GELBER & ASSOCIATES

Natural Gas Price Forecast

2023 Hedge Season

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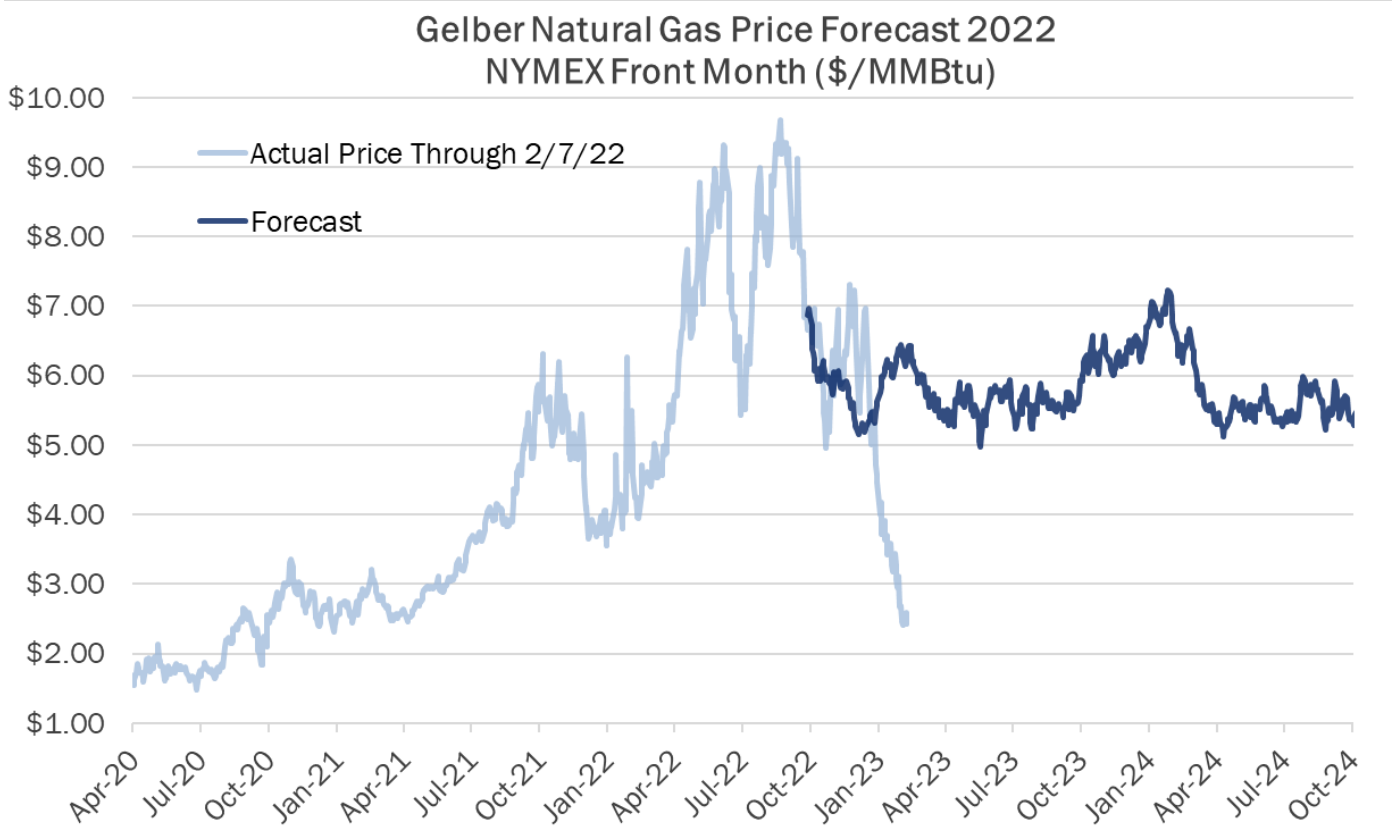
Introduction and Disclaimer

Gelber & Associates (G&A) is pleased to provide its 2023 Natural Gas Price Forecast. This Forecast predicts the NYMEX front-month natural gas contract for delivery at Henry Hub through February 2025 and provides guidance for hedging 2023-24 and 2024-2025 winter seasons.

The content provided within this Forecast is for informational purposes only and is not a recommendation. Although any statement of fact is based upon sources that G&A believes to be reliable, G&A does not guarantee the accuracy of the information enclosed, has no knowledge of its use or application, and will not be liable for its use or misuse.

Executive Summary



Since our last 2-year forecast in September 2022, there has been a massive shift in sentiment in the US natural gas market. The changes first began in the autumn of 2022 and have continued into early 2023. Over the course of fewer than six months, what began as a somewhat bullish outlook on the natural gas market rapidly flipped to a robustly bearish perspective among gas market participants and traders. As a result, NYMEX Henry Hub natural gas futures peaked at $10.00/MMBtu during the late summer of 2022 before sliding to $7.00/MMBtu by mid-December. After that, the proverbial rug got pulled out from underneath NYMEX gas futures as prices collapsed to the $2.30s/MMBtu by February 2023. Over the course of the next couple of years, while more futures volatility is ahead, the overall forecast is for generally higher trending prices.

The driving forces behind the steep downside action in prices resulted from multiple bearish influences. The most significant price-setting mechanism was the record-warm month of January 2023. This set the stage for rather meager weekly gas storage withdrawals, which notably underperformed to the point where a gas storage 'build' occurred in January for the first time in the history of the market.

At the same time, over the last several months, record high dry gas production and a chain of persistent delays in bringing the Freeport LNG export terminal back online led to an overage of natural gas supply and exacerbated bearish sentiment in the market. This, in turn, injected a hefty dose of downside momentum in NYMEX gas futures, which ultimately plunged by more than 65% from mid-December to early February, at a time when prices are usually underpinned with a winter premium.

Looking ahead, G&A projects that the US natural gas market will undergo more notable changes in the next couple of years as it moves toward playing an even bigger role in a more globalized market. This will be particularly punctuated as new LNG export capacity is scheduled to come online along the Gulf Coast about a year from now. It should be highlighted that the Henry Hub price outlook published in the June 2021 edition of the G&A Forecast is coming to fruition. At that time, we noted that over the next couple of years the market would see an acceleration of drilling activity and production growth, along with the potential for a global LNG supply glut, rising NYMEX WTI oil futures, and the possibility of a slowdown in economic growth.

Market Outlook

At the start of 2022, US dry natural gas production was wobbling near 96 Bcf/d and commenced on an uphill climb over the summer and fall months. At the time that our last 2-year forecast was published in September 2022, volumes had grown to slightly above 100 Bcf/d, topping out at record levels above 102 Bcf/d during the last quarter. Since then, volumes have pulled back to around 99 Bcf/d, but appear on pace to recapture the 100 Bcf/d level in the relatively near term. However, because of the recent plunge in NYMEX gas futures prices below known gas well break-even levels of around $3.50/MMBtu, the future of production volumes in 2023 may surround gas producers' willingness to produce additional molecules in a low price environment, which will be evidenced in the months ahead.

Because NYMEX WTI oil futures prices are oscillating between roughly $74.00/bbl to $81.00/bbl, there is plenty of financial incentive for oil producers to continue exploration and production efforts this year. As such, associated gas production in areas such as the Permian Basin suggests that dry gas production volumes will continue to rise (even in a low-priced environment) by as much as 4 Bcf/d to 5 Bcf/d this year, potentially testing 104 Bcf/d or more by the end of 2023.

On the US power demand side of the spectrum, the share of natural gas in the electricity generation side of the market is forecast to decline by a small percentage this year due to an economic slowdown in the US. However, the current very low cost of natural gas is also enticing fuel switching, so there may be a counterbalancing effect in the works.

