

Records and Flexibility, Examining U.S Natural Gas Markets During Winter Storm Heather

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State of Play

Natural Gas Records

Record high production, demand, exports, and numbers of consumers

Lower Prices

Return to historical natural gas pricing trends

Lower Emissions

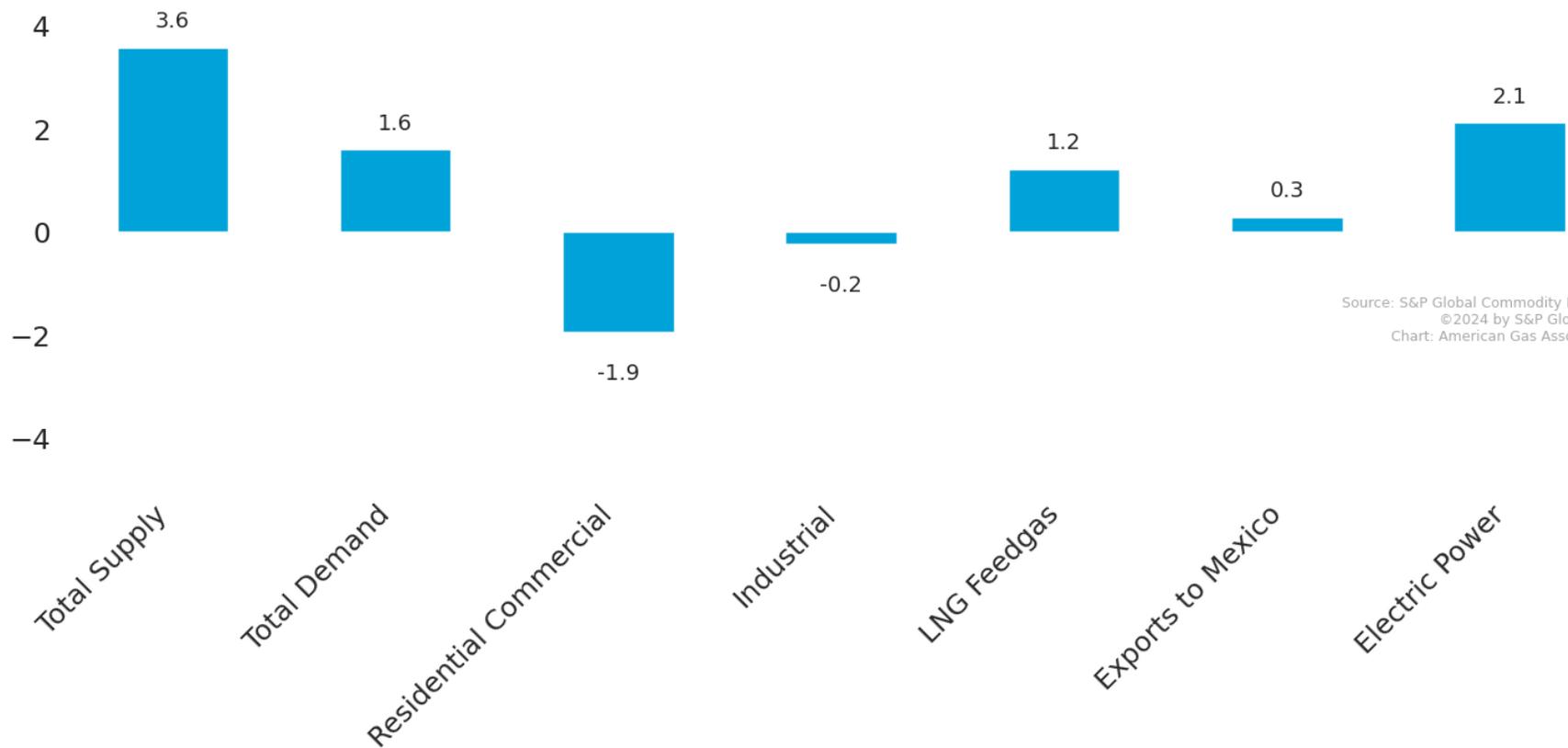
U.S. carbon dioxide emissions have fallen to 1976 levels

Market Flexibility

Variety of tools available to ensure market deliveries during cold events

Last year: Natural gas supply growth outpaced growing demand from electric power and exports.

Change in Natural Gas Supply and Demand 2022 to 2023
(Bcf per Day)

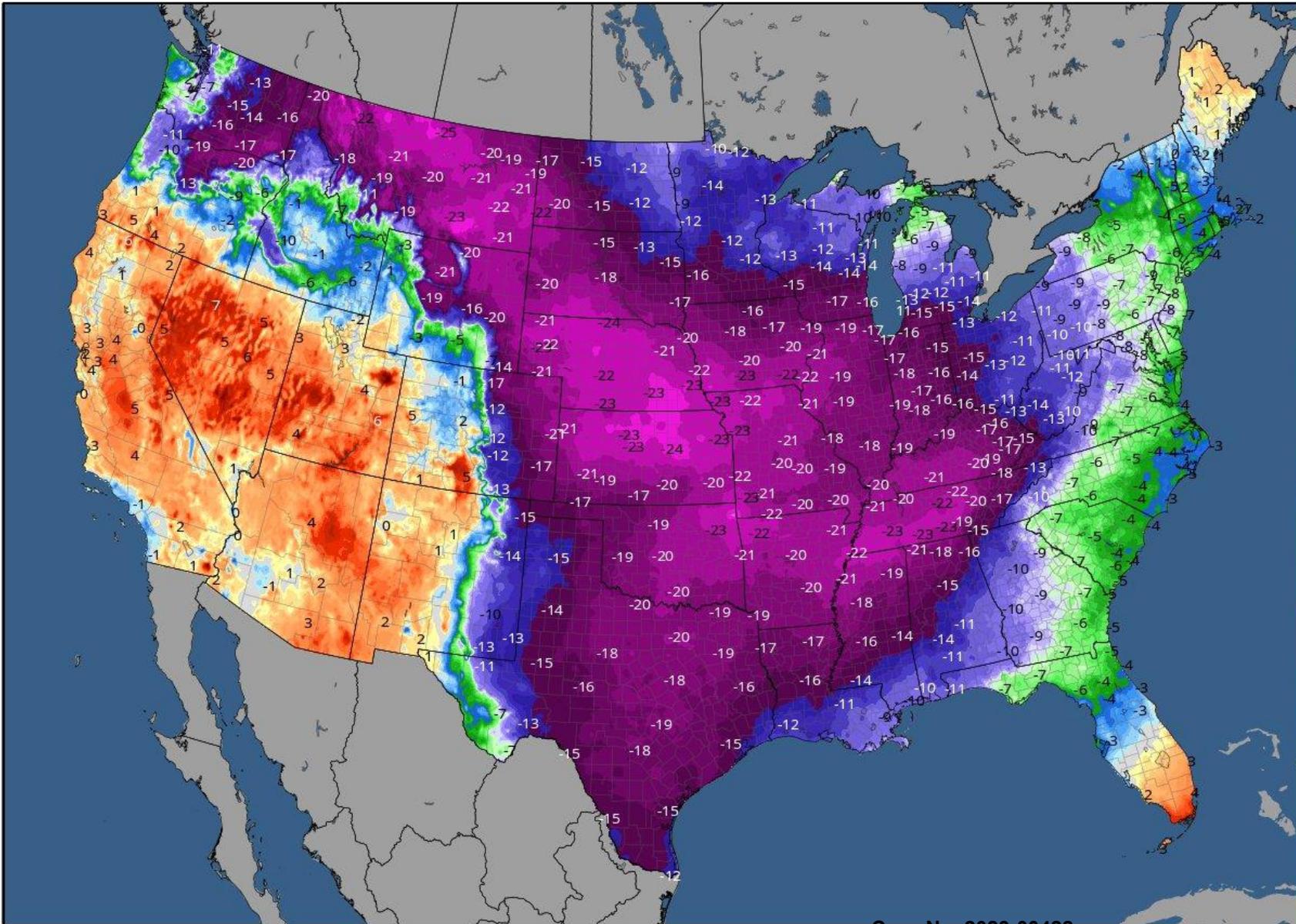


Source: S&P Global Commodity Insights
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Chart: American Gas Association

In 2023:

- Supply growth outpaced demand
- Electric power led demand growth
- LNG feedgas growing
- Lower residential and commercial demand due to warmer temperature





North American winter storm January 15-21, 2024

“Winter Storm
Heather”

