

Refining and Marketing: April-October 2020 update

Refining

Demand-Supply and Trade situation of Petroleum Products during April-October 2020 i.e. 7M-FY21

Table 1: Production, Consumption, Exports and Imports of Refinery Products (Unit: Million Tonnes/ MMT)

	Change (y-o-y)			
	2019-20	2020-21	2019-20	2020-21
Production	151	126	-1.7%	-16.4%
Consumption	123	104	1.3%	-15.7%
Exports	37	33	2.8%	-11.0%
Imports	24	23	34.0%	-5.0%

Source: PPAC

Production of Refinery products/petro products has fallen by 16.4% during 7M-FY21. Crude throughput or refineries processed 4.1 mb/d during 7M-FY21 compared with the 5.1 mb/d of crude processed during 7M-FY20. Cumulative capacity utilisation has been around 81% compared with the 101% capacity utilization achieved in the same period in the previous corresponding year. With the outbreak of the COVID-19 pandemic across the world and with the nationwide lockdown imposed in the country, Indian refineries have been operating at reduced capacities. Fall in demand has led to refiners trimming their capacity utilisation in order to remain afloat and protect their margins.

Overall **consumption** of all petroleum products has fallen by 15.7% but has recovered to 84.3% of the consumption which was prevalent during the same period last year. Cumulatively except for LPG, Naphtha and LDO demand for all refinery products has fallen. Consumption of petroleum products has been increasing as the country is channelling towards the unlock process.

Exports of POL products have decreased by 11% during 7M-FY21 compared with the 2.8% growth achieved during 7M-FY20. Decrease in POL products exports was mainly due to decrease in exports of ATF, naphtha, LPG, motor spirit, SKO, fuel oil, vacuum gas oil and bitumen. Global fall in demand of petroleum products due to COVID-19 induced lockdowns and social distancing measures adopted has resulted in the overall fall in exports.

POL products imports have declined by 5% during 7M-FY21 compared with the 34% growth achieved during 7M-FY20. Decrease in imports was mainly due to decline in imports of motor spirit (MS), naphtha, high speed diesel (HSD), lube oil and pet coke.

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Table 2: Production and Consumption of Petroleum Products since the beginning of 2020-21 (Unit: MMT)

	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20
Production	16.0	17.3	18.7	19.4	17.9	18.0	18.9
y-o-y	-24.2%	-21.3%	-8.9%	-13.9%	-19.1%	-9.5%	-16.7%
Refinery Capacity Utilisation*	71%	79%	84%	85%	78%	85%	88%
Consumption	9.4	15.4	16.2	15.6	14.4	15.5	17.8
y-o-y	-48.7%	-19.4%	-8.4%	-12.3%	-16.2%	-4.4%	2.9%

Source: PPAC, CARE Ratings

*prorated on a monthly basis.

The month of October 2020 saw growth in consumption of LPG 3.2%, Diesel (HSD) 7.4%, Petrol (MS) 4.5%, Naphtha 15.2%, Bitumen 48.7%, Furnace Oil & Low Sulphur Heavy Stock (FO/LSHS) 12.3% and Light Diesel Oil (LDO) 42.1% as compared with October 2019, while all other products recorded de-growth as compared to same period last year. Increase in refinery utilisation during October '20 can be ascribed to the increase in demand for petro products during the festive season.

Cumulative product-wise demand-supply of refinery petroleum products**Table 3: Production and Consumption of Refinery Products (Unit: Million Tonnes)**