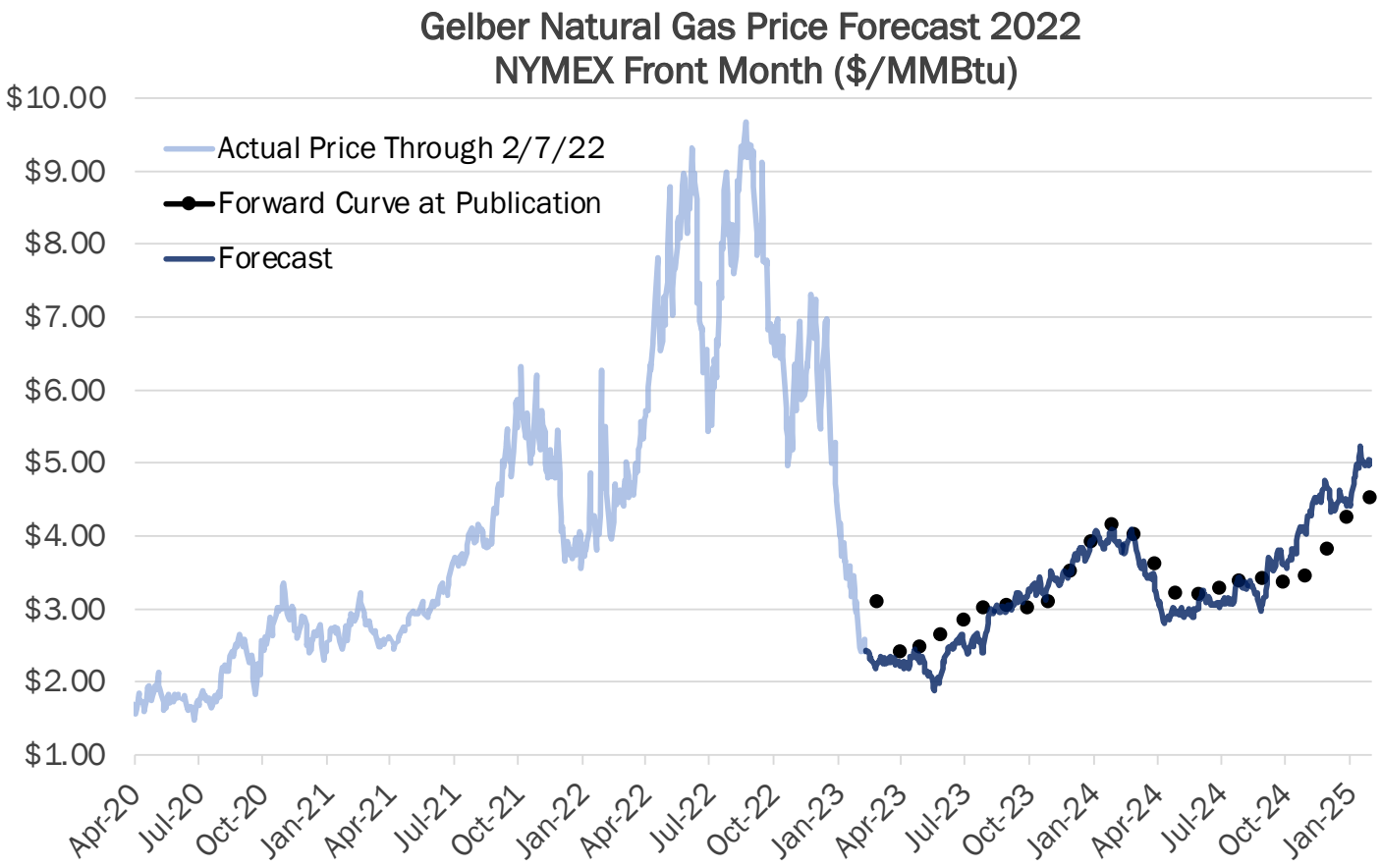
Overall electricity consumption is forecast to see a bit of a downturn this year and only nominally increase in 2024, but natural gas consumption gains should begin to ramp higher amid increased industrial demand due to lower gas NYMEX gas futures prices. For the most part, gas demand has been dominated by weather-related declines. In January, US residential/commercial demand was down about 12.5 Bcf/d to an average of slightly over 46 Bcf/d, the lowest in over a decade. Industrial demand was down by slightly over 2 Bcf/d to around 24 Bcf/d, while power burn was mostly unchanged near 31 Bcf/d. From these three key sectors, total gas demand averaged just over 101 Bcf/d, which was down an impressive 15 Bcf/d compared to last year.

When it comes to US demand for LNG Exports, recent volumes were nearly unchanged year-over-year in January due to increases in volumes at Calcasieu Pass and Sabine Pass LNG export terminals that helped to mitigate the shuttered Freeport LNG export terminal. LNG feedgas flows in January averaged slightly under 12 Bcf/d, but are projected to ramp up to more than 14 Bcf/d when Freeport returns to service in the weeks ahead. Over the course of the next couple of years, LNG export volumes will see a nominal increase in 2024, but will likely hover near 15 Bcf/d, barring any additional outages, until new LNG export capacity comes online after 2024.

With respect to US gas storage, the Energy Information Administration (EIA) showed that total gas storage inventories stood at 2,366 Bcf for the week ended February 3. Presently, the gas storage surplus, which is oscillating around 120 Bcf versus the five-year average, is on pace to nearly double by mid-to-late February. The year-over-year storage surplus, which has already exceeded 230 Bcf, could top 350 Bcf within the next couple of weeks. This will be the highest that it has been since late November 2020, which, not so coincidentally, is also the last time that NYMEX gas futures were at similarly low-price levels.

Currently, the end of winter season gas storage carryout looks to land at around 1,700 Bcf to 1,900 Bcf as of the April 1 start to the gas storage refill season. Depending on the intensity of summer heat across the US and how dry gas production volumes will respond to lower NYMEX gas futures (below production cost breakeven levels), it's not out of the question that gas storage totals by October 1, 2023 could test 4,000 Bcf. G&A's detailed price expectations for prompt month and winter strips for the next 24 months follow.

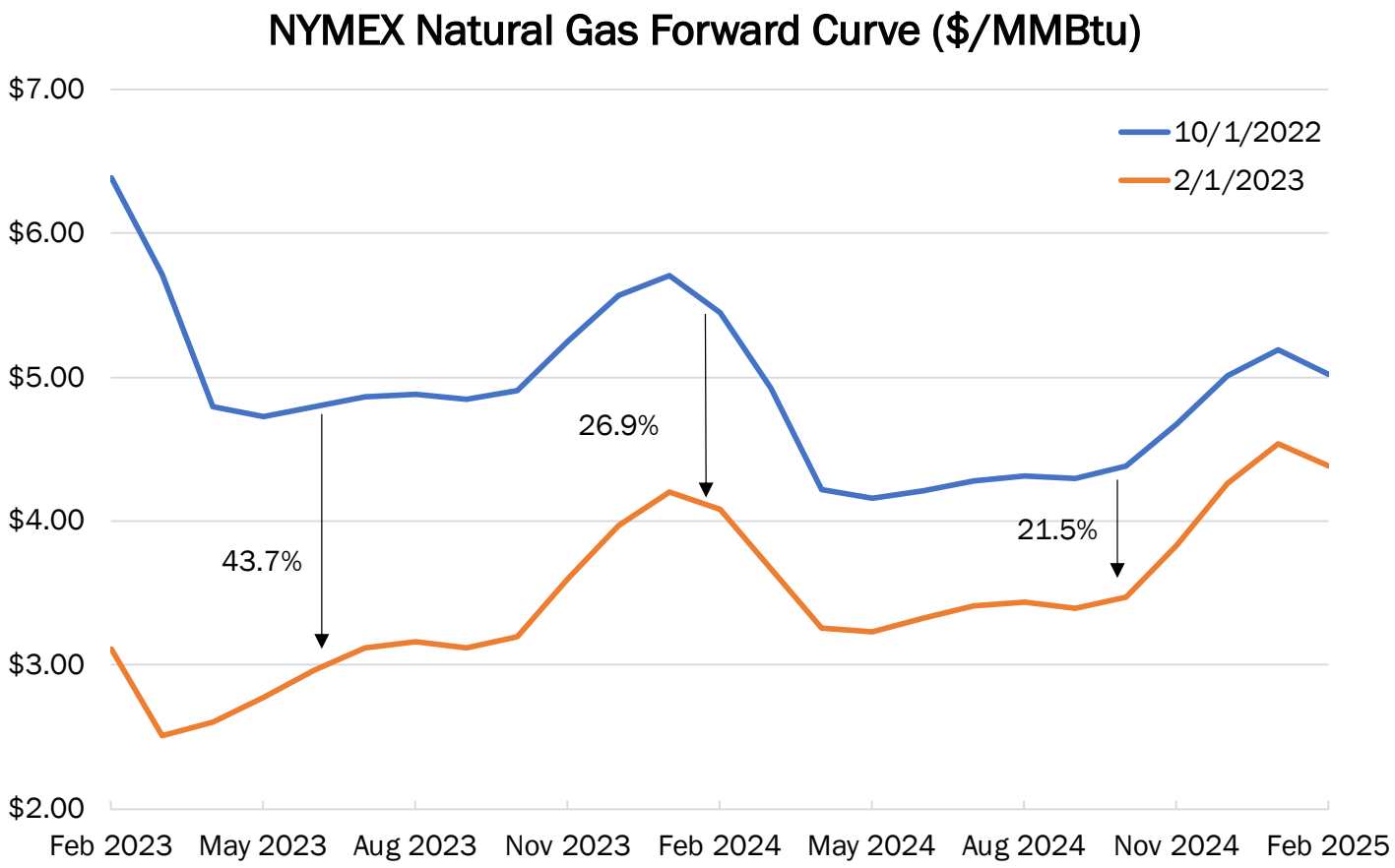
2022 Natural Gas Price Forecast



- G&A's forecast for 2023 is below currently elevated forwards due to robust supply outweighing forecasted demand and high levels of gas in storage.
- As we get later into the forecast period G&A's forecast surpasses the forward curve suggesting upward price risk in late 2024 and beyond indicating favorable hedging opportunities in the deferred months.
- Strong demand growth and production stagnation could be a catalyst for upward price movement, though current fundamentals suggest that we will continue to be in a bearish market for the near-term.
- The low-price market incentivizes producers to not complete wells and ease off production until a more favorable pricing environment presents itself.
- NYMEX price fell over winter 2022 due to a confluence of bearish market events such as record production levels alongside bearish storage withdrawals in the face of record January warmth.
- The market has consistently hit new lows and has had subsequent losses over the last 7 weekly settle prices and is now trading at price levels not seen since April 2021.

