

**WEEKLY**

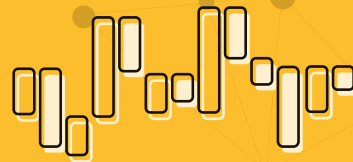
**FOCUS**

# OIL PRICES

ITS DETERMINANTS AND EFFECTS

## INTRODUCTION

Global Oil prices crashed from approximately **\$50 a barrel in February, 2020 to almost \$25 a barrel in April 2020** and have again recovered to about \$41 a barrel in August 2020. These fluctuations disturb global economies and create geo-political uncertainties apart from directly affecting consumers across the world. This event illustrates the global dependency on oil and the need for stability in oil prices. This in turn necessitates a clear understanding of crude oil prices for its better management.



Crude oil prices like any other commodity are **determined by global demand and supply**, which in turn depends on various other determinants. But what exactly are these determinants? What are the factors that caused the immediate oil price crash of 2020?

Does this crash suggest a new normal for oil prices? What does this mean for the world? How could this affect India and what could be the possible course of action? In this edition, we will try to answer the aforesaid questions.

# OIL PRICE DETERMINANTS

The price of oil remained "relatively consistent" for major part of 19th century and 20th century up till the 1970s. Since then the price of oil has secularly increased but has been subject to substantial variations. These variations can be directly and indirectly correlated to following factors:

## ✔ OPEC and OPEC+

○ OPEC member countries collectively agree on how much oil to produce, which **directly impacts the ready supply** of crude oil on the global market at any given time. Historical examples of this includes OPEC's 1973 embargo (first oil shock) in reaction to the Arab Israel War during which price of oil almost doubled.

## ○ OPEC+

❖ In **2016**, oil prices were negatively affected from a **global economic slowdown** and increased production of US Shale Oil.

❖ As a result, **OPEC and non-OPEC oil producing nations** (10 other countries including **Russia, Kazakhstan and Mexico**) formalized an agreement in 2016 to jointly cut production for stabilization of prices. This grouping is informally known as **'OPEC+' or 'Vienna Group'**.

❖ **Result: OPEC** members collectively control around **35% of global oil supplies and 80% of proven reserves**. With the addition of the 10 Non-OPEC nations, those **shares increase to more than 50% and 90% respectively**. This considerably increases the influence the oil-cartel possesses over oil prices.

## ✔ Political situation in the Middle-east

○ Apart from the first oil shock of 1973, various **political events** in the middle-east such as **Iranian revolution of 1979, Persian Gulf crises of 1990s** (which was one of the major reason for India's 1991 financial crises), US invasion of Iraq etc. have significantly impacted the supply and consequently price of oil.

○ **Terrorism and Civil War:** The internal security situation in **Syria, Iraq and Yemen** is alarming. The regional powers continue to fight proxy wars (**Saudi Arabia- Iran rivalry**) on sectarian lines, which substantially increases the vulnerability of oil supply line.

## ✔ Economic Growth

○ As the global economy expands, so does demand for crude oil. For instance, rapidly **increasing growth in emerging economies** such as China and India correlates strongly with demand and price increase in oil.

## ✔ Crude Oil and global geo-politics

○ **Energy Security:** The essential nature of oil use and the fact that most countries are dependent on its import make it a critical element of national security. Thus, ensuring supplies of oil is one of the core objectives of most foreign policies.

○ **Twin dependence on US:** US is one of the largest consumers of energy and simultaneously most global trade of oil happens in US dollars.

❖ The influence of the US over middle-eastern region reportedly increases as oil prices decline. For instance, "both oil importers and exporters vote more often with the United States in the United Nations General Assembly" during oil slumps.

## ORGANIZATION OF THE PETROLEUM EXPORTING COUNTRIES (OPEC)

✔ It is a permanent intergovernmental organization of 13 oil-exporting developing nations that coordinates and unifies the petroleum policies of its Member Countries.

✔ It was created at the **Baghdad Conference** on September, 1960, by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.

✔ Current Members of OPEC: **Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, United Arab Emirates and Venezuela**

✔ The **latest member to join** it was **Congo in 2018** while **Ecuador decided to withdraw** its membership of OPEC in 2020.

✔ The OPEC Secretariat is the executive organ of the OPEC.

✔ It publishes the Monthly Oil Market Report, the OPEC Bulletin, the World Oil Outlook, and the Annual Statistical Bulletin.

## MAJOR PRODUCERS AND CONSUMERS OF OIL

In 2019, total global production of oil was about **100 million barrels per day**.