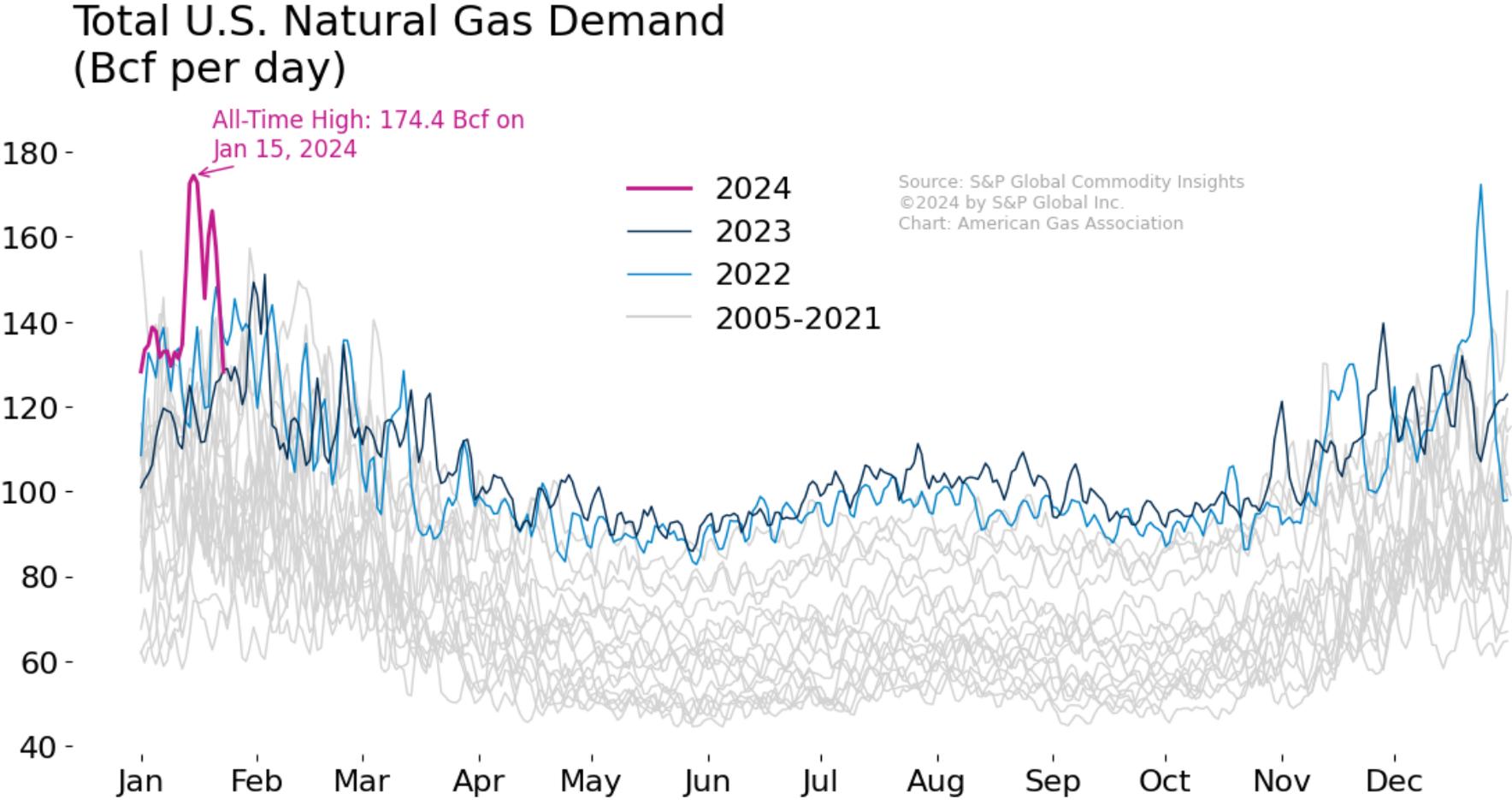
Case No. 2023-00422

Attachment to AG-1 Question No. 26

Page 5 of 29

Bellar / Sinclair

New natural gas demand record set on January 15, 2024

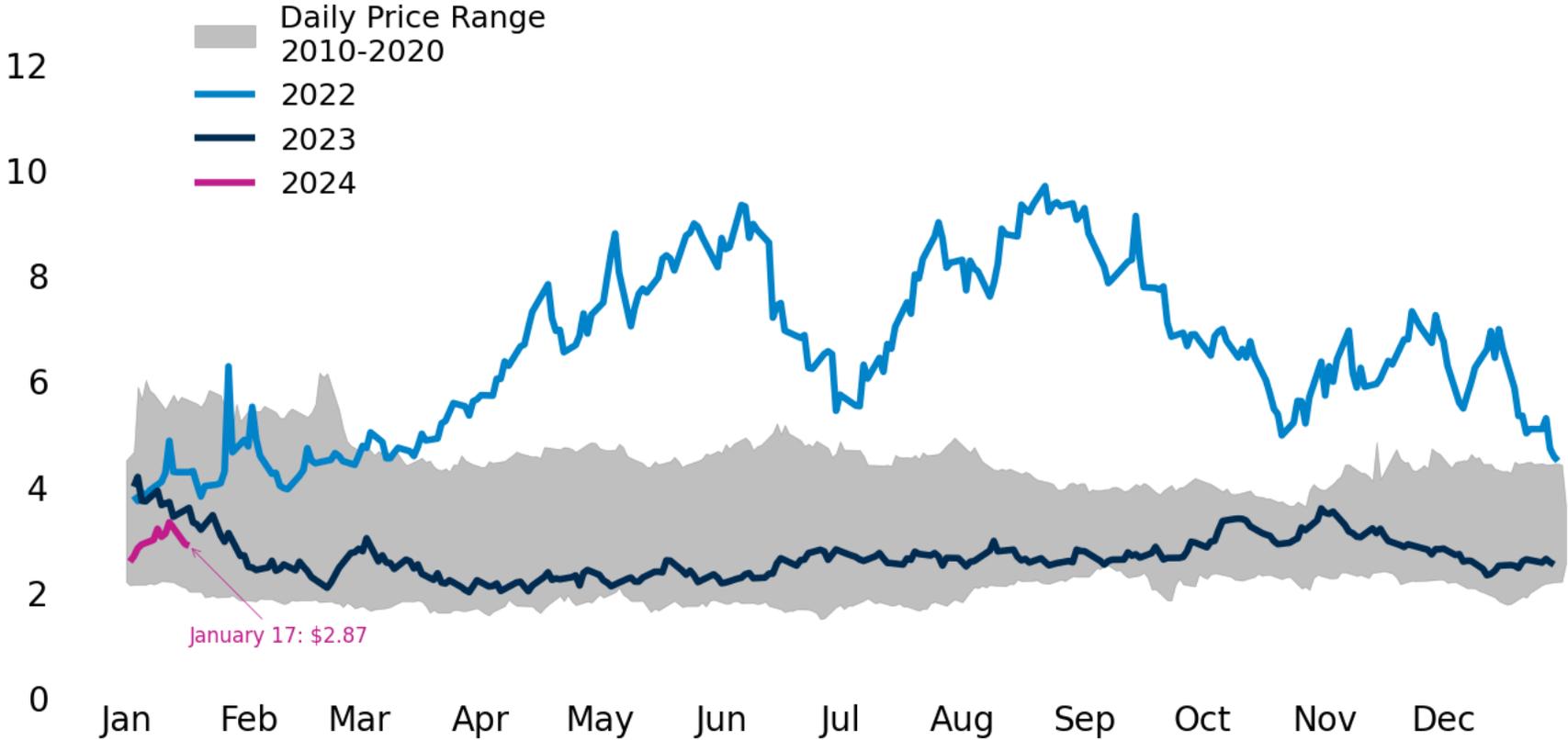


Source: S&P Global Commodity Insights
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Chart: American Gas Association
Data includes domestic consumption and exports



Natural gas futures prices have begun the year in low territory. During the cold event, natural gas futures prices moved modestly

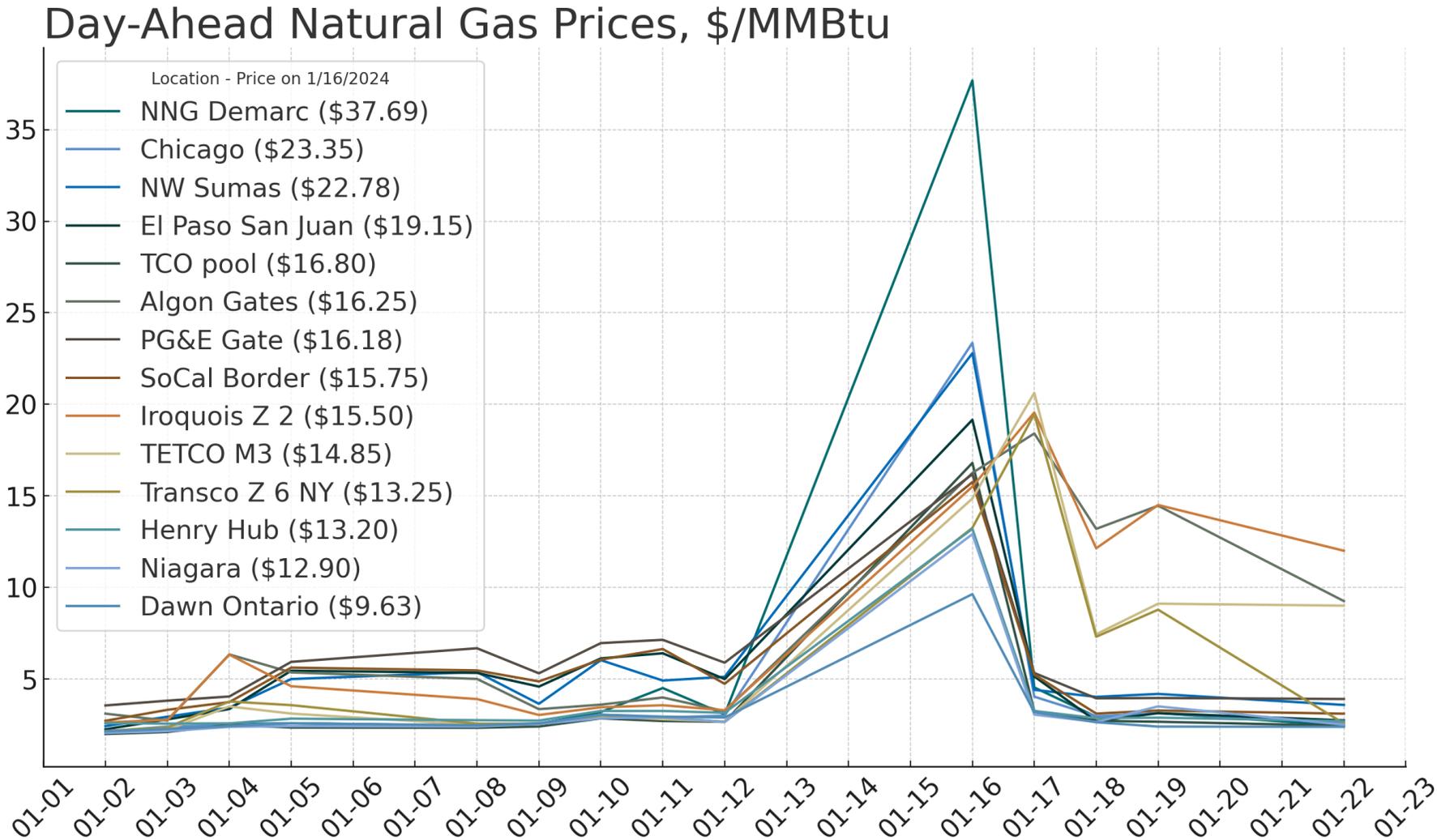
Natural Gas Prices Daily Prompt-Month Futures, Henry Hub (\$/MMBtu)



Source: Energy Information Administration
Chart: American Gas Association



Day-Ahead Markets: Natural gas prices spiked ahead of the long weekend and then quickly fell.