G&A NYMEX Price Forecasts ($/MMBtu)				
	Summer 2023	Winter 2023/24	Summer 2024	Winter 2024/25
Forecast Average	$2.71	$3.82	$3.17	$4.69
Forward Curve (2/15)	$3.03	$4.04	$3.40	$4.26

Winter Strips Forecast

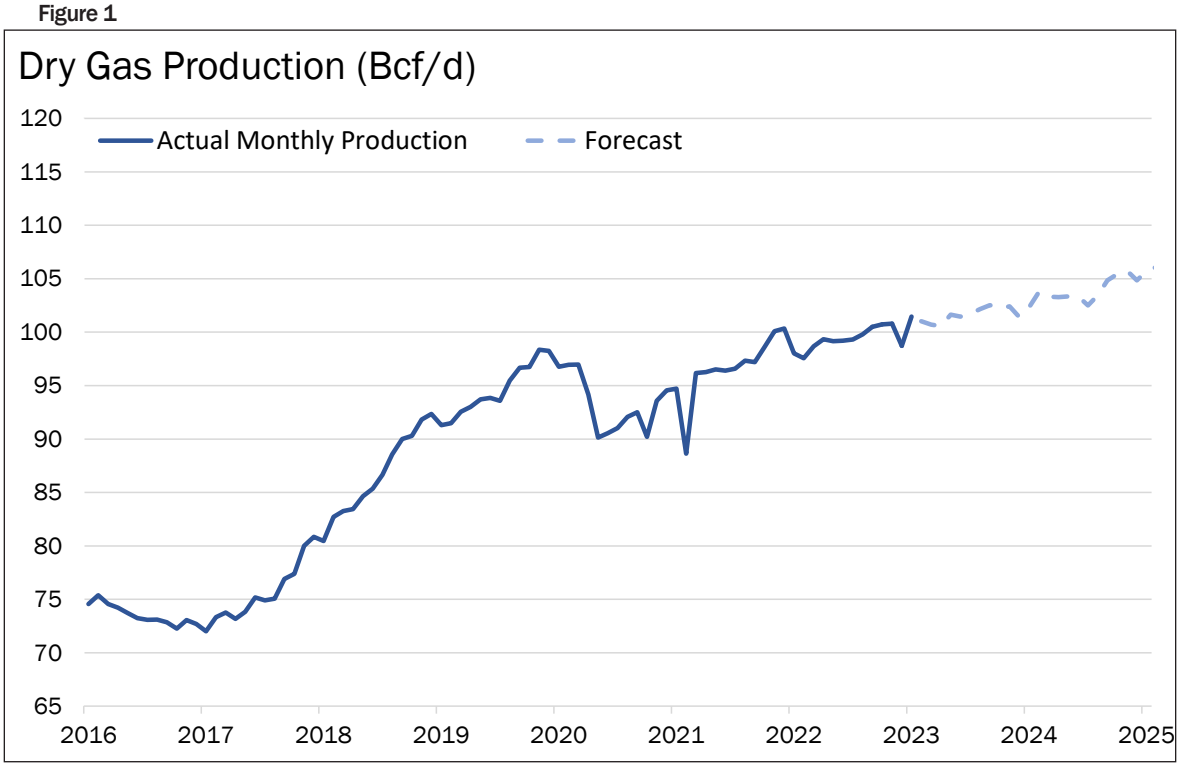


- At present, the forward curves have dropped significantly from their positions 3 months ago with an across the board deflation of price.
- Gas futures still have some room to fall before reinflating to the forward curve in the back half 2023.
- Relatively favorable hedging opportunities are expected to continue until fall of 2023
- Storage is in a strong position and is looking to finish above the five-year average by the end of season.
- Fundamentals suggest that a long-term bullish trend is underway with LNG development and shifts to the fuel mix for power generation pushing prices to the upside.
- When forecasting prices, G&A's predictions are underpinned by long-term trends in supply, demand, and storage fundamentals. The forward curve has shifted dramatically since the previous 2-year forecast, and new strategies must account for a number of new elements responsible for the shift such as weather variations, technical trading, seasonal buying trends, fuel switching, and international price dynamics. The following section delves into various indicators and analysis that contributes to our strategic outlook.

Market Fundamentals

Supply Forecast

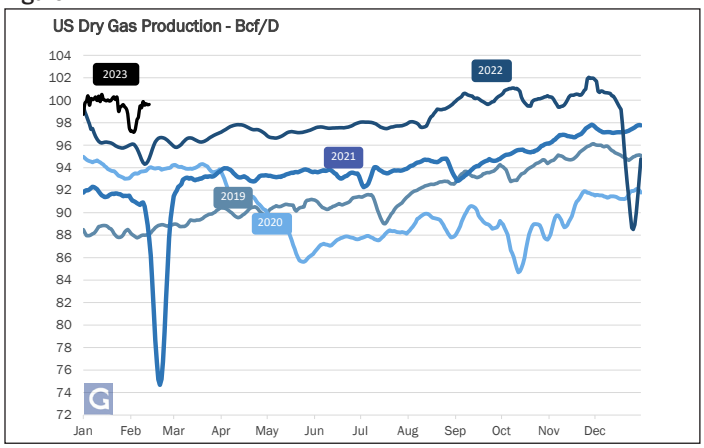
Figure 1



Gas production is anticipated to be relatively stagnant within 100-102 Bcf/D consistently for 2023 due to a low pricing environment in 2023 which should incentivize producers to lay off on producing until price is in a more favorable position. By leaving wells as Drilled but Uncomplete (DUC) they can effectively wait out price declines below their break-even point until a more favorable position is achieved. The Permian and Haynesville are poised to continue to receive the most growth past 2024 due to their geographic proximity to the booming LNG demand centers on the Gulf Coast while Appalachian shale production is forecasted to experience some slight pullback over the course of 2023 as routine pipeline maintenance and concerns of oversupply in the region affect producers. Overall, Total dry gas production will likely surpass 101 Bcf/D by late 2023.

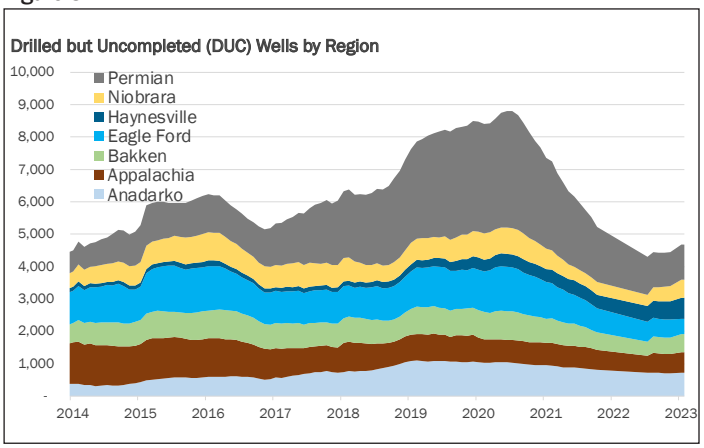
Supply

Figure 2



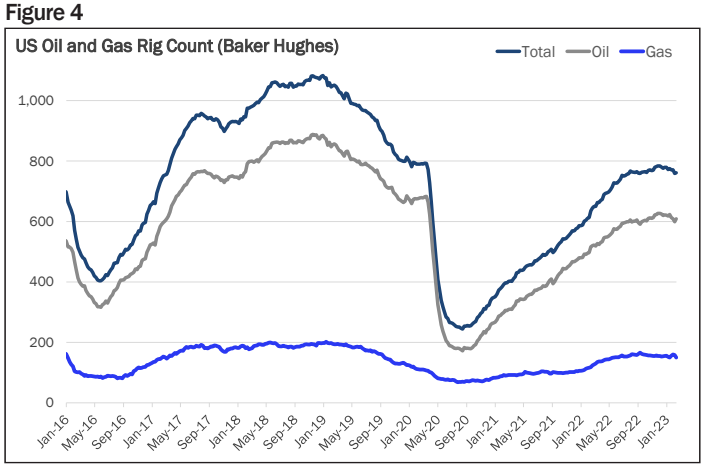
Dry gas production volumes have been holding steady around 100 Bcf/D throughout the start of 2023, up nearly 4 Bcf/D from last year's volumes. Production growth at the end of 2022 was boosted by high prices providing strong incentives. This year, producers are finding themselves with tighter margins as gas prices have fallen to the $2-3/MMBtu range.

