FIPI

Federation of Indian Petroleum Industry

POLICY & ECONOMIC REPORT
OIL & GAS MARKET

DECEMBER | 2019

Table of Contents

Policy & Economic report – Oil & Gas market

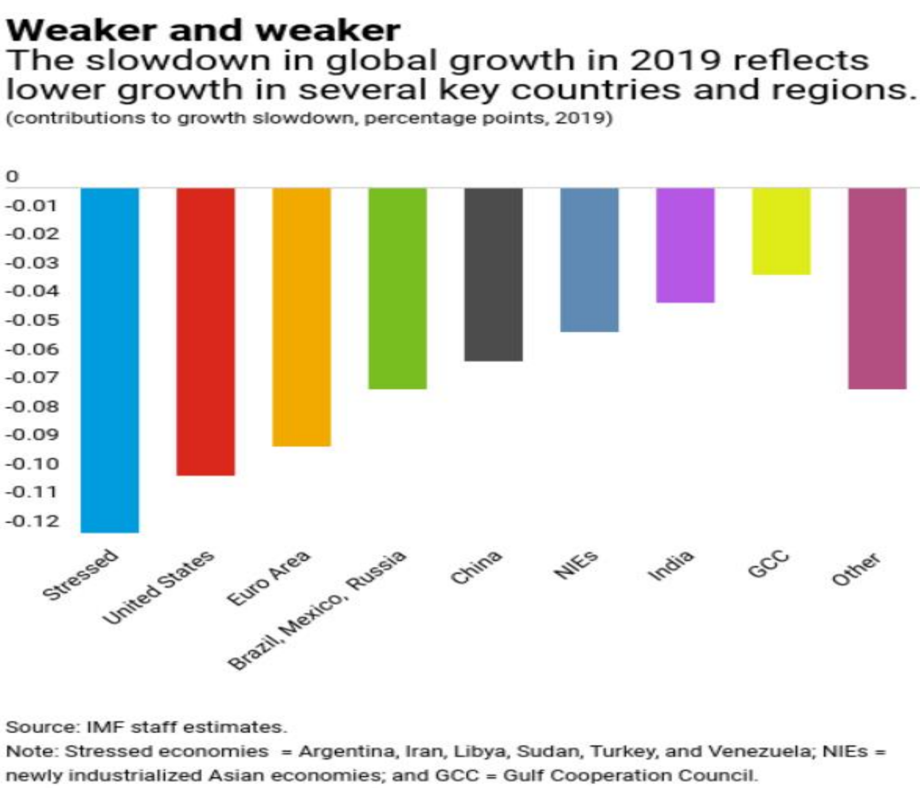
Economy in Focus

1. **Revisiting 2019: Trends that will set the direction for global economy in 2020**

In 2019, the global economic growth was at its lowest was at its weakest since the global financial crisis of 2008, reflecting common influences across countries and country-specific factors.

Increase in global trade barriers and the resulting uncertainties weighed on business sentiment and activity globally. In some regions this led to magnified cyclical and structural slowdowns already under way.

The pressure further intensified with slow-down in large emerging market economies such as Brazil, India, Mexico, and Russia. Worsening macroeconomic stress related to tighter financial conditions (Argentina), geopolitical tensions (Iran), and social unrest (Venezuela, Libya, Yemen) rounded out the difficult picture.

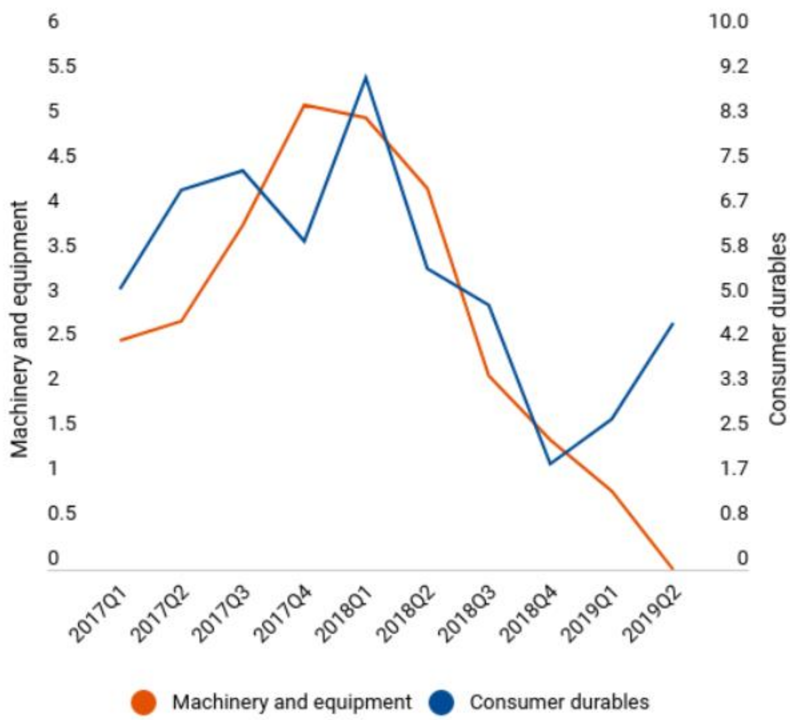


With increasing uncertainties in the economic environment, firms turned cautious on long-range spending and global purchases of machinery and equipment decelerated. The household demand for durable goods, though picked up slightly in second quarter, weakened during the year. This was particularly evident in the automobile sector where regulatory changes, new emission standards, and possibly the shift to ride-shares led to overall subdued sales in several countries.

Tight wallets

Weaker spending on machinery, equipment, and consumer durable goods has been an important contributor to the global slowdown.

(spending on durable goods, percent change from a year ago)



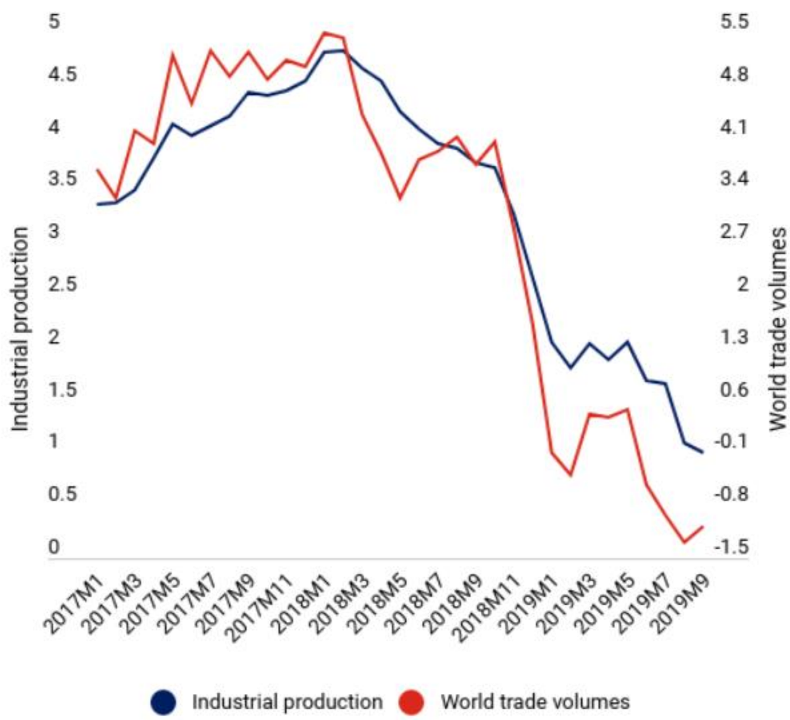
Sources: Haver Analytics; Markit Economics; and IMF staff estimates.
Note: Machinery and equipment includes Australia, Brazil, Canada, Chile, China, euro area, India, Indonesia, Japan, Korea, Malaysia, Mexico, Russia, South Africa, Turkey, United Kingdom, and the United States. Consumer durables includes Australia, Brazil, Canada, Chile, China, euro area, Indonesia, Japan, Korea, Malaysia, Mexico, South Africa, Turkey,

Faced with sluggish demand for durable goods, firms scaled back industrial production. Global trade—which is intensive in durable final goods and the components used to produce them—slowed to a standstill.

At a standstill

Over the past year, there has been a significant slowdown in global industrial activity and trade.

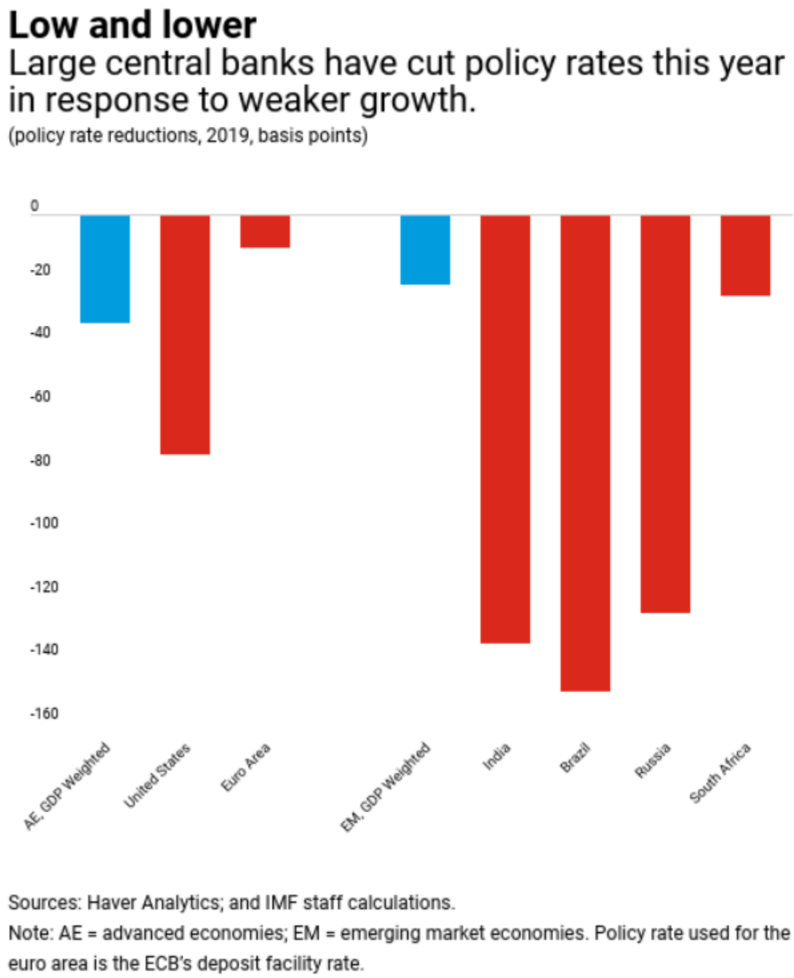
(annual percent change)



Sources: CPB Netherlands Bureau for Economic Policy Analysis; Haver Analytics; and IMF staff calculations.

Note: Industrial production and trade are shown as a three-month moving average percent change from one year ago.

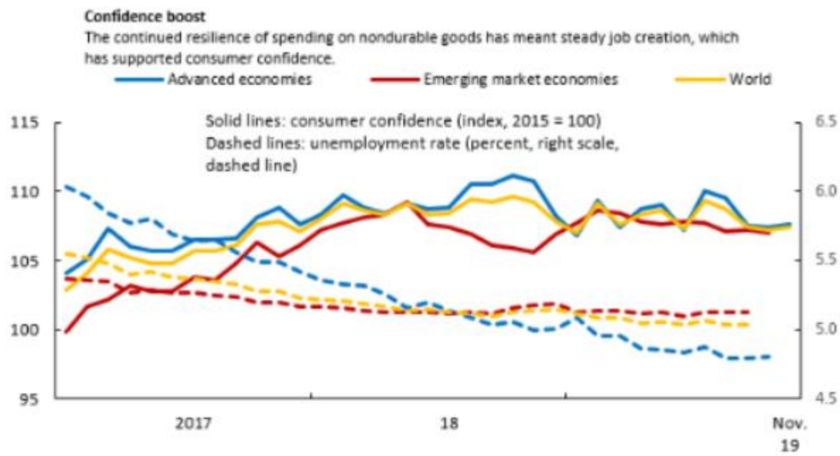
Central banks reacted aggressively to the weaker activity. Over the course of the year, several—including the US Federal Reserve, the European Central Bank (ECB), and large emerging market central banks—cut interest rates, while the ECB also restarted asset purchases.



