LONGREACH ENERGY

Monthly Report

Longreach Energy Holdings LLC

May 2021

FIRM INFORMATION

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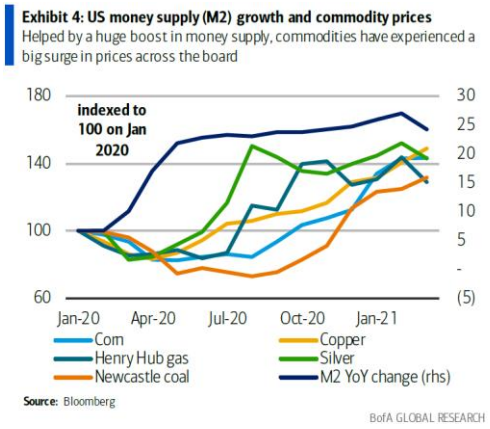
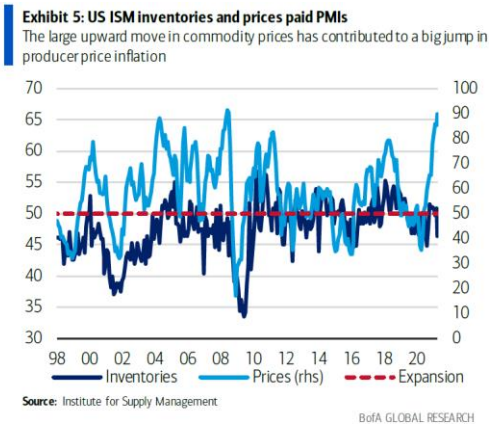
1. Market and Macro Industry Commentary

General Market Commentary

The combination of easy monetary and fiscal policy, a roaring Chinese economy and growing global infrastructure spending plans have combined to turbocharge the macro-outlook for many raw materials, from bulks to metals to agriculture in recent months. In turn, the large upward move in commodity prices has contributed to a big jump in producer price inflation. Big macro drivers - including a weaker USD, inflation and monetary easing – all point to higher oil and gas prices in 2022.

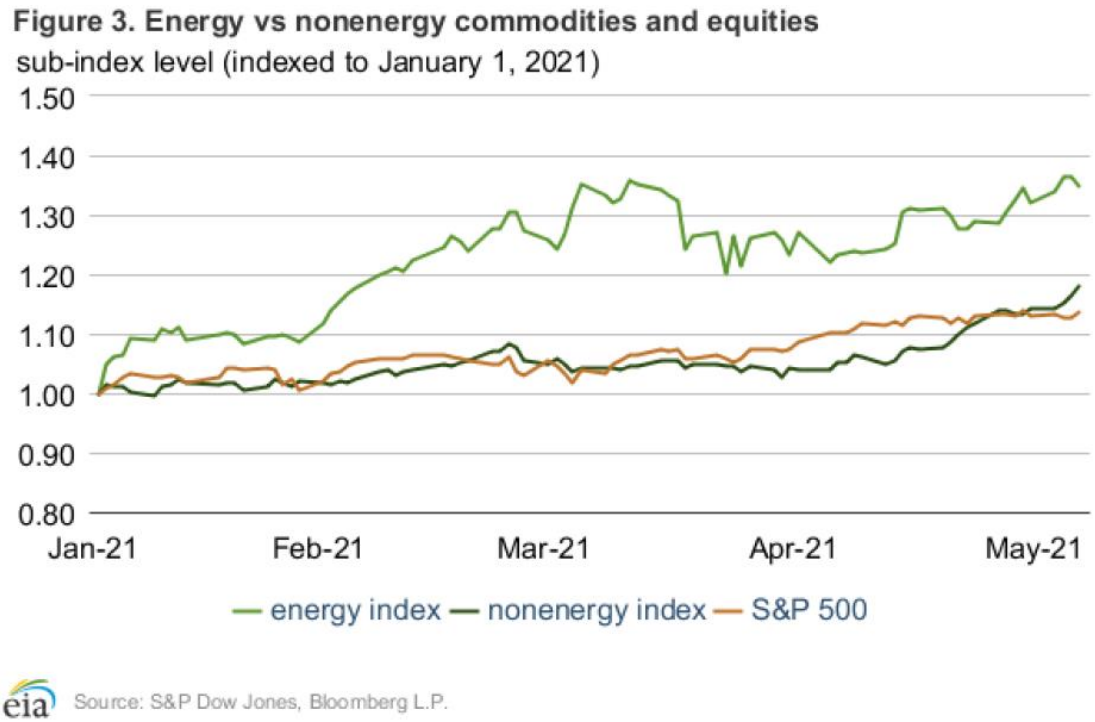
Figure 1: US Money Supply, Commodity Prices and Producer Price Inflation (Source: Bloomberg and IfSM via BofA)





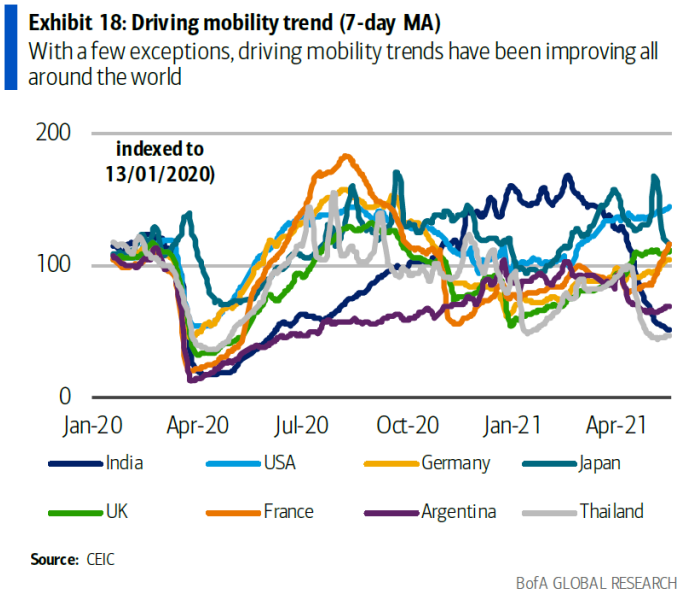
As shown in Figure 2, energy prices have increased much more strongly than non-energy commodities or equities (as measured by the S&P 500) since the beginning of the year.

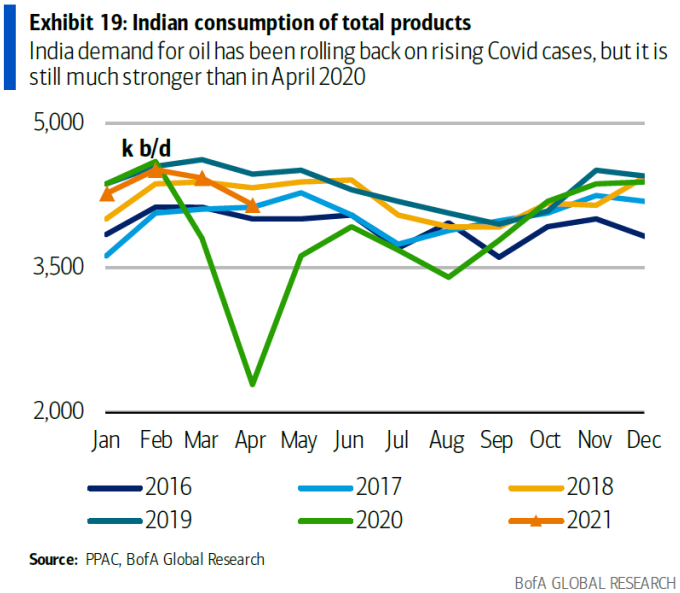
Figure 2: % Energy vs Non-energy Commodities and Equities (source EIA)



Covid-19 remains an important factor in the market, however while a Covid-19 surge in India has depressed mobility the link between Covid-19 cases and fuel consumption is starting to break down around the world. In part, workplace mobility is picking up thanks to the global vaccination campaign. For instance, despite a resurgence in Covid-19 cases in countries like the US, UK, Chile, the UAE or Bahrain (nations with some of the highest vaccination levels in the world), hospitalisation and death rates have stayed low and with that, mobility has kept improving.

Figure 3: Driving Mobility and Indian Product Consumption (Source: CEIC and IEA via BofA)

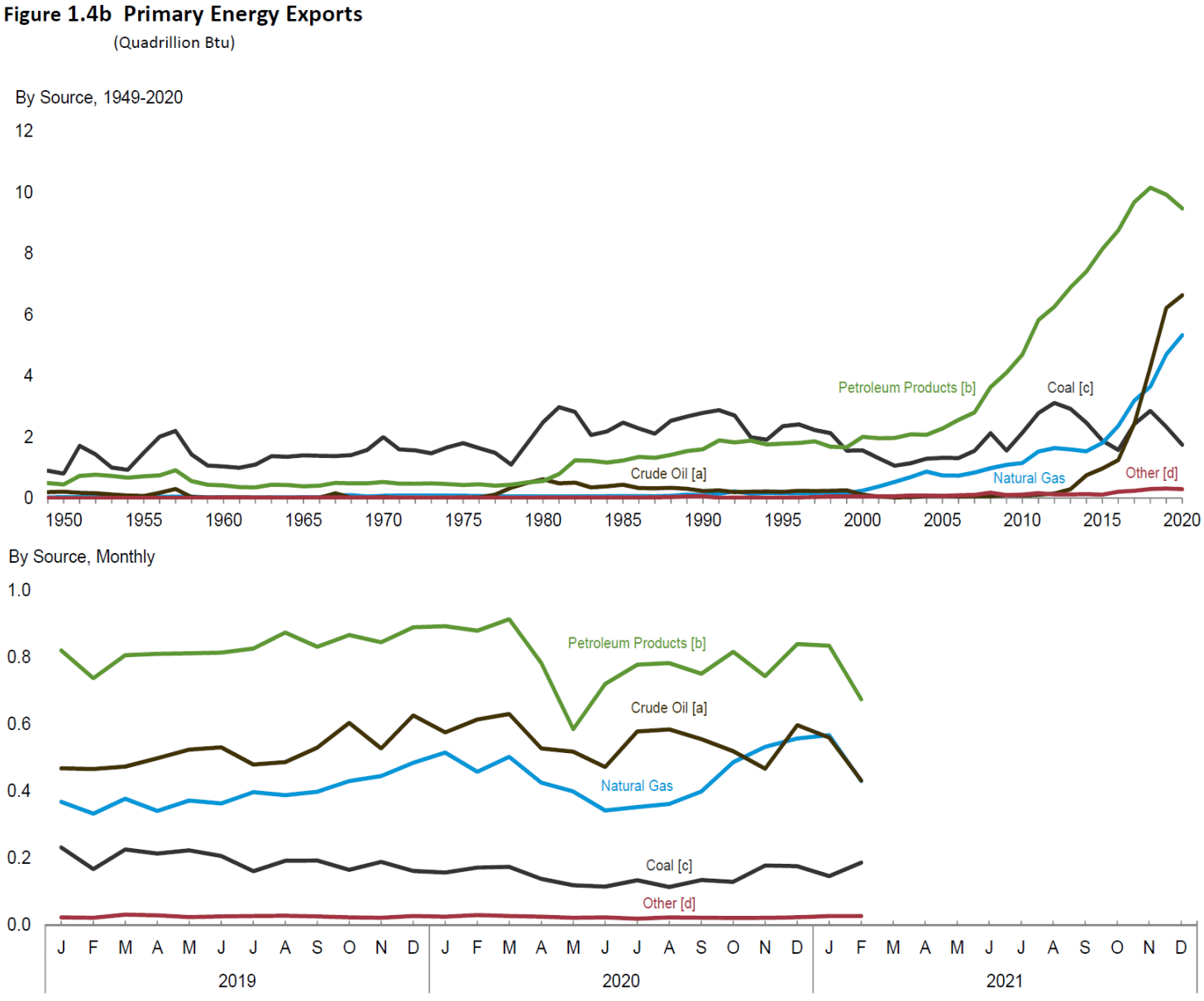




The EIA's May 2021 Monthly Energy Review has the latest data on US energy production and consumption. Total US primary energy production and consumption from April were provided in last month's report and 30 days' data have not changed the picture.