Figure 3



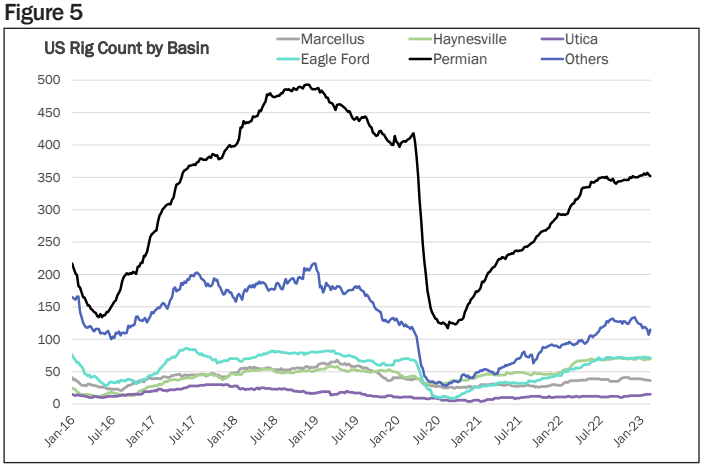
Within the last two years, the DUC inventory has fallen from over 9000 wells to just over 4000. Usage of DUCs is looking to increase as producers are shying away from adding to production until a more favorable pricing environment emerges.

Figure 4



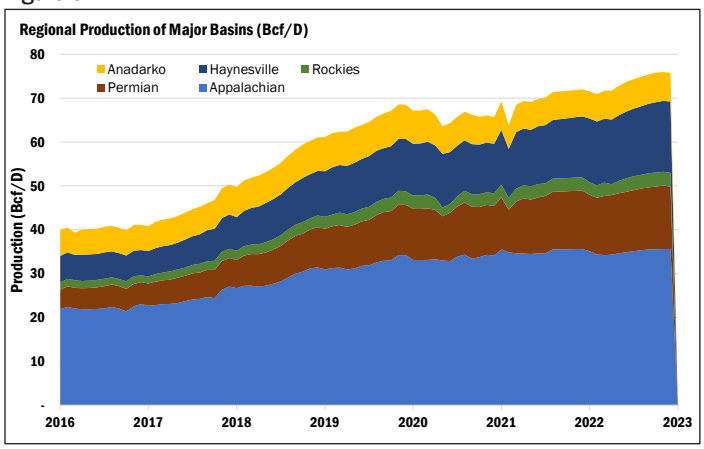
Rig count growth has has continued has tapered off as producers await a more favorable price environment. Throughout 2023 and most of 2024, many producers are not looking to significantly increase production volumes keeping rig counts stagnant.

Figure 5



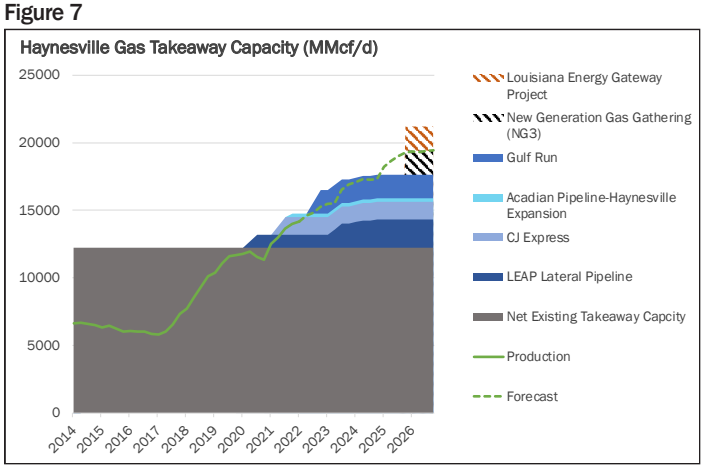
The Permian still accounts for the majority of new drilling activity. Over 50% of all rigs are located in the Permian, while the Haynesville remains the primary destination for gas-focused drilling due to proximity to LNG export facilities and the demand growth expected to materialize there.

Figure 6



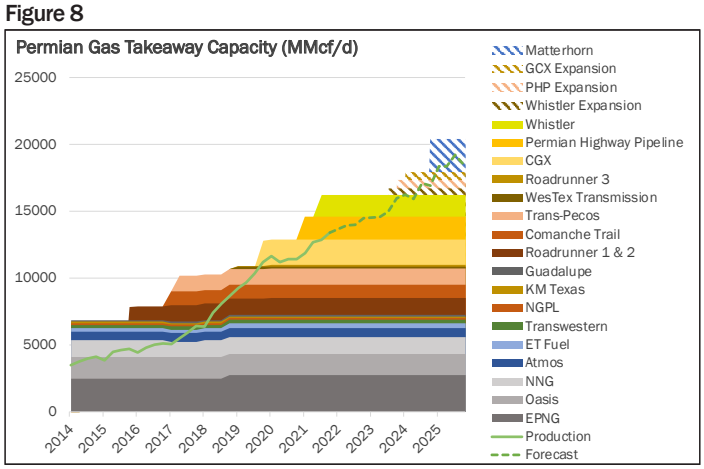
Gas production is expected to hover around 100-102 Bcf/D after the growth seen in 2022. Looking ahead, the Permian and Haynesville are anticipated to experience the most production growth as the Appalachain basin experiences regulatory constraints..

Figure 7



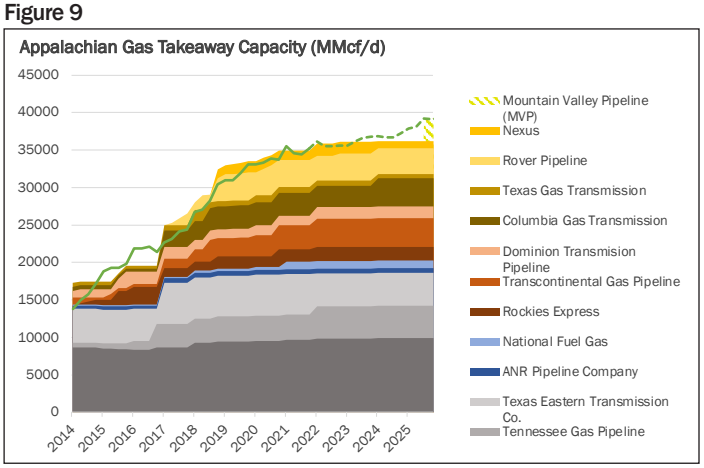
Haynesville is expected to be considerably tight until the end of 2024, after the basin takeaway capacity should keep it very loose. LNG demand will create a direct pull on southbound pipelines, just as production is picking up. Nearly 2.6 Bcf/d of takeaway capacity will be added before 2025. Incremental projects will ease Haynesville tightness by the second half of 2024.

