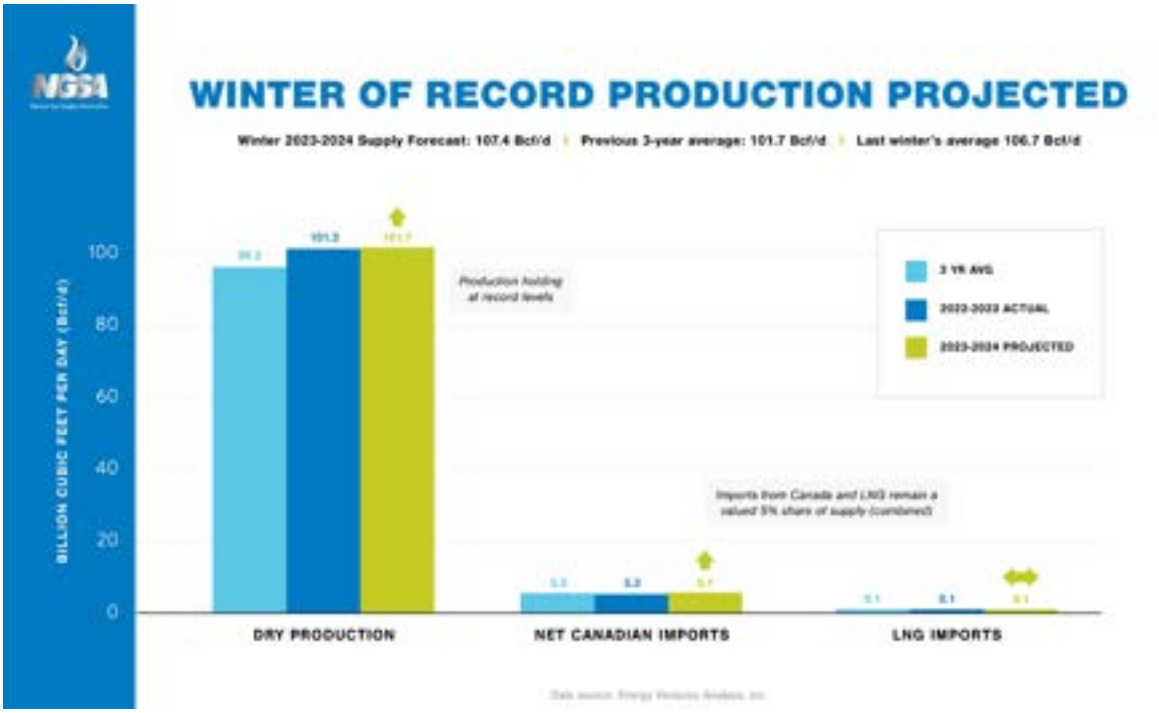
1. What is happening with natural gas prices this winter?

Dena Wiggins: Due to all-time high natural gas production throughout the past year, consumers can look forward to paying less for natural gas this winter than last winter. In this year's Winter Outlook, NGSA has also projected downward pressure on prices compared to the last two winters, based on careful analysis of many key market factors.

2. Why are you projecting lower natural gas prices?

Dena Wiggins: Demand for natural gas is projected to set a new record this winter, but record production, higher-than average storage, and a slowing economy will provide ample supply. Together these factors will place slight downward pressure on natural gas prices compared to last winter.