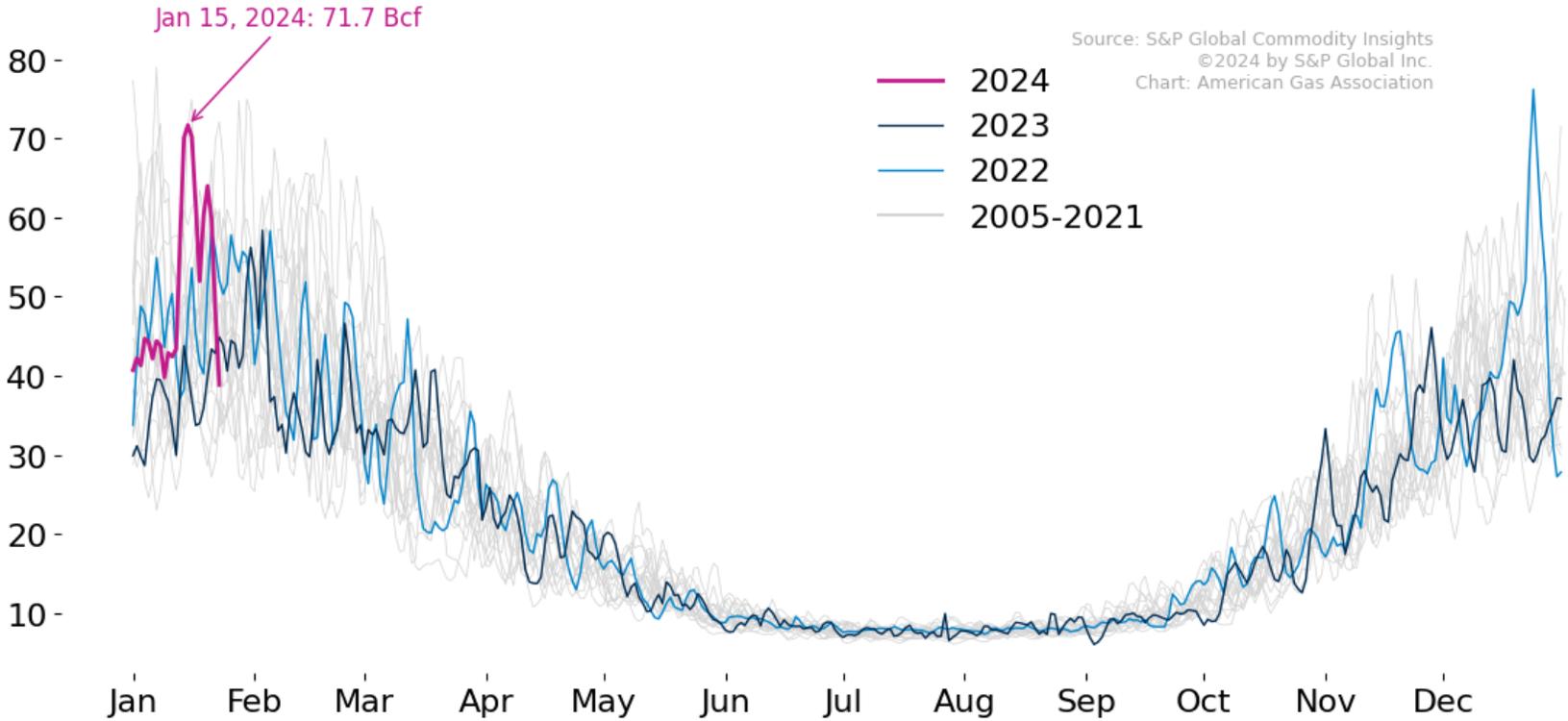


SNL Day-ahead Prices
S&P Global Capital IQ

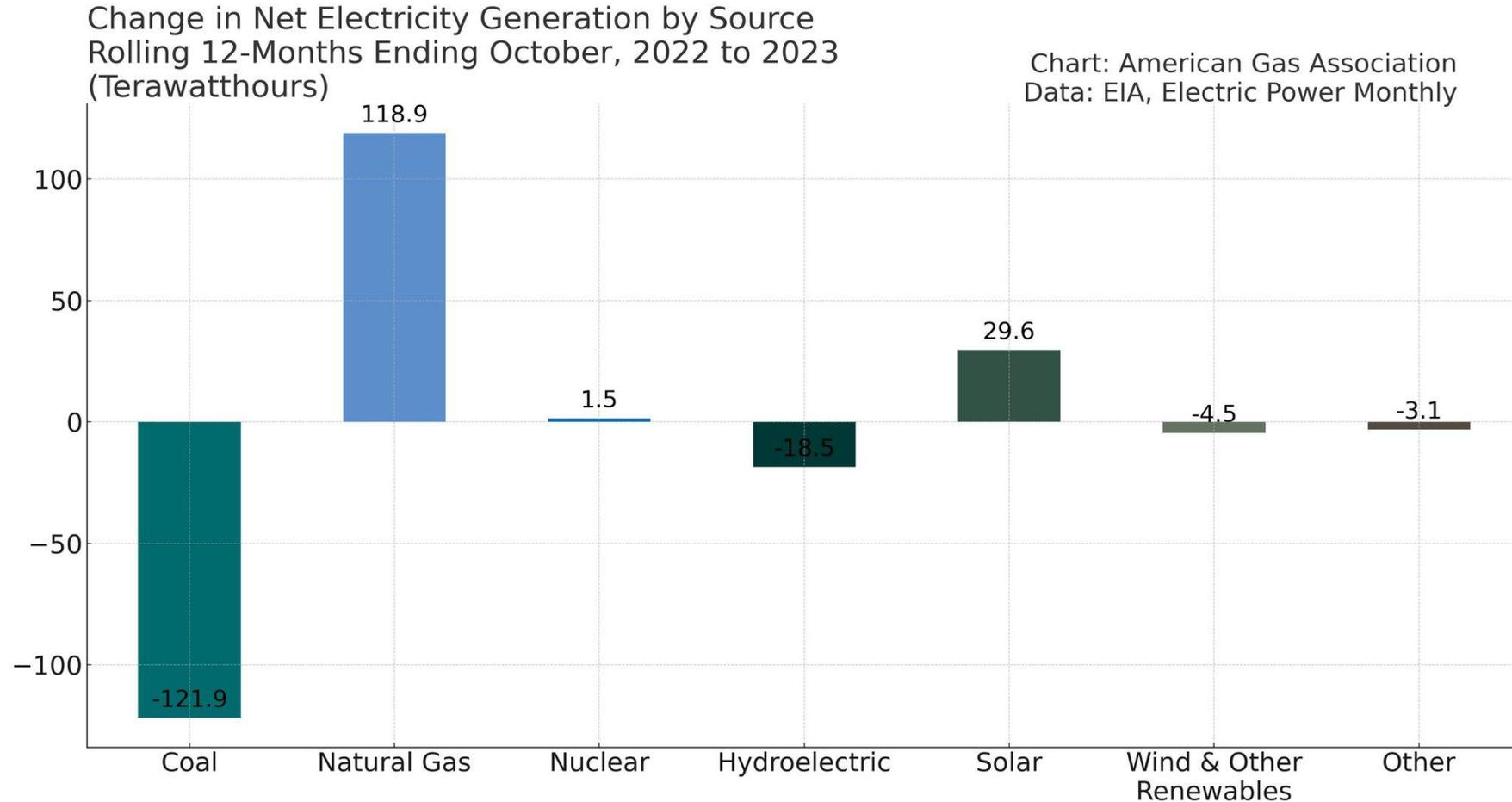


Residential & commercial natural gas demand saw a sharp increase on January 15 as heating requirements grew

Natural Gas Used for Residential and Commercial, U.S. Lower-48 (Bcf per day)

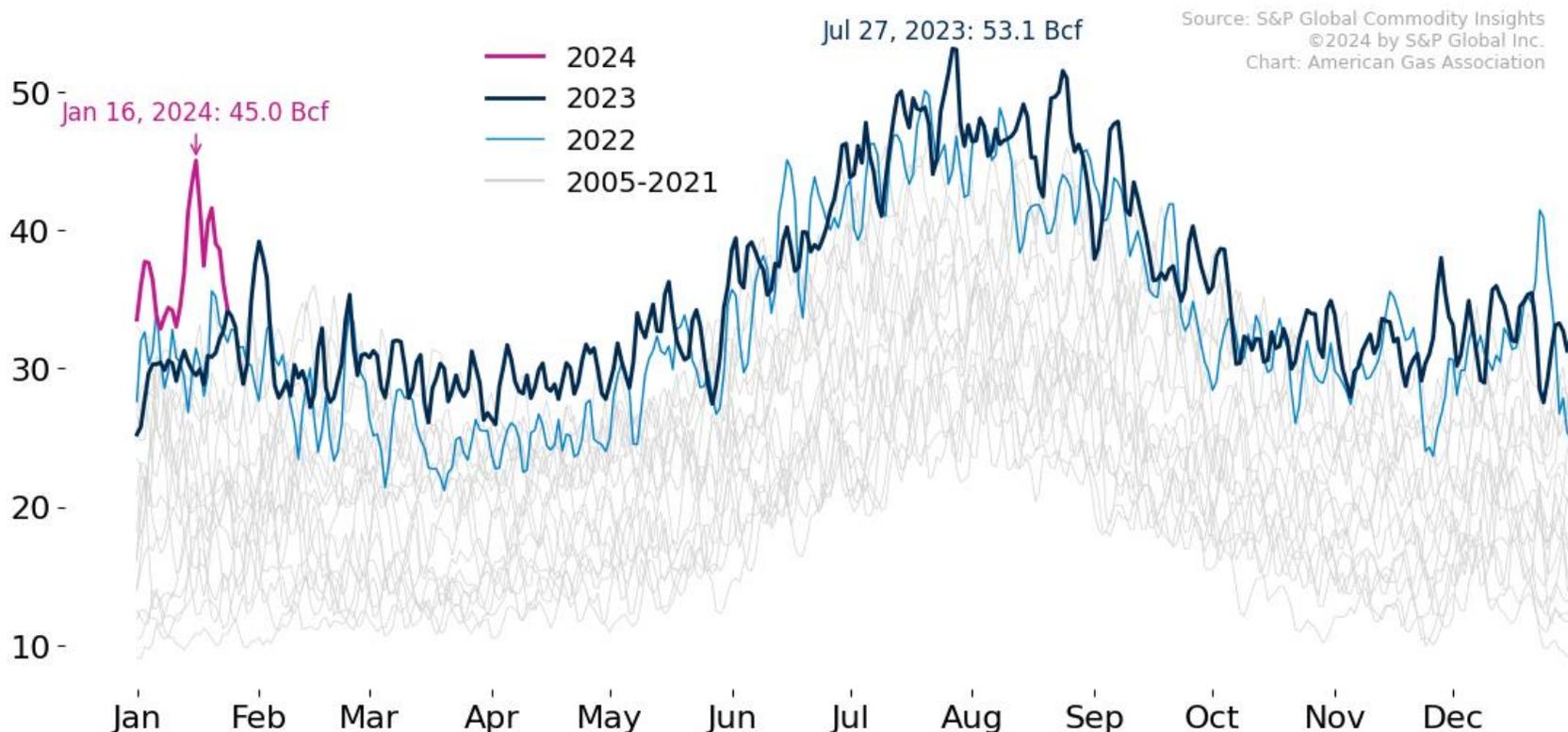


There was a significant shift from coal to natural gas for electricity generation in 2023.



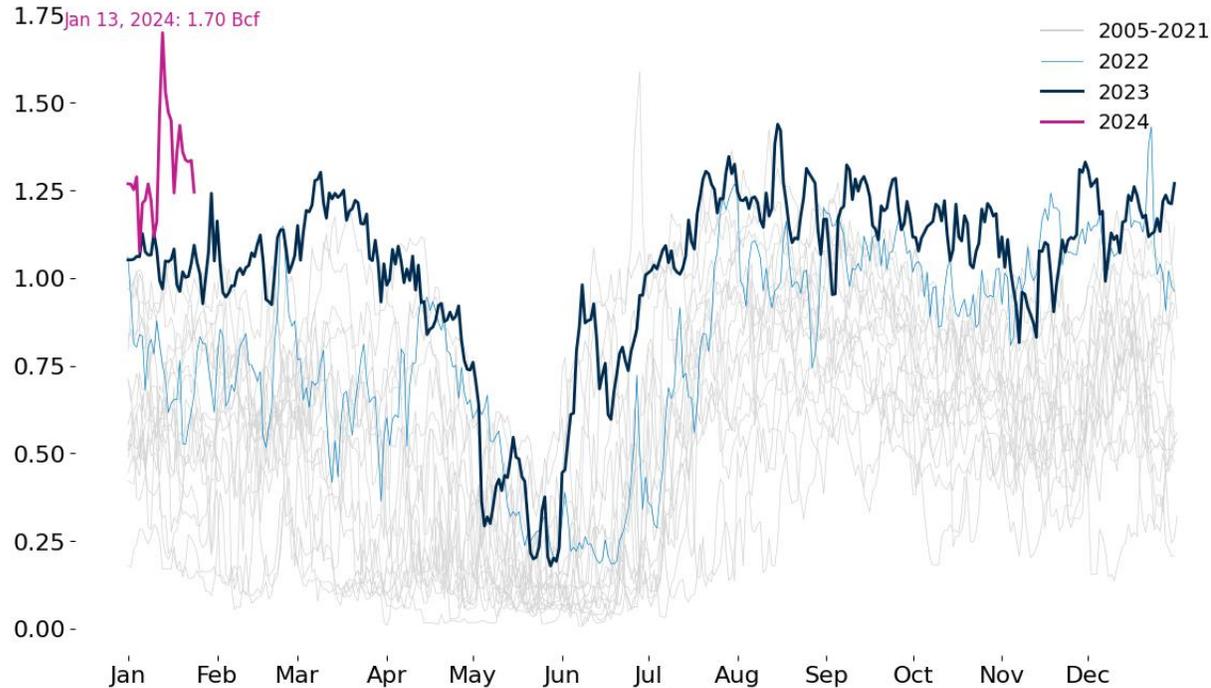
The U.S. power sector is using more natural gas in January than ever before, set a new daily winter record.