Figure 8



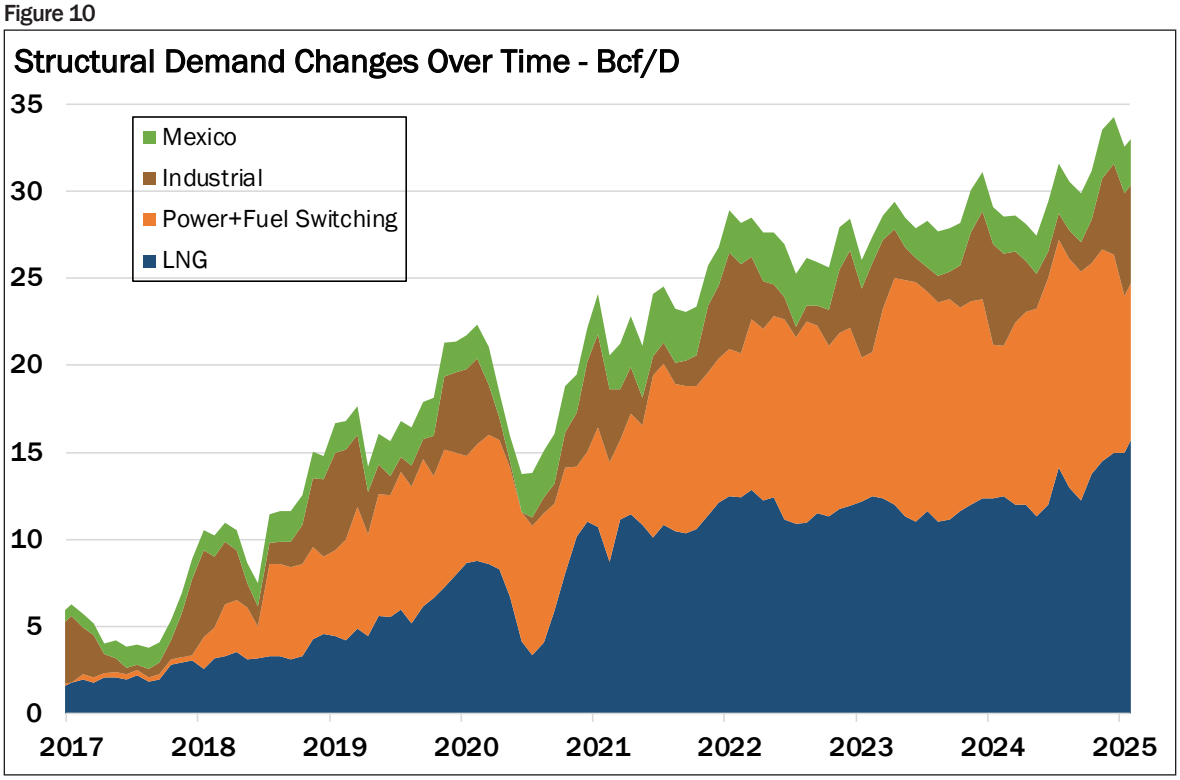
Permian Gas is expected to be very tight into late 2023, then will stay relatively tight until the second half of 2024. Waha likely will stay weak until 2H24 as prodution growth, higher gas-to-oil raatios, and flaring limits drive tightness in the Permian. Nearly 5 Bcf/d of new Permian takeaway capacity will come online between now and 2025.

Figure 9



In-Service Assumptions for the ETRN's Mountain Valley Pipeline (MVP) has been pushed back a year, leaving the Northeast tight on takeaway capcaity for another year longer than expected. Limited progress on neccessary permiting requriements, amongst other requirements, will lead to ETRN oushing back their announced timeline. Beyond the MVP, there is little optimism on Northeast growth.

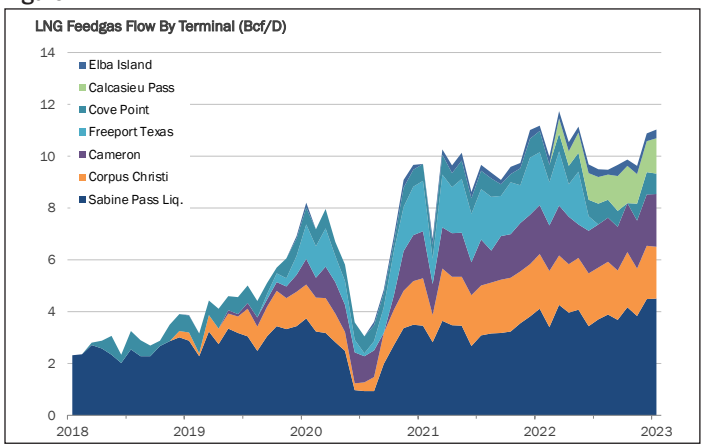
Figure 10



Structural gas demand is still steadily increasing with prominent peaks during extreme-weather type conditions. As natural gas entered a much more favorable pricing environment with coal still being relatively expensive this has poised gas to continue to be the dominant fuel used for power generation. LNG feedgas has reached its peak until late into the forecast period with Freeport LNG accepting its first docking and slowly accepting nominations. LNG feedgas is not expected to increase much until the next major wave of LNG facilities are completed in 2026. Power and fuel-switching demand is forecast to see some volatility over the next couple of years but will be minor growth. Industrial gas demand loads are also slated to see some rather subdued growth in the near term but may see an uptick in late 2023 and into 2024.

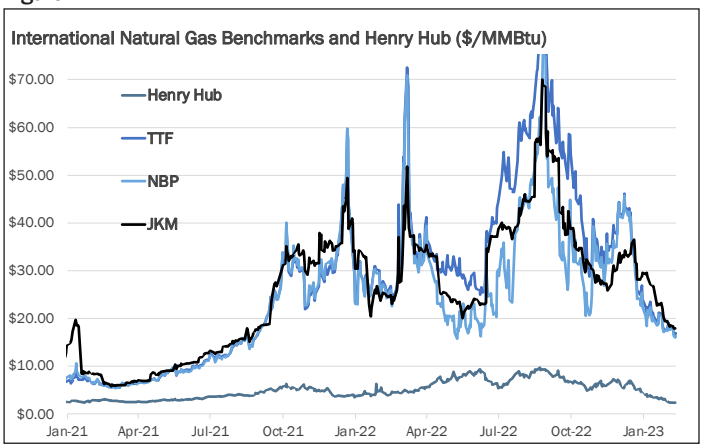
Demand

Figure 11



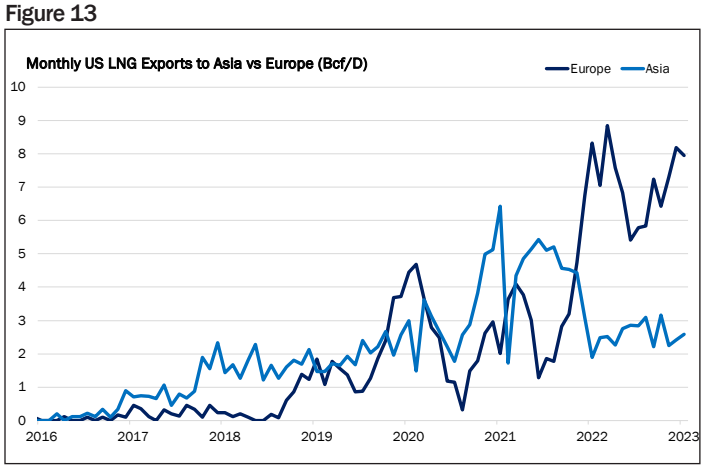
Following the recovery from Covid in the winter of 2020/2021 and the short bout of freeze-offs seen during storm Uri, feedgas flows have remained sturdy except for the notorious Freeport LNG outage. Even before Freeport LNG has returned online, flows from other facilities had made up the 2 Bcf/d lost.

Figure 12



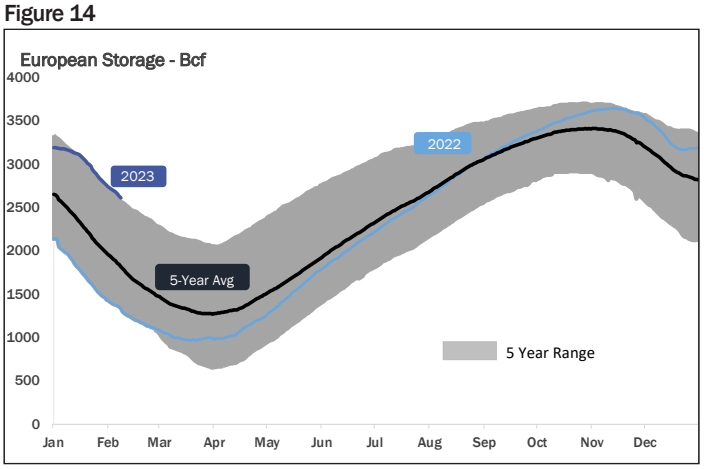
International prices have tempered as the war in Ukraine's consequences have been mitigated by European actions. There is newfound price stability as Europe has eliminated the dependency on Russian gas in exchange for LNG and Nordic gas and kept gas storage at a healthy level.

