

## Longreach Energy Investments LLC

### January 2020 Report

#### Market Commentary Macro Industry Commentary

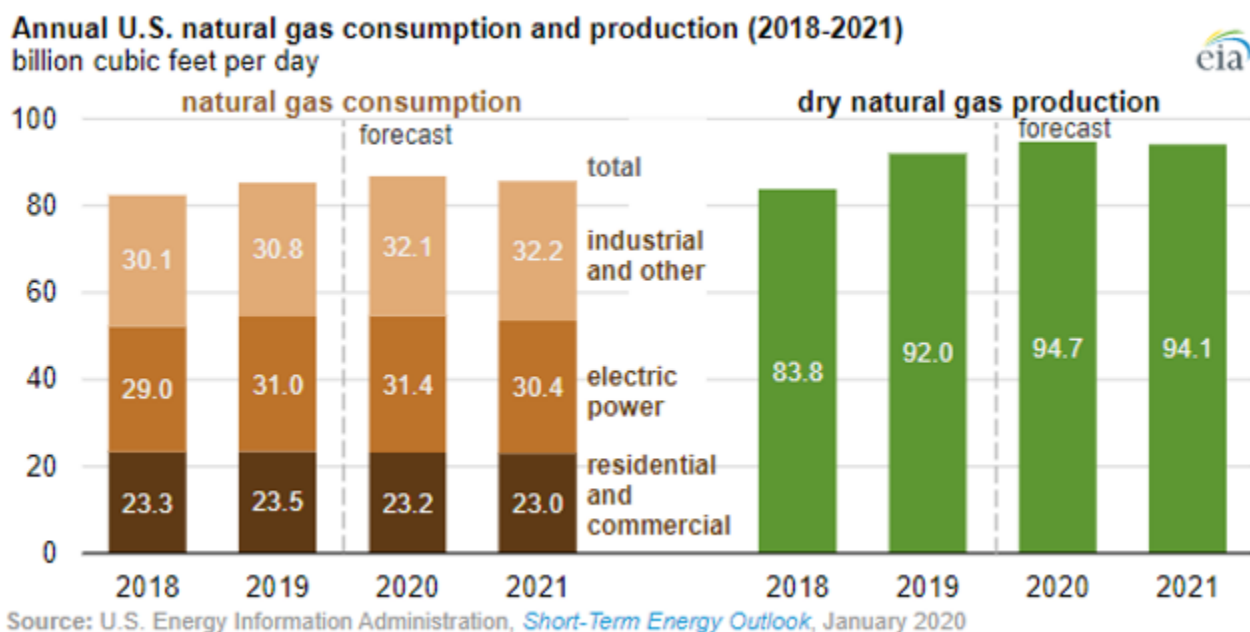
##### General Market Commentary

Concern about a negative China growth shock resulting from the coronavirus was the dominant market theme by the end of January. As the Financial Times noted on 4 Feb “...metals, oil and government bonds have experienced the greatest reaction to the coronavirus, suggesting a degree of “proxy hedging” (of China risk) that may well have pushed these markets too far”. The true impact of the virus is, today, unknown and there is also the prospect of more stimulus from Beijing once the virus is under control. Gas and oil market commentaries below have further discussion on specific commodity price movements.

While subsequently overwhelmed by coronavirus, the middle of January saw execution by US and Chinese authorities of the phase 1 trade deal that it is hoped will start the retreat from the tariff war and thereby advance global GDP growth. Commodity prices rose briefly before market focus shifted.

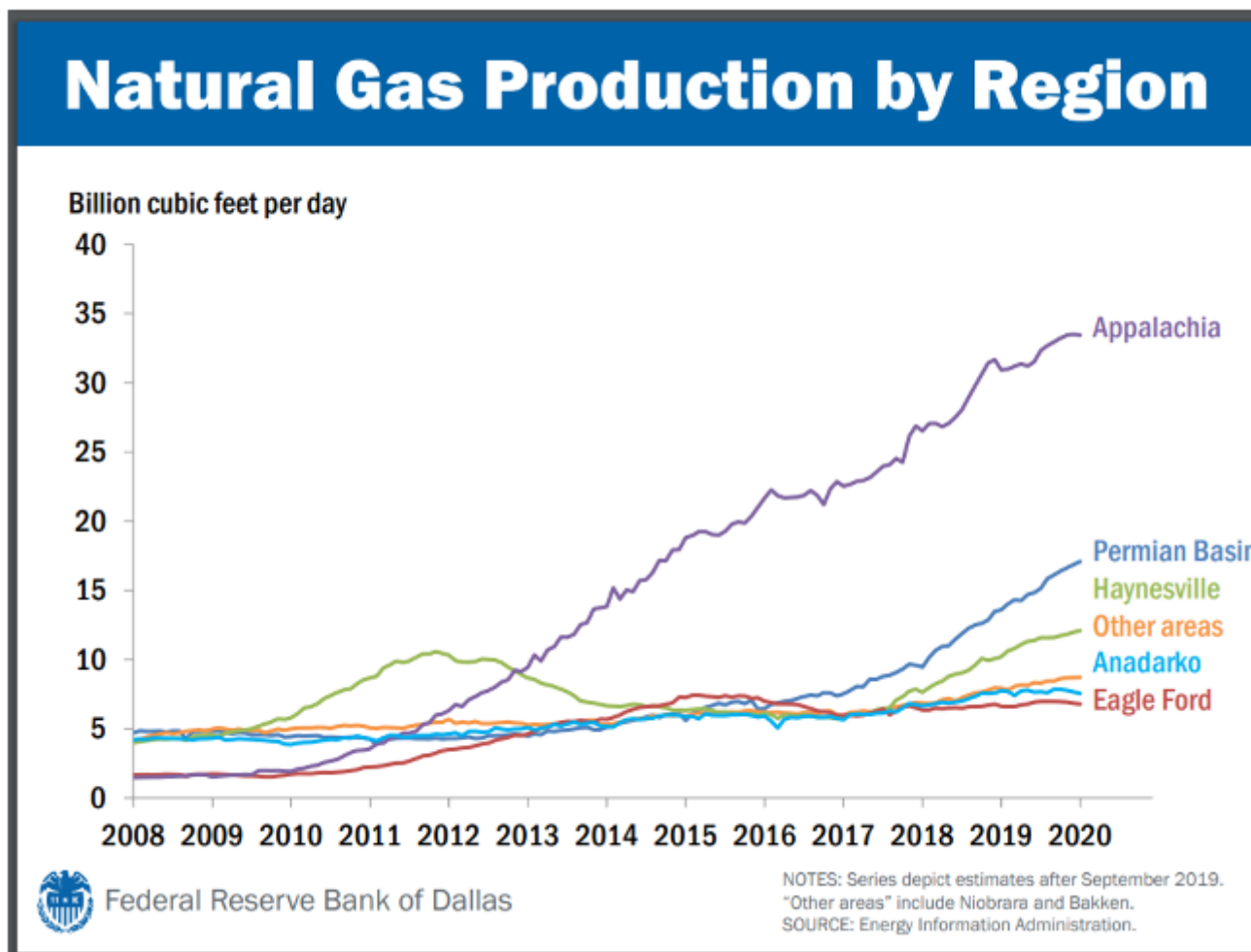
The US Energy Information Administration (EIA) has updated its Short-Term Energy Outlook for dry natural gas production and consumption.

