J.P.Morgan

North America Commodities Research
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Natural Gas Weekly

Life below $2/MMBtu

Global Commodities Research
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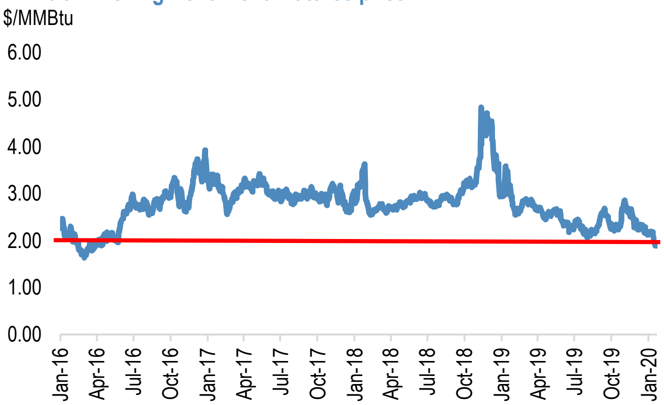
- Without that colder change in weather forecast over the next couple of days, we believe that the February 2020 futures contract will likely expire comfortably below $2/MMBtu as the need for price-related supply declines and demand increases become more necessary for US natural gas supply and demand to become more balanced this injection season.
- At this early stage, our model indicates that power generation demand has likely increased by ~500 MMcf/day with the price move from $2.20ish/MMBtu to $2/MMBtu based on reported natural gas power burn levels and the weekly EIA storage change report. Anecdotal power burn data seem to suggest a marginal increase in coal-to-gas switching below $2/MMBtu – 100-250 MMcf/day.
- With no historical precedent for price at or below $1.50/MMBtu in the past decade, we simply do not know what the power dispatch stack looks like at this price level, i.e. is there a chunkier piece of natural gas switching demand available from unused natural gas peaking units? What we do feel fairly confident in is that production curtailments at the wellhead will likely have a more meaningful impact on the gas balance at a price level so low.
- We estimate that economic production curtailments account for about 350 MMcf/day of current gas offline in the lower 48 states versus late-December levels. Northeast Pennsylvania has been driving much of the price-related declines with the Rockies and Haynesville also contributing as well.
- Even with a late-February cold shot or a colder-than-normal March, we would be far more comfortable with our 3.9 Tcf end-October storage trajectory estimate (based on the current forward curve) if signs of price-induced or even structural shifts lower in production for southwest Pennsylvania were to manifest..

See page 4 for analyst certification and important disclosures.

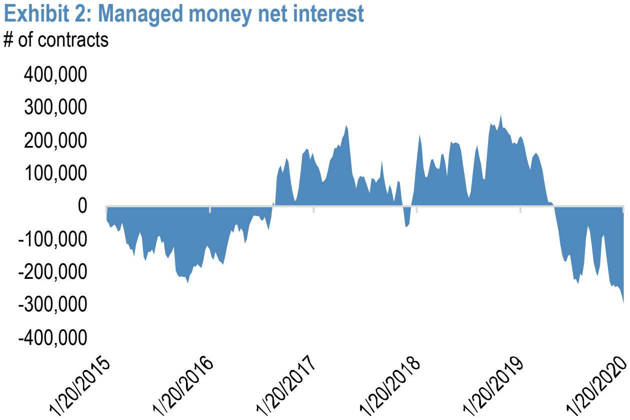
Not since 1Q16 has the front of the New York Mercantile Exchange (Nymex) natural gas forward curve settled below $1.90/MMBtu. Even as reported daily production prints have trended lower in the past several days and we believe that there are initial signs of increased price-related demand through power generation, lack of a clear constructive case for February weather has allowed price to drift lower. The February 2020 futures contract settled at $1.893/MMBtu at Friday's close – a record low for the contract – with expiry in the offing. We are never one to count out weather – learning this the hard way many times – especially given that there is a possible avenue for colder weather in the latter half of February. Thus, price appreciation from current levels could manifest relatively quickly, especially as the net positioning for managed money participants continues to get shorter.

Exhibit 1: Rolling front-month futures price



Source: Nymex, Bloomberg, JPMorgan Natural Gas Strategy

Exhibit 2: Managed money net interest



Source: CFTC, JPMorgan Natural Gas Strategy

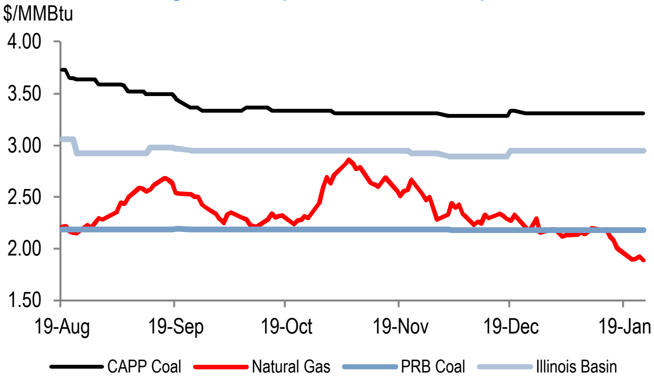
Without that colder change in weather forecast over the next couple of days, we believe that the February 2020 futures contract will likely expire comfortably below $2/MMBtu as the need for price-related supply declines and demand increases become more necessary for US natural gas supply and demand to become more balanced this injection season.