Natural Gas Used for Electric Power Generation, U.S. Lower-48 (Bcf per day)

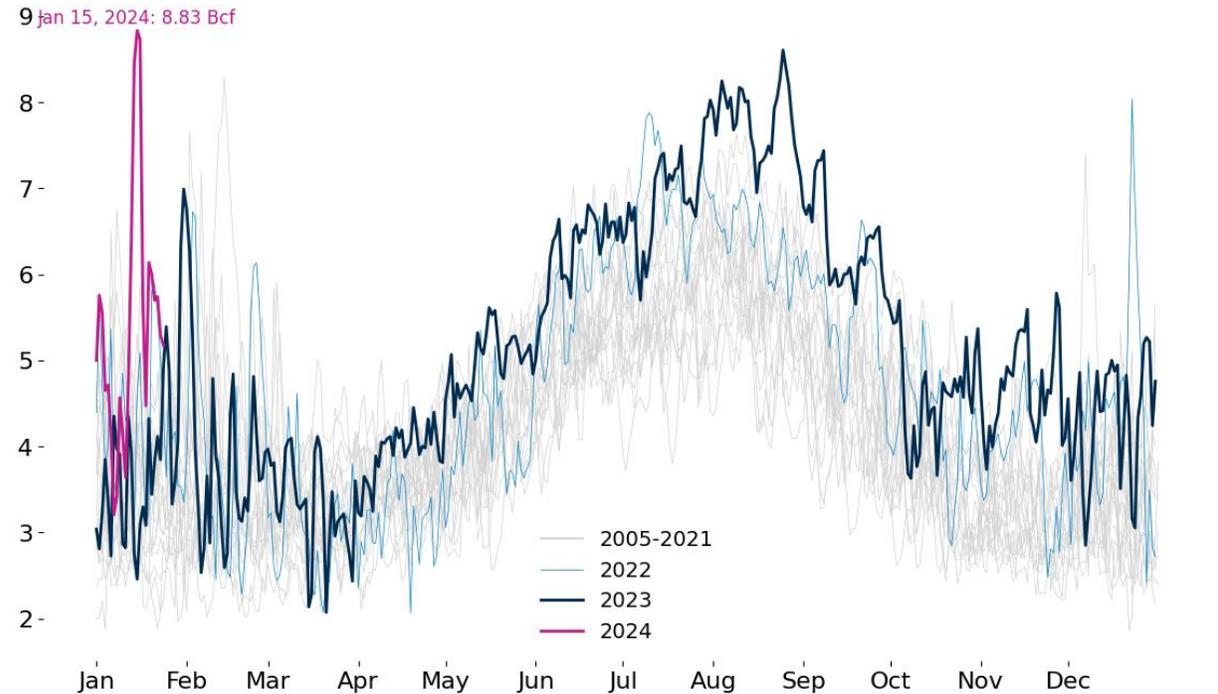


Electric power natural gas consumption set new records in the Northwest and Texas

Natural Gas Used for Electric Power Generation, Northwest (Bcf per day)



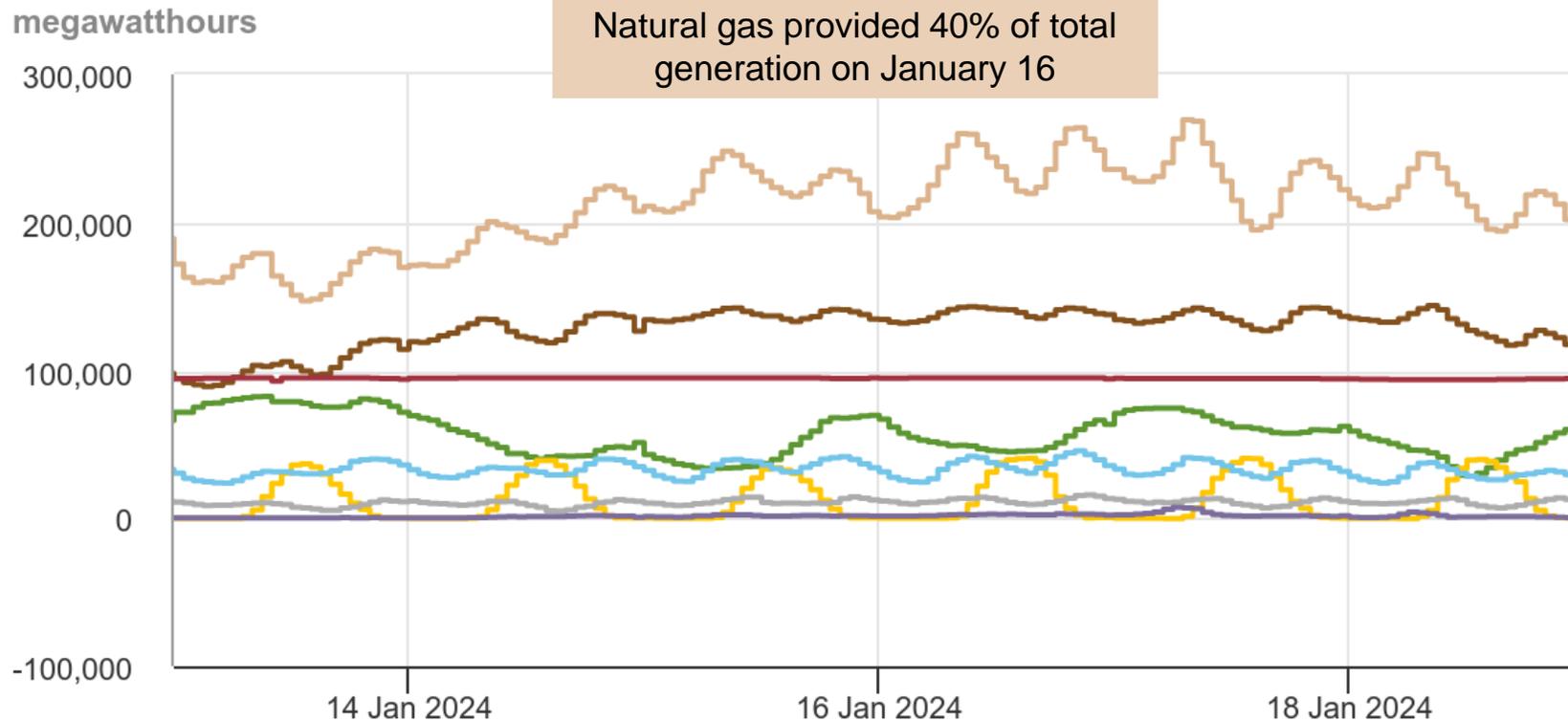
Natural Gas Used for Electric Power Generation, Texas (Bcf per day)



Natural gas was the single-largest generation source

U.S. electricity generation by energy source 1/13/2024 – 1/18/2024, Eastern Time

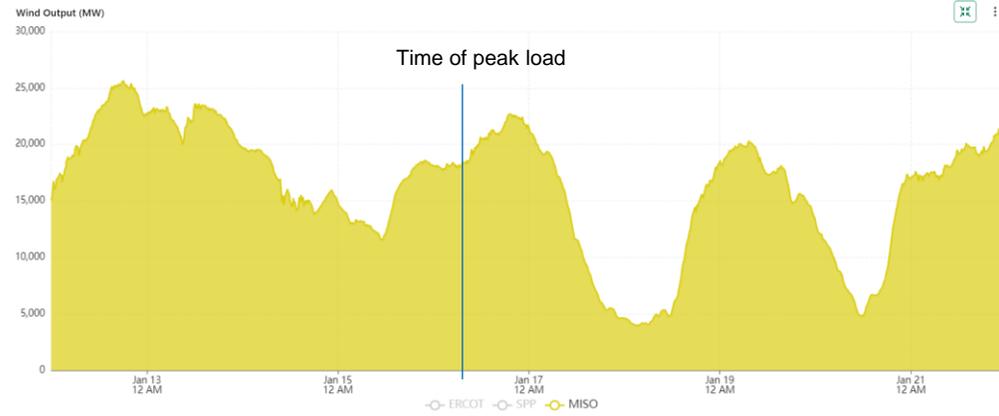
Source: Energy Information Administration
Hourly Grid Monitor



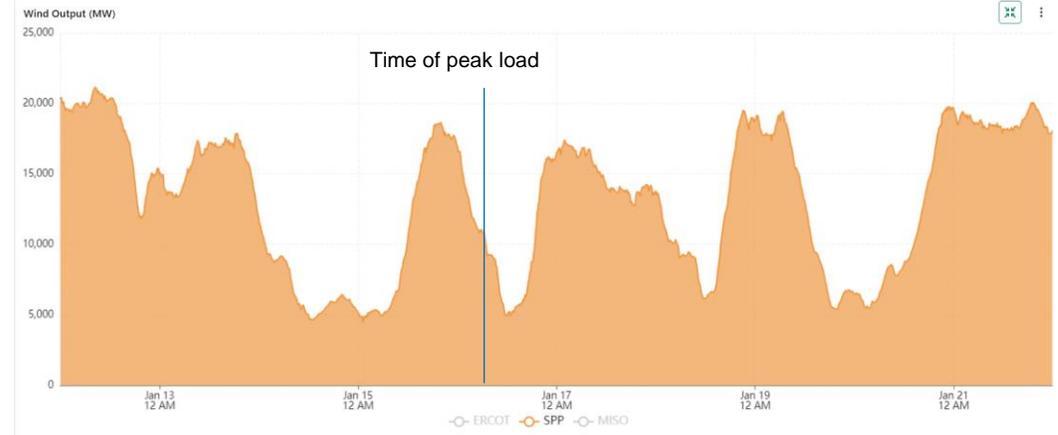
- Wind
- Petroleum
- Total Generation
- Solar
- Natural gas
- Hydro
- Coal
- Other
- Nuclear

Wind output (MW) varied across multiple Regional Transmission Organizations

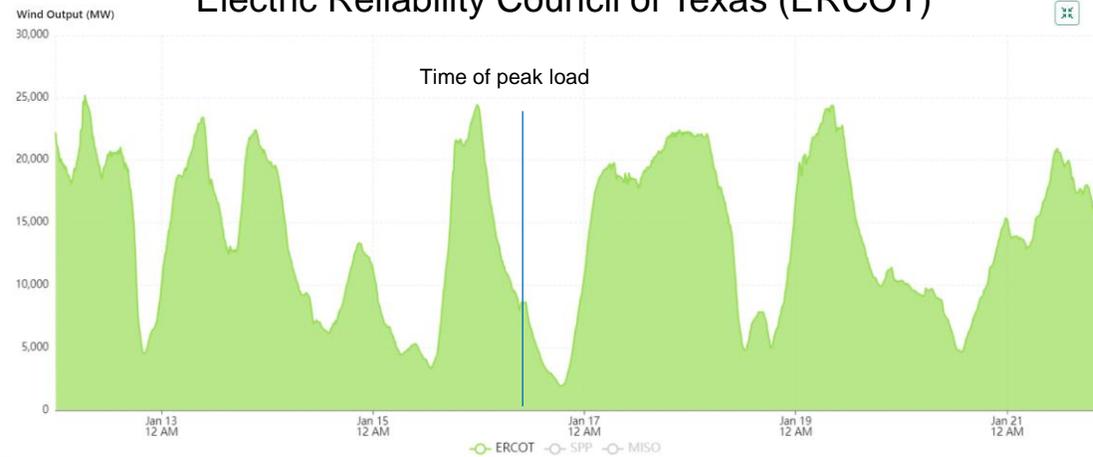
Midcontinent Independent System Operator (MISO)