Such policies averted a deeper slowdown. Lower interest rates and supportive financial conditions reinforced still-resilient purchases of nondurable goods and services, encouraging job creation. Tight labor markets and gradually rising wages, in turn, supported consumer confidence and household spending.

Confidence boost

The continued resilience of spending on nondurable goods and services has meant steady job creation, which has supported consumer confidence.



Sources: Haver Analytics; and IMF staff calculations.

2. **Riding on positive indicators, US consumer confidence rises to the highest since the dot-com boom of 2000s**

As result of greater optimism about the economy and brighter views of personal finances and the buying climate, the US consumer confidence reached a nine week high in December 2019.

Consumer comfort index released by one of the reporting agencies increased to 62.3 in the week ended 22 December from 61.1. A measure of confidence in the economy climbed to the highest since the end of July, while the personal finances gauge also was the strongest in nine weeks.

Factors such as record stock prices, unemployment at a five-decade low and steady wage gains have increased the consumer confidence to the highest since the dot-com boom of 1999-2000. Combined with elevated sentiment, this backdrop helps explain the economy’s resilience in the face of business-investment cutbacks and global demand concerns.

The data reflects the resolve among many Americans after the House voted to impeach President Donald Trump. Sentiment among Republicans, who have taken a more positive economic view since Trump’s election, increased to the highest level since mid-September while comfort among Democrats was the strongest since mid-October.

3. UNEP report indicates USD 621 Billion savings by Latin America through de-carbonization

A recent report suggests that the Latin America and the Caribbean could achieve annual savings of US$ 621 billion by 2050 if the region's energy and transport sectors reach net-zero emissions.

The findings presented by UN Environment Program (UNEP) in Madrid at the UN Climate Change Conference COP25 highlights the opportunities, costs and benefits of coupled de-carbonization of power generation and transportation. Both sectors account for two-thirds of the region's fossil CO_2 emissions and about 25 per cent of its greenhouse gas emissions. A two-fold increase in these emissions is expected by mid-century if current policies continue unaltered.

Under the present policy conditions, the emissions from the energy sector are expected to increase 140 per cent (up to 1.2 billion tons), considering the regional electricity demand will almost triple by 2050.The report warns that meeting these new requirements under a fossil fuel-based generation matrix would place the region further away from the 2°C pathway of the Paris Agreement, the report warns.

The report further shows that by decarbonizing the energy matrix and providing electricity to a full zero-emissions transport system (including marine and land transport), in 2050 Latin America could reduce 1.1 billion tons of CO_2 equivalent and additionally save US$ 621 billion per year. These savings will include over USD 300 billion of avoided expenses in land passenger transport and reductions of USD 222 billion in electricity costs. Thanks to the positive effect of electric mobility in urban air quality, USD 30 billion worth of health cost could be successfully avoided.

The transition to full de-carbonization in these specific sectors will create further benefits, such as 7.7 million new permanent jobs and 28 million job-years in temporary assignments related to green technologies, infrastructure deployment or transport electrification. Both energy and transport sectors present opportunities for rapid and far-reaching, environmentally sound and financially attractive action. A coupled transition not only aims to reach zero emissions by 2050, but to contribute to the economic growth and to the improvement of public health.

Despite the startling performance of renewables, the report calls for a bolder policy agenda to accelerate the changes required to fulfill de-carbonization by mid-century.

4. In the new decade, Brexit and stalled investment to pose serious challenges to the UK's economy

A recent report on UK's economy suggests that the UK employment could fall in 2020, despite average UK pay being expected to pass its pre-crisis record.

According to the report by the 'Resolution Foundation', the labor market is at a turning point. The report forecasts that forecasts that average real pay – allowing for inflation – will surpass the peak it reached in 2008. The report further underlines that Brexit uncertainty and global headwinds sapped business confidence, leading to stalling investment and zero productivity growth. A year of historically poor GDP growth – on course for just 1 per cent – puts into question whether employment levels of 76.2 per cent and strong pay increases can continue in 2020. Economists are of the general opinion that 2019 was a bad year for UK economy, which looks set to have recorded its weakest GDP growth outside of recessions. However, the part of the economy that households really care about – the labor market – defied the economic gloom and delivered record employment and decent pay growth. However, the crucial question that the economy faces is whether the labor market can continue its bullish run into 2020.

The year 2020 is expected to be crucial year for UK's post-crisis economic history with average pay packets finally surpassing the level last seen almost 12 years ago, before an unprecedented period of weakened earnings. With employment likely to remain high by historical standards despite predicted falls, the Bank of England has recently revised up forecasts of nominal pay growth in 2020 to 3.75 per cent.

The latest annual data from the National Statistics showed median weekly earnings for full-time employees in the UK were EUR 585 in April 2019 – EUR 18 lower than the EUR 603 earned at the peak in 2008 (adjusted to 2019 prices). The proportion of people experiencing an effective pay cut through inflation fell to just over a third, or 35.7 per cent of full-time employees, in 2018-19.

5. To maintain the growth momentum, Greece plans to sell new debt in 2020 budget

Greece, after facing a decade-long debt crisis that made it a bond market pariah, todays enjoys the luxury of no financing needs for 2020. However, the 2020 budget presented by the Greek Government shows its plans to sell new debt.

Despite a cash buffer of some 32 billion Euros left over from the country's bailout program, Greece wants to maintain the good momentum of 2019 after yields hit record low levels in October. The country has set an aim to reduce the total debt (329.3 billion euros in 2019), not only as a percentage of GDP, but also as an absolute number.

According to the budget proposed by the Greek Government, the country will require EUR 1.9 Billion. This amount is expected to be covered by using some of the primary surplus, privatization receipts and by the proceeds from Greek bonds that central banks bought during the crisis under the Securities Market Program (SMP) and the Agreement on Net Financial Assets (ANFA).

Yields on the benchmark 10-year issue are now trading some 68% lower than at the beginning of the year, around the same level as for the Italian equivalent. Further, the country got paid by investors in October for the privilege of lending it cash after sales of 13- and 26-week bills drew negative yields.

The New government's early policy decisions to unblock flagship investments, such as the long-stalled Hellinikon project; to stick to the agreed fiscal targets for 2021; and to quickly proceed with a plan to help banks reduce their bad loans by some 40 per cent has attracted much appreciation from the investors. In the upcoming year, Greece may try to take advantage of this momentum in order to:

a. Reduce by EUR 4 to 5 billion the amount of treasury bills that currently stand at EUR 12.6 billion.

b. Make early repayment of part of the EUR 4 billion of bonds that were issued in 2012 after the restructuring of Greek debt
c. Pay back EUR 2 Billion loans from IMF, earlier than scheduled

6. Slow-down in China raises alarm bells for the global economic development

As result of the US – China trade war, China's economic growth has slowed over the last year. The country has witnessed its weakest performance of 6 per cent is the weakest since 1992. As the country transitions away from the high-debt, often wasteful growth model of the past, the growth rate is expected to fall even further.

a. Why is slowing China a worry?

China has the second largest GDP after the US and accounts for a third of global growth each year. It has emerged as a crucial driver in global job creation and improved living standards. If China's current slowdown were to suddenly accelerate, the ripple effects could squelch the global recovery. An eventual structural slowdown is inevitable but a plunge that defies expectations will have a far more disruptive impact on the global economy.

b. What is wrong with 6 per cent?

China's economy is loaded up on debt and its ability to service repayments depends on rapid growth to generate the profits and tax revenues needed. Slower growth challenges China's ability to stem the build-up of its government, corporate and household debt. The bigger that debt pile becomes, the bigger the impact on global growth should it all go sour.

c. How's the slowdown being felt?

The slowdown in China has impacted everything from factory output to the jobs market. Office vacancies have reached a record high in the third quarter of 2019. Deflation is looming after China's producer price index slowed to zero in June from a year earlier, and then started falling. Slower consumer spending has hit multinational companies. The trade war is hurting exports as U.S. tariffs bite and is causing imports not only from the U.S. to plunge, but also those from Japan and South Korea.

d. How bad could it get?

If the US-China trade war continues, the downward trend in China is going to continue. Business confidence and activity is looking shakier across the globe. Second-quarter GDP in export-reliant Singapore, a bellwether for global demand, shrank the most since 2012. Across Asia and Europe, factories are already feeling the brunt, while growth signals in the U.S. have been mixed. Meanwhile, rising tariffs have led companies to move some production out of China to countries such as Vietnam.

7. Revisiting 2019: Major events and policy decisions affecting Indian economy during the year

The year 2019 has been a year of many ups and downs for the Indian economy. Amidst discussions on various issues affecting the economic growth, the country witnessed a stronger Government coming back to power under the leadership of Hon'ble Prime Minister Shri Narendra Modi.

Among key announcements, the Government of India, in its interim budget, announced for an annual income support of Rs 6,000 for farmers with retrospective effect.

After returning to power with a huge majority, Prime Minister Narendra Modi set a goal of making India a USD 5 Trillion economy by 2024. Though the goal was hailed by corporate houses, a slowing economic growth rate presented the country with another challenge. India's GDP growth rate declined in the July-September quarter to a six-year low of 4.5 per cent. Consequently, Moody's revised India's sovereign rating from stable to negative. Subsequently, many rating agencies have now reduced India's ranking.

Below is a list of events and policy decisions that left the biggest impact on the Indian economy in 2020:

a. **Interim Budget - Sops for farmers (1 February):** Then Finance Minister Mr. Piyush Goyal announced an annual expenditure outlay of Rs 75,000 Crore as Goyal's scheme, Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), to offer an annual income support of Rs 6,000 per year to all farmer families with a cultivable land of up to two hectares

b. **Nirmala Sitharaman became the first Finance Minister to present a budget (4 July):** Presenting Union budget 2019 – 20, Ms. Nirmala Sitharaman mentioned that the country is well placed to become a USD 5 Trillion economy in next five years

c. **Corporate Tax Rate Cuts (20 September):** With an eye on boosting investor sentiments, the Government offered a reduction in corporate tax rates. Big companies got a relief of close to 10 percentage points in the effective tax rate, including cess and surcharge.

d. **India opts out of RCEP (4 November):** India opted out of the Regional Comprehensive Economic Partnership (RCEP) deal as it would have adversely affected national interest

e. **Moody's lowered India's ratings (8 November):** Global ratings agency Moody's lowered its outlook on India's credit ratings to "negative" from "stable", citing an ongoing economic slowdown, financial stress among rural households, weak job creation, and the liquidity crunch in non-banking financial companies.

