Exhilarating recovery amidst Pandemic

The oil and gas sector bounced back rather quickly amidst the Pandemic and the immediate outlook remains bright for the sector

Muted growth and shifting global energy mix

The global energy consumption has grown at a CAGR of just about 1.1% during 2010-20 (1.8% excluding pandemic-hit year 2020). Within this, the consumption of global oil has ceded ground to renewables over the past decade, with the share of oil in primary energy consumption falling from 33.7% in 2010 to 31.2% in 2020, while the share of renewables jumping from 1.4% to 5.7%. The other key conventional sources of energy, viz, coal and nuclear energy,have also registered a gradual decline from 29.5% and 5.2%, respectively, in 2010, to 27.2% and 4.3%, respectively, in 2020. Among traditional energy sources, only natural gas could register some growth with its share in global primary energy consumption, rising from 23.7% in 2010 to 24.7% in 2020. It is expected that a transitional change will accelerate over the next few years, mainly on the mobility space,considering the government's aggressive approach to achieve higher focus on gas, hydrogen and EV-based transportation systems.

Crude oil and natural gas prices to stay firm

Global petroleum and liquid fuels demand declined sharply from 100.26 million barrels per day (mbpd) in 2019 to 91.81mbpd in 2020, attributable to severe global economic slowdown caused by the Covid-19 pandemic, and resultantly, lower global energy demand. However, the same is estimated to have retraced back to 96.91mbpd in 2021 as global economies attempted to come out of one of the worst recessions after the great financial crisis in 2008 and 2009. Notwithstanding the rising uncertainty related to the impact of the Omicron variant of Covid-19 on the global economy during early 2022, petroleum and liquid fuel demand is expected to regain the 100 mbpd mark in calendar year 2022.

On the pricing front, brent crude oil price has averaged around US$ 60 per barrel in the last five years. After staging a smart recovery in the second half of 2020 from historic lows witnessed at the time of the outbreak of the Covid-19 pandemic in

Exhibit 1 Crude oil and natural gas price trend (Source: EIA, CARE Ratings)

early 2020, crude oil prices continued a strong upward momentum during the large part of 2021. However, brent crude prices came off from October 2021 highs of US$ 86 per barrel to nearly US$ 76 per barrel albeit towards the end of 2021 while recovering from three-month lows of US$ 68 per barrel in early December 2021. The current volatility is driven by the emergence of the Omicron variant raising uncertainty about energy consumption across the world. Notwithstanding recent volatility caused by the impact of the Omicron variant on economic activities and fuel demand, brent crude prices are estimated to stay elevated in the range of US$ 65 to US$ 75 per barrel, with OPEC nations remaining disciplined on product cuts announced in March-April 2020 and the global economy attempting to overcomethe slowdown.

Global demand to be outpaced by incremental refinery capacity

The average global refining capacity utilisation declined to 74% in 2020 despite a flattish growth in refining capacity, against an average utilisation rate of 82.2% during 2015-19. This triggered a series of refining capacity shutdowns in the US.Furthermore, refining shutdowns continued in2021 as well, which led to an improvement in the estimated average utilisation rate to 86.4% in 2021 in the US. Over the next five years, IEA expects about 3.6mbpd refinery closure due to weaker economics with majority shutdowns expected in Europe. However, despite such sharp shutdowns, the net refining capacity is expected to see an addition of 5mbpd, as nearly 8.5mmt of new refining capacity is expected to come online during the period, primarily led by Asian countries.The refinery throughput in 2021 is estimated to have increased by 3.6 mbpdto 77.8 million mbpd, which will increase a further 2.4 million mbpdto 80.2 million mbpd in 2022.

