InfralinePlus

THE COMPLETE ENERGY & INFRASTRUCTURE SECTOR MAGAZINE FOR POLICY & DECISION MAKERS VOLUME 9 | ISSUE 02 | MARCH 2020

RECENTLY ANNOUNCED BUDGET REFLECTIVE OF GOVERNMENT'S FOCUS ON DEVELOPING A STRONG INFRASTRUCTURE AND MARKET FOR CLEANER FUELS SUCH AS NATURAL GAS

InFocus:

THE FUTURE OF THE OIL & GAS INDUSTRY IN VIEW OF OUR TARGET FOR ELECTRIC MOBILITY BY 2030

Special Feature:

IMPACT OF RECENT POLICY INITIATIVES IN INDIAN UPSTREAM SECTOR ON EXPLORATION AND DEVELOPMENT OF UNCONVENTIONAL RESOURCES

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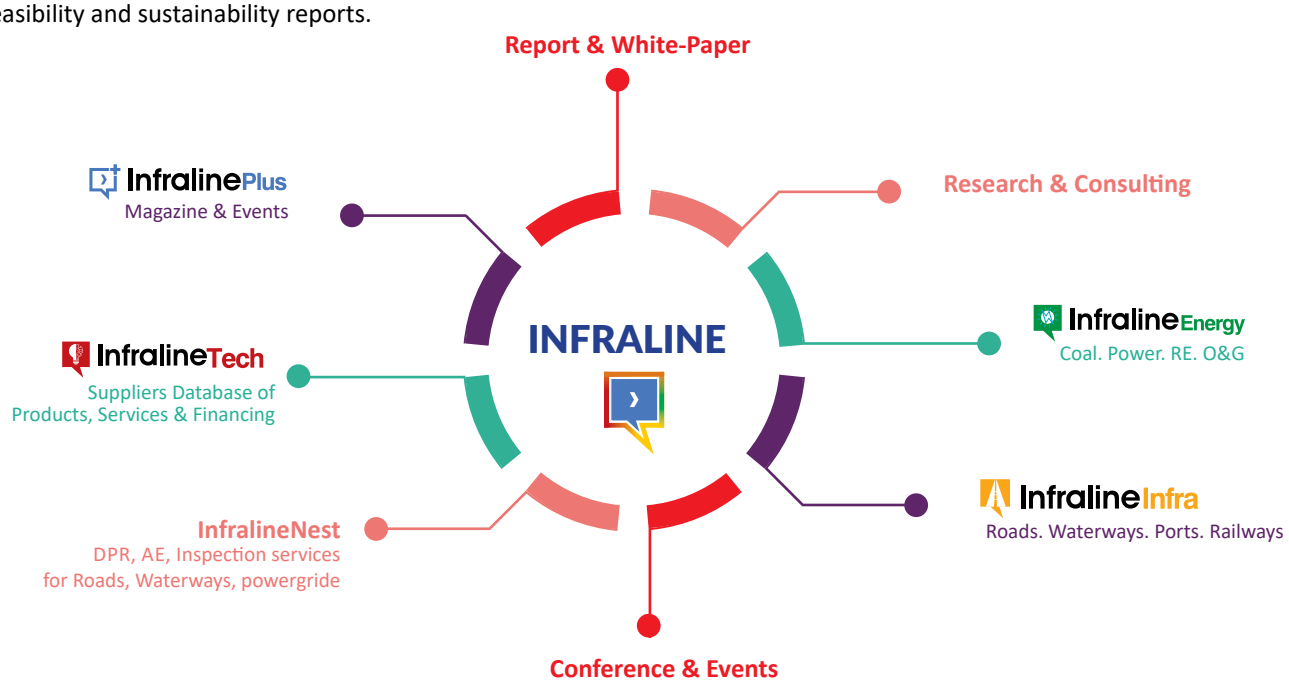

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Avantika : PR Manager
Tel : +91-120-6799108 (D) | +91-9871131730 (M) | Fax: +91-120-6799101
Email: avantika.kapuria@infraline.com | www.infraline.com

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PUBLISHER'S **NOTE**

It has been a mixed bag for the country so far. While on one hand the social crisis in the National Capital seems to be getting out of hand, the sun seems to be finally setting over the financial crisis on the other (hand), ushering in a new era of hope, growth and opportunity within the country.

Infraline's March issue touches base upon various aspects of the oil and gas industry, especially with respect to the budget announced recently. While there is no denying the positive steps and regulatory reforms taken by the government in recent years to promote the growth of alternate fuels in the country, we are yet to see a thriving unconventional hydrocarbon sector. The budget promises monumental growth in the unconventional hydrocarbon market such as that of natural gas with a huge capital outlay for expansion of the (natural) gas business in the country. This has however evoked mixed reactions from different quarters of the oil and gas sector – while major industry players and professionals have welcomed this move for they see an immense opportunity for investment and return in the aforementioned sector, there are others who see this growing focus on natural gas as a detriment to important business goals. Several others are skeptical and even confused of the direction that we seem to be headed as regards our energy goals in the light of our target to be completely electrically mobile till 2030. A number of analyses from major thinktanks however show that India is on the right track keeping in mind its larger goal of meeting the energy requirements of a growing population and staying true to our environmental commitments at the same time.

So as we try to bring to light various facts, data and stats via opinions and viewpoints expressed in articles on the oil and gas industry, we hope that the insights shared will help you with a more nuanced understanding of the sector vis-à-vis the past and current developments in the same.

SHASHI GARG
Managing Director and Editor-in-chief
Infraline Technologies (India) Pvt. Ltd.

EDITORIAL
Publisher & Editor-in-chief
Shashi Garg
shashi.garg@infraline.com
Associate Editor-in-Chief
Srishti Juyal
srishti.juyal@infraline.com

DESIGN
Rajesh Rawat

RESEARCH
Head of Integrated Research Consulting
Additional Charge Training
Krishnandan Kumar Singh
Sector Lead Power
Krishnandan Kumar Singh
& Abhinav Sharma
Sector Lead Oil & Gas
Loiponic
Sector Lead Coal
Krishnandan Kumar Singh
& Abhinav Sharma
Sector Lead Roads
Ankit Kumar
Sector Lead RE
Krishnandan Kumar Singh
& Abhinav Sharma

BUSINESS
Country Head – Business Solutions
Rajesh Singh Panwar
Mobile: +91-9711786999
email: rajesh.panwar@infraline.com

ADVERTISING
National Advertising Manager
Avantika
Mobile: +91-120-6799108; +91-9871131730
email: advertising@infraline.com

CIRCULATION & SUBSCRIPTION
National Circulation Manager
Supam Panja

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Shareholders holding more than one percent of total Capital of the owner Company
1. Mrs Shashi Garg, 60, Siddhartha Enclave, New Delhi-110014
2. Abhav Garg, 60, Siddhartha Enclave, New Delhi-110014

I Shashi Garg hereby declare that the Particulars given above are true to the best of my knowledge and belief.

Sd
Mrs Shashi Garg
Signature of the Publisher

Registered Office
14th Floor, Atmaram House,
1, Tolstoy Road, New Delhi-110001
Email: business@infraline.com

Corporate Office Noida
A-31, Sector 3, Noida
Tel.: +91 120 6799100
Fax: +91 120 6799101

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Supam Panja
Infraline Technologies (India) Private Limited
Tel : +91-120-6799136 (D) | +91- 9971576781 (M) | Fax: +91-120-6799101 | Email: supam.panja@infraline.com.
Infraline Knowledge Tower, A-31, Sector 3, Noida-201301
Tel: +91-120-679 9125, 122; +91- 120-6799100 (B); Fax: +91- 120 679 9101, Email: crm@infraline.com

ASSOCIATE **EDITOR-IN-CHIEF'S** NOTE

Violence begets violence; reason begets understanding; action begets result

News broadcast has lately been rife with stories of rampage, violence and chaos in the National capital. With reports of shattered windows, demolished houses and burning buses making rounds every day, one cannot help but wonder if there would ever be an end to this anarchic chaos in the city. The exaggerated hysteria and public outcry at the behest of certain forces trying to further their own political motives by pushing dissenting groups into a violent mess is beyond sickening. And, as the country watches the city burn and bleed in violence, our important goals regarding development and growth take a backseat as reportage over the 'Capital' crisis becomes the be-all and end-all of everyday news cycle. President Trump's visit in the last few days may have temporarily shifted the focus from the agonizing scenes of demolished shops and rioters in action, his departure was quickly followed by the narrative returning to riots, ruthlessness and outrage. However, with the central government hinting at intervening on behalf of the state government for controlling the situation in the National Capital, we are assured that aggressors would be taken to task and peace shall soon be restored in the city.

And, talking about governmental initiatives, there have been several policy reforms and regulatory measures that have been adopted by the current government to expand the portfolio of alternate forms of energy in the country. Increase in the number of LNG terminals near the ports in the country is a glaring example of government's efforts to steer the country towards energy self-sufficiency in the most environment-friendly manner. As per announcements made in the budget recently, the government has committed a huge share of capital towards building of infrastructure that would help us move closer to our aim of increasing the share of natural gas in the energy mix ultimately supporting our transition into a gas-based economy. While several industry experts, businessowners and market veterans see this as a great opportunity for investment, a large number of public and private players view it with skepticism. The apprehension is part internal (upto the confines of the company and its beneficiaries) and part external (involving country's economic growth) and, in some cases, it is both. Major players in crude are concerned that they would lose huge amounts of money with the fuel losing its sheen to natural gas and other forms of energy amidst growing awareness around climate change and global warming. Several others are confused as to this heightened thrust on natural gas as we still grapple with a less-than-enviable domestic production and heavy dependence on foreign import. Few more continue to be baffled with an ambiguous pricing mechanism and warped estimations around a widening gulf between the supply and demand of this much sought-after resource. Moreover, India's target of becoming an electrically mobile economy by 2030, has further raised industry apprehensions about the increased focus on expansion of natural gas in the country besides making them apprehensive of its impact on the crude oil industry. That said, a number of major thinktanks believe that while the impact of electric mobility on crude oil cannot be ruled out for a shorter period of time, its long-term impact cannot be concluded upon as of now.

The March edition enumerates upon these aspects that would hopefully provide you with some interesting insights on the current and future (outlook) of the oil and gas industry. We also hope that you enjoyed our Annual issue which was a commemoration of the organization's contribution and service in the Energy & Infrastructure sector.

HERE'S WISHING YOU ALL A DELIGHTFUL MONTH AND A JOYOUS YEAR AHEAD!!

Warmest regards,

SRISHTI JUYAL
Associate Editor-in-Chief
InfralinePlus

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NEWS BRIEFS

Rising US LNG supply will make natural gas affordable in India says **Neil Chatterjee, Chairman of the Federal Energy Regulatory Commission**.

Iran awarded a $1.3 billion contract to a domestic company for improved oil recovery at two onshore oil fields in the southwest part of the country, according to the oil minister Bijan Zanganeh.

Press Release

In order to give prime importance to its existing FASTag users, vehicles without FASTags entering FASTag lane are being charged double the toll fee by NHAI.

Perspectives

Ms. Srishti Juyal, the Associate-Editor-in-Chief, on the growing business of LNG in India in view of our expanding LNG import terminal capacity for meeting the rising demands for energy and our commitment to the cause of prevention of environmental degradation through the use of cleaner forms of energy

The **Research Team** on the policies measures proposed by the government for ironing out inefficiencies and capitalizing on our immense potential for a thriving natural gas market.

InFocus

Mr. Dipankar Ghosh, Partner & Dr. Remant K. Tiwari, Senior Consultant -Thinkthrough Consulting Private Ltd. on the factors indicating a huge potential for growth and boom in the EV market in India and also those pointing towards its less-than-substantial impact on the oil & gas industry which would continue to survive and even thrive in the wake of the growing portfolio of civil aviation and passenger vehicle fleet in the country.

Cover Story

Mr. Avinash Anurag, Vice-President – SBI Capital on the recently announced budget for the oil and gas sector which brings to light government's focus on developing a strong infrastructure and market for natural gas keeping our commitment to environmental protection in mind while trying to become energy secure at the same time.

Sectors

Sector Statistics

This helps organizations to better understand the movement of the industry and accordingly plan their decisions towards expansion and sustaining themselves in the present competitive market.

Sectoral Reports

Put together by the Research Team, these reports encompass monthly highlights on the 5 sectors: Power, Coal, Oil&Gas, Renewable Energy and Roads

Special Feature

Mr. Krishnendu Chatterjee, Joint General Manager, Essar Oil & Production Ltd. on the various policy revisions, steps and regulatory initiatives undertaken by the Government over the years to facilitate the development of the unconventional hydrocarbon sector in the country.

Educational

Ministry Contacts

RISING US LNG SUPPLY WILL MAKE NATURAL GAS AFFORDABLE IN INDIA: FERC

"Law of supply and demand, more US gas contributing to the global supply, I am optimistic will bring down the cost of gas globally. The efficiency of the US industry when it comes to production, transportation, I am hopeful that the cost of gas will come down to where it will be affordable for India," said Neil Chatterjee, chairman of the Federal Energy Regulatory Commission, who is on a visit to India, meeting his counterparts and other energy officials.

InfralineEnergy™
Research Report

City Gas Distribution Business in India

Key Highlights

- Current and future scenario of CGD business in India
- CGD development including PNG connections, CNG stations and policy framework in India
- Diversified sourcing and growth strategy
- Pricing build up: CNG and PNG
- Current Demand and Supply of Natural gas in various sector
- Technical and Financial CGD bidding criteria
- Key business opportunities and benefits
- Key business framework such as SWOT and PESTLE analysis

Key Questions Answered

- Dynamics of CGD business in India
- Business Strategy for GCD
- Projection and Analysis of CGD Market in India
- Supply and Prices

A must buy for

- CGD equipment suppliers
- Companies involved in CGD business
- Gas producers
- Government Agencies
- Consultants
- Institutions
- Regulatory Bodies
- Investment Banks & Financial Institutions

For Priority Business

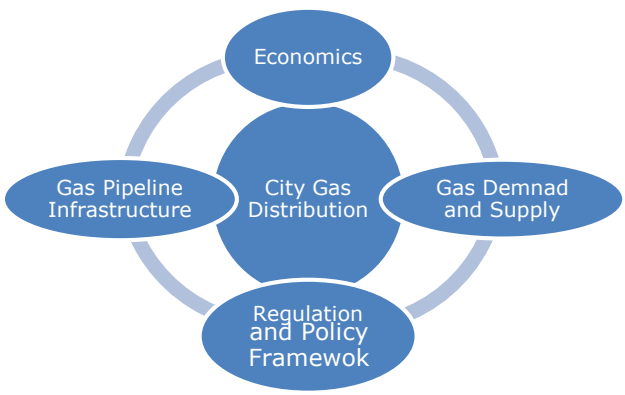
Rajesh Singh Panwar
rs@infraline.com
Mob: +91 9711786999
Ph: +91 120 6799125, 160

Executive Summary

In recent years, the use of natural gas in residential, industrial and commercial sectors has increased rapidly due to favorable regulatory policies, aggressive CGD bidding rounds, declining costs & environment benefits of using natural gas. During FY 17-18 to FY 24-25, natural gas consumption in India's CGD segment is expected to grow at a CAGR of 9.07% and around 44.35 MMSCMD gas would be required for CNG and PNG operations all over the country. Currently, around 16% natural gas is being consumed only in CGD segment. For rapid expansion of CGD sector in the country, Ministry of Petroleum & Natural Gas (MoPNG) and Oil and Gas companies have facilitated below mentioned progressive key steps for the growth of CGD sector:

- Domestic gas has been allocated to meet the entire requirement of PNG and CNG segment of the CGD sector and has been kept under "No Cut Category"
- Public Utility Status has been granted to CGD from June,2017

Recently, PNGRB has also launched 10th CGD Bidding round covering 50 Geographical area including 14 states and 124 districts. After successful completion of 10th CGD bidding round, it has been estimated that around 70% of the country's population would have access to CGD network and this would help to achieve gas-based economy goal. The bidding process followed by PNGRB revolves around two major criteria - Technical and Financial. The entities which surpass the minimum threshold in the technical bids get qualified for financial bids. The financial bids eventually decide the winner of the CGD bidding process.



Infraline Energy presents a report on: "CGD Business in India" entailing the potential and need of natural gas distribution in city through the pipeline in India. The report describes demand and consumption pattern of natural gas in urban areas in form of piped natural gas as domestic fuel and compressed natural gas as transportation fuel. The core objective of the report is to focus on the development of CGD market offers, tremendous business opportunities, CGD bidding framework, gas pricing, and CGD growth strategy.

INDIA'S LNG IMPORT CAPACITY IN VIEW OFTHE GROWING PORTOLIO OF NATURAL GAS IN THE COUNTRY

An article by the **Associate-Editor-in-Chief, Ms. Srishti Juyal,** on the growing business of LNG in India in view of our expanding LNG import terminal capacity for meeting the energy requirement of a rising population in a sustainable manner.

The natural gas market in India is going through exciting times with an increase in demand and focus on use of cleaner sources of energy. The country happens to the 4th largest importer of natural gas in the world and aims to expand the portfolio of this less polluting, eco-friendlier resource in its energy mix to 15% by 2030 to both cater to the energy needs of its growing population and abide by its environmental commitments (in its larger aim to achieve energy security backed by sustainability).

And, since the demand for natural gas is met through foreign imports, it is imperative that the country is equipped with facilities with enough storage capacity to hold the LNG (liquified natural gas) which is shipped from Qatar and other major natural gas producing giants such as Russia, US and Australia. These facilities commonly known as Terminals or LNG Terminals not only act as storage facilities but also as regasification units where natural gas is changed back to its gaseous form to be supplied to consumers via a huge network of pipelines. Currently there are about 5 LNG terminals operational in India namely: Dahej, Hazira, Dabhol, Kochi and Ennore with the latter being the only one located on the East Coast as of now. All these terminals collectively amount to 37.5 MMTPA of capacity. With several projects in pipeline, India is looking towards enhancing its LNG import terminal capacity to 56.5 MMTPA by 2025 – besides helping in meeting the immediate requirement for storage and regasification, this would help us strike a balance between providing for the energy requirement of a large number of people and sustainably honing our energy potential, ultimately bringing us closer to our goal of an increased percentage of natural gas in the energy mix by 2030. Some of the terminals which are under-construction and/or nearing completion are as follows: Dhamra (Odisha), Jaigarh (Maharashtra), Krishnapatnam (which will be India's 1st floating terminal) and the Mundra terminal in Gujarat which has been completed but is yet to be operational. So, with a number of facilities on the verge of completion, India's import terminal capacity is poised to grow enormously.

Thus, with growing capacity for storage at the terminals, there is also a need for a strong infrastructure that can make the re-gasified natural gas accessible to people for both residential and industrial use. The bolstering of the CGD network across the country as witnessed in recent times through bidding (and auctions) of geographical areas in many rounds under various policy reforms and initiatives is perfectly timed with this highly anticipated rise in the total capacity of LNG in the country in the near future. There is however a last piece to the puzzle - if figured out, it can change the game for growth of alternate forms of energy in the country. As opposed to the popular notion of people being aware of the alarming state

"With several projects in pipeline, India is looking towards enhancing its LNG import terminal capacity to 56.5 MMTPA by 2025 which would help us in meeting the immediate requirement for storage and regasification."

of environmental degradation and hence discarding their preferred choice of fuel for an alternate, relatively cleaner option for consumption, a large percentage of the population in both urban and rural areas in the country continue to be dependent upon conventional sources for meeting their energy requirements. Therefore, there is an urgent need for encouraging people into using cleaner fuels – development of environmental temper based on knowledge of statistics, facts and figures and disseminating it through relatable discourse, reasoning and strong visual representations can compel people to adopt alternative, healthier fuel consumption practices. This conditioning combined with enhanced capacity and infrastructure would make it easier for people even in the remotest of regions in the country to adapt to usage of alternate kinds of fuels for energy consumption, thereby increasing the success rates of various current and forthcoming programmes and schemes of the Government to help us transition into an economy that is energy sufficient in the most environmentally efficient manner.

NATURAL GAS PRICING MECHANISM IN INDIA: CHALLENGES AND OPPORTUNITIES

An article put together by the **Research team** on the immense potential for a thriving market for natural gas in the country and the policies proposed by the government to fix the ambiguity in the **natural gas pricing mechanism** and other challenges impeding our transition into a natural gas-based economy.

Natural gas currently has around 7% share in India's energy mix which is expected to reach 15% by 2030 as per the target set by the government. India is 4th largest consumer of natural gas where 52% of demand is fulfilled by domestic production and the remaining 48% by LNG import (as recorded during FY 2018-19). In last December, domestic production accounted for 47% of the total natural gas consumption. Government's efforts towards building a natural gas-based economy are visible in its huge infrastructural investments and adoption of relevant policy measures. Natural gas pricing is one of the major factors that has affected the natural gas industry and associated sectors for a very long time. It is one of the main issues that still looms large over the natural gas industry. And because of the significant variations in the (natural gas) pricing of both APM and non APM gas, there is an economic imbalance for different end-users in India. The creation of a free gas market is therefore vital for increasing competition in the gas sector and moving towards a gas-based economy. Building a successful natural gas-based economy would require the setting up of a benchmark price which would then create a healthy gas on gas competition between domestic production and the LNG Importer.

Structure of Natural gas prices - At first glance, gas pricing in India appears to be notoriously complicated, as there are a variety of different prices at the wellhead. To put it briefly, the price of domestic gas to producers is set as per the terms of the fiscal regime that governs a producing field. This is followed by the addition of transportation costs, marketing margins, and state taxes to obtain the delivered price for gas. As states have fiscal autonomy over indirect taxes, these tax rates tend to differ between states. Broadly, there have been three fiscal regimes for gas exploration and production in existence at any one time. Producing fields thus operate under parallel fiscal systems, leading to different prices at the wellhead.

- The Nomination regime (also known as the Administered Pricing Mechanism or 'APM'), existed prior to the liberalization of the upstream sector in the 1990s, covering most of the 'legacy' fields of the two largest NOCs – ONGC and OIL.

- The Discovered Fields regime (also known as the Pre-New Exploration Licensing Policy regime or 'Pre-NELP') was a semi-liberalized system brought in during the early 1990s to replace the Nomination regime, enabling joint ventures between private companies and the NOCs – which typically had a 30% carried interest.

- The New Exploration Licensing Policy (NELP) replaced the Pre-NELP regime in 1999 and was the main fiscal regime for upstream exploration and production of March 2015, based on Production Sharing Contracts.

APM	$ 4.2/MMBtu
APM to Non APM Customers	$ 4.2 to $ 5.2.5/MMBtu
Non APM	$ 4.2 to $ 5.0/MMBtu
APM - North East Price	$ 2.52 I MMBtu
Pre-NELP	
a) Panna Mukta	$ 5.73/MMBtu
b) Tapti	$ 5.57/MMBtu
c) Ravva	$ 3.50/MMBtu
d) Ravva Satellite	$ 4.30/MMBtu
NELP	$ 4.20/MMBtu
Small Sized Discovered Fields (24)	No formula
Pre NELP-Exploratory Blocks	No prior Approval

POLICY REFORMS: RANGARAJAN COMMITTEE RECOMMENDATIONS - 2014

Proposed price takes input from:

- The netback price of Indian LNG import at the wellhead of the exporting countries

- Average of pricing prevailing at trading points of transactions i.e. hubs or balancing points of major markets of continents.

- The weightage average of natural gas price in three major markets (North America - at Henry Hub, Europe & Eurasia - at NBP and Japan - netback price at source for Japan)

- The average of the price calculated to be taken as price for India which is an economically appropriate estimation of the arm's length competitive prices.

- The methodology neutralizes any bias for India as the data comes from a wide range of transactions globally including in India

Formula recommended by Rangarajan Committee
Guidelines specifies the formula for the Domestic Natural Gas Price calculation which is as follows:

$$\text{Domestic Gas Price} = \frac{\text{VHH} * + \text{VAC} * \text{PAC} + \text{VNBP} * \text{PNBP} + \text{PR}}{\text{VHH} + \text{VAC} + \text{VNBP} + \text{VR}}$$

Where,

- VHH is the total annual volume of natural gas consumed in the USA and Mexico.

- VAC is the total annual volume of natural gas consumed in Canada.

- VNBP is the total annual volume of natural gas consumed in the EU and FSU, excluding Russia.

- VR is the total annual volume of natural gas consumed in Russia.

- PHH and PNBP are the annual average of daily prices at Henry Hub (HH) and National Balancing Point (NBP), respectively, less $0.50/MMBtu towards transportation and treatment charges.

- PAC and PR are the annual average of monthly prices at the Alberta 'Hub' and in Russia, respectively, less $0.50/MMBtu towards transportation and treatment charges.

Under the new reforms:

- There is no distinction between APM and non APM pricing including a uniform price for gas produced by NOCs from nomination and NELP blocks. Thus, the supplies made by NOCs to existing customers (without calling for bids) would be at the price worked out as per these guidelines (presently US$ 3.02 GCV Oct 2019 to March 2020). Prices will be reviewed every 6 months, based on trailing price and volume data for the previous four quarters with a lag of one quarter.

: As per Rangarajan Committee recommendations for 2014, the average of the price calculated shall be taken as price for India which is an economically appropriate estimation of the arm's length competitive prices.

Period	Domestic Natural Gas price in US$/MMBTU	Gas price ceiling in US$/MMBTU
November 2014 - March 2015	3.69	
April 2015 - September 2015	2.89	
October 2015 - March 2016	3.06	
April 2016 - September 2016	3.82	6.61
October 2016 - March 2017	3.06	5.3
April 2017 - September 2017	2.5	8.43
October 2017 - March 2018	5.05	5.56
April 2018 - September 2018	4.66	6.3
October 2018 - March 2019	3.23	7.67
April 2019 - September 2019	3.36	9.32
October 2019 - March 2020	2.48	6.78

- The price is decided on the basis of Gross Calorific Value (rather than Net Calorific Value under the previous system of gas pricing).

- In case of new supplies or in instances of completion of the duration of existing contracts, the price would be determined by NOCs calling bids through an open competitive bidding process.

- Bids by NOCs shall be based on the price and would be awarded to the highest bidder. The reserve price for these bids would be equal to the price notified based on New Domestic Gas Pricing Guidelines, 2014 at the time of the calling of bids.

- The new gas price is applicable to all gas produced from Nomination Regime (legacy) fields given to the NOCs - ONGC and Oil India Limited – new NELP blocks and Pre-NELP blocks where the Production Sharing Contract (PSC) provides for Government approval of gas prices and Coal Bed Methane blocks. The new gas price does not apply to:

- Small and isolated fields under the Nomination Regime (legacy) blocks of the NOCs.

- Instances where prices have been fixed contractually for a certain period of time, till the end of such a period.

- Instances where the PSC provides a specific formula for natural gas price indexation or fixation.

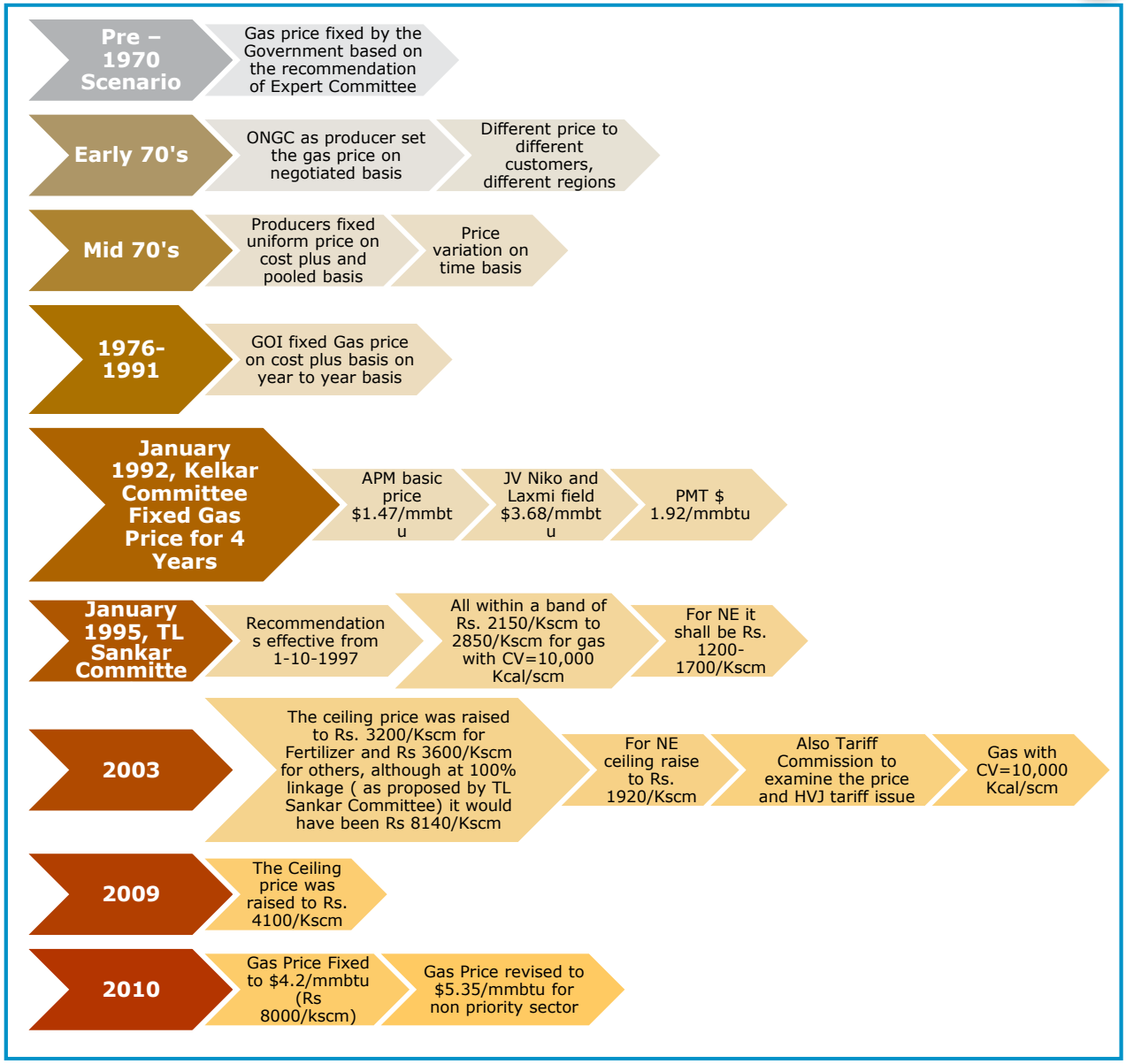
- Pre-NELP regime blocks where government approval is not required under the Production Sharing Contract (PSC).

PRICING OF LNG IMPORTS

The price of imported LNG is not controlled/fixed by the Government. While the price of Long-term, Medium-term and Short-term R-LNG is based on the pricing formula agreed between the buyer and the seller, the price of Spot LNG varies from cargo to cargo depending on the international demand supply position. The imported LNG sourced from international markets can be divided into the following three categories:

- Long term
- Medium and Short term
- Spot

PRICING SCENARIO (SINCE 1970-2010)



Market Dynamics

Challenges due to pricing:

- Facing challenges in creation of natural gas hub due to complicated pricing structure
- Discouraging domestic gas production
- Distracting foreign investors
- Affecting Demand and supply

Opportunties

- Govt. focus on improving natural gas infrastructure
- Transparent policy for domestic gas pricing
- Increasing length of natural gas pipeline to 27000km in coming years

Bids by NOCs shall be based on the price and would be awarded to the highest bidder and the reserve price for these bids would be equal to the price notified based on New Domestic Gas Pricing Guidelines 2014 at the time of the calling of bids.

CONCLUSION

India's domestic natural gas production holds around 52% of the total consumption and hence the pricing of natural gas plays a vital role in the growth of the domestic industry. Amorphous pricing affects growth and demand in associated sectors such as fertilizers, power, CGD, etc. India's gas price reforms (including the Rangarajan proposals) have focused on managing the price level, rather than finding a logical, market-based mechanism for price formation which is reflected in some of the mixed rationale expressed in the report of the Committee tasked with reviewing the Rangarajan formula. Gas producers in India arguing for the deregulation of gas prices and their pegging to international benchmarks for obtaining higher prices have been equally affected on a financial level. This has also had an impact on the target set by the government for increasing the share of natural gas from 6.5% to 15 % in the energy mix by 2030. Budget 2020 indicates (the introduction of) a transparent pricing structure for domestic natural gas and development of a robust infrastructure in the coming years.

RECOMMENDATIONS-

- Pricing of tradable energy (Coal, Oil, Gas) at trade parity (TPP) at the point of sale
- TPP will ensure an economically rational pricing for inter fuel
- To cushion domestic prices against short term volatility of price in international market (FOB or CIF), a variable levy could be used so that domestic price track median prices over the previous month or a three-month period
- Domestic gas price linking to spot LNG long term LNG misleading
- Linking Gas price to Crude is misleading since gas is not as easily tradable as crude oil
- Pricing by competition amongst producers and users
- No competition from Fertilizers and Power since Gas cost is pass through

RECENTLY ANNOUNCED BUDGET PROMISING OR DISAPPOINTING FOR THE OIL AND GAS SECTOR

In the following article, **Mr. Avinash Anurag, Vice-President – SBI Capital** presents his views on the recently announced budget with respect to the oil and gas sector which highlight government's focus on developing a strong infrastructure and market for cleaner fuels such as natural gas with a view to meeting our energy demands sustainably by sticking to our environmental commitments while simultaneously working towards building an energy secure economy.

