OCTOBER 2019

POLICY & ECONOMIC REPORT OIL & GAS MARKET

FEDERATION OF INDIAN PETROLEUM INDUSTRY (FIPI)

Table of Contents

Economy in Focus 2
Oil & Gas Market 11
Crude oil price 11
Crude stabilizes in October 2019 12
Indian Basket Crude oil price 13
Upstream activity & Rig count 14
Oil demand & supply 16
Global petroleum product prices 16
Petroleum products consumption in India 18
Natural Gas Price 18
Natural gas production, consumption and import in India 20
Key developments in Oil & Gas sector during October 2019 21
Special Issue: Third Party Access- Reforms in Asian Gas Market 23

Policy & Economic report – Oil & Gas market

Economy in Focus

1. **Removing trade barriers and reducing geo-political tensions key to a robust growth: IMF**

A recent report by the International Monetary Fund (IMF) suggests that the US-China trade war will drag the world economy to its slowest pace since the 2008-2009 financial crisis. The report goes on to remark that the situation will only darken further if the trade disputes between the two countries remain unresolved.

IMF's latest World Economic Outlook projections show 2019 GDP growth at 3.0 per cent, down from 3.2 per cent in a July forecast, largely due to increasing fallout from global trade friction. The World Economic Outlook report spells out in sharp detail the economic difficulties caused by the U.S.-China tariffs, including direct costs, market turmoil, reduced investment and lower productivity due to supply chain disruptions.

The report underlined that by 2020, announced tariffs would reduce global economic output by 0.8 per cent, translating into a loss of $700 billion. The weakness in growth is driven by a sharp deterioration in manufacturing activity and global trade, with higher tariffs and prolonged trade policy uncertainty damaging investment and demand for capital goods. Services were still strong across much of the world, but there were some signs of softening in services in the United States and Europe. The report predicted that in 2020, global growth was set to pick up to 3.4% due to expectations of better performances in Brazil, Mexico, Russia, Saudi Arabia, and Turkey.

Investment, trade stall

The IMF report highlighted that foreign direct investment abroad by advanced economies came to "a virtual standstill" in 2018 after increasing in earlier years to average more than 3 per cent of global gross domestic product annually - or more than USD 1.8 trillion. It said that the USD 1.5 trillion between 2017 and 2018 reflected purely financial operations by large multinational corporations, including in response to changes in U.S. tax law. In the first half of 2019, global trade growth reached just 1 per cent. Trade growth was expected to rebound to 3.2 per cent in 2020, however risks remained "skewed to the downside," due to drag on both the U.S. and Chinese economies.

Tariff, reshoring losses

The report shows China's GDP output falling 2 per cent in the near term under the current tariff scenario and 1 per cent in the long term, while U.S. output would decline 0.6 per cent over both time spans. To

reinvigorate growth, policymakers must do away with the trade barriers put in place with durable agreements, reduce geopolitical tensions and remove domestic policy uncertainty.

2. Falling economic indicators in the US point towards a possible recession

The economic growth in the US has remained slow in the last month and will continue to remain soft over the next few months suggests index that measures the nation's economic health.

The leading economic index slipped 0.1 per cent in September and fell for the second month in a row. The index fell mostly because of weakness among American manufacturers, whose sales have suffered from sluggish exports and disruptions in their supply chains caused by the U.S. trade war with China. The narrowing spread between short-term and long-term U.S. interest rates, often a precursor to recession, was another negative.

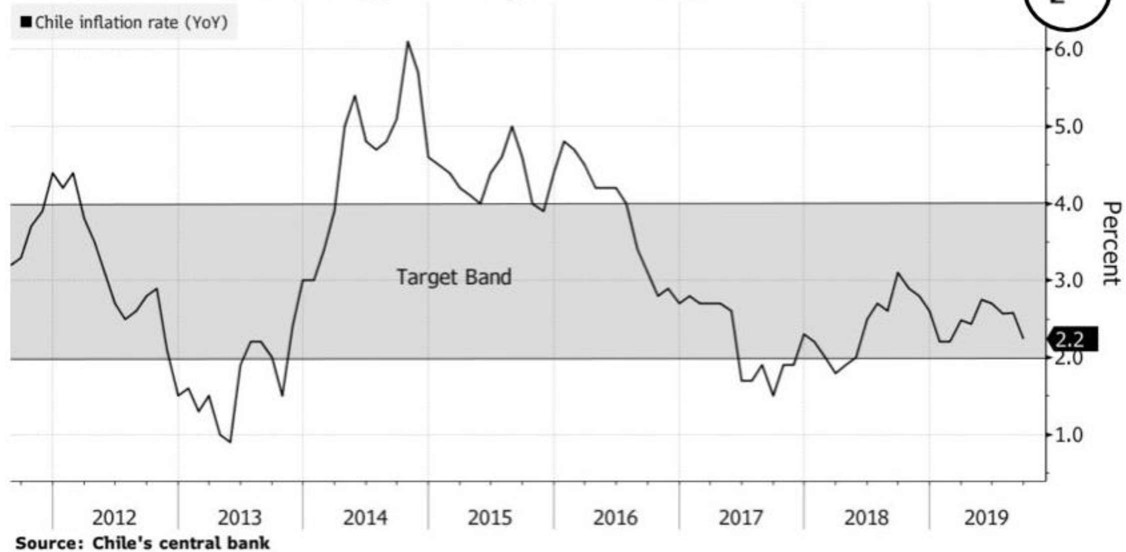
The U.S.-China trade war has hurt the world's two largest economies, with the damage radiating out to other countries around the world. The impasse over the U.K.'s exit from the European Union has added to the problems. The damage has been enough to push the U.S. and China to resume negotiations, but it's still unclear if there's enough consensus for the two countries to strike a deal. The spat is likely to remain a drag on the global economy until there's a sharp de-escalation in tensions.

3. Civil unrest in Chile over rising prices forces the Government to cut rates for the third time in five months

Chile's Central Bank revises its interest rates down for the third time in five months. It will require additional easing by the Government to handle the worst civil unrest in decades that threatens to slow economic growth of the country.

The bank's board, led by President Mario Marcel, cut the key rate by 25 basis points to 1.75 per cent. The board met after five days of clashes between protesters and security forces, which left at least 18 dead. Experts are of the opinion that as government bows to pressure for more social spending, the country will see some aggressive monetary policy in the near term along with an easier fiscal stance.

Weaker Chinese demand for the country's top export, copper, has dimmed the outlook for investment, and protests in cities across Chile this week creates further uncertainty for business and consumers, clouding the near-term outlook for economic growth.



In the medium term, the magnitude and speed of reconstruction, the impact on sentiment and the effects of the measures announced by the government will be important. The monetary authority lowered its rate by a half-point in June and again in September, joining the global wave of central banks seeking to cushion the effects of the U.S.-China trade war.

4. Full fiber broadband will provide a EUR 59 billion push to UK's economy

The rollout of full-fiber broadband across the UK is not just about boosting speeds, it could also boost the economy by a staggering EUR 59 billion. According to a new report from the Centre for Economics and Business Research (CEBR), a number of different scenarios for the potential impacts of a UK-wide full-fiber broadband network based on the impact that has already been seen in areas where the service is available.

The report suggests that over half a million people will be able to go back to work due to better connectivity and more than 400,000 people could work from home, allowing them to live and work anywhere; and 300 million commuting trips could be avoided each year, reducing traffic considerably and meaning three billion fewer kilometers being made by cars.

By allowing people to live and work wherever they choose, some 270,000 people could be "free" to move out of cities and into rural areas. This would help stimulate regional and rural economic growth as well as reduce congestion in cities. It could also lead to lower house prices as a result of less demand in concentrated areas.

Fewer car journeys means less traffic, which means a more productive workforce. The report equates this increase in productivity to EUR 1,800 per person. It also means fewer emissions, by an estimated 360,000 tonnes of carbon, which would additionally help to curb the effects of climate change.

5. In wake of looming recession, German Chancellor calls for greater cooperation in EU

Germany, The Eurozone's largest economy has slowed sharply in the past year as its traditional engine of growth - exports - bore the brunt of a global trade war. Production of cars, one of Germany's largest exports has fallen significantly over the last few months.

A recent report warns that this downturn has started to cast a shadow on the rest of economy, and early indicators currently provide few signs of a sustainable recovery in exports and a stabilization of the industry. The German economy declined 0.1 per cent in the three months.

Experts are of the opinion that Germany's first recession since 2013 is underway and the country is most likely to witness another quarter of negative economic growth. The 0.1 per cent fall in economy in the last quarter is though seen as very mild but has raised serious concerns amongst the economists.