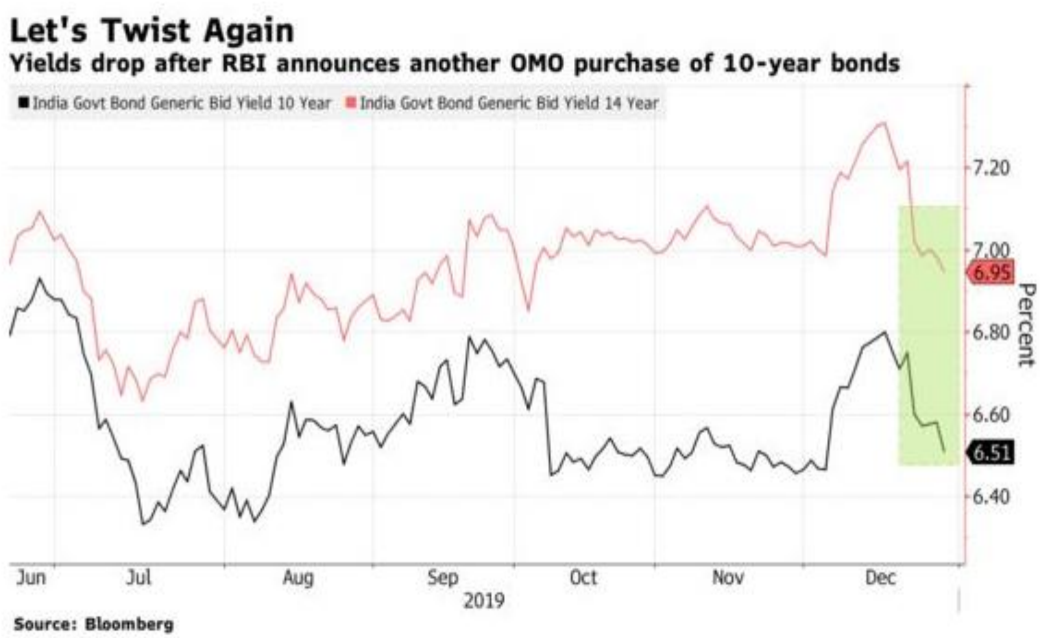
f. **Labor Code on Industrial Relations Bill tabled in Parliament (27 November):** The Bill safeguards the amendments brought in by various state governments, giving flexibility to companies to "hire and fire" workers. The bill was welcomed by the industrial sector.

g. **India's GDP growth slows down to 4.5 per cent in second quarter of 2019 (30 November):** Data released by the National Statistical Office showed that India's Gross domestic product (GDP) in the July-September quarter of 2019-20 grew at a slow rate of 4.5 per cent when compared with the same quarter a year earlier, and 5 per cent lower than the previous quarter

8. **RBI's unprecedented move spurs a bond rally in India**

After the Reserve Bank of India (RBI) said it will buy long-end debt for a second week, stepping up the pace of its unconventional policy to lower borrowing costs, the benchmark sovereign bonds recorded gains. The 10-year yield slid 7 basis points to 6.51 per cent, taking the week's drop to nine basis points.

Federal Reserve-style Operation Twist, where it buys long-end debt while selling short-end bonds after five rate cuts this year failed to lift economic growth. RBI will conduct a second operation on Monday, 30 December following on its first such move on 26 December.



RBI's recent move has put a stop to the relentless steepening in India's yield curve, as investors dumped long-end debt on concern the government will add to record bond sales. The country's spread between the two-year and 10-year debt is down to 72 basis points from 93 basis points before the first purchase under the plan was announced.

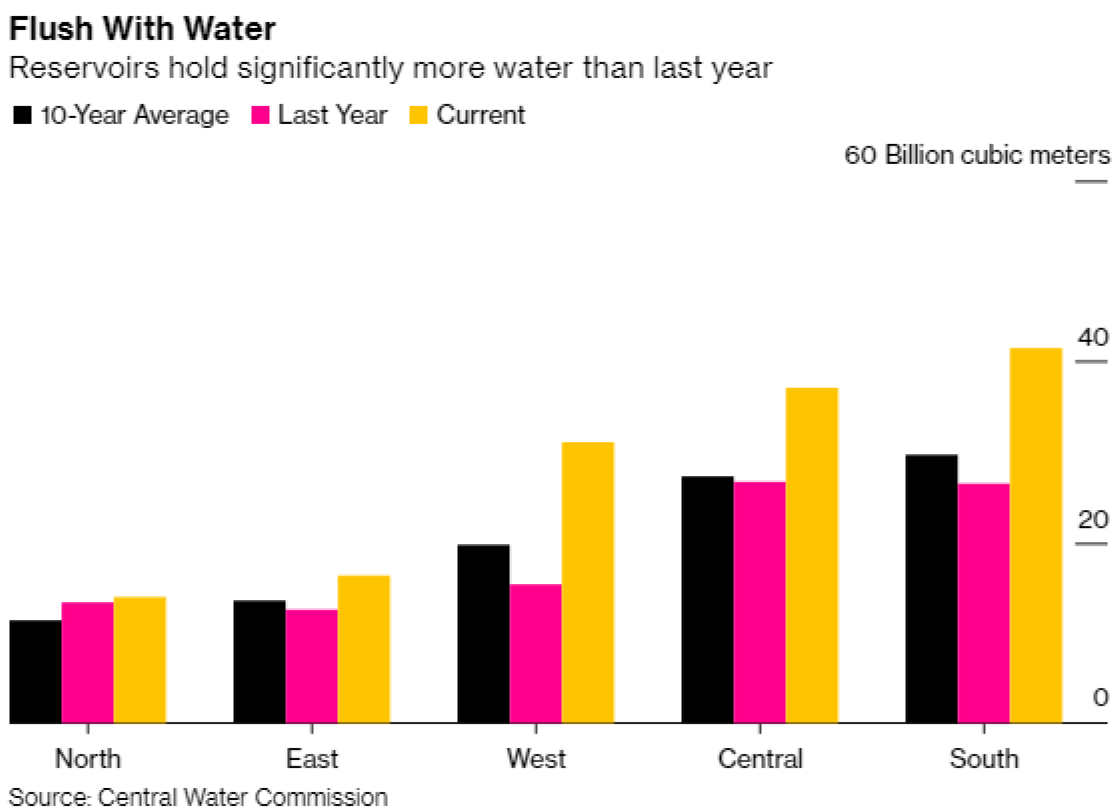
The RBI will buy Rs 100 billion ($1.4 billion) of 2029 bonds at the 30 December auction, while selling a total Rs 100 billion of notes maturing in 2020.

This operation will flatten the yield curve further, reducing the term premium that had widened amid market concerns over India's fiscal slippage.

9. Riding on strong Monsoon, India is set to roil the global sugar market

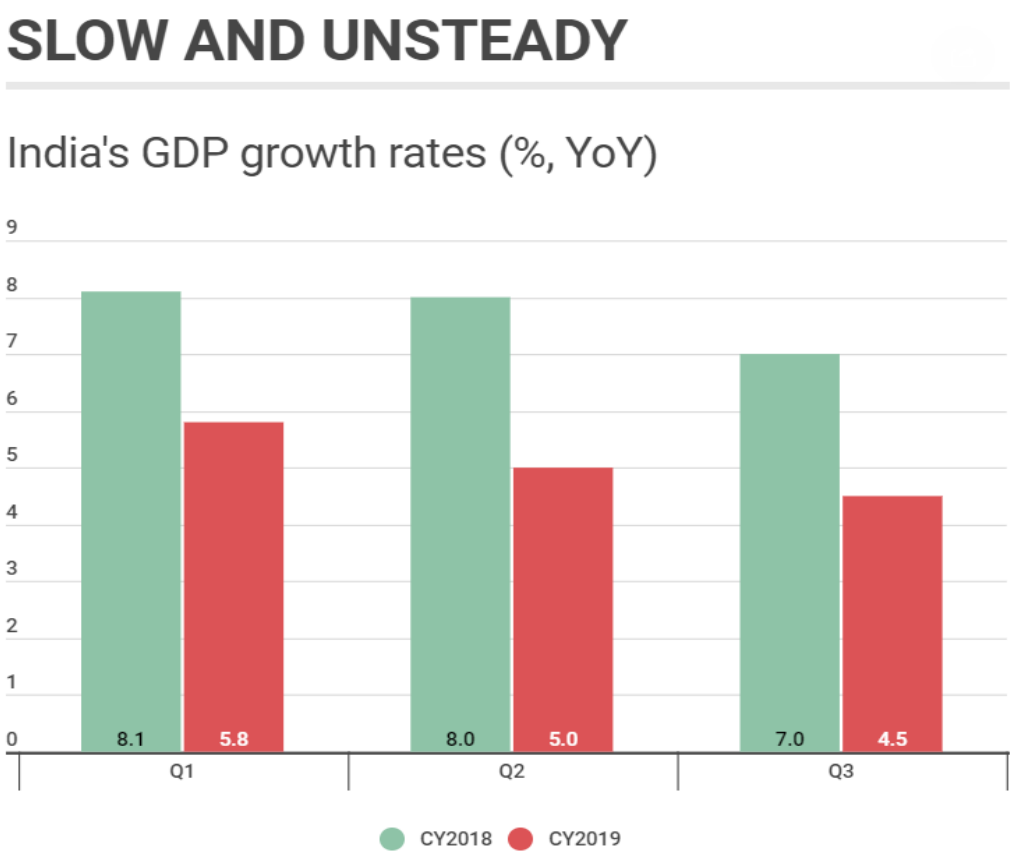
India is set to emerge as a key player in the global sugar market as prospects for next year's cane crop have brightened due to brimming reservoirs.

Bountiful Monsoon rains in the country have led to above average water levels in reservoirs, which will in turn boost the amount of sugar cane that's planted, according to industry and Indian government officials. Sugar output in the country is expected to bounce back in 2020-21 from an estimated three-year low this year.

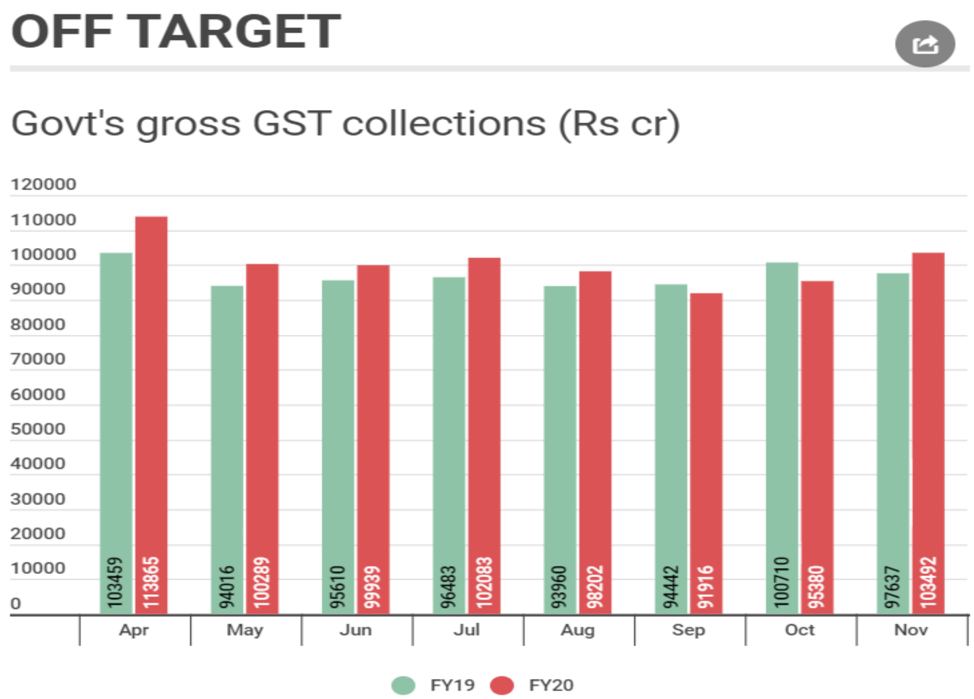


Large scale sugar production from India, as result of bumper crops, has led to a sugar glut in the global market leading to two years of more than 20 per cent declines in world sugar prices. While the market recovered in 2019 due to crops set back in India, the sentiments may worsen as the country returns to record output.