Figure 13



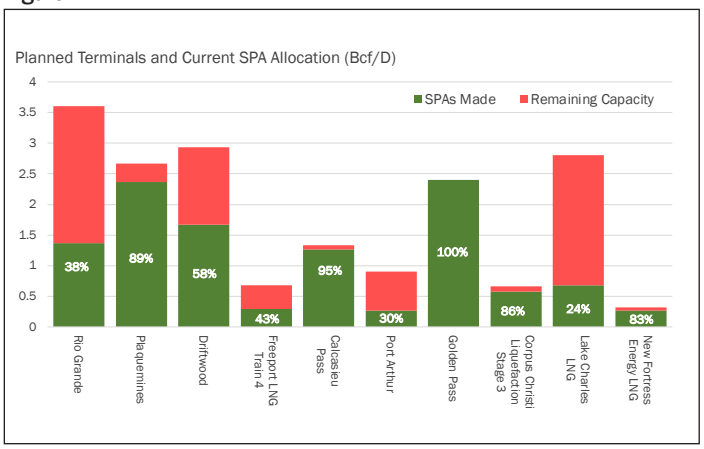
The focus of domestic LNG exports has been shifted away from Asia and into European markets as Europe achieves energy independence from Russia.

Figure 14



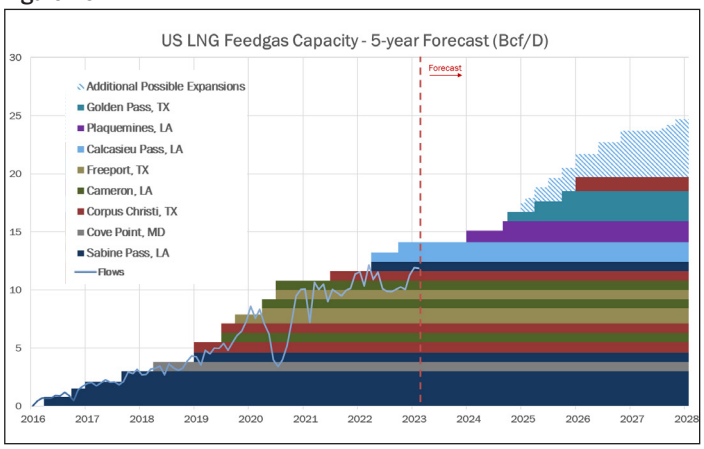
Europe entered the withdrawal season with an extremely healthy storage level following their scramble to import gas following the shuttering of Nord Stream 1. The storage level has remained high because of a warm winter and easy access to LNG and Nordic gas.

Figure 15



2023 is poised to be a relatively stagnant year for LNG capacity additions. Plaquemines LNG will be coming online in early 2024 and is currently sitting with offtake agreements for 89% of planned flows.

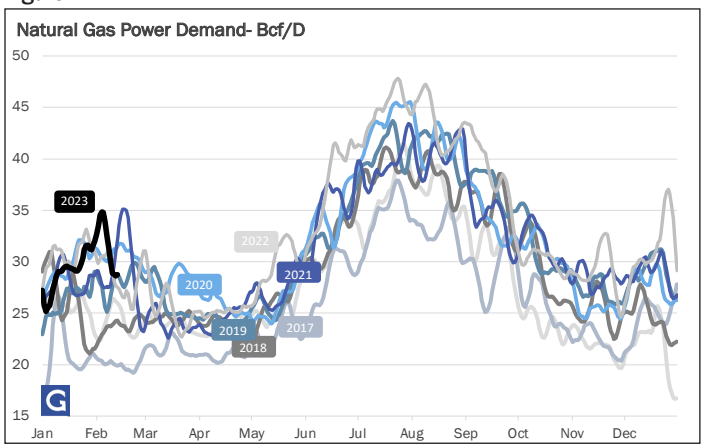
Figure 16



In the optimistic scenario that most of these LNG projects come to fruition given the positive growth environment that exists currently given investment into key basins close to LNG export facilities, the US would boast a total export capacity of over 24 Bcf/D by the end of 2026.

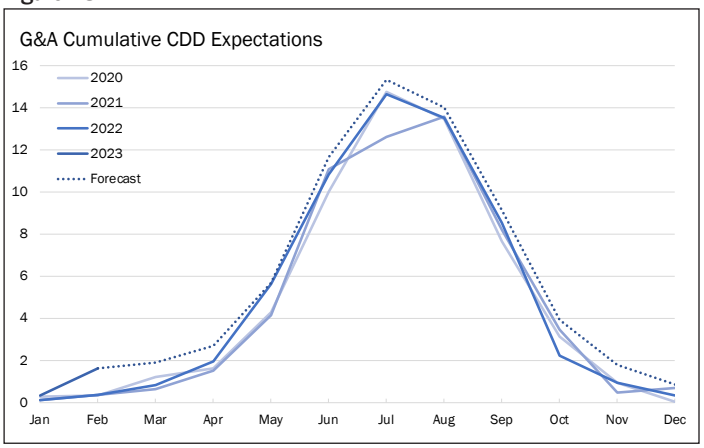
Demand

Figure 17



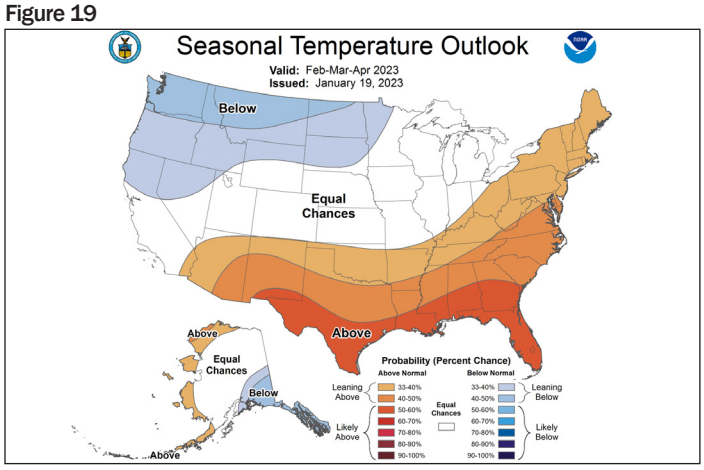
Natural gas power demand has historically increased year over year as end uses grow. As we move into summer with the El Nino weather pattern, spikes of power demand may exceed 47 Bcf/D.

Figure 18



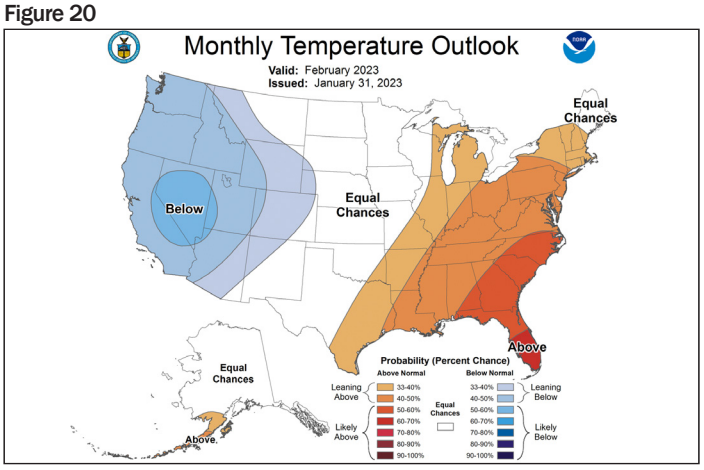
G&A anticipates that summer cooling degree days (CDDs) will be higher than previous years due to a warm forecasted summer alongside the current winter being mild. in corroboration with that, CDDs for 2023 have been higher than recorded over the past 3 years.

Figure 19



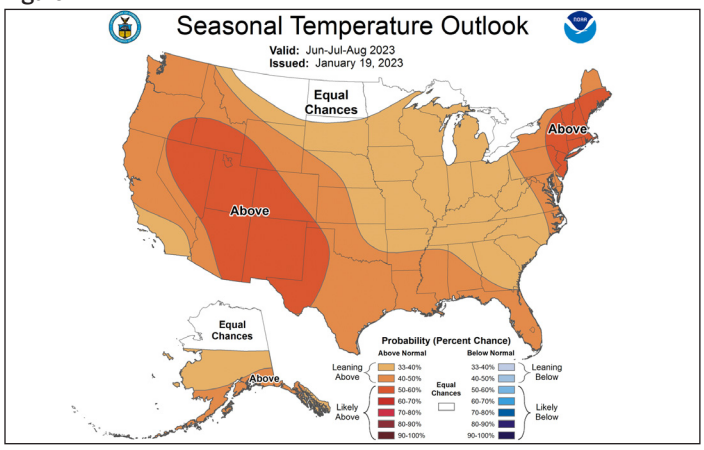
During the latter half of the winter, the National Oceanic and Atmospheric Administration (NOAA) is calling for above-average temperatures for most of the sun-belt and north-east. The pacific north-west is slated to have below-normal temperatures while the mid-west us uncertain or normal.