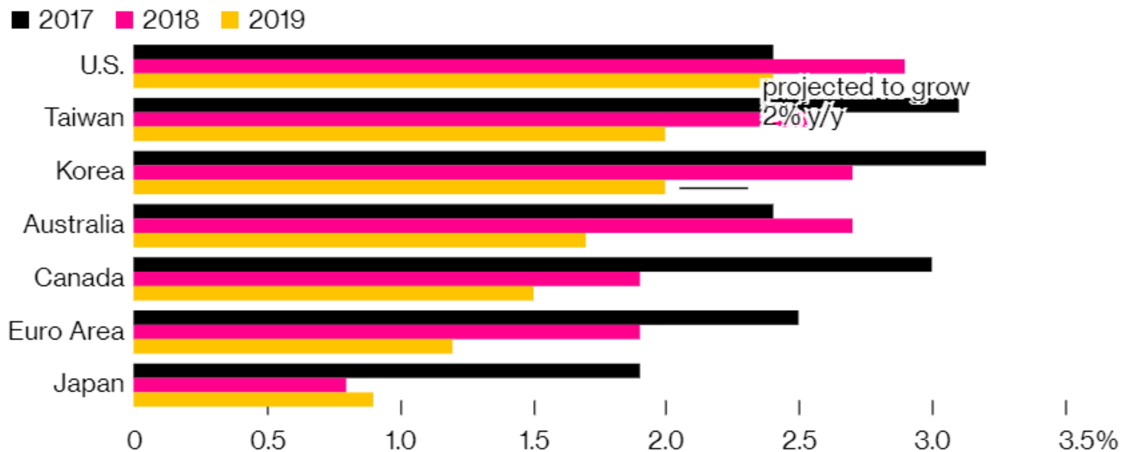
The chief reasons for downturn in the German economy remained Brexit and the ongoing trade war. The US has further threatened to impose extra tariffs on European-made cars, which would hit German makers such as BMW and Mercedes-Benz hard.

Taking account of the worsening situation, Ms. Angela Merkel has predicted that the UK will emerge as a major competitor to the EU after Brexit. She has further emphasized on the need for closer commercial cooperation between France and Germany to protect their interests.

6. South Korea's economy faces the heat of the ongoing US-China trade war

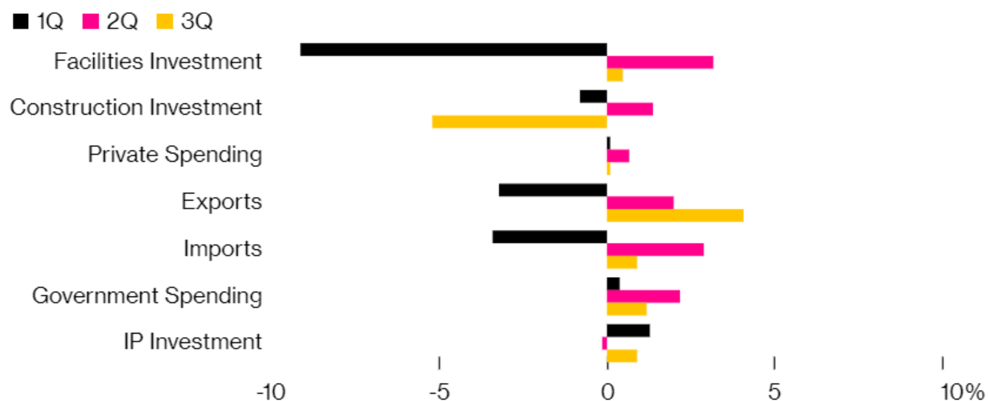
During the third quarter, South Korea's economy grew at a slower pace, putting posting the smallest expansion since the global financial crisis as trade uncertainties weigh on investment. GDP of the country increased by a mere 0.4 per cent in the last quarter, against an estimated 0.5 per cent.

During the last quarter, exports from the country improved from the sharp falls witnessed early this year. The extended run of export weakness and doubts about the strength of overall growth are weighing on investment. Rising concerns over weakening investment remained another reason for the Government and central bank to continue bolstering their support for the economy.



After the Bank of Korea's (BOK) decision to cut rates, it is expected that effects of the trade war would likely trim South Korea's economic growth by 0.4 percentage point this year. That leaves the economy needing a sharp acceleration in the last three months of 2019 to stop growth from falling below 2 per cent.

Korean exports grew by 4.1 per cent last year, indicating that weakness in the global tech sector may be over the worst.



With interest rates at a record low, Government's fiscal policy will have a crucial role to play in providing the much-needed fillip to the economy. The Governor, BOK has indicated there's no need for non-conventional policy support yet, though the central bank is looking at its options.

Earlier this month, President Moon Jae-in suggested that that an expansionary fiscal policy was essential over the coming year, given the economy's "grave situation" amid the spread of trade protectionism. The problem for Korea is that because its small economy is so open to global trends, the power of fiscal policy is more limited than in other less export-reliant economies.

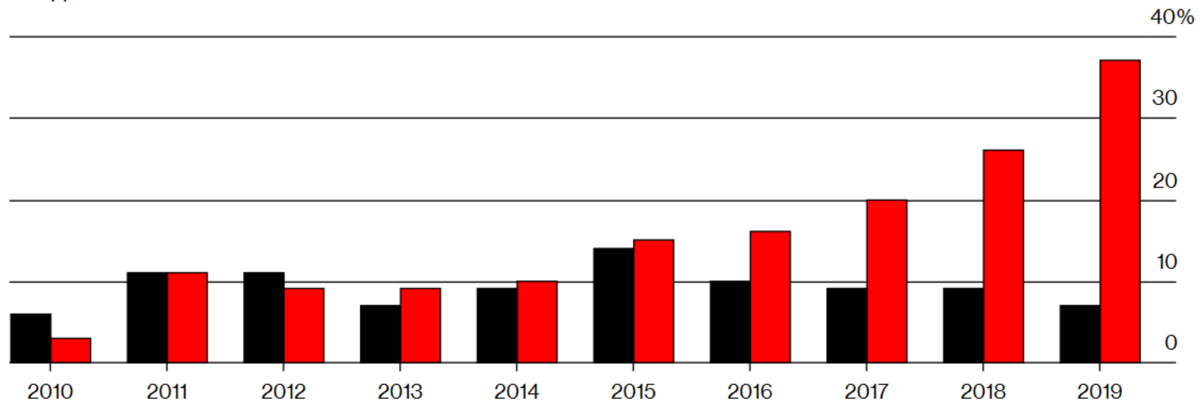
7. Rising patriotism pushes Chinese consumers to buy domestic brands

Patriotism has long been employed as a marketing pitch around the world, including in the U.S., where companies such as Walmart, American Apparel, and New Balance used "Made in America" labels as symbols of quality. China has famously kept American tech and financial companies away to promote indigenous brands. However, American products such as Western fashion, car, beauty, food, and other consumer brands were mostly exempted from restrictions on selling in China and many Chinese elite saw it as status symbols.

However, in wake of the ongoing trade war between the US and China, patriotism has taken center stage in China and many social media websites have been appealing Chinese nationals to only purchase products made in China over American products. The U.S. sold almost $120 billion in goods to China in 2018, making it the country's third-largest export market after Canada and Mexico. Many American multi-nationals had pinned their hopes on attracting shoppers in the world's most populous country.

Some American companies are now bothered that a preference for buying Chinese products could lead to an all-out boycott of American goods, as had happened when the Chinese Government had banned Chinese nationals to buy South Korean goods in 2016.

Many Chinese brands now perform at the same level as their western counter parts. Quality gains and an increase in advertisement budget have made the Chinese brands popular with the masses now. With amplified national pride and local heroes pushing for Chinese products, Chinese people are increasingly inclined towards buying domestic brands. In 2019, Chinese companies such as Huawei and drone maker SZ DJI Technology Co. edged out once-untouchable American companies like Apple and Nike from the list of China's 10 most favorite brands, according to Prophet's annual survey of 13,500 consumers. Local names made up half of the top 50 brands in 2019, compared with just 18 three years earlier, with Alipay, Alibaba Group Holding Ltd.'s payment service, and Huawei taking the top two spots.

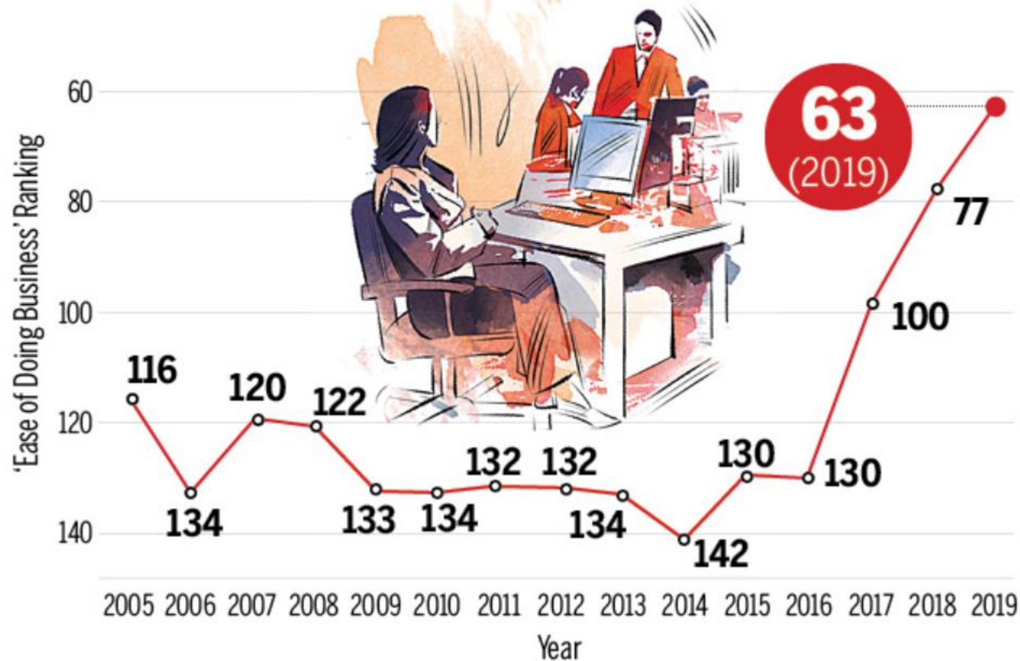


Alibaba's popular shopping site Tmall says noticed a jump in sales of domestic brands around China's National Day, thanks to what it called "a wave of patriotism" tied to the 70th anniversary of the founding of the People's Republic of China. The retail site says 8 of its 10 highest-grossing beauty brands came from China.

