

Weather Presents a Natural Gas Buying Opportunity

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The article below is an excerpt from our Q4 2022 commentary.

Our Q1 2022 letter explained why North American natural gas prices would surge. After making a 25-year low of \$1.48 per mmcf in June 2020, Henry Hub gas broke \$7.00 in Spring 2022 for the first time in 14 years. International gas prices were even more substantial. Driven by Russia's invasion of Ukraine, European LNG import prices spiked to \$70 per mcf in March before settling back around \$35 per mcf, a multi-year high. We argued that North American prices would converge over time with seaborne LNG prices, with dramatic bullish consequences.

Gas prices did rally sharply in the months following our letter. Henry Hub natural gas reached a high of \$9.68 per mmcf, and European prices reached an astounding \$91.02 per mcf in August 2022 following hot weather and increased hostilities in Ukraine. Since then, however, prices have collapsed. As we write, North American and international prices are the lowest since mid-2021, more than giving up the gains since the Russian invasion.

What's behind this collapse, and what does it mean going forward?

Despite the considerable pullback, our thesis has not changed: we believe both US and global natural markets are in structural deficit. As you will see, we believe all weakness is due to one-off factors and should not repeat themselves. The underlying fundamentals remain incredibly tight, and we believe the current weakness presents long-term investors with an extremely attractive opportunity.

While our natural gas equity investments were down, they held in much better than the commodity. From the August 2022 high point until the end of January 2023, North American gas fell 71%, while imported European LNG fell 80%. Our natural-gas-focused equities, meanwhile, fell much less, selling off between 27 and 34%.

Although global gas markets remain in a long-term structural deficit, the supply and demand fundamentals did loosen on a short-term basis compared to last spring. In the US, curtailed LNG export capacity following the Freeport fire drove the loosening. In Europe, the market loosened dramatically due to much milder than typical winter weather. Both of these factors were one-time and are unlikely to repeat going forward.

Starting with the US, inventories were 300 bcf below long-term seasonal averages at the end of last March. On June 8th, 2022, a fire broke out at the Freeport LNG export terminal in Texas, leaving the facility completely inoperable. Between June 8th, 2022, and January 31st, 2023, Freeport lost two bcf/d of exports or 474 bcf of total demand. The onset of winter provided little relief. After a slow start to winter in November and early December, temperatures dropped into the year-end. Warm weather returned in January, so by the end of the month, total winter heating degree days were 5% below average, reducing demand by another 30 bcf in aggregate. By the end of January, the storage deficit had been completely repaired, with

inventories at 2.4 tcf, precisely in line with long-term seasonal averages. The lost exports from Freeport's closure and the mild weather increased inventories by over 500 bcf, with the vast majority of the impact coming from Freeport. Without these two factors, inventories would have ended January at 1.8 tcf, which would have been the lowest level in twenty years. On February 13th, Freeport announced its first vessel loading since last June, suggesting the most significant impacts of the fire are behind us.

Mild weather dominated European gas markets. Last March, European gas inventories stood at 1.1 tcf, nearly 475 bcf below five-year seasonal averages and the lowest March reading since 2018. On February 24th, Russia invaded Ukraine, severely risking the European gas supply. Russia has made up 55% of European gas imports in recent years, representing one-third of total demand. European leaders immediately took drastic measures, increasing LNG imports, curtailing industrial production, and switching to coal and biomass wherever possible. What is not widely appreciated, however, is that through May, Russian pipeline imports continued, albeit at somewhat lower rates. The European strategy worked, and by the end of October, inventories had gone from a 475 bcf deficit to a 150 bcf surplus. Over the summer, European stockpiles grew by 2.6 tcf -- 30% or 620 bcf more than the average summer build, despite the Russian disruption.

Mercifully, the current winter has been the mildest in recent history. The European heating degree days through January 31st are likely 15% below five-year averages, which reduced natural gas demand by an astonishing four bcf/d or 500 bcf over the four months. Continued industrial curtailment and gas-to-coal switching likely reduced demand by another two bcf/d or 250 bcf. Reduced demand, thankfully, more than offset lost Russian volumes. Although the final data is not yet available, preliminary estimates suggest that European inventories

fell by only 860 bcf, 40% between October and January, or 570 bcf less than average.