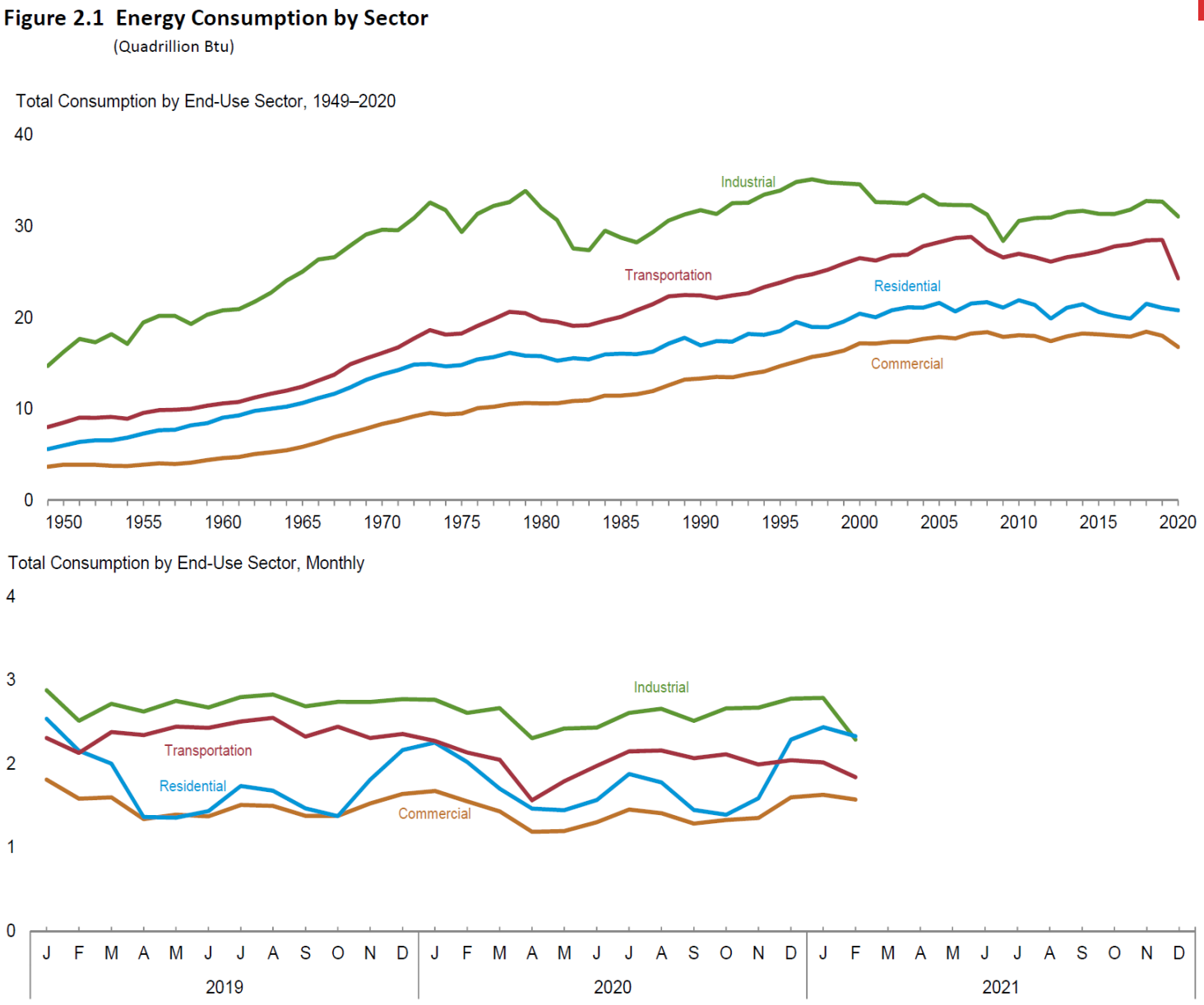
Primary energy exports chart (Figure 4) shows the meteoric rise in exports of natural gas, oil and petroleum products corresponding to the growth in production since circa 2008.

Figure 4: US Primary Energy Exports (Source: EIA)



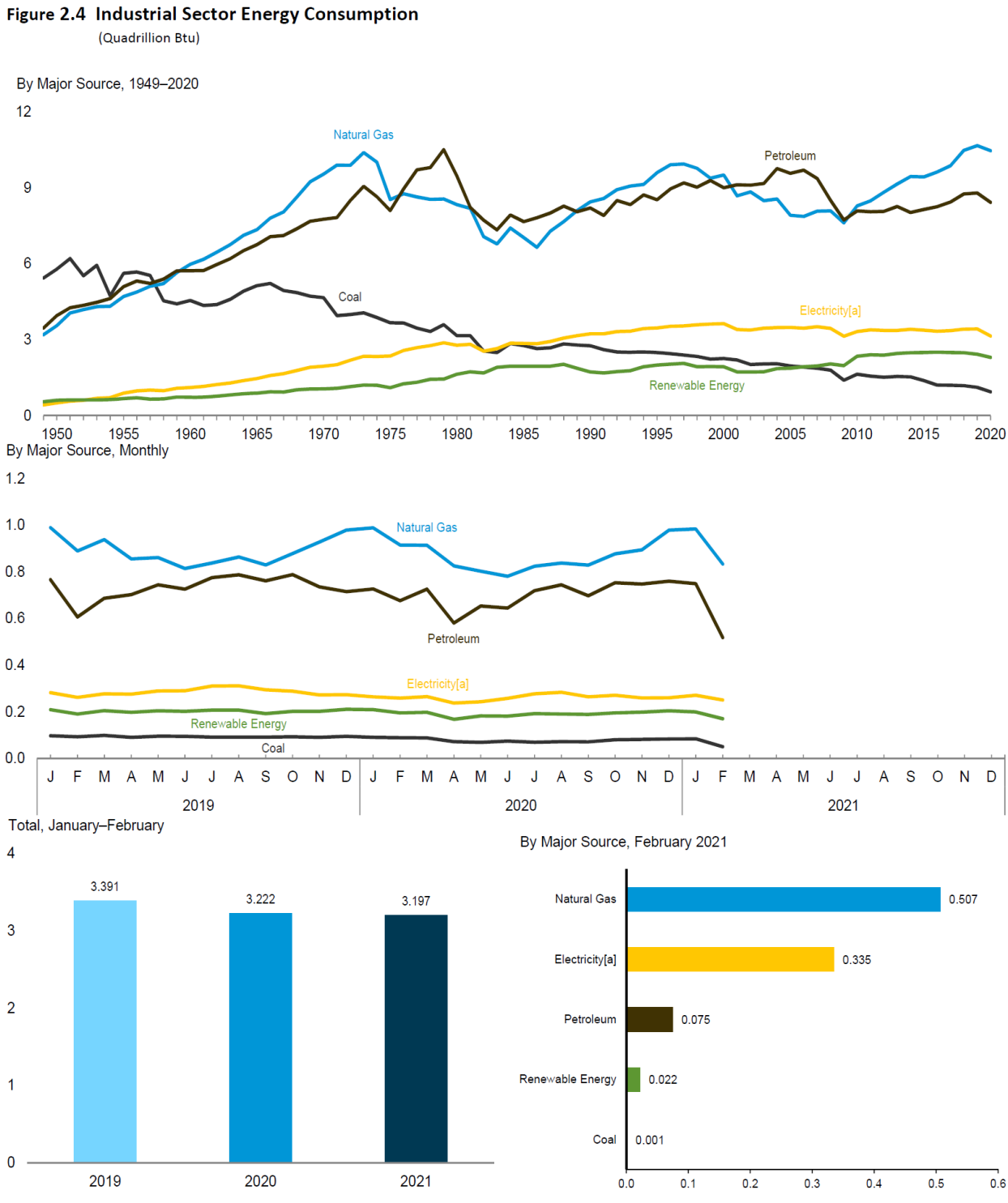
Energy consumption by sector is provided in Figure 5. The Covid-19 induced fall in transportation consumption is evident, as is the early 2021 increase in residential energy demand thanks to the severe winter storm that hit the US in February (referred to by the locals as “Snowmageddon”).

Figure 5: US Energy Consumption by Sector (Source: EIA)



Figures 6 through 9 show the energy consumption for each of the four sectors ranked by total sector energy consumption – in order: industrial, transport, residential and commercial. Large quantities of gas are consumed in the industrial, residential and commercial sectors, while oil completely dominates as the source of transportation energy and is also used extensively in the industrial sector as both a fuel and source of product components.

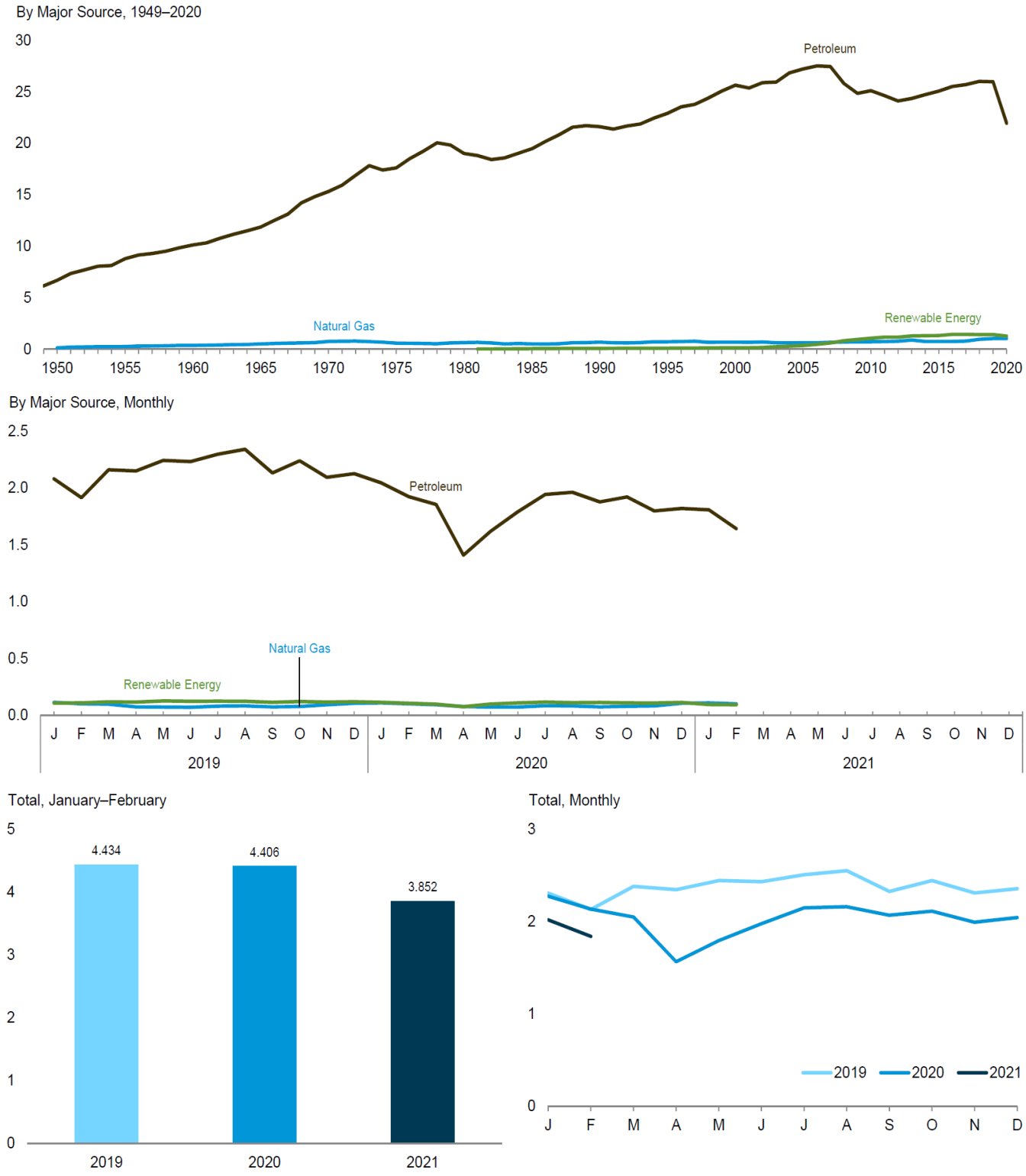
Figure 6: US Industrial Sector Consumption (Source: EIA)



[a] Electricity retail sales.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.3.