Figure 1: Annual US Natural Gas Consumption and Production (source EIA)



The EIA expects record volumes of US dry natural gas production to continue through 2020, from an estimated 92.0 billion cubic feet per day (bcf/d) in 2019 to 94.7 bcf/d in 2020. Most US production will come from the Appalachian Basin in the Northeast, followed by the Permian Basin in western Texas and eastern New Mexico and the Haynesville shale formation in eastern Texas and western Louisiana. Figure 2 from the Federal Reserve Bank of Dallas shows natural gas production by region.

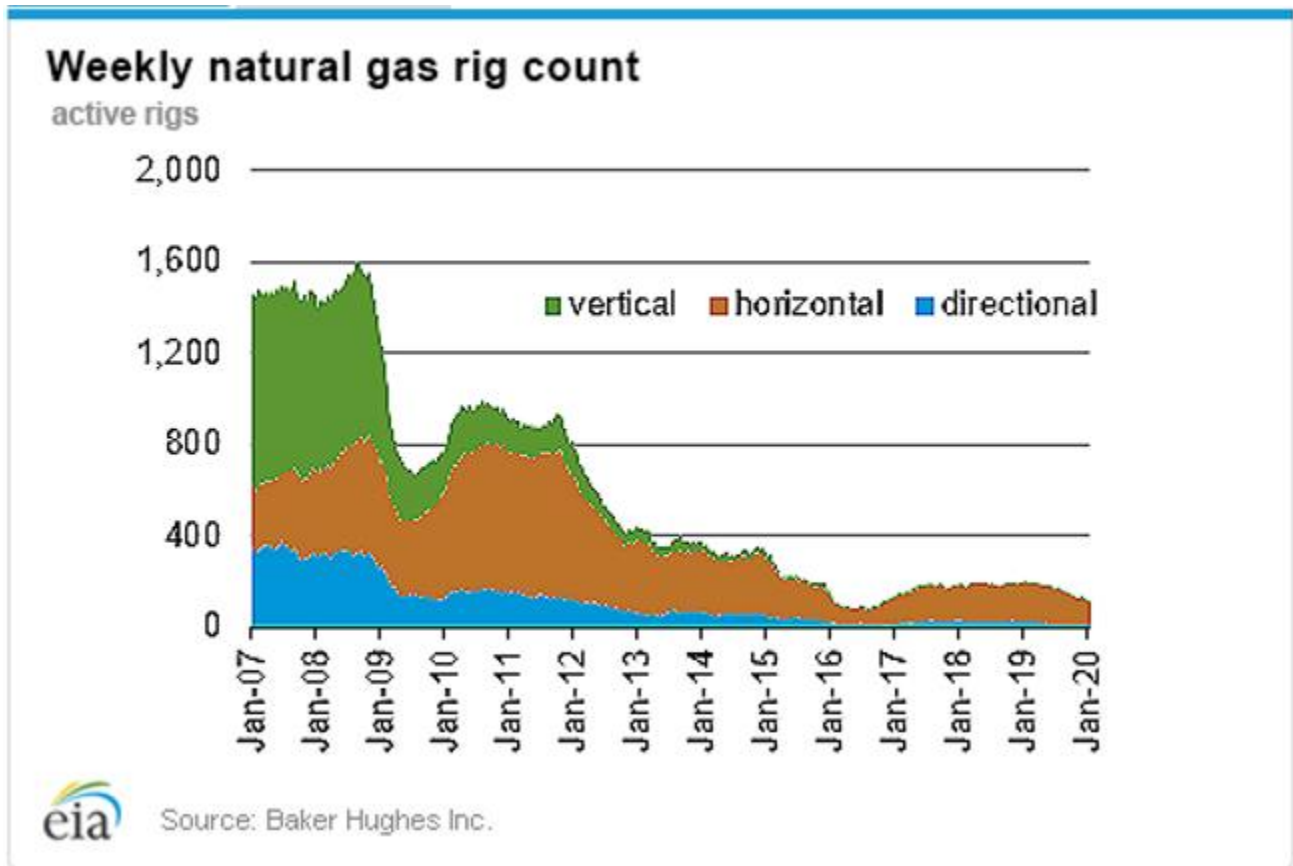
Figure 2: US Natural Gas Production by Region (source Dallas Fed)



The EIA projects that cost reductions in drilling and well completions and improved drilling efficiency will support continued record-production levels in 2020. However, recent data suggest that US natural gas production may not meet these 2020 forecasts.

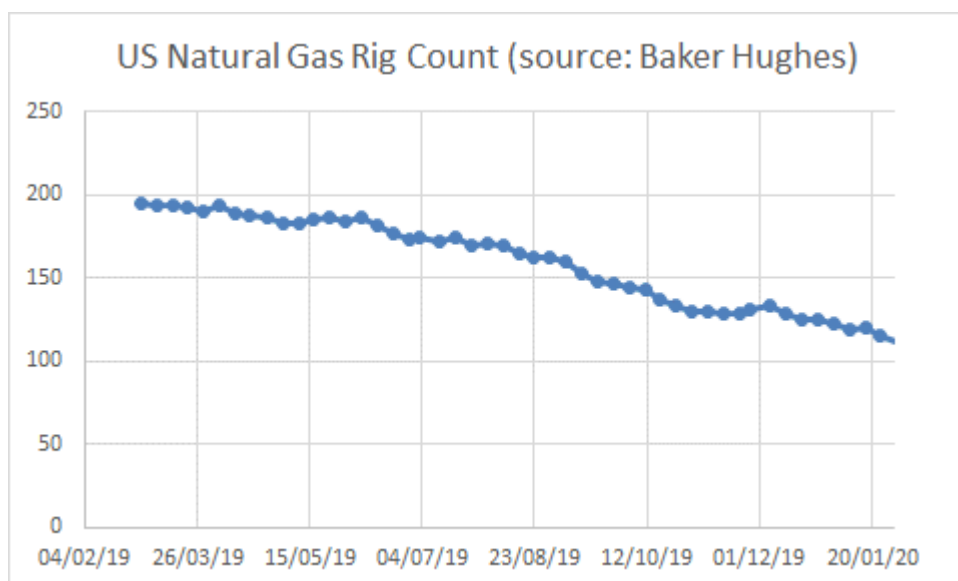
The EIA has graphed Baker Hughes natural gas rig count data back to 2007.