8. Riding on Government's policy interventions, India jumps 14 positions in IMF's EoDB rankings

In the recently released World Bank's Ease of Doing Business (EoDB) 2020 survey, India has jumped 14 places over its last years ranking to occupy the 63rd position among 190 countries, making it the one of world's top 10 most improved countries for the third consecutive time. Over the last six years, India's ranking in the list has improved 79 places from 142nd in 2014 to 63th in 2019.

The latest IMF rankings have come at a time when the Reserve Bank of India (RBI), World Bank, IMF and various rating agencies have slashed India's growth forecasts amongst a growth slow-down in the economy.



Source: Times of India

For three years in a row, India has featured among the list of top countries in doing business, a feat that very few countries have achieved in over last 20 years. Other countries featuring on the top ten performers list are Saudi Arabia (62), Jordan (75), Togo (97), Bahrain (43), Tajikistan (106); Pakistan (108); Kuwait (83); China (31) and Nigeria (131).

IMF in its report has mentioned success of 'Make in India' campaign that is aimed at attracting foreign investment and boosting the power sector along with an enhancement of the country's overall competitiveness remained the chief reasons for the country's spectacular performance. Another major reason for improvement in India's ranking was the successful implementation of the insolvency and bankruptcy code.

The ten top ranking countries with respect to the indicator were: New Zealand, Singapore, Hong Kong SAR China, Denmark, Republic of Korea, United States, Georgia, United Kingdom, Norway, and Sweden.

9. IMF forecasts for rebound of Indian economy by late FY'20

In a recent report, International Monetary Fund (IMF) has suggested that the Indian economy will rebound to about 7 per cent growth in the next financial year, supported by measures like monetary policy stimulus and corporate income tax cuts.

The report further suggests that recent tax cuts, government's progress in addressing lingering weaknesses in the financial sector and measures to support growth sectors will remain key to fuel growth of the country.

The report points out that there wasn't a single cause for the slowdown but many different causes at work including corporate and regulatory environmental uncertainties, the stresses in the non-bank financial sector, (and) stresses in the rural sector, among others.

The IMF report further mentioned that India's success in the service sector has been especially remarkable as its share of the world's information and communication technologies service exports almost tripled in a decade, from 6.3 per cent in 2000 to 17.8 per cent in 2010, recording the largest increase globally for the sector.

10. Fall in credit growth rate raises serious concerns for the already slowing economy

Latest data from the Reserve Bank of India indicates that the credit growth in Indian banks has dropped to its lowest level in nearly two years as slowing domestic consumption weighs on demand. This further adds to the challenges the Government is facing as India's GDP growth has slowed down to the lowest in two years.

Lending growth by banks have nearly halved to 8.8 per cent at the end-September from the start of the year. The RBI data includes all banks in India, which is dominated by state-run lenders Bank of Baroda, Punjab National Bank and Union Bank of India as well as private ones such as HDFC Bank and ICICI Bank. In the past few months, growth has been driven by retail lending while banks are taking a more cautious approach on consumer loans.

Another report published by a renowned rating agency predicts "further moderation" retail lending in 2020, given the consumption slowdown across segments including housing and auto. Even unsecured loans such as credit cards, education loan and other personal loan has witnessed a moderate growth in the last few months.

The country's lending problem has been compounded due to the lack of liquidity in the shadow banking sector last year after the collapse of infrastructure lending group IL&FS. While some major non-banking financial companies (NBFCs) have been going slow on lending, others stopped completely. However, Indian banks are not using this opportunity to win market share from NBFCs, which accounted for accounted for 30 per cent of auto loans and more than 40 per cent of home loans.

The weak growth in lending comes at a time when banks have been cutting interest rates and making it cheaper to borrow. In 2019, the RBI has already reduced repo rates by 135 basis points. Even though banks have not matched this, the pace of cuts has picked up in the last few months. A high credit-deposit ratio has been one of the key reasons why banks have struggled to cut interest rates. But with credit growth falling faster than deposit growth, banks may have a bit more room to transmit rate cuts.

In order to push banks to pass the benefits of the rate cut to customers, RBI has required them to link all loans to an external benchmark such as the repo rate since the start of this month. While this is expected to push rates down, economists are not sure this will help spur credit demand.

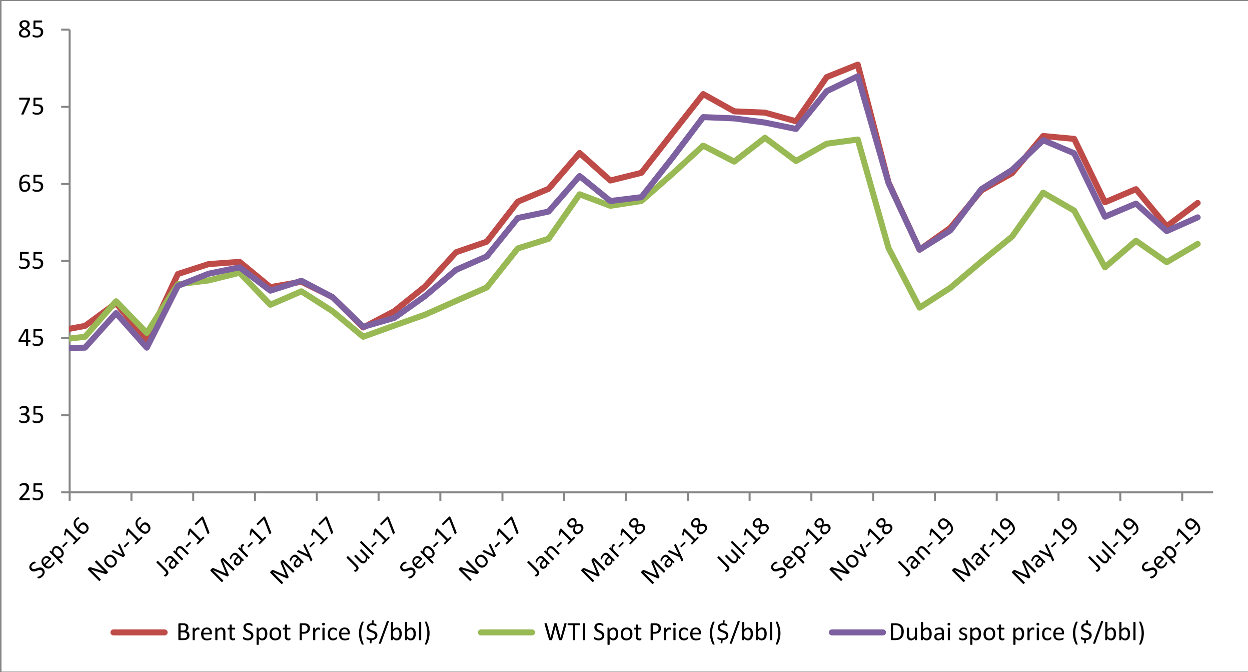
Oil & Gas Market

Crude oil price

Crude prices look stabilized in the first two weeks of September. However, drone attacks on Saudi Arabia's production facility in the mid of September triggered the crude price to rise by around 11%. Disruption in crude supply by about 5% outweighed the demand and crude prices saw a record percentage increase in 2 days of time. With Saudi Arabia, recovering its production oil prices began to cool down and reduced on the lines of decline in forecasted demand.

Average Brent, WTI and Dubai basket crude prices went down by 5.11 %, 4.36 % and 3.04 % respectively from the prices in the month of August.

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



Source: WORLD BANK

- Brent crude price averaged $62.54 per bbl in September 2019, and was up 5.11 % and down 20.69 % on a month on month (MoM) and year on year (YoY) basis, respectively.
- WTI crude price averaged $ 57.23 per bbl in September 2019, and was up 4.36 % and down 18.49 % on a month on month (MoM) and year on year (YoY) basis, respectively.
- Dubai crude price averaged $60.67 per bbl in September 2019, and was up 3.04 % and down 21.23% on a month on month (MoM) and year on year (YoY) basis, respectively.