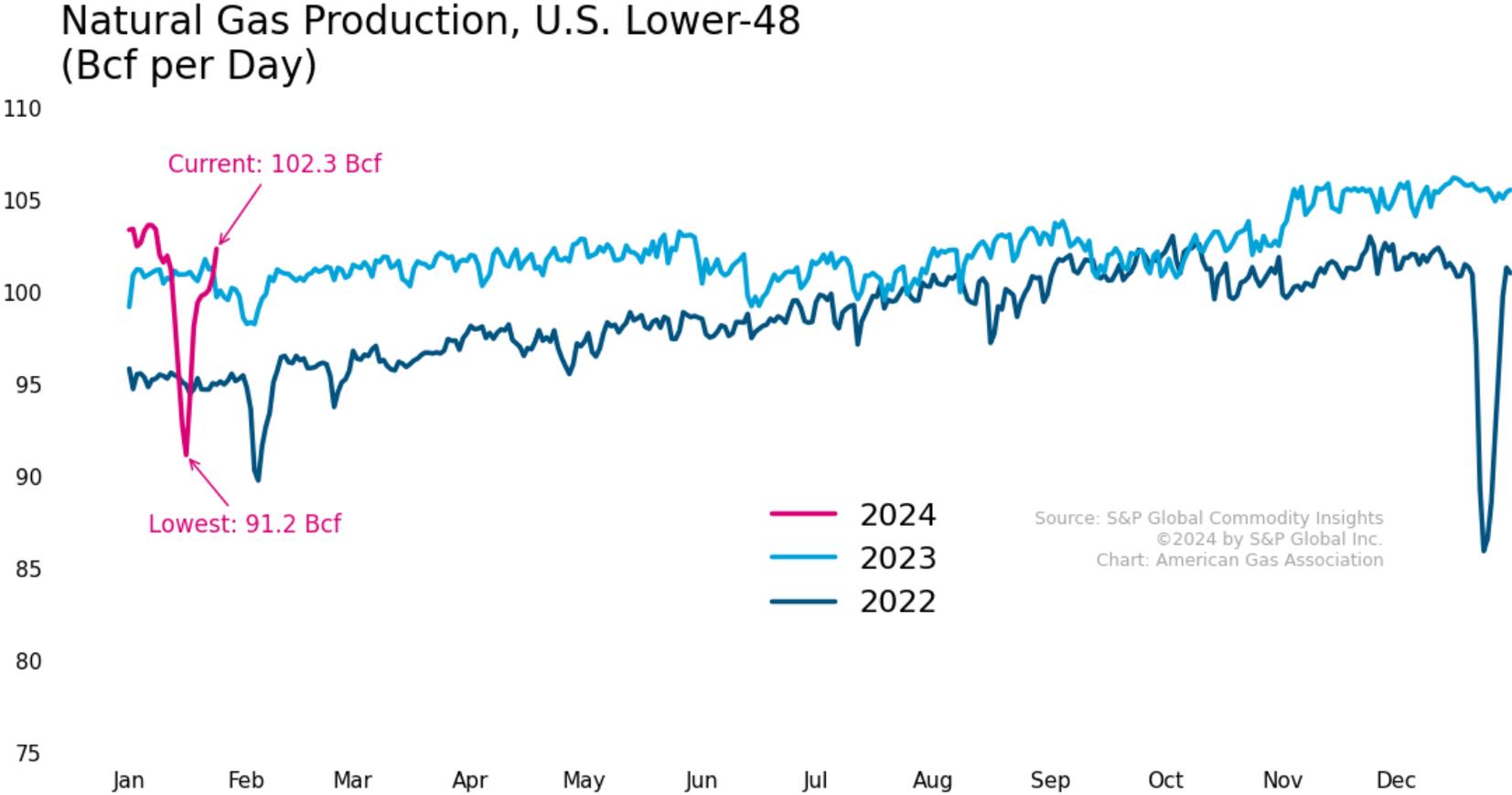
Southwest Power Pool (SPP)



Electric Reliability Council of Texas (ERCOT)

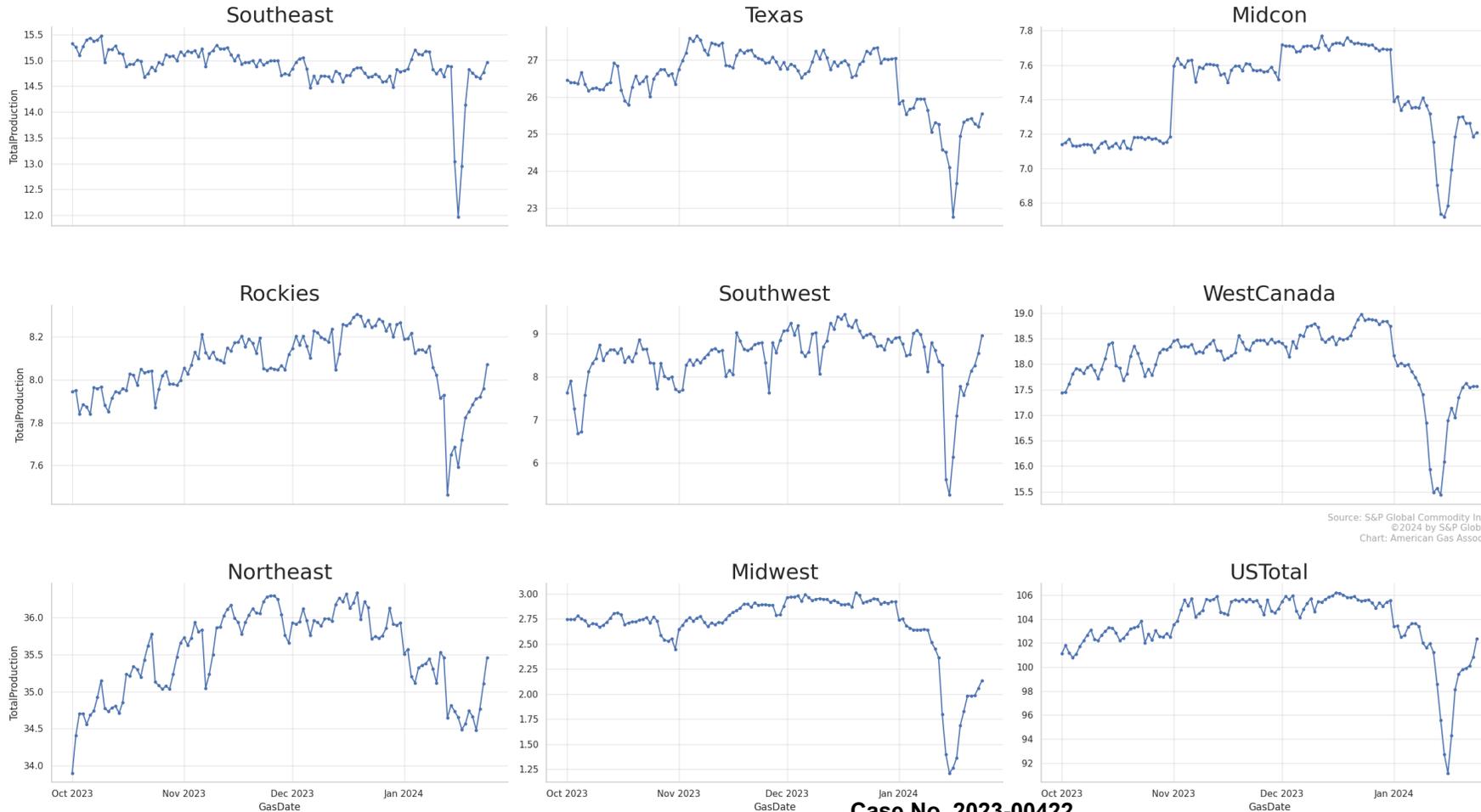


U.S. natural gas production has declined to 92 Bcf per day. Volumes have mostly recovered.



Production fell across several basins, but recovered

Natural Gas Production (Bcf/d) by Region



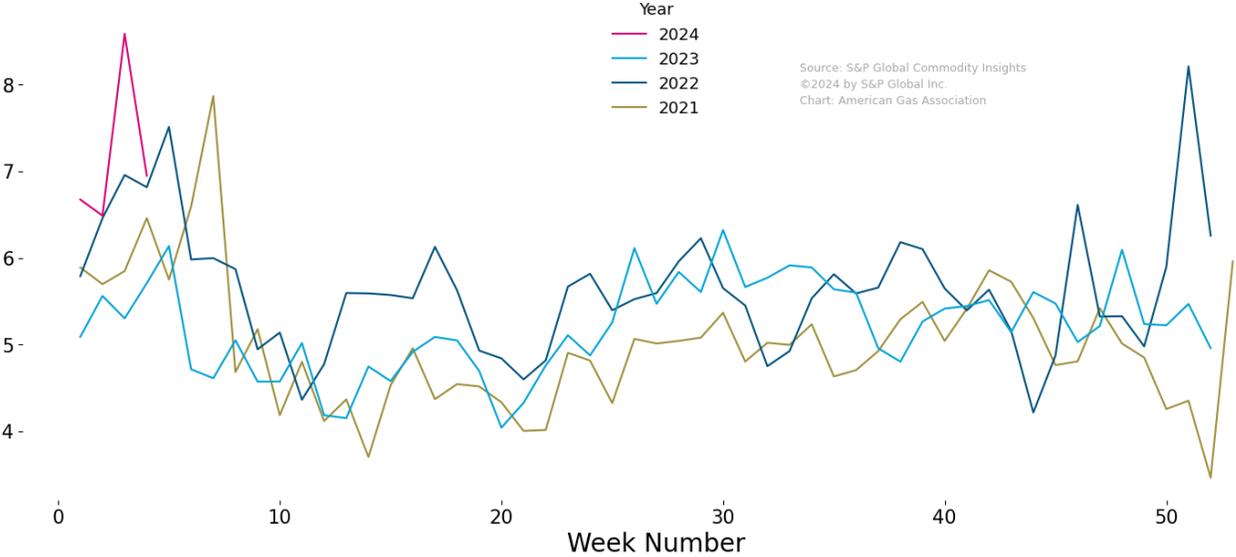
Source: S&P Global
Commodity Insights
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Inc.
Chart: American Gas
Association

Source: S&P Global Commodity Insights
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Chart: American Gas Association

