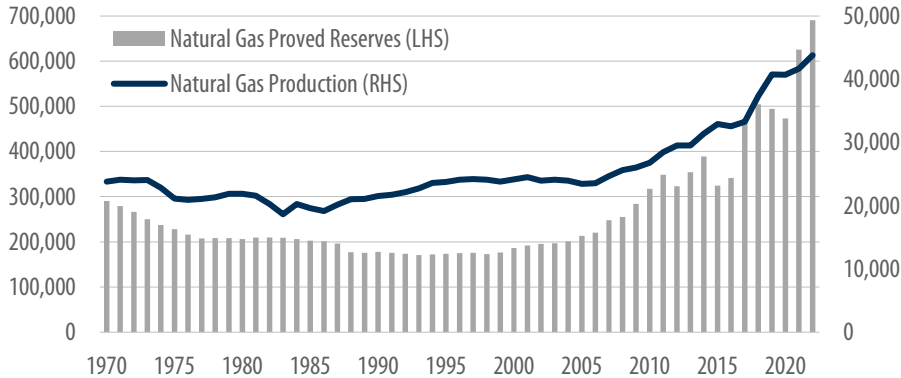


In this week's "Three on Thursday," we look at the state of natural gas in the United States. Natural gas has become a cornerstone of the U.S. energy landscape, providing a dependable and adaptable energy source that bolsters economic growth and enhances energy security. Its plentiful supply has fueled unprecedented consumption levels, underscoring its critical role in the national energy portfolio. Natural gas is notably more environmentally friendly than coal and oil, burning up to 50% less CO₂ when used for electricity generation and emitting lower amounts of sulfur dioxide and particulate matter. This transition to natural gas has significantly reduced CO₂ emissions in the U.S. power sector. Over the past two decades, despite challenging political attitudes toward fossil fuels, innovations like hydraulic fracturing and horizontal drilling have dramatically increased natural gas production, establishing the United States as the world's leading producer of natural gas. For further insight, we have included three detailed charts below.

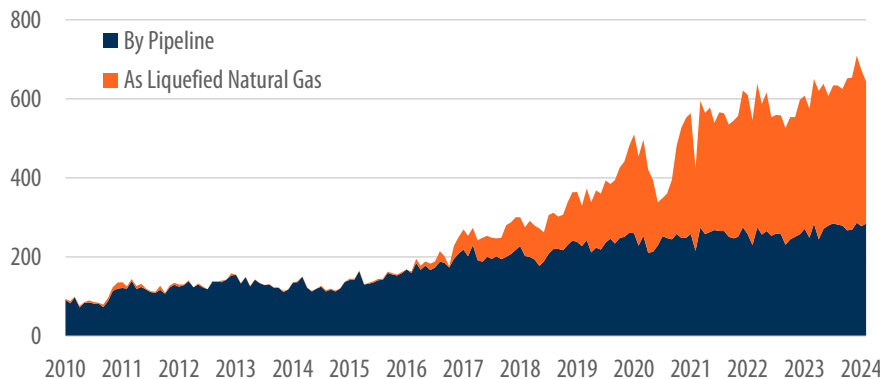
Stock and Flow of U.S. Natural Gas (Billion Cubic Feet)



Source: U.S. Energy Information Administration, First Trust Advisors. Annual data 1970-2023. Reserve data only available through 2022.

Natural gas production grew by 5.0 billion cubic feet per day (Bcf/d) in 2023, a 4% increase from 2022, and sits at the highest level ever recorded. For decades leading up to the twenty-first century, natural gas production was stagnant, as the U.S. relied on foreign imports and coal for energy. At the same time, the U.S. was draining their reserves of natural gas, releasing 77.4 trillion cubic feet from their stockpile between 1970-2005. But as fracking took off around 2005, natural gas production skyrocketed, growing 95% since then. Along with this boom in production, reserves have exploded too as new technology has unlocked new resources, rising a staggering 477 trillion cubic feet (+224%) from 2005-2022 (the latest year we have data) and hitting a new record high for the second consecutive year. The largest increase of all states came from Alaska, where reserves rose a substantial 25.7 trillion cubic feet in 2022. Following closely behind was Texas, where reserves increased 21.2 trillion cubic feet.

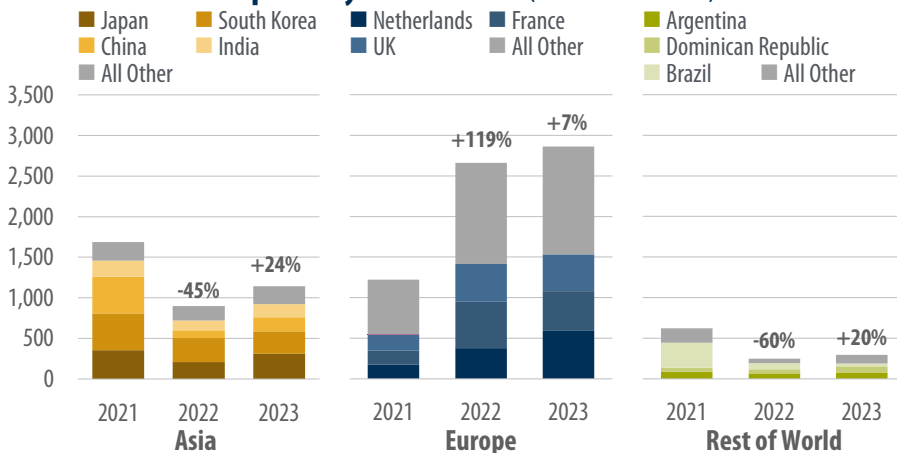
U.S. Monthly Natural Gas Exports by Exit Type (Billion Cubic Feet)



Source: U.S. Energy Information Administration, First Trust Advisors. Monthly data 1/2010 - 2/2024.

In 2016, the U.S. began exporting liquefied natural gas (LNG) from the Lower 48 states when the Sabine Pass LNG (the first LNG export terminal in the Lower 48) began operations. Since then, exports of LNG have exploded, increasing a staggering 22-fold. In 2023, the U.S. exported a record 20.9 billion cubic feet of natural gas per day, 10% more than what was exported in 2022. U.S. LNG exports continued to drive the growth, increasing 12% and accounting for more than half of all US natural gas exports. Meanwhile, natural gas exports by pipeline to Canada (+7% in 2023) and Mexico (+8% in 2023) accounted for the remainder. Overall, since 2017 the US has been a net exporter of natural gas.

Annual U.S. LNG Exports by Destination (Billion Cubic Feet)



Source: U.S. Energy Information Administration, First Trust Advisors. Annual data 2021-2023.

In 2023, the U.S. emerged as the world's largest LNG exporter, with the top three importers—The Netherlands, France, and the UK—accounting for over 35% of all U.S. LNG exports for the year. These European nations have increasingly relied on U.S. LNG to offset the shortfall of natural gas supplies previously sourced from Russia. The U.S. contributed nearly half of Europe's LNG imports last year, a figure expected to increase as Europe enhances its LNG import capabilities. In Asia, Japan and South Korea were the fourth and fifth largest importers of U.S. LNG in 2023. Meanwhile in Latin America, LNG exports to Brazil continue to decline after peaking in 2021 (when the country experienced its worst drought in more than 90 years) as the country continues to use primarily hydropower for electricity generation.

This report was prepared by First Trust Advisors L.P., and reflects the current opinion of the authors. It is based upon sources and data believed to be accurate and reliable. Opinions and forward looking statements expressed are subject to change without notice. This information does not constitute a solicitation or an offer to buy or sell any security.