Figure 7: US Transportation Sector Consumption (Source: EIA)

Figure 2.5 Transportation Sector Energy Consumption
(Quadrillion Btu)

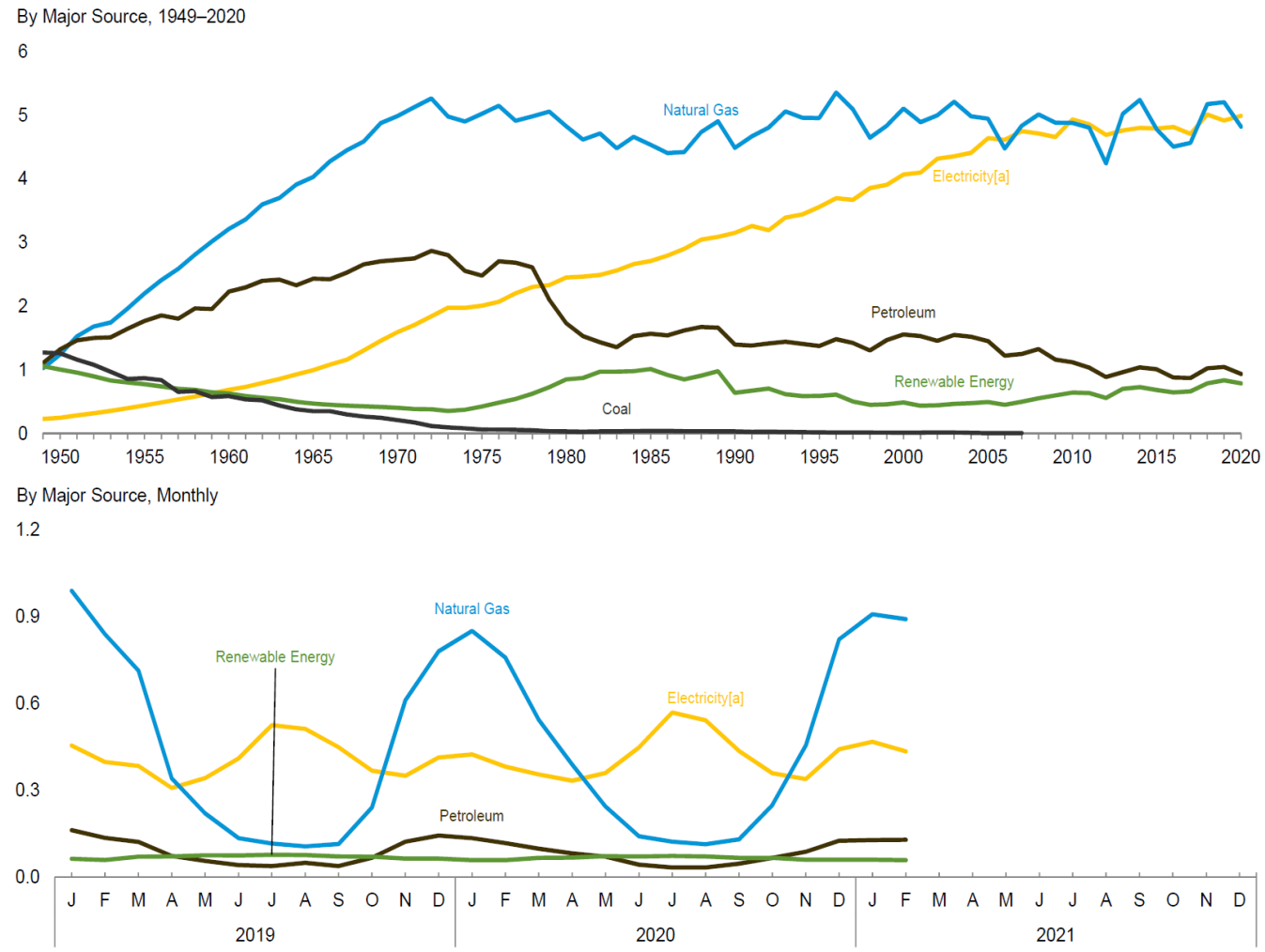


Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.5.

Figure 8: US Residential Sector Consumption (Source: EIA)

Figure 2.2 Residential Sector Energy Consumption

(Quadrillion Btu)



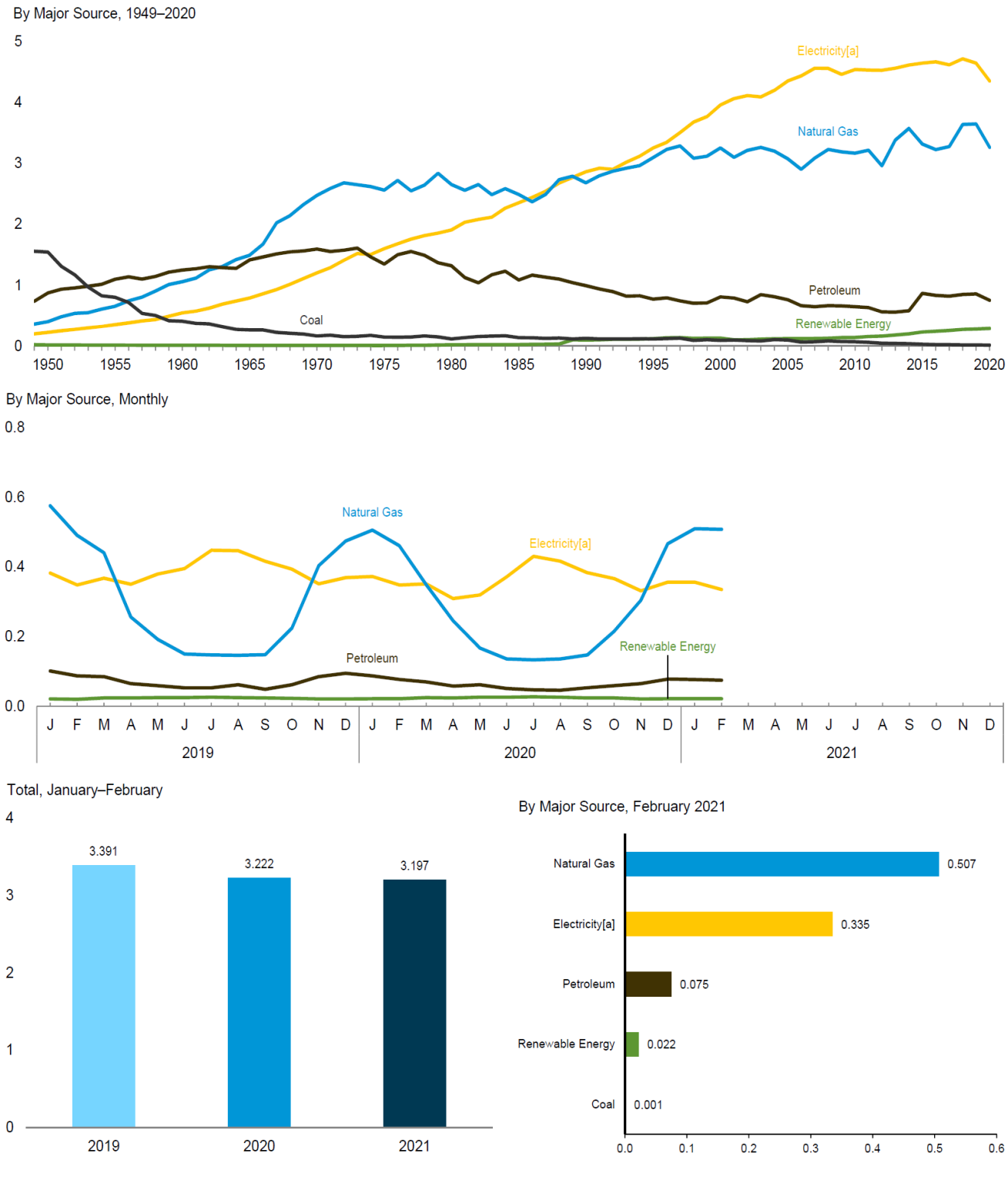
[a] Electricity retail sales.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.

Source: Table 2.2.

Figure 9: US Commercial Sector Consumption (Source: EIA)

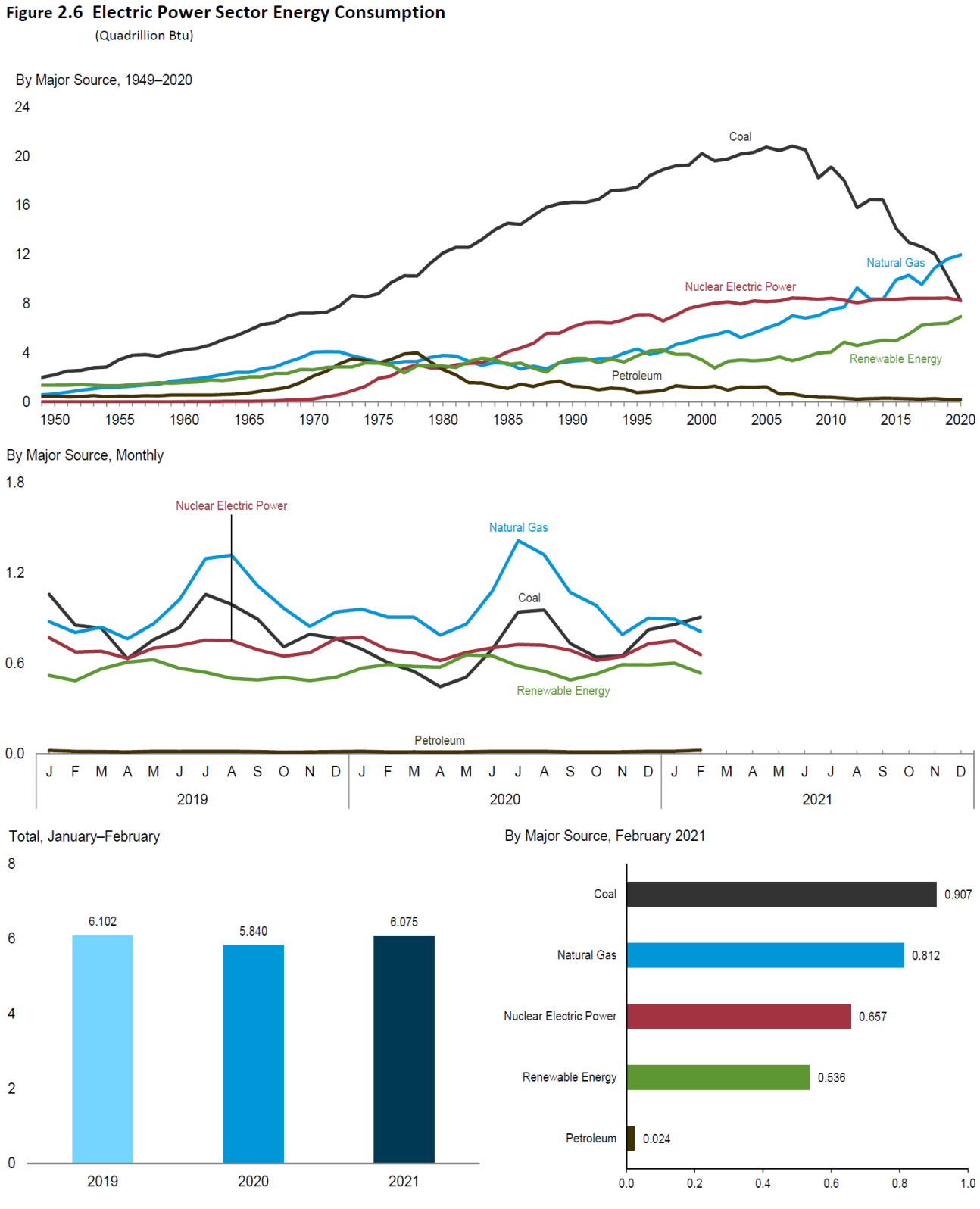
Figure 2.3 Commercial Sector Energy Consumption
(Quadrillion Btu)



[a] Electricity retail sales.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.3.

Electric power, shown as an energy source on Figures 6 to 9, of course itself needs to be generated. The rise of natural gas and renewables at the expense of coal is shown in Figure 10.