	Production		Change (y-o-y)		Consumption		Change (y-o-y)	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
LPG	7.3	6.7	-1.7%	-8.3%	14.9	15.7	5.4%	5.5%
Naphtha	11.1	10.6	-4.8%	-4.4%	7.9	7.9	-3.3%	0.3%
MS	22.6	19.1	1.0%	-15.5%	17.8	14.8	9.1%	-17.2%
ATF	8.9	3.2	-1.4%	-63.8%	4.6	1.5	-3.3%	-66.8%
SKO	1.8	1.4	-23.2%	-22.4%	1.6	1.1	-25.0%	-31.3%
HSD	64.5	53.7	0.0%	-16.7%	47.9	37.9	-0.1%	-20.8%
LDO	0.4	0.4	7.0%	-6.0%	0.4	0.4	13.3%	11.1%
Lubes	0.5	0.6	-5.1%	0.2%	2.1	1.9	4.4%	-10.7%
FO/LSHS	5.8	5.1	-0.5%	-11.4%	3.5	3.3	-7.8%	-6.1%
Bitumen	2.6	2.1	-9.0%	-21.1%	3.4	3.3	-0.3%	-0.7%
Pet Coke	8.1	6.6	-3.3%	-18.0%	12.6	10.5	2.7%	-16.8%
Others	17.3	16.7	-4.5%	-3.5%	6.9	5.9	3.2%	-14.4%
TOTAL	150.9	126.2	-1.7%	-16.4%	123.5	104.2	1.3%	-15.7%

Source: PPAC

*Others include sulphur, propylene, propane, reformat, butane, MTO (Mineral Turpentine oil) etc

- **MS** consumption fell by 17.2% during 7M-FY21 but has recovered to 82.8% of its volumes which was prevalent during 7M-FY20. With the further unlocking of the economy, opening up of almost all offices and free movement of both two wheelers and passengers vehicles for leisure as well as official purposes, people are choosing to commute via their own personal vehicles rather than opting for public transport in order to avoid getting infected which has resulted in an increase in MS consumption. Consumption of petrol increased by 4.5% during Oct 2020 due to increased movement of vehicles owing to festive season.
- **HSD** consumption fell by 20.8% during 7M- FY21 but during Oct 2020 it recorded a growth of 7.4% with recovery of its pre-COVID volumes to 79.2%. With the advent of Unlock 5.0 and opening of highways across states it has helped

in reviving economy and thus consolidating diesel sales. The pent up demand for the goods in the markets and improved operations of industries moving towards pre-covid levels resulted in throughput increment. The increased demand of diesel, which is the main fuel for trucks/trains/buses and industries, indicates revived economic activities with increased demand fuelled by the ongoing festive season. Rainfall during the month was 3% above the normal. A de-growth of -1.2% was recorded in port traffic during October 2020 as compared to October 2019. Agriculture based economy is still driving the HSD consumption.

- **Naphtha** consumption increased by 0.3% during 7M-FY21, reversing the negative trend observed in the previous months. Increase in volumes can be ascribed to its use in the petrochemicals industry. Robust production of urea too has added on to the recovery of the fuel.
- **ATF** consumption fell by 66.8% during 7M-FY21 and has recovered to only 33.2% of its volumes compared with the volume of consumption prevalent during 7M-FY20. The status of air travel remained unchanged during the month with both business and leisure travel being carried out cautiously under various precautionary measures to contain the spread of COVID-19 and international air travel still remains banned except for certain flights engaged in special services and those with established air bubbles. The total domestic passengers carried during 7M-FY21 were 164.2 lakh as against 827.5 lakh during 7M-FY20.
- **Bitumen** consumption fell by 0.7% during 7M-FY21 but registered a growth of 48.7% during October 2020 as road projects gained momentum. MORTH has constructed 5,126 km of National Highways up to October 2020 compared with 5,778 km during October, 2019.
- **LPG** consumption continues to gain traction and increased by 5.5% as the government continues to disburse free LPG refills under PMGKY-Ujjwala. Use of LPG by households has also increased as households under lockdown have ramped up purchases for cooking.
 - o PSU LPG Packed Domestic category recorded a cumulative growth of 12.2% during 7M-FY21 as compared with 5.5% growth during 7M-FY20. During April - October 2020, around 53.6 lakh new connections and 38.4 lakh DBCs were released. A total of 8.01 crore BPL households have been covered under PMUY till 30.9.2020 since inception of the scheme.
 - o PSU LPG Packed Non-Domestic category recorded a cumulative de-growth of -43.5% during 7M-FY21 as compared with the 21.3% growth during 7M-FY20.
 - o PSU Bulk LPG category registered a cumulative growth of 7.7% during 7M-FY21 as compared with the 14.1% de-growth witnessed during 7M-FY20.
 - o PSU Auto LPG category registered a cumulative degrowth of -45.6% during 7M-FY21 as compared with the 4.3% de-growth witnessed during 7M-FY20.
- **SKO** consumption continues to fall as All UTs except the UT of J&K and Ladakh have been declared kerosene free. The states of Andhra Pradesh, Delhi, Haryana and Punjab have been declared kerosene free. States like Gujarat, Bihar, Uttar Pradesh and Maharashtra have also voluntarily surrendered a certain quantity of PDS SKO allocation. Also the states of Odisha, Uttar Pradesh & Uttarakhand saw nil upliftment of PDS SKO during the month (Oct-20).
- Increase in **LDO** consumption by 11.1% during 7M-FY21 can be ascribed to its usage in various types of furnaces. Power generation, civil engineering and Iron & Steel were the major sectors contributing to the total consumption.
- Consumption of **Petcoke, Lubes & Greases** and **FO/LSHS** fell by 16.8%, 10.7% and 6.1% but has recovered to 83.2%, 89.3% and 93.9% of its volumes during 7M-FY21 as compared with the volume of consumption during 7M-FY20.