✔ Top 5 countries by production (2019) are US (19%), Saudi Arabia (12%), Russia (11%), China (5%) and Canada (5%).

✔ Top 5 countries by consumption (2017) are US (20%), China (14%), India (4%), Japan (4%) and Russia (4%).

- **Shale Oil and its consequence:** In 2014-2015 Saudi Arabia caused a slump in the price of crude oil price in an attempt to slow down US shale oil production. This was because shale gas boom has the potential to **decrease global demand for oil**.
- Other correlations:
  - ❖ The decline of oil price during 1985–1986 is considered to have contributed to the **fall of the Soviet Union**.
  - ❖ Research shows that **low oil prices could make oil-rich states engage more in international cooperation**, as they become more dependent on foreign investments.
  - ❖ **Use of sanctions as a tool:** Sanctions on trade of oil has been used as a political tool several times. Eg.- Recent sanctions by US on Iran.

### ✔ Oil storage economy and speculative demand

- It is only recently that, the oil-storage trade, also referred to as **contango** has been adopted by market players.
- Under this, oil companies purchase oil for immediate delivery and storage—when the price of oil is low—and hold it in storage until the price of oil increases. Investors bet on the future of oil prices through **oil futures**. Crude oil is stored in salt mines, tanks and oil tankers.
- Several research papers postulate that rise in oil prices prior to **the financial crisis of 2007–2008** was due to speculation in futures markets.

- ✔ **Other factors:** Apart from above, the supply of oil is also dependent on geological discovery, the legal and tax framework for oil extraction, the cost of extraction and the availability and cost of technology for extraction.

In a nutshell, the stability of oil prices and its seamless operations depends on the predictability of the global demand of oil and the ability of the oil-producing countries to act in consort for maintenance of supplies.



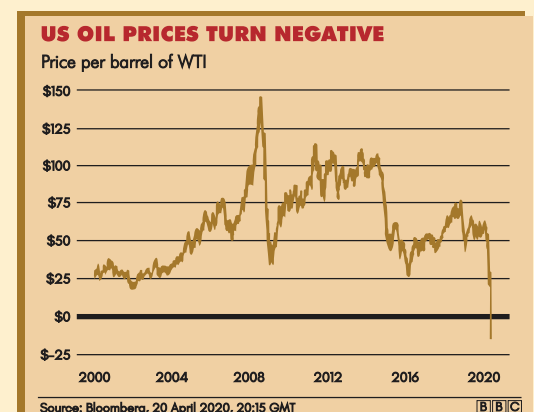
## WHAT IS A FUTURES CONTRACT?

A futures contract is a standard contract to **buy or sell a specific commodity** of standardized quality at a certain date in the future.

For example, if oil producers want to sell oil in the future, they can lock in their desired price by selling a futures contract today. Alternatively, if consumers need to buy crude oil in the future, they can guarantee the price they will pay at a future date by buying a futures contract.

## WHY AN IMMEDIATE OIL PRICE CRASH IN 2020?

- ✔ **Fall in global demand** - In the midst of the COVID-19 pandemic, the global oil demand, which was usually around 100 million barrels a day was coming down by 8-10 million barrels a day according to some estimates.
- **Decrease in demand from China:** China accounts for 28% of the world's total manufacturing. Within China, a large part of economic activity happens within the Hubei province, the epicentre of the Coronavirus outbreak.
- **Drop in economic activity across the world:** As COVID-19 is spreading fast across the globe, the lockdowns, partial or full, are spreading to cities worldwide. This ultimately has led to a crash in crude oil prices.
- ✔ **Saudi Arabia- Russia price war-** Recently, the OPEC-Plus cooperation discussed above collapsed which led to ramping of production by both countries.



✔ **Rising demand of alternative fuels in big markets:** European LNG imports have more than doubled in 2019 compared to 2018. This indirectly depresses the global price of oil.

✔ **Lack of storage space** - The continuous supply of oil accompanied with the huge demand slump has created a situation where there is a **worldwide shortage of storage space for oil**. Trains and ships, which were typically used to transport oil, are being used up just for storing oil.

✔ **Oil Contracts-** Various trade exchanges around the world raised their **margin requirements** for forward oil contracts.

The aforementioned immediate oil crash has negated all hopes for a swift recovery in the demand and price of oil. But, as the optimism around reopening of economies increases, the prices of crude will definitely increase. The question that arises here is by how much? Will the post-lockdown economy be able to increase demand? Or almost full crude storages and the fear of virus resurgence dampen any possible price rise?