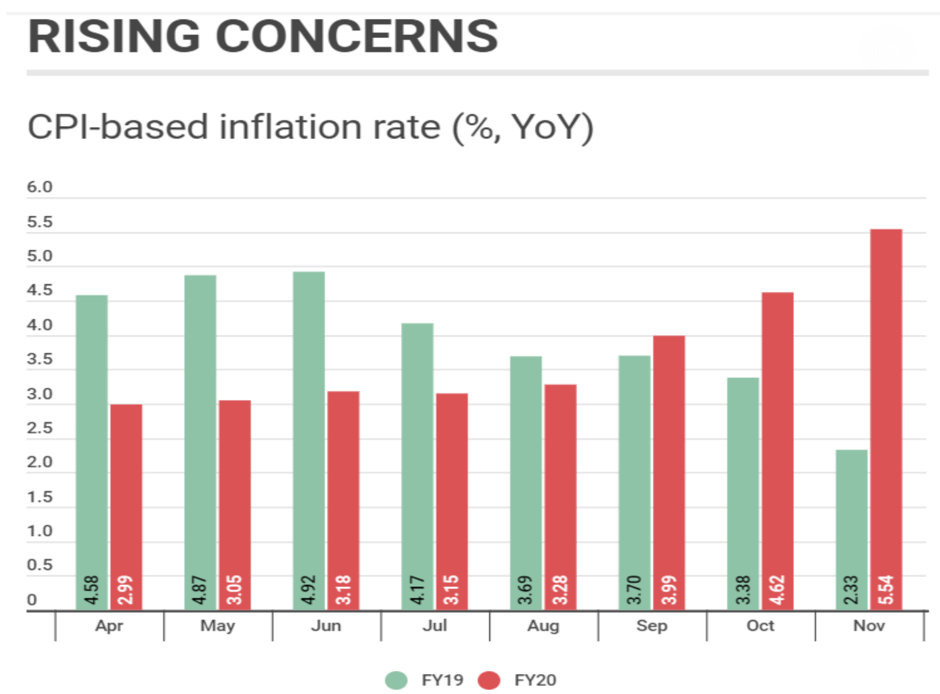
Major producers, angered by Indian export subsidies, have complained to the World Trade Organization in a bid to get the country to hold back shipments. The WTO is unlikely to be able to resolve the issue quickly, and India is likely to export significant amounts again.



h. **GST collection crosses INR 1 Trillion in November (1 December):** The government's goods and services tax (GST) collections recovered to a seven-month high in November, crossing the Rs 1-trillion mark on account of festive-season demand and anti-evasion measures taken by the government.



i. **Retail inflation reaches 40 months high in November (12 December):** Consumer price index (CPI)-based inflation rose to a 40-month high of 5.54 per cent in November when compared with the same month the previous year. Vegetables, which became costlier in neighborhood markets, contributed the most to lift the headline number.

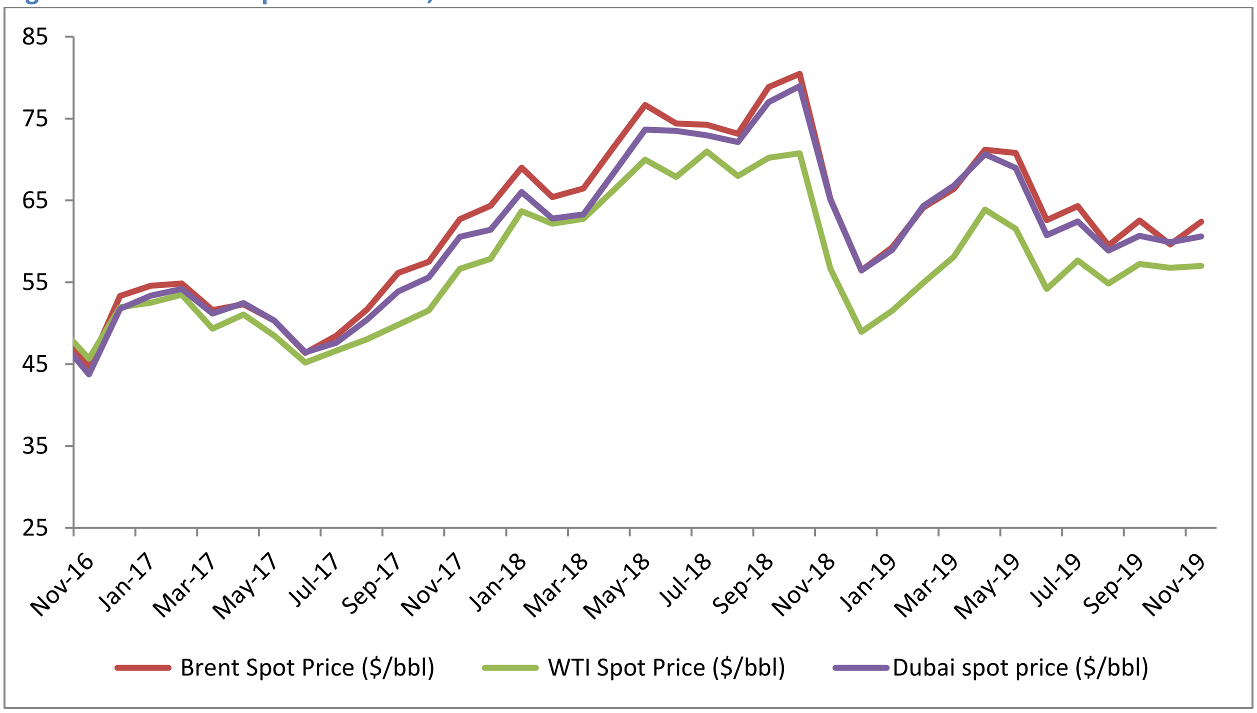


Oil & Gas Market

Crude oil price

Crude prices saw a mild increase in the month of November. News of new production curbs from OPEC countries, and new optimism on US-China deal and declining stocks of crude oil inventory led to the increase of crude price.

Figure 1: Benchmark price of Brent, WTI and Dubai crude



Source: WORLD BANK

- Brent crude price averaged $62.4 per bbl in November 2019, and was up 4.65 % and down 4.25% on a month on month (MoM) and year on year (YoY) basis, respectively.
- WTI crude price averaged $ 57.02 per bbl in November 2019, and was up by 0.46 % and 0.62% % on a month on month (MoM) and year on year (YoY) basis, respectively.
- Dubai crude price averaged $62.65 per bbl in November 2019, and was up by 4.57 % and down 3.78% on a month on month (MoM) and year on year (YoY) basis, respectively.

Table 1: Crude oil price in November, 2019

Crude oil	Price ($/bbl) in October 2019	MoM (%) change	YoY (%) change
Brent	62.4	4.65 %	- 4.25%
WTI	57.02	0.46 %	- 0.62%
Dubai	62.65	4.57 %	- 4.57%

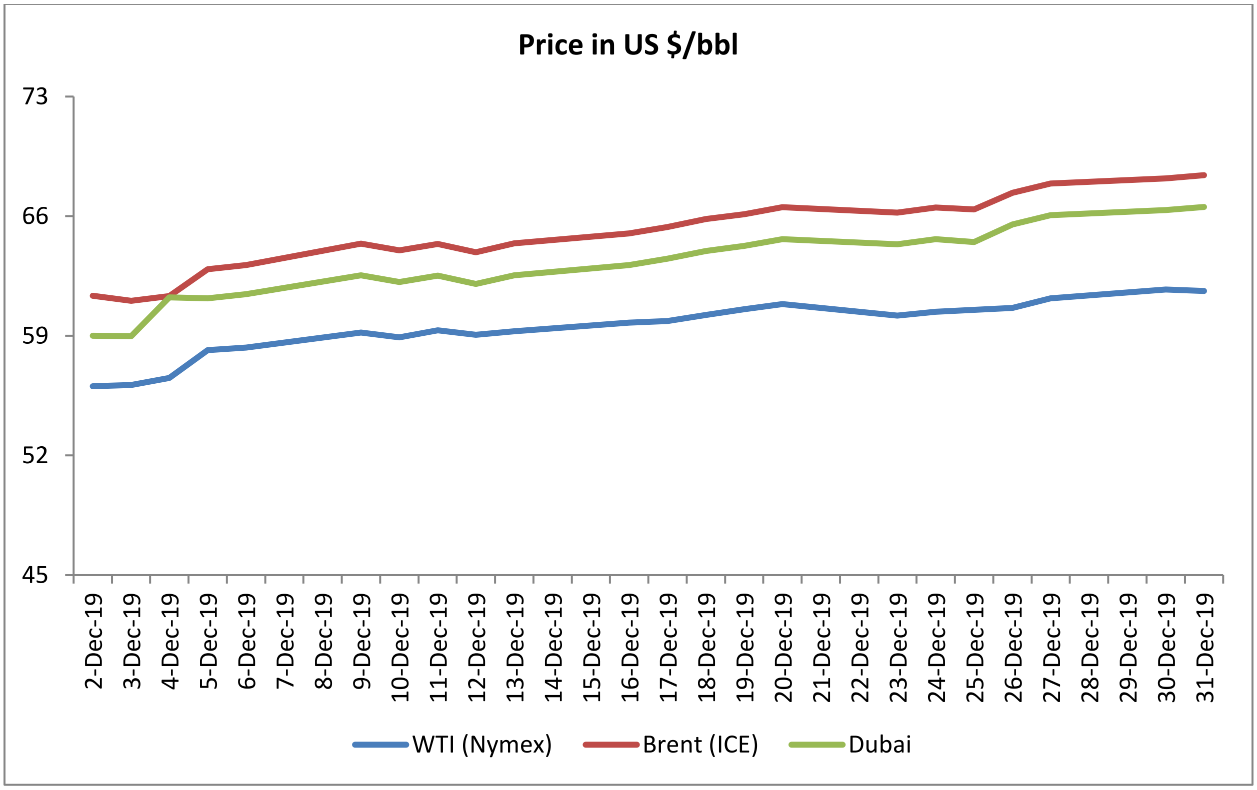
- *Source: WORLD BANK*

Crude price strengthens in December 2019

Crude prices further continued to rally upwards in the month of December as the production curbs from the OPEC hit the market. Higher withdrawal of crude inventory, progress in trade issues between US and China were the other factors that added to increase in crude price.

Average Brent, WTI and Dubai basket crude prices went up by 4.22 %, 4.31% and 0.93 % respectively from the prices in the month of November.