Figure 10: US Electric Power Sector Energy Consumption (Source: EIA)

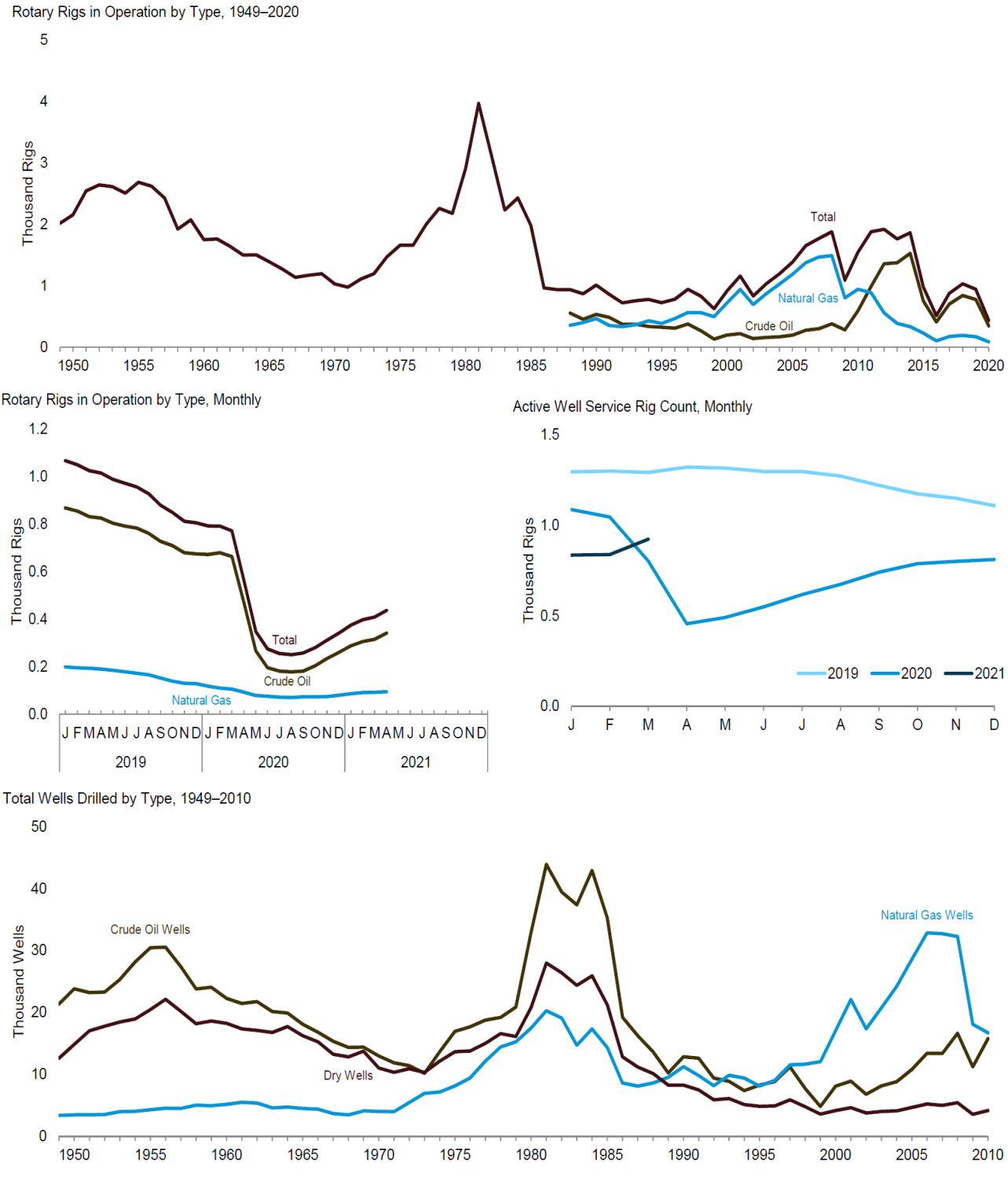


Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.6.

Crude oil and natural gas resource development indicators (Figure 11) show that total rig count today is materially lower than the historic average. Early 2020 saw almost half the stock of producing wells shut in due to low prices. While many have been brought back on, notwithstanding the strong price recovery, the number of producing wells today remains below that at the start of 2020.

Figure 11: Crude Oil and Natural Gas Development Indicators (Source EIA)

Figure 5.1 Crude Oil and Natural Gas Resource Development Indicators



Web Page: http://www.eia.gov/totalenergy/data/monthly/#crude.
Sources: Tables 5.1 and 5.2.

The latest Baker Hughes rig count data follows. In the last month US total rigs have increased by 17 from 440 to 457 and land rigs increased by 16 from 426 to 442. These are larger increases than we have seen in recent months and are based on continuing appreciation in commodity prices. Oil rigs increased by 17 from 342 to 359 and there were 2 new gas rigs deployed, increasing from 96 to 98.

Baker Hughes rig count

Baker Hughes

Rotary Rig Count

5/28/21

Location	Week	+/-	Week Ago	+/-	Year Ago
Land	442	2	440	153	289
Inland Waters	1	0	1	1	0
Offshore	14	0	14	2	12
United States Total	457	2	455	156	301
Gulf Of Mexico	14	0	14	2	12
Canada	62	4	58	42	20
North America	519	6	513	198	321
U.S. Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	359	3	356	137	222
Gas	98	-1	99	21	77
Miscellaneous	0	0	0	-2	2
Directional	27	-1	28	4	23
Horizontal	415	3	412	144	271
Vertical	15	0	15	8	7

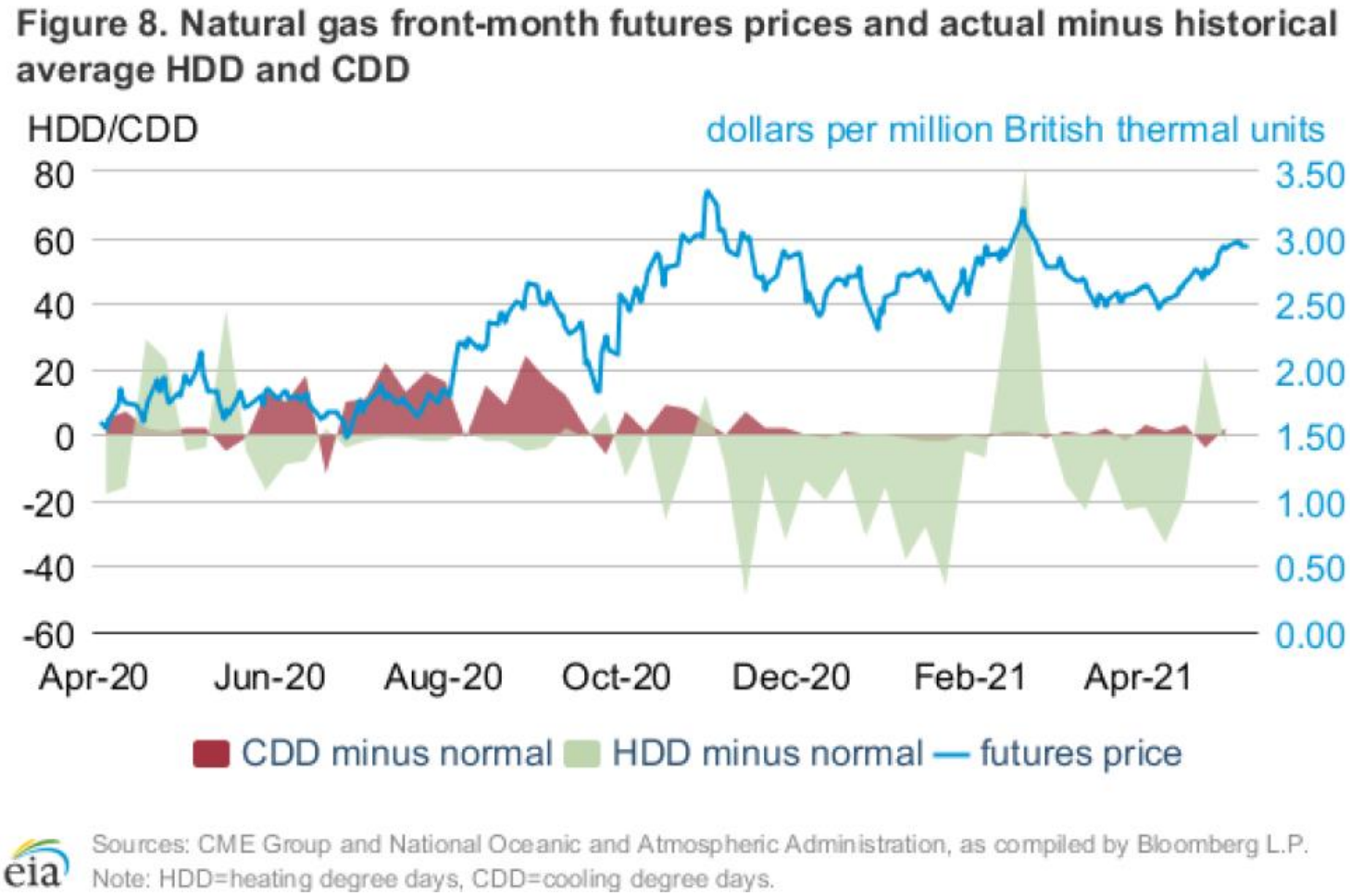
Gas Market

The prompt July gas contract finished May at $2.986, flat on the prior month's close at $2.938.

The forward curve is strong with all contracts out to March 2022 trading above $3.00.

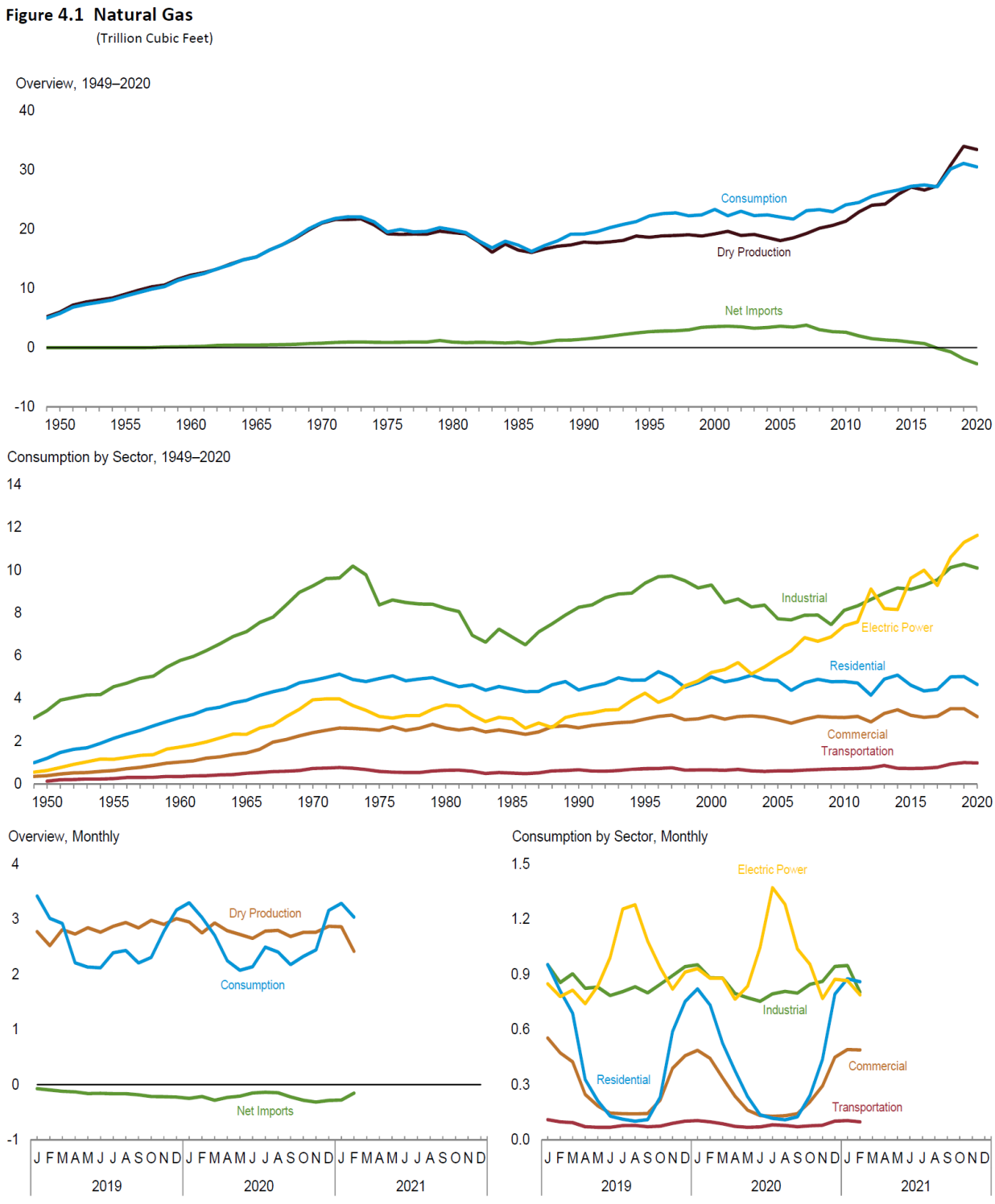
The EIA expects that natural gas prices will continue to rise this year, primarily because of growth in LNG exports and rising domestic natural gas consumption in the residential, commercial, and industrial sectors. Increased consumption in 2021 relative to 2020 is based on expanding economic activity and colder temperatures this year compared to last. Heating and cooling demands, here represented by Heating Degree Days (HDD) and Cooling Degree Days (CDD), are primary drivers for gas prices as illustrated in Figure 12.

Figure 12: Prompt HH and Actual minus Average HDD and CDD (Source: EIA)



Higher prices are expected to drive modest increases in US domestic gas production from current 91.3bcf/d to 92.0bcf/d in 4Q21 and 93.1bcf/d as average for 2022.