Figure 3: US Weekly Natural Gas Rig Count (source EIA/Baker Hughes)



The efficiency gains implicit in record production being delivered from near all-time low rig count are impressive. The decline in natural gas rig count since 1 January 2019 can be seen above but data are expanded in Figure 4. Y-axis is active rigs (as for Figure 3).

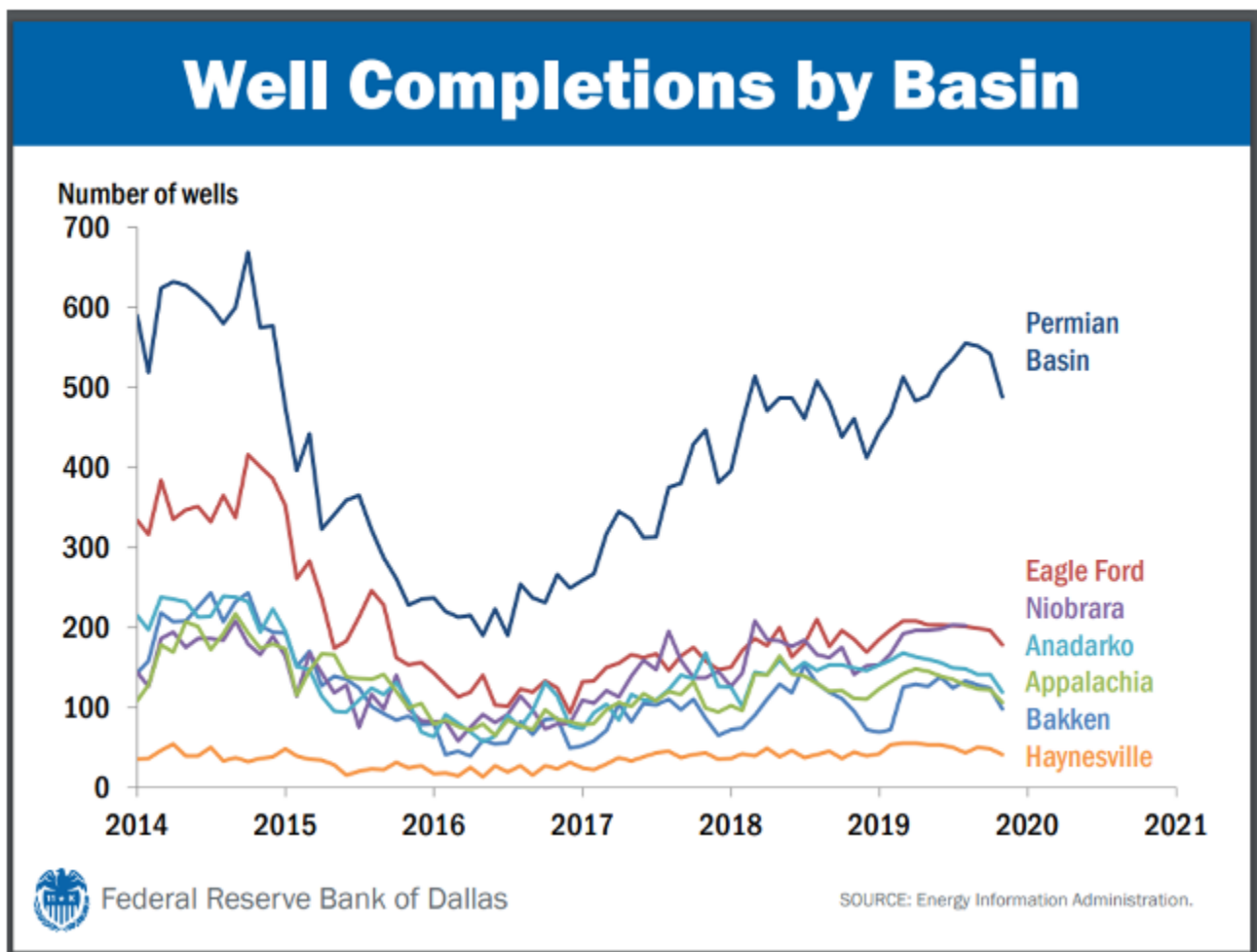
Figure 4: US Weekly Natural Gas Rig Count 1/1/19 to 31/1/20 (source Baker Hughes)



There are physical limits to productivity gains that can be achieved in the drilling of gas (and oil) wells and GCM believes that the declining rig count will reduce production.

The Dallas Fed has also graphed well completions by basin.

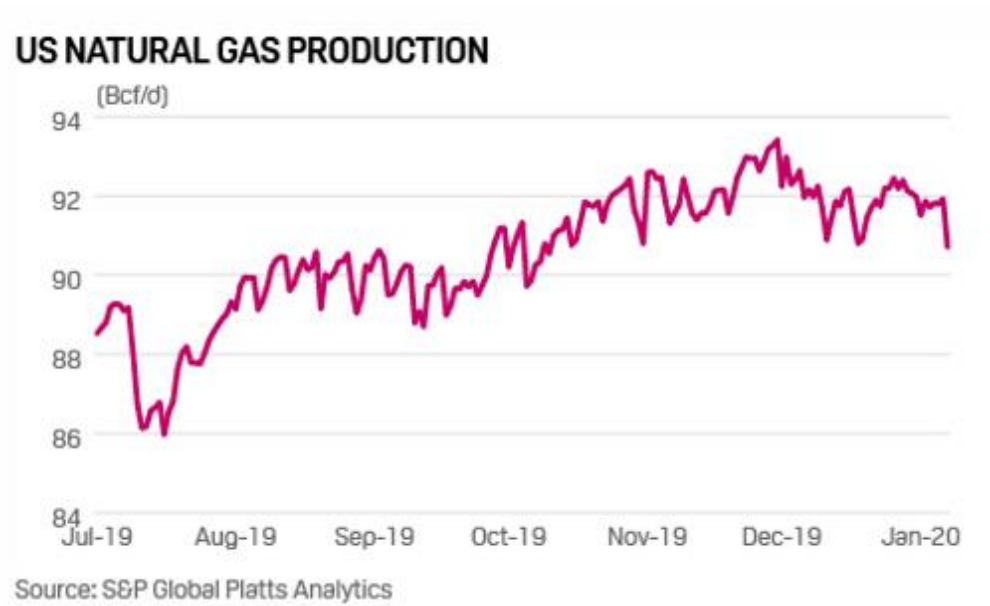
Figure 5: Well Completions by Basin (source Dallas Fed)



The decline in well completions towards the end of 2020 for every basin can be clearly seen.

We are now seeing this decline reflected in production data. EIA calculated US dry-gas production for the week ending 23 Jan at 93 bcf/d, down from the all-time high of 97 bcf/d in November. S&P Global Platts Analytics has slightly lower production calculations than the EIA, their data show that during January 2020 US production averages 91.8 bcf/d, down about 1.7% from a single-day record high at 93.4 bcf in November and slightly below an average 92.3 bcf/d for the month of November.