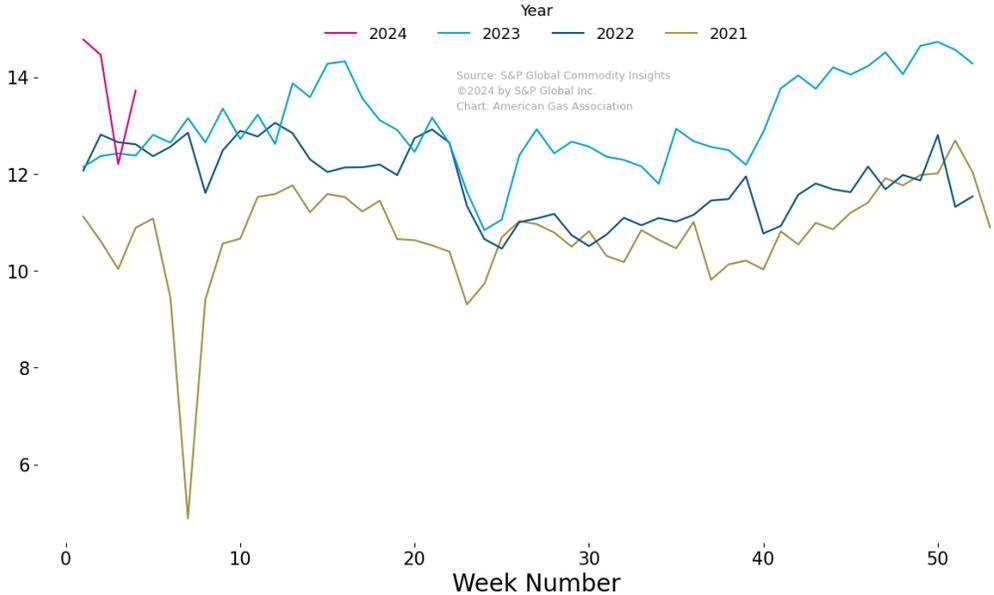


Market flexibility: Canadian gas imports ramp up as LNG demand drops temporarily

Weekly Natural Gas Imports from Canada (Bcf per week)

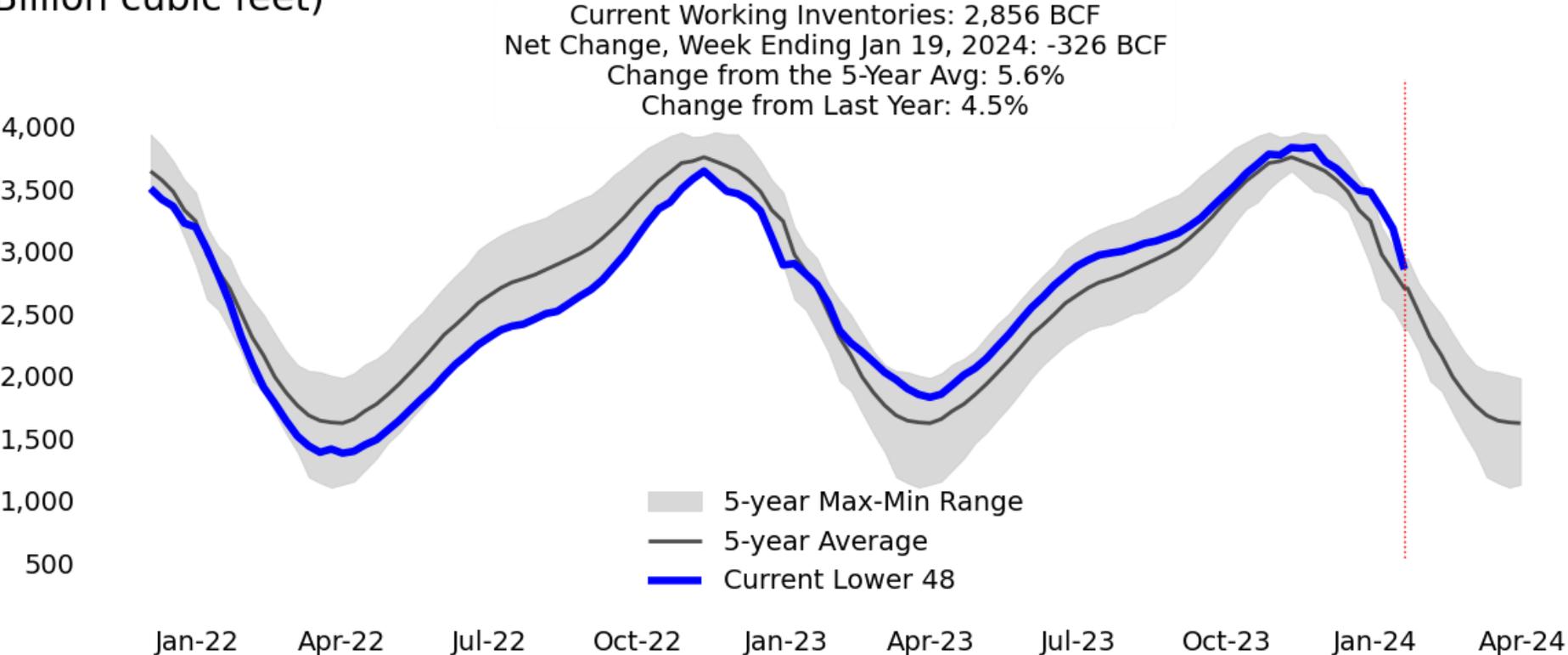


Natural Gas Demand for Feedgas for LNG Export (Bcf per day)

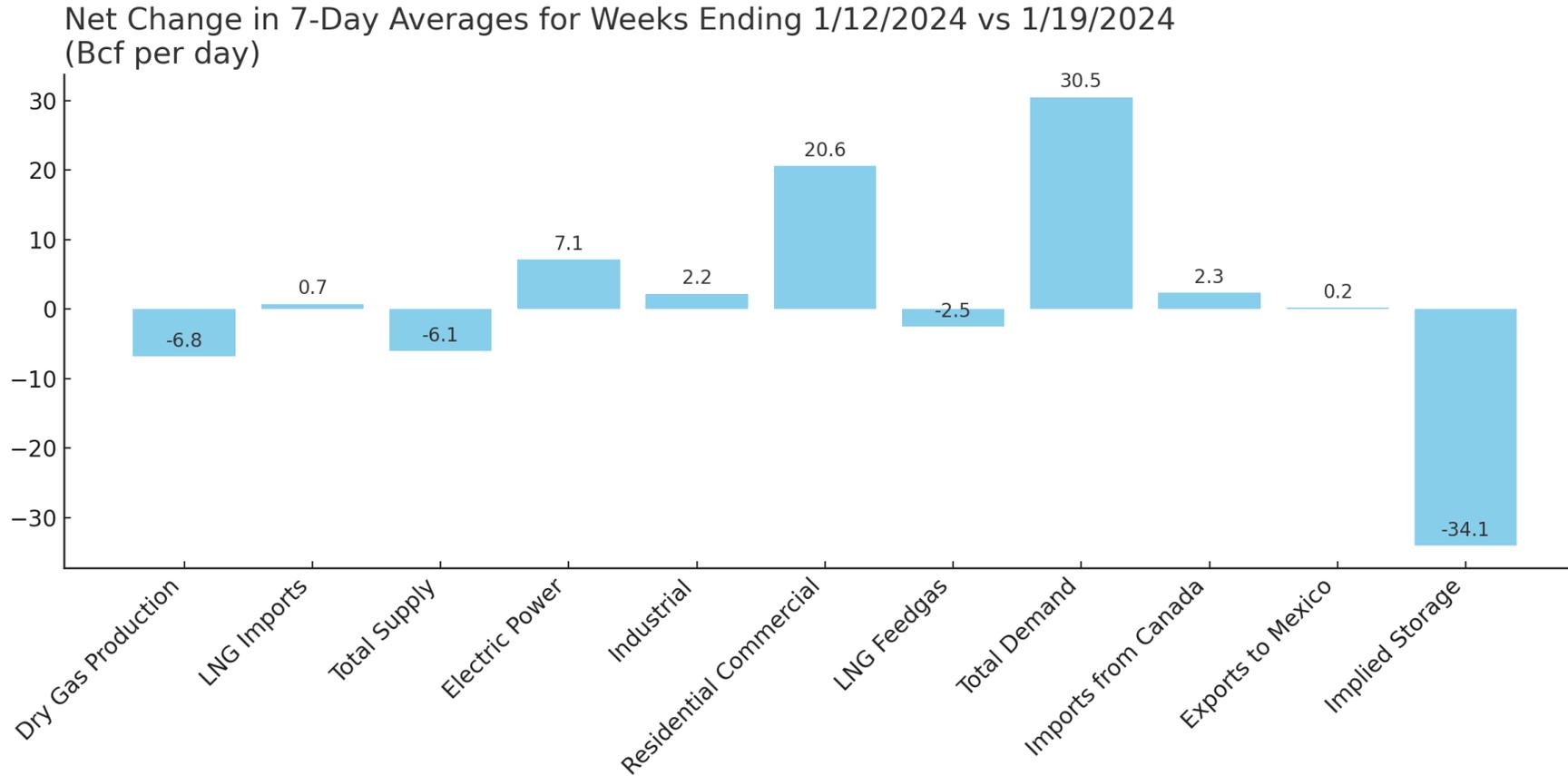


Last week saw 326 Bcf in withdrawals, the **third-largest** weekly draw ever.

U.S. Working Gas in Underground Storage Compared with the Five-Year Minimum and Maximum (Billion cubic feet)

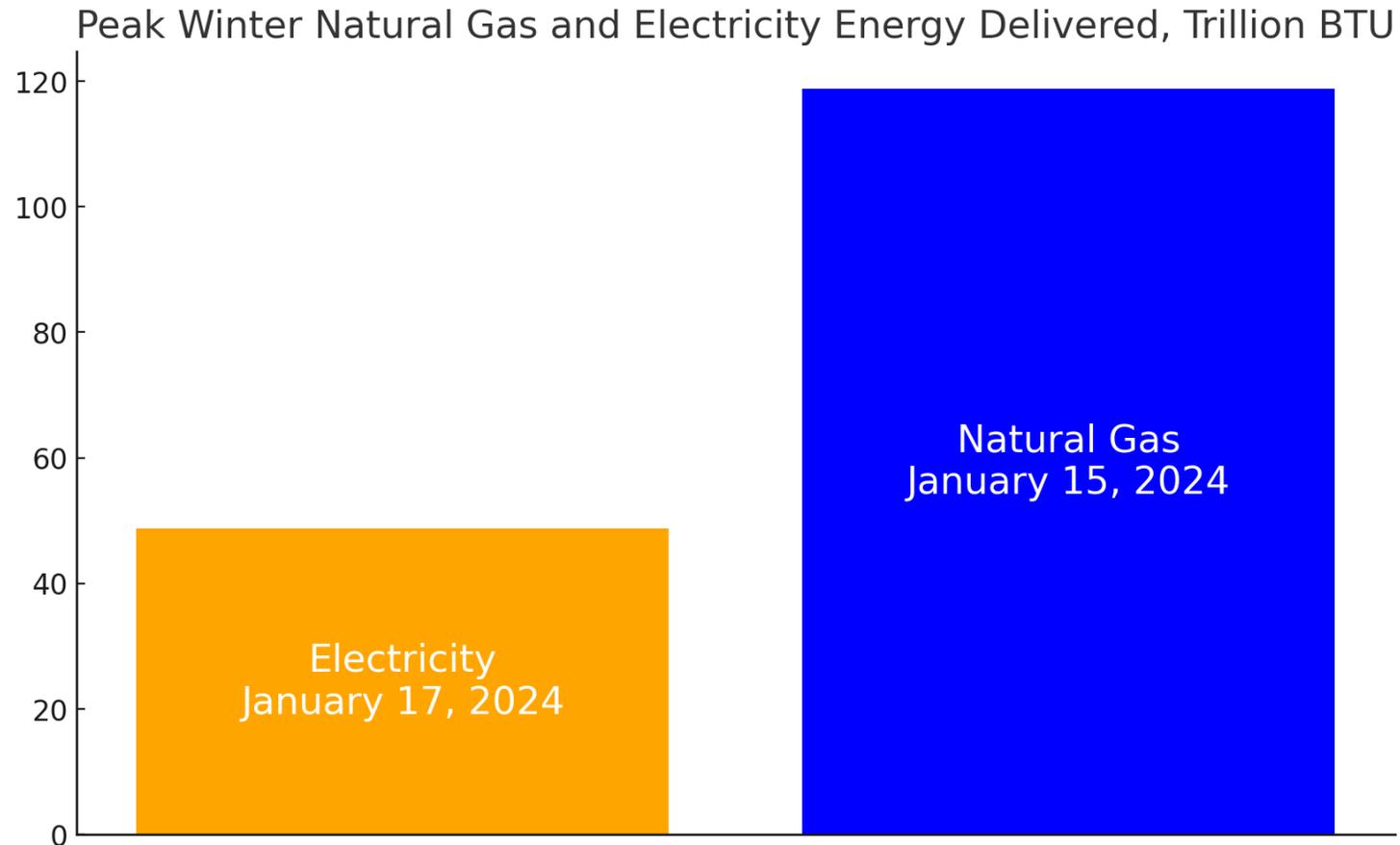


Market balances during the winter storm showed significant flexibility across supplies and demand.