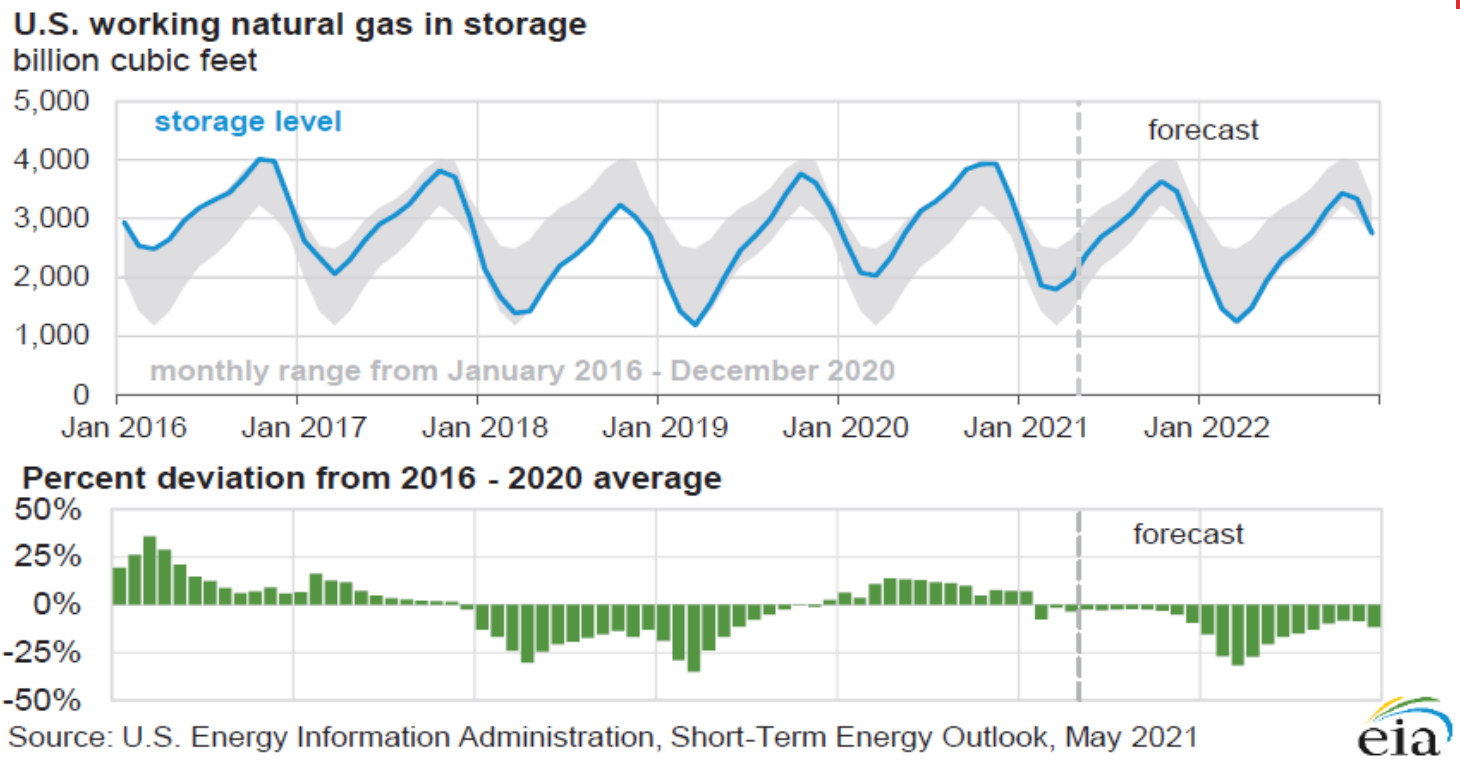
Figure 13: US Natural Gas Supply and Demand (Source: EIA)



Web Page: http://www.eia.gov/totalenergy/data/monthly/#naturalgas.
Sources: Tables 4.1 and 4.3.

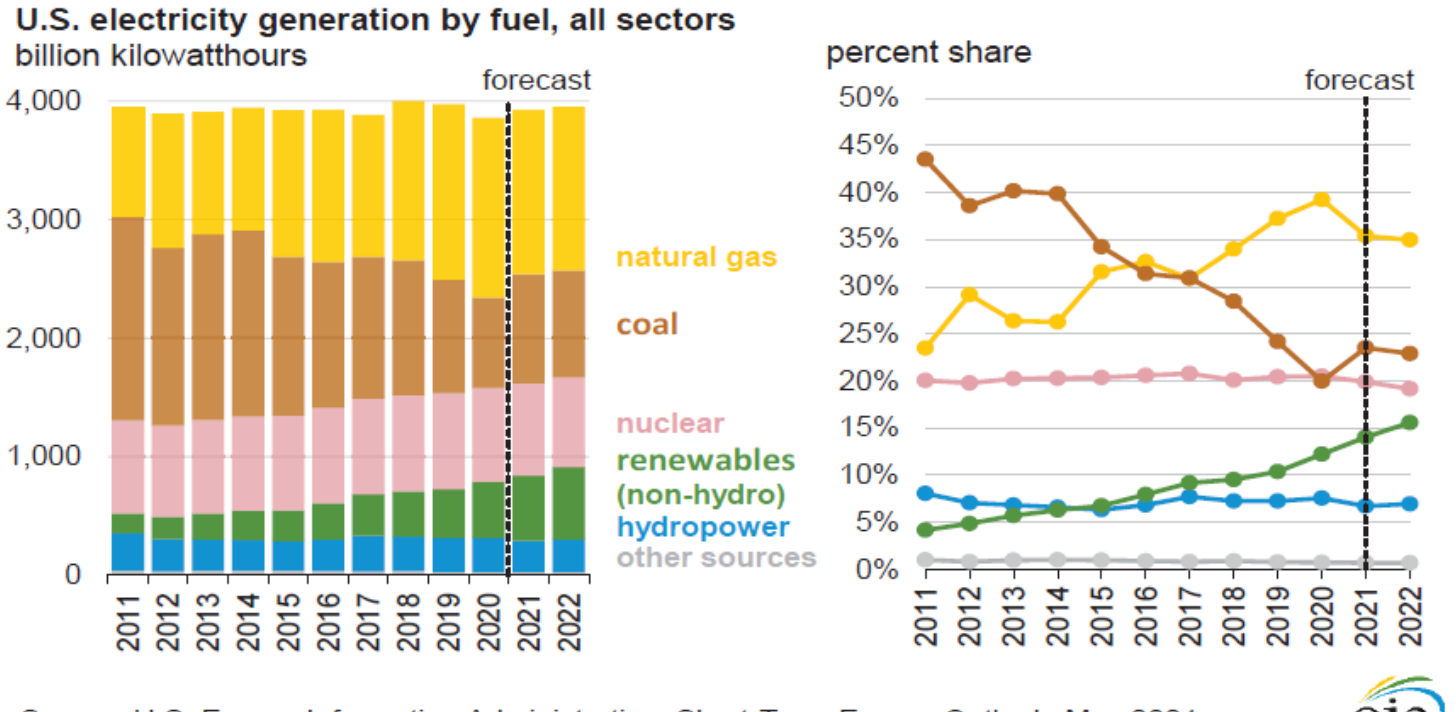
Strong demand, the LNG component of which is discussed further below, is forecast to keep 'gas in storage' below average and at the bottom of the five-year range through to 2022. This should keep prices strong.

Figure 14: US Working Gas in Storage (Source: EIA)



The essential role of natural gas in supply of electricity is evident in Figure 15.

Figure 15: US Electricity Generation by Fuel (Source: EIA)



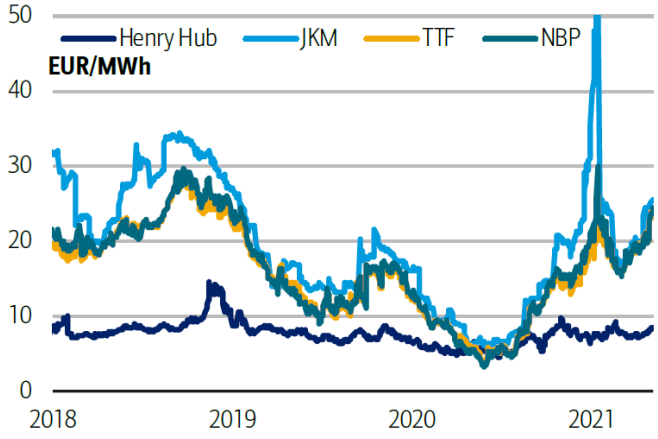
US LNG exports set a record in March 2021 at 10.5bcf/d and averaged 9.2bcf/d in April – the most exported LNG for those months since the United States began exporting it in 2016. The decline in April was due to scheduled LNG export facility maintenance.

Throughout 2020 and in January 2021, more than half of US LNG exports went to Asia. However, in February and March 2021 more than half of US LNG exports went to Europe because spot natural gas prices in Europe reached levels close to spot natural gas prices in Asia. For May, the EIA forecasts a decline in US LNG exports to 8.6bcf/d (more than 90% of baseload export capacity utilisation) before exports rise above 9.0bcf/d in the summer months, to meet peak cooling demand in Europe and Asia.

Europe remains short of gas. High demand and declining local production combined with a cold Asian winter that sent Pacific LNG prices to record highs at the start of the year, have translated to a European gas shortage this summer. The European storage surplus triggered by Covid-19 peaked near 30 billion cubic metres (bcm, approximately 1 trillion cubic feet) above the 5-year average last northern spring though now stands at a 13bcm (455bcf) deficit. Facing a potential inventory shortage ahead of next winter, prices have rallied to over €25/MWh since bottoming out at €3.50/MWh last May. The typical balancing levers, LNG imports, gas to coal switching and production, have all failed to respond fast enough. Inelastic supply and demand curves all point to a challenging summer for the European gas market.

Figure 16: Global Gas Prices and European Storage (Source: Bloomberg, BofA)

Exhibit 4: Global natural gas prices
TTF prices have surged to over 25 EUR/MWh on tightening fundamentals and a cold Asian winter that pulled LNG cargoes into the Pacific basin...



Source: Bloomberg

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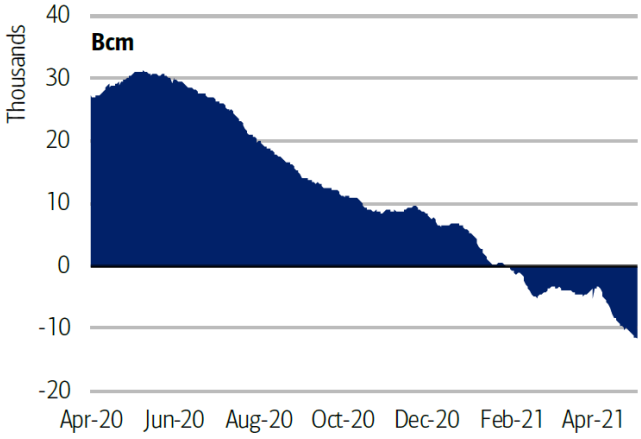
Exhibit 5: European storage surplus/deficit to 5yr average
...rapidly eliminating the record storage surplus from last spring and creating a 13 Bcm storage deficit this summer



Source: Bloomberg, BofA Global Research

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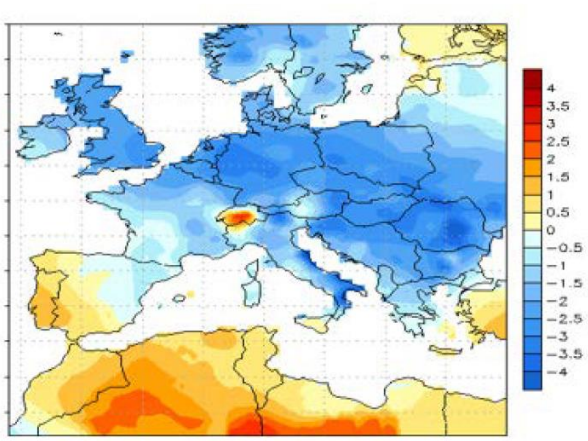
An abnormally cold April compounded European storage problems as below normal temperatures boosted gas demand across Europe. The weather fuelled demand in combination with structurally tight balances increased the storage deficit by 5bcm (175bcf) in April, increasing the pressure on prices to respond to ensure adequate inventories ahead of next winter.

Figure 17: European Temperature and Impact on Storage (Source: NOAA, Bloomberg, BofA)

Exhibit 8: Europe temperature anomalies, April 2021
April temperatures were 3 C below normal slowing injections to just 300 Mcm vs the 5yr average of 5.4 Bcm...