Table 1: Crude oil price in September, 2019

Crude oil	Price ($/bbl) in September 2019	MoM (%) change	YoY (%) change
Brent	62.54	5.11 %	- 20.69%
WTI	57.23	4.36 %	- 18.49%
Dubai	60.67	3.04 %	- 21.23%

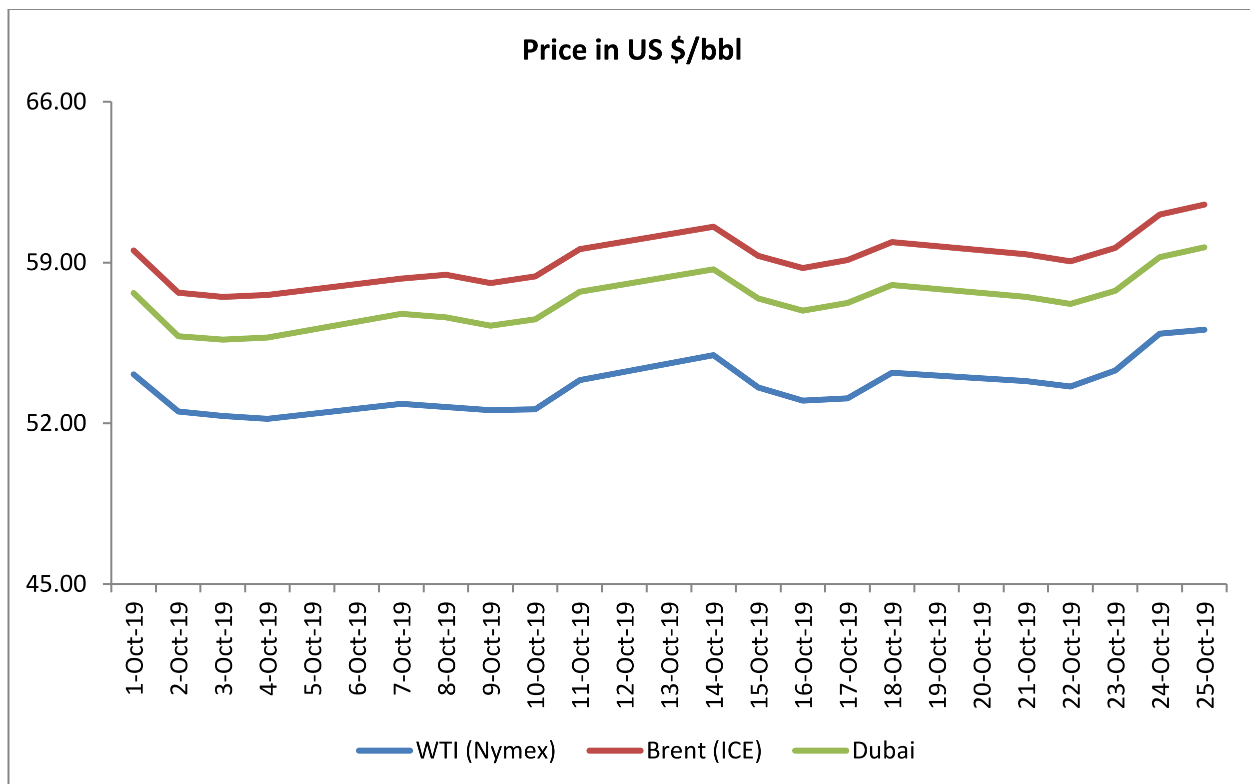
- *Source: WORLD BANK*

Crude stabilizes in October 2019

Crude prices stayed stabilized throughout the month of October. Crude prices cooled off from the peak caused by the supply impact in Saudi Arabia. Restoration of Saudi oil production coupled with trade war between the US and China kept the crude prices under control. Market recovered from the supply shortage to supply surplus.

Average Brent, WTI and Dubai basket crude prices went down by 5.45 %, 6.36 % and 5.59 % respectively from the prices in the month of September.

Figure 2: Crude oil price in October 2019

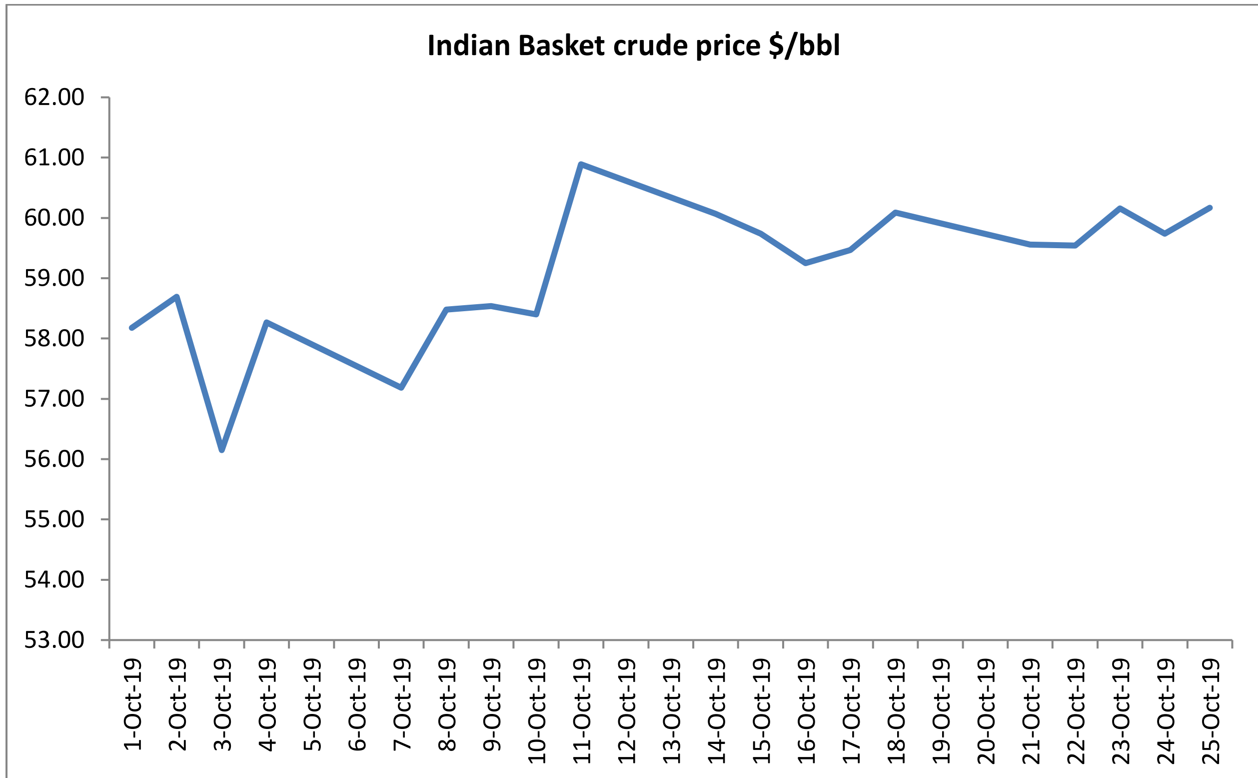


Source: EIA

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

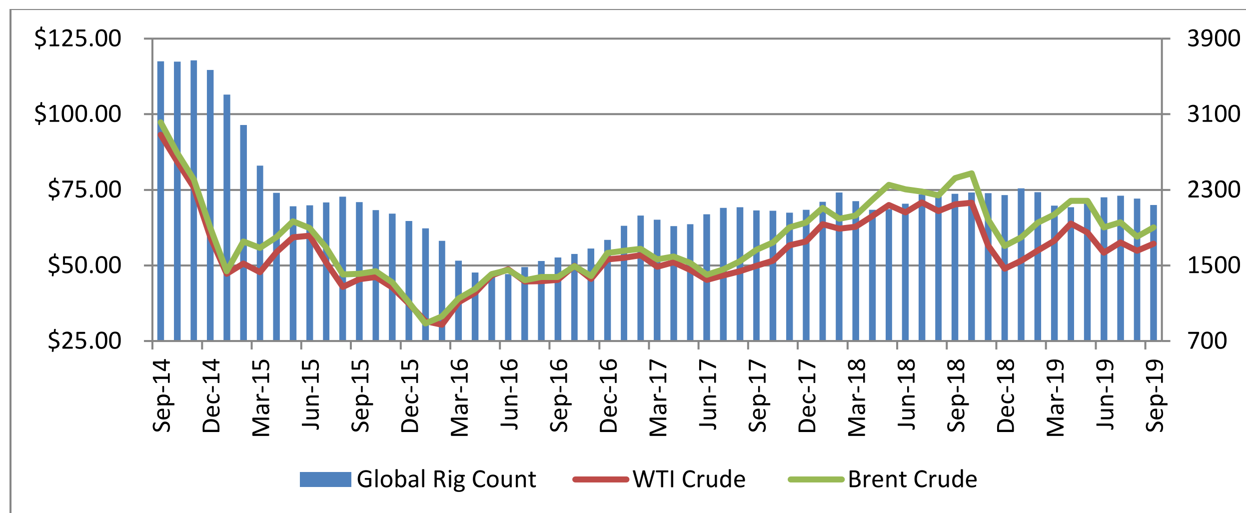
- Indian crude basket price averaged $ 59.08 per barrel in October, down by 3.89 % on Month on Month (M-o-M) basis and down 26.22 % on a year on year (Y-o-Y) basis, respectively.