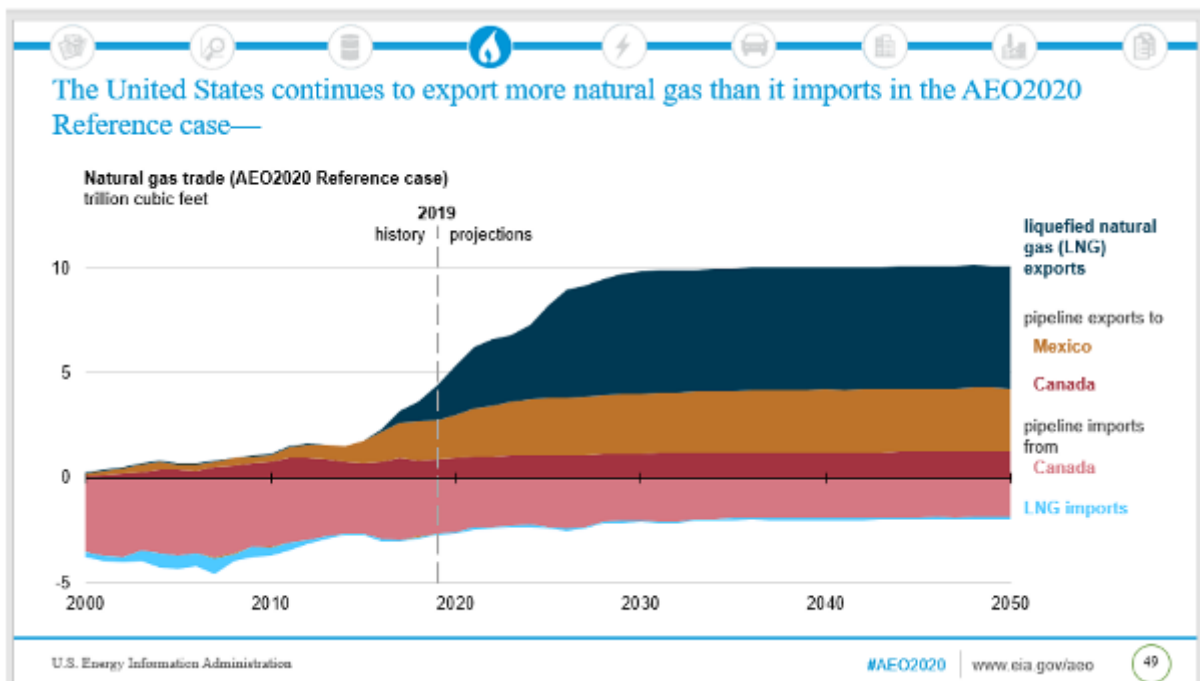
Figure 6: US Natural Gas Production (source S&P Global Platts)



The market is expecting continued production increases and if not delivered we can expect natural gas prices to respond.

The EIA’s Annual Energy Outlook 2020 (AEO2020) highlights the impact of LNG exports on US natural gas trade to 2050.

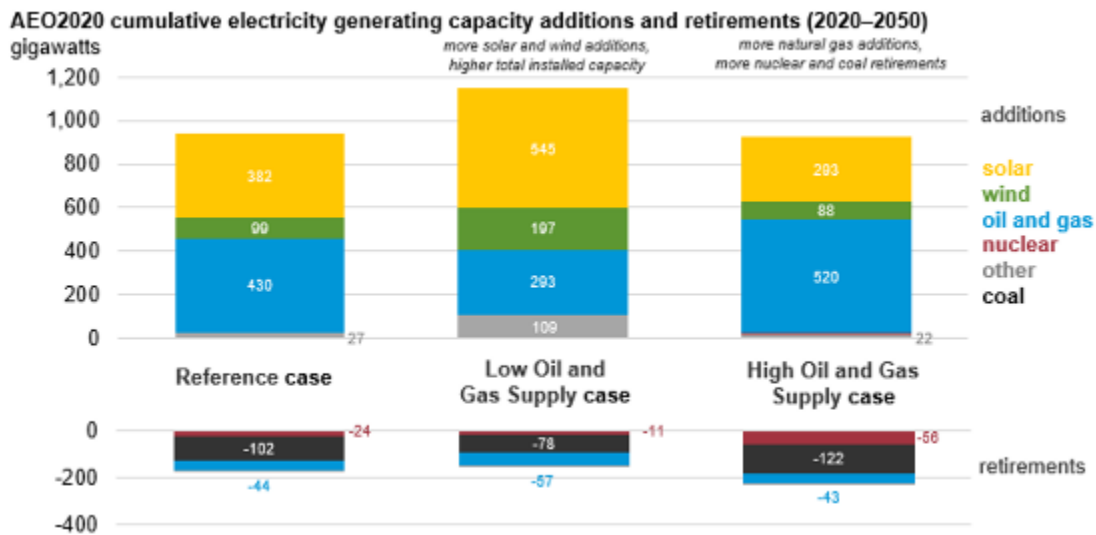
Figure 7: US Natural Gas Trade (source EIA)



Note that all LNG-export facilities and expansions currently under construction are expected to be completed by 2025.

AEO2020’s long-term trends in electricity generation are dominated by solar and natural gas-fired capacity additions; coal, nuclear and less efficient natural gas generators contribute to capacity retirements.

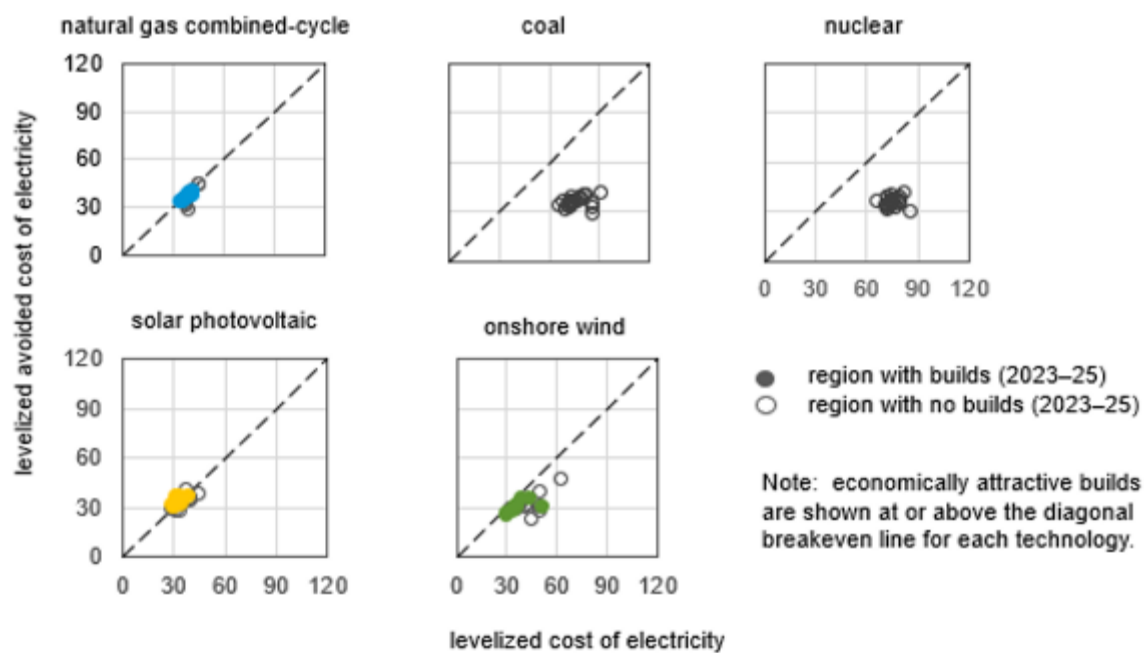
Figure 8: AEO2020 Cumulative Electricity Generating Capacity 2020-2050 (source EIA)



In the AEO2020 Reference case, combined-cycle gas and solar photovoltaic are the most economically competitive generating technologies.