## SAUDI ARABIA- RUSSIA PRICE WAR

### WHAT DOES SAUDI ARABIA WANT?

- ✔ It wants to flood the markets with Saudi oil and depress the prices, which would hurt all oil exporters.
- ✔ This is because it wants to hurt the US shale oil producers who could not sustain production at depressed prices.

### WHAT DOES RUSSIA WANT?

- ✔ It believes that OPEC-Plus agreement and output cut was hurting its energy companies.
- ✔ It wants to open its options and gain more market share.
- ✔ It also wants to hurt the US shale oil market.

## BENCHMARKS IN CRUDE OIL

There are **five main types of benchmarks** in crude oil which serve as reference prices for buyers and sellers. These are classified based on density (as light, medium, heavy, or extra heavy) and on sulfur content (into a sour and sweet category).

- ✔ **Western Texas Intermediate (WTI)** - Mainly used in the US, it is the light and sweet (low-sulphur), thus making it ideal for producing products like low-sulphur gasoline and low-sulphur diesel.
- ✔ **Brent Crude** - It is a mix of crude oil from 15 different oil fields in the North Sea. Though it is not as light or sweet as WTI, it is still high-grade crude.
- ✔ **Dubai Crude** - Also called Fateh, it is a heavy, sour crude oil extracted in the Emirate of Dubai.
- ✔ **Tapis crude** is a Malaysian crude oil used as a pricing benchmark in Singapore.
- ✔ **The OPEC Reference Basket (ORB)**, also referred to as the OPEC Basket, is a weighted average of prices for petroleum blends produced by OPEC members.

**Indian Crude Basket** (benchmark used by India) is the weighted average of **Dubai and Oman (sour) (75.5%)** and the **Brent Crude (sweet) (24.5%)** crude oil prices. It is used as an indicator of the price of crude imports in India.

## NEGATIVE TRADING OF OIL FUTURES

The price crash of oil in 2020 was symbolized by trading of May futures contracts for US **West Texas Intermediate (WTI)** crude at **"minus" \$40 a barrel**. This happened because investors holding May contracts didn't want to take delivery of the oil and incur high storage costs. Oil producers on the other hand wanted to get rid of their oil even at a negative price because shutting production would have been costlier when compared to the marginal loss on May sales.

## WHY IS WTI TRADING AT MINUS \$40 AND BRENT CRUDE AT \$25?

- ✓ Since **markets** for both are **not intricately connected**, the slump in WTI did not result in a proportionate slump in Brent Crude.
- ✓ Also, unlike the internationally shipped Brent crude (whose contracts are settled with cash), **WTI front-month contracts** involve **physical deliveries of the oil** to a specific location, which is rapidly filling up. International storage is more readily available than US storage at this point.
  - Front month also called 'near' or 'spot' month, refers to the nearest expiration date for a futures contract. Front month tend to be the most heavily traded and most liquid futures contracts.



## IS LOWER OIL PRICE A NEW NORMAL?

- ✓ **Immediate rise** post opening of economy **unlikely**:
  - **Shrinking demand**: It has been estimated that the demand for oil had been shrinking by 9 to 10 million barrels a day for a significant time and has stabilized around 89 million barrels per day. (Which is larger than the effected production cut of 6 million barrels a day).
  - **Limitations to production cut by small players**: It must be understood that cutting production or completely shutting down an oil well is a difficult decision because restarting it is both costly and cumbersome. Moreover, if one country cuts production, it risks losing market share if others do not follow suit.
- ✓ **Negative prices though alarming but still an aberration**: Even though WTI price for May in the US markets that went so low, Crude Oil prices elsewhere fell by not so much.
  - Also, the negative US oil price referred specifically to the price for crude delivered in May, the month in which oil demand is expected to be lowest and supplies are expected to be highest.
- ✓ **Slow but certain recovery**: Crude oil though currently not in demand is still the most dominant source of energy as far as transportation goes. Until recently, the global demand of crude was close to 100 million barrels per day. This irreplaceable nature of oil may result in slow but secular increase of its price.

## WHAT DOES THIS MEAN FOR THE WORLD?

- ✓ **No clear winners or losers**: On the face of it, it seems that the oil producing countries like Saudi Arabia, Iran, and Russia are losers as they will lose the large chunk of their revenue. Countries like US, China and India are gainers as they save on their oil import bills.

○ But the clear impact is difficult to interpret. For example, lower import will benefit US, but very low oil prices will make their domestic Shale industry unviable.