Source: NOAA

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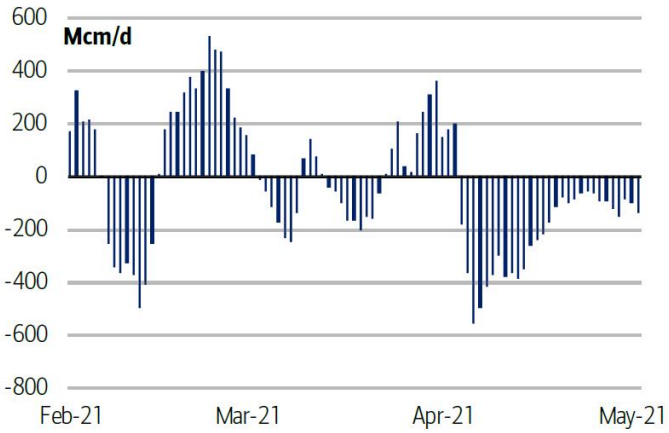
Exhibit 9: European weather impact on gas storage
... as increased gas demand totaled 5 Bcm across Europe compounding the storage problems



Source: Bloomberg, BofA Global Research estimates

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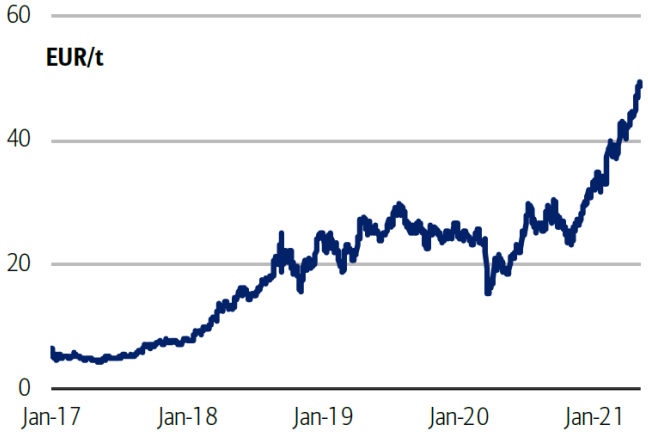
Coal, the use of which typically increases as gas prices rise, is being impacted by record European carbon prices, now over €50/t. Coal's carbon footprint per megawatt hour is over 50% larger than that of natural gas. Consequently, despite higher gas prices, the meteoric rise in carbon prices has kept coal generation sidelined.

Figure 18: European Carbon Prices (Source: Bloomberg via BofA)

Exhibit 14: European carbon allowance price
Sky high carbon prices have kept incremental coal generation sidelined given its bigger carbon footprint



Source: Bloomberg

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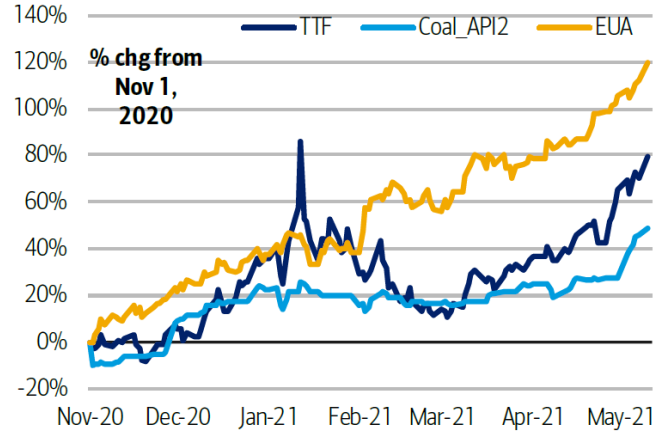
Exhibit 15: TTF, API2 coal and EUA normalized price changes
Since November, the increase in carbon prices has dwarfed that of gas or coa significantly impacting gas-to-coal switching economics



Source: Bloomberg, BofA Global Research

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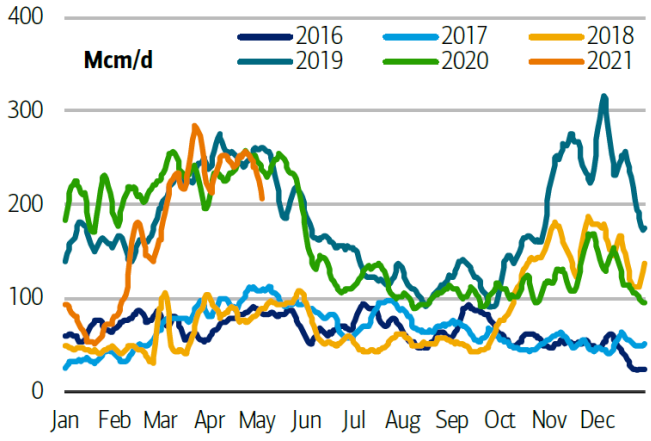
Europe and Asia are both competing for LNG import volumes. This is very beneficial for US LNG and Henry Hub gas prices.

Figure 19: European Carbon Prices (Source: Bloomberg via BofA)

Exhibit 16: LNG imports to Northwest Europe
Europe is in a tug of war for LNG cargoes with Asia and while imports briefly jumped this spring they have turned down in recent weeks



Source: Bloomberg

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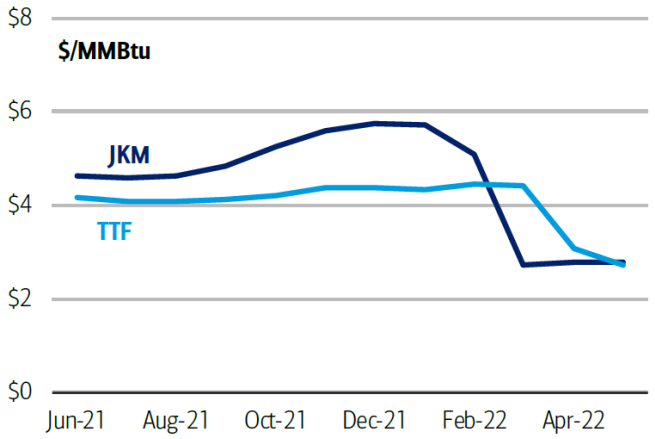
Exhibit 17: US Gulf Coast LNG export arbs
Despite the rally in European prices, Asia remains the highest netback for US cargoes



Source: Bloomberg

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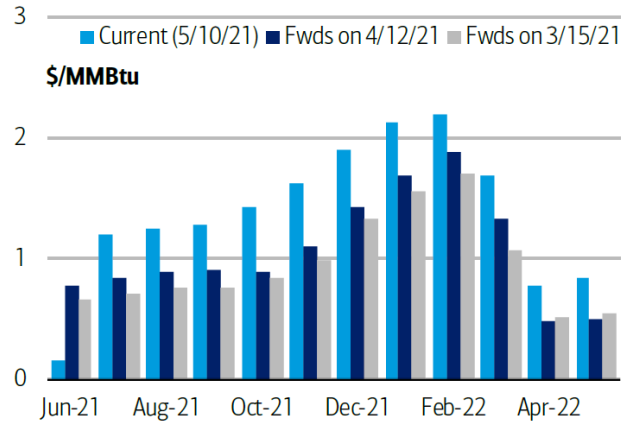
Figure 20: Asian JKM vs European TTF and US LNG Exports (Source: Bloomberg via BofA)

Exhibit 18: JKM premium vs TTF forward curve
JKM has not only kept pace with European gas prices, but has actually increased its premium vs TTF compared to a month ago



Source: Bloomberg, BofA Global Research

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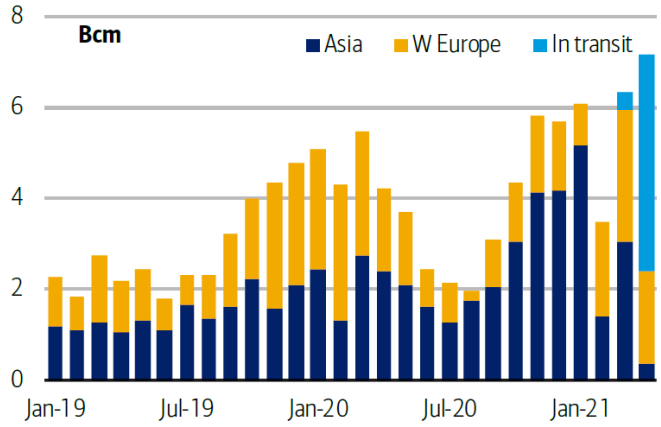
Exhibit 19: US Gulf Coast LNG exports to Asia and W. Europe
US Gulf Coast exports to Asia surged this winter and the forward curve suggests strong Asian buying throughout this summer



Source: Bloomberg

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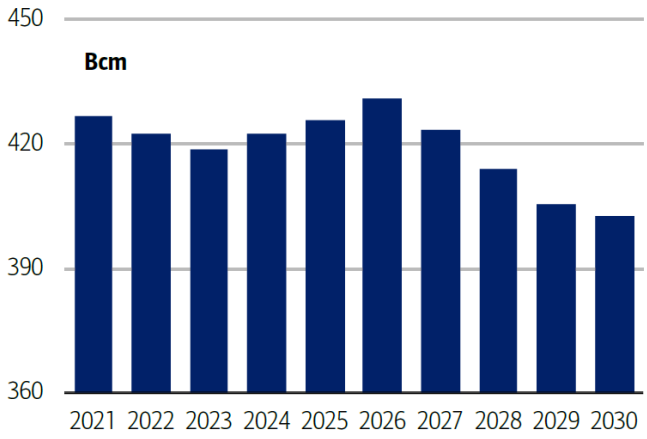
European gas demand is expected to peak around 2026 and then decline however, falls in domestic production are likely to require long term LNG imports well above current volumes. If these forecasts are directionally correct, US gas production will become more important to global energy supply in coming decades.

Figure 21: European Gas Demand and Supply (Source: Platts, BofA)

Exhibit 30: European gas demand outlook
The clean energy transition and continued renewable growth will weigh on natural gas demand in the 2H of this decade...



Source: Platts, BofA Global Research

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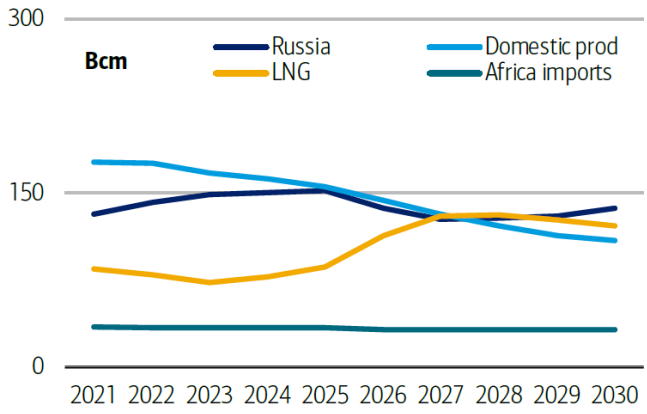
Exhibit 31: European gas supply
...as domestic production continues a structural decline, requiring more imports from Russian and LNG projects