Figure 9: AEO2020 Levelized Electricity Costs and Revenues (source EIA)

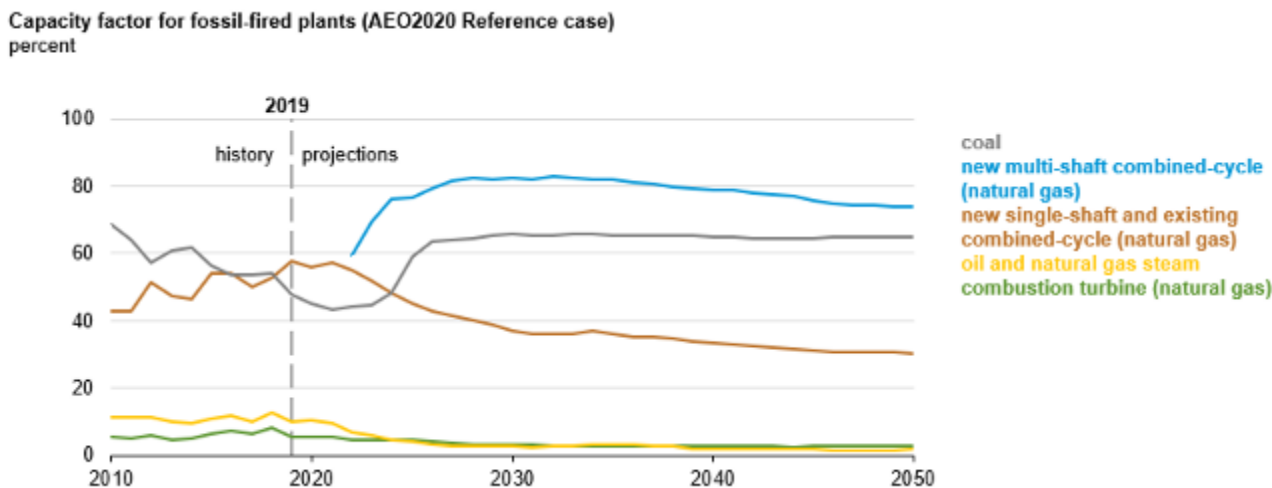
**AEO2020 levelized cost of electricity and levelized avoided cost of electricity by technology and region, 2025**  
2019 dollars per megawatthour



The levelized cost of electricity (LCOE) reflects the cost to build and operate a power plant per unit of generation, annualised over a cost recovery period. This provides an estimate of the economic competitiveness for that generating technology when compared with the levelized avoided cost of electricity (LACE), or expected average revenue realised by that plant.

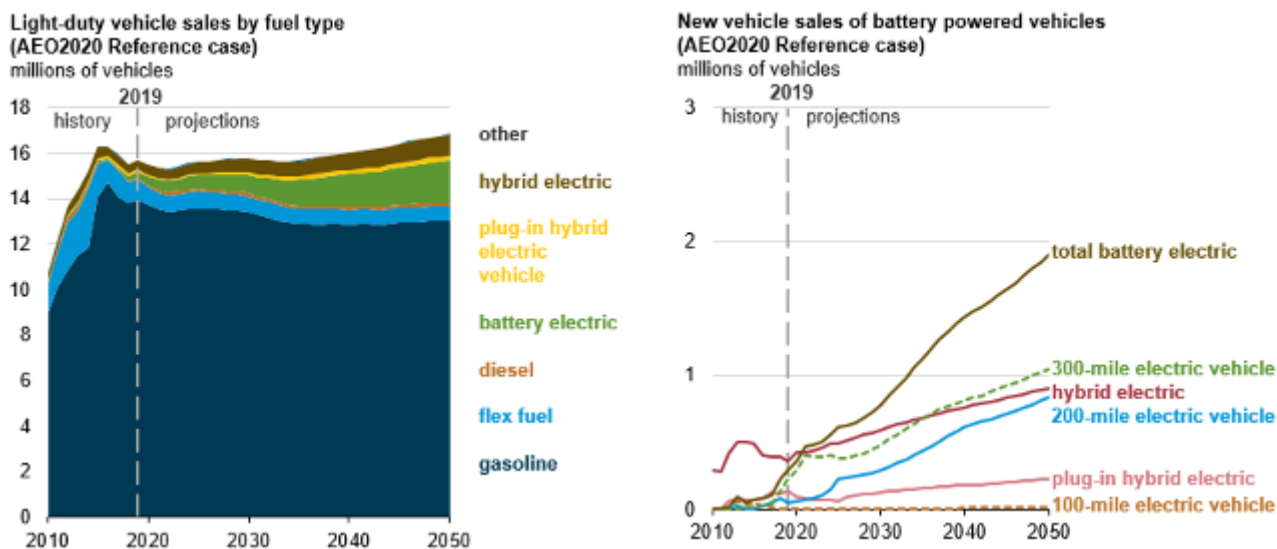
The EIA projects that lower operating costs and higher efficiencies will result in advanced natural gas-fired combined-cycle capacity factors of 80% by 2030.