Figure 2: Crude oil price in December 2019

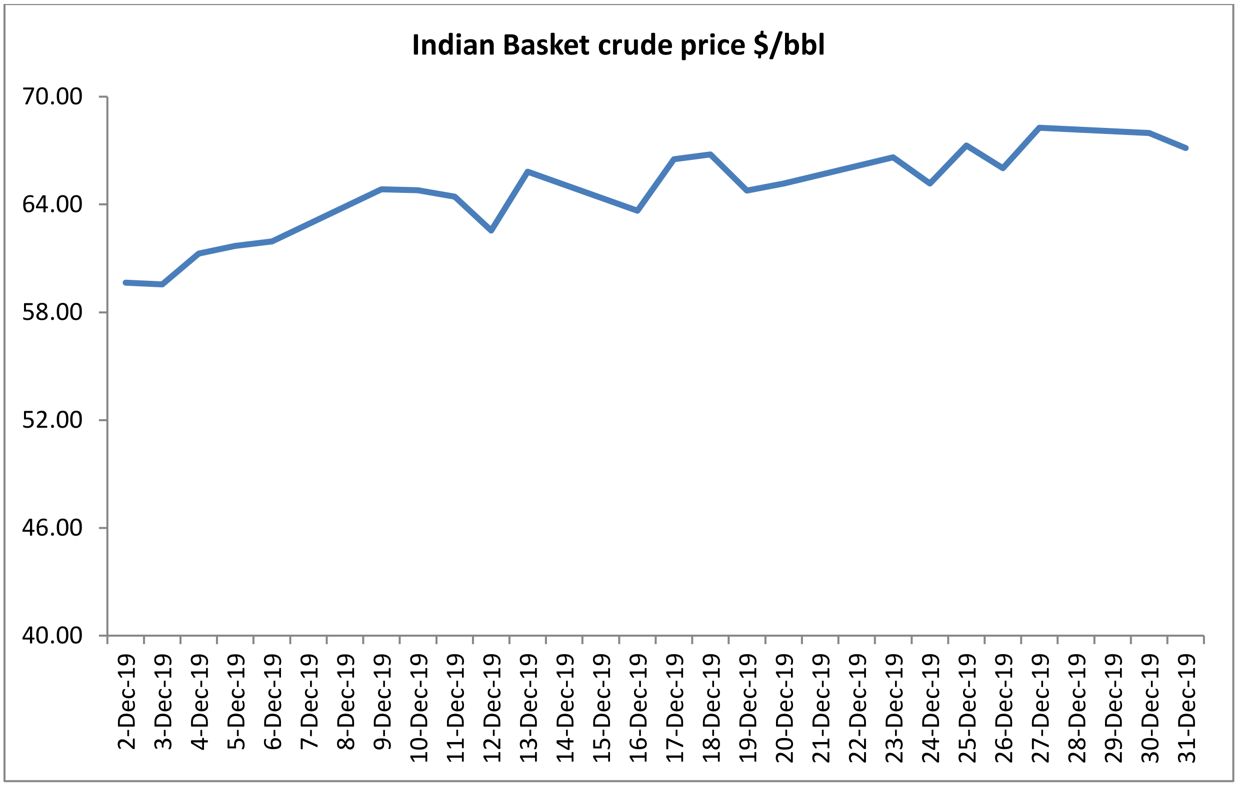


Source: EIA

Indian Basket Crude oil price

- The Indian basket of Crude Oil represents a derived basket comprising of Sour grade (Oman & Dubai average) and Sweet grade (Brent Dated) of Crude oil processed in Indian refineries in the ratio of 74.77:25.23 during 2017-18.

Figure 3: Indian crude oil basket price in $ per bbl



Source: Petroleum Planning & Analysis Cell

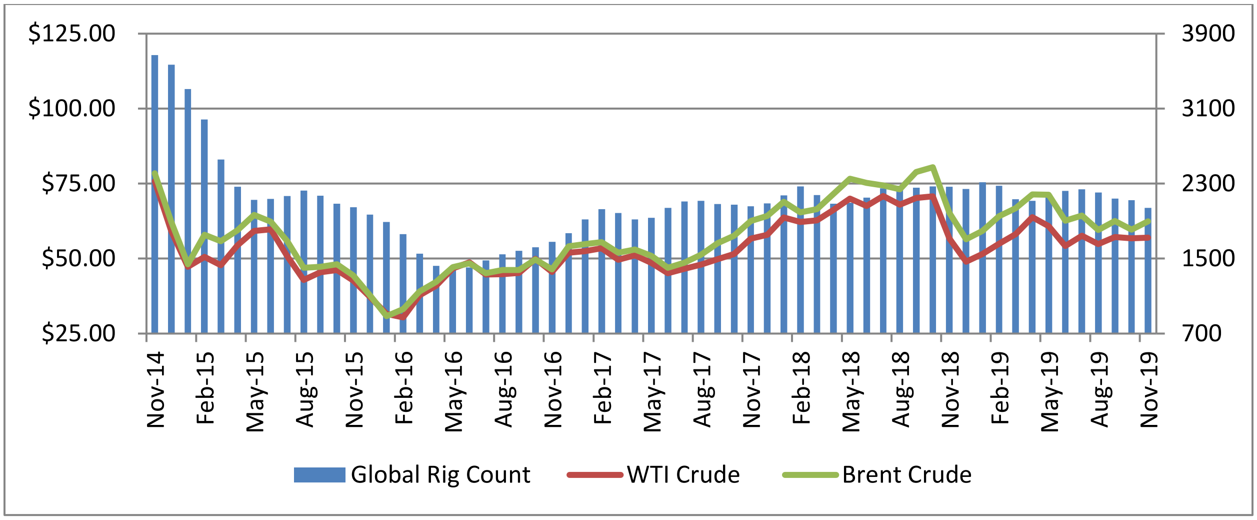
- Indian crude basket price averaged $ 64.63 per barrel in December, up by 4.37 % on Month on Month (M-o-M) basis and 13.05 % on a year on year (Y-o-Y) basis, respectively.

Upstream activity & Rig count

Global rig count

Rig count represents the total number of active drilling rigs in the world. Demand for drilling rig is highly dependent on crude oil price. When the oil price increases, demand for exploration activity increases, resulting in the increase in rig count. A lower oil price could trim the exploration budget of the oil companies, thereby reducing the demand for drilling rig.

Figure 4 Global Rig Count vs. Crude Prices



Source: Baker Hughes

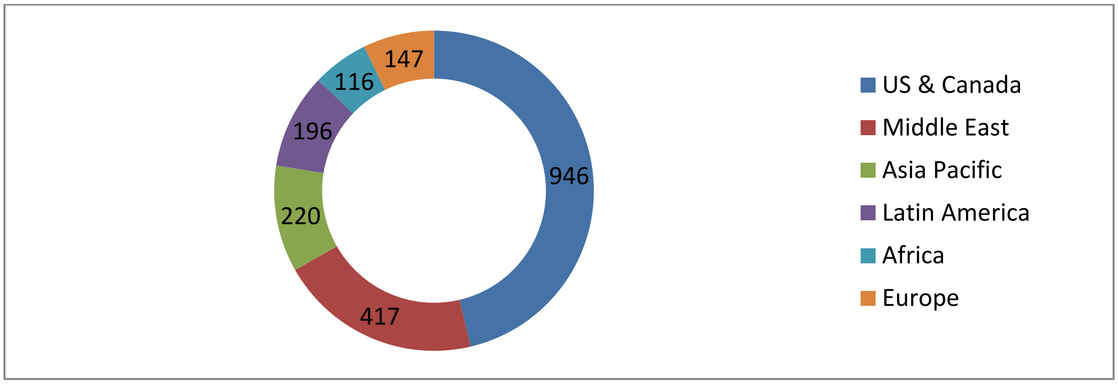
In November 2019, global drilling rig count stood at 2,042, 81 less than October. Onshore rig count declined by 85 and while offshore rig count went up by 4. Rig count saw a decline in Europe, Asia pacific Middle East and North America, while rig count remained unchanged in Africa. Only in Latin America, rig count went up by 7. Rig count dropped by around by 38 in the United States to reach 810. 788 were onshore rigs and 22 were offshore rigs. US & Canada and the Middle East count for about 2/3rd of the global rig count.

Table 2 : Global Drilling Rig Count

Rig Type	Count in November 2019	MoM (%) change	YoY (%) change
Land	1,771	-4.58 %	-13.02 %
Offshore	271	1.50 %	17.83 %
Total	2,042	-3.82 %	-9.89 %

Source: Baker Hughes

Figure 5 Geography-wise Rig count - November 2019



Source: Baker Hughes

Indian Drilling Rig Count

Indian rig count remained increased by 1 in the month of November 2019. One offshore rig was added. On Y-O-Y basis, Indian rig count declined by 9.17 % in 2019 as compared to November 2018. 77 were onshore rigs and the rest 31 were offshore rigs.

Figure 6 Indian Rig Count vs. Indian Basket Crude Price

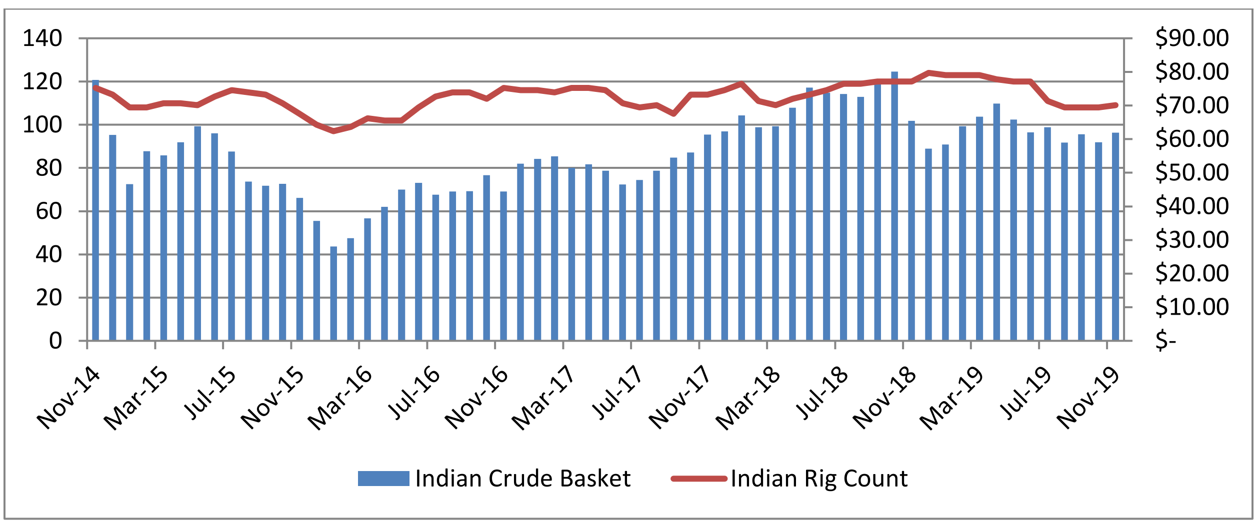


Table 3 : Indian Rig Count

Rig Type	Count in November 2019	MoM (%) change	YoY (%) change
Land	77	0	-9.41 %
Offshore	32	3.23%	-8.57 %
Total	109	0.93%	-9.17 %

Source: Baker Hughes

Oil demand & supply

Preliminary data indicates that global oil supply increased by 0.41 mb/d m-o-m to average 99.78 mb/d in November 2019, compared with the previous month. Non-OPEC supply (including OPEC NGLs) increased by 0.61 mb/d m-o-m to average 70.22 mb/d in November. Incremental production from the US, Canada, Norway, the UK, Australia, Kazakhstan, China and OPEC NGLs led to increase in supply. The share of OPEC crude oil in total global production decreased by 0.3% to 29.6% in November 2019 compared with the previous month. Estimates are based on preliminary data from direct communication for non-OPEC supply, OPEC NGLs and non-conventional oil, while estimates for OPEC crude production are based on secondary sources.

For 2019, non-OPEC oil supply growth forecast for 2019 remains at 1.82 mb/d y-o-y, as incremental production in the UK was offset by the downward production adjustment data for Russia. The US, Brazil, Norway and Canada are the key drivers for growth in 2019 while; Russia projected to see the largest decline.

World oil demand remained unchanged for 2019. Demand for oil in 2020 is forecasted to increase bbl 1.08 mb/d. Oil consumption is expected to reach 99.88 mb/d and 100.88 mb/d in 2019 and in 2020 respectively.

