Crude Oil: April-December 2020 update

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Domestic Crude Oil production, imports and consumption during April-December 2020 i.e. 9M-FY21

Table 1: Domestic Production, Consumption and Imports of Crude Oil (Unit: million barrels)

			Change (y-o-y)	
	2019-20	2020-21	2019-20	2020-21
Production	179	169	-5.9%	-5.7%
Imports	1237	1042	-1.1%	-15.8%
Consumption	1396	1176	-1.2%	-15.8%

Source: PPAC, MOPNG, CARE Ratings

MOPNG and PPAC provide data in terms of thousand tonnes. We convert it into barrels for a better understanding as globally, crude oil is measured in terms of barrels.

Fields operated by National Oil Companies (NOCs) have contributed around 78% of the total domestic crude oil production whilst the remaining 22% production has been undertaken by private companies during 9M-FY21. Onshore fields constitute around 49% of the total crude oil production and the remaining 51% has been produced by offshore fields.

Domestic crude oil production has fallen by 5.7% during 9M-FY21 compared with the 5.9% de-growth achieved during 9M-FY20. Technical mishaps due to COVID-19 implications, reservoir issues & shut in of wells and delays in field development activities have led to the fall in production. Cumulative fall in production can also be ascribed to the loss of output from the Baghjan well blowout (the well contributed to around 10% of overall crude oil production) and fall in production from fields operated by private players. Domestic production has been falling with the ageing of existing fields and muted response from the industry to take up new projects, mainly due to lack of adequate incentives.

India **imported** 3.8 mb/d* of crude oil during 9M-FY21 compared with the 4.5 mb/d imported during 9M-FY20. Cumulatively imports of crude oil have fallen due to the fall in demand of petro-products. Import dependency of crude (on the basis of consumption) has declined to 83.6% during 9M-FY21 from being 85% in the same period in the previous corresponding year. Value of crude oil imported has fallen by 50.4% during 9M-FY21 to USD 38.8 billion. India imported crude mainly from Iraq, Saudi Arabia, Kuwait and UAE but in retrospect, imports from OPEC countries have declined during the year.

*mb/d: Million Barrels per Day

Crude **throughput** or refineries processed 4.3 mb/d during 9M-FY21 compared with the 5.1 mb/d of crude processed during 9M-FY20. Capacity utilisation during 9M-FY21 was around 85.6% compared with the 101.6% utilization achieved in the same period in the previous corresponding year. Fall in demand (which has fallen by 12.8%) has led to refiners trimming their capacity utilisation in order to remain afloat and protect their margins. In terms of type of crude oil processed by refiners, percentage share of high sulphur (HS) crude in total crude oil processing was around 73% during 9M-FY21 compared with the 75.1% processed during 9M-FY20.

Table 2: Monthly trend in crude oil demand-supply and trade

	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20
Production (y-o-y)	-6.4%	-7.1%	-6.0%	-4.9%	-6.3%	-3.8%	-6.2%	-4.9%	-3.6%
Imports (y-o-y)	-16.0%	-22.6%	-18.9%	-29.0%	-23.4%	-13.1%	-21.6%	-4.7%	3.4%
Crude Throughput (y-o-y)	-28.8%	-24.2%	-13.6%	-18.8%	-26.4%	-8.8%	-16.1%	-5.1%	1.0%
Refinery Utilisation*	71%	78%	84%	85%	78%	85%	88%	100%	101%

Source: PPAC, CARE Ratings
*prorated on a monthly basis

The overall macros of crude oil have further improved during December 2020 with production, imports and throughput narrowing as the economy is slowly getting back to normalcy. Crude imports and throughput have for the first time in the current financial displayed a positive growth which indicates fuel consumption is almost back its pre-COVID level. Capacity utilisation of refineries during the month of December was 101%.

Review of the Oil and Gas Infrastructure

Crude oil infrastructure mainly consists of (1) refineries used to produce petroleum products and (2) crude oil pipelines.

Refineries

India ranks 4th in terms of refining capacity in the world right after US, China and Russia and hosts 23 refineries: 20 belonging to the public sector and 3 in the private sector. It also has the world's largest refinery with an installed capacity of 68.2 MMTPA.

Table 3: Refining capacity in India (Unit: Million Tonnes)

	As on 1.01.2021
PSU	161.7
Pvt Companies	88.2
Total	249.9

Source: PPAC

The public sector accounts for 65% the total refining capacity whereas the private sector accounts for the remaining 35%. Domestic refineries can process atleast 5.02 mb/d.

Pipelines

Pipeline transportation offers a safe, economic and environmentally sound alternative to most other modes of energy transport. These pipelines are used to transport crude oil to the refineries.