Figure 20



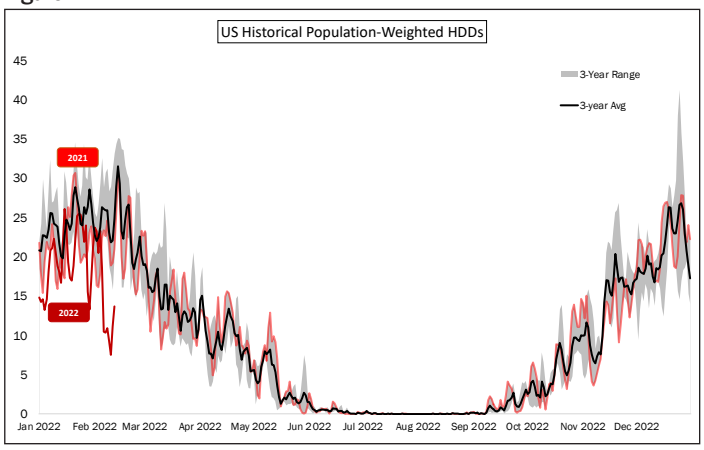
For the rest of February NOAA is predicting the western US to be colder than normal while the Eastern US is warmer than normal. This is backed up by both the GFS and European model both predicting a similar situation.

Figure 21



NOAA's prediction for the summer includes a very warm outlook for the US throughout the lower 48. This forecast, should it come to pass, indicates a low injection season.

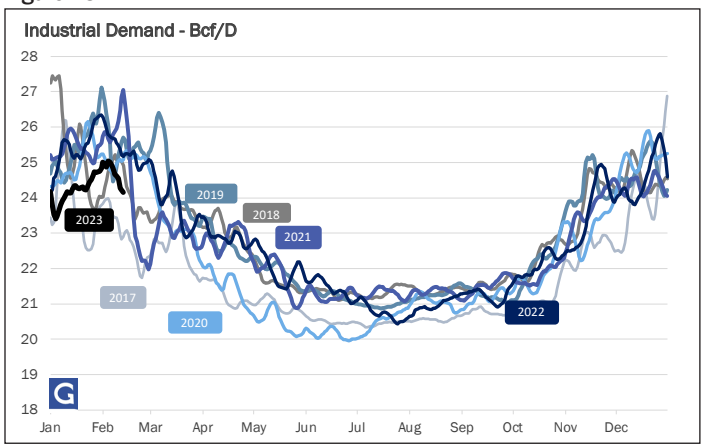
Figure 22



Historical HDDs have broken far below the past 3 years range. HDDs are at the lowest recorded in recent times following the mild winter materialized in 2023. This has had the effect of slowing storage withdrawals and leaving gas in an extremely healthy place going forward.

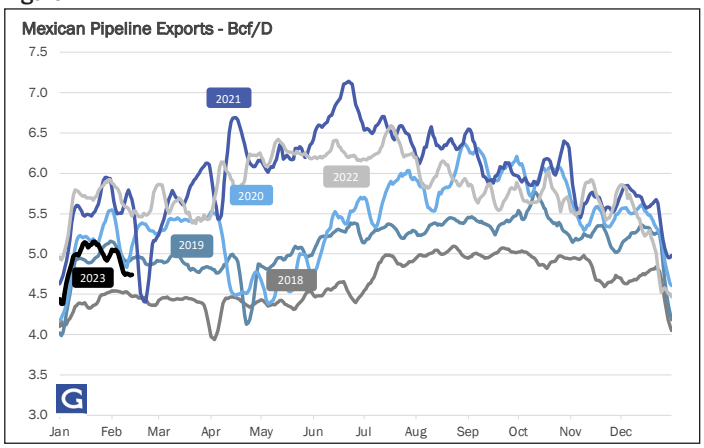
Demand

Figure 23



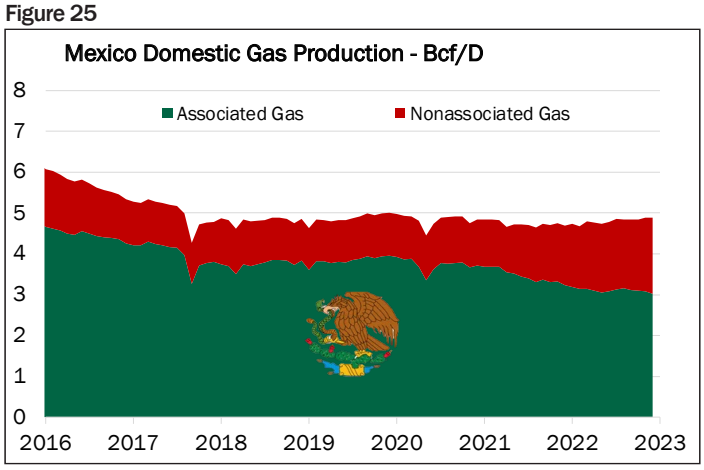
Natural gas power demand has historically increased year over year as end uses grow. As we move into a potentially hotter-than-average summer with the El Nino weather pattern, spikes of power demand may exceed 47 Bcf/D.

Figure 24



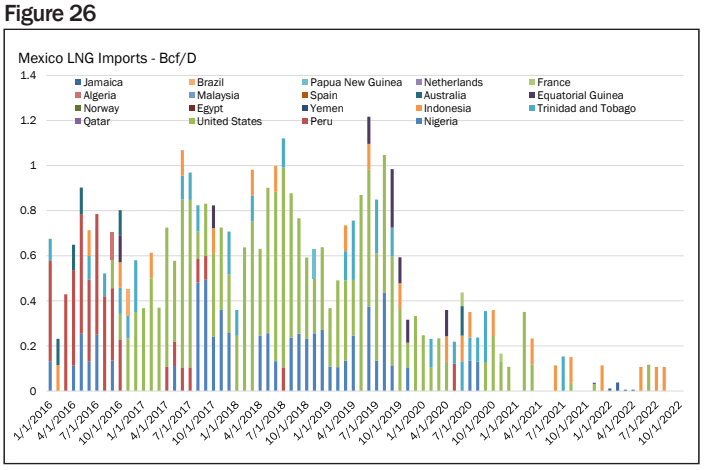
Exports to Mexico currently are hovering around 2019 levels near 4.8 Bcf/d. Mexico's domestic production has increased, offsetting some of the US's exports. Still, the US accounts for roughly 70% of Mexico's total gas supply.

Figure 25



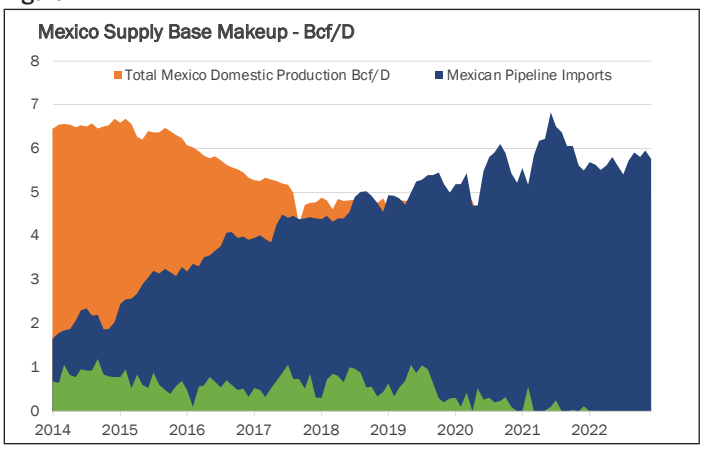
For the first time in many years, US Exports to Mexico have faced short-term growth headwinds in 2023 as Mexico's domestic production is now increasing. West Texas continues to outpace South Texas export volumes, with Waha becoming a particularly relevant pricing location for Mexico. Since September 2022, cross-border flows declined to finish the year at an average 5.9 Bcf/d.

Figure 26

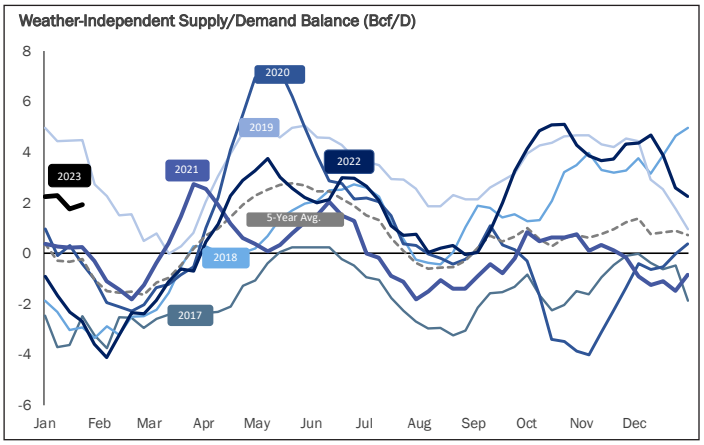


Between 2016 and 2020, Mexico imported ~1 Bcf/D of LNG at the height of its demand seasons. Since 2020, LNG prices have soared through the roof and as a result, Mexico LNG imports have dropped off significantly to almost negligible volumes.