Table 4: Exports and Imports of Refinery Products (Unit: MMT)

	Exports		Change (y-o-y)		Imports		Change (y-o-y)	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
LPG	0.25	0.24	10.1%	-6.2%	8.3	9.4	13.8%	12.4%
MS	7.4	6.7	-1.3%	-9.6%	1.4	0.3	415.0%	-82.5%
Naphtha	4.9	3.5	12.6%	-28.2%	1.1	0.7	-17.1%	-38.2%
ATF	4.0	1.8	-6.0%	-55.1%	0.06	0.00	-68.3%	-100.0%
SKO	0.01	0.01	8.3%	-51.1%	-	-	-	-
HSD	17.8	18.2	5.2%	2.4%	1.2	0.3	424.4%	-73.8%
LOBS/ Lube Oil	0.004	0.012	12.6%	174.1%	1.5	1.0	11.0%	-35.9%
Fuel Oil	1.13	0.71	-12.8%	-36.5%	1.5	3.7	56.9%	140.1%
Bitumen	0.02	0.004	37.3%	-76.7%	0.7	0.8	56.5%	15.0%
Others%	1.98	2.20	5.7%	10.8%	-	-	-	-
Others&	-	-	-	-	8.3	6.9	41.8%	-16.7%
TOTAL	37.5	33.4	2.8%	-11.0%	24.1	22.9	34.0%	-5.0%

Source: PPAC

% Others in export include Petcoke/CBFS, Benzene, Hexane, MTO, Sulphur etc.

& Others in import include Petcoke, Paraffin wax, Petroleum Jelly, Aviation Gas, MTBE, Reformate etc.

Marketing

The retail marketing of petroleum products in India is done mainly by the public sector Oil Marketing Companies (OMCs) i.e. Indian Oil Corporation Ltd (IOCL), Hindustan Petroleum Corporation Ltd (HPCL), Bharat Petroleum Corporation Ltd (BPCL), and private companies like Reliance, Nayara & Shell. Important processes in the marketing include storage, distribution and sales of petroleum products. The OMCs perform marketing activities through their vast network of Terminals/Depots, LPG Bottling Plants, Retail Outlets, LPG Distributorships and SKO/LDO Dealers across India.

- **Retail Infrastructure**

Vast marketing infrastructure of OMCs comprise of petrol/diesel stations, Indane (LPG) distributorships, lubricants & greases outlets, consumer pumps which are backed by bulk storage terminals and installations, inland depots, aviation fuel stations, LPG bottling plants and lube blending plants amongst others.

Table 5: Industry marketing infrastructure as on 01.11.2020 (Unit: in Numbers) (Provisional)

Particulars	Total
POL Terminal/ Depots	303
Aviation Fuel Stations	256
Retail Outlets (total)	72,611
[^] out of which Rural ROs	19,224
SKO/LDO agencies	6,439

Source: PPAC

Petroleum, Oils and Lubricants (POL) depot consists of strategic storage of crude oil refinery products in sufficient quantities. The POL depot provides bulk storage facility for various fuels to meet the stocking requirements of various oil companies.