Figure 10: AEO2020 Capacity Factor for Fossil-Fired Plants (source EIA)



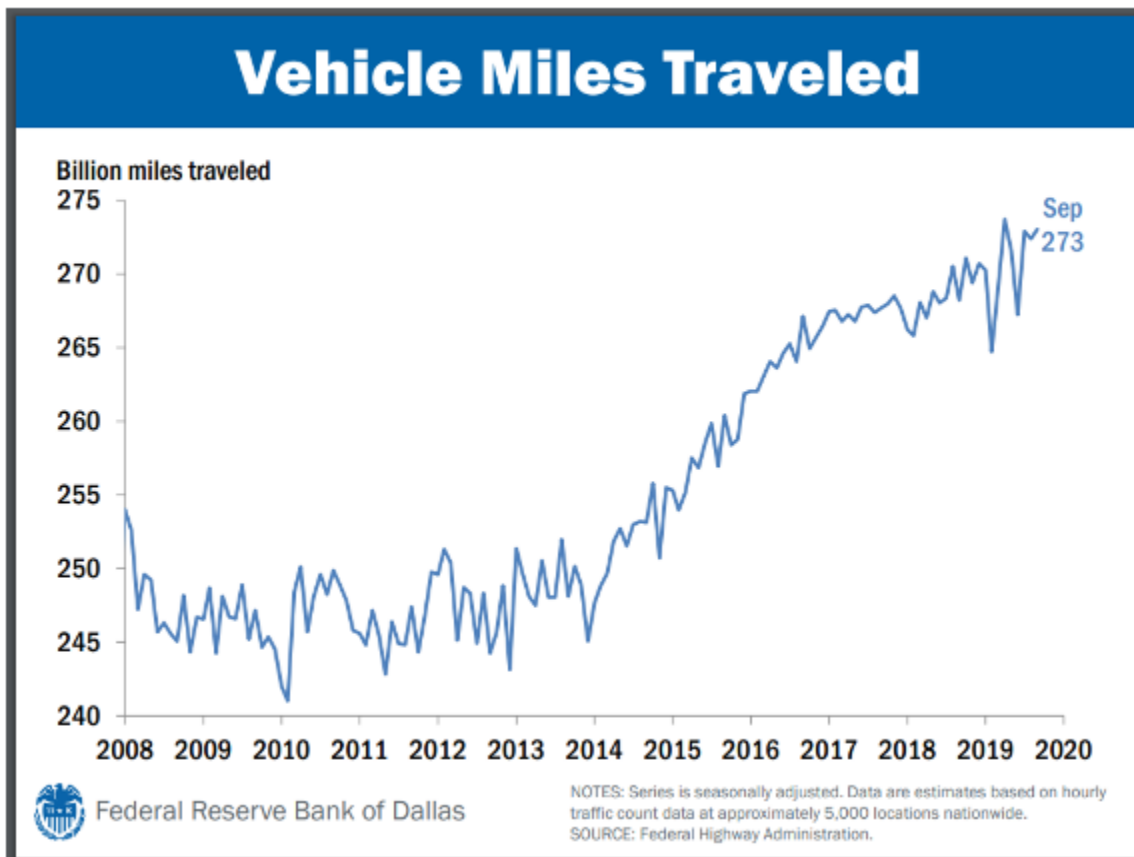
Alternative and electric vehicles gain market share though gasoline vehicles remain the dominant vehicle type through 2050.

Figure 11: AEO2020 Light Vehicle Sales by Fuel Type (source EIA)



The steady growth in recent years of US vehicle usage is highlighted by another figure from the Dallas Fed.

Figure 12: US Vehicle Miles Travelled (source Dallas Fed)



**Gas Market**

Winter gas prices continued to weaken through January on relatively warm winter weather. On 3 January the March 2020 contract opened at \$1.852/mcf. Calendar 2020 futures were down \$0.22/mcf during the month, 2021 was down 10c to \$2.33 while future dates were down by 5c or less.

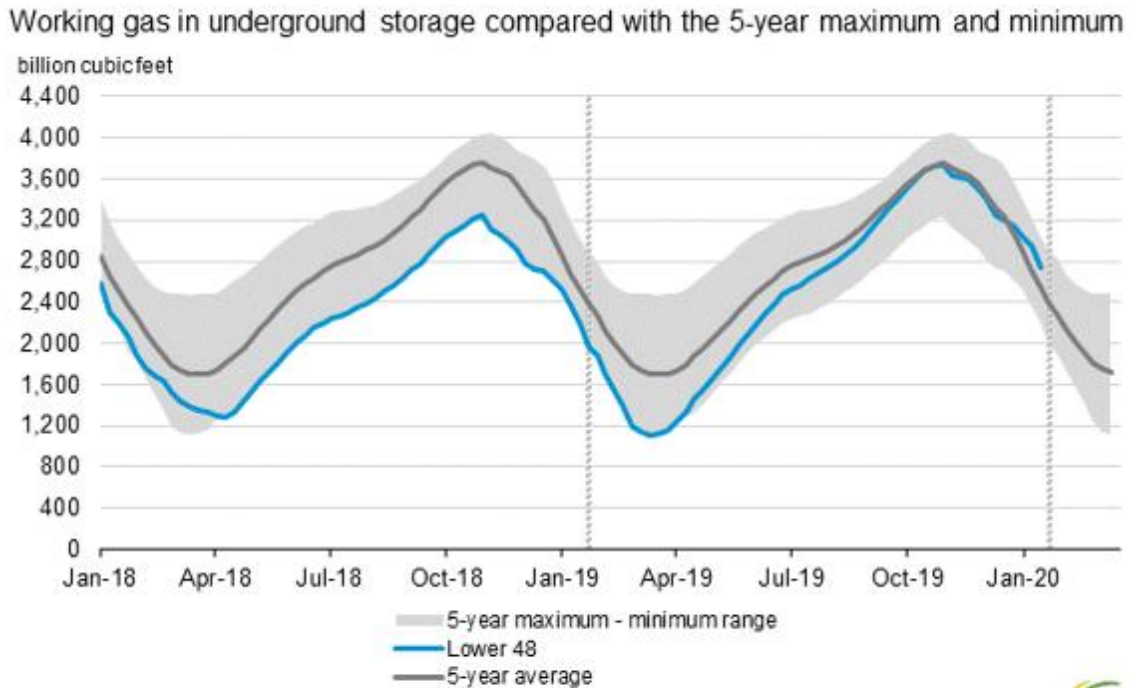
While weather and expected supply increases were the primary drivers, reduced demand from relatively warm weather in Asia and uncertainty about Chinese gas demand continued to put pressure on Asia’s LNG price benchmark, JKM spot prices. As the coronavirus fears built in late January prices reached \$3.53/mcf, record lows. Approximately 70% of Asian LNG is delivered under long-term oil-based contracts that are currently in the \$9 to \$10/mcf range.

US LNG feed gas demand averaged about 9bcf/d across the month.

The EIA estimated working gas in storage as at 24 January was 524 bcf, or 24%, higher than same time last year. The increase on 5-year average is a more modest 7.6% and storage volumes are lower than 5-year maximum.