Domestic demand to remain pre-Covid levels in FY22

India continues to remain one of the fastest growing markets in terms of demand for petroleum products, with consumption growing at a CAGR of 3% between FY16-FY20 to reach 214.13 million metric tonnes (MMTs) before witnessing a sharp decline to 194.3 MMTs in FY21 due to the Covid-19 pandemic.Amid resurgent demand, the country's aggregate consumption of petroleum products has increased by 5.68% to 130 MMTs during April-November 2021 from 123 MMTs in the corresponding period of the last fiscal which was severely impacted by the Covid-19 induced lockdowns and restrictions.India's estimated demand for petroleum products is pegged at nearly 201 MMTs during FY22,and therefore, it will remain below the pre-pandemic levels amid lower consumption of aviation fuel, diesel and pet coke. Going forward, key demand drivers for growth in consumption of petroleum products is expected to be increasing gas consumption amid rising penetration of city gas distribution and motor spirit demand, while diesel consumption is expected to grow at the slowest pace due to stricter emission norms for diesel vehicles.

Period	FY16	FY17	FY18	FY19	FY20	FY21	8MFY22	FY22e
LPG	19.62	21.61	23.34	24.91	26.33	27.56	18.41	27.94
Naphtha	13.27	13.24	12.89	14.13	14.27	14.10	9.39	14.31
MS	21.85	23.76	26.17	28.28	29.98	27.97	20.10	30.63
ATF	6.26	7.00	7.63	8.30	8.00	3.70	3.02	4.80
SKO	6.83	5.40	3.85	3.46	2.40	1.80	1.02	1.59
HSD	74.65	76.03	81.07	83.53	82.60	72.71	48.79	76.58
LDO	0.41	0.45	0.52	0.60	0.63	0.86	0.67	1.03
Lubricants & Greases	3.57	3.47	3.88	3.67	3.83	4.10	2.84	4.46
FO & LSHS	6.63	7.15	6.72	6.56	6.30	5.59	4.00	6.02
Bitumen	5.94	5.94	6.09	6.71	6.72	7.52	4.45	7.99
Petroleum coke	19.30	23.96	25.66	21.35	21.71	15.61	8.75	13.08
Others	6.35	6.59	8.34	11.72	11.36	12.79	8.53	12.83
Total	**184.67**	**194.60**	**206.17**	**213.22**	**214.13**	**194.30**	**129.98**	**201.28**

Exhibit 2 Consumption of petroleum products (Source: PPAC, CARE Ratings)

Aggressive ethanol blending to restrict growth in petrol

The government is determined to push ethanol blending by FY25 with a clear detailed roadmap to achieve this target. Accordingly, oil marketing companies have already prepared their plans for phased rollout, and vehicle manufacturers have also assured of manufacturing E20-complied vehicles. The Ethanol Blending Programme (EBP) aims to increase ethanol blend level with petrol to 10% by 2022 and 20% by 2023, advanced from 2025 by two years, to help reduce India's dependence on costly oil imports. The thrust that the government has shown on this sector is visible from the fact that the ethanol production capacity in India has almost doubled over a period of five years with capacity increasing substantially from Ethanol Supply Year (ESY) December 2017-November 2018 onwards. The capacity has grown at a strong CAGR of 17.8% from 222 crore litres in ESY 2015-16 to 427 crore litres in ESY 2019-20. While ethanol production capacity for ESY 2019-20 stood at 427 crore litres, ethanol supply for the EBP programme for the year was estimated at about 173 crore litres, based on the offers received from ethanol producers. However, the higher mix of fuel ethanol in the total alcohol requirement over the years is on account of the significant support extended by the government in the form of remunerative prices for ethanol each year. These measures have resulted in EBP rising from 1.5% in ESY14 to around 5.12% in ESY20.