Table 4: World Oil demand in mbpd

	2019	1Q2020	2Q2020	3Q2020	4Q2020	2020	Growth	%
Total OECD	**47.95**	**47.73**	**47.31**	**48.51**	**48.51**	**48.02**	**0.07**	**0.14**
Dev. Countries	**33.12**	**33.54**	**33.44**	**34.12**	**33.79**	**33.73**	**0.60**	**1.82**
~ of which India	*4.85*	*5.20*	*4.90*	*4.65*	*5.32*	*5.02*	*0.16*	*3.39*
Other regions	**18.73**	**18.50**	**19.03**	**19.15**	**19.82**	**19.13**	**0.40**	**2.15**
~ of which China	13.06	12.91	13.50	13.28	13.77	13.37	0.31	2.37
Total world	**99.80**	**99.78**	**99.79**	**101.78**	**102.12**	**100.88**	**1.08**	**1.08**

Source: OPEC monthly report, December 2019
*Note: *2018 = Estimate and 2019 Forecast*

Global petroleum product prices

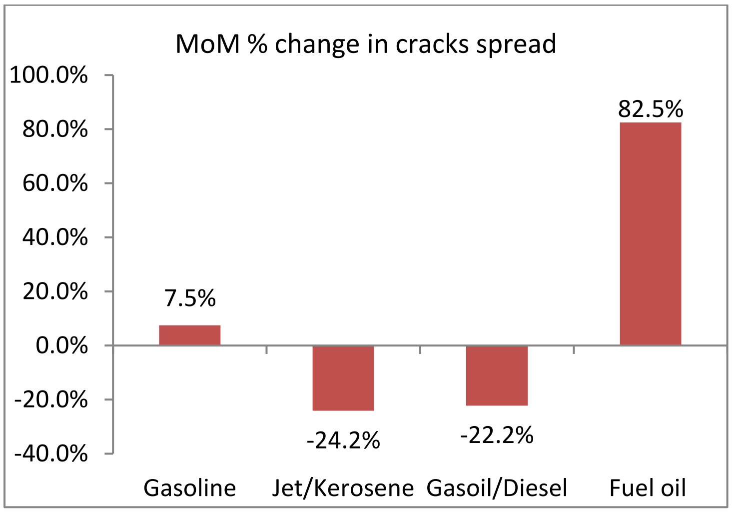
Prices in the Asian Gasoline-92 market saw an increase in price by 3.35 % over October month. Refinery margins fell due to unprecedented levels by a hike in freight rates and higher feedstock prices. Refinery margins in November fell sharply and stood in negative territory for straight third week. Margins went to multi-year low minus $0.59/b, lower by $3.05 on m-o-m and by $5.87 on y-o-y basis.

Singapore Gasoline cracks averaged $9.48/b against Oman, up by 90 ȼ m-o-m and by 6.63 y-o-y in November. Refinery utilization rates in November averaged 91.9 % in selected Asian markets comprising of Japan, China, India and Singapore.

Jet/Kerosene prices declined by 0.49 % in November despite the increase in demand for air travel. The Singapore jet/kerosene crack spread against Oman averaged $12.98, down by $2.94 m-o-m and by $4.20y-o-y.

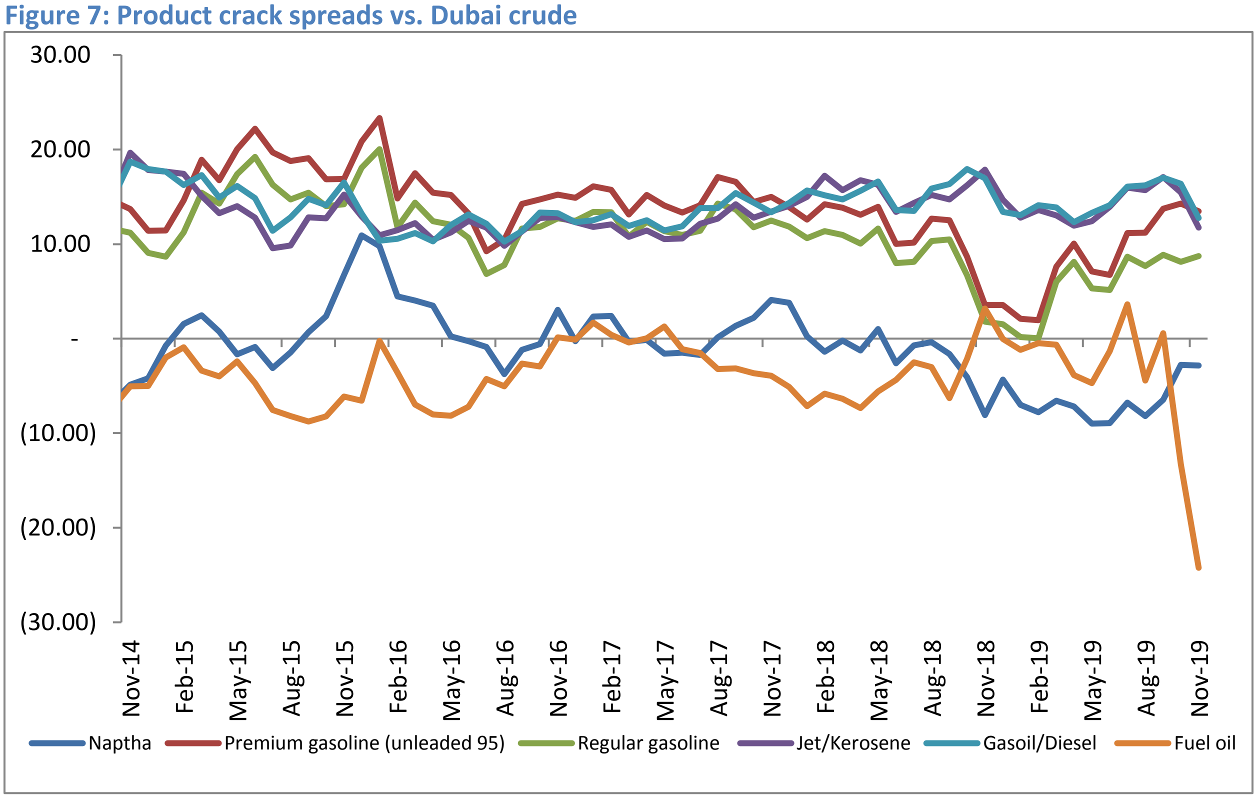
The Singapore gasoil crack spread moved slightly downwards in the month of November on the decline in exports. In November, gasoil price went down by 0.90%. Singapore gasoil crack spread against Oman averaged $13.49/b down by $3.35 m-o-m and by $2.77 y-o-y.

The Singapore fuel oil crack spread declined after the slump witnessed in October as HSFP prices fell sharply. Decline in demand from the bunker sector due to hike in freights rates Singapore fuel oil cracks against Oman averaged minus $23.50, down by $10.57 m-o-m and by $25.99 y-o-y.



Source: OPEC monthly report

Figure 7: Product crack spreads vs. Dubai crude



Source: OPEC, FIPI

Table 5: Singapore FOB, refined product prices ($/bbl)

Products	Price ($/b) in November 2019	MoM (%) change	YoY (%) change
Naptha	59.79	4.6%	4.9%
Premium gasoline (unleaded 95)	76.11	2.6%	10.9%
Regular gasoline (unleaded 92)	71.39	4.9%	6.7%
Jet/Kerosene	74.389	-1.3%	-10.3%
Gasoil/Diesel (50 ppm)	75.4	-1.2%	-8.1%
Fuel oil (180 cst 2.0% S)	38.41	-17.6%	-43.7%
Fuel oil (380 cst 3.5% S)	38.19	-17.4%	-44.0%

Source: OPEC

Petroleum products consumption in India

- November month saw an increase in overall consumption by petroleum products by 7.8%
- In November, LPG consumption declined by 3.7 % on M-o-M basis.
- Consumption of gasoline increased (9.3 % Y-o-Y).
- Demand for diesel increased by 16.1 % on Y-o-Y basis in the month of November driven by higher demand from transport segment

Table 6: Petroleum products consumption in India, November 2019

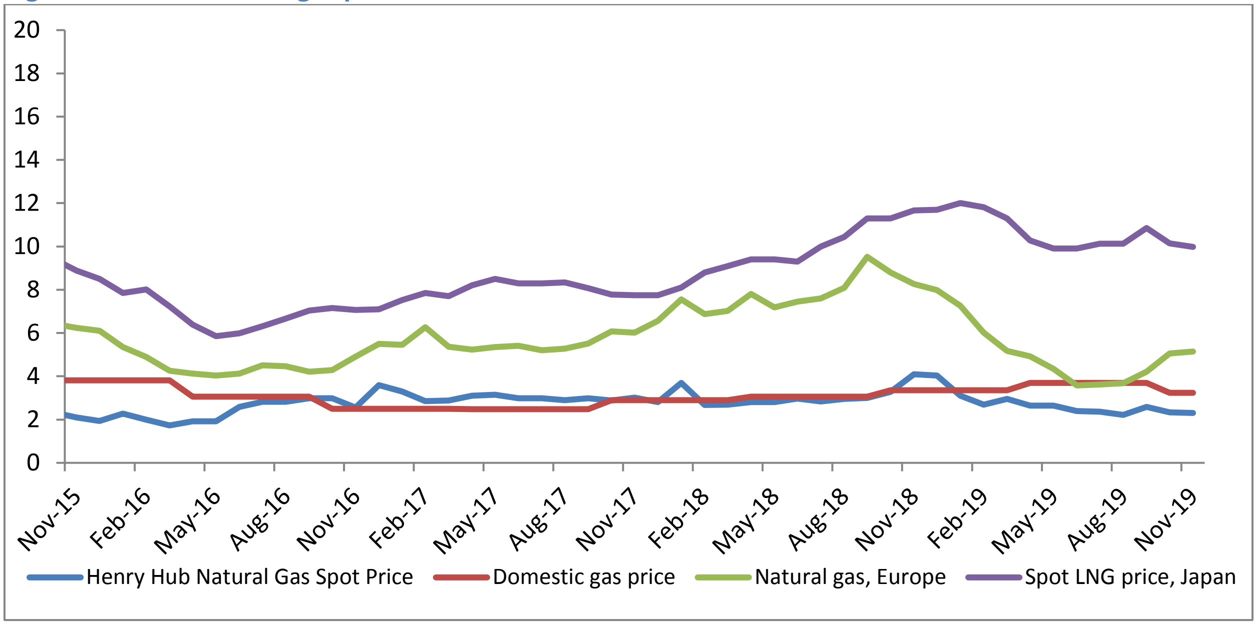
Petroleum products	Consumption in '000 MT November 2019	MoM (%) change	YoY (%) change
LPG	2,273	-3.7%	23.4%
Naphtha	1,254	13.1%	3.3%
MS	2,533	-0.2%	9.3%
ATF	715	1.3%	4.7%
HSD	7,552	16.1%	9.1%
LDO	51	5.2%	7.7%
Lubricants & Greases	325	9.1%	1.2%
FO & LSHS	481	2.3%	-3.7%
Bitumen	553	32.3%	6.8%
Petroleum coke	1,810	1.0%	-2.5%
Others	1,033	4.5%	33.1%
TOTAL	18,767	7.8%	8.6%

Source: PPAC

Natural Gas Price

In November, natural gas price at the Henry Hub decreased by 1.3% to reach $2.30/MMBtu. Increase in gas stockpile during the same period across the United States led to the decrease in natural gas price.