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

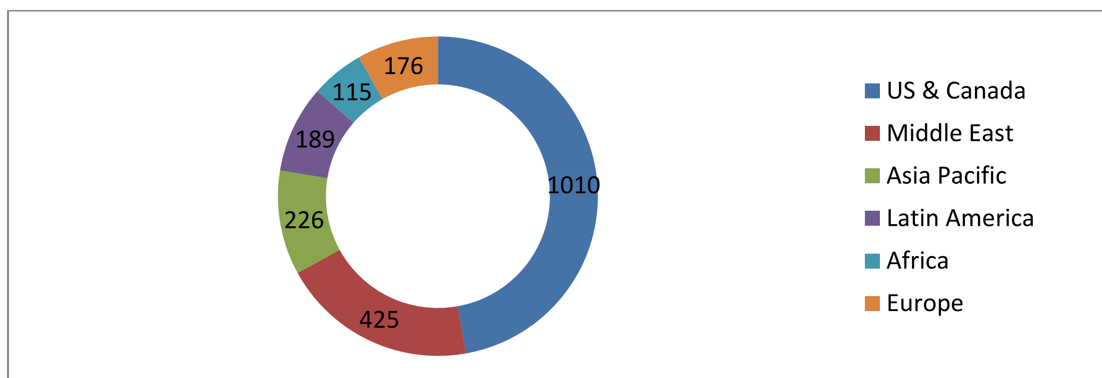
In September 2019, global drilling rig count stood at 2,141, 65 less than August. Onshore rig count declined by 61 and offshore rig count went down by 4. Rig count saw a marginal increase in Asia Pacific, Middle East, while rig count declined in other areas. United States is the most active market for drilling industry with a rig count of 878. 852 were onshore rigs and 26 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 September 2019	MoM (%) change	YoY (%) change
Land	1872	-3.16 %	-7.87 %
Offshore	269	- 1.47 %	19.03 %
Total	2141	-2.95 %	-5.18 %

Source: Baker Hughes

Figure 5 Geography-wise Rig count - September 2019



Source: Baker Hughes

Indian Drilling Rig Count

Indian rig count remained unchanged in the month of September 2019. On Y-O-Y basis, Indian rig count declined by 10 % in 2019 as compared to September 2018. 88 were onshore rigs and the rest 20 were offshore rigs.

Figure 6 Indian Rig Count vs. Indian Basket Crude Price

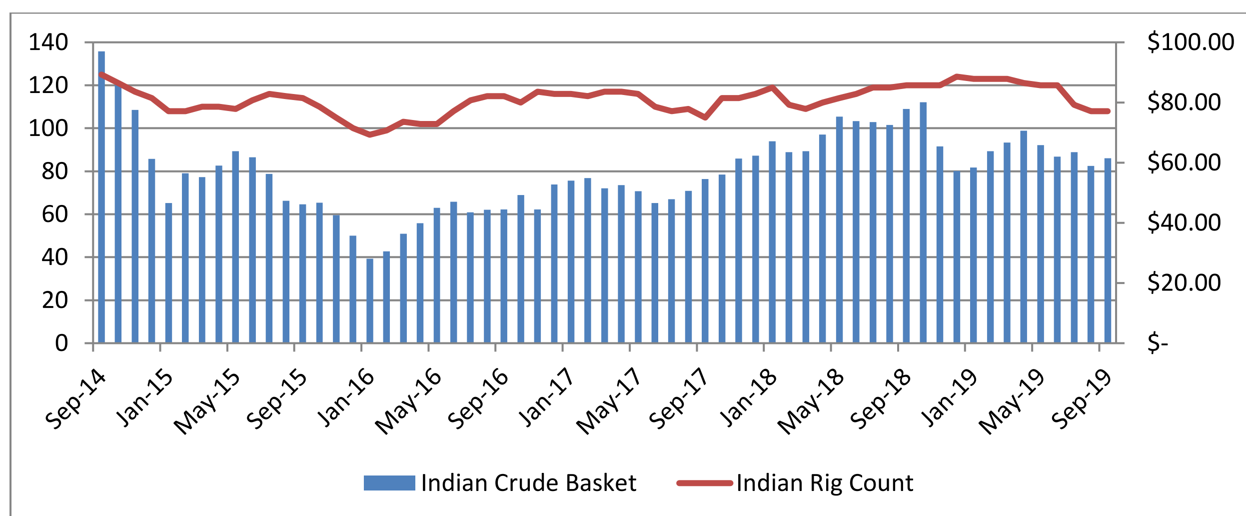


Table 3 : Indian Rig Count

Rig Type	Count in September 2019	MoM (%) change	YoY (%) change
Land	88	0	-13.73 %
Offshore	20	0	11.11 %
Total	108	0	-10.00 %

Source: Baker Hughes

Oil demand & supply

Preliminary data indicates that global oil supply decreased by 1.77 mb/d m-o-m to average 97.32 mb/d in September 2019, compared with the previous month. Non-OPEC supply (including OPEC NGLs) decreased by 0.45 mb/d m-o-m to average 68.83 mb/d in September. The decline was mainly driven by Canada, Norway, Kazakhstan, Russia and OPEC NGLs. The share of OPEC crude oil in total global production declined by 0.8% to 29.3% in September 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 was revised down by 0.16 mb/d to reach 1.82 mb/d y-o-y, primarily due to downward revision in oil production in the US, Norway and the UK, which outpaced upwards revision in Kazakhstan and China.

In 2019, world oil demand is anticipated to grow by 0.98 mb/d y-o-y, with total world consumption to reach 99.88 mb/d and 100.88 mb/d in 2020

Table 4: World Oil demand in mbpd

	2018	1Q19	2Q19	3Q19	4Q19	2019	Growth	%
Total OECD	**47.93**	**47.55**	**47.42**	**48.50**	**48.44**	**47.98**	**0.05**	**0.11**
Dev. Countries	**32.62**	**32.97**	**32.87**	**33.44**	**33.07**	**33.09**	**0.47**	**1.44**
~ of which India	*4.73*	*5.03*	*4.75*	*4.57*	*5.14*	*4.87*	*0.14*	*3.00*
Other regions	**18.27**	**18.13**	**18.64**	**18.75**	**19.38**	**18.73**	**0.45**	**2.49**
~ of which China	12.71	12.63	13.19	12.98	13.43	13.06	0.35	2.73
Total world	**98.82**	**98.65**	**98.93**	**100.70**	**100.89**	**99.80**	**0.98**	**0.99**

Source: OPEC monthly report, October 2019

*Note: *2018 = Estimate and 2019 Forecast*

Global petroleum product prices

Prices in the Asian Gasoline-92 market saw an increase in price by 4.5% over the previous month. As refineries returned from peak maintenance season, it led to increase in output. Refinery margins in September stood at $6.82/b, higher by $2.13 on m-o-m and by 50 ȼ on y-o-y basis.

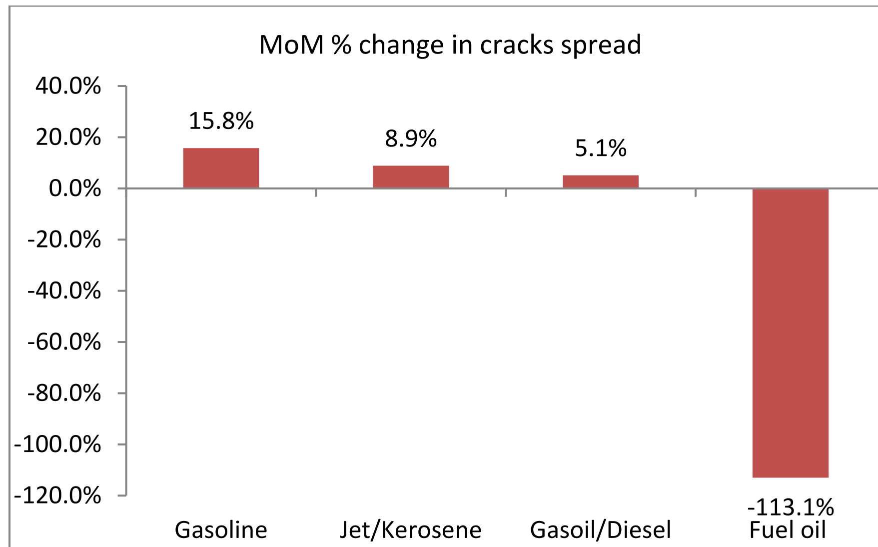
Singapore Gasoline cracks averaged $8.44/b against Oman, up by 77 ȼ m-o-m but down by $1.85 y-o-y. Refinery utilization rates rose in September averaging 91.83 % in selected Asian markets comprising of Japan, China, India and Singapore.

Jet/Kerosene prices increases by 4.3 % in September as the demand of kerosene for heating purpose kicked up. The Singapore jet/kerosene crack spread against Oman averaged $16.64/b, up by 95 ȼ m-o-m and $2.11 y-o-y.