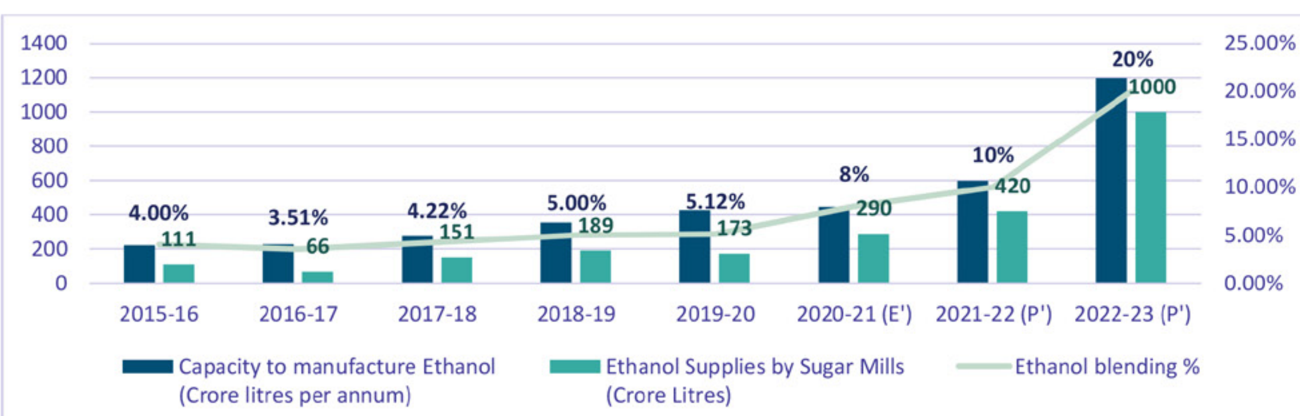

Exhibit 3: Ethanol capacities, supply and blending rates (Source: MoPNG, ISMA, CARE Ratings)

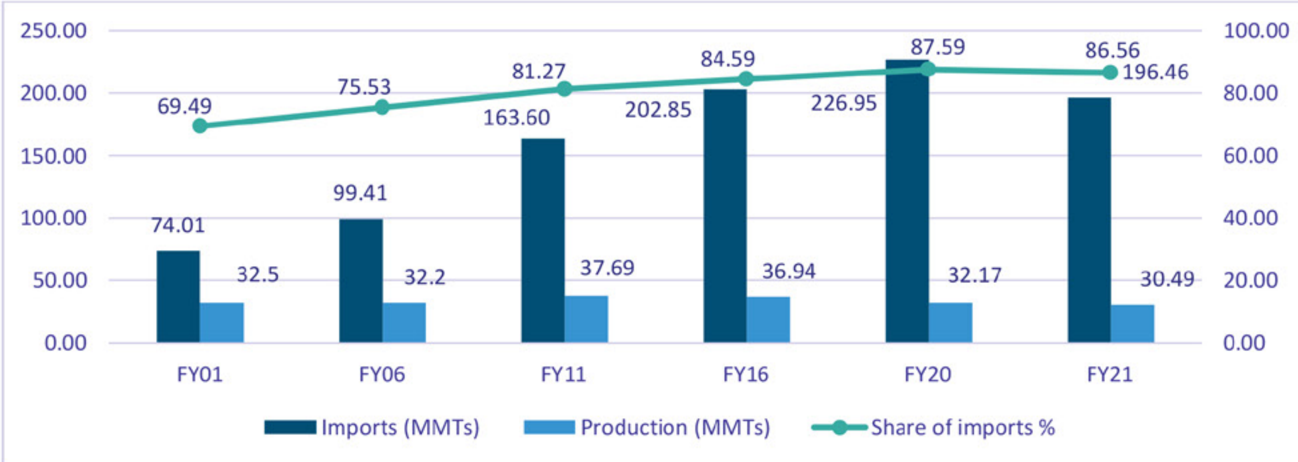

Exhibit 4: India's crude oil imports and production (Source: PPAC, CARE Ratings)

High import dependency to continueamid stagnancy in production

Crude oil has been the single largest item in India's imported products basket over several years, a scenario which is likely to continue as India's domestic production of crude oil has stagnated for the last several years. India's domestic crude production, which stood at 32.5 MMTs in FY01, remained broadly similar at 32.2 MMTs in FY20 (declined to 30.5 MMTs in FY21 due to the Covid-19 impact),after peaking at 38.1 MMTs during FY12. On the other hand, the country's crude oil imports have grown from 74.01 MMTs in FY01 to 226.96 MMTs in FY20 (reduced to 196.46 MMTs in FY21 due to Covid), at a healthy CAGR of 6.1%. The same has resulted in an increase in crude oil import bill at a CAGR of 13% to ₹7.17 lakh crore in FY20 from ₹0.66 lakh crore in FY01. Amid the stagnation in domestic production and the ever-increasing demand for petroleum products in the country, the share of imports has jumped from 31% in FY01 to 87% in FY21 and the same is likely to remain elevated, as domestic production is unlikely to increase in a meaningful way in the near future.