✔ **Uncertain Impact on overall global economy:** In the short-run, dip in oil prices theoretically has the potential to decrease inflation and push demand leading to increased GDP. But research suggests that on an average a **10% decline in oil prices** that is entirely **driven by supply increases world GDP** by 0.1%. Whereas a 10% decline in oil prices that is entirely **demand driven** is typically associated with a decrease in world GDP of more than 0.2%.

✔ **Geo-political implications:** Many of the large crude producing countries are heavily dependent on its revenues. Large loss of revenue could spark political turmoil.

○ Low oil prices have the potential to spark tensions between Iran and Saudi Arabia, within the Gulf Cooperation Council (GCC) and among OPEC+ members as was seen in the recent price war between Russia and Saudi Arabia.

○ Venezuela, Algeria, Nigeria are facing serious financial problems and political unrest with people out of work and prices rising. For instance, **96% of the Venezuela's exports** and nearly half of its fiscal revenue is dependent on oil production.

✔ **Crude prices and climate change:** Low oil price has the potential to erode the economic viability and decrease investment in several sectors which are clean energy dependent.

○ **Renewable energy sector:** Lower oil prices will increase financial pressure on other sources of energy like hydel power, wind, solar etc. and may indirectly make them unviable.

○ **E-mobility:** Persistently low oil prices have the potential to drive up the demand for petrol and diesel vehicles at the cost of electric vehicles.

○ **Growing Emissions and Pollution:** Lower prices of oil may encourage increased consumption of oil aggravating the problem of global warming and air pollution.

✔ **Marginal dip in cost of petroleum related products:** Various petroleum based products such as Motor oil, plastics, clothes, solar panels, floor wax, ink and bearing grease may see a dip in their cost of production.

✔ **Possibility of rationalizing subsidies:** Many of the fossil fuel subsidies are inefficiently targeted, often encouraging consumers to waste energy and add to emissions. The fall in oil prices provides a good opportunity to eliminate these subsidies and relieve pressure off fiscally strained governments.

○ Research suggests that governments all over the world provide **at least \$775 billion to \$1 trillion annually in subsidies**, this can be channelized towards activities like poverty alleviation, climate change etc.

## GLOBAL UNLOCKING AND ASSOCIATED OIL PRICE TRENDS

✔ According to International Energy Agency, COVID-19 has resulted in **loss of 1/5th of global oil consumption appetite**.

✔ But since the steep slump of May 2020, **oil prices (WTI) have progressively recovered** and are tending to plateau around \$41 a barrel, suggesting a potential recovery cycle. This can be partly attributed to coordinated supply cuts and increasing consumption in economies like US.

✔ As the global economies gradually unlock further, the OPEC forecasts that the **need for its crude oil will surge by 25% in 2021**, even higher than the level required in 2019. This could lead to steep rise in oil prices.

That said, all the estimates are subject to domestic policies of countries with regard to **opening of economy on the one hand** and the **containment of the coronavirus** on the other hand.



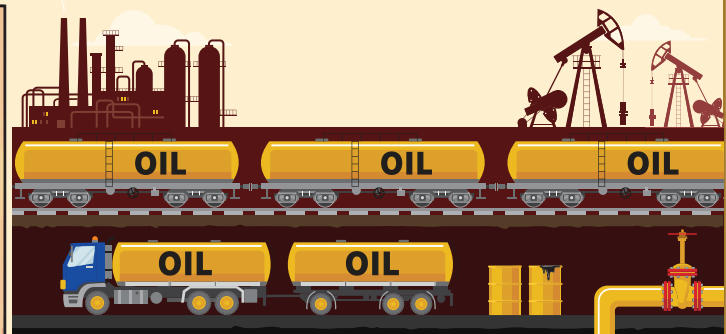
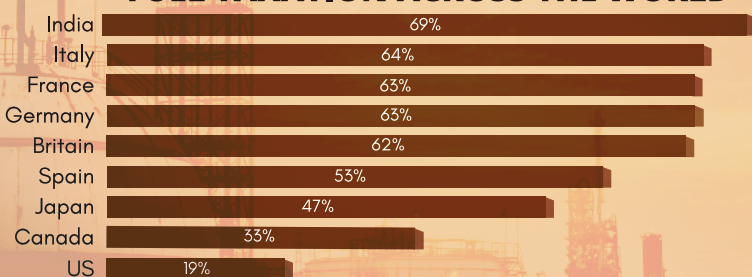
## INDIA'S CRUDE OIL PROFILE

- ✓ India is the world's **third-largest consumer of oil, fourth-largest oil refiner** and net exporter of refined products.
- ✓ Growth rate of India's oil consumption is expected to surpass China by mid-2020s and India's **energy demand** is set to **double** by 2040.
- ✓ India is heavily dependent on crude oil and LNG imports with **greater than 80% import dependence for crude oil** and 45.3% for natural gas/LNG.
- ✓ **70 per cent** of India's imported energy needs come from **West Asia** and the **GCC** alone accounts for 34 percent of India's **oil imports**.
- ✓ The top 5 crude oil exporters to India (by import bill) are **Iraq, Saudi Arabia, Iran, Nigeria and UAE** in decreasing magnitude of exports.