With the economy facing a slowdown, the focus has suddenly shifted to core industries and the factors impeding their growth. The oil & gas Sector is one of the major contributors to our GDP. If we look at the recent policy trends of the current government, they do not wait for the annual presentation of the central budget to announce various policy developments. We have been witness to several changes in regulatory measures at different points of time in the run-up to the budget such as the reduction in corporate tax rates, schemes of additional liquidity infusion in NBFCs, announcement of national infrastructure pipeline, special fund for completion of housing projects, etc. Therefore, in order to understand government's vision for a given sector, it is important that we look at their policy measures and reforms during the budget as well as those round the year.

BROAD STATISTICS

According to BP Statistics released in June 2019, India's oil consumption in 2018 was 239 MTOE which was around 5% of the global consumption. However, if we look at the annual natural gas consumption, India contributed only 1.5% to the global natural gas consumption. The primary energy mix of this country comprises of coal which has the biggest share (about 50%) followed by oil which has a share of around 30% and then gas which is somewhere around 6%. Thanks to the aggressive policy stance of the current government, the percentage of renewable energy has increased significantly, which makes up the remaining share in the energy mix. With a target of 175 GW of renewable power capacity addition by 2022, India is poised for a major expansion in its renewable portfolio. In the last ten years, the per capita primary energy consumption has risen with an annual growth rate of around 4%. In 2018, the per capita primary energy consumption was 25 Giga Joule (Source: BP Stats-June 2019) which is around one fourth of China and not even half of the global average. Some people may disagree, but India has immense potential for growth in energy consumption especially in the near future.

The situation of reserves in our country is not very encouraging with the total proved reserves of oil estimated at 4.5 billion bbl. at the end of 2018. Despite repeated attempts over the last two decades, there has not been much improvement in the value added. The consumption of oil stands at 5 million bbl. per day against an almost stagnant indigenous oil production. Natural gas reserves which too have been unimpressively slow with respect to growth, stand at around 45 tcf. The consumption of natural gas in the last financial year was around 175 mmscmd which was almost double (of) our domestic production (source: PPAC). Interestingly, at the same time, our coal reserves have more than 100 billion tonnes of capacity with R/P ratio of 130 years.

ECONOMIC SURVEY

The Economic Survey 2019-20 which was presented in the parliament before the budget highlighted critical points with respect to the petroleum sector.

- The impact of high crude prices on our economy cannot be contested. Due to geopolitical tensions, any substantial increase in crude oil prices is likely to have implications on exchange rate and current account balance. Even partial pass-through may fuel inflationary pressure and result into swelling of fiscal deficit.
- Crude Oil, Refinery products and Natural Gas are three of the eight core industries. These eight core industries comprise 40.27% weight in Index of Industrial Production (IIP) which stood flat during the first eight months of the current financial year. All these three industries have shown contraction during this period.

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- The survey clearly indicated concerns regarding the level of indigenous petroleum reserves which is the lowest among major countries. It also stated that in order to encourage the participation of private entities in the oil & gas sector, the government had undertaken several reform measures like simplified fiscal and contractual terms, bidding of exploration blocks under Category II and III sedimentary basins without any production or revenue sharing, early monetization of discoveries by extending fiscal incentives, incentivizing gas production including marketing and pricing freedom, induction of latest technology and capital, more functional freedom to National Oil Companies for collaboration and private sector participation for production enhancement methods in nomination fields, etc.

- The survey also mentioned the idea of wealth creation through privatisation because of the popular belief held by businesses that 'privatisation leads to improvement in efficiency'. The survey supported government's decision for the disinvestment of BPCL.

POLICY FOCUS

Sustainable Growth and Balance of Energy Mix

Keeping in mind the potential for growth in energy consumption, it is very important for policymakers to chart out a plan that would help in economic growth via sustainable development. The issue of climate change has made awareness around environmental sustainability and related development take centerstage with everyone closely watching India and China, two of the world's largest (emerging) economies. With India being completely committed to the cause of environmental protection through reduction of carbon emissions, it has become very important for the government to push the country towards a sustainable energy mix without disrupting the pace of growth.

India is blessed with abundance of coal reserves. That said, we cannot rely on coal for long. The share of natural gas and renewable energy in the overall energy mix must go up, if we are to bring down carbon emissions and prevent further environmental degradation. It is therefore important that natural gas is made available on a large scale. This will require huge capex in gas infrastructure. In order to enhance the usage of natural gas, a rigorous policy push would be required especially in domestic and transportation sector.

Energy Security

The absence of significant oil and gas reserves makes energy security critical to the overall economic and social well-being of the country. The government is looking at harnessing the potential for capacity addition within the country with the help of latest technology. Encouragement of exploration through fiscal incentives is also important for accumulation of reserves.

The country's overdependence on crude oil import has made it vulnerable to global oil prices. There is a huge gap between the consumption and production of oil and natural gas. Therefore, it is important that the percentage of oil in the energy mix is brought down. Bio-fuel programs can be encouraged to substitute a portion of the fossil fuels. Since usage of natural gas is being encouraged due to environmental considerations, indigenous production needs to be increased including that of coal-based methane. Moreover, the mechanism for strategic crude storage should be robust and sustainable for emergency purposes.

Fiscal Stability

Policy measures and budgetary support are required for transformation of the energy mix through encouragement of natural gas and renewable energy. Maintenance of fiscal

stability is equally important while trying to achieve these objectives. For a country greatly dependent on import of crude oil, fiscal stability becomes even more important specially during the times when oil prices are higher. Further, the government also provides subsidy for LPG and kerosene which goes up when there is an increase in crude oil price.

It is therefore essential that a major portion of the capital spent in building new infrastructure is earned through private investments. Right incentives and stability in policy are vital to attracting private investments for these infrastructure projects. The government should look for additional revenues from monetisation of operational assets like gas/oil pipelines and storage infrastructure. This revenue will provide capital for further expenditure in essential areas. Divestment of public sector entities may also be used strategically to generate additional revenue.

The Economic survey 2019-2020 underlined several reform measures such as simplified fiscal and contractual terms, bidding of exploration blocks under Category II and III sedimentary basins without any production or revenue sharing etc. taken by the government for encouraging private participation in the oil & gas sector.

BUDGET HIGHLIGHTS – OIL & GAS SECTOR

In the budget speech, the finance minister acknowledged that 1,37,000 sq km of area had been awarded to private sector and CPSEs under Open Acreage Licensing Policy (OELP) for exploration. City gas distribution rights had also been awarded for various geographical areas. There were two announcements made to boost the usage of natural gas in the country:

- The proposed National gas grid to be extended from 16200 km to 27000 km.
- In order to expand the gas markets in India, further reforms shall be undertaken to further facilitate transparent discovery and ease of transactions.

These acknowledgments and announcements demonstrate the vision of the government towards energy security and inclination towards usage of natural gas with respect to a greater thrust on a cleaner energy mix. Availability of a reliable and robust natural gas infrastructure across the country will be a huge step towards building a cleaner economy.

In the direct tax proposal, the government has brought in the following incentives which may have a positive impact on the petroleum sector -

i. Tax concession for investments by Sovereign Wealth Funds (SWF) – In order to promote investment of SWFs, including the wholly owned subsidiary of Abu Dhabi Investment Authority (ADIA), tax exemption is granted to their interest, dividend and capital gains income subject to fulfilment of certain conditions,

in respect to investment made in the infrastructure sector or other deserving notified sectors before 31st March, 2024 and with a minimum lock-in period of 3 years. It may help in attracting these SWFs for investments in asset monetisation program as well as natural gas infrastructure in the country.

ii. Widening the definition of Business Trust – In order to encourage unlisted Infrastructure Investment Trust (InvIT) or a Real Estate Investment Trust (REIT), the extension of the same taxation regime as available to listed InvITs and listed REIT to unlisted REIT and InvIT has been proposed. For the monetisation of operating assets in the infrastructure sector, InvIT is a very convenient structure. Any monetisation program for gas/oil pipeline and storage infrastructure of national oil companies may explore the route for unlisted InvIT as well.

iii. Exemption to Indian Strategic Petroleum Reserves Limited (ISPRL) – Exemption is granted to ISPRL with respect to income accumulating or arising as a result of an arrangement for replenishment of crude oil stored in its facility subject to replenishment within three years.

When it comes to subsidy, the LPG subsidy has been increased to Rs 34,085 crore in the revised budget for FY20. It is estimated to be around Rs 37,256 crore for FY21 after taking crude oil price of $65/bbl. into consideration. The actual subsidy is expected to be in this range. For kerosene, the subsidy for FY21 has been reduced to Rs 3,659 crore. Under Pradhan Mantri Ji-Van Yojana, about 53 crores has been allocated for

The share of natural gas and renewable energy in the overall energy mix must go up, if we are to bring down carbon emissions and prevent further environmental degradation.

In the revised budget for FY20, the LPG subsidy has been increased to Rs 34,085 crore. Additionally, in the NIP, the total amount allocated for petroleum and natural gas for FY 20-25 is Rs 1,94,666 crore.

setting up integrated bioethanol projects based upon biomass and other renewable feedstock.

NATIONAL INFRASTRUCTURE PIPELINE

The Government of India released a report on the National Infrastructure Pipeline (NIP) on 31st December 2019. This program has an outlay of around Rs 102 lakh crore over the span of the next five years as part of the push for spending in the infrastructure sector. In the NIP, the total amount allocated for petroleum and natural gas for FY 20-25 is Rs 1,94,666 crore. 74% of these investments will be provided for by the central government and about 15% through the private segment. 61% of these projects are already under implementation. Major projects include strategic reserves at Chandikhol, Jagdishpur-Haldia gas pipeline and Bokaro-Dhamra gas pipeline.

WAY FORWARD

The oil & gas sector today is at a tipping point where the reigns of its future course of development lie with environmental activism and electrical mobility. The emission norms for automobiles is expected to push out the fossil fuel from the transportation market in the future. The refining industry will also have to gradually shift from automobile fuel to value added durable products which may require some modifications in the refinery processes. Domestic consumers may find it easier to accept and adjust to the use of natural gas because of it being a relatively cleaner fuel. This will however require huge capex in gas infrastructure in the country and therefore the budget has emphasized on investing in gas grid and development of the gas market.

Thus, it is not fair that a definite conclusion be drawn regarding the budget for the oil and gas sector. This sector requires regular supervision and will witness some paradigm shifts in the years to come. The Government has recognized a few important areas in the budget and its plans are in line with the overall policy theme for this sector. The coming months may bring some information about a few more granular details about governmental initiatives in this direction.

"Government focus on oil and gas sector cannot be evaluated by the budget document alone. We need to look at the government initiatives taken for this sector from the perspective of sustainability of a high-growth, resource-poor and middle-income economy."

26 **February**, 2020

Press Release GE (T&D)

PRESS RELEASE

New Delhi, India, February 26, 2020 – GE Renewable Energy has received an order from the EDF-SITAC joint venture to supply and install 112 of its 2.7 MW wind turbines with 132m rotor at the Sitac Kabini wind farm in Gujarat, India.

The 112 units will be installed and commissioned over the next year and will produce enough green energy to meet the annual electricity requirements of more than 1.3 million people in the country.

EDF Renewables and the Sitac Group previously announced they have secured a 25-year Power Purchase Agreement for the wind farm through a competitive bidding process with the Solar Energy Corporation of India (SECI), a public sector company under the administrative control of India's Ministry of New and Renewable Energy.

Gilan Sabatier, Regional Leader for GE Renewable Energy's Onshore Wind business in South Asia and ASEAN said "We are extremely honored to have been selected by EDF-Sitac for this project. Together, we are aiming at growing Gujarat's and India's renewable energy capacity. We are now focused on making this project a success for our customer and we look forward to seeing our first 2.7 MW turbines up and running on site very soon. With one of the largest rotors available in India to date, these turbines are perfectly suited for the country's wind conditions."

Malvinder Singh, Chairman and founder of the SITAC Group, said: "The SITAC Kabini project is the seventh wind power project in India for the EDF/SITAC Joint Venture. We will build on our execution capability to construct this project and we look forward to working with GE to achieve this important milestone which will further strengthen our market presence with our partners across India in the renewable energy sector."

The 300 MW of Sitac Kabini will also contribute to helping the government of Gujarat reach its Renewable Power Obligations (RPO) to bring the percentage of renewable sources to 17% of its installed capacity by 2021, versus 10% today. GE's 2.7-132 turbine is ideally suited for Gujarat's wind speed regime. The turbine has been designed primarily at GE's Technology Centre in Bangalore and is built on learnings from more than 22,000 GE wind turbines around the world.

23rd **February** 2020

Press Release NHAI

PRESS RELEASE

NHAI safeguards the commuting of FASTag users: Charges double the defaulters Collected Rs. 20.0 crore from defaulters

New Delhi, 23rd February 2020: RFID based FASTag, an electronic toll collection system implemented by the National Highway Authority of India (NHAI), has proved to be instrumental in easing lives of commuters on National Highways within two months of its nationwide implementation.

Over 1.55 crore FASTags have been issued through multiple Point of Sale (PoS). NHAI has been observing increased sale rate of FASTags which is a clear indication of this digital system being accepted well. As a result, FASTag transaction has crossed a landmark count of 4.0 million per day.

In order to give prime importance to its existing FASTag users, dissuade defaulters and further encourage adoption of FASTags by NH commuters, vehicles without FASTags entering FASTag lane are being charged double the toll fee.Till now, a total number of 18.00 lakh vehicles defaulted by encroaching FASTag lanes across India has resulted a double charge cash toll accumulation of about Rs. 20.0 cr.

As a measure, it has also resulted in smooth and hassle-free movement of FASTag users on highways. The implementation of FASTags across the country has met with the desired response so far. The adoption of FASTags also means that it has brought in the much-needed transparency in collection at the toll booths.

In order to further increase digital collection of user fee via FASTag at NH fee plazas, NHAI has recently waived off the FASTag cost of Rs. 100/- for NHAI FASTag from 15 February 2020 to 29 February 2020. Any road users can visit any authorized physical point-of-sale locations with a valid Registration Certificate (RC) of the vehicle and get a NHAI FASTag free of cost.

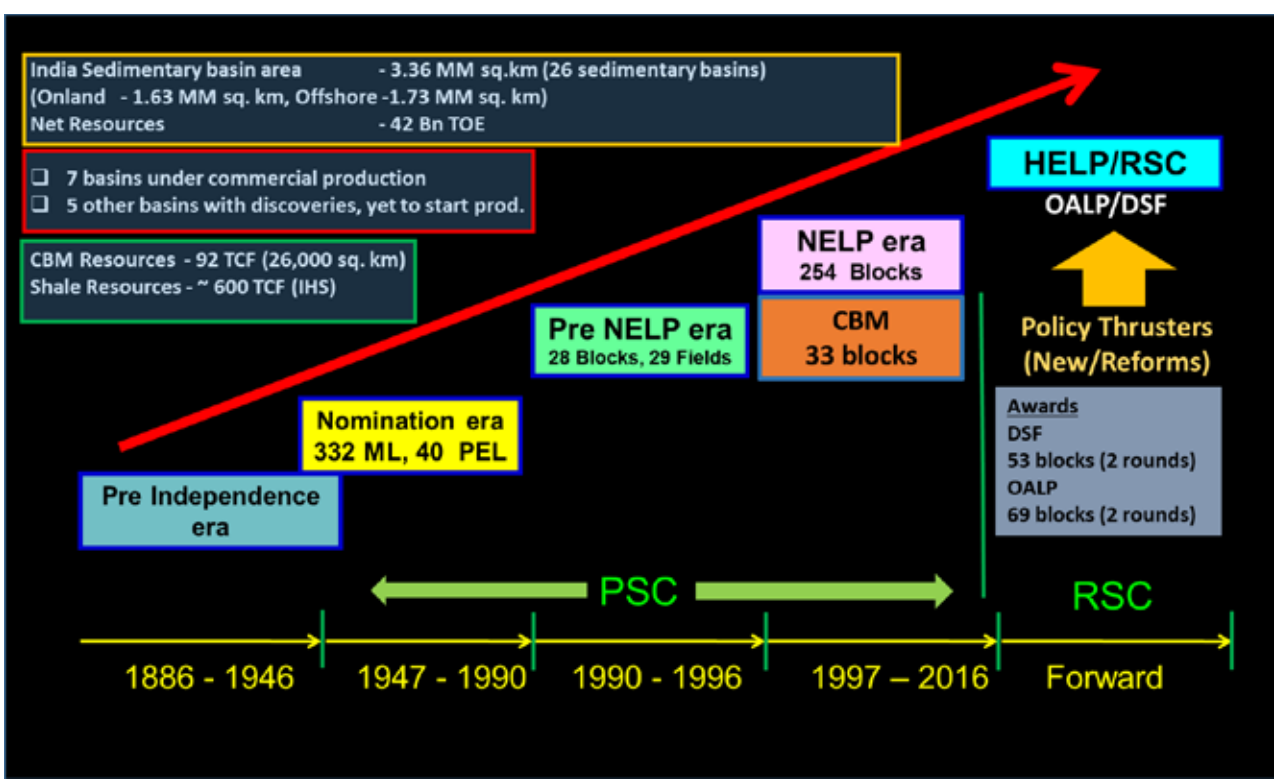
THE IMPACT OF RECENT POLICY

INITIATIVES IN THE INDIAN UPSTREAM HYDROCARBON SPACE ON EXPLORATION AND DEVELOPMENT OF UNCONVENTIONAL RESOURCES

An article by **Krishnendu Chatterjee, Joint General Manager, Essar Oil & Production Ltd.** on the policies and practices dating back to the pre-liberalization era and the various regulatory measures, reforms and initiatives undertaken post liberalization in the early 90s and up until very recently to foster growth and development in the unconventional hydrocarbon sector in the country.

Brief Flashback on the Indian E&P Industry

The Indian Exploration and Production Industry dates back to the middle of the 19th century and is currently in its 150th year. Post-independence and till the end of the 1970s, the industry was dominated by two National Oil Companies (NOCs) - ONGC and OIL who were granted licenses in onshore and shallow offshore purely on the basis of nomination. The first major strategic change was seen in the 80's, when the playing field was opened to global investors through a bidding process which involved a systematic offering of blocks that was commonly referred to as the Pre-NELP Exploration round at the time. Unfortunately, the initial bidding rounds received a lukewarm response from private operators, as the acreages were marginal and omni-controlled by the NOCs with their stake-in options being built into the discoveries made. Meanwhile, the NOCs made a few sizeable discoveries - the activities, however, continued to be focused around key discovered basin areas namely Cambay, KG, Assam onshore and Mumbai and KG offshore. Economic liberalization in the early 90's opened doors for several domestic and global players (Shell, Enron, Amoco and Occidental) in the Indian E&P sector.



In due course, the GoI introduced a policy titled New Exploration Licensing Policy (NELP) in 1997 to further liberalize the sector and attract the deep pocketed risk capital from Indian and Foreign companies as well as service companies for latest tools and technologies. The NELP licenses were awarded purely through competitive bidding and therefore provided a level playing field for both Public and Private sector companies. A total of 254 blocks were awarded over nine bidding rounds between 1997 and 2016. Major onshore discoveries, however, continued to elude the oil and gas companies, thereby paving the way for an increased activity in offshore deepwater exploration. The Government of India put nearly 175,000 sq. km of area on exploration. At the same time, the foreign oil and gas giants began shifting their areas of interest in the other prolific oil and gas geographies, namely Africa, MENA, eastern APAC, etc which eventually resulted in only a few minor onshore and offshore oil discoveries that failed to meet the primary energy requirement thereby gradually leading to a 75% dependence on oil imports and more in recent years.

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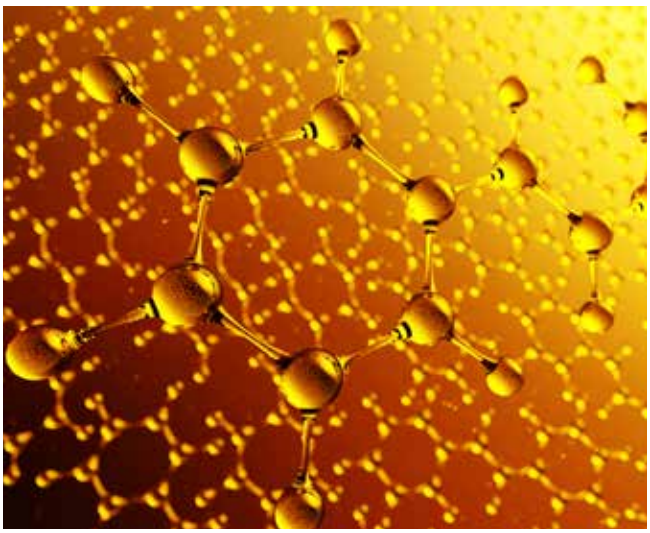
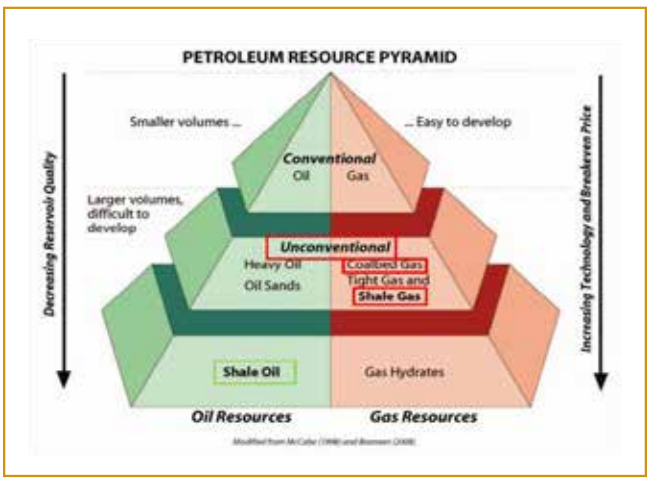


Unconventional Hydrocarbons

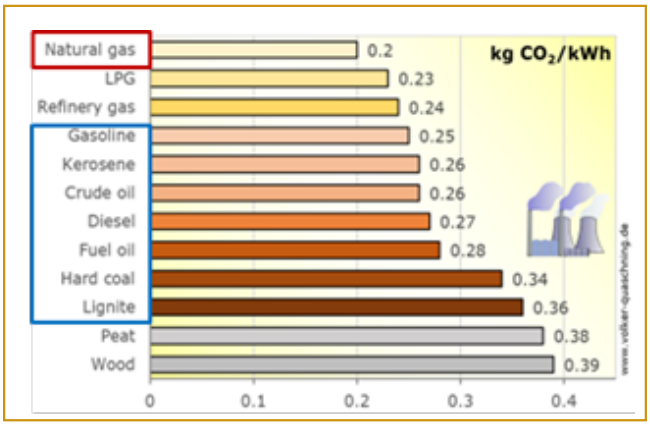
As conventional hydrocarbon discoveries declined, finding of new ways for increasing the production of oil and restoration and enrichment of the fuel base became inevitable. Over the course of the last few decades, unconventional hydrocarbon exploration gained traction and helped in turning around the fortunes of the oil and gas industry. CBM and Shale Gas have emerged as the two major alternate commercial options globally, with sizeable resource numbers, which have now become producible (technology leapfrogging). Australia and the United States are current leaders in CBM and Shale respectively, while many other countries including India are in the fray.



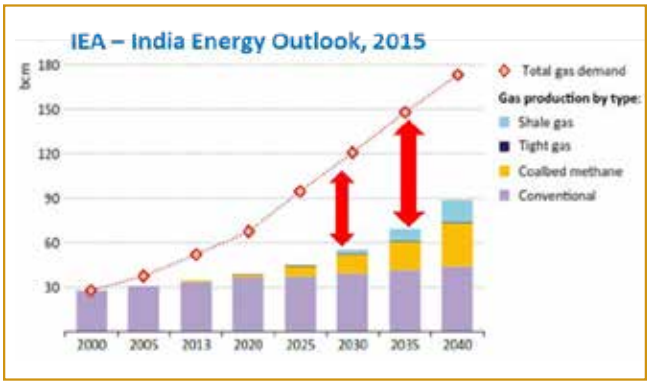
India has the fourth largest (proven) coal reserves in the world, naturally providing an exciting platform for undertaking CBM activities. After the trial drilling and testing of a few CBM wells by Essar and ONGC in the 90's (Cambay and Damodar Valley respectively), the 1997 CBM policy was introduced. Since 2000, about four bidding rounds have been conducted and 33 blocks have been awarded for CBM blocks. However, due to multiple surface and sub-surface issues in the exploration and appraisal process, the progress of CBM has been slow, resulting in only 8 development blocks till date with a net production potential of only 2.5-3.0 million cubic meters per day.

Current Energy scope in India

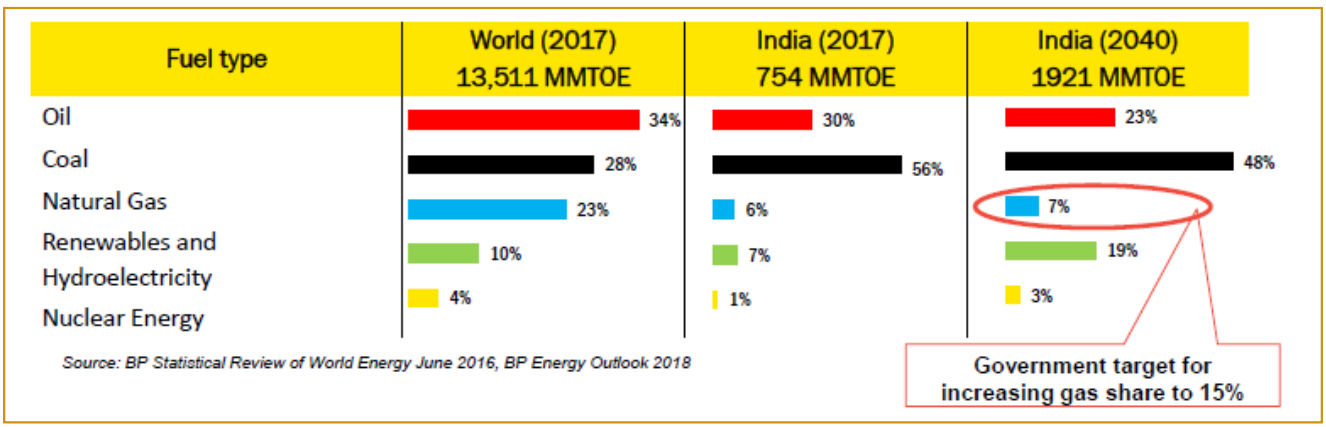
India consumed 213.2 MMT petroleum products and 60,798 MMSCM natural gas in 2018-19. During the same period, the petroleum import bill was a staggering $112 billion. Moving forward, India's primary energy consumption is expected to reach 1,200 MMT or 156% by 2040, catapulting India's energy demand growth to a whole new level.



Therefore, the GoI has made it a priority to sustainably increase the production of domestic energy. The Hon. PM, Shri Narendra Modi is targeting a 10% cut in oil imports by 2022 and switching to cleaner energy in the form of Natural Gas. To meet these goals, a concerted action is required at both the federal policy and the regional level.



In India, though the scope for unconventional hydrocarbons (CBM/Shale) has significantly increased with companies reporting staggering number of resources, there has been little progress at the ground level. Moreover, the current conventional gas production is from a handful of ageing fields owned by NOCs. The Damodar Valley Coalfield located in East India could prove to be a game changer and emerge as a key player in this transition with its prolific coal (Raniganj and Barakar) and thick dark shale (Barren Measures) profile. The other area is the Cambay Basin which is equally endowed with thick Lignitic seams and Cambay shales



Upstream Policy Initiatives

The Government of India announced multiple policy initiatives to enhance conventional production and establish a trend for increasing the share of natural gas in India's energy mix. The government has taken notable steps to improve gas pipeline connectivity and bolster gas marketing activities via the expansion of the City Gas Distribution network. This includes the prestigious Urja Ganga Project as well as the expansion of the pipeline to 27,000 km as proposed in the 2020 Budget. Once the 10th CGD round has concluded, natural gas will be available in 228 Geographical Areas, which will make natural gas accessible to 70 percent of the country's population.

Considering the decline in activities and resource accretion in the sector, some of the areas that have required attention are

- Revision of certain key bottlenecks in existing policies which may have become unyielding & convalescent in the light of technological changes.
- Simultaneous exploration and production of Conventional & Unconventional resources for development of the massive portions of untapped gas/oil in existing contracts of different regimes.
- Initiatives for Enhanced Oil/Gas Recovery (EO/GR)
- A platform for the pooling and sharing of the huge national hydrocarbon database
- Expansion of the focus of exploration to nearly 50% of the Indian sedimentary basinal area, which unfortunately remains largely limited in terms of exploration for oil and gas.

It is encouraging to note that the matter has been squarely addressed in the string of policy initiatives over the last few years (in broad chronological order) i.e.

1. Policy Reforms for Exploration in ML areas (Feb, 2013)

2. Policy for relaxations, extensions for early monetization of discoveries in PSC regime (Nov, 2014)
3. Policy Framework for Early Monetization of CBM (April, 2014) – Free price and market for CBM gas.
4. Policy framework allowing CIL to undertake CBM development in its MLs (Nov, 2015)
5. Launch of the National Data Repository in its unique structure (2016) followed by the HELP/RSC regime OALP and DSF bid rounds
6. Policy for Streamlining of working of PSCs in NELP and Pre-NELP Blocks (Aug, 2018) – several key changes proposed
7. Policy Framework for E&P of Unconventional Hydrocarbons in PSCs and CBM contracts (Aug, 2018)
8. Policy framework for EOR/IOR (Oct, 2018)
9. Reforms in exploration and licensing policies for enhancing domestic production (Feb, 2019) – major changes in the working model of the PSCs and sedimentary basin category based working model
10. MoPNG Circular for CGD license holders to purchase domestic gas from nearby sources available (Nov, 2019)

Impact on Unconventional Hydrocarbon sector

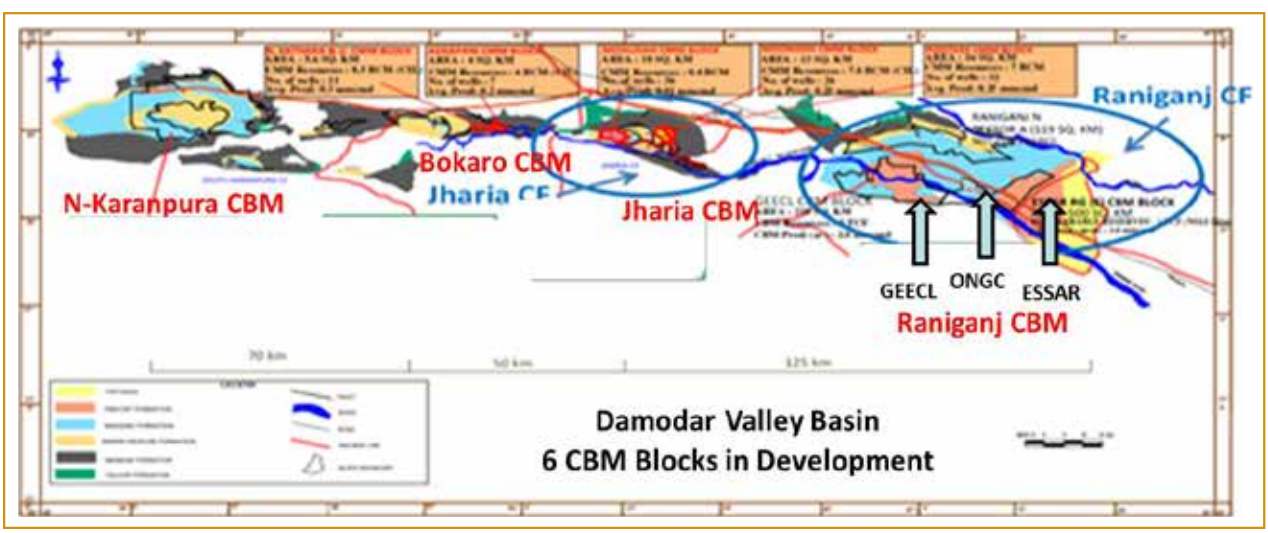
Prolific CBM production is already a reality in the Damodar Valley Coalfield and might as well be the biggest alternative to imported LNG in terms of domestic gas. The upcoming GAIL trunk pipeline will address the biggest challenge of releasing this stranded gas to the entire country. The available players viz. Essar, ONGC, GEECL, etc. have witnessed an immediate turnaround due to price and marketing freedom through the 2017 policy. On the whole, a nearly 10 mmscmd of possible gas supply has been predicted from the 6 CBM development/ production blocks in the belt. Additionally, CIL has been provided allowance for undertaking CBM development in their mining leaseholds which will further enhance the resource numbers and production volume for sure. The Damodar Valley Basin has also been reported to hold/contain Shale gas reserves in the Barren Measure Shales as per several independent estimates. (These resources have been estimated in the range of 50 Tcf).

Similarly, the petroliferous Cambay basin in the western part of the country may have sizeable CBM resources (to the tune of 10-12 TCF) in the Northern Cambay.

Conclusion

However, a few areas which still require attention are actively being considered by the Govt. of India.

a. To make the policies and regulations more end-user friendly and future-ready (to avoid near term revisions), engagement of the industry stakeholders/federations/ think-tanks in deliberations with the policy makers has become an excellent route.
b. Re-assessment of the country's oil and gas reserves and resources (both Conventional and Unconventional Hydrocarbons).
c. Adoption of a Federal and State level co-ordination model by a single window system of clearance so that exploration work can begin without any delays.