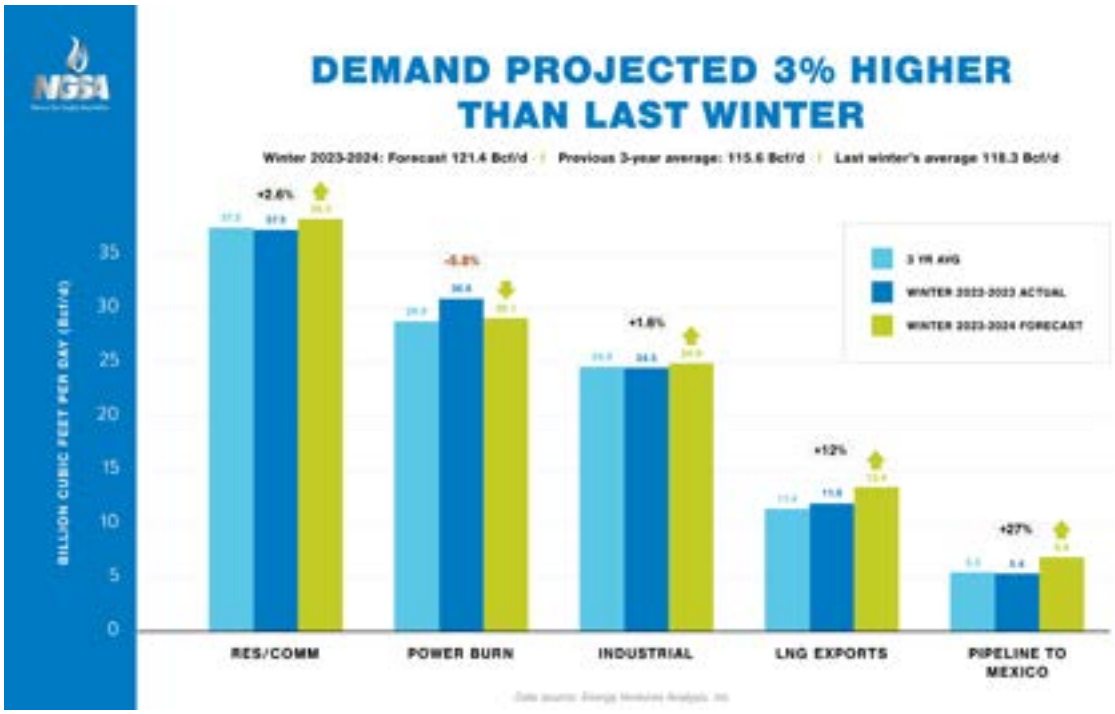
- It's important that we first look at natural gas supply. Natural gas production has been at an all-time high for over a year, mainly due to the ability of natural gas producers to incorporate cutting edge technologies and efficiencies gained from experience to produce more with each rig. For example, one rig can now be used to develop up to a



dozen wells in a single location. These efficiencies are further bolstered by strategic use of drilled but uncompleted wells (DUCS) that can bring supply to market quickly. Our Outlook is forecasting this winter's daily production to average more than 101 Bcf/d, which is slightly more than last winter. Combined with a slight increase in Canadian imports and very low levels of LNG imports, we expect supply to put downward pressure on natural gas prices.

- Projections for the economy and natural gas storage are both putting downward pressure on prices. The U.S. is expected to enter winter 2 percent above the 5-year average with 3.7 Tcf of gas in storage, considerably more than last winter's 3.5 Tcf levels, and the GDP growth is expected to be around 1.3 percent.

- Meanwhile, a winter that is 3% colder than last winter, and 3% colder than the last three winters, as well as an increase in demand is putting upward pressure on prices. Customer demand is projected to average 121.4 Bcf/day, a nearly 3 percent increase winter-over-winter, primarily in the export sector and residential and commercial sector.



3. How does the economy factor in?

Dena Wiggins: The economy influences energy use in manufacturing, and in consumer goods and services like restaurants and the travel industry. Our best indicator of economic growth is GDP, which is projected to grow slowly compared to last winter, according to Moody's Analytics. While last winter's GDP clocked in at a sluggish 2% growth rate, this winter's projected growth of 1.3% is even smaller.

Another indicator is activity in the manufacturing sector, which consumes natural gas as both a feedstock and a fuel. Manufacturing activity remains pretty level, with the rate of industrial capacity use projected to stay close to 80% year-over-year, although there are a number of expanded and new natural gas-intensive manufacturing facilities coming online that will boost industrial demand.

Unemployment and consumer sentiment also influence consumer spending. We remain at under 4% unemployment, which is considered a "full" employment rate, however the Conference Board's "Consumer Expectations Index" found consumer expectations reflect ongoing concerns about inflation, housing and food costs. The good news is that inflation hit a peak of about 8% last July and is currently below 4%.

Winter Season Period-to-period change	Last Winter 2022-2023 ACTUAL	This Winter 2023-2024 FORECAST
GDP Growth	2.0%	1.3%
Manufacturing	79.3%	79.1%
Unemployment rate	3.6%	3.6%
CPI (annual)	5.0%	3.8%
Consumer Confidence	69%	59%

4. What about winter weather?

Dena Wiggins: Weather is usually the biggest influence on natural gas winter demand – and the hardest to predict. We are relying on the National Oceanic and Atmospheric Administration (NOAA)'s forecast of 3% colder winter weather, which points to higher demand for natural gas throughout the season.