Figure 27



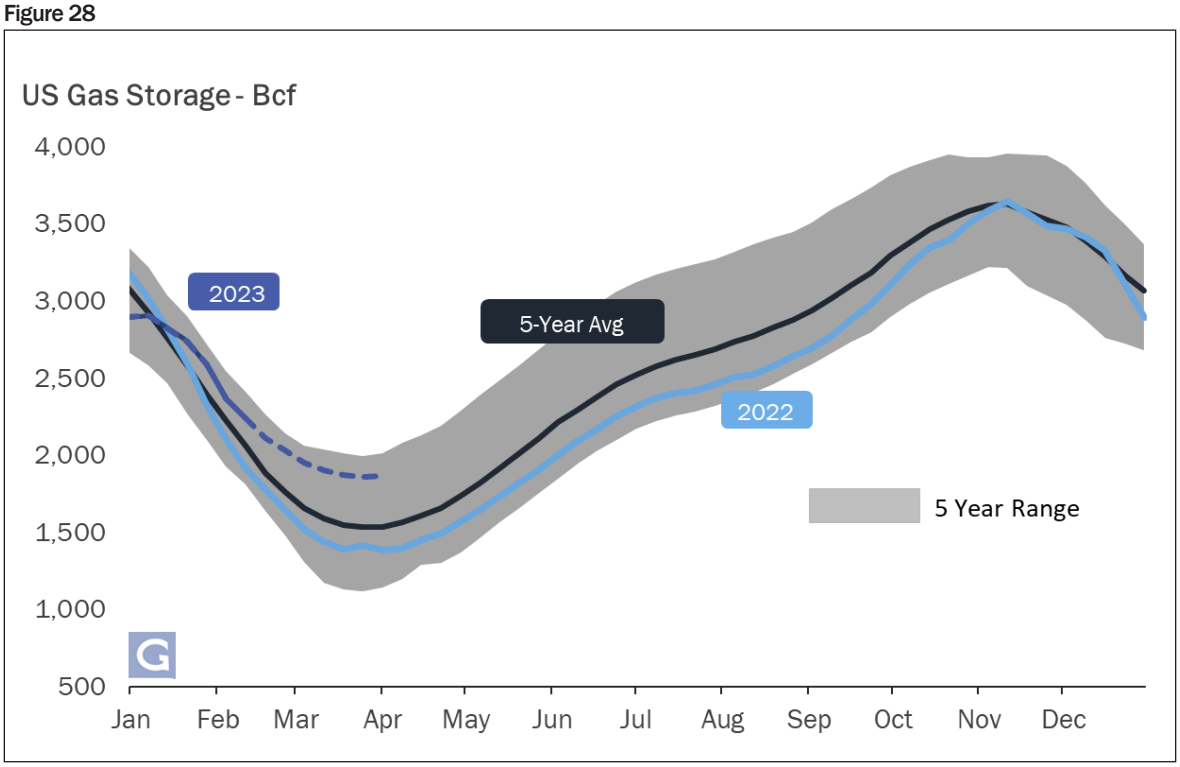
US pipeline flows to Mexico decreased by an average 0.3 Bcf/D YOY due to increased Mexican dry gas output. The CFE is working on 6.5 GW of natural gas-fired power plants currently, emphasizing the need for increased US Exports to Mexico.



The supply/demand balance over the course of 2022 ended with a heavy supply glut with massive increases to new record production. That trend has continued into 2023 with massive levels of production, but as that production growth slows, the supply demand balance may tighten.

Storage Forecast

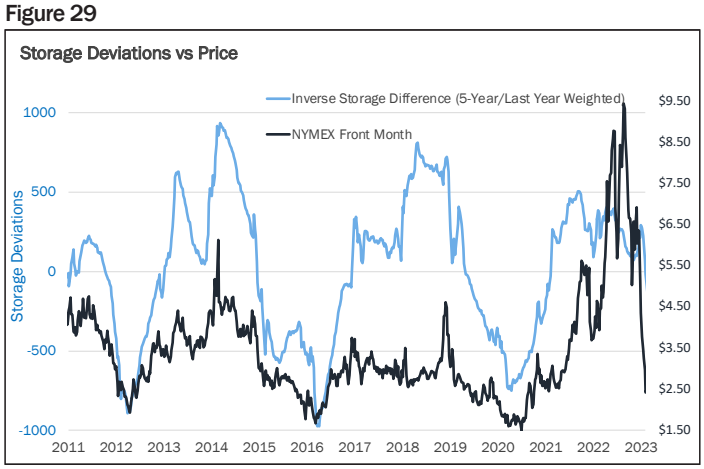
Figure 28



After storage rallied to the five-year average at the end of 2022's injection season, expectations of a frigid winter had many market players believing that there will be substantial storage withdrawals putting domestic gas storage at a deficit to the five-year average again. This, however, did not materialize and 2023 winter has been warm with short bouts of cold and a never before seen January injection has put storage in an extremely strong position. Currently storage sits at 2366 Bcf, 233 Bcf above last year's levels and 117 Bcf above the five-year average. G&A forecasts an end of season total of 1.85 Tcf.

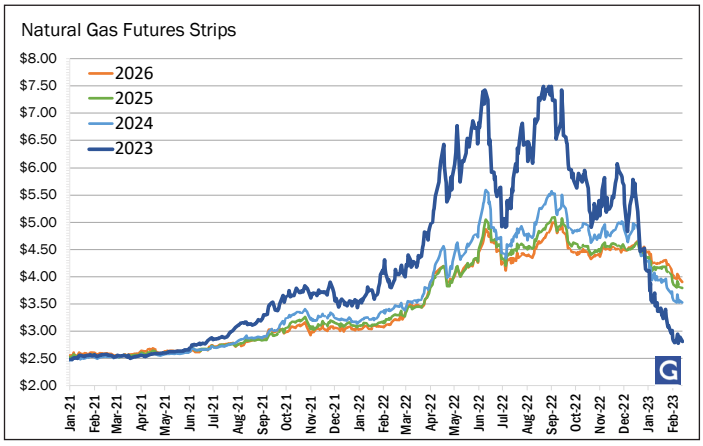
Storage And Price

Figure 29



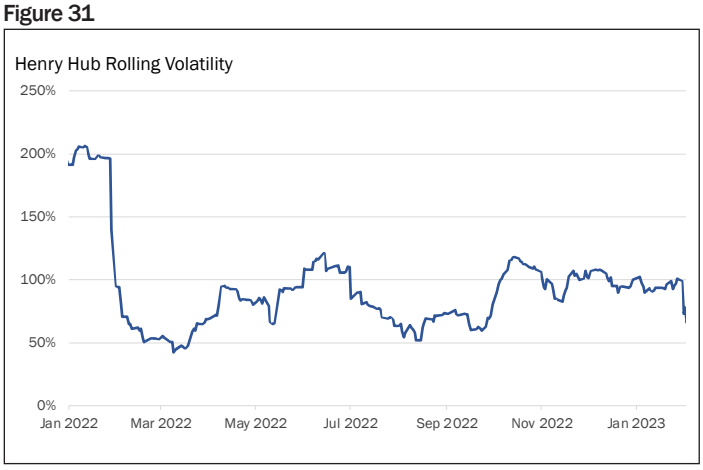
NYMEX prices are highly correlated to the inverse storage difference. However, prices rose beyond what can be justified by storage deviations in 2022. The market has now corrected down far below the inverse-storage difference which appears to follow the steady decline in the inverse storage difference.

Figure 30



Amid healthy storage inventories at the end of December and an incredibly warm January, the front of the market fell below the futures strips, putting the market into an aggressive contango. Prices are still finding a floor as winter nears its completion and we begin heading into the seasonally bullish spring months.

Figure 31



Price volatility has been at elevated levels for NYMEX natural gas futures over 2022 alongside commodities and equities alike. 2023 is appearing to be no different with some movement down, but the market now seems to accept $0.10 moves intraday as the new normal going forward.

Further Discussion

Don’t hesitate to call us at (713) 655-7000 with comments, questions, or to schedule a fuels hedging evaluation.

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