Figure 8: Global natural gas price trends



Source: EIA, WORLD BANK

Table 7: Gas price

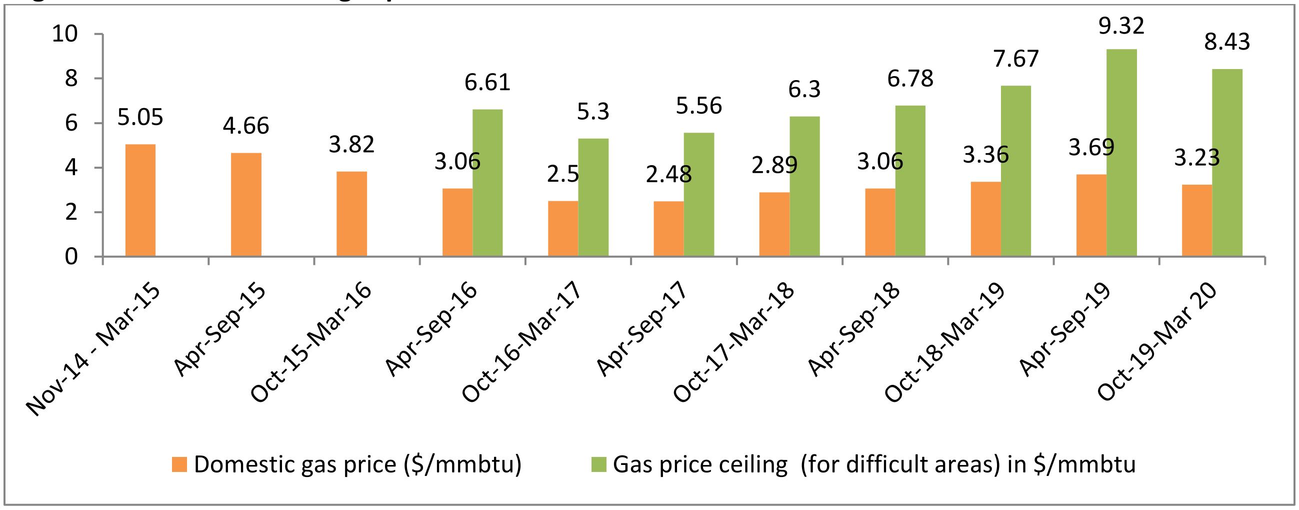
Natural Gas	Price ($/MMBTU) in November 2019	MoM (%) change	YoY (%) change
India, Domestic gas price	3.23	-12.5 %	20.6%
India, Gas price ceiling – difficult areas	8.43	-9.54 %	9.90%
Henry Hub	2.30	-1.3%	-43.8%
Natural Gas, Europe	5.15	1.8%	-37.7%
Liquefied Natural Gas, Japan (Long Term Contract, not Spot Market)	9.98	-1.6%	-14.4%

Source: EIA, PPAC, World Bank

Domestic natural gas price which takes into account international benchmarks including Henry Hub, Alberta hub, Russia and UK National Balancing Point, has increased around 23% as compared to a year before, thus capturing the international gas price trends. Gas price for October 2019 to March 2020 is $3.23 per MMBTU

A notification was issued by MoP&NG on 21st March 2016, for marketing including pricing freedom for gas to be produced from discoveries in deep water, ultra-deep water, and high-pressure high temperature areas. For the October 2019 to March 2020 period, the price of gas from such areas has been notified at $8.43 per MMBTU.

Figure 9: Domestic natural gas price

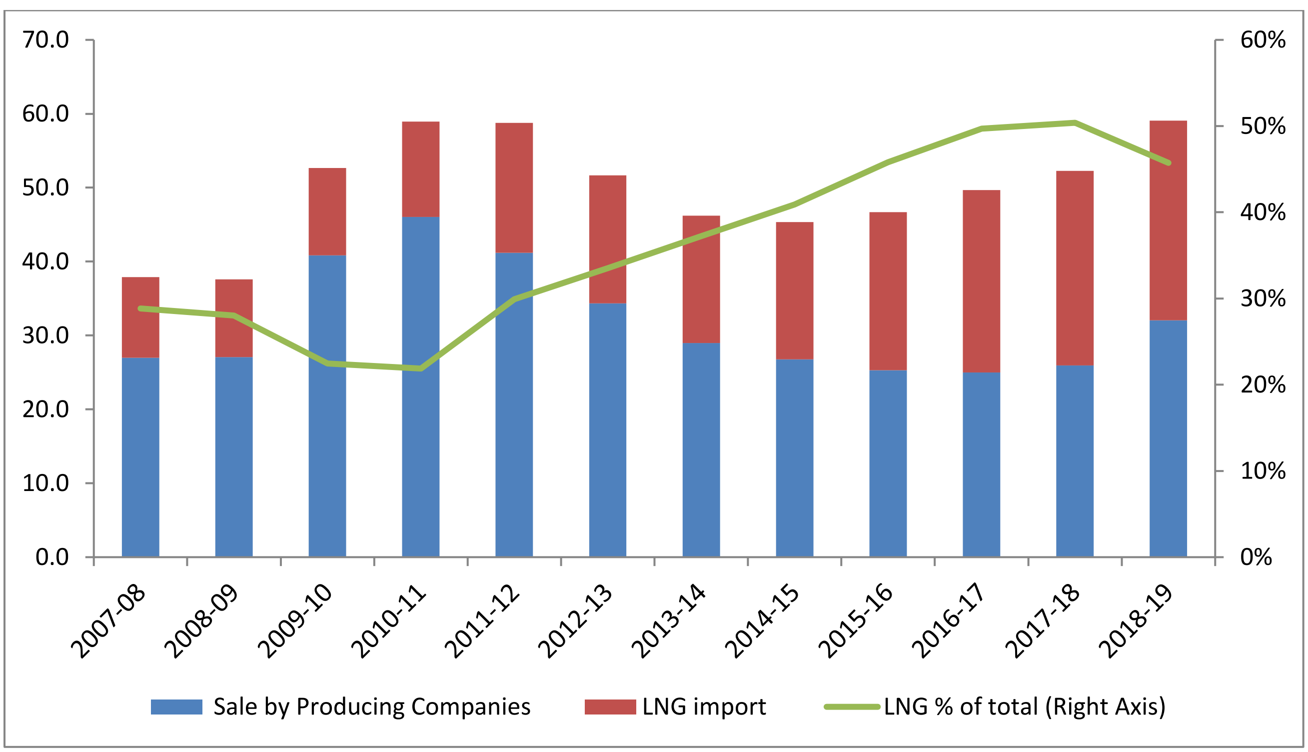


Source: PPAC

Natural gas production, consumption and import in India

- Natural gas constitutes for 6.2% of total energy primary mix of India
- Natural gas consumption in India has grown at a very slow pace in the past 3 – 4 years, with share of LNG imports increasing in the overall consumption mix

Figure 10: Domestic natural gas consumption, domestic production and LNG import in BCM



Source: PPAC

Sale by producing companies includes internal consumption

Key developments in Oil & Gas sector during December 2019

- ## Monthly Production Report for November, 2019

Crude oil production during November, 2019 was 2614.29 TMT which is 8.69% lower than target and 5.98% lower when compared with November, 2018. Cumulative crude oil production during April-November, 2019 was 21724.76 TMT which is 5.39% and 5.85% lower than target for the period and production during corresponding period of last year respectively.

Natural gas production during November, 2019 was 2563.41 MMSCM which is 6.57% lower than the monthly target and 6.16% lower when compared with November, 2018. Cumulative natural gas production during April-November, 2019 was 21209.55 MMSCM which is 6.40% and 2.64% lower than target for the period and production during corresponding period of last year respectively.

Refinery production during November, 2019 was 21900.62 TMT which is 11.17% higher than the target for the month and 3.75% higher when compared with November, 2018. Cumulative production during April-November, 2019 was 169555.04 TMT which is 0.93% higher than the target for the period but 1.22% lower than production during corresponding period of last year respectively.

- ## Shri Dharmendra Pradhan unveils India's First CNG Bus which can run 1000 Kms in one fill

In a major step towards making India a gas-based economy and making CNG as the eco-friendly option for long distance transport in the country, Shri Dharmendra Pradhan, Minister of Petroleum & Natural Gas and Steel, unveiled India's first long distance CNG bus fitted with composite CNG cylinders on 24th December 2019, which can travel around 1000 kms in a single fill. The project has been executed by Indraprastha Gas Limited (IGL) and has been achieved through pioneering design of Type IV Composite Cylinders in buses, replacing traditional very heavy Type-I Carbon Steel cylinders.

Lauding the initiative, Shri Pradhan described it as a milestone in ease of living for the people of country. He said that these CNG buses are being run on pilot basis, but soon they will be scaled on commercial basis. "Delhi has witnessed revolution in shift towards cleaner, gas based fuels. Over 500 CNG stations are operating in Delhi NCR today and about 12 lakh piped natural gas connections have been provided. Over 1,000 PNG connections are being provided daily in the NCR. Long haul CNG buses originating from Delhi to other locations will further drive this shift towards cleaner gas based fuels. This will improve overall ease of living of people by mitigating the problem of air pollution, ensuring a cleaner environment and reducing waiting time at CNG stations." Shri Pradhan said.

He said that the Government wants to have Green corridor around the national capital, with the buses from here to Chandigarh, Dehradun, Agra and Jaipur running on CNG. Congratulating the agencies involved in the long distance CNG bus fitted with composite CNG cylinders, he said that cost of such cylinders should be brought down, and economies of scale used to make them more popular and acceptable.

Shri Pradhan said that India is not a pollutant nation when compared with many others, but being a responsible nation, the Prime Minister has promised to bring down the country's carbon footprint. The Minister said that the Government is committed to promote the gas-based economy, and in this regard $100 billion investment is being made in the energy infrastructure. He further said that the Government wants to begin door-to-door delivery of Petrol, CNG and LNG, as is being done for Diesel by Mobile dispenser. The Minister added that LNG will also be added as the transportation fuel. Shri Pradhan said that a pilot project of Hydrogen-blended CNG fuel is already running in the city, and it will soon be scaled up. He said that the Government is promoting the Waste-to-wealth efforts, and all sources of energy will be used to bring down India's oil import dependency and make environment better.

- **Cabinet approves Signing of MoU between India and Brazil on Bioenergy Cooperation**

The Union Cabinet, chaired by the Prime Minister Shri Narendra Modi, has given its approval for signing of Memorandum of Understanding between the Republic of India and the Federative Republic of Brazil on Bioenergy Cooperation.

India and Brazil are major consumers of energy in the world and Brazil is one of the most important trading partners of India in the entire LAC (Latin America and Caribbean) region. Brazil is currently the world's second largest producer and consumer of biofuels and biofuels and bioelectricity accounted for 18% of Brazil's energy mix. India also has a strong focus in the area of bio-fuels and has set a target to achieve 20% blending of ethanol in petrol and 5% blending of biodiesel in diesel by 2030 with the announcement of new policy on Biofuels in 2018.

During the meeting between Hon'ble Prime Minister Shri Narendra Modi and President of Brazil in India in 2016, the two sides agreed to cooperate on research and development of renewable energies, as well as in the field of second-generation biofuels. In this regard, the MoU provides a framework to cooperate and promote investment in biofuel, bioelectricity and biogas supply-chains, including feedstock, industrial conversion, distribution and end use sectors. Few other salient features of the MoU include Exchange of information on agricultural practices and policies regarding biomass for bioenergy, including sugarcane, corn, rice, oil-crops, and lignocellulose crops; policies for reducing greenhouse gas emissions levels based on the use of biofuels, using cycle analysis and the issuance of emissions reduction certificates traded in an organized market; trade aspects and the promotion of a joint position to address market access and sustainability of biofuels, including advanced biofuels; Engine and fuel modifications / adjustments that may be necessary for different percentages of biofuels blended with fossil fuels.