Source: Platts, BofA Global Research

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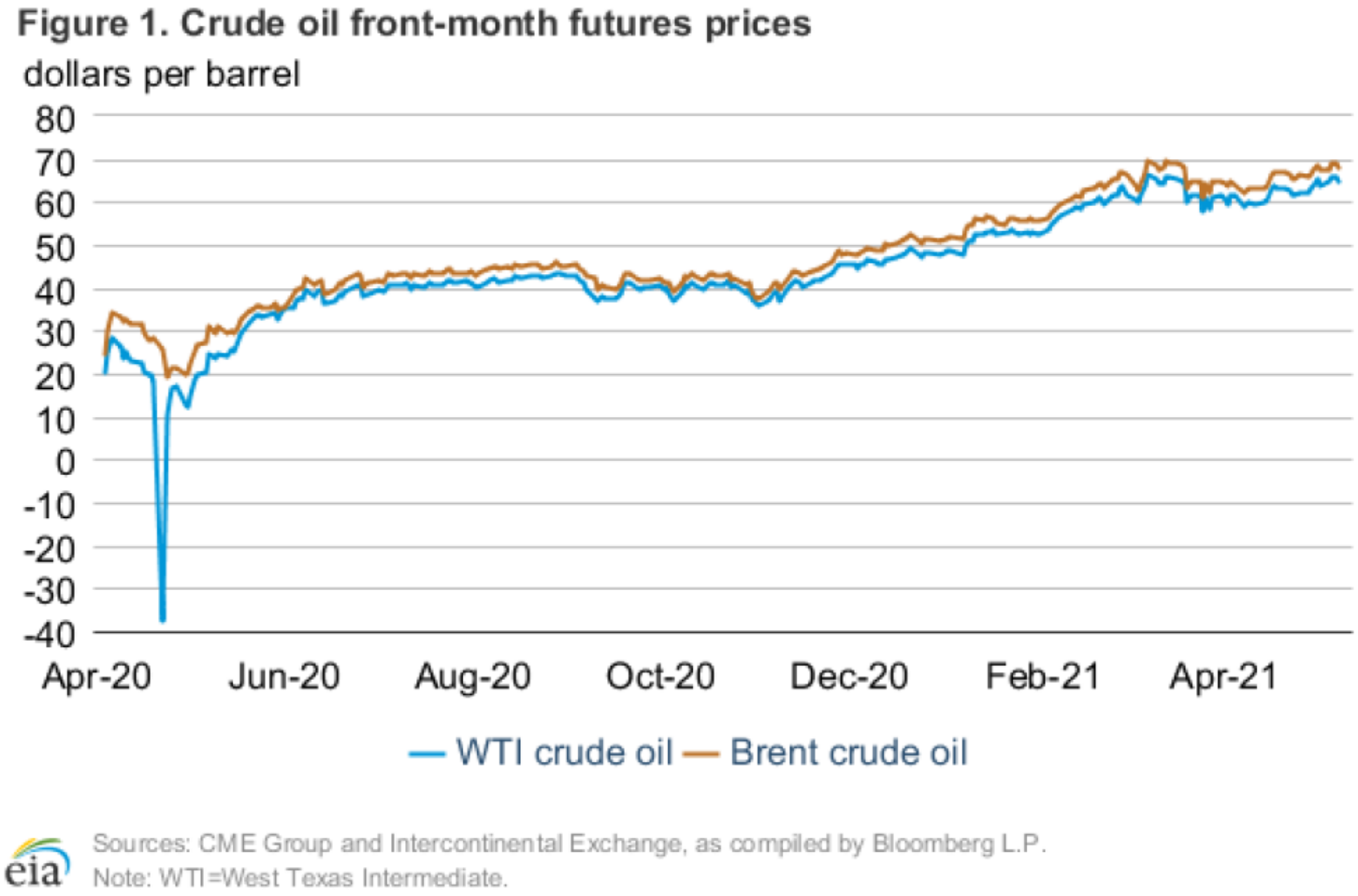
Oil Market

Oil prices closed the month of May with the July prompt WTI contract trading at $66.32/bbl. This is an increase of almost $3/bbl over the month and of almost $7/bbl since 1 April.

The oil price rise since mid-April is likely a result of crude oil and petroleum product inventory draws and higher expectations for summer gasoline demand, particularly in the United States. The rise in oil prices was reinforced by macroeconomic indicators that point to continued economic recovery and led to price increases across a broad range of commodities as is discussed in the General Market Commentary above. Oil price recovery over the last 12 months is shown in Figure 22.

Figure 22: Prompt HH and Actual minus Average HDD and CDD (Source: EIA)



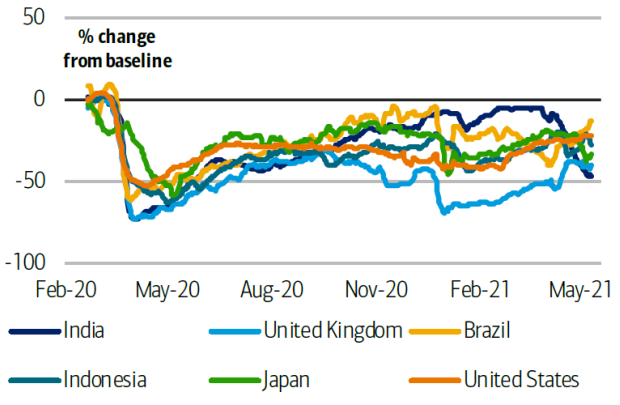
Sources: CME Group and Intercontinental Exchange, as compiled by Bloomberg L.P.
Note: WTI=West Texas Intermediate.

Oil demand in Asia currently represents a downside risk. At this stage the impact on demand of the increase in Covid-19 cases in India, the world's third largest oil consumer, is unclear.

From the US to the UK to India to Japan to Brazil, mass transit indicators are all well below pre-Covid levels (LHS Figure 23). In stark contrast, private transportation demand has picked up, with second-hand car sales even contributing to strong core inflation numbers in the US in recent months. Also, the market has so far ignored the risks that oil demand does not level off at 104mmbbld in 2029. Even if electric vehicle sales reach 34% by 2030, an acceleration in miles driven by 20% could push peak oil demand levels to ~109mmbbld by 2027 (RHS Figure 23). Should that scenario eventuate, supply could fall substantially short of desired demand levels.

Figure 23: Transit Mobility and Oil Demand Scenarios (Source: BofA)

Exhibit 28: Transit mobility trend by country (7-day MA)
Mass transit indicators from all around the world remain rather depressed...



Source: CEIC

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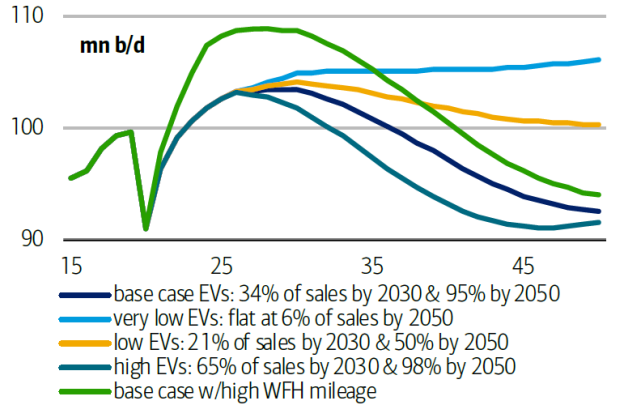
Exhibit 29: Oil demand scenarios
...and so far has ignored the risks that oil demand does not level off at 104mn b/d in 2029



Source: IEA, BofA Global Research estimates

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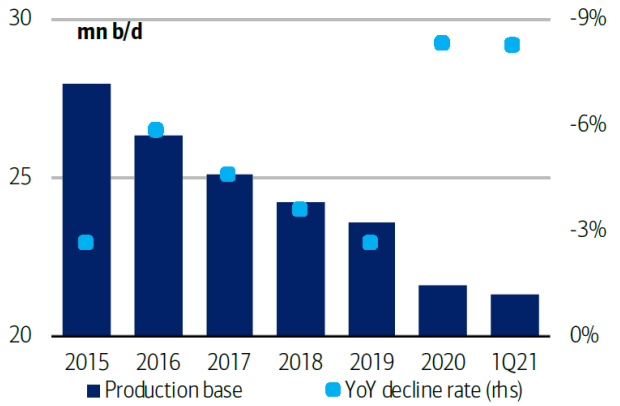
A post-Covid scenario marked by a reduced use of public transportation and increased miles driven could quickly translate into a major world-wide demand rationing exercise. Although global oil production may not be declining as steeply as it did in the last 12 months, field decline rates accelerated sharply in 2020 and early 2021 decline rates look high (LHS Figure 24). Overall capital expenditures for the energy industry have come down sharply in the past year (RHS Figure 24) and the sector is ill equipped to deal with sustained 20% increase in miles driven. Additionally, the IEA released a recent report to further discourage investment in oil and gas and the pressure on large public companies to reduce investment continues to build. These factors could combine to deliver very high oil prices in coming years.

Figure 24: Estimated Decline Rates and Global Upstream Capex (Source: BofA)

Exhibit 30: Estimated decline rates for Non-OPEC fields and regions peaking by 2010
Decline rates accelerated in 2020 and early 2021 decline rates look high, although output may not be declining as steeply sequentially



Source: IEA, BofA Global Research

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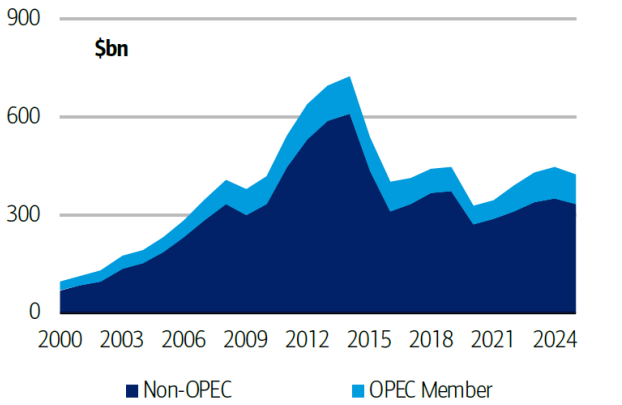
Exhibit 31: Global upstream capex
Overall, capital expenditures for the energy industry have come down sharply in the past year



Source: Woodmac

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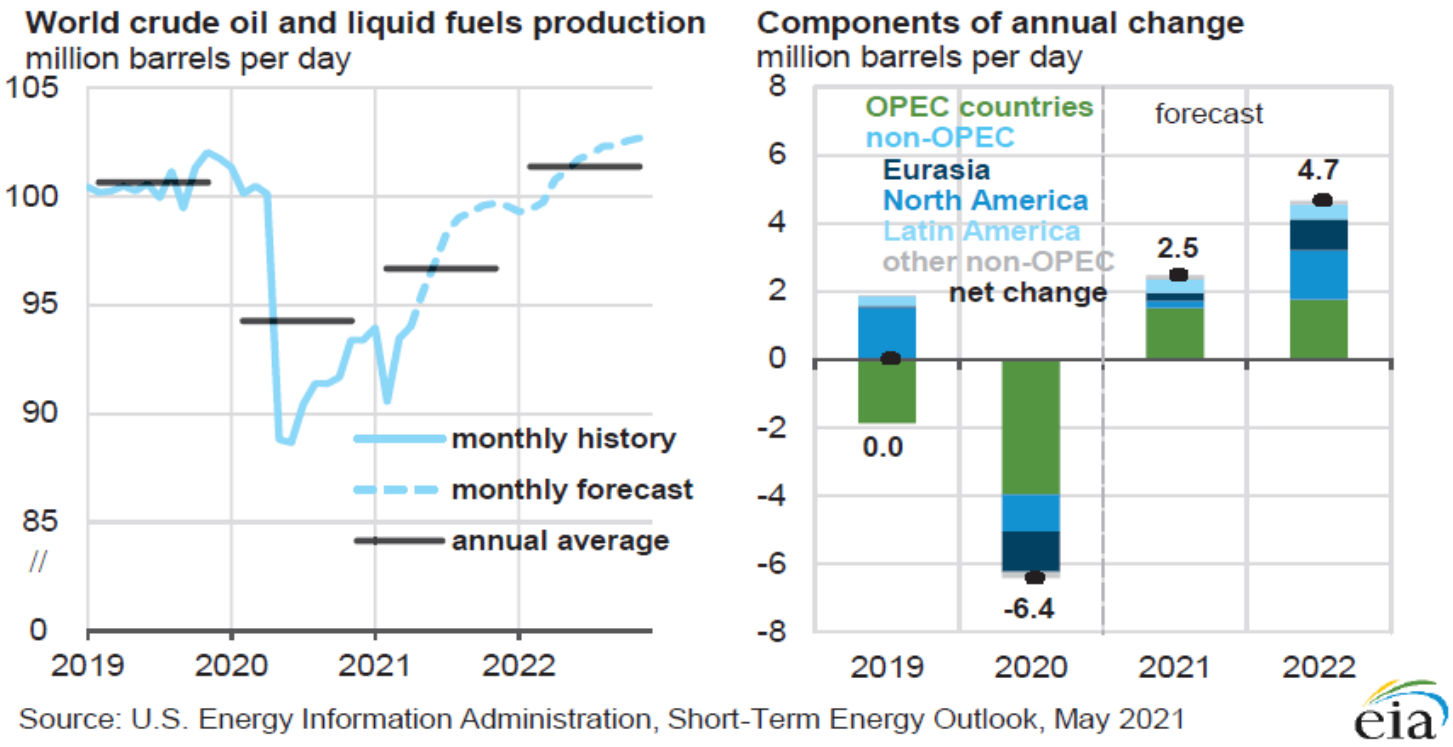
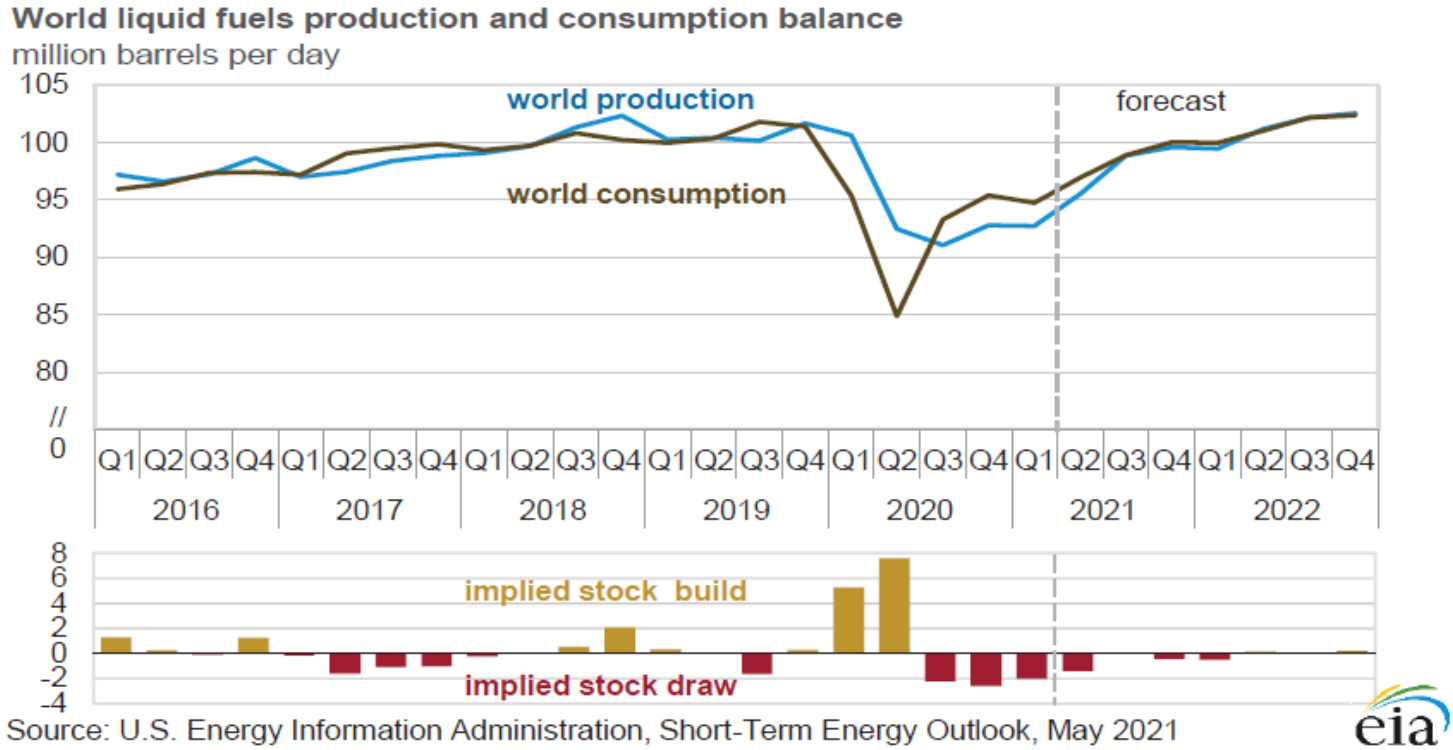
Figure 25: World Liquid Fuels Consumption (Source: EIA)