Figure 13: US Working Gas in Storage (source EIA)



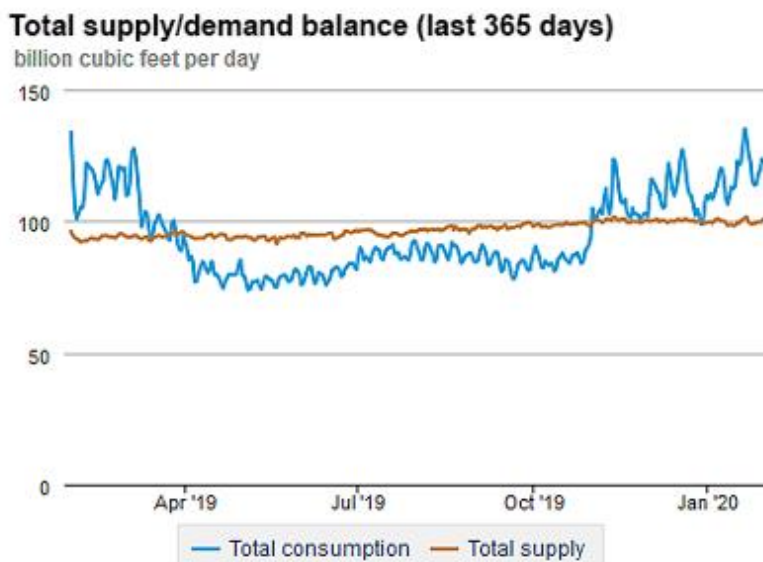
Source: U.S. Energy Information Administration



Note: The shaded area indicates the range between the historical minimum and maximum values for the weekly series from 2015 through 2019. The dashed vertical lines indicate current and year-ago weekly periods.

The 12-month trailing gas supply/demand balance shows high volatility in winter draws.

Figure 14: US Gas Supply / Demand Balance (source EIA)



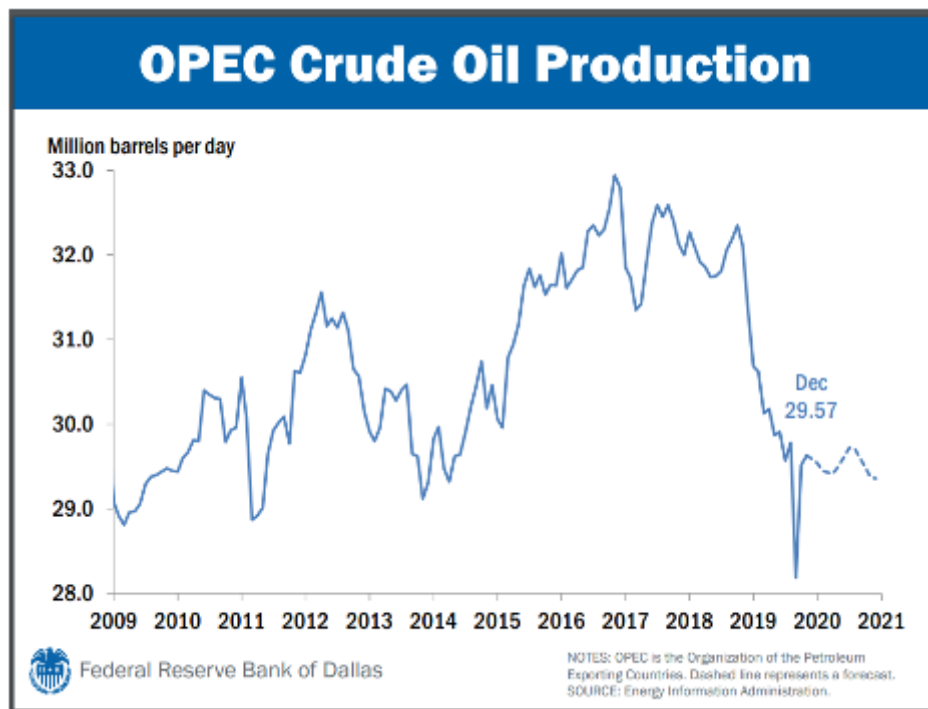
Source: IHS Markit

### Oil Market

Oil prices decreased across the curve in January as selling pressure from coronavirus related demand fears replaced optimism, arising from Phase 1 China/US trade deal and supply concerns from ongoing geopolitical instability in the Middle East. 2020 average WTI was down \$6.79 or 11.6% over the month and the full term of the curve saw lesser falls. Even before the coronavirus, major energy agencies such as the EIA have been forecasting an oversupply of oil for the first half of 2020. This projected imbalance between supply and demand has weighed on crude prices and no doubt contributed to the size of the falls.

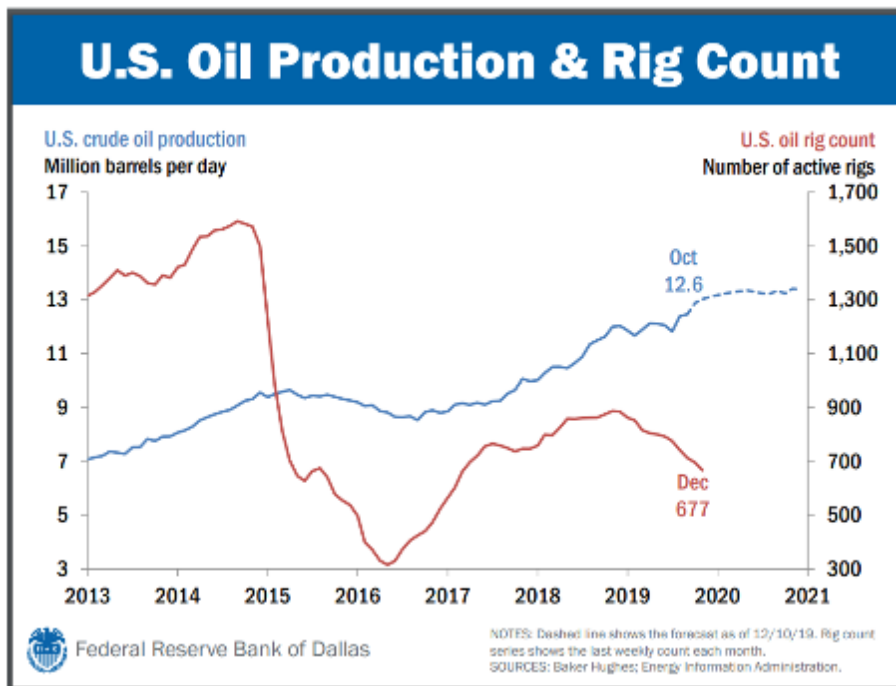
OPEC is now considering further production cuts in order to support prices. The cartel and its allies (Russia) are expected to meet in February. Dallas Fed has graphed OPEC’s production, note some of the recent decline is involuntary from Libya and Iran.

Figure 15: OPEC Production (source Dallas Fed)



Forecast US production increases look difficult to achieve given oil rig count.

Figure 16: US Oil Production and Rig Count (source Dallas Fed)



The Dallas Fed has surveyed producers to determine: (i) oil price required to profitably drill a new well; and (ii) WTI level required to cover operating costs for existing wells. These data show that new supply will fall away as oil approaches \$50/bbl and current producing wells will start to be shut-in, accelerating the supply reduction, below \$40/bbl.