Table 4: Major crude oil pipeline network as on 01.01.2021

		ONGC	OIL	Cairn	HMEL	IOCL	BPCL	Total
Crude Oil	Length (KM)	1,283	1,193	688	1,017	5,301	937	10,419
	Capacity (MMTPA)	60.6	9	10.7	11.3	48.6	7.8	147.9

Source: PPAC

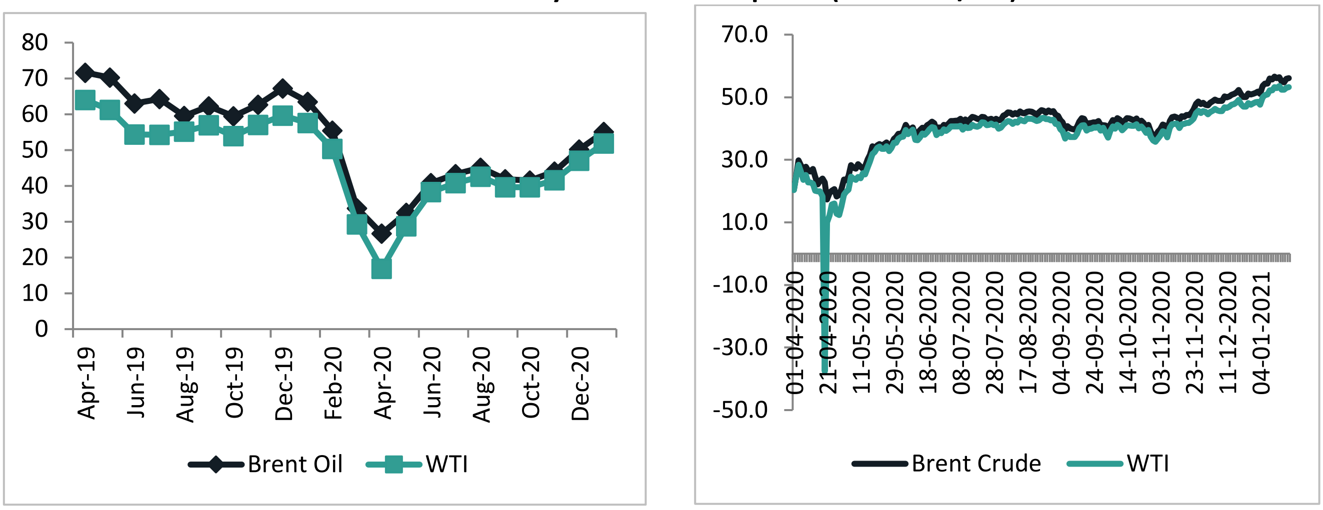
Prices

When it comes to crude oil, there are different grades. The most popular traded grades are Brent North Sea Crude and West Texas Intermediate (WTI). WTI is usually extracted from US oil fields in Texas, Louisiana and North Dakota, and delivered in Oklahoma, while Brent crude is extracted from the North Sea, and delivery locations vary by country. Both of them have lower Sulphur content and are considered "sweet", and relatively light in density (WTI again is sweeter than Brent).

Cost of shipping for Brent crude is lower, since it is produced near the sea and can be delivered anywhere, while of WTI it is higher since it is produced in landlocked areas like Cushing, Oklahoma with limited storage facilities. Brent is the benchmark price used by Europe and the OPEC, while WTI crude price are a benchmark for US prices. Most of the oil produced in Europe, Africa and the Middle East is priced according to the cost of Brent crude.

Brent is hence the reference for about 2/3rd of the oil traded globally.

Chart 1: Trend in key benchmark oil prices (Unit: USD/bbl)



Source: Bloomberg

*January monthly price is till 21st January closing.

Price of Brent crude and WTI have fallen by 34.6% and 32.2% y-o-y during FY21 (April-January). The continued spread of the coronavirus pandemic and resurgence of cases in Europe and the US, has led to a sharp fall in consumption of petro-products thus affecting the demand prospects of oil.

Oil prices have been recovering in the month of January on the back of the global economy opening up coupled with output cuts undertaken by the OPEC+ group In the previous months, oil prices were recovering on the back fall in US oil production & inventory, effects of the subsequent hurricanes occurring near the Gulf of Mexico and successful vaccine trials undertaken by various pharmaceutical companies and vaccination drive undertaken by UK and the US. Prices of oil had also increased due to the hope of a stimulus package to be announced by the US government.

Nevertheless we remain cautious about the pace of oil-demand recovery with UK now reporting a new strain of coronavirus which has caused most of these countries to announce a stricter lockdown in order to control its spread and with the resurgence of COVID-19 cases across the US.

Outlook for FY21

Crude oil production for FY21 is to fall by 7.3% given the sharp fall in oil prices, crude oil explorers are dissuaded to carry on with exploration. Domestic production has fallen by 5.9% during FY20 and by 5.7% during 9M-FY21. With the ongoing COVID-19 pandemic, crude oil prices have fallen far below the breakeven price in most of the fields which is not lucrative for domestic upstream oil players as it will impact their realizations.

Consumption of crude oil is to fall by 10.4% during FY21 as processing of crude oil undertaken by refiners isn't robust given demand for petro-products is still subdued in the domestic and global economy. Consumption/Crude Throughput is likely to come down to around 4.5 mb/d during FY21 compared with the 5.09 mb/d consumed during FY20. Currently India has consumed 4.3 mb/d.

Imports of crude oil are to fall by 12.7% during FY21 (3.97 mb/d) given the subdued demand of crude oil by Indian refiners. India had imported 4.5 mb/d during FY20 and is currently importing around 3.8 mb/d during 9M-FY21. Refiners have almost stocked up on cheap crude oil as directed by the government and are utilizing inventory of the previous months. Due to the fall in demand and import dependency based on consumption is also likely to fall from the previous 85%. Currently import dependency based on consumption is 83.6%.

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