The Singapore gasoil crack spread moved slightly upwards in the month of September on the back of sizeable refinery maintenance activity in Europe and lower diesel output from Russia. In September, gasoil

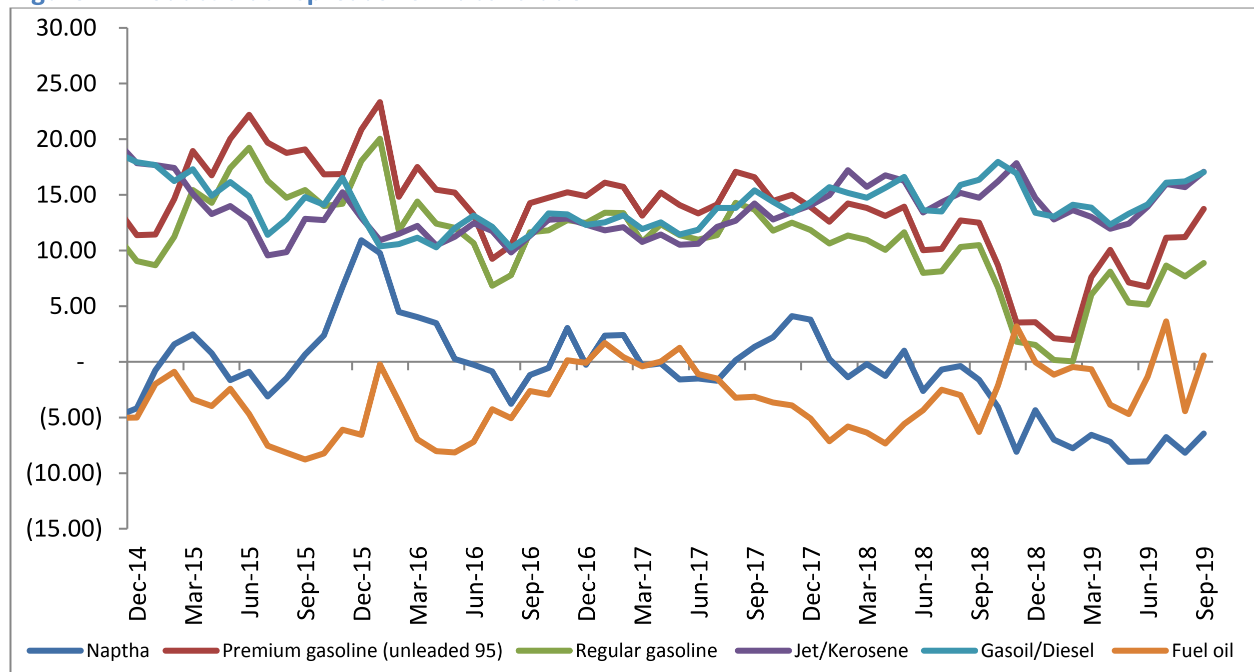
price went up by 3.5%. Singapore gasoil crack spread against Oman averaged $16.59/b, up 39 ¢ m-o-m and by 43 ¢ y-o-y.

The Singapore fuel oil crack spread reversed trend and rebounded from the low recorded in the previous month supported by strong draws. Singapore fuel oil cracks against Oman averaged 14¢/b up by $4.58 m-o-m and by $6.64 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 September 2019	MoM (%) change	YoY (%) change
Naptha	**54.21**	6.9%	-28.1%
Premium gasoline (unleaded 95)	**74.4**	6.2%	-16.9%
Regular gasoline (unleaded 92)	**69.55**	4.5%	-20.5%
Jet/Kerosene	**77.75**	4.3%	-15.3%
Gasoil/Diesel (50 ppm)	**77.7**	3.5%	-16.8%
Fuel oil (180 cst 2.0% S)	**61.25**	12.5%	-13.4%
Fuel oil (380 cst 3.5% S)	**61.34**	14.2%	-13.0%

Source: OPEC

Petroleum products consumption in India

- September month saw a decline in demand for all major fuels in the country
- In September, LPG consumption decreased by 8.1 % on M-o-M basis.
- Consumption of gasoline increased (6.2 % Y-o-Y) driven by higher demand from transport segment.
- Demand for diesel declined by 3.3 % on Y-o-Y basis in the month of September

Table 6: Petroleum products consumption in India, September 2019

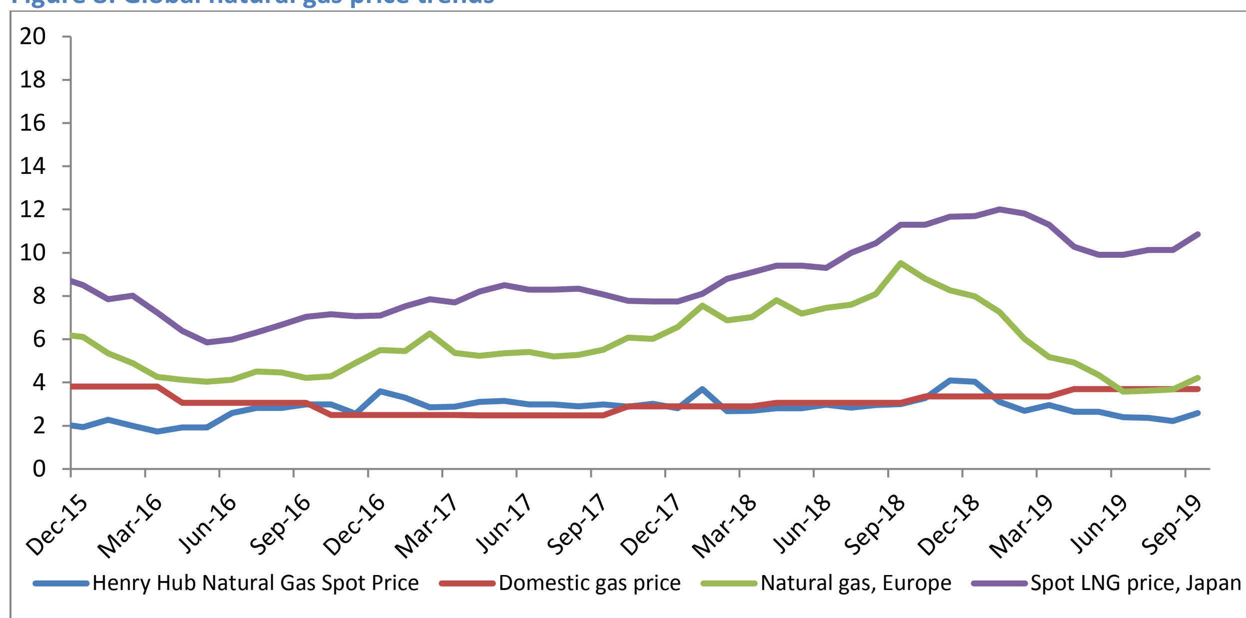
Petroleum products	Consumption in '000 MT September 2019	MoM (%) change	YoY (%) change
LPG	2,183	-8.9%	6.1%
Naphtha	844	-26.6%	-25.6%
MS	2,372	-7.9%	6.2%
ATF	666	-2.3%	0.3%
HSD	5,830	-4.7%	-3.3%
LDO	60	-4.9%	38.8%
Lubricants & Greases	333	5.2%	-5.0%
FO & LSHS	525	5.8%	-6.2%
Bitumen	343	32.0%	-13.4%
Petroleum coke	1,736	-2.8%	-13.2%
Others	943	-3.4%	19.9%
TOTAL	16,011	-6.1%	-3.2%

Source: PPAC

Natural Gas Price

In September, natural gas price at the Henry Hub increased by 16.2% to reach $2.58/MMBtu. Increase in demand for natural gas due to heating needs and decline in gas stockpile during the same period across the United States led to increase in natural gas price.

Figure 8: Global natural gas price trends



Source: EIA, WORLD BANK

Table 7: Gas price

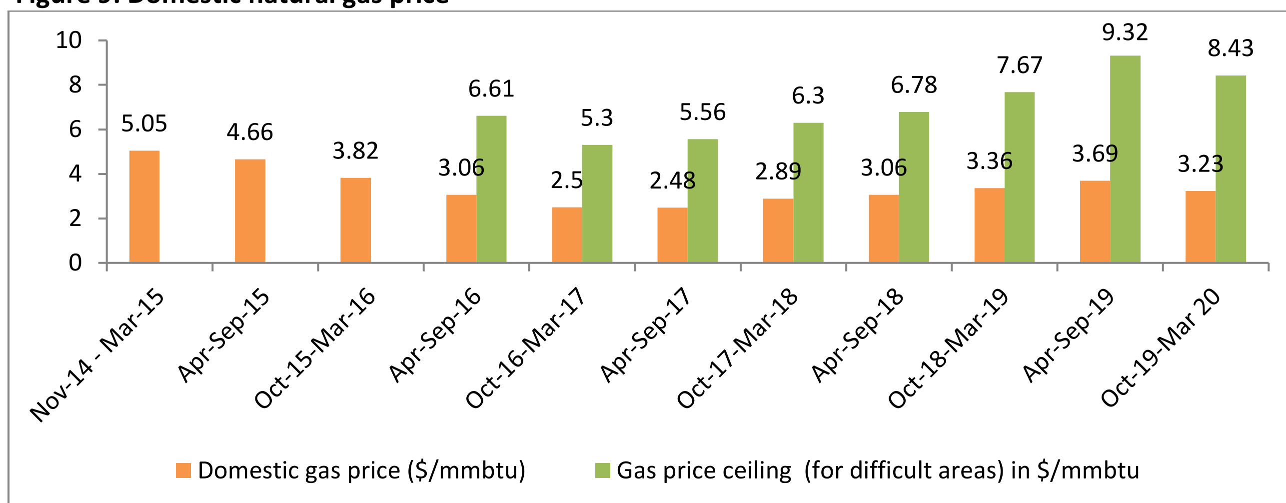
Natural Gas	Price ($/MMBTU) in September 2019	MoM (%) change	YoY (%) change
India, Domestic gas price	3.23*	0.0 %	20.6%
India, Gas price ceiling – difficult areas	8.43*	0.0 %	37.5%
Henry Hub	2.58	16.2%	-14.0%
Natural Gas, Europe	4.21	14.4%	-55.8%
Liquefied Natural Gas, Japan (Long Term Contract, not Spot Market)	10.86	7.2%	-3.9%

*Source: EIA, PPAC, World Bank, * October 2019 to March 2020*

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 April to September 2019 period, the price of gas from such areas has been notified at $9.32 per MMBTU.