Aviation Fuel stations are situated at airports which can refuel aircrafts. Aviation Turbine Fuel (ATF) is dispensed from specially designed re-fuellers, which are driven up to parked airplanes and helicopters. Major airports have hydrant refuelling systems that pump the fuel right up to the filling outlets on the tarmac through underground pipelines for faster refuelling. Essentially, ATF is pumped into an aircraft by two methods: Overwing and Underwing. Overwing fuelling is used on smaller planes, helicopters, and piston-engine aircraft and is similar to automobile fuelling - one or more fuel ports are opened and fuel is pumped in with a conventional pump. Underwing fuelling, also called single-point which is used on larger aircrafts.

Retail Outlets, commonly known as Petrol Pumps are engaged in making available automotive fuels/ lubricants and other value added services for the automobile / private transport sector. The Retail unit is so named, as it involves dispensing fuels of relatively smaller volumes to the vehicle fuel tank. Almost 99% of petrol and 90% of diesel is sold through retail pumps. There are almost 72,611 retail outlets in India and around 26% of these ROs are present in rural regions (as of 1.11.2020). PSU OMCs account for 90% of the retail outlets present in the country.

SKO/LDO agencies as the name suggests market/distribute kerosene and light diesel oil to its customers. In the case of Public Distribution System (PDS) Kerosene which is a subsidized product, it is distributed to the customers through the PDS network (Ration shop) of the State Governments / Union Territories (UT).

- **LPG Marketing**

LPG in India is predominantly marketed by Public Sector Oil Marketing Companies (OMC).

Table 7: Region-wise data on LPG marketing (As on 1.10.2020)

Particulars	North	North-East	East	West	South	Total
LPG Active Domestic Customers (in Lakh)	870	99	552	601	723	2,845
LPG Coverage (Estimated)	113.1%	91.7%	85.1%	89.4%	106.1%	98.8%
PMUY Beneficiaries (in Lakh)	249	42	254	175	81	801
Non-domestic LPG customers (in Lakh)	6.4	0.7	3.3	8.3	14.1	32.9
LPG Distributors (Numbers)	8,125	1,055	4,946	5,280	5,430	24,836
Auto LPG Dispensing Stations (Numbers)	115	0	52	147	343	657
LPG Bottling capacity# (MMTPA)	6.2	0.67	3.1	4.7	5.6	20.3
Bottling Plants* (Numbers)	61	12	28	45	52	198

Source: PPAC

*Includes Numaligarh BP, Duliajan BP and CPCL BP. # Bottling Capacity is based on number of shifts presently in operation at plants.

- PSU OMCs together have 28.45 crore active LPG customers in the domestic category which are being served by 24,836 LPG distributors. The LPG coverage of the country estimated on the basis of active domestic connections and estimated households as on 1st October 2020 are around 98.8%.
 - o Uttar Pradesh has the most number of LPG distributors accounting for 16.6% of the total, followed by Maharashtra and Bihar at 8.8% and 7.8% respectively.
- PSU OMCs have a total of 198 LPG bottling plants all over India with rated bottling capacity of around 20.3 million metric tonnes per annum (MMTPA).
 - o Uttar Pradesh has the most number of LPG bottling plants accounting for 13% of the total, followed by Tamil Nadu and Karnataka at 8.2% and 7.4% respectively.
- PSU OMCs have a total of 657 Auto LPG Dispensing Stations all over India for catering to LPG demand in the automotive sector.
 - o Karnataka has the most number of Auto LPG Dispensing Station accounting for 17% of the overall total followed by Tamil Nadu and Kerala at 13.7% and 10.4% respectively.

• Product Pipelines

The primary transportation of POL products across the country takes place by four transportation modes viz. pipelines, rail, coastal and road. Generally pipeline represents the cheapest mode of POL transportation. Pipelines are the most cost effective, energy efficient, safe and environment friendly mode of transportation of petroleum products. They ease the overburdened rail & road infrastructure and minimise the environmental impacts arising out of rail and road transportation.