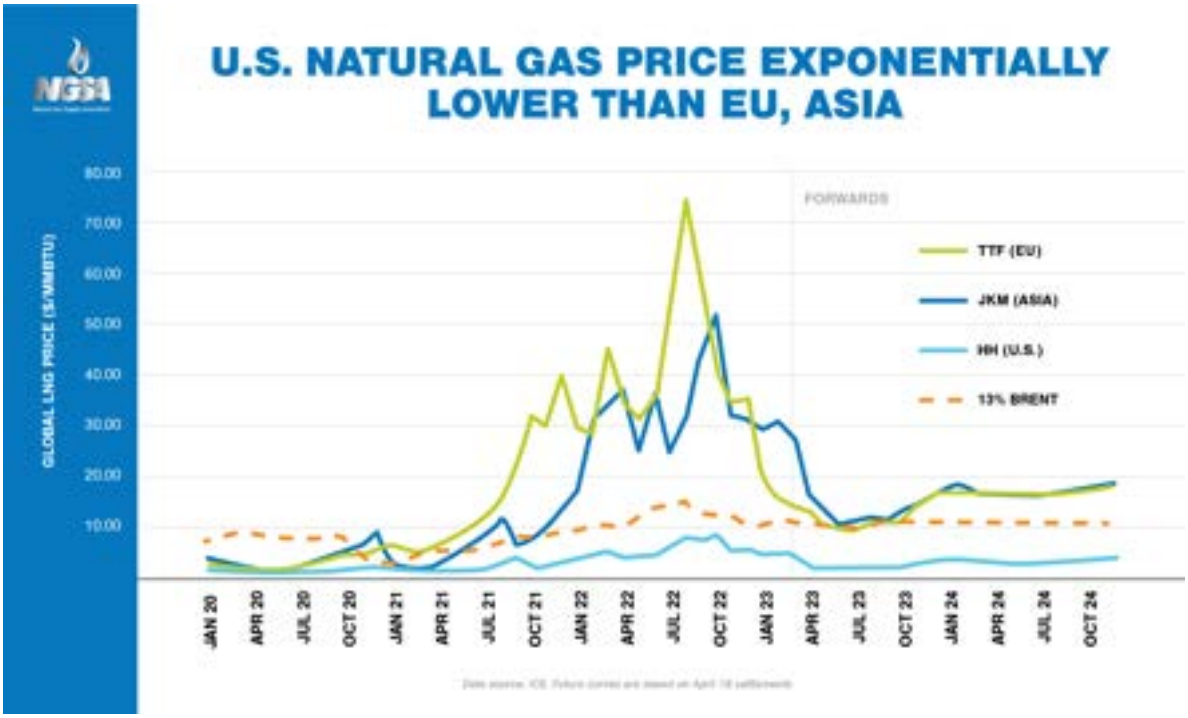
5. What is the significance of natural gas storage?

Dena Wiggins: Natural gas storage is an essential part of the winter supply portfolio that enhances physical reliability and helps customers to manage their costs. Natural gas is purchased and injected into storage during the spring and summer when it typically costs less. This year, it is expected that we'll enter winter 2 percent above the 5-year average with 3.7 Tcf of gas in storage, considerably more than last winter's 3.5 Tcf levels.

Winter Season Period-to-period change	Last Winter 2022-2023 ACTUAL	This Winter 2023-2024 FORECAST
Start-of-winter inventory	3,567 Bcf	3,708 Bcf
Compared to 5-year average	2% lower	2% higher
Average daily withdrawal from storage	11.6 Bcf	14 Bcf
New storage capacity	+ 0 Bcf	+ 0 Bcf