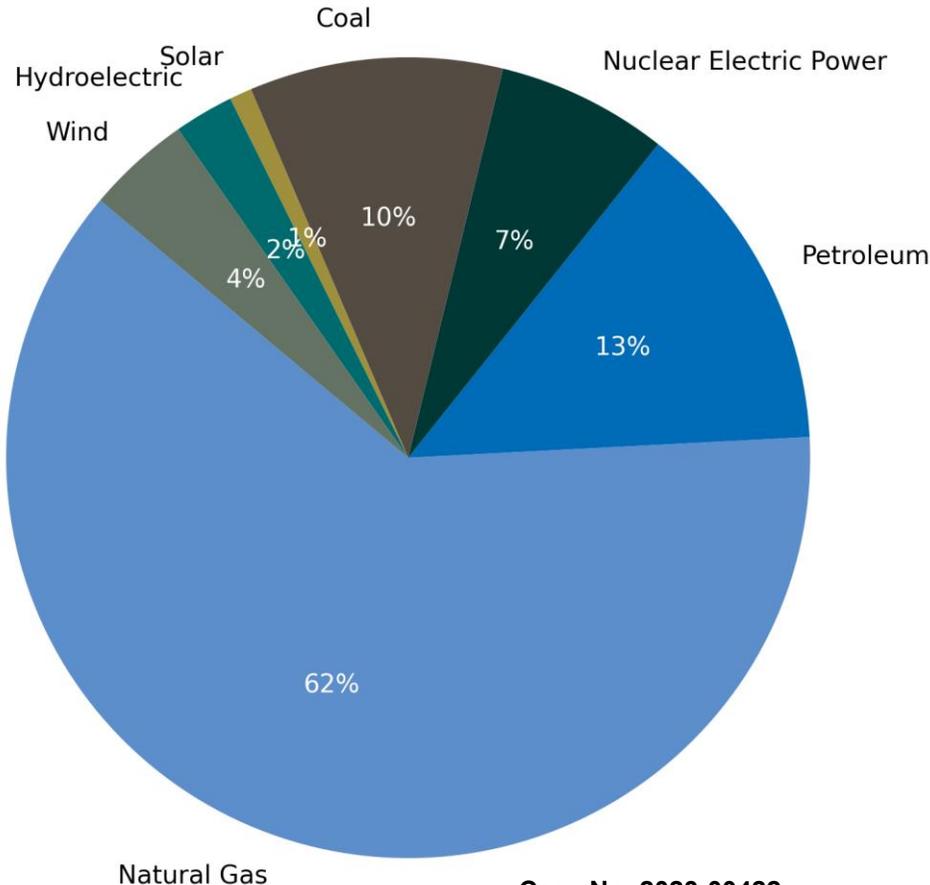
- **Demand** grew rapidly, directed to homes and power
- **Production** dropped, then recovered
- **Flexibility** from Canadian imports and LNG feedgas
- **Storage**: 41% of demand at peak
 - 34% for the week

The natural gas system delivered a substantial amount of energy on peak.



Natural gas provided 62 percent of all energy delivered in the U.S. during the week ending January 19

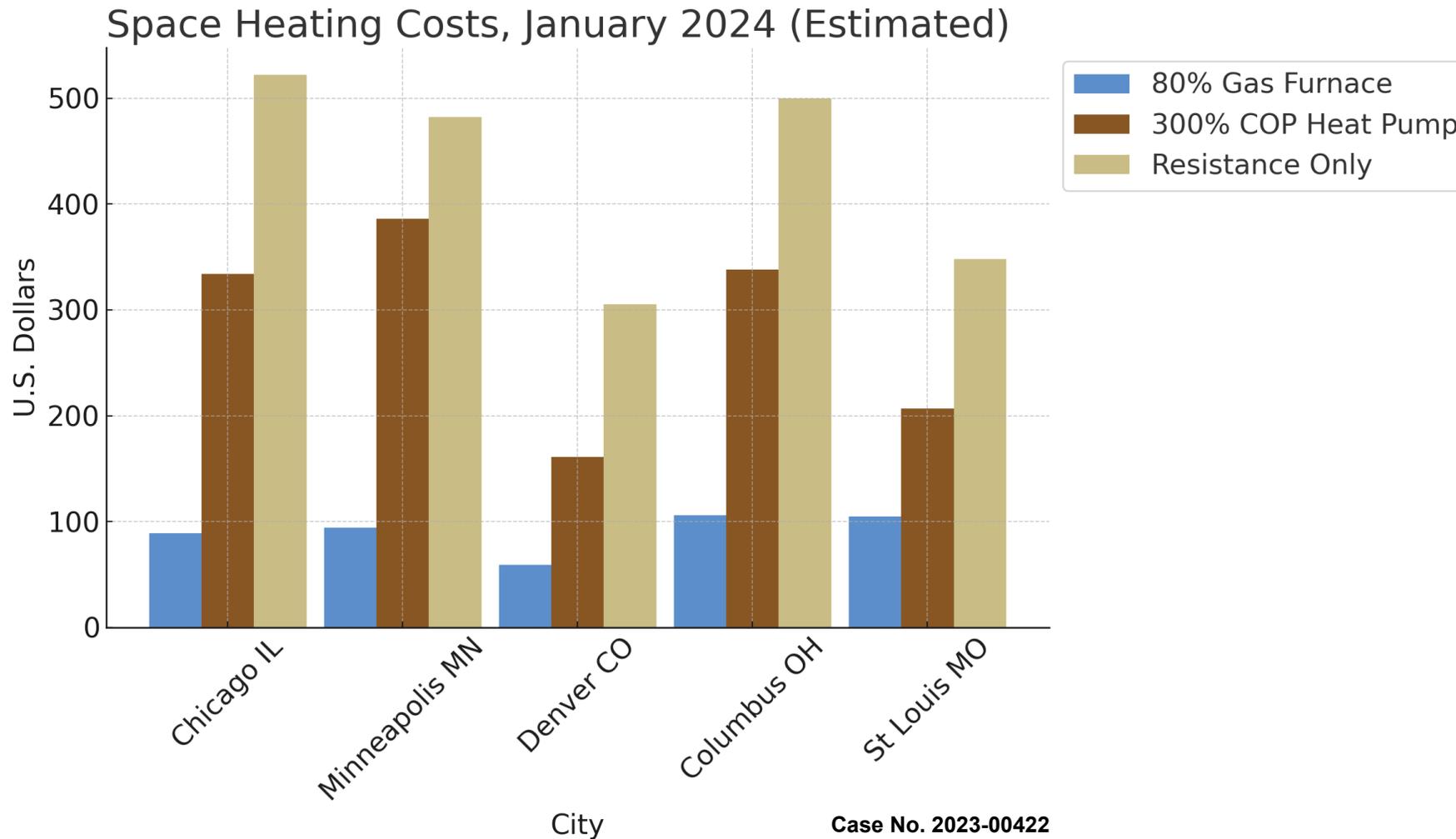
Share of Total Energy Delivered by Source
Week Ending January 19, 2024



AGA Analysis
using data from
S&P Global
Commodity
Insights
Energy
Information
Administration



Natural gas homes will typically have the lowest heating costs during these types of events.

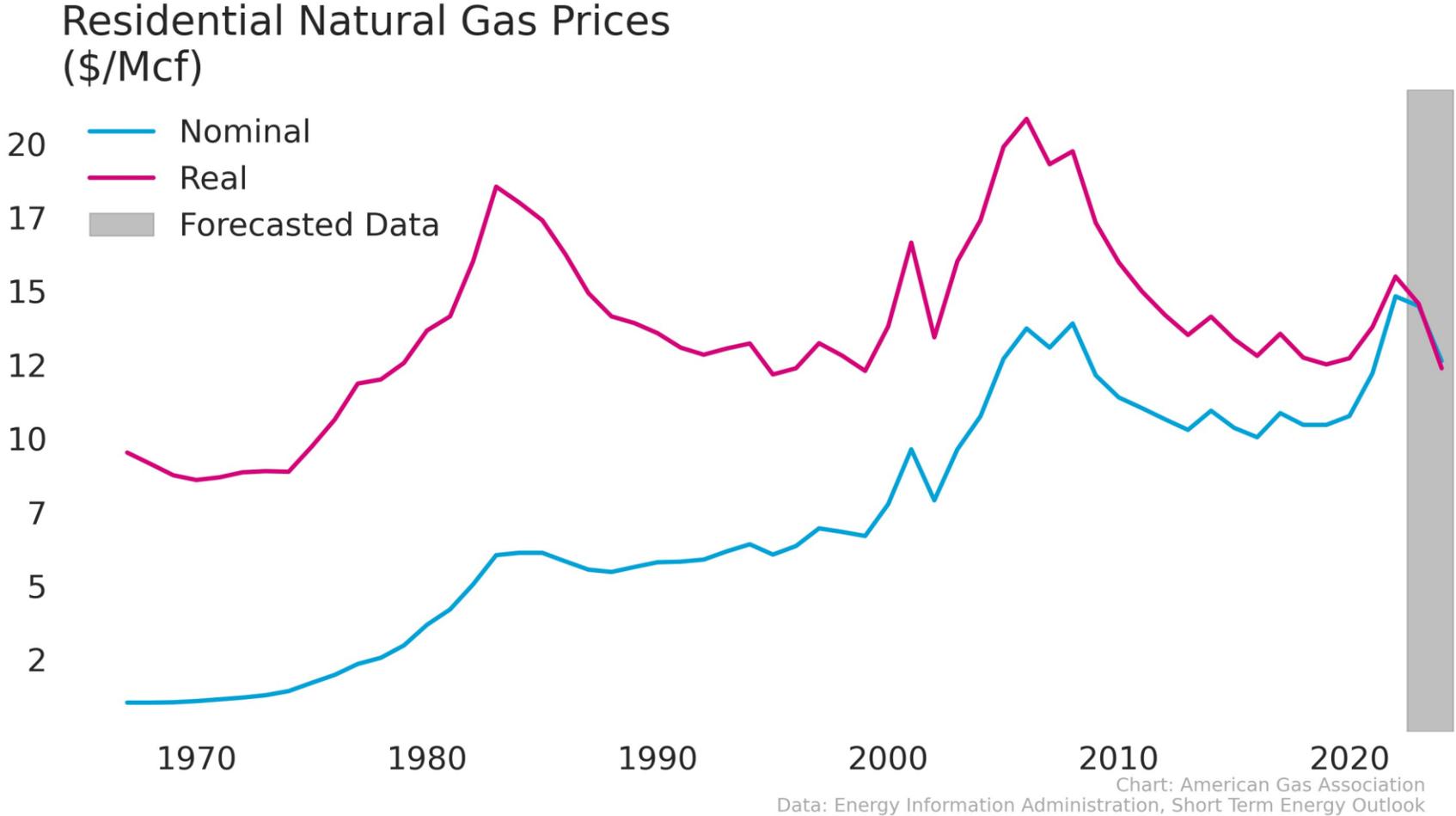


AGA analysis

Estimated using January 2014 weather (polar vortex)