Table 8: Major product pipeline network (as on 01.11.2020)

	Oil India	IOCL	BPCL	HPCL	Others*	Total
Length (kms)	654	9,400	2,241	3,775	2,395	18,465
Capacity (MMTPA)	1.7	46	19.5	34.7	9.4	111.3

Source: PPAC

* HPCL and BPCL lubes pipeline included in products pipeline data

Pipelines play a significant role in meeting the demand of petroleum products in India by ensuring product availability to consumers and the public at large from the refineries itself. Primarily products which are transported via these product pipelines are ATF, Lubes and LPG.

CARE Ratings Views and Opinions: Outlook FY21

Consumption

In the recent months as the economic environment has improved India's fuel demand is on a recovery path after the lows witnessed during April-May 2020 as economic activity is picking up with the subsequent easing of lockdown restrictions. Except schools and colleges most the economy has opened up and is operating at a limited capacity.

The consumption of petroleum products in the country, underscores the high growth potential that the domestic market offers for refined products and India will continue to be a major demand centre over the long-term but since the virus is showing no signs of abating for the time being, demand is to be muted or subdued for the time being at least till there is a vaccine. **Overall consumption of petroleum products is to fall by 8.6% during by the end of FY21 though a recovery of 1.2% is expected during H2-FY21 and as of now till 7M-FY21 consumption has fallen by 15.7%.**

- Recovery in total consumption during H2-FY21 is to be supported by the increase in demand for auto fuels such as diesel and petrol, and industrial fuels such as bitumen, Naphtha and lubes & greases.
- Increase in consumption of LPG and LDO is to remain elevated while there will be a fall in consumption of ATF, SKO, Petcoke and FO&LSHS during H2-FY21.

The consumption of petrol which constitutes around 13%-14% of the overall fuel consumption and diesel which constitutes around 39% of the overall fuel consumption **will register a fall in consumption of 6% and 10.9% by the end of FY21.**

- Recovery in consumption of petrol is expected to be around 9.4% and 3.6% for diesel during H2-FY21.
- Demand for petrol will be more resilient than diesel due to an increased preference for using personal vehicles instead of public transport to follow distancing norms. Pent-up demand and the upcoming festival season may also support fuel sales.
- Vibrancy in the rural markets is to also further demand of diesel on the back of a favourable monsoon seasons and a good kharif cropping season.

- Night curfews and restricted movements of goods due to states being cautious of the spread of the virus might restrict the use of the auto-fuels to a certain extent.

The LPG segment is witnessing a major transformation, with a slew of reform measures. Consumption of LPG has remained elevated and has defied a broader demand slump for oil products in India as families spent more time cooking at home amid the lockdown. **Going forward, LPG demand is to increase by 6.3% during FY21.** LPG consumption had increased by 5.9% during FY20 and has increased by 5.5% during 7M-FY21 as well.

- LPG consumption is also benefitting as the government is stocking up supplies to ensure regular deliveries across the economy.

Consumption of ATF is to continue to be sub-par as airlines are yet to resume full operations. **Going forward, ATF demand is to fall by 52.8% during FY21.**

Production

Indian refineries usually operate more than their listed nameplate capacity but given the current situation most of them are not operating upto their full capacity in order to contain the level of rising inventories and in order to protect their margins. Capacity utilisation will probably reach 100% operations Nov/Dec onwards with the onset of the festive season and rebound in fuel demand which even a rapidly spreading virus is cannot derail. Currently capacity utilisation has been around 81% during 7M-FY21 as compared with the consumption prevalent during 7M-FY20.

- In terms of refining activities, crude throughput is to fall by 10.4% during FY21. Consumption of crude oil is likely to come down to around 4.5 mb/d during FY21 as compared with the 5.09 mb/d consumed during FY20.

Going forward, refiners are expected to focus on producing less diesel and more petrol in order to respond to changing demand dynamics.

- There has been a structural shift in India's demand for diesel as slowing primarily the country's car fleet are shifting predominantly to petrol, trucks are getting more efficient and solar pumps are displacing diesel-fed units across the countryside. Some auto makers are also rejigging their portfolio by either discontinuing diesel-powered vehicles or those which have low sales volume.
- Use of hydrogen and natural gas in trucks and buses is also leading to a shift which has entangled refiners at crossroads, considering over the years diesel sales have been double of that of petrol.
- The price advantage of once diesel had is also stymied as the fuel now costs almost as much as petrol in some states.

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