6. Does exporting America's natural gas as LNG raise prices here in the United States?

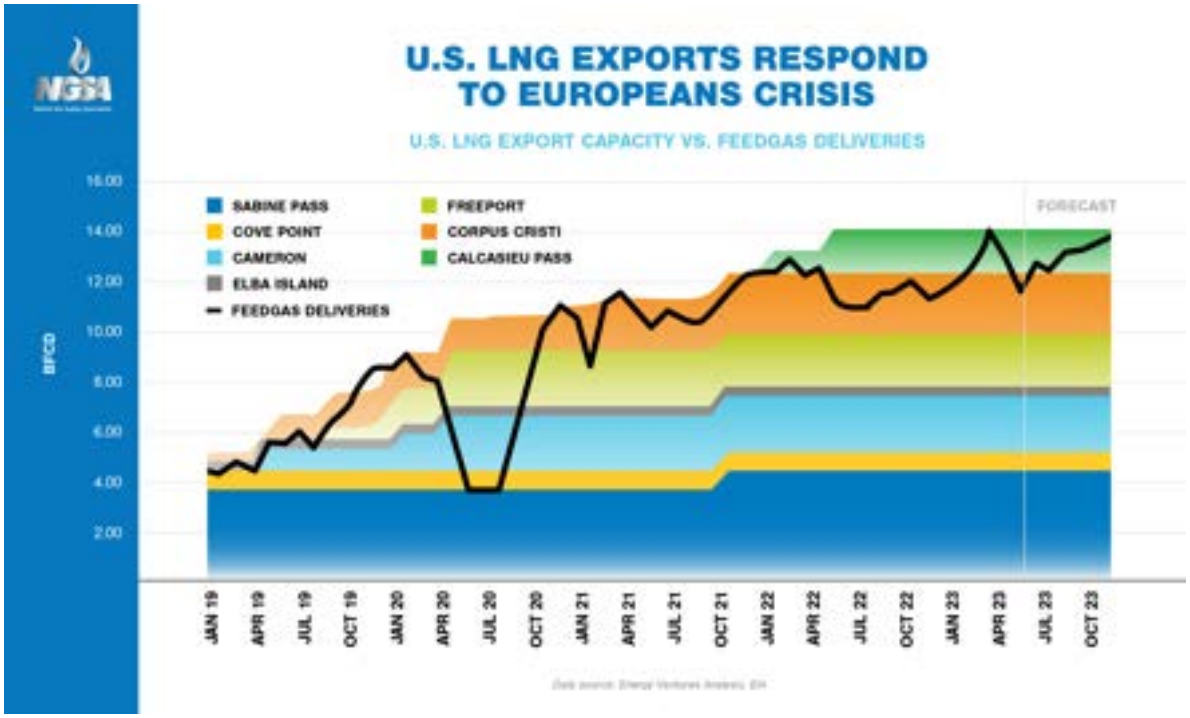
Charlie Riedl: There are multiple factors to consider when looking at prices – weather, storage, industrial demand and exports. Although the U.S. LNG industry has been Europe's largest source of LNG for over a year, with about 75% of U.S. LNG flowing there, LNG exports represent only about 10% of U.S. supply. And, in comparison to global prices, U.S. prices at Henry Hub have remained significantly lower than European and Asian LNG prices over the past two years.



Not only are LNG exports one of the smallest natural gas customer sectors, but the volume of LNG exports is also a fairly predictable number that increases very gradually because of the limited number of U.S. LNG export facilities. LNG export terminals take 6-10 years from start to in-service, which gives the market plenty of time to prepare for the increased demand. In addition, the U.S. LNG market is based on long term contracts, enabling producers to plan and grow production to meet future demand.

All 7 U.S. exporting facilities are expected to operate at or near 100% utilization for the foreseeable future. Further, NGSA projects LNG feedgas to run at about 14.1 BCFD, which is

higher than last winter because of the return of Freeport LNG to service, not because of added capacity. Additional capacity is not expected until Golden Pass LNG comes online in the second half of 2024.



7. If LNG exports continue to grow in the future, will there be enough natural gas for domestic customers?

Dena Wiggins: There will be ample natural gas for all. Current LNG exports represent less than 1% of U.S. proven reserves of natural gas and about 0.001% of the total estimated U.S. natural gas resource base.

Charlie Riedl: LNG demand is based on long-term contracts, so producers have plenty of time to plan and grow production to meet future demand. These same long-term contracts underpin the financing for LNG projects; so, as more are signed, more facilities can be built, and more natural gas will come online for both U.S. exports and domestic consumers. This paints long term contracts as a win-win, with consumers getting more natural gas production in a predictable manner and exporters getting the certainty they need.

8. Why are natural gas prices so different among U.S. regions?

Dena Wiggins: Since the early 2000s, the average price of natural gas has decreased significantly across the U.S. due to the shale revolution. However, infrastructure constraints can cause fluctuations during extreme weather.

For example, during periods of cold weather and high demand in the Northeast, daily spot/cash market prices often increase more sharply than other regions because of a lack of available pipeline capacity compared to other regions. Unfortunately, billions of cubic feet per day of pipeline capacity in the Northeast have been cancelled or delayed since 2018. While the Northeast has had limited new infrastructure, other parts of the country, such as the Permian basin in Texas and New Mexico, have seen close to 9 Bcf/d in additional pipeline capacity.

These existing challenges combined with expected changes in the fuel mix – we're projecting growth in new gas-fired power generation along with 27 gigawatts of new renewable resource capacity expected to come into service and another 10 gigawatts of coal retirements – make additional pipeline capacity even more imperative.

Data Sources:
Supply/demand projections from "NGSA Winter Outlook for Natural Gas 2022-2023," prepared by Energy Ventures Analysis.
Data on historical prices, historical supply/demand and power generation additions to capacity from U.S. Energy Information Administration.
Heating degree data, and historical weather data from NOAA National Centers for Environmental Information's statewide average temperature ranks. Seasonal weather forecasts from NOAA National Weather Service Climate Prediction Center 3month seasonal forecast.
Pipeline cancellation from Federal Energy Regulatory Commission and U.S. EIA Today in Energy. Rig counts and Drilled Uncompleted Wells count from Baker-Hughes and U.S. EIA. GDP, Moody's Analytics. CPI and Unemployment data from the Bureau of Labor Statistics.