## CRUDE PRICING MECHANISM IN INDIA

- ✓ Over a period of time the **APM (administered pricing mechanism)** was established for crude pricing. APM used a pooled pricing mechanism under which the weighted average of international prices and the domestic cost of production was used to arrive at the administrated price.
- ✓ Starting from 2002, **APM were officially dismantled**.
- ✓ With the dismantling of APM, **the price of indigenous crude** has been **linked to international prices**, which implies that the price received by domestic crude oil producers is linked to international prices.
- ✓ After dismantling of APM, **Petrol & Diesel prices** were finally **deregulated** by Indian Government in 2010 and 2014 respectively.
- ✓ But the international price does not directly reflect in the local prices because the price of fuel at the retail station comprises the additional costs like **central government excise and taxes, State government taxes** and **operating costs, margin of the retailer and subsidies given by the government**.
  - The variations in excise duties and subsidies is the primary reason why in spite of fuel prices being deregulated, prices in India do not proportionately reflect the global oil prices. For instance, as of June 2020, a litre of petrol in Delhi retailed around ₹76/litre. The last time the fuel prices were so high was in October 2018, when crude oil prices were \$65 per barrel as opposed to the existing \$40 per barrel range.
- ✓ These subsidies are provided to protect consumers from volatility in international prices.
- ✓ Government then compensates companies for any loss from selling fuel products at lower rates. These losses are called **under-recoveries**.

### FUEL TAXATION ACROSS THE WORLD



# WHAT DOES THIS MEAN FOR INDIA?

- ✔ **Improved trade balance-** Since, India is dependent on oil imports for more than 80% of its demands, a fall in crude oil prices would result in a lower current account deficit for the government. As per experts a higher crude oil price impacts India as-
  - For every \$10 a barrel rise in crude oil prices, India's CAD expands by 0.4% of GDP.
  - A rise in crude oil prices can increase the dollar demand, hurting the rupee-dollar exchange rate.
- ✔ **Improved overall economic scenario-** By imposing higher taxes on petrol and diesel, the government can add crucial resources to its exchequer, given the requirement to fight COVID-19. Also, it will help in following areas-
  - **Inflation-** Every 10% increase in crude oil prices can push up inflation rate by 20 basis points.
  - **Lending rates-** With lower inflation, the Reserve Bank of India can reduce the lending rates further.



## STRATEGIC PETROLEUM RESERVE (INDIA) (SPR)

- ✔ **Indian Strategic Petroleum Reserves Limited (ISPRL)** is responsible for maintaining the country's strategic petroleum reserves.
- ✔ Currently, there are **3 storage facilities** in underground locations in **Mangalore, Visakhapatnam** and **Padur**.
- ✔ SPR maintains an emergency fuel store of total 5.33 MMT (million metric tons) crude oil which is enough to provide **9-10 days of consumption**.
- ✔ Apart from the above, SPR capacity expansion is **under construction in Padur** and **Chandikhole**.

- **Essential supplies-** Lower diesel prices have a direct bearing on prices of essential commodities as it is the preferred fuel for the transport sector.
- ✔ **Oil subsidies and fiscal deficit:** A fall in oil prices reduces petroleum companies' losses, oil subsidies and thus helps narrow fiscal deficit.
- But the **benefits** from lower crude prices to India's fiscal position **will be limited** as tax collections to the government from the petroleum sector get affected due to slowdown in economic activities.
- ✔ **Inability to make full use of this price crash**
  - The price crash will be beneficial if we buy the crude and bring it to India, but **bringing to India is not possible** because storage tanks are full and oil tankers are not easy to procure because tankers are floating with oil on the high seas.

○ Also, India's **Strategic Petroleum Reserves** in Mangalore, Padur and Vizag are full with no expansion possible in the immediate future.