Figure 17: Breakeven Prices for New Wells (source Dallas Fed)

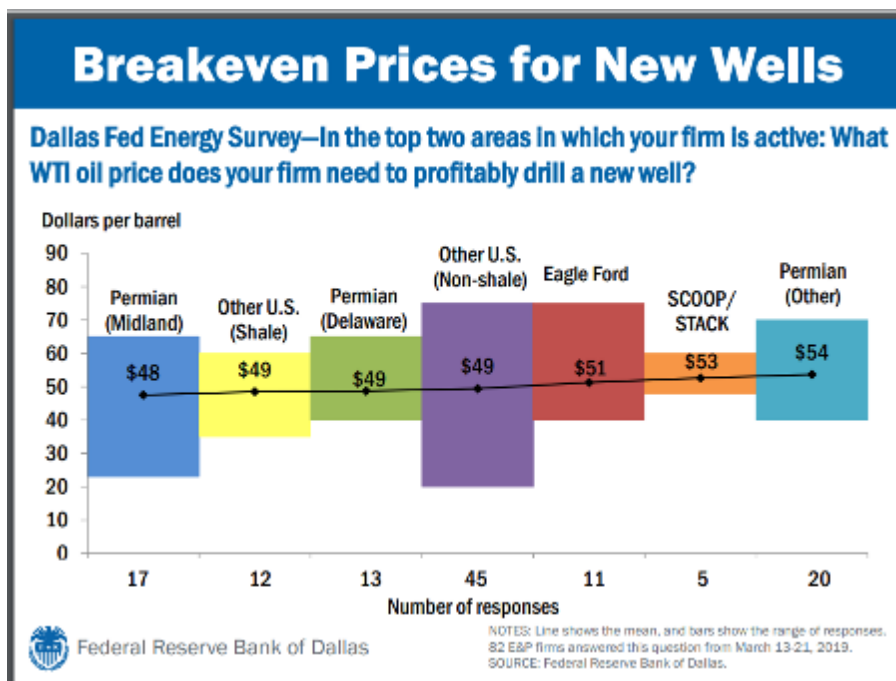
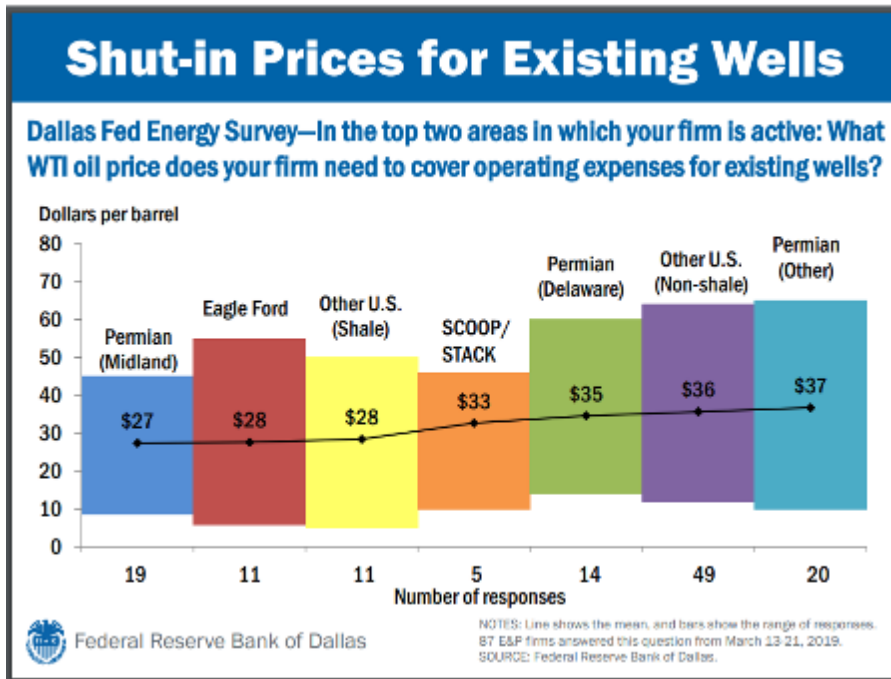


Figure 18: Shut-in Prices for Existing Wells (source Dallas Fed)



**Gas and Oil Prices 3 February 2020**

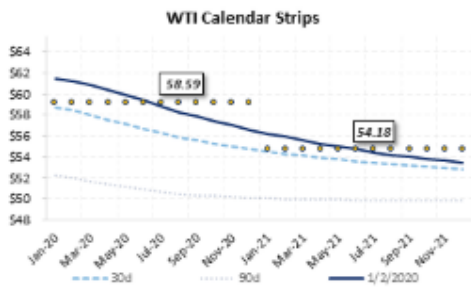


Swap Pricing		Bal 20	Cal 21	Cal 22	Cal 23
NYMEX WTI Crude	\$	51.80	50.42	50.11	50.48
ICE Brent Crude	\$	56.15	54.91	54.82	55.44
Louisiana Light Sweet	\$	55.16	53.18	52.73	53.10
TM Midland Differential	\$	1.15	1.30	1.30	
NYMEX Natural Gas	\$	2.07	2.33	2.38	2.41

Natural Gas Basis		Spot	Q1 '20	Summer '20	Winter '20/'21
Location					
Henry Hub Fixed		\$1.94	\$1.84	\$2.03	\$2.43
MichCon	\$	(0.19)	(0.11)	(0.23)	(0.17)
TETCO M3	\$	(0.29)	0.02	(0.36)	0.87
CIG	\$	(0.36)	(0.37)	(0.60)	(0.39)
NGPL-Midcon	\$	(0.40)	(0.54)	(0.55)	(0.45)
TETCO M2	\$	(0.44)	(0.37)	(0.50)	(0.39)
Dominion S	\$	(0.49)	(0.39)	(0.48)	(0.40)
Waha	\$	(1.78)	(1.98)	(1.84)	(1.62)

All prices as of close yesterday

**Gas and Oil Prices 2 January 2020**



Swap Pricing		Cal 20	Cal 21	Cal 22	Cal 23
NYMEX WTI Crude	\$	58.59	54.18	52.07	51.39
ICE Brent Crude	\$	63.07	59.02	57.23	56.80
Louisiana Light Sweet	\$	61.86	57.12	54.95	54.25
TM Midland Differential	\$	0.90	1.10	1.10	
NYMEX Natural Gas	\$	2.29	2.43	2.42	2.46

Natural Gas Basis		Spot	Q1 '20	Summer '20	Winter '20/'21
Location					
Henry Hub Fixed		\$2.09	\$2.16	\$2.27	\$2.60
TETCO M3	\$	(0.14)	0.75	(0.33)	1.15
MichCon	\$	(0.14)	(0.14)	(0.21)	(0.14)
CIG	\$	(0.17)	(0.40)	(0.59)	(0.38)
TETCO M2	\$	(0.24)	(0.36)	(0.49)	(0.40)
Dominion S	\$	(0.40)	(0.37)	(0.46)	(0.40)
NGPL-Midcon	\$	(0.69)	(0.76)	(0.56)	(0.37)
Waha	\$	(0.81)	(1.50)	(1.61)	(1.21)

All prices as of close yesterday