Costs based on projected prices from EIA Short-Term Energy Outlook

Residential natural gas prices expected to drop in 2024



Source: Energy Information Administration, Short Term Energy Outlook
Analysis & Chart: American Gas Association



EIA Outlook: The market tightens through 2025 as production growth slows

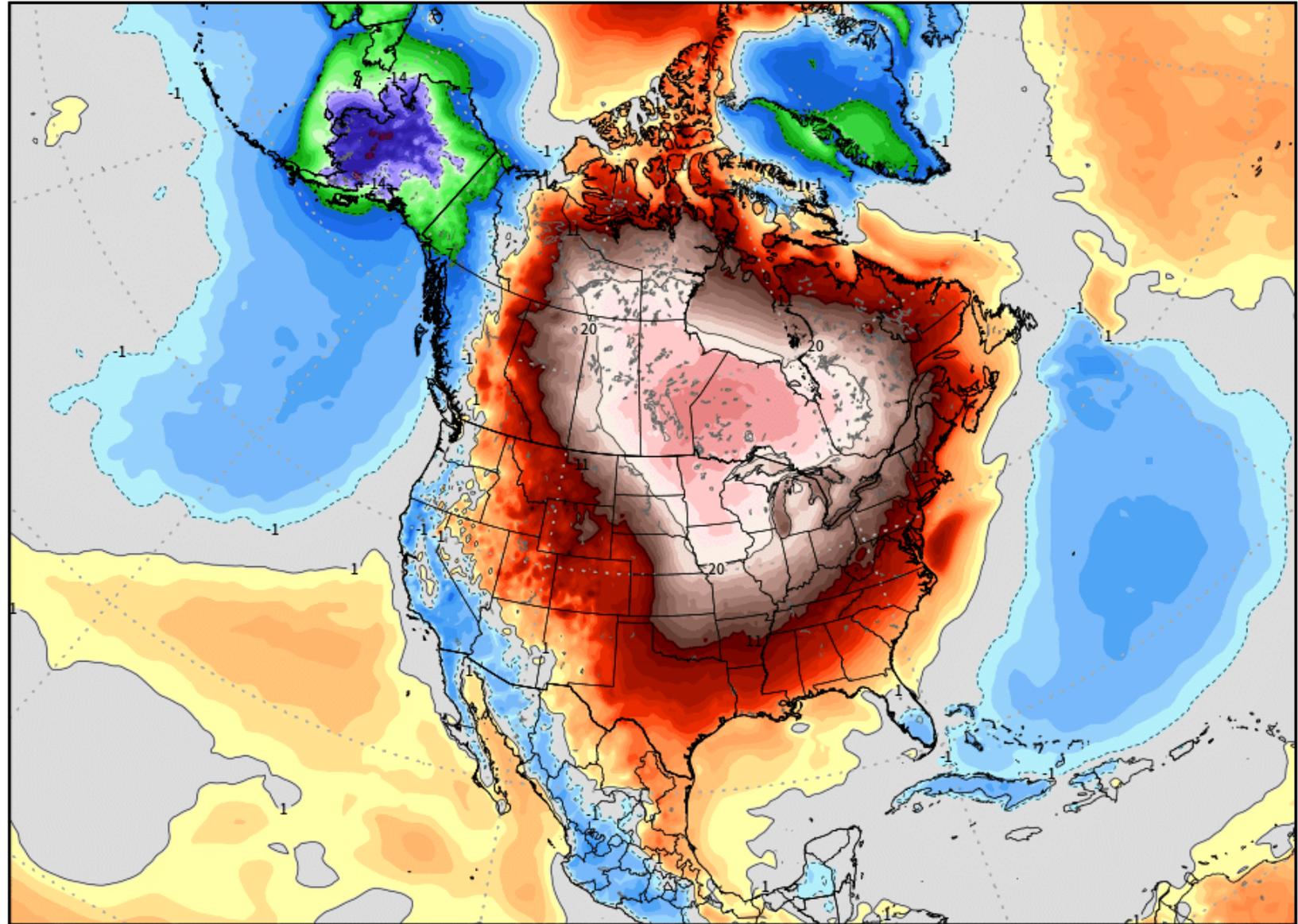
Natural Gas Balances (Bcf per Day)

	2019	2020	2021	2022	Forecast		
					2023	2024	2025
Dry Gas Production	92.9	92.4	94.6	99.6	103.6	105.0	106.4
LNG Net Exports	4.9	6.4	9.7	10.5	11.8	12.3	14.4
Pipeline Net Exports	0.4	1.1	0.8	0.1	1.1	1.8	2.3
Total Consumption	85.3	83.5	84.0	88.5	88.9	89.9	89.7
Dec. Working Gas Inventories (Bcf)	3,188	3,341	3,210	2,925	3,507	3,492	3,458
Net Inventory Change	1.4	0.5	-0.2	-0.8	1.6	0.0	-0.1

Energy
Information
Administration

Short-Term
Energy Outlook,
January 2024

Things are
expected to
warm up



Case No. 2023-00422

Attachment to AG-1 Question No. 26

This service is based on data and products Page 25 of 29 Centre for Medium-range Weather Forecasts (ECMWF)

Bellar / Sinclair

Final Thoughts

- We're seeing **continual records** in natural gas markets during successive cold events, including last week's Winter Storm Heather
- **Natural gas storage** played a crucial role in supporting market reliability
- Natural gas accounted for **most U.S. energy delivered** last week
- The market may tighten into 2025, but the outlook will be sensitive to production levels



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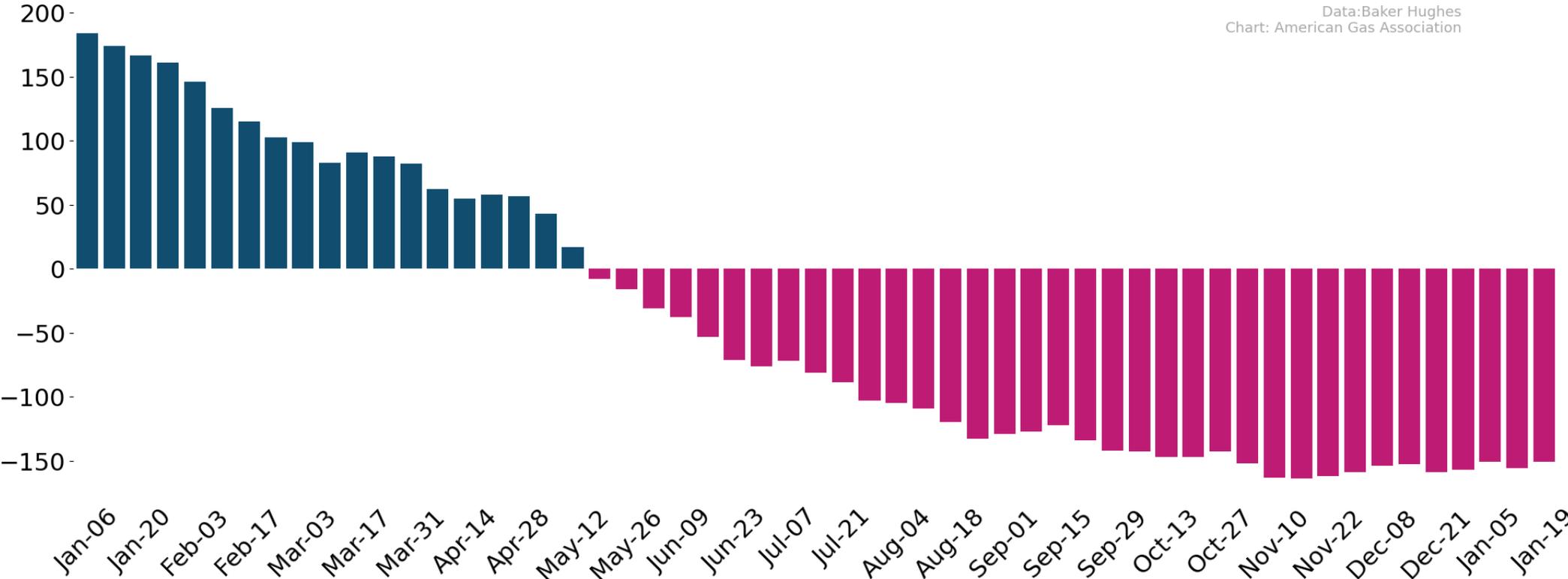
The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 76 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent — more than 72 million customers — receive their gas from AGA members. Today, natural gas meets more than 30 percent of the United States' energy needs.

www.aga.org

Oil and gas rig counts remain well below year-ago levels

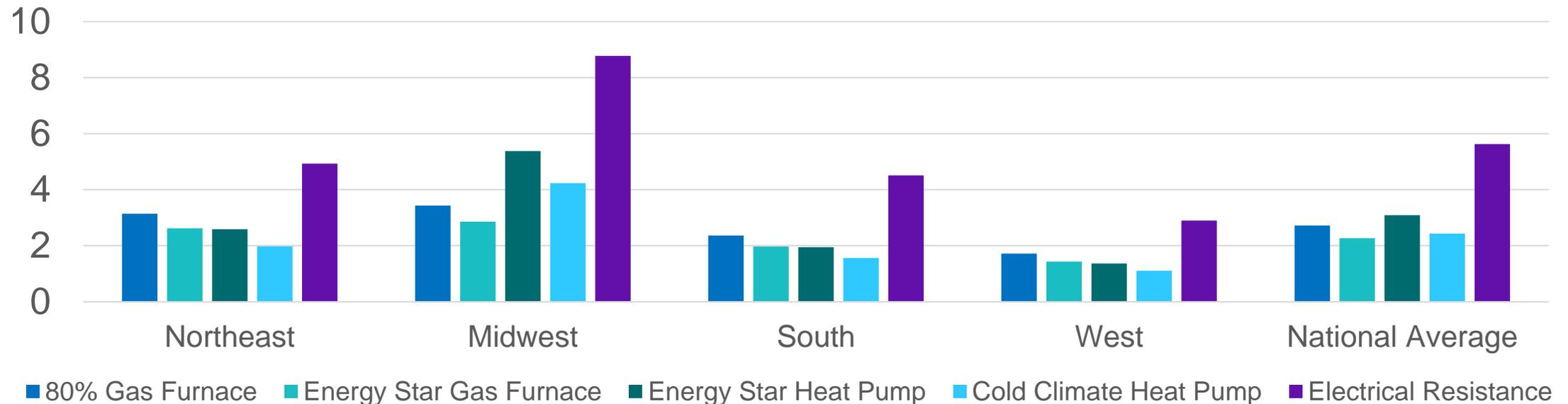
Change in U.S. Operating Rigs from Year-Ago Levels for Each Week (2022-2024)

Data: Baker Hughes
Chart: American Gas Association



Potential Emissions Impact from this Winter Heating Season

2023 - 2024 Winter Heating Emissions by Furnace Type
(Metric Tons CO₂e)



An Energy Star gas household could have a **carbon footprint that is 27% lower** this winter compared to a standard Energy Star-rated heat pump; **60% lower emissions** compared to an electrical resistance furnace.