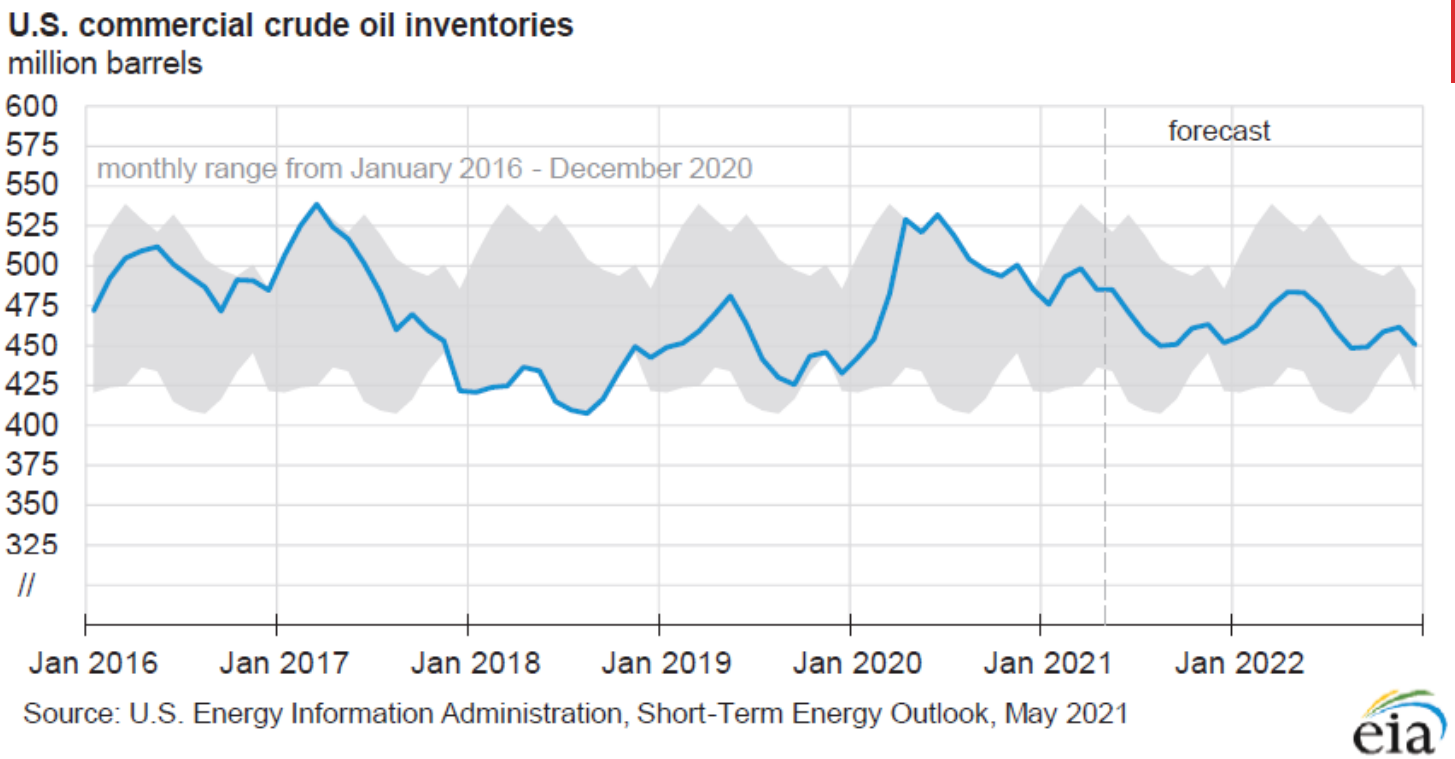
The EIA forecasts that global oil production and consumption will be in tight balance through to the end of 2002 (Figure 26).

Figure 26: World Liquid Fuels Production and Consumption (Source: EIA)

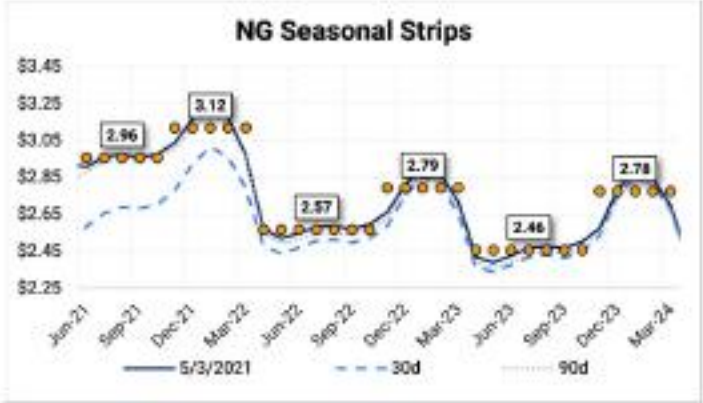


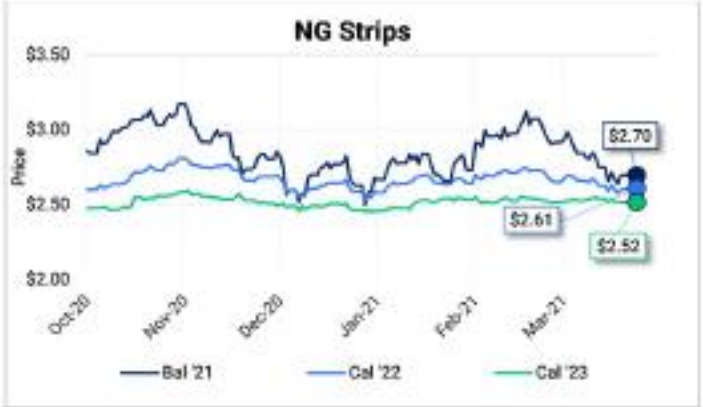
In the US, strong demand is forecast to see continued net storage withdrawals to the end of 2022 (Figure 27).

Figure 27: US Commercial Crude Inventories (Source: EIA)



Gas and Oil Prices 3 May 2021





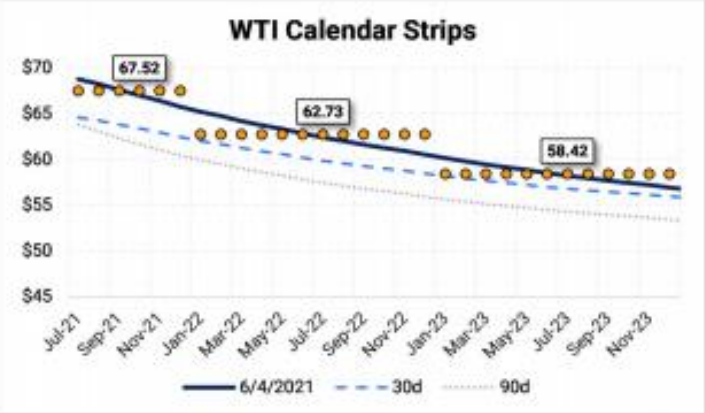
Swap Pricing	Bal 21	Cal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI Crude	$ 61.98	$ 57.93	$ 55.02	$ 53.38	$ 52.61
ICE Brent Crude	$ 64.89	$ 61.65	$ 59.43	$ 58.08	$ 57.31
Light Louisiana Sweet	$ 64.10	$ 60.32	$ 57.56	$ 56.05	$ 55.28
TM Midland Differential	$ 0.61	$ 0.80	$ 0.80		
NYMEX Natural Gas	$ 3.00	$ 2.73	$ 2.59	$ 2.62	$ 2.61

Source: Bloomberg LP
Indicative only

Natural Gas Basis	Spot	Summer '21	Winter '21/'22	Summer '22	Winter '22/'23
Location					
Henry Hub Fixed	2.87	2.95	3.13	2.57	2.80
Chicago CG	$ (0.19)	$ (0.24)	$ (0.19)	$ (0.17)	$ (0.13)
Opal	$ (0.20)	$ 0.14	$ 0.51	$ (0.11)	$ 0.33
PEPL	$ (0.29)	$ (0.19)	$ (0.09)	$ (0.21)	$ (0.06)
Waha	$ (0.31)	$ (0.03)	$ 0.02	$ (0.34)	$ (0.18)
Dominion S	$ (0.98)	$ (0.96)	$ (0.70)	$ (0.79)	$ (0.70)
TETCO M3	$ (1.00)	$ (0.77)	$ 0.90	$ (0.63)	$ 0.79

All prices as previous trading day close
Source: Bloomberg

Gas and Oil Prices 4 June 2021



Swap Pricing

	Bal 21	Cal 22	Cal 23	Cal 24	Cal 25
NYMEX WTI Crude	$ 67.52	$ 62.73	$ 58.42	$ 55.59	$ 53.92
ICE Brent Crude	$ 70.05	$ 66.17	$ 62.81	$ 60.58	$ 59.13
Light Louisiana Sweet	$ 69.53	$ 65.00	$ 60.74	$ 57.78	$ 56.13
TM Midland Differential	$ 0.44	$ 0.57	$ 0.58		
NYMEX Natural Gas	$ 3.13	$ 2.88	$ 2.69	$ 2.67	$ 2.66

Source: Bloomberg LP
Indicative only

Natural Gas Basis

Location	Spot	Summer '21	Winter '21/'22	Summer '22	Winter '22/'23
Henry Hub Fixed	3.01	3.08	3.22	2.72	2.94
Opal	$ (0.04)	$ 0.21	$ 0.54	$ (0.11)	$ 0.26
Chicago CG	$ (0.15)	$ (0.17)	$ (0.16)	$ (0.18)	$ (0.14)
PEPL	$ (0.29)	$ (0.17)	$ 0.01	$ (0.18)	$ (0.07)
Waha	$ (0.30)	$ (0.04)	$ (0.03)	$ (0.35)	$ (0.32)
TETCO M3	$ (0.98)	$ (0.79)	$ 0.96	$ (0.62)	$ 0.82
Dominion S	$ (1.06)	$ (1.05)	$ (0.71)	$ (0.79)	$ (0.69)

All prices as previous trading day close
Source: Bloomberg