- **Shri Dharmendra Pradhan experiences hydrogen fuel cell car**

Union Minister of Petroleum and Natural Gas and Steel, Shri Dharmendra Pradhan experienced the test drive of Hydrogen Fuel Cell based car manufactured by Toyota Kirloskar in Shri Dhyan Chand National Stadium on 5th December.

Shri Pradhan mentioned that in the rapidly evolving energy landscape, hydrogen offers an eco-friendly & innovative solution for sustainable & green transport fuel. He expressed happiness on learning that the only emission from this car is water. He further stated that hydrogen can be produced from various sources including biomass, renewables, LNG etc. and possesses high energy density and longtime storage. Calling for greater cost efficiency as the technology evolves, the minister said that while hydrogen and hybrid technologies are promising, the manufacturing cost of this high end technology still needs to be worked upon to make it more affordable in the Indian scenario.

Shri Pradhan also emphasized that it is imperative for auto makers to develop economical, innovative and sustainable solutions towards achieving greener and safer mobility ecosystem in the country. Talking about energy transition, and switching to cleaner fuel, he said, "India is undergoing energy transition and impacting global energy transition in a big way. We are exploring new sources of energy to create a sustainable and responsible model of energy transition. Switch to cleaner forms of energy will also contribute towards ensuring a cleaner environment for our people". The Minister also suggested to plan a workshop for brainstorming with experts and all stakeholders for a greater understanding of hydrogen technology in Indian context.

- **Year End Review -2019 of Ministry of Petroleum & Natural Gas : Several initiatives taken by Ministry of Petroleum and Natural Gas to address the priorities like Energy Access, Energy Efficiency, Energy Sustainability and Energy Security**

The Ministry of Petroleum & Natural Gas is concerned with exploration and production of Oil & Natural Gas, refining, distribution and marketing, import, export and conservation of petroleum products. Oil and Gas being the important import for our economy, many initiatives have been taken by the Ministry for increasing production and exploitation of all domestic petroleum resources to address the priorities like Energy Access, Energy Efficiency, Energy Sustainability and Energy Security.

Pradhan Mantri Ujjwala Yojana (PMUY)

With the objective to provide clean cooking fuel to poor households, especially in rural areas ensuring universal coverage of LPG as cooking gas in the country, the Government launched Pradhan Mantri Ujjwala Yojana (PMUY) in May 2016, with an initial target of 5 Crore. It was further revised to providing 8 Crore connections to an adult woman of poor households by March, 2020, which has already been achieved on 7th September, 2019 i.e. 7 months ahead of the target.

Reforms in Exploration and Licensing Policy

The Government notified 'Reforms in Exploration and Licensing Policy, for enhancing domestic exploration and production of oil and gas' on 28th February 2019, with the objective to intensify exploration activities, attract foreign and domestic investment and enhance domestic production. The salient features of Policy Reforms are as under:

- Shifting of focus from 'revenue' to 'production maximization'.
- No Revenue Sharing with Government in Category- II & III sedimentary basins.
- Boost to exploration activities by assigning greater weightage to exploration work programme.

- For unexplored areas in Category I basins, 70% weightage to Minimum Work Programme and 30% weightage to Revenue Sharing with a cap of 50% at Highest Revenue Sharing point (HRP); and
- For Category II and III sedimentary basins, 100% weightage for Minimum Work Programme.
- Shorter exploration period for early development.
- Fiscal concessions for early monetization and commercial production.
- Marketing and Pricing freedom for natural gas.

The policy envisages bidding out of 66 small and marginal producing nomination fields operated by National Oil Companies (NOCs) to have collaboration with private E&P players for inducting new and innovative technology, infusing fresh investment and best management practices to enhance production of oil and gas by adopting Enhanced Oil Recovery/Improved Oil Recovery (EOR/IOR) methods. NIO for bidding out 66 fields has been issued by ONGC and OIL in the last week of June 2019.

Promoting Ease of Doing Business:

- Simplified contractual terms with emphasis on cutting down
- approvals of Government/DGH/Management Committee and expeditious grant of approvals
- Setting up of Empowered Coordination Committee (ECC) under the chairmanship of Cabinet Secretary for expediting process of approvals.
- New Dispute Resolution Mechanism for amicable and speedy redressal of contractual dispute.
- Electronic Single Window mechanism based on IT workflow and processes for processing of approvals. Standard Operating procedures (SoPs) for grant of approvals under PSC have also been finalized.

Open Acreage Licensing Policy (OALP) Bidding Rounds

During the year 2019, 32 blocks covering approximately 59,000 sq.km area have been awarded under OALP bid Rounds II and III and 7 Blocks with an area of approximately 18500 sq.km have been awarded under OALP Bid Round-IV.

Petroleum Exploration Licenses

Central Government has already granted Petroleum Exploration Licenses (PELs) for all the offshore blocks and also recommended to all the concerned State Governments to grant PELs for all on-land blocks allocated under Hydrocarbon Exploration and Licensing Policy (HELP) regime.

National Seismic Programme

As on 30.11.2019, surface coverage of 41,902 Line Kilo Meter (LKM), out of 48,143 LKM has been achieved under NSP.

National Data Repository (NDR)

The NDR was established by the Government to assimilate, preserve and upkeep the vast amount of data which could be organized and regulated for use in future exploration and development, besides use by R&D and other educational institutions. The operation of NDR was formally launched on 28th June, 2017 in DGH Office, Noida. Total data uploaded in NDR till 30 November, 2019 is 2.30 million line kilometers of 2D Seismic Data, 0.78 million square kilometers of 3D Seismic data and 17588 exploratory wells. The data availability in NDR will help investors to carve out blocks for submission of expression of interest under OALP.

Monetization of New Exploration Licensing Policy (NELP) DISCOVERIES

42 (cumulative) NELP discoveries were monetized as on 31st October, 2019.

National Gas Grid

Government of India has identified the requirement of development of additional 15000 Km of Gas Pipeline and various pipeline sections to complete the Gas Grid. The statuses of new pipeline projects being implemented by Govt. PSUs which are part of National Gas Grid are as under:

Jagdishpur – Haldia&Bokaro – Dhamra Pipeline Project (JHBDPL): The 2655 km. pipeline project is being executed by GAIL at an investment of Rs.12,940 Cr., which includes 40% capital grant (i.e. Rs.5,176 Cr) from the Government of India and the project is scheduled to be completed progressively by December, 2020. JHBDPL will cater to the energy requirements of five states, namely Uttar Pradesh, Bihar, Jharkhand, Odisha and West Bengal.

Barauni to Guwahati Pipeline: Pipeline from Barauni to Guwahati is being implemented as an integral part of JHBDPL project to connect North East Region (NER) with the National Gas Grid. The approx. length of the pipeline is 729 km, having capacity of 2 to 2.5 MMSCMD with an estimated project cost of Rs. 3308 crores. Completion of the project is scheduled by December 2021.

North East Gas Grid: "Hydrocarbon Vision 2030 for North-East India" (Vision Document) released by MoP&NG on 09.2.2016 comprehensively examines the gaps in Natural Gas infrastructure and proposes Natural Gas pipeline grid in North-east region. Thus, a joint venture of five oil and gas CPSEs i.e. GAIL, IOCL, OIL, ONGC and NRL named as "Indradhanush Gas Grid Ltd" (IGGL) has been entrusted for the development of Natural Gas Pipeline Grid in North-East, i.e. North East Gas Grid (NEGG), in all North Eastern States i.e. Assam, Sikkim, Mizoram, Manipur, Arunachal Pradesh, Tripura, Nagaland and Meghalaya, in a phased manner at an estimated project cost of Rs. 9265 Crore. Further, a CCEA Note seeking Capital Grant required as Viability Gap Funding (VGF) to Indradhanush Gas Grid Limited (IGGL) for setting up the North East Natural Gas Pipeline Grid (NEGG) is under consideration.

Kochi-Koottanad- Bangalore-Mangalore (Ph-II) Pipeline Project (KKBMPL): The construction work to develop Kochi-Kottanad-Mangalore-Bangalore pipeline (KKBMPL) and Ennore-Thiruvallur-Bengluru-Puducherry-Nagapatinam-Madurai-Tuticorin Pipeline (ETBPNMT) in the southern part of the country is in progress. Efforts are underway for development of these pipeline project and provide accessibility of natural gas sources (domestic and imported both) to southern cities by connecting KKMBPL and ETBPNMT projects with the existing gas grid.

Promotion of LNG / CNG in Vehicles

As on October, 2019, about 55.17 lakh households are availing the benefit of domestic gas in the form of PNG for cooking purpose. Oil & Gas companies along with its Joint Venture/ subsidiary CGD companies have firmed up plans to expand the coverage of PNG network to achieve additional 1 Crore PNG households by 2024. The Government has given priority in allocation of domestic gas (the cheapest gas available in country) for supply to households in the form of Piped Natural Gas (PNG) (Domestic) and Transport segment in the form of Compressed Natural Gas (CNG) (Transport) across the country. City Gas Distribution (CGD) networks have been declared as a "Public utility" under Industrial Dispute Act (IDA) 1947. At present (October, 2019), 1838 CNG stations are making available CNG to meet the requirement of 34.54 Lakh CNG vehicles in the country.

Government is meeting 100% gas requirement of PNG (Domestic) and CNG (Transport) segment of the City Gas Distribution (CGD) networks across the country.

City Gas Distribution (CGD) Bidding

Petroleum and Natural Gas Regulatory Board (PNGRB) formed under the Petroleum and Natural Gas Regulatory Board Act, 2006, grants authorization for

setting up of City Gas Distribution (CGD) network in the cities / geographical areas of the country through open bidding process. Supply of domestic PNG to households, setting up of CNG stations for vehicles, providing PNG to small industries and commercial establishments can be carried out only by the authorized entity.

In 9th and 10th CGD Bidding Rounds, 86 and 50 Geographical Areas (GAs) have been authorized respectively. As per the commitment made by the various entities for the 50 GAs during 10thCGD Bidding Round, 2,02,92,760 domestic PNG (piped natural gas) connections and 3,578 CNG (compressed natural gas) stations for transport sector would be installed during a period of 8 years up to 31st March 2029, in addition to 58,177 inch-km of steel pipeline. After completion of 10th Round of CGD bidding, CGD would be available in 229 GAs comprising 407 districts spread over 27 States and Union Territories, covering approximately 70 percent of India’s population and 53 percent of its geographical area.

Ethanol Blended Petrol (EBP) Programme

Ethanol Supply Year (ESY) 2018-19, 188.57 Crore litre of Ethanol has been procured by OMCs for blending purpose. For ESY 2019-20, the Government has fixed an enhanced remunerative price for ethanol procurement, based on raw material utilized viz. for C heavy Molasses at Rs. 43.75/- per litre, for B heavy Molasses at Rs. 54.27 per litre, for sugarcane juice/ sugar/ sugar syrup at Rs. 59.48/- per litre and for Damaged Food grains at Rs. 47.63/- per litre. Sugar and sugar syrup have been allowed for the first time for ethanol production to support the industry in liquidating their excess stocks. Government has published a long-term ethanol procurement policy so that the industry can take a long-term view on fresh investments in this sector. The amended provisions of Industries (Development & Regulation) Act, giving control on production, movement and storage of ethanol to the Central Government, have now been implemented in 13 States.

Research, analysis & compilation by:

Economic Policy & Planning Team -FIPI

Email: prai@fipi.org.in , Kaushiki@fipi.org.in

Federation of Indian Petroleum Industry (FIPI)

PHD House, 3rd Floor, 4/2, Siri Institutional Area, August Kranti Marg, New Delhi – 110016
Website: www.fipi.org.in