Figure 9: Domestic natural gas price

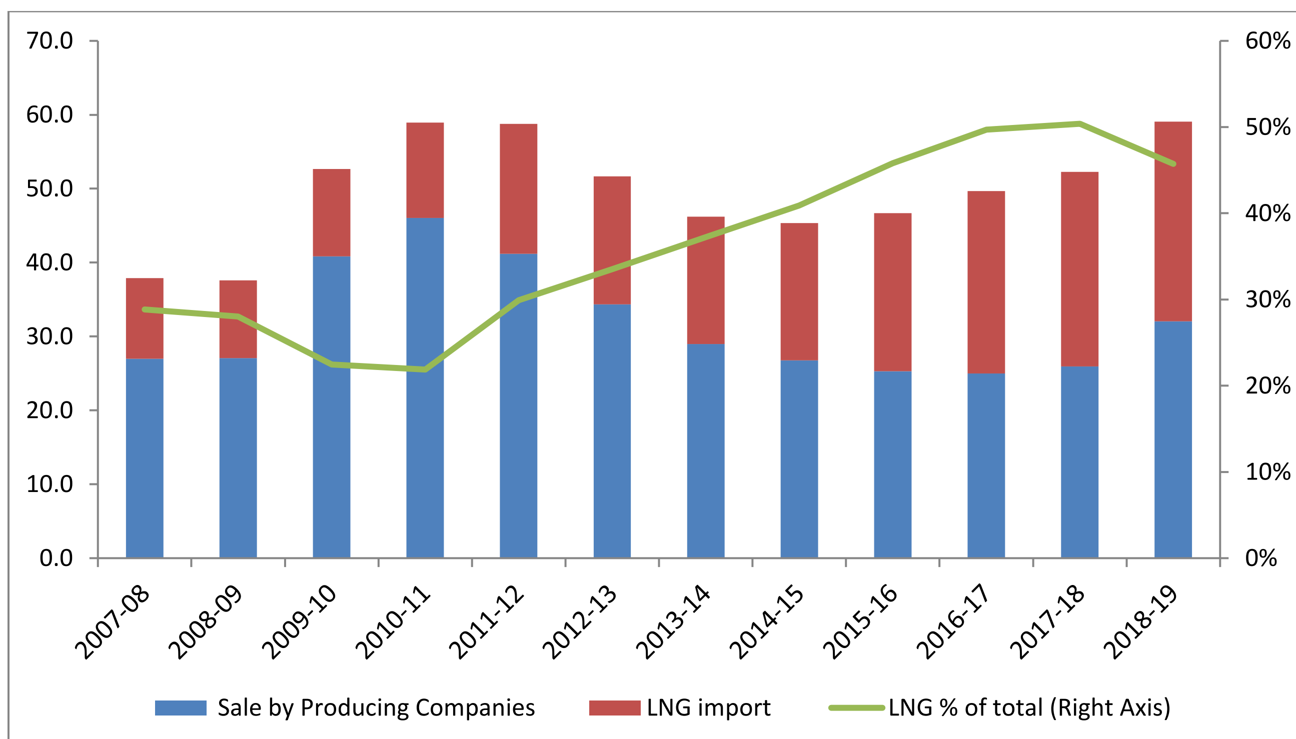


Source: PPAC

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 October 2019

- ### Monthly Production Report for September

Crude oil production during September, 2019 was 2646.51 TMT which is 7.09% lower than target and 5.41% lower when compared with September 2018. Cumulative crude oil production during April-September, 2019 was 16372.02 TMT which is 4.52% and 5.96% lower than target for the period and production during corresponding period of last year respectively.

Natural gas production during September, 2019 was 2568.11 MMSCM which is 8.77% lower than the monthly target and 4.31% lower when compared with September, 2018. Cumulative natural gas production during April-September, 2019 was 16005.11 MMSCM which is 6.03% and 1.53% lower than target for the period and production during corresponding period of last year respectively.

Refinery production during September, 2019 was 19414.84 TMT which is 0.80% lower than the target for the month and 6.89% lower when compared with September, 2018. Cumulative production during April-September, 2019 was 125728.11 TMT which is 0.73% lower than the target for the period and 2.28% lower than the production during corresponding period of last year

- ### CCEA approves Review of Guidelines for Granting Authorization to market Transportation Fuels

On October 23rd, The Cabinet Committee on Economic Affairs (CCEA) chaired by Prime Minister Narendra Modi has approved the Review of Guidelines for Granting Authorization to market Transportation Fuels. This marks a major reform of the guidelines for marketing of petrol and diesel.

The existing policy for granting authorization to market transportation fuels had not undergone any changes for the last 17 years since 2002. It has now been revised to bring it in line with the changing market dynamics and with a view to encourage investment from private players, including foreign players, in this sector. The new Policy will give a fillip to 'Ease of Doing Business', with transparent policy guidelines. It will boost direct and indirect employment in the sector. Setting up of more retail outlets (ROs) will result in better competition and better services for consumers.

- ### India will lead global energy transition, says Shri Dharmendra Pradhan

The India Ministerial Dialogue was held at third India Energy Forum by CERA Week on 15th October in which Shri Dharmendra Pradhan, Minister of Petroleum and Natural Gas and Steel, Shri Piyush Goyal, Minister of Railways and Commerce & Industry, Shri Pralhad Joshi, Minister of Coal, Mines and Parliamentary Affairs, and Shri R.K. Singh, Minister of State (I/C) of Power and New & Renewable Energy and Minister of State, Skill Development and Entrepreneurship participated.

In his welcome address, Minister of Petroleum &Natural Gas& Steel Shri Dharmendra Pradhan said that the presence of ministers at the Forum is a testimony to the high importance that the Government accords to the India's energy sector in a dynamic global energy landscape. He said "Hon'ble Prime Minister has given us a target to transform the Indian economy to a 5 trillion dollar in the next five years. We are

making concerted efforts and taking all necessary steps to make this a reality. Energy sector will be fueling India's journey towards this stated goal of a 5 trillion-dollar economy.

Shri Pradhan said that given its huge energy appetite and growth potential, India will be the key driver of global energy demand in the coming decades – in fact, it will experience the fastest growth in energy consumption among all large economies. To meet this huge demand, India would need a healthy mix of all commercially viable energy sources. India will chart its own course of energy transition in a responsible manner and would greatly influence global energy transition. Giving a glimpse of India's path of energy transition, he said that the share of renewables in electricity capacity has significantly gone up now to 22% from around 10% in 2014-15. Secondly, the ethanol blending percentage has risen from 0.67% in 2012-13 to now close to 6%. Finally, more than 95% households now have access to LPG, making their kitchens smoke free.

- **India Signs new deal with Saudi Arabia on energy security**

India's energy partnership with the world's biggest oil producer that will enable energy security in the long term took a leap forward on Tuesday with a bilateral deal to build emergency crude reserves as a buffer against volatility in oil prices and supply disruptions for Asia's third largest economy.

Indian Strategic Petroleum Reserves Limited signed an agreement with Saudi Aramco to lease part of the 2.5 million-tonne Padur storage in Karnataka. India has already built 5.33 million tons of underground reserves in three locations, which can meet about 10 days of the country's oil needs. Delhi plans two new reserves with a combined capacity of 6.5 million tons, sufficient to cover for an additional 12 days.

The deal with the state-run Saudi Aramco was signed on the occasion of the visit of PM Narendra Modi. UAE has also contributed to the petroleum strategic reserves in India. The deal on strategic oil reserves was not the only outcome. The Middle East unit of India's top refiner and fuel retailer, Indian Oil Corp, signed a preliminary deal with Saudi Arabia's Al Jeri Transport Company for cooperation in the downstream sector, including setting up fuel stations in the kingdom.

Special Issue: Third Party Access- Reforms in Asian Gas Market

Introduction

"Third Party access" (TPA) or "Open access" is a key part of market reform as it in principle, allows more gas and LNG suppliers, distributors and retailers to gain access to pipeline and regasification terminal capacity on equal and transparent terms. A number of countries in Asia have implemented, or are in the process of implementing, wide-reaching reform of their domestic natural gas markets.

Third party access

TPA can be either regulated or fully negotiated in a voluntary environment. The terms and conditions of TPA are set by way of a tariff that is established and published by the facility operator, and can occur voluntarily or may arise out of a regulatory requirement.

The concept of TPA is that the owner of gas import and/or transportation infrastructure, or the owner of the right to use that infrastructure, must make capacity in that infrastructure available to third party users in return for a fee or tariff. An infrastructure owner may do this voluntarily, if it has available capacity and simply wants to earn a tariff from that capacity. Alternatively, the owner may be required by law to open up capacity to other, third party users who have no ownership interest in the infrastructure.

A regulated TPA regime leads to more widespread infrastructure usage, as well as greater competition and the diversification of gas supply for downstream customers.

The European Union (EU) as a benchmark

By far, the most sophisticated TPA regime around the world is found in Europe, where TPA was first introduced in 1996 in Spain. EU introduced "**Third Energy Package**" a mandatory TPA requirement that is imposed on gas transmission and distribution systems, LNG facilities as well as storage facilities. The TPA requirements of the Third Energy Package were geared towards increasing competition, transparency and requiring capacity-related services to be offered on a non-discriminatory basis across the EU.