Incremental gains in power generation appear to manifest

That day-ahead Henry Hub physical price has held relatively firm until moving into weekend price softness compounded by fairly mild temperatures suggests that there has been some increase in demand. We have often stated that one data point does not make a trend, but our storage estimate last week (which realized) was swayed higher by the data from the week prior (when the EIA surprised the market with a 109 Bcf withdrawal). Additionally the move in price below $2/MMBtu suggested an increase in demand by the very nature of the US natural gas market. It is often difficult to assess the impact of price on coal-to-gas switching demand this early in the price move – longevity not only allows for more burn data but also may incent further switching. However , **at this early stage our model indicates that power generation demand has likely increased by ~500 MMcf/day with the price move from $2.20ish/MMBtu to $2/MMBtu based on reported natural gas power burn levels and the weekly EIA storage change report. Anecdotal power burn data seem to suggest a marginal increase in coal-to-gas switching below $2/MMBtu – 100-250 MMcf/day.**

We caution that this is a very early assessment but it does seem to be in line with how sticky coal-to-gas switching appeared to be when price fell below $2/MMBtu in 2016. If this estimate a marginal increase in demand were to realize in the upcoming few weekly EIA storage reports, we believe this would indicate two important points. First and the most obvious, the permanent switching of baseload demand in power generation from coal to natural gas has likely exhausted sources of switching that may have been available during price weakness observed in 2012 and even in 2016.Secondly, it could shed some light on the opaque nature of transport costs for coal. Powder River Basin (PRB) coal is likely the primary target for switching, currently priced ~$12.25/ton and likely to float lower with natural gas price leading the way down. An average cost of transport at the commodity price would imply that falling under $2/MMBtu should garner a more significant increase in coal-to-gas switching than currently observed. However, if we are correct about the marginal increase currently observed with price below $2/MMBtu, an average transport cost of $16-18/ton seems more appropriate.

Exhibit 3: Natural gas vs coal price at $17/ton transport cost



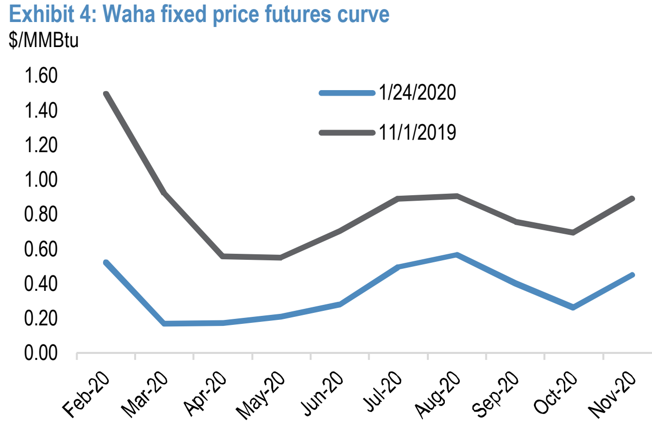
Source: Nymex, Bloomberg, JPMorgan Natural Gas Strategy

To make the waters even murkier, **with no historical precedent for price at or below $1.50/MMBtu in the past decade, we simply do not know what the power dispatch stack looks like at this price level, i.e. is there a chunkier piece of natural gas switching demand available from unused natural gas peaking units? What we do feel fairly confident in is that production curtailments at the wellhead will likely have a more meaningful impact on the gas balance at a price level so low.**

Economic curtailments at the wellhead needed in the absence of weather

Over the past week, colder temperatures in the Rockies and East for a brief period of time likely increased production freeze-offs at the wellhead masking much of the price-related curtailments. The last seven days of daily production data has averaged 1.5 Bcf/day lower than production levels in late-December for the lower 48 states. Of that 1.5 Bcf/day, **we estimate that economic production curtailments account for about 350 MMcf/day.** The remainder is a combination of freeze-offs and general declines already taking hold of certain regions. **Northeast Pennsylvania has been driving much of the price-related declines with the Rockies and Haynesville also contributing as well.** In the Northeast, while dry gas acreage production continues to appear price responsive, growth in the liquids-rich portions of the Marcellus appear to offset much of this. The Utica continues to show impressive declines but we are under the impression that this is part of a larger trend of declines that have been in place since September as a result of reduced drilling and fairly high decline rates in the region. The Permian region has also exhibited significant declines in natural gas production of late as the Waha natural gas fixed price forward curve has fallen under pressure. Flows on Gulf Coast Express had somewhat stabilized the region for a short period of time. Yet, there may be additional flaring that is accounting for this decline as natural gas becomes less economic. We are hard-pressed to see how this will impact the balance as a whole given the lack of new pipeline capacity. In fact, we expect the supply glut to get worse in the Permian before it can get better with the lack of new pipeline infrastructure until 1Q21.

Exhibit 4: Waha fixed price futures curve



Source: Nymex, Bloomberg, JPMorgan Natural Gas Strategy

Conclusion

Without weather, it is likely that 'lower than $2/MMBtu for longer' will be the necessary mantra over the next several months, especially as all weather-related demand dissipates. It is certainly too early to give up on a last minute cold shot for February or a colder-than-normal March; however, we believe that this only rescues price to its prior range of $2.15-2.25/MMBtu. But **even with this cold shot, we would be far more comfortable with the 3.9 Tcf end-October storage trajectory (based on the current forward curve) if signs of price-induced or even structural shifts lower in production for southwest Pennsylvania were to manifest. It is this region where many of the largest producers in the lower 48 states are located and are far better hedged calendar strip 2020 than other participants in the upstream community.** It is also these producers who have come under much scrutiny by the investor community. Much like production growth can be driven by a few key names as has been seen over the past several years, a flat lining to declining production profile will likely need the participation of these players. While we believe that this is likely the case structurally in 3Q20, market participants are likely not going to believe it until they see it.

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