EDUCATIONAL INSTITUTIONS

MENTIONED BELOW ARE THE NAMES OF EDUCATIONAL INSTITUTIONS OFFERING COURSES IN POWER AND OTHER STREAMS IN THE ENERGY DOMAIN:

1.	National Power Training Institute (NPTI), Faridabad
2.	UPES, Dehradun
3.	Great Lakes Institute of Management, Gurgaon
4.	National Power Training Institute (NPTI), Nagpur
5.	Management Development Institute, Gurgaon
6.	NTPC School of Business, Noida
7.	Rajiv Gandhi Institute of Petroleum Technology, Jais, Amethi (UP)
8.	IIM's – All IIM's offer MBA in Power Management among other courses
9.	IIT's – All IIT's offer courses in Power Engineering among other related courses
10.	Adani Institute, Gujarat
11.	Deen Dayal Upadhyay, Gujarat
12.	Nirma University
13.	Badruka Institute of Management Studies (BIMS), Hyderabad
14.	Bahra University, Shimla
15.	United World School of Business, Ahmedabad
16.	Rajalakshmi School of Business, Chennai
17.	Dharmsinh Desai University, Gujarat

IMPACT OF ELECTRIC MOBILITY ON OIL & GAS INDUSTRY

In the following piece, **Mr. Dipankar Ghosh, Partner** & **Dr. Remant K. Tiwari, Senior Consultant -Thinkthrough Consulting Private Ltd**. try to weigh in all the factors that indicate the huge potential for growth in the EV market and those that point towards its effect being less than anticipated on the oil and gas industry, thereby making a case for a rather uncertain future over the impact of the former on the latter in the longer haul.

THE CURRENT SCENARIO

Climate change and the rising awareness around it together with a favourable climate for tech innovation is challenging the status quo of several sectors. The advent of electric mobility in the transportation sector is a glaring example of the same. The environment-friendly Electric Vehicles (EVs) which can help in bringing down greenhouse gas (GHG) emissions in the longer run can prove to be a threat to the oil & gas Industry. Globally, the transportation sector is one of the major consumers of fossil fuel products. EVs are still at a nascent stage with a number of areas yet to be worked upon before they can be adotpted on a large-scale. It is, however, too early to conclude whether large scale production of EVs will impact the oil & gas industry as estimated.

India is expected to be one of the largest contributors to non-OECD petroleum consumption growth around the world. Oil imports rose sharply to US$ 87.37 billion in 2017-18 from US$ 70.72 billion in 2016-17 (IBEF). Both PSUs and the Private sector in the oil & gas industry have made significant contributions to the Indian economy. All activities along the petroleum sector value chain contribute to around 15% in India's GDP (Invest in India; Oil and Gas).

The push for EVs and Hybrid vehicles came at a time when the automobile industry was going through a transition - from BS-IV to BS-VI fuels. And, thus in early 2019, the government announced Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME-2) scheme with an outlay of INR 1,000 crore, under which it aims to promote electric mobility in India.

A prominent government thinktank Niti Aayog has suggested that 'electric' three-wheelers and two-wheelers below 150 cc should ply Indian roads by 2025 (Niti Aayog). The Federal think tank has further argued that a significant part of the country's enormous spends on oil imports (such as the colossal USD 112 billion - INR 7.83 lakh crore, spent on importing oil in 2018-19) can be brought down with a complete switch to EVs (Economic Times).

Currently, India does not have large scale battery manufacturing facilities or a cost-effective battery solution. It is also necessary to have adequate charging stations before EVs can be rolled out on a large scale. Presently, EVs constitute less than 2% of the total vehicles that are sold globally.

Dharmendra Pradhan, Minister for Petroleum and Gas has said, that even with an aggressive EV rollout plan, India would need 450 MMTPA (Million Metric Tonne Per Annum) of refining capacity by 2040, which is a little over an 80% increase from 248 MMPTA of capacity as recorded in 2018-19. (Horizon-2019 conference)

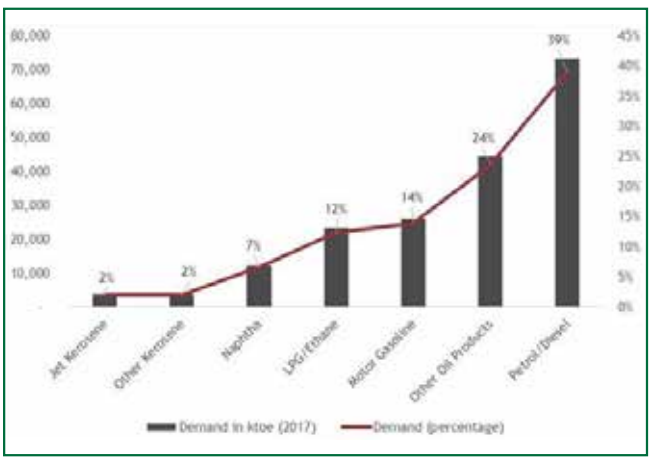
There is varied information available on the future of EV in the public domain. The government, it seems, is limited in its consensus over the subject. Through this article, we have tried to bring in some relevant insights via diverse viewpoints and factual data on EVs to help undertsand them better rather than draw a definite conclusion.

OIL CONSUMPTION IN INDIA

India's oil consumption has surged in the last 30 years. It has progressively increased at a Compound Annual Growth Rate (CAGR) of 5.17% from 50,166 ktoe in 1990 to 1,95,516 ktoe in 2017 (IEA, 2019). The primary factors responsible for this growth are rapid economic development and population boom. Currently, India consumes over 1,87,000 ktoe of oil.

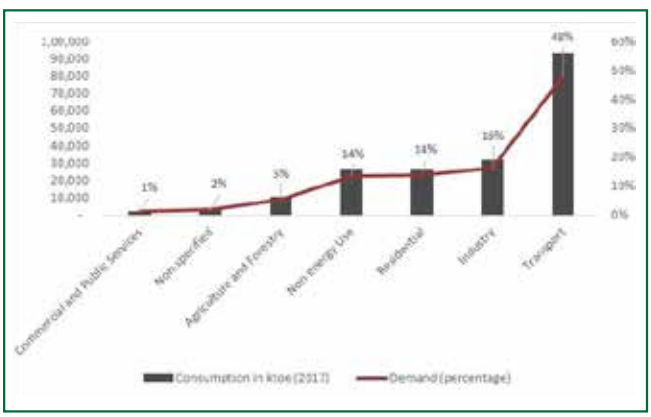
In early 2019, the government announced Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME-2) scheme with an outlay of INR 1,000 crore, under which it aims to promote electric mobility in India.

It represents 5% of the total global oil demand. This is expected to grow at a CAGR of 3.9% in the 2020s and is most likely to surpass China's oil demand by the mid-2020s [IEA, 2020]. The demand for gas and diesel constitutes 39% of the total oil demand, as has been depicted in the Figure below:

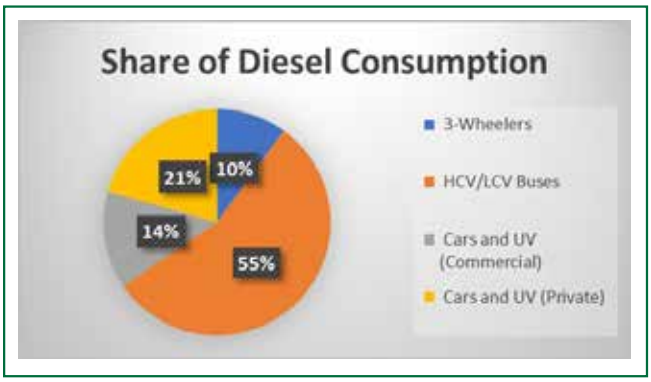


[Source of data: https://www.iea.org/subscribe-to-data-services/world-energy-balances-and-statistics]

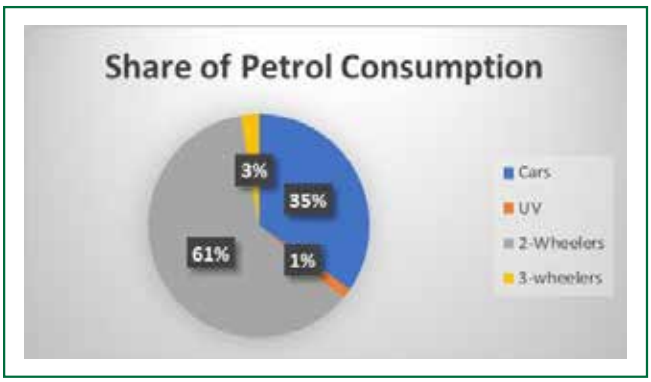
The transport sector is the largest consumer of oil and gas products in India, constituting around 48% of the total oil demand. In the period from 1990 to 2017, oil demand from the transport sector grew at a CAGR of 6.26%. Please refer to the Figure below:



[Source of data: https://www.iea.org/subscribe-to-data-services/world-energy-balances-and-statistics]



[Source: All India Study on Sectoral Demand of Diesel, 2014]



[Source: All India Study on Sectoral Demand of Diesel, 2014]

Overview of Electric Vehicle (EV) segment

The EV market segment comprises of two-wheelers, low-speed three-wheelers, high-speed three-wheelers, personal electric cars, commercial electric cars, and electric buses. Owing to the "Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India" (FAME India) Scheme, the EV market has seen a significant growth in the last 2-3 years. In FY 2019, a total of 7,59,000 units of EVs were sold in India. Of these, 83% were three-wheelers and 16.5% were two-wheelers [EV sales in India cross 750,000 units in FY2019 but FAME II may spoil the run, Auto News]. The EV market is expected to grow at a CAGR of 43.13% during 2019-2026 [India Electric Vehicle (EV) Ecosystem Market Share, Size, Analysis 2030 | BIS Research]. This growth will be driven by government subsidies, tax benefits, entry of domestic battery manufacturers, and price reduction due to economies of scale. It has been estimated that by 2030, electric two-wheelers will constitute around 29% of the active vehicle stocks while electric four-wheelers will constitute around 44% of the active vehicle stocks [Abhyankar et al., 2017].

Factors Responsible for EV Adoption

The penetration of EVs in the passenger vehicle segment will depend on the adoption rate which in turn will be determined by a variety of factors such as procurement cost, operational cost, maintenance cost, vehicle range, charging infrastructure, and enabling environment.

Currently, the prices of EVs are higher than that of conventional comparable gasoline-based vehicles. This is because of the

high cost of advanced Lithium-ion batteries. With improved access to innovations in technology, entry of domestic players, and economies of scale resulting from an increase in demand, the cost of batteries is expected to come down, which will eventually make EVs more affordable.

The operating cost of EVs in terms of cost of running per kilometre is lower than that of conventional gasoline-based vehicles. This is because of lower and stable prices of electricity compared to higher and volatile prices of gasoline and higher efficiency of electric engines compared to that of conventional engines. Moreover, government subsidies under FAME and lower GST rates are expected to provide for an enabling environment for adoption of EVs and expansion of the infrastructure network for charging. With significantly fewer moving parts, the maintenance cost of EV is expected to be lower. These factors when considered make the penetration

Dharmendra Pradhan, Minister for Petroleum and Gas has said, that even with an aggressive EV rollout plan, India would need 450 MMTPA (Million Metric Tonne Per Annum) of refining capacity by 2040.

of EVs in the passenger vehicle segment seem highly possible. If these estimations hold true, EVs will constitute around 30% of the total fleet by 2030.

Impact of EVs on Oil & Gas Industry

EV penetration will adversely impact the demand and the oil & gas industry overall. Impact on the demand for Oil and Gas will not only be determined by the number of conventional gasoline-based vehicles displaced by EVs but also by the average usage. Two-wheelers, three-wheelers, and small cars are generally used for short-distance travel, while UVs and buses are used for long-distance travel. EVs will have better acceptability and adapdability for small distance travel due to constraints of charging time and battery capacity. So, by and large, growth in the EV segment will be driven by two-wheelers, three-wheelers, light motor vehicles, and city buses. Thus, the shift towards EVs may not have as huge an impact on the oil & gas demand. Moreover, the absolute demand for oil and gas may increase due to other cross-cutting factors, some of which are mentioned below.

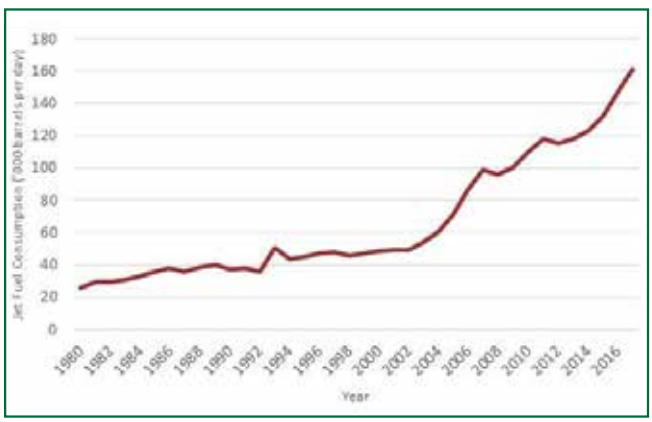
Vehicle Population

India has a passenger vehicle density of 26 per 1,000 people. It is substantially low as compared to the OECD average of 442 vehicles per 1,000 persons and the ASEAN average of 56 vehicles per 1,000 people [IEA, 2020]. The growth of the automobile market also depends on road infrastructure where India may be lagging compared to the developed world. With rising population and economic progress, the passenger vehicle density is expected to increase in the near future. It is estimated that the total number of passenger vehicles will

shoot up by 75% during 2020-2030. This expansion of the passenger vehicle fleet will lead to an increase in the demand for oil and gas.

Growth in civil aviation

Rapid economic growth creates a movement in the economy that results in a higher disposable income. With a prospering and burgeoning middle class, the Civil Aviation Industry in India is poised to take off at a high speed. Significant Government and Private Investments in this sector are predicted to boost its growth further. India is expected to become the third-largest civil aviation market by 2024. With an increase in air traffic, the consumption of jet fuel is expected to soar. According to Fortune [Fortune Business Insight, July 2019], the Aviation fuel market is expected to grow at a CAGR of 5.22% between 2015-26, and the trend in India is expected to be similar, if not higher. The following Figure shows the rapid growth of jet fuel consumption in India, and also the exponential growth over the course of the last two decades



[Source of data: https://www.theglobaleconomy.com/India/jet_fuel_consumption/]

Electricity demand

India's electricity demand is increasing steadily and is expected to go up further during the 2020s. India had a total installed capacity of 365 GW in 2019. While natural gas contributes to 4.6%, oil contributes to 1.6% of the total electricity generated. The per capita electricity consumption in India is substantially lower than that of developed economies. With government's focus on electrification and provisioning of the per capita uninterrupted supply of electricity, [electricity] consumption is expected to go up. Though a large portion of increased demand is expected to be fulfilled by renewable sources, oil and gas shall continue to contribute to the energy mix. Additionally, compared to renewable sources, natural gas is more likely to replace coal for thermal power generation for ensuring grid stability. Renewable sources are more appropriate for peak load, while conventional fuels are more suitable for maintaining the baseload. Improvement in storage technologies may make renewables more suitable for maintaining baseload - it is however still in the initial stages

of development and adoption. Thus, with reference to the aforementioned statements, increased for electricity demand is likely to have a positive impact on gas demand.

Pointers for follow-up thoughts

While it is clear that Electric Vehicles are here to stay and grow through the 2020s and 30s, there is not much clarity

Electric mobility and the oil & gas sector are charting their own growth paths through different routes to address sustainability and the threat of climate change.

as to their impact on the oil & gas sector. No matter how environment-friendly it may be, en-mass rolling out of EVs canot happen overnight as they require massive investments in infrastructure. This includes the availability of advanced and cheaper battery technology, setting up facilities for battery production and charging facilities.

Yet, there are more and more discussions within top oil & gas companies around allocation of funds for adding new retail fuel outlets in cities or directing them towards addition of EV charging stations at the existing outlets.

While there is a steady consumer interest in hybrid vehicles (fossil fuel + battery combination) at the moment, the future of this sector/segment is hazy. The response to the auto sector for catering to this demand will also be a key factor in influencing the auto fuel demand.

At the same time, an unrestricted business environment together with an emboldened middle class is expected to boost the air traffic by manifold. It has thus been predicted that Jet fuel consumption will rise with the expansion of the civil aviation sector.

The oil & gas sector is therefore on a rise buoyed by demand from passenger vehicles, civil aviation, and electricity, all of which seem to be able to negate the affect of rise in demand of EVs.

The Indian oil & gas industry involves the use of diverse products thereby increasing the need to invest substantially for altering the product mix. While the demand for auto-fuel, aviation fuel, and gas (for power generation) may change in the the future, it will take some time for the impact to be assessed.

Both the energy and transportation sectors are currently undergoing a rapid transformation. Electric mobility and the oil & gas sector are charting their own growth paths through different routes to address sustainability and the threat of climate change. Facts tend to suggest that there may not be a major conflict between the two sectors in the near future, but the long-term scenario could prove to be different. We certainly need to wait and watch for that to unfold!

InfralineEnergy™
Research Report

Coal Consumption in India
Trends, Analysis & Forecast 2030

Key Highlights

- Current Scenario of Coal in India
- Policy Framework in Coal Sector
- Coal Consumption Patterns
- Coal Consumption Forecast
- Coal Pricing in India
- Import & Export of Coal

Key Questions Answered

- Coal Demand & Prices
- Alternative Fuels Impact in Fuel Mix
- Overview on Domestic & E-auction Prices
- Coal Production in India
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Rajesh Singh Panwar

rajesh.panwar@infraline.com

Mob: +91 9711786999

Ph: +91 120 6799125, 160

Executive Summary

Coal production in India crossed 700 million tonnes (MT) in FY19, clocking a 8% increase over last year's production. The coal production has increased at the highest rate of 6% for coking coal.

The two large state-run coal miners together accounted for 92% of the total coal produced in the country during FY19. The table below shows the trends in production of Coal and Lignite in India over the last few years from 2007-08 to 2017-18:

Trends in Production of Coal and Lignite in India (in Million Tonnes)

Year	Coal			Lignite	Grand Total
	Coking	Non-coking	Total		
1	2	3	4=(2)+(3)	5	6=(4)+(5)
2007-08	34.46	422.63	457.08	33.98	491.06
2008-09	33.81	457.95	491.76	32.42	524.18
2009-10	44.41	487.63	532.04	34.07	566.11
2010-11	49.55	483.15	532.69	37.73	570.43
2011-12	51.65	488.29	539.94	42.33	582.27
2012-13	51.83	505.87	557.71	46.60	604.31
2013-14	56.82	508.95	565.77	44.27	610.04
2014-15	57.45	551.73	609.18	48.27	657.45
2015-16	60.89	578.35	639.23	43.84	683.08
2016-17	61.66	596.20	657.86	45.23	703.09
2017-18	40.15	635.25	675.40	46.64	722.09

Imported Coal Volume witnesses sharp growth

Coal imports grew by 8.1% in FY19 on the back of sustained demand from steel sector for coking coal and steady demand from the power and cement industry. Total Coal import in FY19 stood at 235 MT, against 214 MT in FY18.

Australia, Indonesia and South Africa are the three largest exporters of coal to India and contribute to 75-80% of the country's total coal import.

Coal imports were widely anticipated to fall during FY19. The Government has been pushing steam coal consumers especially power producers to replace imported coal with domestic coal. But inadequate coal transportation infrastructure especially availability of rakes has been hampering supply to power producers.

Coal import trend is expected to continue as power, cement and steel industry are expected to witness improvement in demand and capacity utilization.

Primarily, this report will focus on coal consumption in India with global coal scenario while assessing the applicability to Indian industries. While covering this, the report will also contain forecast of the domestic and global coal demand and prices.

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The report is priced at **INR ₹1,25,000|USD $1,763**. We are offering a pre-publication discount of **10%. The price after discount is INR ₹1,12,500|USD $1,587.** This offer is valid for orders and payments received on or before March 31, 2020.
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GOVERNMENT LOOKING AT REDUCING ENTRY BARRIERS IN COAL MINING

Anil Kumar Jain, Secretary, Ministry of Coal, Govt of India has said that the government is looking at reducing the entry barriers in coal mining which will have a spin effect on the GDP growth and the economy. He further added that the Ministry is open to all suggestions in this regard and will go to the Cabinet after the consultation series are over. He was speaking at a Stakeholder Consultation on recently launched Discussion Paper of Ministry of Coal for 'Auction of Coal Mines for Sale of Coal' organized by Ministry of Coal, Govt of India, jointly with FICCI. This was the first of the series of stakeholders' consultations being organized to gain the industry's perspective on the upcoming auction of coal mines for sale of coal. The second roundtable is in the series is being organized on 28th January at Kolkata. Government had promulgated Mineral Laws (Amendment) Ordinance, 2020 on January 10, 2020 to enable wider participation in auction of coal mines by removing the end-use restrictions of the mining blocks. Earlier last year, Government had also allowed 100% Foreign Direct Investment under automatic route for coal mining activities including associated processing infrastructure. To take this forward, Government is in the process of formulating guidelines for commercial mining of coal blocks. Subsequently, Ministry of Coal has come out with a Discussion Paper entailing key terms and conditions of the auction process. This is as part of the larger objective of ensuring maximum participation from the domestic as well as global players in the upcoming auctions of commercial coal mines.

NLC INDIA TO RAISE RS 525 CRORE VIA BONDS

State-owned NLC India on Friday said it will raise Rs 525 crore through issuance of bonds on a private placement basis. The proceeds of the proposed issue will be utilised to replace the equity deployed in the projects and operation over the normative level by the debt, and for other corporate requirements. The Company has decided to raise Rs 525 crore through private placement of Secured, Non-Cumulative, Non-Convertible, Redeemable, Taxable Bonds (Series I of 2020) in the nature of Debentures at a coupon of 7.36 per cent per annum with a door to door maturity of 10 years, as per the bidding process held on January 23, 2020. Security for these bonds will be duly created as per the requirements of and within the period of time prescribed under the Companies Act and rules specified therein. NLC India is into mining (coal & lignite) and power generation (thermal and renewable energy).

ADANI POWER DRIVES 21 PER CENT JUMP IN INDIAN UTILITIES' COAL IMPORTS IN 2019

Indian utilities' coal imports jumped 21 per cent last year, rebounding after a three-year slide mainly due to increased purchases by an Adani Power plant in western India, government data showed on Wednesday. Imports rose to 69.51 million tonnes, the highest level since 2015, data from the Central Electricity Authority showed. Utilities account for more than 75 per cent of India's annual coal demand. Adani's "Ultra mega" power plant in Mundra, Gujarat state, accounted for a quarter of the imports last year, with its shipments rising 75 per cent to 17.35 million tonnes. The plant started increasing shipments after India's Supreme Court in October 2018 allowed it to pass on higher costs due to a rise in prices of Indonesian coal. Coal imports by the Mundra plant had fallen in 2017 and 2018 as the project was operating below full capacity and the company booked losses because power purchase agreements did not allow it to pass on the increase in fuel costs. Utilities' overall imports of thermal coal for the 10 months to October rose 12.6 per cent to 163.86 million tonnes, coal ministry data showed.

COAL INDIA'S DAILY PRODUCTION SET TO RISE TO 3 MT NEXT MONTH

Coal India's daily output is expected to rise to three million tonnes (MT) next month, enough to run a 660-MW power plant for a year as the state-run miner focuses on expansion of projects and increasing production. In recent weeks, the company focused on removing top soil to expose coal, which will rapidly raise output. The company has also received environment clearances for a handful of large expansion projects. These are now underway and has aided in increasing daily production. Daily output has already reached 2.3 million tonnes after dipping to 1.1 million tonnes from 1.8 million tonnes following heavy late-monsoon rain. It has now risen to 2.3 million tonnes. A former Coal India chairman said that to achieve targets towards the end of the fiscal year, the company shifts focus from removing top soil to raising output. In January, Coal India clocked a double-digit growth in output for the first time in this fiscal. It now plans to increase stocks at thermal power plants to 30 days and reduce pending supplies to non-power consumers to zero by March. At present power plants are stocked with 20 day's fuel. Coal at pitheads is 35 MT, while thermal plants have stocks of 36 MT. Better management of supply logistics ensured that the coal stock at various power stations was maintained throughout the year and the number of critical power plants never touched double digits during FY20.

COAL INDIA TO INCREASE E-AUCTION OFFERINGS TO 15 PER CENT

State-run miner Coal India will increase spot e-auction offerings in the current quarter to 15 per cent of the year's production. In the three quarters till end-December 2019, the company had offered about 12 per cent of its production for auctions. Spot auction offers accounted for almost 46 per cent of the total quantity offered for auctions till December, while the rest was a mix of special forward e-auction for the power sector, exclusive e-auction for non-power and special e-auction. Last year, the miner had produced 607 million tonnes of coal. Its production target for this financial year is 660 million tonnes. Till December, the company had offered close to 46 million tonnes through auctions, of which the booked quantity was about 44 million tonnes. In the previous quarters, as fuel stocks fell at power plants during summer and output fell because of heavy unseasonal rains, Coal India had to increase supplies to power consumers holding fuel supply agreements. It also focused on supplying pending quantities to its non-power consumers when production picked up after monsoon. Between April and December 2019, spot auctions fetched an average premium of 66 per cent over the notified prices, while premiums for other forms of auctions hovered between 30 per cent and 34 per cent of the notified price.

NAGPUR: FIVE YEARS ON, COAL MINES IN VIDARBHA FINDING NO TAKERS

Nearly five years after being put on the block, 18 coal mines in the region have found no takers. The BJP-led government had put in place a system of auctioning mines replacing the controversial allocation method followed during the UPA regime leading to allegations of massive coal scam. The notification for holding auction of these blocks was issued in 2015. The last round of bidding was held around six months ago, but none turned up to take part in it. Last month, the government eased norms for private coal mining allowing commercial exploitation as against captive use earlier. The move may not help much in wooing private industries to take up the blocks. It is basically due to the poor demand of coal itself as fuel. The 18 mines are spread in an area 1,604 hectare and have an estimated reserve of 121 million tonne (MT). This is nearly double than Western Coalfields Limited's average output in a year. These mines are spread in Yavatmal, Chandrapur and Nagpur districts. The BJP government in its previous tenure had scrapped the allocation method that was questioned by the Comptroller and Auditor General (CAG) leading to CBI inquiries and arrests, including in Nagpur.

COAL MUST REMAIN AN IMPORTANT PART OF THE ENERGY MIX – AT HOME AND ABROAD

In an era of fracking for oil and natural gas and growth in solar and wind power, who knew the plain old coal plant could have value in a carbon-constrained world? And yet, coal generation has turned out to be a surprising bright spot in energy tech's universe of late. Evidence of that came in the U.S. Department of Energy's far-sighted "Coal FIRST" initiative, which aims to develop small, modular coal plants of the future that can adapt to the changing electric grid and produce power with near-zero carbon dioxide emissions. Launched in 2018, Coal FIRST is just the kind of innovative, advanced energy technology that both the United States and the world needs. Some of the changes in coal technology that are envisioned portend potentially momentous shifts for the coal industry and energy producers. Under Coal FIRST, DOE has earmarked up to $100 million for coal research and development projects. Developing conceptual designs for the new coal plants is the opening act. Thirteen projects were selected last year for early-stage research and development.

POLAND'S BIGGEST COAL MINER EXPECTS FALL IN 2020 OUTPUT

Poland's biggest mining company PGG expects coal output to fall to between 29.6 million and 29.7 million tonnes this year from more than 30 million last year as demand has dipped partly due to a warm winter. Poland generates most of its electricity from coal but use of the polluting fuel in power production has been gradually decreasing due to rising imports of electricity and falling power consumption. A PGG spokesman said coal sales had dipped mainly due to a warmer-than-normal winter, driving down demand for the fuel used for heating, and because of the electricity imports. PGG has built up a stockpile of 2.8 million tonnes of coal compared to none at the same point last year. Trade unions at PGG have said the stockpiles of coal have also climbed because of coal imports, especially from Russia, which they say are threatening jobs.

KINETICOR RECEIVES APPROVALS FOR 900MW COMBINED CYCLE POWER PLANT

Canadian power generation facilities developer Kineticor Resource has obtained key approvals for the 900MW Cascade combined cycle power plant in Alberta. The Alberta Utilities Commission and Alberta Environment and Parks have granted approvals for the Cascade power project, being developed in collaboration with OPTrust and Macquarie Capital. The construction works of the Cascade power plant are expected to begin in the second quarter of the year. The project not only provides market diversification opportunities for gas producers and cost efficiencies for Cascade but will also generate efficient baseload power while providing a meaningful reduction in the carbon intensity of the Alberta power grid. During the construction phase, the project is expected to create over 500 job opportunities. Following the completion, the power generated by the plant will be supplied to the Alberta power grid. In addition to power generation, the combined cycle power plant is expected to produce approximately 62% less carbon per MWh compared to existing coal-fired generation. Kineticor has also signed a series of long-term gas supply agreements with Peyto Exploration and Development and Cutbank Dawson Gas Resources, a subsidiary of Mitsubishi.

US COMMITS $64M FOR RESEARCH INTO COAL-FIRED POWER PLANTS

The US Department of Energy (DOE) has committed $64m in federal funding for the cost-shared research and development (R&D) into future coal-fired power plants. Funding for the projects is part of DOE's Coal flexible, innovative, resilient, small, transformative (FIRST) initiative. Funded by DOE's Office of Fossil Energy, Coal FIRST is an R&D programme that has been created to advance coal generation technologies that offer secure, stable and reliable power. The US Secretary of Energy Dan Brouillette said: "Coal is a critical resource for grid stability that will be used in developing countries around the world well into the future as they build their economies. Investing in R&D for cleaner coal technologies will allow us to develop the next generation of coal plants for countries to use this valuable natural resource in an environmentally responsible manner. The Coal FIRST initiative will see the development of coal power plants that will provide secure and reliable power to the US grid. DOE will focus on the projects, which develop critical components essential for the transformational coal-fired systems and Coal FIRST. To support Coal FIRST, National Energy Technology Laboratory (NETL) will manage the projects. Fossil Energy Assistant Secretary Steven Winberg said: "The evolving US energy mix requires cleaner, more reliable and highly efficient plants.

ROYAL GROUP TO INVEST $1.5 BILLION IN 700 MWS COAL FIRED POWER PLANT

A 700 megawatt (mW) coal-fired power plant has been approved for development in Koh Kong's Botum Sakor district by the Cabinet. The $1.5 billion investment in the Independent Power Producer (IPP) plant is a venture by Cambodian tycoon Okhna Kith Meng's Royal Group. A source familiar with the investment said: "The project calls for the construction of a jetty to enable the shipment and unloading of imported coal to fire the power plant. It will take about four years to complete and 80 percent – 4,765.44 million – kilowatt hours a year of the power generated by the power plant will be sold to the Electricte Du Cambodge [EDC], the state owned utility company. The project has a 35-year operating licence and is to be undertaken on a "build-own-operate" basis. The investment funds for the project will comprise 30 percent injection by the company while the remaining 70 percent is expected to be from projects loan from development banks with an expected interest rate of 6.5 percent. This is the second power plant project being undertaken by Royal Group. The first is the 400 MWs Lower Sesan 2 hydropower plant, located at Stung Treng.

THERMAL COAL PRICES TO FALL ON CORONAVIRUS OUTBURST IN CHINA

International thermal coal prices may fall following outburst of the coronavirus in China. Wood Mackenzie said, "We expect February would take the biggest hit by the coronavirus as the Chinese government implements various controls against the accelerated spread of the virus, including public holiday extensions and travel bans. On 25 January, Linfen city of Shanxi province announced a delay to production restart and only maintenance work is allowed. Weakening economic and industrial activities would hurt both thermal coal demand and Chinese domestic production." According to the firm, thermal coal imports into China are also likely to slow for a time. Already there are reports of Indonesia coal producers being asked to delay loadings. As the largest supplier of coal to China, Indonesia has the most to lose if the situation worsens and electricity demand weakens. The impact on prices, though, is likely to be muted. Prices have already fallen so significantly through 2019 that many producers across the globe are in a negative margin situation. Market sentiment could certainly drive the price lower, but this will be temporary until China began importing again.