❖ In order to temporarily avoid lower storage capacity issue, India has signed a memorandum of understanding (MoU) with US that will allow US to begin sharing with India the knowhow on establishment of a strategic petroleum reserve (SPR) along with the **possibility of storing its oil in US SPR**.

### ✔ **Impact on other sectors:**

- **Sugar Sector-** The juice from crushing sugarcane is crystallised into sugar or fermented into ethanol. With fall in oil prices, the mills may not find it attractive to divert cane for ethanol. This may indirectly affect the ethanol supply chain and decrease compliance of ethanol blending regulations.
- **Fertilizer sector:** Decline in oil prices will likely translate into lower natural gas prices. Natural gas, in turn, is a key input into fertilizer (especially nitrogen-based) production. Hence, decreased oil prices may lower India's fertilizer subsidy bill.
- ✔ **Negative effect on clean energy sector and environment:** As highlighted above, the lowered crude oil price may negatively affect, solar, wind, e-mobility industry and alongside aggravating the pollution problem.
- ✔ **India and Gulf region:** Lower oil prices will negatively impact the region and may indirectly affect India in several ways.
  - Employment of about **9.3 million Indians** who live and work in the Gulf countries could be in limbo.
  - Expats **remit 1.5-2% of India's GDP** from the region, which could negatively affect India's Current Account Deficit and foreign Exchange Reserves.



# CONCLUSION

Faced with such a situation, members of OPEC+ have agreed to **cut crude oil output by 9.7 million barrels** per day. Recovery in oil market prices will depend on how quickly demand for transport fuels goes up. If there is a speedy end to coronavirus lockdown it would accelerate a market price recovery. But if the current situation persists, the best course of action will be to **minimize** the prevalent **demand-supply mismatch**.

As far as **India** goes, in the short run it has decided to **increase its storage capacity** to capitalize on cheaper prices. India has stored as much as 32 million tonnes (mt) of oil in underground storage, tanks, pipelines and on ships (with floating storage close to 7mt). In the long term, India should also build into its economic plans the uncertainties surrounding the oil markets.

# TOPIC AT A GLANCE

## OIL PRICE DETERMINANTS

### General factors



- OPEC and OPEC+ Deal
- Political situation in Middle East
- Economic growth
- Global geopolitics on Crude Oil
- Oil storage and speculative demand

### Immediate factors



- Fall in global demand due to COVID-19
- S.Arabia- Russia price war.
- Rise in demand of alternative fuel eg- LNG. Limited storage space
- Limited storage space Increase in margin requirement for forward oil contracts.

## IMPACTS OF OIL PRICE CRASH

### Global



- No clear winners/losers,
- Likely to have negative impact on global GDP.
- Serious financial and political problems in oil exporting countries.
- Sustained low prices may adversely affect climate change efforts.
- Likely reduction in cost of petroleum related products
- Possibility of subsidy rationalization.

### India Specific



- Reduction in CAD.
- Helpful in raising financial resources for govt to fight COVID.
- Reduced burden of subsidy.
- Can help narrow fiscal deficit.
- Inadequate storage space.
- Mixed impact on oil companies.
- May hamper ethanol production.
- India's interest in the gulf region may be impacted.

## KEY DATA

OPEC members collectively control around 35% of global oil supplies and 80% proven reserves (OPEC+ accounts for more than 50% and 90% respectively)

### GLOBALLY:

- Top 5 producers (2019) are US (19%), Saudi Arabia (12%), Russia (11%), China (5%) and Canada (5%)
- Top 5 consumers (2017) are US (20%), china (14%), India (4%), Japan (4%) and Russia (4%)
- A 10% decline in oil prices (supply driven) increases world GDP by 0.1% whereas a 10% decline in oil price (demand driven) decreases world GDP by more than 0.2%
- At least \$775 billion to \$1 trillion is provided by the governments annually in fuel subsidies

### INDIA

- Third-largest consumer of oil, fourth-largest oil refiner and net exporter of refined products
- More than 80% import dependence for crude oil and 45.3% for natural gas/LNG
- 70% of imported energy needs come from West Asia (The GCC alone accounts for 34%)
- The top 5 crude oil exporters to india are Iraq, Saudi Arabia, Iran, Nigeria and UAE
- For every \$10 a barrel rise in crude oil prices, India's CAD expands by 0.4% of GDP
- Every 10% increase in crude oil prices can push up inflation rate by 20 basis points

## KEYWORDS

**OPEC's 1973 embargo, Contango, Negative trading of oil futures, Crude oil Benchmarks, Strategic Petroleum Reserves, Deregulation.**