The Gas Regulation and its progeny of additional regulations and EU Commission decisions address tariffs, services to be provided, balancing systems, secondary trading markets, and the conduct of auctions for capacity allocation. Operators may refuse TPA where it can demonstrate lack of capacity or where it would experience financial difficulty with existing take-or-pay arrangements in place. An exemption may be sought for new gas projects for a limited time, which may be granted if the proponent can show that the investment would not be made in the absence of the exemption.

Different countries often have different policy objectives when considering gas market reforms. Therefore, it is important to frame the relevant TPA regulations around the specific policy requirements of each market. Although, there is no "one size fits all" solution, the EU TPA regime may serve as a useful reference point, particularly in terms of TPA implementation and enactment measures for Indian gas market reforms.

Third party access in Asia

In Asia, regulatory TPA has the most visibility in Japan, Malaysia, Thailand and Singapore, while India has a program that is applied on a step-by-step basis. In contrast, Korea, which is the world's third largest LNG importer, has no TPA regime at all.

India:

GAIL has launched an online portal in 2018 for open access in GAIL's natural gas pipelines which currently owns & operates about 11,400 Kms. of natural gas pipeline network with around 75% of market share in Natural Gas Transmission within country. Petroleum and Natural Gas Regulatory Board (PNGRB) has issued draft regulations for third party access to distribution networks and for establishing & operating Liquefied Natural Gas (LNG) terminals. The proposed rules for LNG terminals stipulate that any company wishing to establish an LNG import terminal will have to offer 20% of its short-term regasification capacity or 0.5 mmtpa, whichever is larger, as 'common carrier', or TPA, capacity. Going forward, this would allow third-party access to the terminal, enabling companies to import their own LNG volumes.

Japan:

Japan has insignificant indigenous natural gas production and relies on imports for over 95% of its natural gas capacity making one of the largest LNG importers in the world. Unlike other markets in Asia, currently Japan's LNG import terminals are largely owned and operated by the major utilities such as Toho Gas, Tokyo Gas, Osaka Gas and Kansai Electric. Japan also has a limited transmission infrastructure; trunk line networks exist separately around various LNG facilities and are often not interconnected.
Japan's latest attempt at TPA occurred through amendments to the Gas Business Act in 2017. Among other features, these amendments now make it possible for city-gas retail businesses to procure LNG, which was not previously available to them.

Two recent developments in Japan are significant in relation to TPA: (i) the amendment to the Japanese Gas Business Act in June 2015 which introduced provisions aimed at increasing TPA to LNG terminals in Japan; and (ii) the publication of the Strategy for LNG Market Development on May 2016 (the Japanese LNG Strategy). The Japanese LNG Strategy sets out a clear objective for Japan to be a leader in creating a global LNG market and for Japan to be a key trading hub in the region. The Japanese LNG Strategy states that it will discuss rules concerning TPA and information disclosure and refer to "best practices" from Europe in developing this system.

China:

Three national oil companies dominate the energy scene in China – China National Petroleum Corporation (CNPC), Sinopec Corporation (Sinopec) and China National Offshore Oil Corporation (CNOOC). NOCs supply 95% of the natural gas used in China in 2018 and with few exceptions, these 03 companies own and operate nearly every terminal, loading and unloading facility, LNG receiving station, compression facility, storage facility and pipeline network associated with the oil and gas industry in China.

In 2014, the National Development and Reform Commission issued guidelines recommending TPA to existing state-owned import terminals. The guidelines also encouraged private companies to enter and

invest in the domestic LNG market. The 2014 measures set out a fairly detailed application process for an upstream or downstream user to obtain access to network facilities, including information to be made available by the network operators, upstream users and downstream users are required to supply, operator approval criteria, the timeframe for approval (30 days), and a means of resolving disputes over disapprovals, including conciliation and mediation by the National Energy Administration (NEA).

In September 2016, in furtherance of its 2014 Measures, the NEA issued a Notice on Completing Information Disclosure Related to the Opening of Oil and Gas Pipeline Network Facilities (2016 Notice). The NEA's goal was to shore up its 2014 Measures by setting out the information operators were required to provide to make its facilities available for TPA.

Malaysia:

The Malaysian Government has taken significant steps towards the introduction of a regulated TPA regime in Malaysia. The Gas Supply (Amendment) Act 2016 is an amendment to the Gas Supply Act 1993 and makes provision for regulated TPA (the Malaysian TPA Regulations).

On 16 January 2017, the Energy Commission published a number of TPA Codes pursuant to its expanded scope under the amended Gas Supply Act 1993. In addition to a TPA Code in relation to re-gasification terminals, the Energy Commission has also published codes which apply to transmission pipelines and distribution pipelines. Of particular note is the stated objective to ensure transparency, together with fair and non-discriminatory practices in all transactions concerning the use of such facilities.

Singapore:

As with Japan, LNG terminal and gas pipeline access in Singapore is part of a wider strategic plan to develop the city-state into an LNG and gas trading hub, for which TPA is commonly seen as an essential requirement. Singapore LNG terminal at Johor is credited with being the first terminal in Asia to offer multi-user access to different types of customer (for example, storage and re-load or storage and send-out).

Singapore's LNG terminal connects into a downstream natural gas market which is subject to third party access requirements and which is likely to see further reform through the introduction of a secondary gas trading market.

Implementation of TPA: Practical Considerations

Some of the practical considerations that arise from implementing a regulated TPA regime:

Primary capacity allocation

A clear mechanism for allocating transportation capacity, regasification, storage capacity to potential new users is fundamental to a TPA regime. The UK regulator, Office of Gas and Electricity Markets (Ofgem), considered "**Auction processes**" to be the most appropriate means of allocating capacity in infrastructure terminals. The benefits of an auction mechanism include efficient allocation of capacity and transparency as to demand and price.

An alternative capacity allocation mechanism is an "**open-season**" procedure whereby capacity is publicly advertised and potential third-party importers (meeting predetermined qualification criteria) make a non-binding approach to the infrastructure owner to utilize capacity. The infrastructure owner then considers all applications and issues a proposed capacity allocation regime which can be accepted by each applicant.

Anti-hoarding Measures

Anti-hoarding measures are used to ensure the efficient utilization of infrastructure. The principle underlying such measures is that a service user that has reserved regasification, storage and/or transportation capacity should be incentivized to use that capacity to the fullest extent possible. Otherwise, there is a risk of capacity being tied up (and unutilized) to the detriment of other prospective users, resulting in bottlenecking and congestion.

A common anti-hoarding measure is a "use it or lose it" (UIOLI) policy, which may be implemented in parallel with a TPA regime or as a stand-alone measure. Such measures may penalise a user who is deemed to be hoarding capacity (either financially or by withdrawing capacity) or oblige such a user to offer capacity back to the market.

Some LNG terminals simply introduce non-refundable reservation fees which are payable upon the booking of capacity, meaning the user is incentivized to only book capacity that it expects to use.

Secondary capacity access markets

An obvious solution to capacity congestion or redundancy is to allow for the sale or subcontracting of spare capacity to other third parties on a secondary market. This allows market participants to acquire spare or "secondary" capacity in the terminal, either by direct agreement or by holding an auction for that secondary capacity.

Transparency

Transparency can be required in a number of aspects of TPA regulation such as requiring that information in relation to available capacity is published or that the terms on which such capacity may be accessed (such as the cost) are transparent for prospective users' consideration. Some form of transparency is required if a regulator is to be able to determine whether the owner is providing TPA in accordance with the relevant regulation or whether it is holding back unused capacity and denying reasonable requests for access.

Conclusion

TPA is only part (albeit an important part) of the wider reform of any gas markets. A well designed, carefully calibrated TPA regime could be a major force behind the further development of the market and a valuable way for existing players and new entrants to develop and utilize the gas infrastructure necessary to access those markets.

Sources:

1. https://www.rivieramm.com/news-content-hub/news-content-hub/third-party-access-to-asian-lng-import-terminals-making-slow-but-sure-headway-25142
2. Report on THIRD PARTY ACCESS TO CHINA'S NATURAL GAS MARKET, LNG 2019 by IGU
3. Energy Market Authority media release, "Pavilion Gas and Shell to Import Next Tranche of Liquefied Natural Gas for Singapore
4. https://www.orfonline.org/research/energy-news-monitor-55239/
5. Prospects for Development of an Asian LNG Trading Hub", King & Spalding Energy Newsletter
6. https://gailebank.gail.co.in/goga/NewApplication/index.html
7. LNG Terminal third-Party Use Regime in Japan, IEEJ.
8. International Energy Law Review, Issue 1 © 2017 Thomson Reuters (Professional) UK Limited and Contributors

Research, analysis & compilation by:

Economic Policy & Planning Team - FIPI

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

Note: The information contained herein is compiled from various sources considered reliable, but its accuracy and completeness are not warranted, nor are the opinions and analyses that are based on it. FIPI is not responsible for any errors or omissions, nor it shall be liable for any loss or damage incurred by reliance on information or any statement contained herein. While reasonable care has been exercised to ensure that no copyrights are infringed, in case there is any omission or oversight in this regard, we may please be informed immediately.