Sr. No.	COMPANY NAME
1	Adi Enterprises
2	Agarwal Coal Corporation Pvt. Ltd.
3	Indo Unique Flame Limited
4	Nilanchal Ispat Nigam Limited
5	Aditya Birla Group
6	Coal India Limited
7	Odisha Coal and Power Limited
8	Tata Steel Limited
9	Gujarat Mineral Development Corporation
10	Vedanta Resources
11	RattanIndia
12	Rajasthan State Mines and Minerals
13	Odisha Mining Corporation
14	Vedanta Limited
15	FCI Aravali Gypsum and Minerals (India) Limited
16	National Mineral Development Corporation
17	Karam Chand Thapar Group
18	Adani Group
19	Mahagenco Ash Management Services
20	ACB India Limited
21	Bharat Alluminium Company Limited
22	Birla Corporation Limited
23	CESC Limited
24	Singareni Collieries Company Limited
25	South Eastern Coalfields Limited
26	Mahanadi Coalfields Limited
27	Western Coalfields Limited
28	Eastern Coalfields Limited
29	Central Coalfields Limited
30	Bharat Coking Coal Limited
31	Steel Authority of India Limited
32	North Eastern Coalfields Limited
33	NLC India Limited
34	National Aluminium Company Limited
35	Chhattisgarh State Power Generation Company Limited
36	Northern Coalfields Limited
37	Mahagenco
38	Madhya Pradesh Power Generation Company Limited
39	Hindalco Industries Ltd
40	JSW Steel Ltd
41	Jindal Steel and Power Limited

COKING COAL FOB AUSTRALIA ($/TON) (FOR NOV'19-JAN'20)

DATE	HCC PEAK DOWN REGION	PREMIUM LOW VOL	MID VOL
02-JAN-20	138.00	137.00	122.00
03-JAN-20	138.00	137.00	122.00
06-JAN-20	138.00	137.00	122.00
07-JAN-20	142.00	141.00	122.00
08-JAN-20	142.00	141.00	122.00
09-JAN-20	144.00	143.00	122.00
10-JAN-20	144.00	143.00	122.00
13-JAN-20	152.00	151.00	128.00
14-JAN-20	153.00	152.00	128.00
15-JAN-20	153.00	152.00	128.00
16-JAN-20	153.00	152.00	128.00
17-JAN-20	153.00	152.00	128.00
20-JAN-20	153.00	152.00	129.00
21-JAN-20	153.00	152.00	129.00
22-JAN-20	153.00	152.00	129.00
23-JAN-20	153.00	152.00	129.00
24-JAN-20	153.00	152.00	129.00
27-JAN-20	153.00	152.00	129.00
02-DEC-19	134.00	133.00	120.00
03-DEC-19	134.00	133.00	120.00
04-DEC-19	134.00	133.00	120.00
05-DEC-19	134.00	133.00	120.00
06-DEC-19	134.00	133.00	120.00
09-DEC-19	134.00	133.00	120.00
10-DEC-19	138.00	137.00	121.00
11-DEC-19	138.00	137.00	121.00
12-DEC-19	138.00	137.00	121.00
13-DEC-19	138.00	137.00	121.00
16-DEC-19	138.00	137.00	121.00
17-DEC-19	135.00	134.00	120.00
18-DEC-19	135.00	134.00	120.00
19-DEC-19	135.00	134.00	120.00
20-DEC-19	135.00	134.00	120.00
23-DEC-19	135.00	134.00	120.00
24-DEC-19	137.00	136.00	121.00
26-DEC-19	137.00	136.00	121.00
27-DEC-19	137.00	136.00	121.00
30-DEC-19	137.00	136.00	121.00
31-DEC-19	137.00	136.00	121.00
01-NOV-19	145.00	144.00	127.00
04-NOV-19	145.00	144.00	128.00
05-NOV-19	145.00	144.00	128.00
06-NOV-19	145.00	144.00	128.00
07-NOV-19	145.00	144.00	128.00
08-NOV-19	136.00	135.00	121.00

DATE	HCC PEAK DOWN REGION	PREMIUM LOW VOL	SEMI SOFT
11-NOV-19	135.00	134.00	121.00
12-NOV-19	135.00	134.00	121.00
13-NOV-19	135.00	134.00	121.00
14-NOV-19	135.00	134.00	121.00
15-NOV-19	136.00	135.00	123.00
18-NOV-19	136.00	135.00	123.00
19-NOV-19	137.00	136.00	123.00
20-NOV-19	137.00	136.00	123.00
21-NOV-19	137.00	136.00	123.00
22-NOV-19	137.00	136.00	123.00
25-NOV-19	137.00	136.00	123.00
26-NOV-19	134.00	133.00	120.00
27-NOV-19	134.00	133.00	120.00
28-NOV-19	134.00	133.00	120.00
29-NOV-19	134.00	133.00	120.00

COKING COAL IMPORTS THROUGH SELECTED PORTS

PORT	OCT-19		NOV-19		DEC-19	
	Quantity (Tonnes)	Weighted Average Price (INR/Tonne)	Quantity (Tonnes)	Weighted Average Price (INR/Tonne)	Quantity (Tonnes)	Weighted Average Price (INR/Tonne)
CHENNAI	38	29,431	168	29,069	168	29,298
DHAMRA	3,81,819	11,268	7,44,243	10,309	8,56,779	10,256
ENNORE	-	-	1,80,710	11,372	27,500	12,073
GANGAVARAM	-	-	5,18,929	11,095	3,61,701	10,475
KANDLA	5,000	12,843	31,418	8,652	1,79,063	11,731
KARAIKAL*	53,694	10,904	-	-	76,406	7,439
KOLKATA	4,94,073	10,839	4,05,260	10,041	6,57,237	9,223
KRISHNAPATNAM*	1,13,579	12,139	1,64,393	11,975	2,92,835	9,081
MAGDALLA*	-	-	-	-	-	-
MARMAGOA	3,90,029	10,474	5,21,824	8,668	3,89,068	9,866
MUNDRA	1,60,000	9,412	86,561	10,092	-	-
NEW MANGALORE	-	-	-	-	-	-
PARADIP	5,78,302	11,583	7,80,173	11,772	7,50,834	10,386
PIPAVAV	-	-	-	-	-	-
VIZAG	3,10,649	11,134	3,53,682	10,608	5,71,165	10,049
MUMBAI & JNPT	-	-	0.00	6,36,005	1.00	8,53,526
HAZIRA	76	26,630	120	26,946	48	27,332
JAIGARH	2,00,588	11,297	3,03,362	9,835	2,96,450	9,782
OTHERS	99,499	11,932	1	14,400	12,463	11,879
TOTAL QUANTITY IMPORTED	**27,87,347**	-	**40,90,842**	-	**44,71,717**	

*ONLY EDI FIGURES

NON-COKING COAL IMPORTS THROUGH SELECTED PORTS

PORT	OCT'19		NOV'19		DEC'19	
	Quantity (Tonnes)	Weighted Average Price (INR/Tonne)	Quantity (Tonnes)	Weighted Average Price (INR/Tonne)	Quantity (Tonnes)	Weighted Average Price (INR/Tonne)
DAHEJ*	2,97,183	3,727	6,83,488	4,019	2,22,880	3,347
CHENNAI	104	19,821	-	-	99	20,500
COCHIN	-	-	-	-	-	-
DHAMRA	2,17,043	4,875	4,59,789	4,497	5,33,441	5,216
ENNORE	6,41,931	3,840	6,49,318	3,450	5,83,083	4,472
GANGAVARAM	10,69,197	4,926	11,42,278	4,894	11,57,452	4,898
KAKINADA*	91,950	4,118	2,50,284	3,758	2,13,572	2,516
KANDLA	14,68,261	3,754	15,35,703	4,942	9,32,454	5,871
KARAIKAL*	5,11,404	4,111	5,06,281	4,213	5,64,133	4,029
KOLKATA	2,09,266	4,815	4,00,606	4,990	3,42,543	5,231
KRISHNAPATNAM*	13,53,774	4,227	11,86,511	3,812	9,02,188	4,777
MAGDALLA*	7,24,252	3,712	8,61,681	4,338	5,97,087	4,288
MARMAGOA	1,12,740	6,224	2,02,800	5,944	2,38,689	6,487
MUMBAI & JNPT	2,23,200	21,599	1,40,481	67,877	1,90,081	81,130
MUNDRA	13,52,544	3,832	19,33,420	4,090	9,87,951	3,861
NEW MANGALORE	1,22,290	4,554	2,20,741	3,929	3,28,602	3,771
PARADIP	3,45,463	4,172	4,01,395	3,828	7,60,342	3,959
PIPAVAV*	16,418	-	1,15,500	6,503	19,023	-
TUTICORIN / VOC*	7,91,642	3,136	7,44,702	3,491	6,38,587	4,726
VIZAG	7,97,434	3,818	9,80,144	4,414	9,70,895	4,204
HAZIRA	4,86,024	3,031	3,69,340	2,973	6,37,801	3,089
NAVLAKHI	7,97,577	3,159	7,78,865	3,989	7,32,004	4,135
JAIGARH	2,42,204	4,540	3,91,724	4,474	7,20,487	4,873
OKHA	56,700	4,964	56,120	4,995	1,65,250	4,824
BHAVNAGAR	1,30,109	2,991	28,667	4,670	2,13,534	4,268
PORBANDAR	33,000	4,614	22,000	3,557	1,01,323	3,757
JAKHAU	52,341	-	63,082	5,195	55,432	-
OTHERS	12,10,574	3,710	10,38,927	4,099	13,03,719	4,296
BEDI	1,43,784	-	1,02,343	-	42,500	5,026
JAFRABAD	11,209	-	10,123	-	11,321	-
MULDWARKA	29,871	-	24,322	-	23,529	-
SIKKA	29,231	-	23,103	-	19,248	-
TOTAL QUANTITY IMPORTED	**1,35,68,720**	-	**1,53,23,738**	-	**1,42,09,247**	

*ONLY EDI FIGURES

MONTH-WISE COAL PRODUCTION BY CIL DURING FY20, FY19, FY18 AND FY17 (IN MILLION TONS)

MONTH	2019-20	2018-19	2017-18	2016-17
APR	45.29	44.84	38.44	40.35
MAY	46.59	47.14	40.74	42.58
JUN	45.08	44.88	39.66	42.72
JUL	38.5	40.56	36.64	36.74
AUG	37.77	38.8	37.63	32.43
SEPT	30.77	40.24	38.77	35.24
OCT	39.35	49.77	46.14	43.51
NOV	50.02	52.09	51.26	50
DEC	58.02	54.13	54.63	54.2
JAN	63.11	57.20	56.69	55.99
FEB	-	58.05	54.46	54.3
MAR	-	79.2	72.28	66.07
TOTAL	**451.52**	**606.9**	**567.34**	**554.13**

UPDATED FIGURES MAY NOT TALLY DUE TO REVISION

MONTH-WISE COAL PRODUCTION BY SCCL DURING 2018-19 AND 2019-20 (IN MILLION TONS)

MONTH	2019-20	2018-19	Y-O-Y GROWTH (%)
APR	5.5	4.51	21.95
MAY	5.87	5.1	15.10
JUN	5.71	4.96	15.09
JUL	5.15	4.43	16.01
AUG	4.05	4.38	-7.46
SEPT	4.23	5.12	-17.10
OCT	5.07	5.27	-3.93
NOV	5.45	5.77	-5.56
DEC	5.71	6.04	-5.41
JAN	5.72	6.29	-9.06
FEB	-	6.07	-
MAR	-	6.47	-
TOTAL (APR-JAN)	**52.47**	**45.58**	**2.57**

INDIA'S COAL & COKE IMPORT (IN MILLION TONS)

COAL TYPE	JAN'20*	DEC'19	JAN'19	% GROWTH (+/-) M-O-M BASIS	% GROWTH (+/-) Y-O-Y BASIS	APR-JAN'20*	APR-JAN'19
COKING COAL	3.76	4.47	3.32	-15.9%	13.3%	40.95	40.02
NON COKING COAL	13.93	14.21	14.59	-2.0%	-4.5%	142.19	136.58
ANTHRACITE COAL	0.08	0.12	0.33	-33.3%	-75.8%	1.49	1.43
PCI COAL	0.8	0.91	1.33	-12.1%	-39.8%	10.02	6.37
MET COKE	0.17	0.17	0.34	0.0%	-50.0%	2.28	3.99
PET COKE	0.61	0.65	1.24	-6.2%	-50.8%	8.3	5.43
TOTAL	**19.35**	**20.52**	**21.15**	**-5.7%**	**-8.5%**	**205.23**	**193.81**

MINISTRY OF COAL

MINISTRY OF COAL, SHASTRI BHAWAN, NEW DELHI - 110 001

Name	Designation	Intercom	Tel. Office	Room No.	Tel. Residence
Shri. Pralhad Joshi	Hon'ble Minister of Coal,Mines and Parliamentary Affairs	501/504	23070522/24	504-C	011-23093497
Shri. Ritesh Chauhan	"PS to Hon'ble Minister of Coal, Mines & Parliamentary Affairs"	510	23070522/24	508-C	---
Shri. Arun Iyer	"Additional PS to Hon'ble Minister of Coal, Mines & Parliamentary Affairs"	509	23070522/24	509-C	011-23093497
Shri. Ankit Kumar	"Assistant PS to Hon'ble Minister of Coal, Mines & Parliamentary Affairs"	501/504	23070522/24	504-C	---
Shri. Anil Kumar Jain	Secretary	222	23384884	317-A	---
Shri. Rakesh Kumar Mangal	PSO	227	23384884	317-A	
Shri. S. Sethuraman	PS	227	23384884	317-A	
Shri. Vinod Kumar Tiwari	Add. Secretary	221	23386710	319-A	
Shri. P.S Prasanna Kumar	P.P.S.	228/139	23386710	318-A	9868271085
Shri	Joint Secretary (AU)	275	23383356	311-B	
Shri. R N Bansal	PS	273	23383356	315-B	
Shri. Rajesh Kumar Sinha	Joint Secretary (RKS)	226	23384887	321-A	24677475
Smt. Veena Sharma	Sr. PPS	229/137	23384887	337-A	9810560940
Shri. Manoj Kumar	PS	229/137	23384887	337-A	9968280760
Smt. Reena Sinha Puri	Joint Secretary & F.A.	224	23384211	321-A	23214820
Sh. Parveen Arora	PPS	230/138	23384211	337-A	
Smt. Vismita Tej	Joint Secretary(VT)	233	23384224	311-B	....
Shri. Gulshan	PA	200/135	23384224	307- A	
Shri. Bhabani Prasad Pati	Joint Secretary(BPP)	312	23387698	321-A	
Shri. Rosy Kapoor	PS	322	23387698	321-A	
Shri. Animesh Bharti	Economic Adviser	308	23385949	120-F	....
Shri. Ravinder kumar	PS	309	23385949	120-F	....
Dr. Anindya Sinha	Adviser(P)	223/129	23386347	309-A	
Smt. Anita Goyal	PS	263/142	23386347	315-B	
Shri. R D Chouhan	Controller of Accounts	282	23386644	241-A	--
Shri. Anupam Lahiri	Deputy Director General		24653863	LNB	
Shri. Bhagat Singh	PS		24653863	LNB	

Name	Designation	Intercom	Tel. Office	Room No.	Tel. Residence
Shri. Mukesh Choudhary	Director(CLD/Vigilance)	235	23384631	328-A	26872976
Shri. Vinod Kumar	PS	269	23384631	337-A	
Shri. Peeyush Kumar	Director (T)	232	23381536	303-B	1,20,49,84,387
Shri. Babula Patra	PPS	279	23381536	315-B	
Shri. Mahendra Pratap	DS(Admin/CBA-II)	237	23382787	301-B	9013884524
Shri. Varughese Samuel	PA	121	23382787	315-B	
Shri. N.K Singh	DS(NA)	305	23384104	120-F	9868539584
Shri. A. Kirtivasan	Consultant	305	23384104	120-F	
Shri. PSL Swami	DS(BA/Estt./IT)	234	23381128	302-B Wing	....
Smt. Veena Bhatia	PS	278	23073425	315-B	
Shri. Rajnish Kwatra	DS(Parl./Coord.)	243	23073425	304-B	
Shri. R K Sanduke	PPS	278	23073425	315-B	
Shri. Ram Shiromani Saroj	DS(LA&IR)		24616989	LNB	....
Shri. Subhash Chandra	PA		24616989	LNB	
Shri. Umashankar Thakur	DS(PCA/IC)	231	23384431	323-A	
Shri. Manoj Kumar Gupta	DS(CSR&W/CMPF)	277	23073933	245-A	
Shri. Ajitesh Kumar	DS(CBA-I)	115	23380026	246-A	
Shri. Subodh kumar	Jt. Director (OL)	204	23381127	307, cabin 2	....
Shri. Anil Kumar	PA	204	23381127	307-A	
Shri. D.K Sharma	Deputy Director (PMS/CSR&W)	311	24641421	120-F Wing	9868911105
Shri. Sujit Kumar	Under Secretary(CLD/IT)	307	23384285	120-F	
Shri. Bijoy Samanta	Under Secretary(ADMIN/IC/CMPF)	515	23385724	104-C	
Shri. Sanjib Bhattacharya	Under Secretary (BA/Estt./Parl.)	216	23388491	351-A	9213835373
Smt. Alka Shekhar	Under Secretary (PCA)	215	23386431	120-F	26264827
Shri. Kishore Kumar	Under Secretary (Vig)	257	23382188	514-D	....
Shri. Rishan Ryntathiang	Under Secretary(CBA-II/Coord.)	201	23073936	350-A	....
Shri. Sudhher babu Motana	Under Secretary(CCNT/CC&SD/CPAM)	249	23382269	315-B	9868631064
Shri. A. K. Das	Under Secretary(IFD/Cash/Parl.)	274	23073936	350-A	....
Shri. Mukesh	Under Secretary(LA&IR/CBA-I)	306		120-F	
Shri. Manish Uniyal	Under Seceatary(NA)	304	23384106	120-F	
Shri. L.R. Meena	Section Officer (CBA-I)	265/140	23073921	248-A	
Shri. Pratim Kumar Chanda	Section Officer (CLD)	247	23384285	315-B	....
Shri. Prem Singh	Section Officer (Admin/PCA)	253	23382188	512-D	....
Shri. L.R Gulati	Section Officer (Estt/Parl/CMPF)	246/255	23386867	104-C	....
Shri. P.K. Das	DDO/Cash Section	225	23073931	513-D	....
Smt.	Asst. Director Hindi(OL)	254	23782334	514-D	....
Smt. Usha Malik	Section Officer(CPAM)	271	23382269		....
Shri.	Section Officer(CC&SD/CCNT)		23073937		....
Smt. Sumati Saklani	Section Officer (Coord)	295	23388781	315-B	....
Shri. M.V Balasubramanian	Section Officer(CBA-II)	106	23073933	245-A	....
Shri. Ashish Chanotra	Parliament Assistant	245	23388066	321-A	....

INPOWER- COAL SECTOR OUTLOOK | 2020 | JANUARY

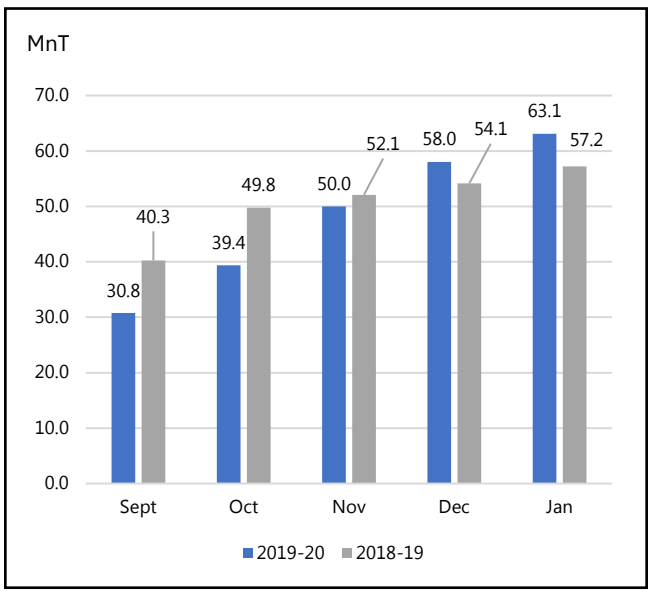
INPOWER – AN INFRALINE'S MONTHLY STREAM WHICH HIGHLIGHTS INFORMATION RELATED TO COAL SECTOR AND AIMS TO PROVIDE INSIGHTS OF REGULATORY AND INDUSTRIAL DEVELOPMENTS IN COAL SECTOR.

INPOWER-JANUARY 2020

Sector Statistics
Production Outlook

Production Performance of CIL

The coal production in Jan'20 stood at 63.1 million tons compared to 57.2 million tons for the same month during last year, recording a highest Y-o-Y growth of 10.31%.



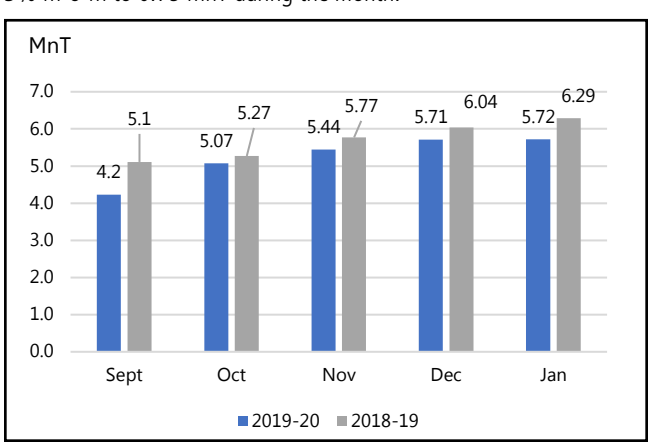
The surge in coal production came largely on back of higher output from MCL and SECL, both of which had attained production in excess of 15 MnT during the month.

Eventually, MCL topped the list with production of 15.69 MnT coal, followed by SECL which had garnered 15.52 MnT output in Jan'20.

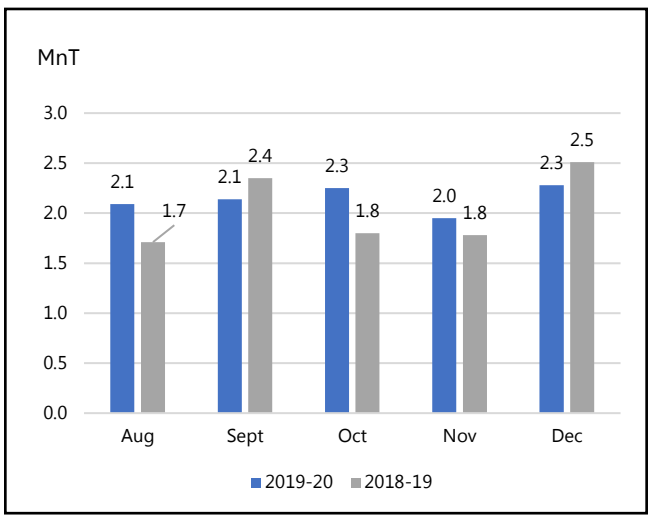
Production Performance of SCCL

The coal production by Singareni Collieries Company Limited decreased by 9.06% to 5.72 MnT in Jan'20 month compared to 6.29 MnT in Jan'19.

The coal production of SCCL has ramped up since Oct'19 and it has been stable in last two months. Kothagudem area registered highest coal production in Jan'20, with output of 1.25 MnT during the month. Also, production from open cast projects increased from 4.94 MnT in Dec'19 to 4.97 MnT in Jan'20, whereas output from UG projects fell 3% M-o-M to 0.75 MnT during the month.



Production Performance of NLCIL



During Dec'19, NLCIL reported monthly coal production of 2.3 MnT with a decline of 9.6% as against Dec'18.

Coal Despatch Outlook

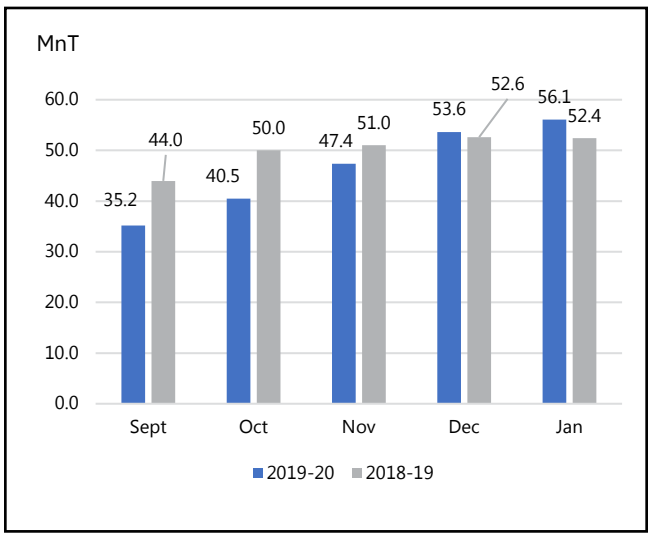
CIL Despatch Outlook

The coal dispatch by CIL registered its highest Y-o-Y growth for FY-20, as it grew 7% on the year to 56.05 MnT in Jan-20 compared with 52.44 MnT in Jan-19.

CIL's major subsidiaries-SECL and MCL had both supplied coal in excess of 13 MnT during the month. In fact, barring BCCL and CCL, all other subsidiary had attained their highest monthly dispatch volume for FY-20.

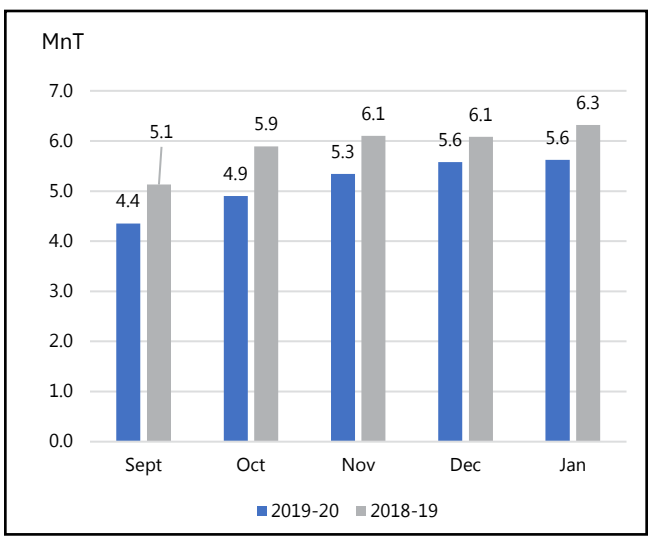
Despite the robust growth, CIL total dispatch was still marked 5% lower on the year at 473.3 MnT during the first 10 months of FY-20.

However, with power plants sufficiently stocked with coal supplies, CIL has said that it would focus on raising coal dispatch for the non-power sector by liquidating the non-lapsable arrear coal rakes assigned for them before the end of FY-20.



SCCL Despatch Outlook

The coal despatch during Jan-20 witnessed a modest growth to 5.62 MnT from 5.58 MnT registered in Dec-19, on account of higher coal movement via road mode of transportation.



Despite the monthly increase, the despatch volume was noted 11% lower on the year from 6.32 MnT in Jan-19. The hefty decline could be attributed to the lower rake allotment for coal transportation, whose average count was down 17% Y-o-Y to 33.39 rakes/day in Jan-20.

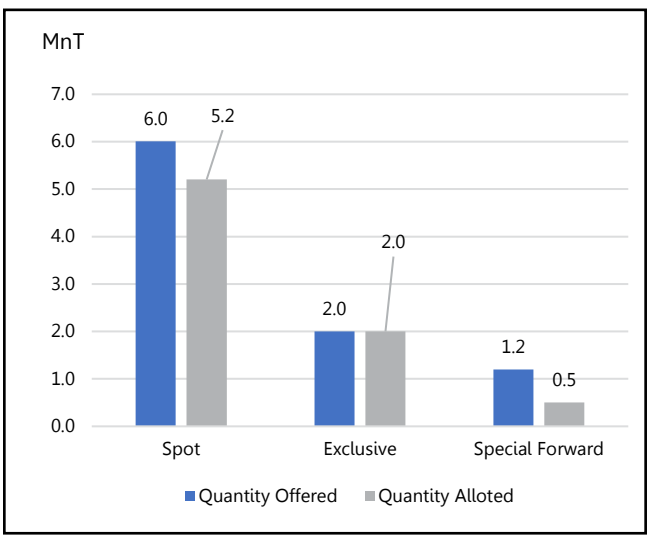
In line with the series of Y-o-Y fall in coal supplies seen for the past 7 months, SCCL's total dispatch has decreased 6% Y-o-Y to 51.97 MnT during Apr-19 to Jan-20. The company had set a target of 55.28 MnT coal dispatch in the 10-month period.

E-Auction Outlook

Summary of E-Auction by CIL

In December, under Spot Market CIL had offered 6 MnT while 5.2 MnT was allotted. The price increase of 67.1% has been observed above notified value.

Under Exclusive auction 2.0 MnT has been allotted of overall offered quantity. The price increase of 40.5% has been observed above notified value.



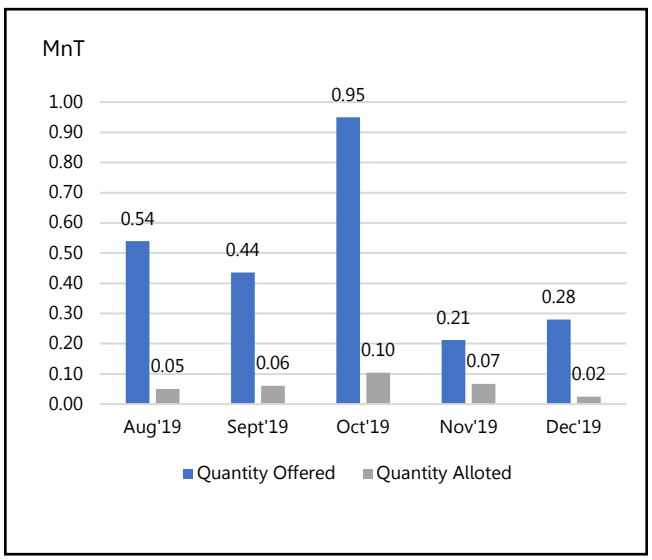
*e-auction data through coaljuntion and MSTC for the month ended Dec'2019.

And under Special Forward Market 0.5 MnT has been allotted as against the offered quantity of 1.2 MnT. The price increase of 15% has been observed above notified value.

Summary of E-Auction by SCCL

During Apr-Dec'19, under Spot Market SCCL offered 5.2 MnT while 0.8 MnT was allotted. An average price increase of 21.34% has been observed above notified value.

The average price increase of 20% has been observed above notified value for the duration Apr-Dec'19.

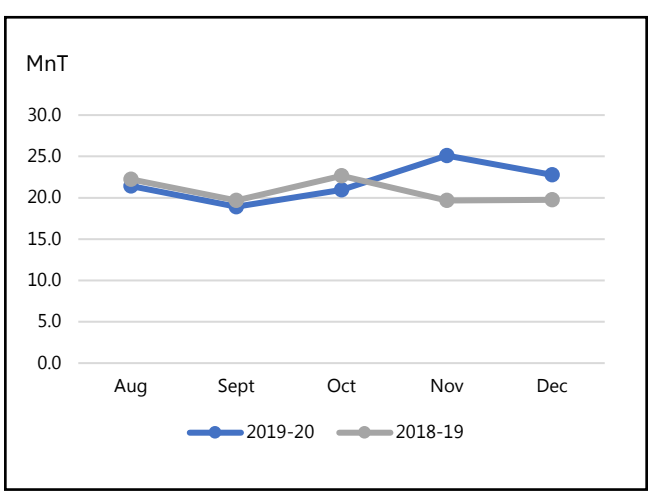


*e-auction data through coaljuntion for the month Till- Dec'2019.

Coal Imports Outlook

Coal Imports by India

The imports of coking coal have been highest in Paradip port with 0.78 MnT which firmed amongst the top importers port of coking coal. The other major coking coal importers are Dhamra, Marmagoa, Gangavaram, Kolkata, Vizag respectively.



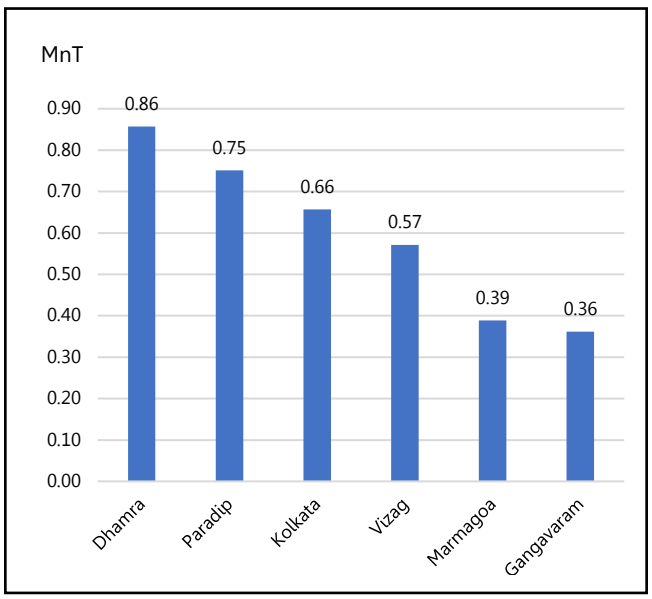
There has been an increase in coal imports by 12% during FY-2020 as compared to FY-2019.
A considerable increase in imports has been seen during Dec'19 amounting 23 million tonne and a comparative growth of 15% as compared to same month during last year.

Coking Coal Imports through Major ports during Dec'19

The imports of coking coal have been highest in Dhamra port with 0.86 MnT which firmed amongst the top importers port of coking coal.
The other major coking coal importers are Paradip, Kolkata, Vizag, Marmagoa and Gangavaram, respectively.

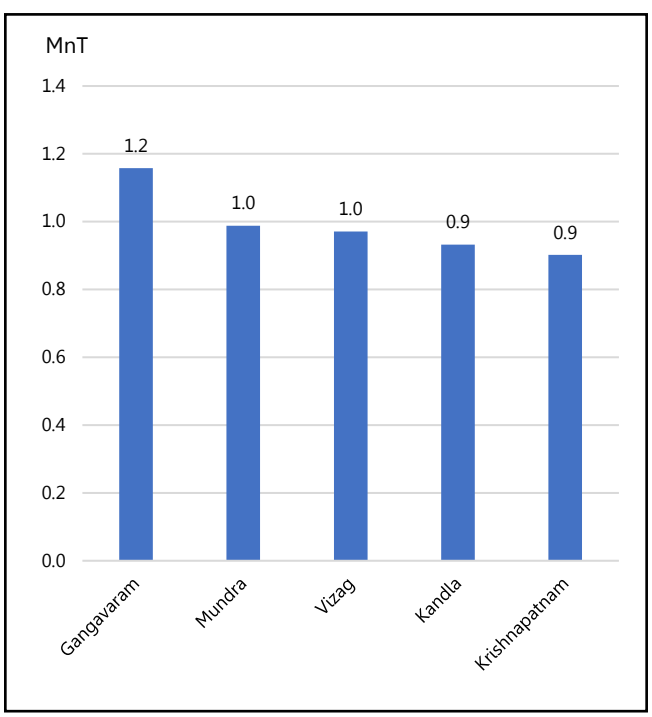
Non-Coking Coal Imports through Major ports during Nov'19

The imports of non-coking coal stood highest in Mundra port with 1.9 MnT. Kandla, Krishnapatnam, Gangavaram, Vizag respectively are the other major ports through which non-coking coal imports were imported.