GRMs recover from prolonged slump caused by Covid-19 outbreak

The outbreak of Covid-19 has led to gross refining margins (GRMs) of global refiners plummeting to lowest levels in a decade as demand for refined products crashed, thereby impacting the crack spreads, while significant decline in crude oil and refined products prices resulted in substantial inventory write-downs. The Singapore benchmark GRMs reduced to just US$ 3.25 per barrel in FY20 and further to US$ 1.20 per barrel in FY21 amid weak demand and high fluctuation in prices. Such low yearly GRMs were last seen in FY10. However, with the impact of the Covid-19 pandemic receding and global economies coming back on the recovery path, the GRMs are expected to recover meaningfully in FY22, the trend has especially been quite positive post September 2021. The

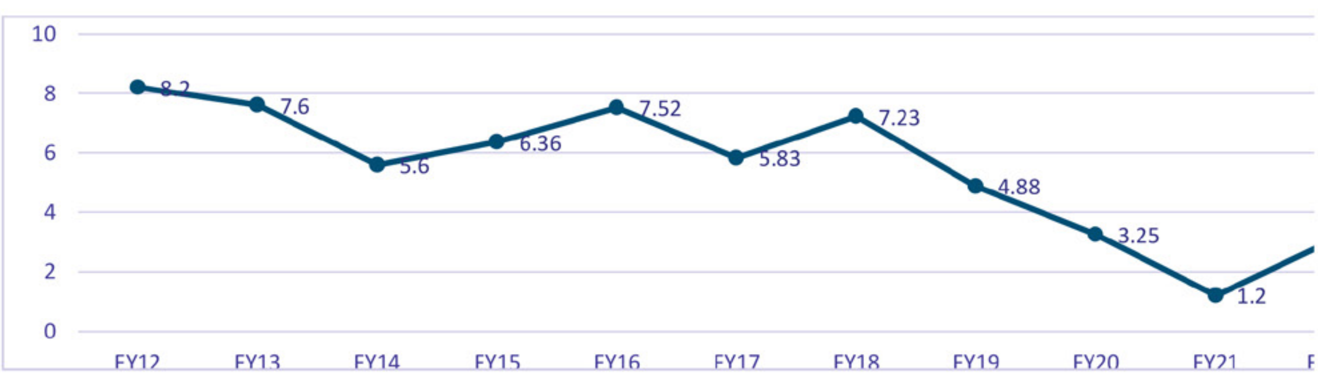

Exhibit 5: Benchmark Singapore GRMs (Source: Industry Data, CARE Ratings)

Singapore benchmark GRM is estimated to be above US$ 3 per barrel in CY2021, and therefore, domestic refiners are expected to benefit from higher throughput, better GRMs and resurgent demand during FY22 after facing a tough FY20 and FY21.

Concluding remarks

The global oil and gas industry is at an inflection point, with governments placing greater priorities on climate change, emerging alternative sources of energy and likely disruption in mobility with adoption of gas, hydrogen and electric-based transportation systems. While all these factors will impact industry growth prospects in the long term, the immediate outlook remains brighter than the past couple of years. Resurgent demand, restricted supplies due to production discipline and lower Capex is expected to keep crude oil prices firm in 2022. On the domestic front, India is unlikely to witness any significant reduction in crude oil import dependency. The increase in domestic natural gas prices from US$ 1.79 per mbtu to US$ 2.86 per mbtu from October 2021 has provided a much-needed relief to exploration companies, although even the revised prices also donot result in any meaningful profitability for gas producers. Moreover, the recovery in GRMs during the latter part of 2021, which is likely to sustain in 2022, bodes well for domestic refiners. EPC World

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