As a result of warm winter and extreme policy measures, Europe ended January with 2.9 tcf of gas in storage, tied for the highest level in over a decade.

A lucky combination of export outages, tough choices, and warm weather helped repair the inventory situation in the United States and Europe. However, we believe long-term structural problems loom large on the horizon. The Freeport LNG facility looks to be back online, increasing US export demand by two bcf/d. In Europe, the extremely warm winter offered a reprieve; however, policymakers must now figure out how to permanently replace 18 bcf/d of Russian imports, equating to one-third of total demand. There are no easy solutions. Global LNG volumes total 52 bcf/d, so the seaborne market can only replace Russian pipeline imports for a while.

Moreover, given their climate goals, it seems unlikely Europe will accept burning record levels of coal on an ongoing basis. Although pundits are pushing for increased renewable penetration, there is a growing realization that underperforming wind and solar assets throughout Europe have increased reliance on Russian gas in recent years as a backup. As the immediate threat of winter recedes, many Europeans face the daunting task of adjusting to the new energy reality.

In the United States, falling natural gas prices have led to a misguided sense that the worst is behind us. Over the past twelve months, Americans, in general, have felt a sense of remove from the gas crisis facing Europe. We argued that would soon change as US prices became locked into global prices through increased LNG exports. Today, the prevailing wisdom says this will not become a problem until 2025 when the next tranche of LNG export capacity comes online.

We disagree. We believe the US market could slip into deficit much sooner.

Since June, the US gas market would have been in deficit had it not been for the Freeport outage. With that facility now online, we expect balances will tighten. As Calcasieu Pass brings on its new terminal, nearly one bcf/d of additional export capacity will come online later this year. Next year, 3 and 3.5 bcf/d of new capacity will come online, followed by another 2 - 2.5 bcf/d in 2025. In total, 5.7 - 6.5 bcf of additional LNG export volumes will be online between now and the end of 2025 on top of the two bcf/d from Freeport restarting. Who will provide this new gas?

Over the past twelve months, US dry gas production grew by three bcf/d; however, we believe this will slow dramatically going forward. We argued in our previous letters that the Marcellus was nearing its plateau, while the Haynesville may enjoy one or two more years of growth before rolling over. Nothing we have seen has changed our view.

Since 2012, total dry gas production gas has surged by 50% or 34 bcf/d. Over half of this increase came from the Marcellus, with another 40% from the Permian. Less than 10% or 350 mmcf/d per year came from all the other plays combined, including the Haynesville. As discussed in our introduction, our models tell us that the days of prodigious Permian growth are behind us. The Marcellus, meanwhile, is following our prediction, with de minimis growth in two years. Production appears stuck around 25-26 bcf/d, a level reached in late 2020.

Over the last twelve months, the Marcellus has declined by 300 mmcf/d. The Haynesville has been a bright spot, growing by two bcf/d in the previous twelve months. While our models suggest that the Haynesville can still increase from here, we believe production will plateau as soon as next year. The Haynesville is a costly play due to its high pressure, temperature, and formidable depths exceeding 13,000 ft. At today's gas prices, most of the play is uneconomic. The rig count in the Haynesville peaked last September, with gas at \$9 per mcf, and has fallen after that.

When we laid out our case for much higher gas prices last May, we warned that weather is always the wildcard. Luckily for Europe, the weather turned very favorable. However, we cannot take that for granted. The natural gas market remains exceptionally tight after a decade-long grueling bear market dramatically starved the industry of much-needed capital. The recent weakness should prove temporary. Natural gas equities, meanwhile, represent extreme value in our view. With many gas producers having reported earnings, we can analyze their SEC PV10 values. Using the average of last year's gas prices, Range Resources announced a PV-10 of \$29.6 billion, or \$113 per share, after adjusting for the debt – four times today's stock price. Even using forward strip pricing of ~\$4.25 per mcf, the debt-adjusted PV10 is \$52 per share – twice today's price. EQT resources has a debt-adjusted

PV10 of \$127 on last year's gas prices and \$65 using the forward strip – again four times and twice today's stock price, respectively. Antero has not yet released its SEC PV10 value, although we expect it will be as impressive.

The weather has substantially contributed to lower natural gas prices in the US and Europe. We believe the weather-induced price weakness is a short-term anomaly in a longer-term supply deficit story.