Non-Coking Coal Imports through Major ports during Dec'19

The imports of non-coking coal stood highest in Gangavaram port with 1.2 MnT. Mundra, Vizag, Kandla and Krishnapatnam respectively are the other major ports through which non-coking coal imports were imported.



Regulatory & Policy Update

Ministry of Coal Releases Discussion Paper on Auction of Coal Mines for Sale of Coal

Moving ahead after the recent amendments MMDR Act 1957 and the CMSP Act 2015, the Ministry of Coal is initiating the process for auction of coal mines for sale of coal. Expected to be held in multiple tranches, the first tranche is proposed to be launched in the current financial year. The Union Minister for Coal and Mines Shri Pralhad Joshi said that this is a historic step towards Ease of Doing Business and democratization of coal and mining sectors.

A Discussion Paper containing the draft methodology and key bidding terms and conditions on the auction of coal mines for sale of coal has been uploaded by coal ministry. A tentative list of mines along with mine-specific details are also provided by ministry of coal.

The Ministry of Coal has urged interested stakeholders to view the Discussion Paper and the mine specific details and submit their views/ suggestions, indicate their preferences for the mines to be considered for auction under the first tranche, as per the instructions provided in the Discussion Paper.

The Ordinance promulgated last week, amended the CM(SP) Act, 2015 and MMDR Act, 1957, whereby the restriction on prior experience in coal mining was removed thus enabling wider participation in auction of coal mines. Further, the Ordinance also enables auction of unexplored and partially explored coal blocks for mining through prospecting license-cum-mining Lease (PL-cum-ML).These steps are expected to result in opening up of the coal sector completely for commercial mining to local as well as global firms. This would further boost economic growth and employment generation.

Industry Update

BCCL's Spot Coal Auction Fetches 11% Premium in Jan'20

Bharat Coking Coal Ltd (BCCL), the prime coking coal producer in the country, has reported subdued sales in the recently concluded spot coal e-auction. The company had engaged service provider M Junction to carry-out the auction on its behalf, which was held on 25 Jan'20.

BCCL had scheduled sale of 62,000 MT coal in the said auction, which included 12,000 MT washed coal envisaged from its Moondih washery. Despite recording sale of 96% of the quantity being put forward, the company had received moderate bids in the auction.

Apparently, the average bid price for coal in the auction was marked at INR 5131.58/MT, which had fetched a premium of 11% over the average reserve price of INR 4619.44/MT.

Coal Production by SCCL remains as stable M-o-M in Jan'20

Singareni Collieries Company Ltd, the Indian coal miner operating in Telangana, has reported identical production figures from the previous month, as it extended its fall on the Y-o-Y basis for the sixth consecutive month during Jan'20.

SCCL's coal production was marked 5.72 MnT in Dec'19, noted 9% lower on the year from 6.29 MnT in Jan'19. Apparently, the modest growth in output from opencast mines was offset by the decline in production recorded from the underground coal projects on the monthly basis.

Production from open cast projects increased from 4.94 MnT in Dec'19 to 4.97 MnT in Jan'20, whereas output from UG projects fell 3% M-o-M to 0.75 MnT during the month.

Kothagudem area registered highest coal production in Jan'20, with output of 1.25 MnT during the month. However, out of the 11 mining areas of SCCL, only Ramagundam-II, Ramagundam-III and Belampalli had managed to post a rise in coal production on the monthly basis.

During the first 10 months of FY20 (Apr-Jan'20), SCCL's production has reached 52.47 MnT as against 51.87 MnT noted in the year-ago period.

India remains the biggest Non-coking coal buyer of Bumi Resources in 2019

PT Bumi Resources Tbk, Indonesia's largest thermal coal producer, recently announced that India has remained the biggest buyer of its coal sales in 2019, due in large part to the strong demand arising from the growing Indian economy.

"India topped the list of export coal market and accounted for 21 percent of the company's total coal sales in 2019, with China making up 18 percent", stated Dileep Srivastava, a director and corporate secretary of Bumi Resources on Friday.

He further stated that the company's total exports accounted for 67 percent of its annual sales in 2019, with the remainder sold into the domestic market.

Srivastava also said that the company's total coal sales were estimated at 88.5 million tons (MnT) in 2019, as compared to 80.3 MnT in 2018. The company's total coal sales were in line with its previous forecast of 87 - 90 MnT for 2019.

BUMI expects its coal output to be in the range of 91.35 - 94.50 MnT for this year. The company has also mentioned that it plans to boost investment so that its coal output can reach 100 MnT in the coming years.

Bumi Resource is controlled by Indonesia's diversified Bakrie Group. The company has two coal mining units — PT Kaltim Prima Coal and PT Arutmin.

Coal Traffic Handled at Major Indian Ports up 20% M-o-M in Dec'19

Coal shipments received at India's major ports have seen a sharp upturn on the monthly basis, as it attained a 7-month high total during Dec'19. According to the data provided by Indian Port Association (IPA), coal imports at the country's 12 major ports increased 20% on the month to 13.018 MnT in Dec'19 as against 10.811 MnT in Nov'19.

The 12 major ports of India listed under IPA include: Kolkata (Kolkata and Haldia dock both combined), Paradip, Visakhapatnam, Kamajar (Ennore), Chennai, V O Chidambaranar, Cochin, New Mangalore, Mormugao, Mumbai, J.N.P.T and Kandla.

Imports of both thermal and coking grades of coal had witnessed a rise during the month; however, there was a striking contrast in the manner at which the increase was assessed. Thermal and steam grades' coal import had extended the rise on the monthly basis, as it grew 10% M-o-M to 7.794 MnT in Dec'19 compared with 7.077 MnT in Nov'19.

In comparison, imports of coking coal had rebounded after ending a series of decline seen in the past few months, to register a growth of 40% M-o-M. Notably, intake of coking coal at major ports stood 5.224 MnT in Dec'19, which was marked highest since Apr'19.

The steep rise in coking coal imports could be attributed to the favorable market conditions assessed for the Indian steelmakers where cost of coal is going down and prices of finished products are going up.

The market participants have anticipated that that the steel companies would be buoyed to maximize their output in the near term as they foresee recovery from the losses incurred during the economic slowdown.

Coal Production of CIL is up by 9% M-o-M in Jan'20

Indian coal mining giant, CIL has continued the spurt in mining activities during Jan'20, as it pursues its aspirational target of 660 MnT coal production in FY20.

CIL's coal production grew 9% on the month to 63.11 MnT in Jan'20, thereby attaining new monthly high in the current fiscal. Besides, the output volume also noted its highest Y-o-Y growth for the fiscal, as it rose 10% on the year from 57.21 MnT in Jan'19.

The surge in coal production came largely on back of higher output from MCL and SECL, both of which had attained production in excess of 15 MnT during the month. Eventually, MCL topped the list with production of 15.69 MnT coal, followed by SECL which had garnered 15.52 MnT output in Jan'20.

In addition, the two of the largest coal producing subsidiaries of CIL have also attained 100 MnT production mark for the fiscal in the process. Meanwhile, all the subsidiaries barring NCL, had secured their highest monthly production for FY20 during Jan'20. However, the lowest contributors in the list-BCCL and NECL, had witness a Y-o-Y fall from the levels attained in Jan'19.

During the first 10 months of FY20 (Apr'19-Jan'20), CIL's coal production has reached 451.52 MnT as against 469.65 MnT noted in the year-ago period. Apparently, the deficit in coal production has been brought down to 4% in the 10-month period, which was noted nearly 9% in the first 7 months of FY20 (Apr-Oct'19 period).

InfralineEnergy™
Research Report

INDIAN POWER SECTOR OUTLOOK 2037

Key Highlights

- Estimation of Future Energy Demand (at Pan India level and 10 major States) for the different category of consumers in medium and long term
- Projected All India Fuel-wise and Sector-wise Installed Capacity upto FY'2037
- Future Power Demand & Supply Scenario in the country for the next 20 years
- Projected Capital Costs of Coal based Power Projects & Expected Tariff levels upto FY'2037

Key Questions Answered

- What shall be the future growth trajectory of the Energy Demand in the country for the next 20 years?
- What will be the share of renewables in the future energy mix?
- What is the future of coal based power generation in the country?
- What shall be the tariff of long term PPAs in the year 2020 and beyond?

A must buy for

- Power Utilities
- Government Agencies
- Consultants
- Regulatory Bodies
- Power Exchanges & Traders
- Investors (Banks & Financial Institutions)

For Priority Business

Rajesh Singh Panwar
rajesh.panwar@infraline.com
Mob: +91 9711786999
Ph: +91 120 6799125, 160

Executive Summary

The Government of India has made some bold announcements in the energy domain. While all the villages are planned to be electrified by 2018, the Government aims to make 24x7 "Power for All" a reality by 2019. India's INDCs under the Paris Agreement target to reduce emissions intensity by 33%-35% by 2030 over 2005 levels, achieve 175 GW renewable energy capacity by 2022 and aim to increase the share of renewable energy capacity in the electricity mix at above 40% by 2030. India is on the verge of a major industrial revolution and NITI Aayog estimates the share of manufacturing in the GDP to increase to 25% from the present level of 16% by 2022.

In wake of the recent policy announcements and the rapidly evolving scenario, this report has been prepared with an objective to give an insight into the future power scenario for the next 20 years. The report gives a detailed coverage on the future energy requirement and demand, capacity addition from different fuel sources, estimated capital costs for setting up coal based power projects, future outlook of Indonesian coal prices and tariffs for the years FY 2021-22 and beyond upto FY 2036-37.

The energy requirement forecast is made at pan India level and for 10 selected States upto FY 2036-37. CAGR trend computed from the past is normalized/interpolated with the anticipated GDP to make the future projections. Tariff Orders, EPS Estimates, MYT filings and ACS-ARR Gap figures have also been referred to in the computation of the forecasts.

All India Projected Energy Requirement (In BU)

Categories	2018-19	2019-20	2020-21	2021-22
Domestic	284.72	308.92	335.17	363.66
Commercial*	207.46	226.13	246.48	268.67
Agriculture	230.42	246.55	263.81	282.28
Industrial	350.97	382.21	416.22	453.27
Energy Consumption	1,073.57	1,163.80	1,261.69	1,367.87
Energy Requirement	1,317.26	1,414.96	1,520.11	1,633.28

*Includes - PWW, Public Lighting, Railways, Inter-State and Others

Based on the projected energy requirement in the country and projected PLF of the power plants, capacity addition requirement is estimated at pan India level in medium and long term. The capacity addition has been projected from different fuel sources i.e. coal, gas, hydro, nuclear and renewable energy sources and sector-wise i.e. Central, State and Private, after taking into account Government's policies and targets, fuel supply position and the status of under construction projects in the country.

The report also gives projections of capital cost of coal based power plants in medium and long term and a brief overview of the coal pricing mechanism in Indonesia with details of Indonesian Government's Benchmark Thermal Coal Harga Batubara Acuan (HBA) Price from Jan'2010 - May'2017 and future price projections of Indonesian coal.

Based on the estimated capital costs of power projects, projected prices of domestic and imported coal as well as secondary fuel oil, O&M costs, escalation in fuel & O&M costs, projected interest rates on loan and working capital and all other factors necessary for tariff calculations, the tariffs of long term PPAs in FY'22 and beyond upto FY'37 is calculated.

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The report is priced at **INR ₹1,25,000 | USD $1,763**. We are offering a pre-publication discount of **10%**. **The price after discount is INR ₹1,12,500 | USD $1,587.** This offer is valid for orders and payments received on or before March 31, 2020.
(GST will be charged as applicable)

CENTRE ASK STATE GOVERNMENTS TO REDUCE PRICE OF ELECTRICITY

Ministry of Power and Energy has written a letter to several state governments of India to reduce the price of electricity. This move comes after the government had made it mandatory for people to use smart prepaid electricity meters to ensure that there is no fraud in electricity distribution. As per information, the electricity production companies are also guaranteed a fixed sum of money because of which they are ready to provide electricity at lower rates. The disputes regarding electricity consumption have also reduced after the use of the smart meter. The electricity providers are getting timely payment and there working cost has also reduced. Nearly, 25 crore people across India use electricity out of which 10 lakh people have already installed smart meters in their home. The benefits of the smart meters are drawn by analyzing the consumption of these 10 lakh customers. Now it's up to the state government to decide over the implementation of the new price per unit. As per reports, India's energy consumption is already one of the lowest in the world.

INDIA TOPS POWER GENERATION TENDERS GLOBALLY IN FOURTH QUARTER 2019

India topped tenders for power generation capacity globally during the quarter ended December 31. Top issuers of power plant tenders globally for the quarter in terms of power capacity Solar Energy Corporation of India (3,000MW) from four tenders, Northern Indiana Public Service in the United States for 2,600MW from two tenders and NTPC at 2,514 MW capacity from nine tenders. Comparing tenders activity in power plant segment in different regions of the globe, Asia-Pacific held the top position with 209 tenders and a share of 71.8% during Q4 2019, followed by Europe with 36 tenders and a 12.4% share and Middle East and Africa with 29 tenders and a 10% share. Among the technologies, solar accounted for 216 tenders with a 73.7% share, followed by thermal with 33 tenders and an 11.3% share and hydro with 20 tenders and a 6.8% share. Globally, however, power plant tenders during Q4 of calendar 2019 saw 291 tenders announced, marking a drop of 28% over the last four-quarter average of 404, according to Global Data's power industry tenders database. Proportion of tenders by category in the quarter was as follows included project implementation at 213 tenders and a 73.2% share, repair, maintenance, upgrade & others at 40 tenders and a 13.7% share, consulting & similar services at 36 tenders and a 12.4% share, power purchase agreement at two tenders and a 0.7% share.

ALL-INDIA ENERGY DEMAND CONTINUED TO CONTRACT IN DECEMBER 2019, BUT SHOWS EARLY SIGNS OF RECOVERY

In December 2019, all-India energy demand declined 0.5% yoy for the fifth consecutive month to 100.8 billion units (BUs), with energy demand from the northern region down 2.8% yoy. However, energy demand is showing signs of improvement as the decline in December 2019 was lower than that in October (down 12.9% yoy) and November 2019 (down 4.3% yoy). All-India energy supply declined 0.5% yoy in December 2019, resulting in energy deficit remaining at 0.5% (December 2018: 0.5%). While the electricity generation (excluding renewables) declined 2.1% yoy to 98.8BU, the generation also showed early signs of recovery with the decline in December 2019 being lower than that in October 2019 (down 6.4% yoy) and November 2019 (down 12.9% yoy). The thermal generation, however, remained impacted with a decline of 4.3% yoy due to a 14.2% yoy increase in hydro generation to 8.9BUs. The all-India thermal plant load factor (PLF) fell to 54.4% in December 2019 (December 2018: 59.5%) as central, state and private sector PLF decreased to 62.6% (72.5%), 47.6% (57.4%) and 54.0% (56.1%), respectively.

POWER GRID CORP MOVES SC AGAINST DOT DEMAND OF RS 22,000 CR IN AGR DUES

State-run transmission utility Power Grid Corporation on Friday said it has filed an application before Supreme Court against Department of Telecom's demand of around Rs 22,000 crore in past dues, saying its revenue from telecom business was only 2 per cent of its turnover. Following the October 24 Supreme Court ruling that non-telecom revenues of telecom firms such as Bharti Airtel and Vodafone Idea should be included for considering payments of government dues, the telecom department (DoT) sought additional license fee from non-telecom firms also. The DoT had sought additional license fee of Rs 1.72 lakh crore from gas utility GAIL India Ltd, Rs 48,000 crore from OIL, around Rs 22,000 crore from Power Grid Corporation (PowerGrid), and has raised similar demands from RailTel and other public sector undertakings (PSUs).

GE T&D INDIA WINS A JAMMU & KASHMIR PROJECT TO HELP DELIVER 24/7 POWER

GE T&D India—a power transmission and distribution player—has bagged a supervisory control and data acquisition (SCADA) and advanced distribution management solution (ADMS) project for distribution operations in the cities of Jammu and Srinagar. The order worth approximately Rs 1730 crore was awarded by the Jammu & Kashmir Power Development Department (JKPDD) through a competitive bidding process. It includes a 5-year maintenance services contract and the supply and integration of a host of solutions in the overall distribution network in the two cities. On the announcement, GE T&D India CEO Pitambar Shivnani said, "GE T&D is proud to partner with the Jammu & Kashmir Power Development Department which is working tirelessly at improving the availability, reliability and quality of power supply, whilst minimizing AT&C losses. The commitment towards the implementation of this technology is a major step towards realizing the vision of 24×7 power supply to all consumers in the twin cities of Jammu and Srinagar." The technology solution being executed for this project is used mainly for 24×7 power supply, reduction of power losses and real-time data monitoring and control of distribution network from a centralized place. This will determine the setting up of reliable and 'no manual touch' systems for system control/data collection and adoption of information technology in the area of energy accounting.

THERMAL POWER'S CONTRIBUTION IN INDIA'S ENERGY MIX FALLS ALMOST 1PERCENT

Share of thermal power installations including coal, lignite, gas, and diesel in the overall power generation capacity in India fell to 62.24% from 63.2% last year, as renewable energy capacity additions rose, Mercom Capital Group has estimated. However, cumulative installations of thermal power capacity rose to 230.7 GW by the end of December 2019, up from 223 GW last year. The country's total installed power capacity stood at about 371 GW as of December 31, 2019. Meanwhile, cumulative hydropower installations moved up to about 50.1 GW and accounted for 13.5% of India's total installed power capacity. Of this, 4.67 GW or 1.26% were small hydropower. There were no new large hydro installations in 2019, cumulative installations stood at 45.4 GW, accounting for 12.25% of the overall energy mix at the end of 2019. Bio-power capacity share in the overall power mix saw a small dip, dropping to 2.66% from 2.77% last year. Cumulative installations at the end of 2019 stood at 9.86 GW. Mercom's research also showed that solar and wind accounted for approximately 55% of new power capacity additions in 2019. This was a decrease from last year where solar and wind, combined, accounted for nearly 65% of new capacity additions during the year. This is mostly because of the rise in coal and lignite installations which rose to 44.1% of total installations, up from 27.5% last year.

UAE ISSUES OPERATING LICENCE FOR ARAB WORLD'S FIRST NUCLEAR PLANT

The United Arab Emirates (UAE) issued an operating licence for the first reactor at the Arab world's first nuclear power plant, paving the way for it to start production later this year. The Barakah nuclear power plant in Abu Dhabi, which is being built by Korea Electric Power Corporation (KEPCO), was originally due to open in 2017 but the start-up of its first reactor has been delayed several times. A 60-year operating licence will be granted to the plant's operator, Nawah Energy Company, Hamad al-Kaabi, deputy chairman of Federal Authority for Nuclear Regulation (FANR) told a news conference. Nawah can now begin the commissioning phase by loading fuel into the reactor in preparation for operation, a process that will take a number of weeks and will be accompanied by testing of the safety systems. When completed, Barakah will have four reactors with a total capacity of 5,600 megawatts.

SAUDI ELECTRICITY COMPANY PRESENTS PROJECTS WORTH $1.8 BN

Saudi Electricity Company has submitted an integrated proposal for nine energy and electricity projects worth $1.8 billion for high voltage and distribution. The projects were revealed during a meeting where Madinah governor, Prince Faisal bin Salman received the undersecretary of the Ministry of Energy for electricity affairs, Naif al-Abbadi, CEO of the Saudi Electricity Co., Fahad al-Sudairi, and members of the company's executive board. The officials briefed Prince Faisal on the projects under implementation and the projects being awarded during this year, including the smart meter project, which the company began implementing in the Madinah region. The governor praised the qualitative performance of the Electricity Company at all levels, asserting the importance of improving the visual identity of electric power plants in the regions. He added that authorities were working on making Madinah eco-friendly through new LED technology on energy-saving public roads. Madinah's electric system serves more than 700,000 subscribers in the region, with 7 percent at Kingdom level, along with an increase in power generation capacity of 29 percent during the past four years. Saudi Electricity continues to work on a transformation of household power plants, as it concluded in December contracts for the implementation of the smart meters project, including the installation of 10 million units for all subscribers in all regions of the Kingdom.

FRENCH NUCLEAR POWER GENERATION FELL 6.9% IN JANUARY – EDF

Nuclear power generation in France fell 6.9% to 37.4 terrawatt hour (TWh) in January compared with the same period a year ago due to a higher volume of reactor outages. An ongoing nationwide strike since December over the government's attempt to reform France's pensions system, has hit the energy sector, particularly power generation. A 24-hour strike called by unions as part of the pensions protests, curbed electricity production by over 1.8 gigawatts on Thursday, including reduced generation at two nuclear power reactors. EDF, which operates France's 58 nuclear reactors that covers around 75% of French electricity needs, said nuclear power generation from its reactors in Britain rose 8.6% year on year in January to 4.8 TWh.

TURKEY'S DAILY ELECTRICITY USAGE DROP BY 10.7 PERCENT

Official figures of Turkish Electricity Transmission Corporation (TEIAS) showed that, Turkey's daily electricity usage dropped by 10.7 percent to 756,039 megawatt-hours on Sunday. According to data from TEIAS, hourly power usage peaked at 20:00 local time with 37,688 megawatt-hours and Turkey's electricity usage decreased to its lowest point of 27,623 megawatt-hours at 05:00. In comparison with the day before, total electricity making stood at 756,087 megawatt-hours on Sunday with a drop of 10.5 percent; most of the output came from hydroelectricity plants at 201,539 megawatt-hours. Imported coal and lignite plants followed with 175,648 megawatt-hours and 108,486 megawatt-hours, respectively and on Sunday, Turkey's electricity exports totaled 7,566 megawatt-hours, while imports totaled 7,519 megawatt-hours.

UK'S ELECTRICITY NETWORK COMPANIES UNVEIL 1MW RESOURCE REGISTERS

The UK's electricity network companies have unveiled System Wide Resource Registers, which detail all electricity generators, storage facilities and flexibility providers of more than 1MW across the country. They claim the move is a significant step in powering the way towards net zero by giving the industry more information and making it easier for generating customers and flexibility service providers to connect to networks. They have worked through the Open Networks Project to launch the registers, which present a standardized set of data, highlighting demand and presenting opportunities for stakeholders such as community groups, renewables projects and large aggregators. Containing data for more than 5,000 connected assets, the information will also give a more complete network view to National Grid ESO. The resource registers will be updated on a monthly basis by each of the network companies.

HUNGARY IMPORTING LESS ELECTRICITY

Gross domestic electricity consumption reached 45.66 TWh in 2019, an increase of 243 GWh, or 0.53% from 45.41 TWh in 2018, according to the website of MAVIR, the Hungarian Electricity Transmission System Operator. According to recent data, 27.56% of that energy came from imports, with the remaining 72.44% coming from domestic power plants. Electricity generated by conventional power plants, including nuclear, coal and lignite, and gas and oil-fired power stations, accounted for 63.49% of the consumption. The production of renewable energy plants accounted for 8.9% of consumption. (For more on this, see Hungary 2nd last in EU in Renewable Electricity Production, below.) The production of domestic power plants increased last year, with the 31 terawatt-hours produced in 2018 rising to 33 terawatt-hours in 2019, while imports decreased to 12.58 terawatt-hours last year from 14.34 terawatt-hours in 2018. Some 49% of the electricity generated in Hungary, 16.2 TWh, was generated by the Paks Nuclear Power Plant; coal and lignite-based power plants accounted for 11.6%; gas-fired plants 26.6%; and oil-fired plants 0.1%.


2020
BUDGET

EXCERPTS FROM BUDGET 2020 FOR POWER & COAL SECTOR

The growth of Indian economy which appears to have bottomed out is expected to pick up pace in FY 2020-21 as per Budget 2020. The prospects shall be assessed in the light of emerging global and domestic challenges and opportunities. The challenges can be categorized as external and domestic challenges. While 'external' challenges due to geo-political tensions in the Middle East and rising crude oil prices because of disruption in supply may decelerate growth and increase inflation, the challenges on the domestic front are being seen as an opportunity for revival of investments and savings.

The government is positive on continuing structural reforms in expectations that it will revive growth and normalize credit flow as investment picks up upon stimulation by a cut in the corporate tax rate and the much expected transmission of repo rate cuts earlier implemented by the Monetary Policy Committee. Moreover, the global economic growth is expected to pick up pace in 2020 which could also support India's growth. As the economy is expected to grow at 10 percent during FY 2020-21, various announcements were made during the budget with regard to the Power Sector. The excerpts from Budget 2020 for Power sector are below:

1. The budget plans on promoting smart metering in distribution utilities with support from the States and Union Territories by replacing meters for conventional energy by prepaid smart meters in the next 3 years.

2. The budget also proposes to provide about INR 22,000 crore to power and renewable energy sector in 2020-21.

3. Existing KUSUM scheme shall be expanded and this modified scheme will help 20 lakh farmers in setting up stand-alone solar pumps and further help another 15 lakh farmers solarize the grid-connected pump sets.

4. In addition to the modifications (made) in the KUSUM scheme, there would be a scheme to help the farmers set up solar power generation capacity on their fallow/barren lands and sell the power generated to the grid.

5. The government to promote the use of solar pumps and solar energy production in non-cropping season.

6. Closing of existing thermal power plants that are old and have higher carbon emission levels has been emphasized upon. The vacated space would then be used for setting up of alternatives.

7. The budget proposes to extend the concessional corporate tax rate of 15% to new domestic companies engaged in the generation of electricity. In order to attract investment in the power sector, the concessional corporate tax rate of 15% provided by the Taxation Laws (Amendment) Act, 2019 to new domestic companies that are engaged in the generation of electricity subject to the condition that they start generating electricity by 31st March, 2023.

8. The Budget Estimates of Expenditure for 2020-21 show an increase of INR 3,43,678 crore over the Revised Estimates of 2019-20 and one of the reasons which has been highlighted is on account of higher provisions made under Road Transport, Railways & infrastructure projects in National Infrastructure Pipeline (NIP).

9. An overall budget outlay of INR 40,740 crore has been laid down for the energy sector for 2020-21 as compared to revised estimates of INR 38,127 crore during 2019-20.

10. Similarly, to improve the financial sector which includes Banking, Insurance, Financial Market and Infra Finance segment, an overall budget outlay of INR 40,433 crore has been proposed for 2020-21 compared to revised estimates of INR 23,686 crore during 2019-20.

11. The budget has approved the setting up of Credit Enhancement (CE) Company to provide credit enhancement to infrastructure projects. The Budget has recognized the fact that the traditional source of infrastructure finance i.e. banks often suffer from issues such as asset-liability mismatch, leading to problems such as NPA (in banks) and therefore bond financing of infrastructure would be a better option for infrastructure projects.

12. As per the budget, the proposed CE Company will enhance the rating of the bonds issued by infrastructure companies, thereby making it amenable to investment from institutional investors.

13. Setting up of large solar power capacity alongside rail tracks on railway land has been proposed.

14. In order to create a level playing field for domestic producers, the custom duty rate has been increased from 5% to 7.5% for some specified goods used in high voltage power transmission projects.

15. While a budget of 704 crore has been allotted under budget estimate of 2020-21 for creation of assets and strengthening of transmission system in the states of Arunachal Pradesh and Sikkim, an amount of 338 crores has been allotted under the Power system improvement project for the North Eastern Region.

16. Under the flagship schemes of DDUGJY and IPDS, a budgetary sum of 7,962.5 has been estimated during 2020-21.

Sr. No.	COMPANY NAME	Sr. No.	COMPANY NAME
1	NTPC Ltd.	21	BSES Yamuna Power Ltd
2	SJVN Ltd.	22	Adani Transmission Ltd
3	NLC India Ltd	23	Thermax Ltd
4	JSW Energy Ltd.	24	REC Ltd
5	NHPC Ltd.	25	PTC India Ltd
6	Power Grid Corporation India Ltd.	26	KEC International Ltd
7	Tata Power Company Ltd.	27	GE T&D India Ltd
8	CESC Ltd	28	Bharat Heavy Electricals Ltd
9	Torrent Power Ltd	29	BGR Energy Systems Ltd
10	Damodar Valley Corporation	30	Adani Power Ltd
11	India Power Corporation Ltd	31	Adani Enterprises Ltd
12	Schneider Electric India Pvt Ltd	32	Kalpataru Power Transmission Ltd
13	Doosan Power Systems India Pvt Ltd	33	Nuclear Power Corporation of India Ltd
14	CLP India Pvt Ltd	34	Tata Power Trading Company Ltd
15	Arteche Smartgrid India Pvt Ltd	35	NTPC Vidyut Vyapar Nigam Ltd
16	AES India Pvt Ltd	36	Essar Power Ltd
17	Sterlite Power Transmission Ltd	37	Dalmia Bharat Ltd
18	RattanIndia Power Ltd	38	Indian Power Exchange Ltd
19	Jaiprakash Power Ventures Ltd	39	Power Exchange India Ltd
20	Genus Power Infrastructures Ltd	40	NEEPCO

Sr. No.	COMPANY NAME
41	Ind-Barath Power Infra Limited
42	Power Finance Corporation Ltd.
43	Energy Efficiency Services Limited
44	Bureau of Energy Efficiency
45	IREDA
46	Indigrid Trust
47	Tata Power Delhi Distribution Limited
48	Vedanta Resources Limited
49	West Bengal Power Development Corporation
50	ACB (India) Limited
51	Uttar Gujarat Vij Company Limited
52	Madhya Gujarat Vij Company Limited
53	Dakshin Gujarat Vij Company Limited
54	Paschim Gujarat Vij Company Limited
55	Bangalore Electricity Supply Company Limited
56	Mangalore Electricity Supply Company Limited
57	Uttarakhand Power Corporation Limited
58	DB Power Limited
59	Avantha Power & Infrastructure Limited
60	KSK Energy Ventures Limited

Sr. No.	COMPANY NAME
61	GMR Energy (GMR Group)
62	ABB India Ltd
63	CG Power and Industrial Solutions Limited
64	Shapoorji Pallonji (Power Business)
65	Dans Energy Pvt Ltd
66	Jindal India Thermal Power Ltd
67	Greenko Group
68	OPG Power
69	Manikaran Power Ltd
70	Kreate Global
71	Brihanmumbai Electricity Supply and Transport (BEST)
72	Hartek Group
73	L&T India Ltd
74	Hindustan Power Projects Limited
75	Feedback Infra Private Limited
76	Tata Projects Ltd
77	Jindal Steel & Power Ltd
78	Bajaj Energy Limited
79	Jaiprakash Associates Limited
80	R.K.M Powergen Pvt Ltd
81	Arunachal Pradesh Power Corporation Private Limited
82	Wärtsilä India Private Limited
83	THDC Ltd
84	Central Power Research Institute
85	KVK Energy and Infrastructure Private Limited
86	POSOCO
87	TERI
88	Sembcorp Energy India Limited
89	FICCI
90	Fluentgrid Ltd
91	NPCIL
92	Eaton Power Quality Private Limited
93	Mercados Energy Markets India Pvt. Ltd.
94	ABPS Infrastructure Advisory Private Limited
95	Kerala State Electricity Board
96	Tamil Nadu Electricity Board
97	Thermal Powertech Corporation of India Limited
98	Tata Power Trading Company (P) Ltd.
99	NTPC Vidyut Vyapar Nigam Ltd
100	GMR Energy Trading Ltd.

Energy Power Supply Position Report (Provisional) **Figures in MU**

State	Jan-20			
	Energy Requirement	Energy Supplied	Energy not Supplied	
Andhra Pradesh	5,370	5,370	0	0.0%
Karnataka	6,968	6,968	0	0.0%
Kerala	2,239	2,235	4	0.0%
Lakshadweep	4	4	0	0.0%
Pondicherry	212	212	0	0.0%
Tamil Nadu	8645	8645	0	0.0%
Telangana	6497	6497	0	0.0%
Southern Region	**29,935**	**29,931**		

Energy Power Supply Position Report (Provisional) **Figures in MU**

State	Jan-20			
	Energy Requirement	Energy Supplied	Energy not Supplied	
Chhattisgarh	2,039	2,039	0	0.0%
Dadra & Nagar Haveli	566	566	0	0.0%
Daman & Diu	217	217	0	0.0%
Goa	408	408	0	0.0%
Gujarat	9440	9440	0	0.0%
Madhya Pradesh	7501	7501	0	0.0%
Maharashtra	13181	13181	0	0.0%
Western Region	**33,352**	**33,352**		

Energy Power Supply Position Report (Provisional) **Figures in MU**

State	jan-20			
	Energy Requirement	Energy Supplied	Energy not Supplied	
CHANDIGARH	117	117	0	0%
Delhi	2,294	2,294	0	0%
Haryana	3,863	3,863	0	0%
Himachal Pradesh	934	931	3	0%
Punjab	3,433	3,433	0	0%
Rajasthan	7,379	7,377	3	0%
UT of J&K and Ladakh	1,945	1,563	382	20%
Uttar Pradesh	8,839	8,734	105	1%
Uttarakhand	1,210	1,209	1	0%
Northern Region	30,014	29,521		

Energy Power Supply Position Report (Provisional) **Figures in MU**

State	Jan-20			
	Energy Requirement	Energy Supplied	Energy not Supplied	
Arunachal Pradesh	69	69	0	0.0%
Assam	700	685	15	2.0%
Manipur	83	83	0	0.0%
Meghalaya	209	194	15	7.0%
Mizoram	56	56	0	1.0%
Nagaland	70	69	1	1.0%
Tripura	171	170	1	0.0%
North-Eastern Region	**1,358**	**1,326**		

Energy Power Supply Position Report (Provisional) **Figures in MU**

State	Jan-20			
	Energy Requirement	Energy Supplied	Energy not Supplied	
Andaman & Nicobar	29	27	2	7%
Bihar	2,442	2,442	0	0%
DVC	1985	1985	0	0%
Jharkhand	755	755	0	0%
Orissa	2,082	2,082	0	0%
Sikkim	63	63	0	0%
West Bengal	3306	3306	0	0%
Eastern Region	**10,662**	**10,660**		

"Mode-wise Gross Electricity Generation in India from FY'10 to FY'20 (in BU)"

Year	Thermal	Hydro	Nuclear	Bhutan Import	Total
2009-10	640.5	103.9	18.6	5.4	**768.4**
2010-11	665.0	114.3	26.3	5.6	**811.1**
2011-12	708.8	130.5	32.3	5.3	**876.9**
2012-13	760.7	113.7	32.9	4.8	**912.1**
2013-14	792.5	134.8	34.2	5.6	**967.2**
2014-15	878.3	129.2	36.1	5.0	**1048.7**
2015-16	943.8	121.4	37.4	5.2	**1107.8**
2016-17	994.2	122.3	37.6	5.6	**1159.8**
2017-18	1036.7	126.2	38.2	4.9	**1206.9**
2018-19	1072.0	135.0	37.7	4.4	**1249.2**
"2019-20 (Till-Jan'20)"	**951.7**	**121.4**	**36.6**	**5.8**	**1115.6**

INPOWER- POWER SECTOR OUTLOOK | 2020 | JANUARY

INPOWER – AN INFRALINE'S MONTHLY STREAM WHICH HIGHLIGHTS INFORMATION RELATED TO POWER SECTOR AND AIMS TO PROVIDE INSIGHTS OF REGULATORY AND INDUSTRIAL DEVELOPMENTS IN POWER SECTOR VALUE CHAIN.

INPOWER-JANUARY 2020

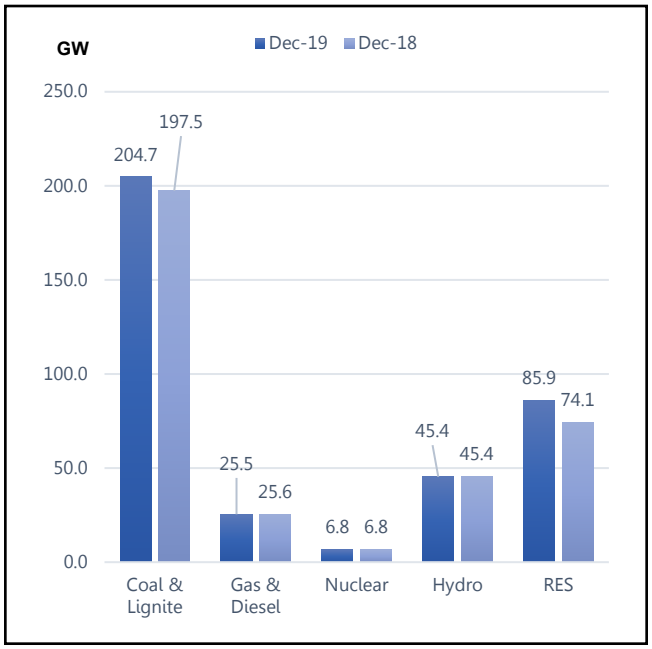
Sector Statistics

Generation Outlook

Fuel wise Installed Capacity breakdown

The installed capacity during Dec'19 took to 368.3 GW compared to 349.3 GW in Dec'18.

Though, the share of renewable energy has increased considerably by 16% on y-o-y basis. The dependency on coal has firmed up 3.7 % increase.

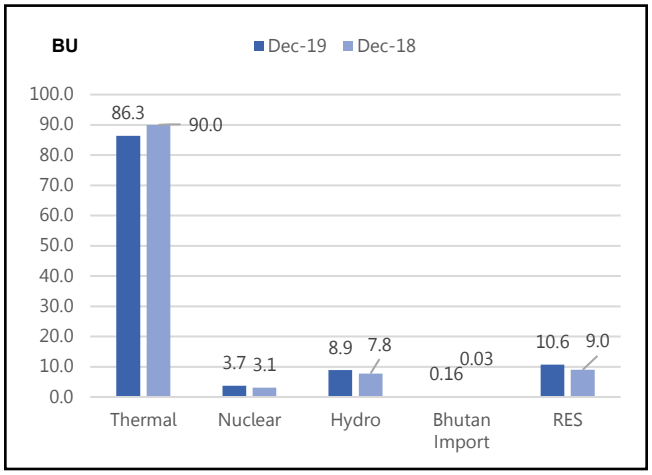


Electricity Generation during Dec'19 vis-à-vis Dec'18

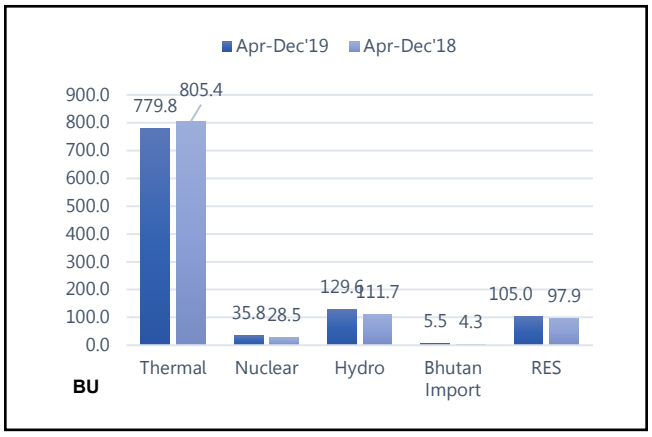
During Dec'19, the overall electricity generation has declined marginally as compared to same month last year.

A decline of ~4% has been observed in Thermal Power Generation during December month.

However, a noticeable increase in power generation for Hydro and Nuclear can be seen.



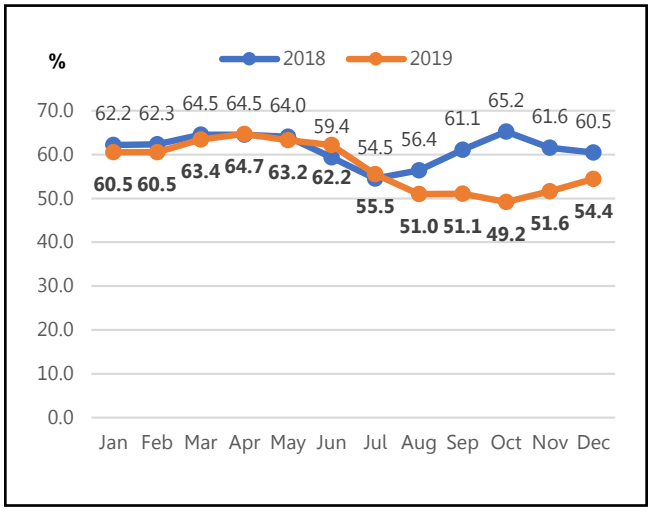
Electricity Generation during Apr-Dec'19 vis-à-vis Apr-Dec'18



During Apr-Dec'19, share of hydro & renewable energy resources increased by 15% & ~19% respectively on Y-o-Y basis.

However, a considerable decline in demand has caused thermal power share to reduce by ~4%.

PLF Trend for Coal and Lignite Plants



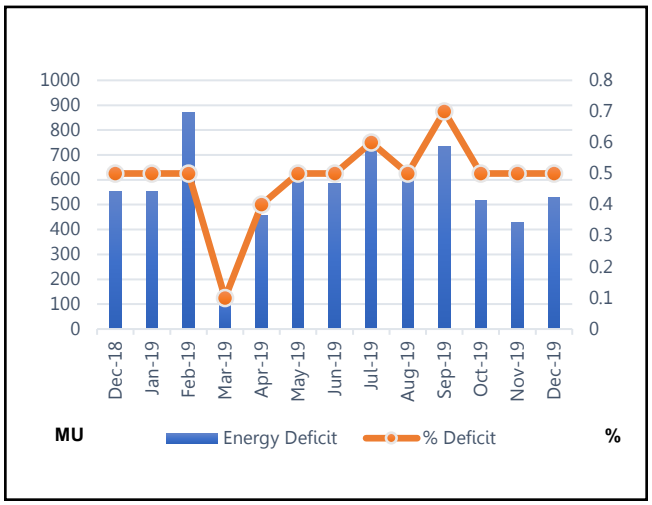
The plant load factor (PLF) of thermal power plants in December 2019 was 54.4 percent, against 60.48 percent in the same month of the previous fiscal.

The all-India thermal PLF fell to 54.4% in December 2019 as central, state and private sector PLF decreased to 62.6% (72.5%), 47.6% (57.4%) and 54.0% (56.1%), respectively

Power Supply Outlook

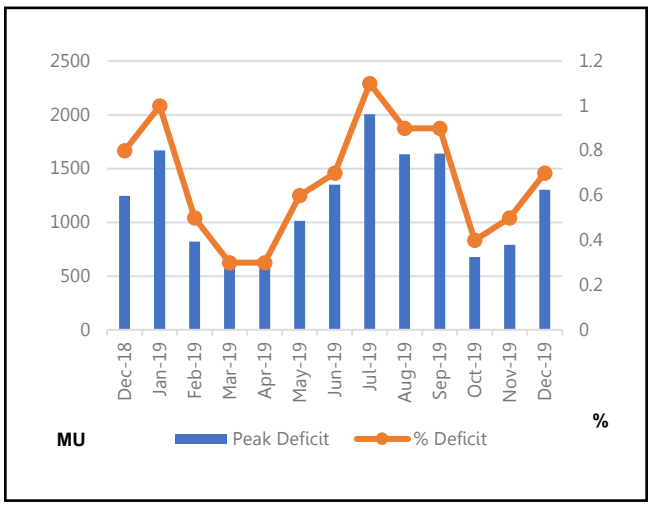
Supply Outlook: Energy Deficit

The energy deficit stayed stagnant to 0.5% in Dec'19.



Supply Outlook: Peak Deficit

The peak deficit has increased to 0.7% in Dec'19 as compared to 0.5% last month. The scenario has been poor in northern region.



Region-wise Power Supply Outlook

The Northern region has seen stagnant energy deficit of 0.5 % during Dec'19.

NR Region recorded a peak power deficit of 694 MW, WR Region recorded 20 MW, SR Region recorded a peak power deficit of 115 MW, ER Region recorded 22 MW, and NER Region recorded a peak power deficit of 111 MW.

Energy Power Supply Position Report (Provisional)

Region	Energy Deficit		Peak Deficit	
	Dec-19	Dec-18	Dec-19	Dec-18
Northern	510	424	1075	513
Western	0	5	279	217.0
Southern	4	37	0	103
Eastern	0	64	0	26
North-Eastern	1.1	25	14	30
All India	**528**	**554**	**1368**	**1,245**

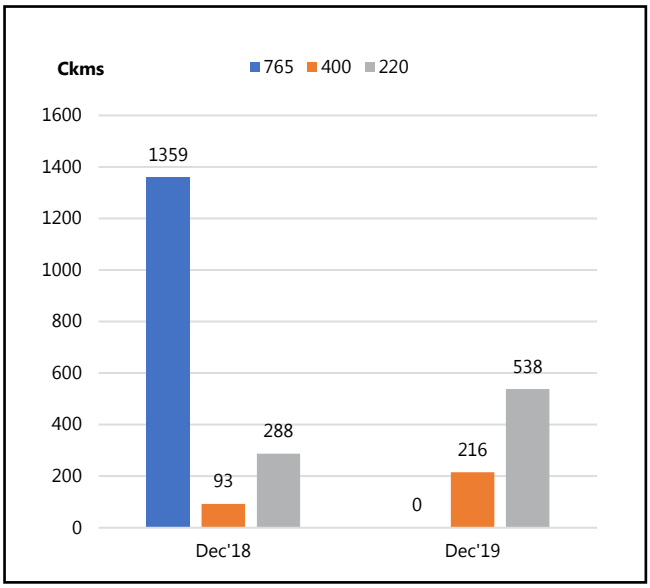
Transmission Outlook

Capacity Addition during Dec'19

The capacity addition of transmission line has increased considerably for all EHV lines on Y-o-Y basis. The State sector has contributed to around 735 Ckms of the total capacity added.

The major transmission lines added during Dec'19 are:

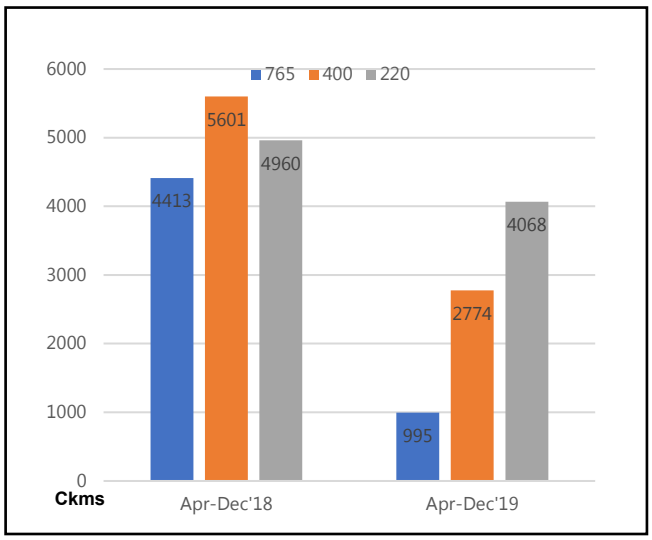
- DCDS Barsoor - Jagdalpur line
- Kavanoor - Karaikudi (Existing)
- Edaomon (KSEB) - Muvattupuzha (PG) (Quad) line (2nd Ckt.)
- LILO of both ckt. Fatehabad - Rania line at 220kV Mehna Khera



Capacity Addition during Apr-Dec'19

During Apr-Dec'19, the capacity addition of transmission lines has decreased on Y-o-Y basis due to sluggish network development during first quarter of FY 2019.

The capacity added by center and private sector during Dec'19 is 216 Ckms and 538 Ckms.



Major Transmission Lines Commissioned during Dec'19

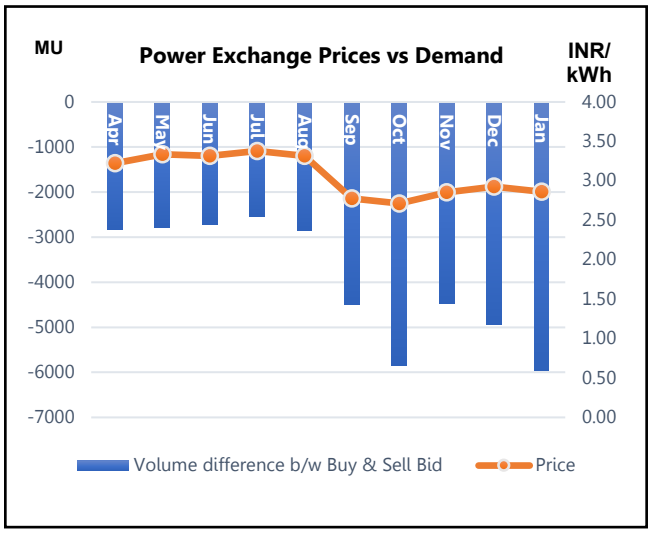
The state sector dominated to transmission lines infrastructure addition in Dec'19, with a total addition of 754 Ckms.

Below listed are the major transmission lines constructed during the month:

Voltage	Name of Transmission Lines	Sector	Executing Agency	Ckm
220	DCDS Barsoor - Jagdalpur line	STATE	CSPTCL	177
220	Kavanoor - Karaikudi (Existing)	STATE	TAN-TRANSCO	176
400	Edaomon (KSEB) - Muvattupuzha (PG) (Quad) line (2nd Ckt.)	CENTRAL	PGCIL	148
220	LILO of both ckt. Fatehabad - Rania line at 220kV Mehna Khera	STATE	HVPNL	92

Power Market Outlook

Power Exchange Prices vs Demand



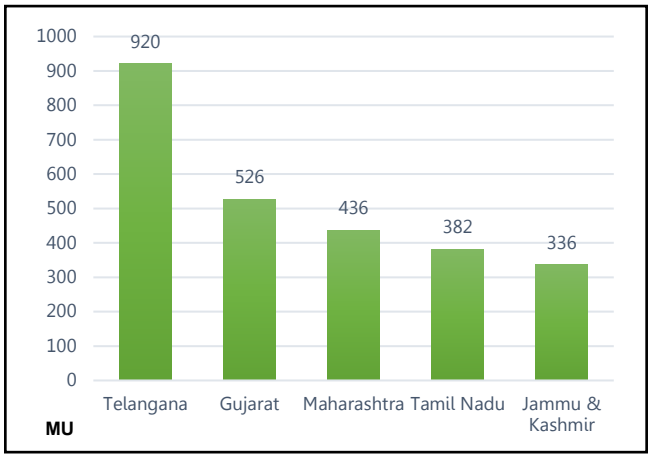
The volume difference of 5954 MU between Buy & Sell bid quantum during Jan'20 and price of INR/kWh 2.86.

he electricity market on the IEX recorded a total trade of 5,062 MU in January. The market witnessed a significant 50% y-o-y jump in traded volumes and continued to be favorable for the buyers.

The increase is largely due to a surge in demand by the discoms as well as the open access consumers primarily from southern, western and northern states.

Top 5 Buyers in IEX during January

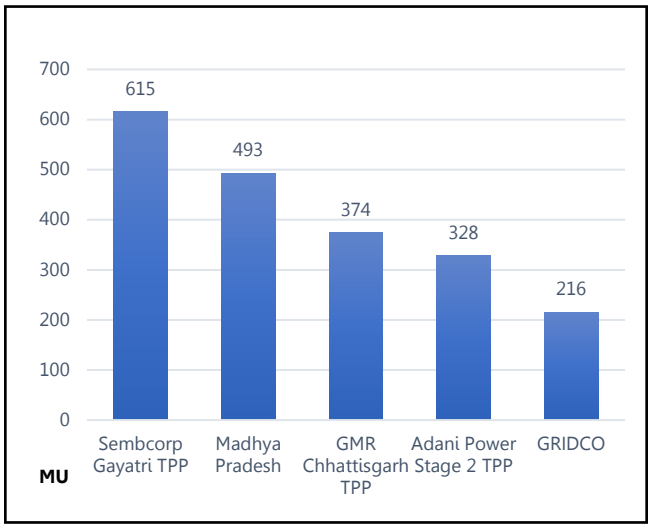
Telangana with 920 MU firmed amongst the top buyers in IEX during Jan'20 followed by Gujarat, Maharashtra, Tamilnadu and Jammu & Kashmir respectively.



Top 5 Sellers in IEX during January

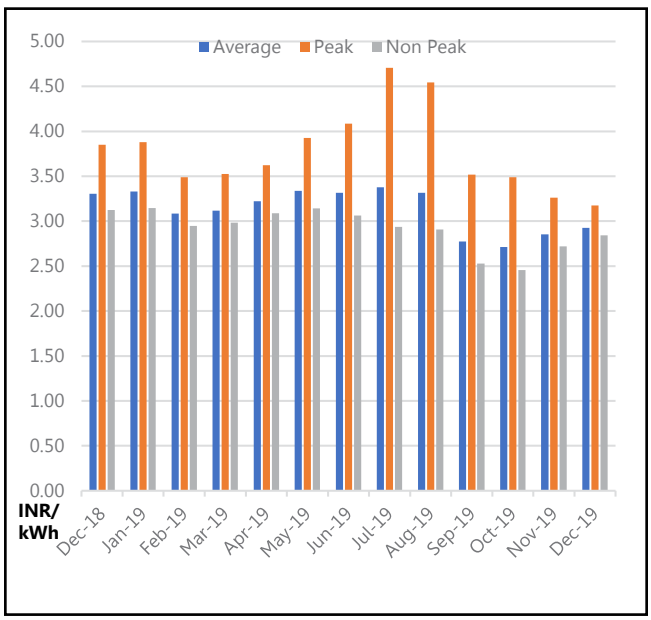
Sembcorp Gayatri TPP with 615 MU topped the list among top sellers in IEX during Jan'20.

It was followed by Madhya Pradesh, GMR Chhattisgarh TPP, Adani Power Stage 2 TPP, GRIDCO respectively.



IEX Monthly Prices

The prices at IEX remained has moderated where average price during Jan'20 remained at INR/ kWh 2.86.



Regulatory & Policy Update

Establishment of Forum for Redressal of Grievances of the Consumers

Haryana Electricity Regulatory Commission (HERC) has notified Forum and Ombudsman Regulations, 2020 on 24th January 2020. It aims to establish a Forum for Redressal of Grievances of the consumers, for appointment of Ombudsman, for representation against non-redressal of grievances of consumers and the time and manner of settlement of grievances by Ombudsman. The applicability of this regulation will cover all distribution licensees including a deemed licensee.

As per the regulation, a distribution licensee shall establish at least one Forum for redressal of grievances of consumers. The commission can alter the number of forums, their locations and areas of jurisdiction from time to time. Each forum will consist of three members that will have a chairperson & two members appointed by commission & licensee respectively.

A Consumer Complaint Handling Procedure (CCHP) shall be approved by the commission for speedy resolution of the compliant of a complainant. The forum will look after all the monetary/ non-monetary complaints/ grievance filed by the complainants and it will consider only those complaints where the representation is made within two years from the date of cause of action. While addressing the grievance to the forum, the complainant shall file it in appropriate format as provided by commission.

The grievances shall be prioritized for redressal based on Non-Supply, Connection, Disconnection of supply, Meter-related issues, Billing-related issues and Other issues viz. deficiency in service &/or performance &/or safety norms etc. A complainant not satisfied by orders of forum may refer a representation before the ombudsman appointed/ designated by the commission. Such a representation may be made within 30 days from the date of receipt of the order of the Forum.

It will be the responsibility of forum to furnish a quarterly report to commission & distribution licensee on number of grievances received, redressed and pending. This shall get done within 15 days of the close of each quarter.

The regulation also entails to designate or appoint a person as Ombudsman for a licensee. The ombudsman should be a retired civil service officer who has worked in various capacities in dealing with problems relating to engineering, finance, commerce, economics, law or management. The commission shall decide its office location & area of jurisdiction. As far as expense are concerned, the Ombudsman shall prepare an annual budget and the Commission will approve and intimate the same to the Licensee. The Ombudsman will exercise powers of expenditure within the budget so approved. Any complainant aggrieved by orders of the Forum may himself or through his authorized

representative make a representation in writing including through email or facsimile mode to the Ombudsman. An aggrieved complainant can represent his grievance within 3 days of its receipt clearly indicating the date of receipt & unique case number assigned to it.

The Ombudsman shall, within seven days of registration of a representation, call for the relevant record from the concerned Forum which will forward such record within seven days from the date of receipt of notice from the Ombudsman. It can also call for a written statement comments of the Licensee on the representation.

Upon request of the Complainant, the Ombudsman may issue such interim orders pending final disposal of the grievance as it may consider necessary including but not restricted to grant of temporary injunction to stay or prevent or restrain such act as the Ombudsman thinks fit. No party can file an appeal before the Commission against the order passed by the Ombudsman.

The Ombudsman shall prepare a report on a six monthly basis giving details of the nature of the grievances of the consumers dealt by the Ombudsman, the response of the licensees in the redressal of the grievances and the opinion of the Ombudsman on the licensee's compliance of the standards of performance.

CEA issues advise on Flue Gas Desulphurization Technology Selection for different unit size of TPPs

In line of the new MOEF&CC environmental rule dated 7th December 2015 related to new emission norms of Suspended Particulate Matter (SPM), SO2, NOx & mercury from Thermal Power Plants (TPP), modified limits for specific water consumption and other standard technical specifications, the CEA introduced a document on "FGD technology selection for different units size".

The selection of appropriate FGD technology has taken significant parameters into consideration such as SO2 removal efficiency, unit size, balance plant life and Geographical location of thermal power plant. A brief note on FGD technologies advised by CEA is given below:

Dry Sorbent Injection (DSI)/Dry type FGD:

DSI technology is preferred for thermal power plants in the range of 60 MW - 250 MW. Those units of power plants having less balance operating life of 7 to 9 years and running on low plant load factor (PLF) should deploy DSI type FGD technology.

While incorporating it in TPP, the techno-economic feasibility should consider factors such as operational expenditure (OPEX), PLF, balance operating life of plant and required efficiency of FGD system. It is interesting to note that DSI technology has substantially low capital expenditure (CAPEX) and far lower auxiliary power consumption (APC) as compared to wet limestone and ammonia based FGD technology.

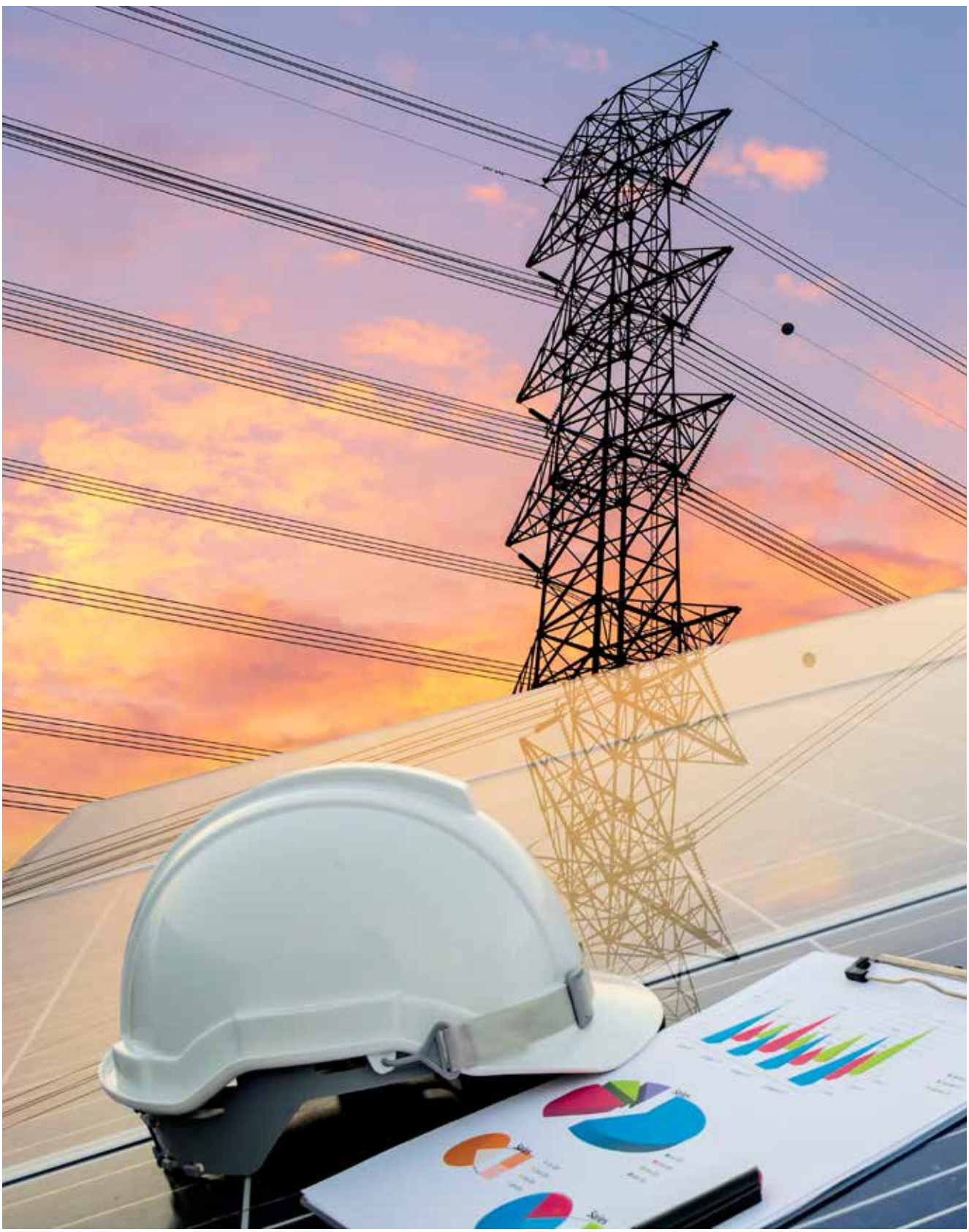
Ammonia Based FGD Technologies

Ammonia based FGD technology is suitable for TPPs in the range of below 500 MW. The competitive advantages this technology has over Limestone based FGD are 10 percent less CAPEX & APC and a readily saleable By-product i.e. Ammonium Sulphate. A careful examination of Ammonia and its availability would be essential before opting Ammonia Based FGD Technology.

Limestone Based FGD Technologies

Limestone Based FGD Technology is widely accepted for all size of units. Limestone technology has greater footprint, quite higher CAPEX and reagent purity issues as compared to DSI & Ammonia based technologies. While for ideal selection of technology, factors such as Unit size, balance unit life, space availability, salability of by-product etc. must be taken into consideration.

Every TPP has its own specific requirement that has to be evaluated on case to case basis such as Coal Quality, Unit size and no. of units, space availability at plant, Availability of reagent and purity level of reagent, Disposal of by product, Balance plant Life, Auxiliary Power Consumption, Life cycle costing, Availability of water, Efficiency of FGD system, Consideration of New stack/ Modification of stack and PLF of plant. Furthermore, CEA has advised that for final selection of any technology "Life Cycle Cost benefit analysis" in comparison to other available technologies must be conducted beforehand.



Industry Update

IndiGrid to acquire Rs 1,020 Cr-transmission project from Sterlite Power

IndiGrid, the infrastructure investment trust backed by KKR, will acquire the acquisition of East North Interconnection Company for Rs 1,020 crore from Sterlite Power. The transaction is an extension of a deal signed between IndiGrid and Sterlite Power in May last year, which gave the former the right of first offer on latter's projects.

After this transaction, IndiGrid would have another Rs 6,500 crore of transmission projects in the pipeline under the framework agreement with Sterlite Power, which would take its assets under management to Rs 18,000 crore over the next two years.

NTPC Board okays acquisition of govt stake in NEEPCO, THDC

State-owned power giant NTPC's board has given in-principal approval to acquire government's 100 per cent stake in North Eastern Electric Power Corporation Ltd (NEEPCO) and 74.5 per cent stake in THDC India Ltd.

The Board of has accorded in-principle approval for the acquisition of entire equity stake of Government of India in NEEPCO (100% of paid up share capital of NEEPCO) and THDC (74.5% of paid up share capital of THDC).

Yes Bank invokes pledged shares to acquire 30% in Reliance Power's UP unit

Yes Bank has acquired 30% in Reliance Power's subsidiary Rosa Power Supply Company upon invocation of pledged shares.

The Rosa Power, which is in Shahjahanpur district of Uttar Pradesh, has an operational capacity of 1,200 megawatts (mw). Yes Bank acquired 127,321,500 shares, representing 29.97% stake in the Rosa Power.

Kalpataru Power successfully commissions Alipurduar - Siliguri line

Kalpataru Power Transmission Ltd has informed that its wholly owned subsidiary has successfully connected Alipurduar-Siliguri Line with the interconnection facilities of the grid.
Alipurduar Transmission Ltd (ATL) has connected the Alipurduar - Siliguri line with the interconnection facilities of the grid, the EPC company engaged in power transmission and distribution.

Sterlite Power inks pact with US-based Smart Wires to bring SmartValve to Indian utilities

Sterlite Power has informed that it has inked an exclusive agreement with the US-based Smart Wires to bring SmartValve to Indian market which will enable resourceful grid management.

This cutting-edge technology is an intelligent 'valve' that will allow utilities to optimally utilise its existing transmission capacity and enhance grid flexibility, a company statement said.

Smart Wires is a leading player in modular power flow control. It has successfully deployed this state-of-the-art technology globally across the US, Europe and Australia, the statement said.

Luminous Power appoints Niharika Mohan as Vice-President, HR

Luminous Power Technologies, the retail brand of Schneider Electric India, has appointed Niharika Mohan as the Vice President HR, Admin and CSR. Mohan was earlier spearheading the HR function of Global Business Line "Strategic Customer and Segment" at Schneider Electric. In her present role, Mohan will be responsible for leading people strategy and workplace compliance for all business divisions of Luminous Power Technologies.

Crompton appoints Vishal Kaul as vice-president

Vishal Kaul has joined consumer electricals company Crompton as vice-president and PL head of the lighting segment, said the company. Kaul was previously director at Samsung as director of the content and services, and consumer lifecycle management category. He has previously worked with Nokia and Thermax.

Tata Power arm bags Rs 1,505-cr order from NTPC

Tata Power has informed that its wholly owned arm has received Letter of award from NTPC for a 250-mw solar project worth Rs 1,505 crore. With this order, the order book of Tata Power Solar stands at approximately Rs 7,600 crore, including external and internal orders.

Adani, NTPC in fray to acquire Avantha's stressed power plant
Adani Power and NTPC Ltd are in the race to acquire a 1,260-megawatt thermal power plant of Gautam Thapar's Avantha Group, a stressed project undergoing resolution as per the Insolvency and Bankruptcy Code (IBC).

This is the first time NTPC, the country's largest power producer, has bid for any stressed project, while Gautam Adani-led Adani Power is on a buying spree, having recently acquired GMR Infrastructure's 1,370 mw coal based power plant in Chhattisgarh for a debt component of Rs 3,530 crore and equity outgo of Rs 1.

MINISTRY OF POWER

OFFICE OF THE MINISTER

Name	Designation	Phone	Email Address
Shri R.K Singh	Hon'ble Minister of State (IC)		
Shri Sanjiv Nandan Sahai	Secretary (Power)		
Shri Ashish Upadhyaya	Additional Secretary & Financial Adviser	91-11-23714009	ashish.upadhyay@nic.in
Shri S.K.G Rahate	Additional Secretary (Trans., PGCIL, Grid Integration of Renewable Energy, POSOCO, Thermal, IC)	011-23715378 (O)	
Shri Sanjay Malhotra	"Additional Secretary (Distribution, OM, IT and R&R)	011-23710199 (O)	
Shri Raj Pal	"Economic Adviser (Policy & Planning, Power Projects Monitoring, E-Samiksha & PRAGATI, Training & Research (Including CPRI & NPTI) Energy Conservation & Bureau of Energy Efficiency, Parliament, OL, Public Grievances, RTI, Reservation)"	011-23715595(O)	raj.pal@nic.in
Shri Aniruddha Kumar	"Joint Secretary (Hydro Matters including CPSU namely NHPC, SJVNL, NEEPCO, THDC; Environment Management for Hydro Projects; BBMB, Admin, General Admin & Coordination)"	011 23714842(O)	aniruddha.k@gov.in
Shri Vivek Kumar Dewangan	"Joint Secretary (Thermal, Climate Change, IC, DVC, UMPP, IPP and Fuel Supply)"	011-23710171	
Shri Mritunjay Kumar Narayan	"Joint Secretary (Thermal Division; including the work related to NTPC, (IC, DVC, UMPP, IPP and Fuel Supply)"	011-23714367(O)	
Shri Ghanshyam Prasad	"Chief Engineer (OM, R&R (including administration of National Electricity Policy, Tariff Policy, CERC,JERC,APTEL and std. Bidding Documents, Transmission)"	011-23710389	g.prasad67@nic.in

InfralineEnergy™
Research Report

Solar Power Outlook 2030
Marching Towards Grid-Parity

Key Highlights

- Identification of Solar Energy Potential in the country along with detail assessment of Policies and Mechanism for Solar Power
- Analysis of Tariff and CAPEX for setting up Solar Projects in India
- Snapshot of Countries leading Solar Energy Installations
- Forecast for Grid Connected and Off-Grid Solar Energy with respect to Targets

Key Questions Answered

- When will Solar Energy reach Grid Parity?
- Potential Challenges ahead in Achieving 2022 target of 100 GW Solar?
- What are the Trends for Tariff and CAPEX for setting up Solar Project in India?

A must buy for

- Government Bodies
- Investors
- Policy Makers & Academia
- Solar PV Manufacturers
- Consultants

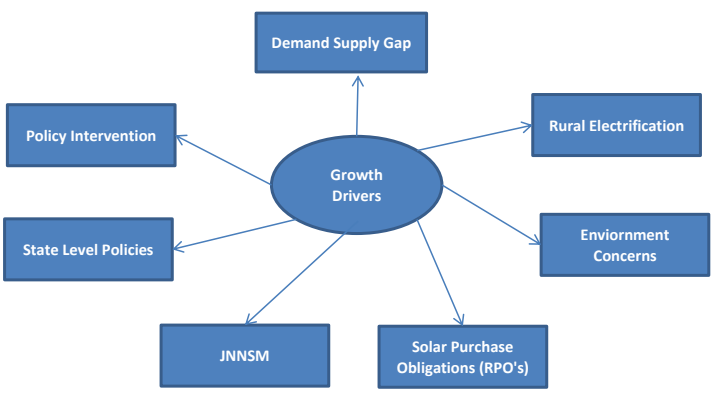
For Priority Business

Rajesh Singh Panwar
rajesh.panwar@infraline.com
Mob: +91 9711786999
Ph: +91 120 6799125,160

Executive Summary

Amidst the depleting hydrocarbon resources and looming threat of global warming, moving towards renewable energy seems an obvious choice. Considering the growing share of the renewable energy in the world's total energy basket, it would be a misnomer to call renewable energy an 'alternate source of energy". The rapidly expanding economy of India (World's fastest) is witnessing demand for energy outstripping supply. As India is mostly dependent on imports for its energy needs, the increasing prices of hydrocarbons are impacting industries across the sectors. Endowed with an average solar insolation of 4-7 kwh/m2 and more than 300 sunny days in a year, India has potential to shine in solar power generation. A number of factors like, zero fuel cost and wide-range of utility coupled with no direct impact on environment provide solar power generation technology an edge over others.

Growth Drivers for Solar energy industry in India



"Government may not achieve even half of 2022 solar rooftop energy target of 40 GW"

The Indian government has a huge target installing 40 GW of energy through solar rooftop by 2022, but is not expected to achieve even half of it by December 2021. The infographic report, India Solar Rooftop Map, said the country's rooftop solar capacity had reached crossed 2 GW as and is expected to cross the 4GW-mark at the end of 2019. Indian rooftop solar market is finally beginning to realise its potential. Industrial and commercial customers remain the biggest market segment. These customers can make excellent savings from cheaper solar energy and also reduce their carbon footprint. Public sector segment is also expected to show robust growth in the coming years because of strong government push combined with 25-30% capital subsidies.

Growing Appetite of LNG in India: India becoming a Major LNG Importer

Key Highlights

- Overview of the LNG market in India
- Detailed profile of key players in Indian market
- New LNG Re-gas Capacity development
- Demand & Supply dynamics of LNG
- Developments in the LNG market
- Major end user of LNG in India
- Fiscal characteristics and Pricing of LNG in India
- Interpreting the possible effect of LNG on various industrial segments
- Future of LNG markets

Key Questions Answered

- Provide an overview of the current and future trends in the LNG market
- Ability to analyze investment opportunities in the market
- Have an insight about the ongoing projects

A must buy for

- LNG Players
- Government Agencies
- Consultants
- Regulatory Bodies
- Investors (Banks & Financial Institutions)
- LNG Traders

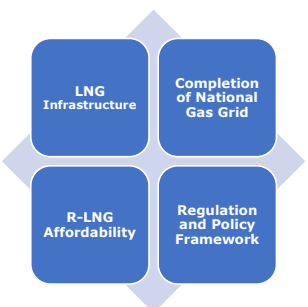
For Sales & Support

Rajesh Singh Panwar
rs@infraline.com
Mob: 9711786999
Ph +91 120 6799125/160

The mounting demand for natural gas has paved the path for LNG market in India. LNG refers to a liquefied version of natural gas which is maintained to a temperature of -162 °C to ease transportation. In this liquid state, LNG occupies less space which makes it viable for the bulk movement through the cryogenic cargoes.

The imports of natural gas in the form of LNG have risen from 25.33 BCM in 2016-17 to 27.02 BCM in 2017-18. India is capitalizing strategically by creating LNG imports infrastructure on both of its eastern and western coastline. Currently the country has 4 existing LNG Terminals on its western coastline which are Dahej, Hazira, Dabhol and Kochi with an overall capacity of 26.69 MMT. With the growing demands and increasing share of the natural gas in the energy basket of India, India has been able to somehow improvise in the right direction by uplifting the Pipeline Infrastructure in the country and developing the required city gas distribution network across the country which will augment the Natural gas growth.

"India's vision to increase share of natural gas in energy mix from 6.2% to 15% by 2030 and transform India to a Gas based economy can be comprehended"



The key drivers of LNG market are the growing energy demands particularly for natural gas. Considering the fact that Natural Gas is a cleaner and much cheaper substitute of any other conventional source of energy, it is crucial for government of India to mechanize an integrated policy that should support the overall development in the LNG Business and infrastructure. Positively this will help India in accomplishing the target of decreasing the crude oil Import dependency.

In this context, Infraline Energy has come up with a business series research report on Topic' Growing Appetite of LNG in India: India becoming a Major LNG Importer". The core objective of the report is to focus on the LNG Infrastructure developments in the country and exploring the limitations and opportunities in context to India. The assessment has been carried out with an exhaustive study of global market scenario, Indian market scenario, Infrastructure status & future requirement, Contracts & pricing and sectoral analysis. Besides appraising the potential countries, Infraline Energy has identified the most attractive sourcing options for India.

The core objective of the report is to focus on the LNG Infrastructure developments in the country and exploring the limitations and opportunities in context to India. The assessment has been carried out with an exhaustive study of LNG basics & LNG value chain, LNG global market scenario, Indian natural gas market scenario, LNG market size, LNG market dynamics, Infrastructure status & future requirement, LNG Contracts & pricing, Business wise sectoral analysis and major companies profiling.

InfralineEnergy Solution

Contents & Coverage

The report is priced at **INR ₹1,25,000 | USD $1,811**. We are offering a pre-publication discount of **10%**. **The price after discount is INR ₹1,12,500 | USD $1,630.** This offer is valid for orders and payments received on or before March 31, 2019.
(GST will be charged as applicable)

RIL-BP CLOSES KG D1 D3 GAS FIELD, PRODUCTION AT D6 TO START BY MID-2020

The RIL-BP joint venture has successfully worked to extend the life of production from the D1 D3 field by nearly five years after gas production at the field ceased in 2015 due to issues of reservoir pressure and water ingress. Through innovation and application of first-of-their kind solutions, the field's life was extended for almost five years, to February 2020, maximizing the recovery from the field. The KG D6 Block has so far produced an overall 3 TCFe of gas, resulting in energy import savings of over $30 billion. These fields also established several global benchmarks in terms of operational performance, including 99.9% uptime and 100% incident-free operations. According to Reliance, the JV has committed an additional $5 billion (Rs35,000 crore) of investments towards monetizing about 3 TCFe (about 500 million barrels of oil equivalent) reserves from three projects - R cluster, satellite cluster and MJ fields. These projects will utilize the existing gas production infrastructure. Further, this infrastructure can act as a hub for development of any discovery from contiguous areas. The first gas from these fields is expected in mid-2020. The peak production from these three fields is expected to reach 1 BCFe per day, which is about 15% of the then envisaged India's demand.

NUMALIGARH REFINERY GETS 200-ACRE LAND WITHIN PARADIP PORT FOR OIL TERMINAL

Paradip Port Trust (PPT) has allotted 200 acres of land to Numaligarh Refinery Ltd (NRL) on long-term lease basis to set up a crude oil terminal within the port premises. The facility will enable NRL to import crude oil via the major port at Paradip to cater to its requirement post ramp up of its refinery from three million tonnes per annum (mtpa) to nine mtpa. NRL has deposited Rs 20 crore with the PPT as initial land deposit. NRL is trebling its refinery's nameplate capacity at a cost of Rs 22,000 crore, billed as one of the highest investments in the North East. In April 2017, NRL had signed an MoU with PPT and Indian Oil Corporation Ltd (IOCL) for imports of crude oil through the major port. The crude oil imports are meant for catering to NRL's capacity expansion wherein it is augmenting capacity of its refinery at Numaligarh (Assam) to nine million tonne per annum, from three mtpa now. Under NRL's proposed refinery expansion project, a 28-inch diameter, 1400-km crude oil pipeline of one mtpa capacity will be laid for transporting six mtpa of imported crude oil from Paradip Port in Odisha to Numaligarh in Assam. The MoU provides for utilizing IOCL's spare capacity of existing SPMs (Single Point Mooring) at Paradip. PPT will extend land space for installation of crude storage tanks, pump house and township at Paradip. This will lead to an estimated investment of Rs 1,000 crore in Odisha and generate direct and indirect employment.

IOCL MATHURA REFINERY SUCCEEDS IN PRODUCING 100% BS-VI FUELS

Indian Oil Corporation's Mathura refinery completed the revamp of its all units to produce BS-VI grade fuels ahead of the deadline for roll out of newer emission norms from April 2020. The refinery had undertaken projects to upgrade its diesel and gasoline units for bringing down sulphur level by nearly 80%, according to Mathura Refinery Executive Director Arvind Kumar. With the commissioning of these facilities, Mathura Refinery is now supplying 100% of its MS (Petrol) and HSD (diesel), meeting BS-VI norms. IOCL Mathura Refinery has achieved the distinction of becoming first refinery in the country to supply BS-VI compliant fuels, containing less than 10 ppm sulphur with existing units, well ahead of deadline set by the government, he mentioned. At a time when all Indian Refineries were producing BS-IV compliant fuels, IOCL Mathura Refinery had gone ahead and was producing BS-VI compliant fuel since January 2018 with its existing units. A deadline was also set for rolling out cleaner (BS-VI compliant) fuel across the National Capital Territory (NCT) by April 18 and National capital region (NCR) by April 19, however Mathura Refinery completed the task, ahead of stipulated time and started supply of BS-VI compliant fuels to NCT and NCR from January 18.

BPCL STARTS EXPORT OF VERY LOW SULPHUR OIL FROM KOCHI PORT

Bharat Petroleum becomes the first oil marketing company to export a cleaner shipping fuel from the country, with the export of its first parcel of IMO 2020 grade Very Low Sulphur Fuel Oil (VLSFO) from Kochi to Singapore. The chairman of Cochin Port Trust, M Beena, flagged off the first export tanker of VLSFO from the Cochin Port. Stringent IMO standards aimed at preventing pollution from marine and shipping operations are re-shaping the landscape of marine fuels and the global cap on sulphur content for general shipping stands reduced to 0.5% from 3.5% with effect from January 1. VLSFO is an IMO 2020 compliant marine fuel and in view of the emerging market for VLSFO, Kochi Refinery started production from December 2019 and supplying VLSFO to the tankers calling at Kochi from then on. VLSFO is produced mainly using the vacuum residue of low sulphur crude oils with suitable blending streams. The tanker MT Alnic MC carried the first parcel of 15 TMT VLSFO to Singapore.

STATES TO DECIDE WHEN PETROLEUM PRODUCTS ARE TO BE TAXED UNDER GST

According to the Union Finance Minister Nirmala Sitharaman, petroleum products are already under Goods and Services Tax (GST). The GST council and the states must decide when they want petrol and diesel to be taxed under GST. Whenever the States are ready to bring in petrol and diesel under the GST, another amendment will not be required, now on the states and GST Council will have to take a call on what they want it to happen, according to Finance Minister Sitharaman in a press conference. The petroleum products have been placed under the GST regime due to the foresight of the late Finance Minister Arun Jaitley. Petroleum as an item product has been included without any tax on it. So, when the GST Council takes a call, a rate will be decided and added.

GAIL PIPELINE WORK REACHES FINAL STAGE IN KOZHIKODE

Despite protests by various forums and challenges posed by two floods, Gas Authority of India Limited (GAIL) has completed about 95% of its pipe-laying works in Kozhikode district hoping to conduct trial run by March-end. The remaining works mostly include pipe-laying works beneath the Iruvazhinji river and the connection of the already laid pipelines under Chaliyar and Kuttiyadi rivers. The construction of three valve stations at Puthur, Kottur and Ayancheri is also in the final phase. According to GAIL officials, the pigging station of the project will come up at Unnikulam and its construction work is in full swing now. The target of construction would be achieved by end of march and will be prepared for trial run according to Mr. Viju, the Project Manager, GAIL. In Kozhikode district, the pipeline will cover 8 kilometers and added that local protests the project execution had already come to an end in villages as all genuine demands related to compensation and possible realignment were duly considered. The highest amount of compensation for the speedy execution of works was disbursed to landowners in Kozhikode. More than Rs.60 crores were disbursed here as compensation for eligible land holders.

UAE FINDS 80 TCF GAS FIELD, THE WORLD'S LARGEST SINCE 2005

A natural gas field containing 80 trillion standard cubic feet of gas has been discovered between Abu Dhabi and Dubai. Authorities believe that the new Jebel Ali field would help the Emirates become more energy independent and UAE will no more have to import natural gas from Qatar for electricity. According to Al-Jazeera, an agreement between Abu Dhabi National Oil Company (ADNOC) and Dubai Supply Authority was signed for the exploration and development of the gas resources. ADNOC asserted that the new discovery reinforces the nation's goal of achieving gas self-sufficiency, enabling major development projects. Despite being blockaded by Saudi Arabia, the UAE, Bahrain and Egypt, over a years-long political dispute, Qatar has continued to supply its Gulf neighbour with gas via the Dolphin pipeline. In June 2017, the UAE and three other Arab nations imposed a land, air and sea blockade on Doha, accusing it of supporting terrorism, the allegation which Qatar has repeatedly and vehemently denied. ADNOC and the Dubai Supply Authority will explore and develop the shallow gas field, which spans some 5,000 square kilometres, according to ADNOC.

IRAN AWARDS $1.3 BILLION CONTRACT TO DEVELOP 2 OIL FIELDS

Iran awarded a $1.3 billion contract to a domestic company for improved oil recovery at two onshore oil fields in the southwest part of the country, according to the oil minister Bijan Zanganeh. The contract was awarded by the National Iranian South Oil Co. to general contractor Mapna Group, with gross income from the project seen at $6 billion at an oil price of $50 a barrel. The two fields in the southwest Khuzestan province Parsi and Paranj are currently producing 52,000 b/d of crude oil. The 10-year contract will raise the production to 85,000 b/d, with output over the 10 years at around 121 million barrels. The contract core sum is $876 million and with its side costs the investment will reach $1.3 billion. The contract was signed by Ahmad Mohammadi, managing director of the National Iranian South Oil Co., and Abbas Aliabadi, managing director of Mapna. The two fields hold around 12 billion barrels of oil and development will include desalination and drilling of 29 new and submersible wells. Parsi, which pumped 450,000 b/d in the past, will be injected with 280 million cubic feet/day of gas, and Paranj with 24 million cf/d.

ENI MAKES OIL DISCOVERY IN SAASKEN PROSPECT OFFSHORE MEXICO

Italian oil and gas exploration firm Eni has made a new oil discovery in the Saasken exploration prospect in offshore Mexico. It made the new oil discovery in Block 10, located in the mid-deep water of the Cuenca Salina in the Sureste Basin. The Saasken-1 new field wildcat (NFW) prospect marks the sixth consecutive well drilled by Eni in the Sureste Basin. Situated about 65km off the coast, the Valaris 8505 Semi-submersible drilled the well, reaching a total depth of 3,830m. According to Eni the new discovery may contain between 200 and 300 million barrels of oil (Mmbbl) in place. The well discovered 80m of net pay of good quality oil in the Lower Pliocene, as well as Upper Miocene sequences. Eni performed an intensive data collection on the well. The data indicates a production capacity of more than 10,000 barrels of oil per day (bopd) for the well. According to Eni, this opens a potential commercial outcome in the block, a joint venture (JV) comprising Eni, Lukoil and Capricorn. Eni operates the block and owns a 65% stake. Lukoil holds 20% and Capricorn holds the remaining 15% interest. The JV will work to appraise the discovery and begin the studies for commercial development. Eni has been operating in Mexico since 2006. The company owns rights in eight exploration and production (E&P) blocks, all in the Sureste Basin. Among these, it acts as an operator for six blocks.

ADNOC AWARDS PETROFAC $1.65 BILLION DALMA GAS DEVELOPMENT CONTRACT

Petrofac Emirates has been awarded two contracts, together worth around US$1.65 billion with Abu Dhabi National Oil Company in the United Arab Emirates. The engineering, procurement, construction, transportation, offshore installation and commissioning contracts are for ADNOC's Dalma Gas Development Project. The work scope encompasses offshore packages at Arzanah island and surrounding offshore fields, located around 140 km off the north-west coast of the Emirate of Abu Dhabi. The first package, valued at US$1.065 billion, is for gas processing facilities at Arzanah island. Under the terms of the 33-month lump-sum contract awarded to Petrofac, the scope of work includes inlet facilities with gas processing and compression units, power generation units, utilities and other associated infrastructure. For the second package, valued at US$591 million under the terms of the 30-month lump-sum contract, the scope of work includes three new well-head platforms, removal and replacement of an existing topside, new pipelines, subsea umbilicals, composite and fiber optic cables. The Dalma project is a key part of the Ghasha ultra-sour gas concession which is central to ADNOC's strategic objective of enabling gas self-sufficiency for the UAE. Established in the UAE in 1991, with operational centers in Abu Dhabi and Sharjah, Petrofac has executed 11 major EPC projects in-country to date.

ENERGY TRANSFER SIGNS NGL TRANSPORTATION, PROCESSING AGREEMENT

Energy Transfer LP has signed agreements with an undisclosed company for the gathering, processing, transportation and fractionation of natural gas liquids (NGLs) in the Eagle Ford shale basin through 2034, and the Delaware basin through 2040. Discussions with potential shippers to build an offshore crude export facility in Texas capable of handling supertankers were progressing, but a final investment decision has not been made, according to the company. US crude exports have surged to record highs after Washington lifted a ban in late 2015. A shale boom has helped make the United States the world's largest oil producer, ahead of Saudi Arabia and Russia. Several midstream companies have raced to add export terminals capable of handling Very Large Crude Carriers (VLCCs) along the US Gulf Coast. Completion of the Ted Collins crude oil pipeline will provide access to over 1 million barrels per day (bpd) of inbound crude oil for delivery to the Houston and Nederland, Texas terminals as well as to Houston and Gulf Coast refineries, according to the Chief Financial Officer Thomas Long. The pipeline is expected to have initial capacity of more than 500,000 bpd, and commercial operations are expected to begin in the second half of 2021. According to Energy Transfer, the initial phase of expansion of the Dakota Access pipeline system beyond its current capacity of 570,000 bpd will be based on shippers' existing commitments as well as those made during the current open season.

PETROCHINA RESUMES GUANGDONG REFINERY CONSTRUCTION AFTER EXTENDED HOLIDAY

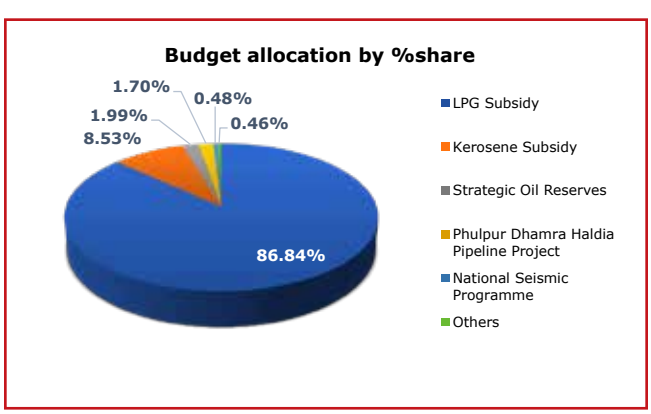
Asia's largest oil and gas firm PetroChina resumed construction of its oil refinery and petrochemical project in southern Chinese province of Guangdong, as the number of new coronavirus cases fell for a second straight day. To curb the spread of the virus, China had extended Lunar New Year holidays and asked companies to put workers returning from their hometown into a 14-day quarantine. With workers and machineries gradually in place, the $10 billion refinery project in Jieyang city is expected to fully restart construction by end-February. The project is scheduled to be fully completed by June 2022, with the launch of an oil refining section by end-2021 and chemical section in March 2022. The new coronavirus has caused 2,004 deaths in China and infected more than 74,000 people, while measures to contain it have paralyzed the economy and the supply chains it feeds.

OIL & GAS: BUDGET HIGHLIGHTS, 2020-21

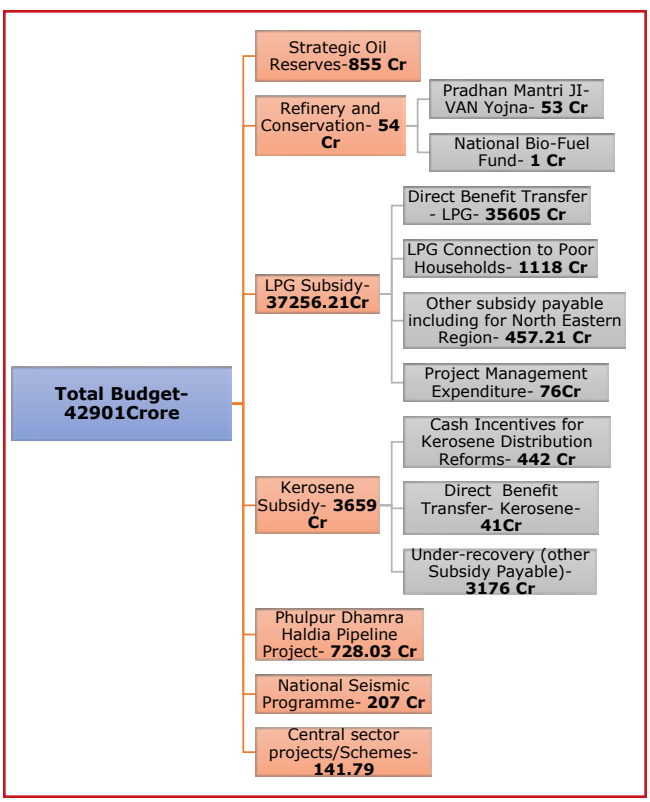
India is world's fifth-largest economy. India's foreign direct investment increased to US$ 284 billion during 2014-19 from US$ 190 billion that came in during 2009-14. The total budget estimated at Rs. 2020926 crores for 2020-21 has increased by Rs 170826 Crore as compared to 2019-20.

	Budget estimates 2020-21
Revenue	2020926
Capital	1021304
Total	**3042330**
Total Expenditure	**3042330**
Revenue Deficit	609219
	-2.70%
Effective Revenue Deficit	402719
	-1.80%
Fiscal Deficit	796337
	-3.50%
Primary Deficit	88134
	-0.40%

1) Budget Allocation for Oil and Gas 2020-21



The oil and gas sector which holds 1.41% of the total budget that is at Rs. 42901 crore for 2020-21 has witnessed a minor reduction by .09% compared to last year. No major changes have been made in the total budget - however, allocations have changed as per government priorities. A major part of the budget has been allocated to the LPG subsidy that stands at 37256.21 Cr (which has increased by 9.3%) and Kerosene subsidy that stands at 3659 Cr (which has decreased by 22.5%) compared to last year's budget



2) Major Announcements by Govt for Oil & Gas Industry, 2020-21

. The government plans to undertake further reforms for making natural gas pricing more transparent in order to facilitate better price discovery of domestically produced natural gas.

. National gas grid will be expanded to 27,000 KM from 16,200 KM.

. The budget has proposed a capital outlay of Rs 98,522 crore for oil and gas companies for 2020-21, a 4% increase over the revised estimate for 2019-20.

. Government has launched OALP Bid Round-Vin 2020, offering 11 Blocks for Exploration and Development through International Competitive Bidding covering 19,789 Sq. km of area. About 8 Blocks are On-land type, 2 Blocks are Shallow-Water type and 1 Block is Ultra Deep-Water type.

.The government to spend Rs 102 lakh crore ($1.4 trillion) in the infrastructure sector over a five-year period

(2020-25) under the National Infrastructure Pipeline Vision 2025 project. 24% of the total amount that is 24,54,249 is expected to be invested in the energy sector. Major aspects of the Infrastructure Vision of 2025 involve affordable and clean energy, ensuring 24×7 power availability, reduction of pollution through green and clean renewable energy and environment-friendly fuel for transportation.

3) Investment in Public Enterprises, 2020-21

- The Exploration and Production (E&P) segment's overall capital outlay has seen a 7.40 per cent rise from Rs 48,431 crore in the Revised Estimate for current fiscal to Rs 52,019 crore in 2020-21.

- The Refining and Marketing segment has witnessed a 2.49 per cent decline in capital outlay at Rs 41,654 crore as compared to the revised estimate of Rs 42,722 crore for 2019-20.

- The petrochemical sector has also witnessed an increase in capital outlay at Rs 4,754 crore, a 31 per cent jump over Rs 3,621 crore likely to be spent this fiscal year ending March 2020.

A) Exploration and Production: 52,019 crores

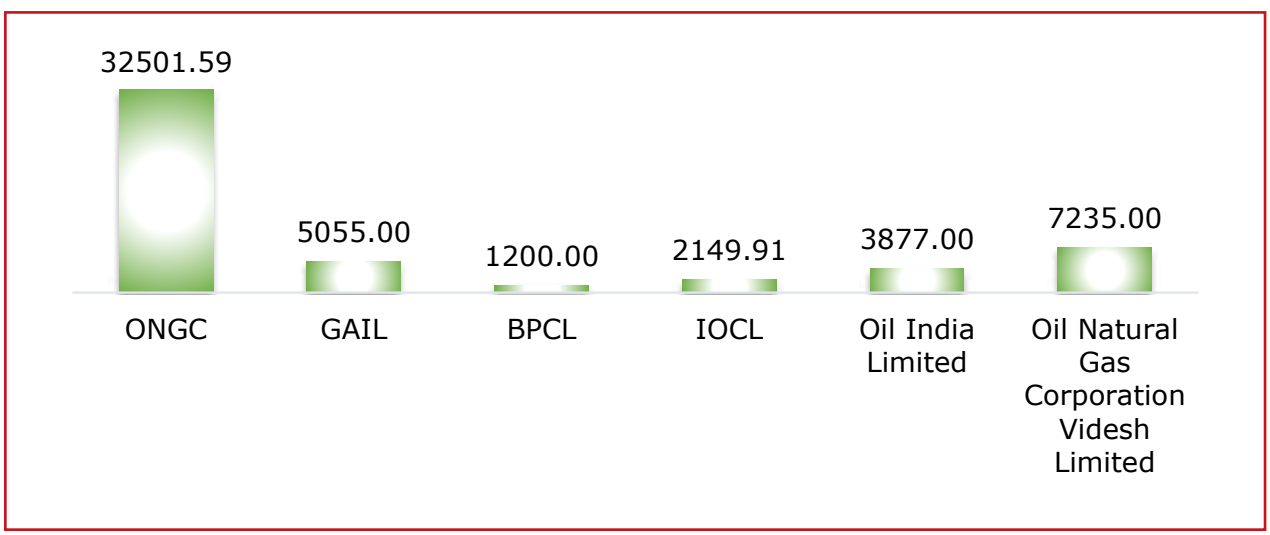
- The capital outlay for Oil and Natural Gas Corporation (ONGC), the biggest spender among oil and gas Public Sector Undertakings (PSUs) which has increased by 2 per cent from Rs 31,896 crore to Rs 32,502 crore for 2020-21 is likely to be spent this fiscal.

- For Indian Oil Corporation (IOC), the country's largest fuel retailer and the second-biggest spender among oil and gas PSUs, the capital outlay budgeted at Rs 26,233 crore for 2020-21 has seen a rise from the revised estimate of Rs 24,895 crore for the current fiscal. Also, the capital outlay for Hindustan Petroleum Corp (HPCL) has been flat at Rs 11,500 crore for 2020-21.

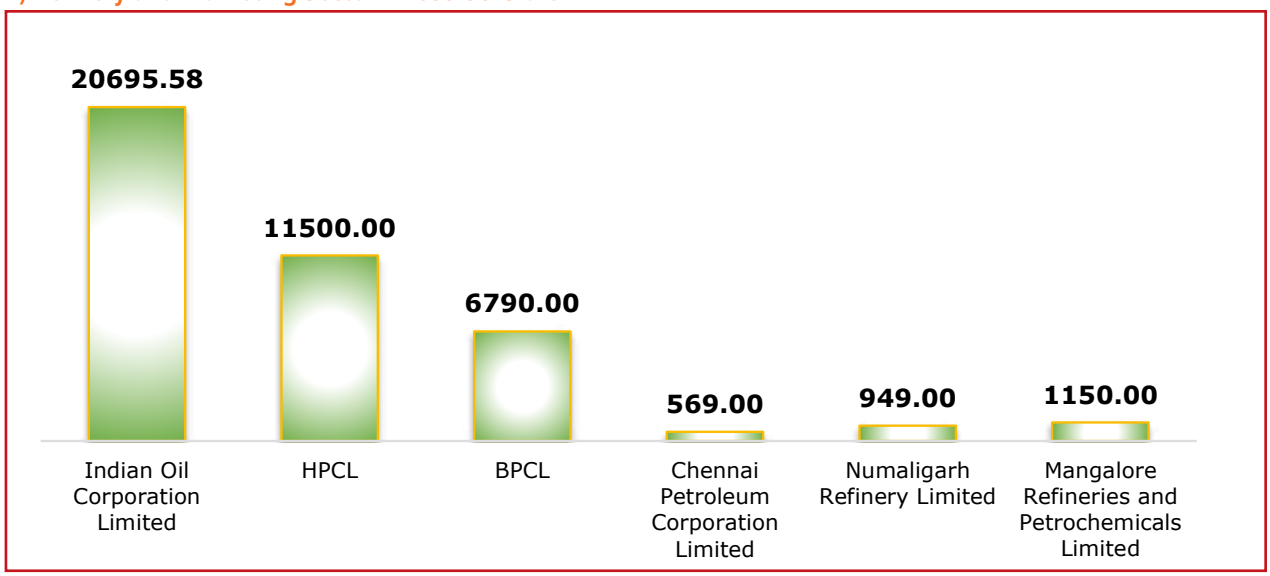
- The government has also budgeted a 14 per cent increase in the capital outlay for Bharat Petroleum Corp (BPCL) at Rs 9,000 crore in the next financial year, as against the revised estimate of expenditure at Rs 7,900 crore for 2019-20.

- Capital expenditure by Oil India Ltd (OIL), the second-largest state-owned petroleum explorer, has been pegged at Rs 3,877 crore for FY21, a 5.4 per cent increase.

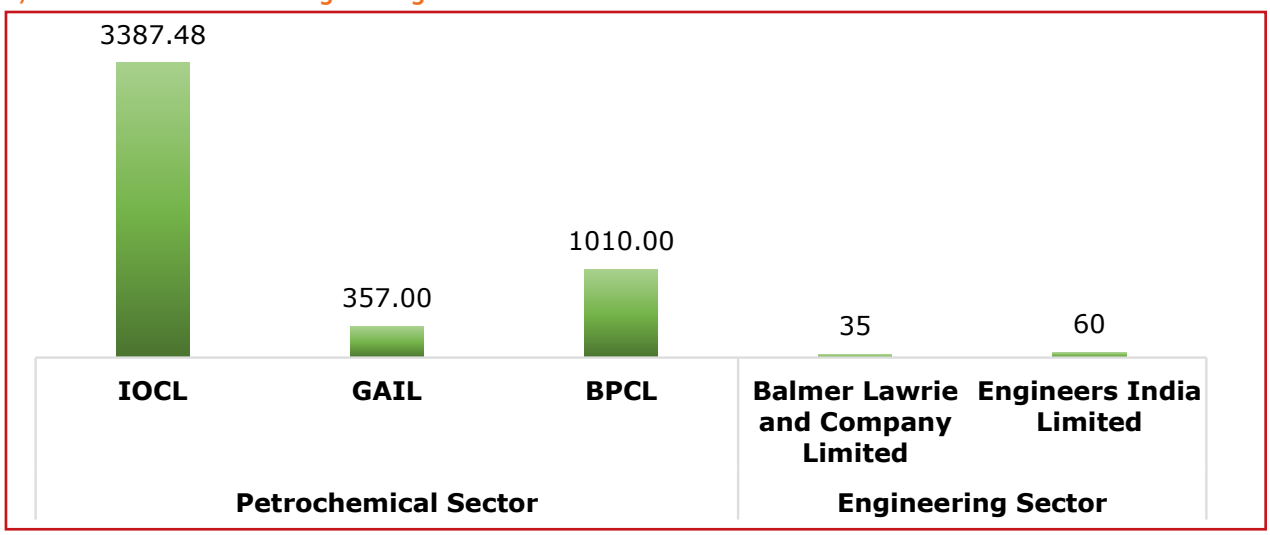
- Similarly, GAIL India Ltd, the state-run natural gas utility, is expected to spend Rs 5,412 crore, a marginal increase over Rs 5,381 crore to be spent in the current fiscal.



B) Refinery and Marketing Sector: 41653.58 Crore



C) Petrochemical Sector+ Engineering Sector: 4754.48 Crore+ 95 Crore



Way Forward/Infraline Views:

. Budget 2020-21 indicates that the government is focused on helping the country transition from a fossil-fuel based to a natural gas-based economy in the coming years.

. Development of the natural gas infrastructure and improvement in the current pricing mechanism will help the government in increasing the share of natural gas in the energy mix from 6.5% to 15% in the coming years.

. The development of pipelines will have a positive impact on the CGD business segment thereby inducing growth in the sector.

. A major part of the budget which has been allocated to the LPG subsidy is aimed at increasing the consumption of gas as the primary source of energy in rural areas.

. Major points that may be missing from the budget as per industry expectations are Bio-fuels, petroleum products under GST, OID cess & tax exemptions.

Sr. No.	COMPANY NAME	Sr. No.	COMPANY NAME
1	Oil and Natural Gas Corporation	21	Mahanagar Gas Ltd
2	Indian Oil Corporation	22	Panama Petrochem Ltd
3	Bharat Petroleum	23	Tide Water Oil Company India Ltd (Veedol)
4	Hindustan Petroleum	24	Aban Offshore Ltd
5	Gail India Limited	25	Adani Gas Ltd
6	Oil India Limited	26	Bharat Oman Refineries Ltd
7	Reliance Petroleum	27	Numaligarh Refinery Ltd
8	Cairn India	28	Savita Oil Technologies Ltd
9	TATA Petrodyne Limited	29	ExxonMobil Lubricants Pvt Ltd
10	Nayara Energy (Essar Oil)	30	GP Global India Pvt Ltd
11	Indraprastha Gas Ltd (IGL)	31	GS Caltex India Pvt Ltd
12	Gujarat Gas Ltd	32	Petronas Lubricants India Pvt Ltd
13	Gujarat State Petroleum Corporation Limited	33	schlumberger
14	Petronet LNG Ltd	34	Shell India
15	Apar Industries Ltd	35	Total Oil India Pvt ltd
16	Castrol India Ltd	36	Trafigura India Pvt Ltd
17	BGR Energy Systems Ltd	37	Aavantika Gas Ltd
18	Chennai Petroleum Corp. Ltd	38	Focus Energy Ltd.
19	Gulf Oil Lubricants India Ltd	39	SKN- Haryana City Gas Distribution Pvt. Ltd.
20	Mangalore Refinery And Petrochemicals Ltd	40	Hindustan Oil Exploration Co Ltd

Sr. No.	COMPANY NAME
41	John Energy Ltd
42	Nandan Petrochem Ltd
43	Sabarmati Gas Ltd
44	Raychem RPG Private Limited
45	Sun Petrochemicals Private Limited
46	GE Oil and Gas india
47	Deep Industries Ltd.
48	Jindal Drilling & Industries Limited (JDIL)
49	Asian Oilfield Service Limited
50	Selan Exploration Technology Limited
51	Nagarjuna Oil Refinery Limited
52	Indo – Bright Petroleum Private Limited
53	Energivo
54	Mantra Energy International
55	IRM Energy Pvt Ltd
56	H-Energy
57	Halliburton India
58	Supreme Petrochem Ltd
59	Confidence Petroleum India Ltd
60	Kundan International Pvt. Ltd.
61	Manali Petrochemicals Limited
62	Tamilnadu Petroproducts Limited (TPL)
63	Veritas India Ltd
64	Bauer Kompressoren India Pvt Ltd
65	BG Exploration & Production India Ltd (BGEPIL)
66	Carl BechemLubricants India Pvt Ltd
67	Gazprom EP International
68	GCE India Pvt Ltd
69	Hardy Exploration & Production India Inc
70	ITECO Oilfield Supply

Sr. No.	COMPANY NAME
71	Oilex Ltd
72	Petrofac Engineering India Pvt Ltd
73	Porocel India Ltd
74	Praxair India Pvt. Ltd.
75	SHV Energy Pvt. Ltd/ Super Gas
76	Transocean Ltd
77	UOP India Private Limited
78	Vinmar International India Pvt Ltd
79	Idemitsu Lube India Private Limited
80	Interflon India Pvt Ltd
81	Aker Powergas Pvt Ltd
82	Air Liquide Global E&C Solutions Pvt Ltd
83	Bijur Delimon India Pvt Ltd
84	Chemie Tech Projects Ltd
85	Ellenbarrie Industrial Gases Ltd
86	Energy Infrastructure(India) Ltd
87	Future Fibre Technologies
88	Forbes Bumi Armada Offshore Ltd
89	FUCHS Lubricants (India) Pvt. Ltd.
90	Fugro Geotech India Pvt Ltd
91	Torrent Gas
92	G+H Insulation India Pvt Ltd"
93	Niko Resources Ltd
94	NOV India Pvt Ltd
95	Nynas Naphthenics Pvt Ltd
96	GeoGlobal Resources Barbados Ind.
97	Oceaneering International Services Pvt Ltd
98	Petrogas India Pvt Ltd
99	Proserv India Oil & Gas Solutions
100	Pyramid Engineering & Consulting Pvt Ltd

MINISTRY OF PETROLEUM & NATURAL GAS

OFFICE OF THE MINISTER

Name	Designation	Phone	Fax	Room No.	Email Address
Shri Dharmendra Pradhan	Minister of Petroleum and Natural Gas; Minister of Steel"	23382426/ 23386120	23386118	201-A	min.png@nic.in
Dr. Ajay Kumar	PS to Minister of Petroleum and Natural Gas	23382426/ 23386120		200(a)-A	
Shri Jitendra Asati	OSD to Minister of Petroleum and Natural Gas	23382426/ 23386120		202-A	
Shri Parthasarathi Samal	Addl. PS				
Shri Satyabrata Padhy	PPS	23382426 / 23386120	23386118	200-A	
Shri Manjeet Kaushik	Asst. PS	23382426 / 23386120		205-A	
Hemant Kumar	SO(SPG Cell)	23382426 / 23386120		205(c)-A	
	OFFICE OF SECRETARY				
Dr. M.M. Kutty	Secretary	23383501 / 23383562	23070723	206-A	sec.png@nic.in
	OFFICE OF ADDITIONAL SECRETARY				
Shri Rajiv Bansal	Additional Secretary	23381704	23074226	211-A	rajiv.bansal@nic.in
	FINANCE DIVISION				
Shri Rajesh Aggarwal	Additional Secretary & Financial Adviser	23382418		208-A	asfa.png@gov.in
Shri Sukh Ram Meena	DDG (IFD)	23389459		206-B	sukh.ram@nic.in
Ms. Perin Devi	Director (IFD)	23386965		210-B	perin.devi@nic.in
Shri Awadesh Kumar Mehta	US (FIN-I)	23384473		311-A	
Shri Shashi Shekhar Singh	US (FIN-II)	23387008		200(d)-C	shashi.ss@gov.in
Shri B.B. Upadhayay	SO (FIN-I)	23388602		313-B	sofin1.png@nic.in
Shri Ramji Lal Meena	SO (FIN-II)	23388602		313-B	
Shri Sachin Mishra	SO (FIN-II)	23388602		313-B	sachin.mishra@nic.in
	ADMINISTRATION DIVISION				
Shri B N Reddy	Joint Secretary (Admin)	23382583	23073475	215-A	jsic.png@nic.in
Shri Mrityunjay Jha	DS(Admn/Establishment)	23386407		211-a(B)	mritunjay.jha@nic.in
Shri Pawan Kumar	US(Admin/Estt/Cash)	23384518		212(a)-B	
Shri Vikash Kumar	SO(Admin)	23389065		215(a)-B	
Md Reyaz Nazmi	SO(Establishment)	23383679		314-B	

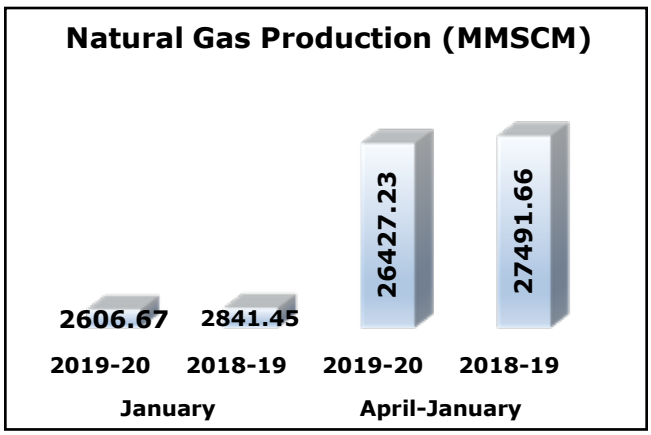
Name	Designation	Phone	Fax	Room No.	Email Address
Shri P B Gonnade	DDO/ SO(Cash-I)	23389318		215(b)-B	jsic.png@nic.in
Smt Saroj Grover	SO(Cash-II)	23389318		215(b)-B	mritunjay.jha@nic.in
	E & S DIVISION				
Ms. Indrani Kaushal	Economic Advisor	23383753		210(a)-A	indrani.k@nic.in
Shri Gaurav Katiyar	Dy. Director	23384749		509-D	g.taiyar15@gov.in
Shri Shyam Lal	SSO	23385339		509-D	
	REFINERY DIVISION				
Shri Sunil Kumar	Joint Secretary (Ref.)	23386935	23070562	216-A	jsr[dot]png[at]nic[dot]in
Shri Rohit Mathur	Dir (Bio-Refinery &Supply)	23380025		213-A	rohit.mathur@nic.in
Shri Sushil T. Williams	DS(Ref)	23387467		238-A	sushilt.williams@gov.in
Shri Santanu Dhar	US (Supply&Bio-Refinery)	23388652		200(e)-C	usref[dot]png[at]nic[dot]in
Shri P. Somakumar	US (OR)	23388652		200(e)-C	jk[dot]singh68[at]nic[dot]in
Shri Noas Kindo	US(Flagship)	23074370		200(d)-C	noas.kindo68@gov.in
Smt Kala	SO(Bio-Refinery)	23387878		312-B	socc[dot]png[at]nic[dot]in
Shri Rajesh Guliani	SO(OR-I)	23389842		213-B	
Shri Madan Mohan	SO(OR-II)	23389842		213-B	
	EXPLORATION & VIGILANCE DIVISION				
Shri Amar Nath	Joint Secretary (E & CVO)	23381832		208-A	amar[dot]nath94[at]nic[dot]in
Vacant	Dir. (E-II & Vig)	23386526	23074409	203-B	
Shri Rajender Kumar Kureel	Dir. (E-I)	23381029	23074409	208-B	rk.kureel@nic.in
Shri M.C. Bhatt	US (E-I/III)	23387224		311-A	bhatt[dot]mohan[at]nic[dot]in
Shri Kuldeep Kumar	US (E)	23388164		200(b)-C	usexp[dot]png[at]nic[dot]in
Shri K.K. Ashokan	US (E-II)	23384376		212(a)-B	kk[dot]asokan[at]nic[dot]in
Shri CK Vinay Kumar	US(Vig)	23073859		310-A	ckvinay.kumar@nic.in
Md. Marazuddin	SO (ONG-I/III)	23073925		213-B	soong1[dot]png[at]nic[dot]in
Shri Madan Lal	SO(ONG.II)	23386814		213-B	soong1[dot]png[at]nic[dot]in
Smt. Latha Sankarnarayanan	SO(ONG.IV)	23386814		213-B	lata.sankaranarayanan@gov.in
Shri Kapil Kumar	SO (ONG-V)	23387849		213-B	
	MARKETING				
Shri Ashish Chatterjee	Joint Secretary (Marketing)	23073165	23398804	208(b)-A	jsm[dot]png[at]nic[dot]in
Shri Mrityunjay Jha	DS(LPG)	23386407		211-a(B)	mritunjay.jha@nic.in
Shri Nirmal Pegu	US (LPG)	23385420		200-C	nirmal.pegu@gov.in
Shri Rajesh Lakhera	US(LPG-II)			508-D	
Shri Vinay Kumar	US (OMC)	23386119		200(b)-C	usiocmc[dot]png[at]nic[dot]in
Shri Ashish Aggarwal	US (Dist)	23381984		200(e)-C	usdist-png[at]nic[dot]in
Shri Naveen Kumar	SO(OMC)	23386071		214-B	
Shri I.R. Antony	SO (Dist)	23389630		214-B	sodist[dot]png[at]nic[dot]in
Shri Alok Kumar Sinha	SO (PP)	23389898		209-A	sopp-png[at]gov[dot]in
Shri Ankesh Kumar Srivastava	SO (LPG & DBTL)	23389630		214-B	somkt[dot]png[at]nic[dot]in

INPOWER- OIL & GAS SECTOR OUTLOOK | JANUARY | 2020

INPOWER – AN INFRALINE'S MONTHLY STREAM WHICH HIGHLIGHTS INFORMATION RELATED TO OIL & GAS SECTOR AND AIMS TO PROVIDE INSIGHTS OF REGULATORY AND INDUSTRIAL DEVELOPMENTS IN OIL & GAS SECTOR VALUE CHAIN.

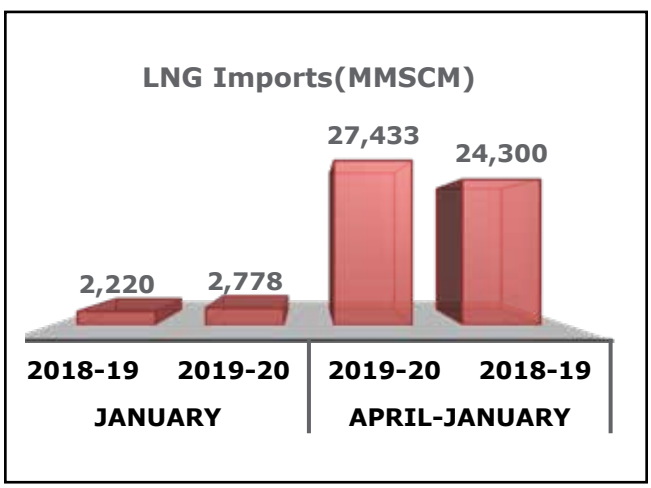
JANUARY | 2020

1. Natural Gas Production (MMSCM) in India (January 2020)



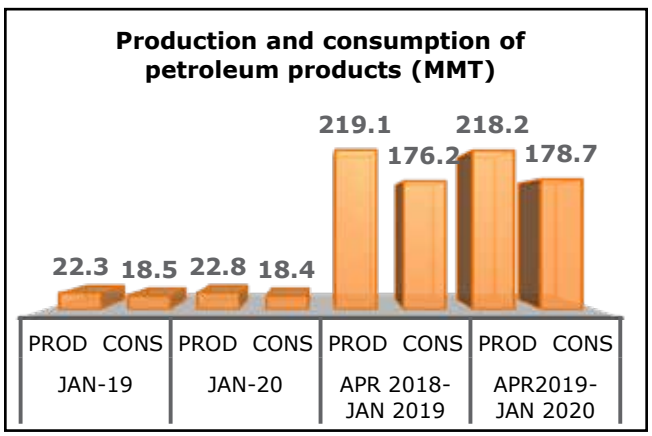
Natural gas production during January 2020 was 2606.67 MMSCM which is 13.49% lower than the monthly target and 8.26% lower when compared with January 2019. Cumulative natural gas production during April-January, 2019-20 was 26427.23 MMSCM which is 7.74% Page 3 of 5 and 3.87% lower than target for the period and production during corresponding period of last year respectively.

2. LNG Imports (January 2020)



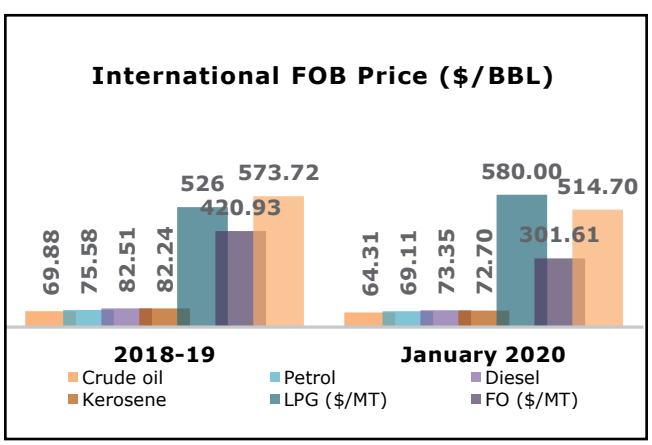
LNG import for the month of January 2020 was 2778 MMSCM which was 25.1% higher than the corresponding month of the previous year. The cumulative import of 27433 MMSCM for the current year till January 2020 was higher by 12.9% compared with the corresponding period of the previous year.

3. Production & Consumption of Petroleum Products (January 2020)



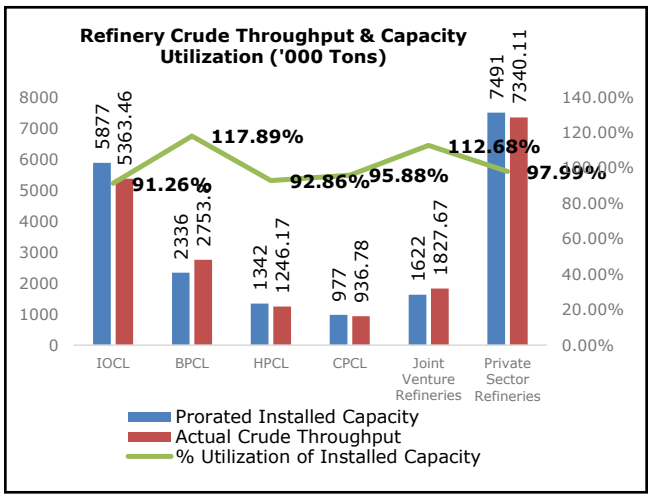
Production of petroleum products saw a growth of 3.1% during November 2019 and de-growth of 1.1% during April-November 2019 as compared to the corresponding period of the previous year. Petroleum product consumption registered a growth of 10.5% during November 2019 and a cumulative growth of 2.2% during April-November 2019. Except for SKO and FO/LSHS all other products registered growth during November 2019. Production of petroleum products from refineries and fractionators increased by 3.1% during November 2019 as compared to November 2018. However, on cumulative basis production of petroleum products was lower by 1.1% during April – November 2019 as compared to the corresponding period of the previous year.

4. International FOB Prices in India (January 2020)



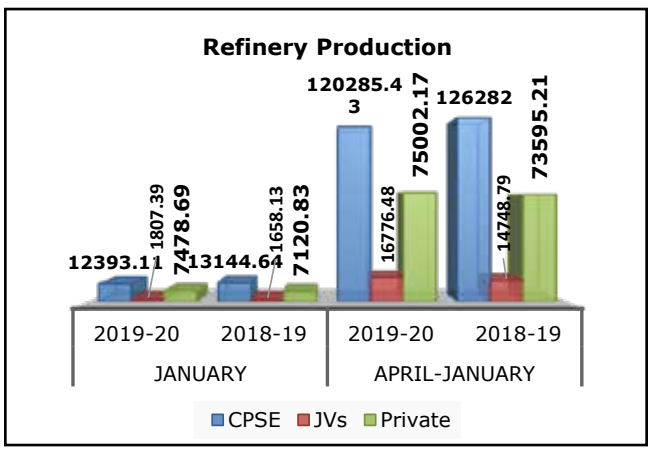
International FOB prices of various Petro products and crude oil in the FY 2018-19 and January 2020 are mentioned in the chart. The price of Brent Crude averaged $63.50/bbl during January 2020 as against $67.02/bbl during December 2019 and $59.46/bbl during January 2019. The Indian basket crude price averaged $64.31/bbl during January 2020 as against $65.50/bbl during December 2019 and $59.27 / bbl during January 2019.The FOB price of crude oil in January 2020 is lower by US$5.57 per barrel from the average crude oil price of US$ 69.88 per barrel prevailing in FY 2018-19 owing to trade war between U.S & China and geopolitical tensions in OPEC countries. Low price of crude oil in international market has also affected the prices of Petro products in January 2020 which are also lower than the average FOB price prevailed in FY 2018-19.

5. Refinery Crude Throughput & Capacity Utilization (January 2020)



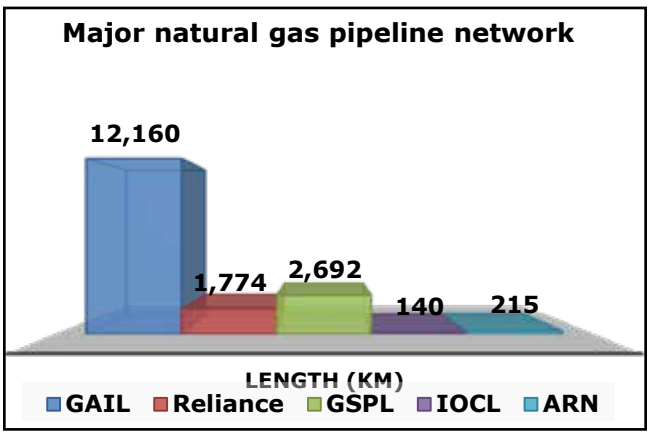
Public sector Refineries' crude throughput during January 2020 was 12393.11 TMT which is 5.71% lower than in January 2019. BPCL Capacity utilization is highest as compared to other PSU's and crude throughput of CPCL declined in January 2020 when compared with corresponding month of 2019. Private sector mostly dominated by RIL also showed higher utilization of refining capacity compared with prorated refinery capacity in January 2020 owing to higher production output initiation from upgraded units.

6. Refinery Production (TMT) (January 2020)



Refinery production during January 2020 was 21679.19 TMT which is 2.86% lower than the target for the month and 1.21% lower when compared with January 2019. Cumulative production during April-January, 2019-20 was 212064.08 TMT which is marginally higher by 0.54% than the target for the period but 1.19% lower than production during corresponding period of last year respectively. CPSE Refineries' production during January 2020 was 12393.11 TMT which is 8.93% lower than the target for the month and 5.72% lower when compared with January 2019. Production in JV refineries during January 2020 was 1807.39 TMT which is 13.82% higher when compared with the production of January 2019 and 7.62% higher than the target for the month. Production in private refineries during January 2020 was 7478.69 TMT which is 5.03% higher than the target as well as corresponding month of last year. Cumulative production by private refineries during April-January, 2019-20 was 75002.17 TMT which is 1.91% higher than the target as well as corresponding period of last year.

7. Major Crude oil pipeline network (January 2020)



The total length of natural gas pipeline 16,981KM with a total capacity of 387 MMTPA as of January 2020. GAIL currently owns & operates about 12160 Kms. With a capacity of 246 MMSCMD. GSPL is the second largest company owning a 2692 km pipeline with a capacity of 43 MMSCMD as of January 2020. The natural gas pipeline network is expected to witness the momentous growth rate in the coming years owing to the government's effort to make a gas-based economy. The budget 2020 proposes that natural gas pipeline will get folded to 27000KM in the coming years.

8. Region-wise data on LPG marketing (January 2020)

Particulars	North	North-East	East	West	South	Total
LPG Active Domestic Customers (in Lakh)	841.5	96.1	535.1	585.1	701.4	**2759.2**
LPG Coverage (Estimated)	110.70%	90.00%	83.50%	88.10%	103.80%	**96.90%**
PMUY Beneficiaries (in Lakh)	249.7	42.1	254.6	175.2	81.3	**802.9**
Non-domestic LPG customers (in Lakh)	6.2	0.7	3.1	8	13.6	**31.7**
LPG Distributors (Numbers)	8083	1025	4729	5205	5340	**24382**
Auto LPG Dispensing Stations (Numbers)	119	0	52	147	340	**658**
Bottling Plants* (Numbers)	60	13	26	45	51	**195**

9. Crude Oil, LNG and Petroleum Products at a Glance (January 2020)

	Details	Unit/ Base	2017-18	2018-19	January		April-January	
					2018-19	2019-20(P)	2018-19	2019-20(P)
1	Crude oil production in India	MMT	35.7	34.2	2.8	2.7	28.8	27.1
2	Consumption of petroleum products	MMT	206.2	213.2	18.5	18.4	176.2	178.7
3	Production of petroleum products	MMT	254.3	262.4	22.3	22.8	219.1	218.2
4	Gross natural gas production	MMSCM	32649	32875	2,841	2,607	27,492	26,427
5	Natural gas consumption	MMSCM	59170	60798	4,992	5,306	51,120	53,104
6	Imports & exports:							
	Crude oil imports	MMT	220.4	226.5	19.7	19.9	190.2	188.4
		$ Billion	87.8	111.9	8.3	9.4	95.3	87.7
	Petroleum products (POL) imports	MMT	35.5	33.3	3	4.6	26.4	35.8
		$ Billion	13.6	16.3	1.1	2.1	13.4	15
	Gross petroleum imports (Crude + POL)	MMT	255.9	259.8	22.7	24.4	216.6	224.2
		$ Billion	101.4	128.3	9.5	11.5	108.7	102.7
	Petroleum products exports	MMT	66.8	61.1	4.5	4.7	51.4	54.7
		$ Billion	34.9	38.2	2.4	2.6	32.6	31.3
	LNG imports	MMT	27,439	28,740	2,220	2,778	24,300	27,433
		$ Billion	8.1	10.3	0.8	0.8	8.8	7.9
7	Petroleum imports as percentage of India's gross imports (in value terms)	%	21.8	24.9	22.8	28.1	25.1	25.8
8	Petroleum exports as percentage of India's gross exports (in value terms)	%	11.5	11.6	8.9	10.2	12	11.8
9	Import dependency of crude (on consumption basis)	%	82.9	83.8	84.8	84.9	83.6	84.9

10. Coal Bed Methane (CBM) Gas Development in India (January 2020)

Prognosticated CBM resources	92	TCF
Established CBM resources	9.9	TCF
Total available coal bearing areas	26,000	Sq. KM
Exploration initiated	16,613	Sq. KM
Blocks awarded	33	Nos.

PRODUCTION OF CBM GAS	JANUARY 2019 (P)	55.6	MMSCM
PRODUCTION OF CBM GAS	APRIL-JANUARY 2019 (P)	540.7	MMSCM

CBM produced from domestic fields increased by 4.9% in January 2020 when compared with the CBM produced in the previous month December, the available coal bearing area being constant, the cumulative CBM produced increased by around 55.6 MMSCM as compared to the last month.

11. New Retail Fuel Policy Guidelines (January 2020)

Ministry of Petroleum and Natural (MoPNG) Gas vide Resolution revised the guidelines for authorization to market transportation fuels which have been published in the Gazette of India. The revised guidelines would promote ease of doing business and boost private players to invest in retail sector. The main features of the said guidelines are as below: -

- The resolution applies for marketing of only Motor Spirit and High-Speed Diesel for "Bulk" and "Retail" business.
- An entity desirous of seeking authorization for either retail or bulk must have a minimum net worth of Rs. 250 crores at the time of making application. In case authorization is required for both retail and bulk, minimum net worth will be Rs.500 crore.
- Separate applications to be made for retail and Bulk business.
- For retail authorization, an entity has to set up at least 100 retail outlets, out of which 5 % should be in the notified remote areas within 5 years of the grant of authorization. An effective mechanism has been prescribed to ensure that the entity deliver on its commitment to set up the ROs in remote areas.
- An entity is required to deposit prescribed Bank Guarantee amount as a security at the time of grant of authorization in addition to application fee.
- In addition to conventional fuels, the authorized entities are required to install facilities for marketing at least one new generation alternate fuels like Compressed Natural Gas (CNG), biofuels, Liquefied Natural Gas (LNG), electric vehicle charging points etc. at their proposed retail outlets (RO) within three years of operationalization of the said outlet subject to the entity complying with various other statutory guidelines.

12. Mixing of Ethanol in Petrol (February 2020)

National Biofuel Policy-2018 envisages an indicative target of 20% blending of ethanol in petrol by 2030. The Government has proposed an action plan to increase the production of ethanol. In order to increase the production of ethanol, Government has taken a series of policy decisions which include:

- notification of National Biofuel Policy-2018
- differential price of ethanol from C heavy molasses, B heavy molasses, sugar, sugar syrup & sugarcane juice
- amendment to Industries (Development & Regulation) Act, 1951, for free movement of denatured ethanol for Ethanol Blended Petrol (EBP) Programme
- reduction in Goods & Service Tax on ethanol meant for EBP Programme from 18% to 5%
- increased the scope of raw material by allowing production of ethanol from damaged food grains which are unfit for human consumption, fruit and vegetable wastes, etc.,
- interest subvention scheme for financial assistance for sugar industry to increase distillation capacity, and
- production of Second-Generation Bioethanol using lignocellulosic biomass and another renewable feedstock.

13. Key Highlights:

• IOCL signs first Term contract for importing Russian crude oil to India (February 2020)

Shri Dharmendra Pradhan and Mr. Igor Sechin, CEO and Chairman of Rosneft signed the first-ever Term Contract between IOCL and Rosneft for importing 2 Million Metric Tonnes of Urals grade crude oil during the year 2020 to India. Sourcing of Russian crude oil through long term contracts is a part of India's strategy for diversifying the country's crude oil supplies from non-OPEC countries, and a part of the five-year roadmap for bilateral cooperation in the hydrocarbons sector.

The addition of Russia as a new source for crude oil imports by India's largest refiner will go a long way in mitigating the risks arising out of geo-political disruptions. The new arrangement would also usher in price stability and energy security for India, which is witnessing robust growth in demand for petroleum products. It will also open up the avenues for other PSU oil refiners to enter into similar term contracts for import of Russian crude oil.

Both sides agreed to take forward mutually aligned priorities, including preparing a roadmap for Indian investments in the Eastern Cluster projects of Russia. It was noted that the four Indian oil and gas Public Sector Undertakings (PSUs) have already submitted the Expression of Interest to Rosneft to participate in the project. In order to negotiate the terms of Indian companies entering Vostok Oil in the shortest time possible, it was agreed to create a working group of representatives of Russian and Indian companies.

• GAIL to invest Rs 1.05 lakh crore to create infra for gas-based economy (February 2020)

GAIL India Ltd, the country's largest gas utility, will invest Rs 1.05 lakh crore over the next five years to expand pipelines, lay city gas distribution network and raise petrochemical production capacity. Gas pipelines are planned to take the fuel to the east and northeast regions as well as to consumers in the south as part of the government push to raise the share of natural gas in India's energy basket to 15 per cent by 2030 from the current 6.2 per cent.

GAIL has planned a capex of Rs 45,000 to Rs 50,000 crore in laying pipelines, Rs 10,000 crore petrochemical capacity expansion and another Rs 40,000 crore for city gas distribution (CGD) business. At present, GAIL operates 12,160-km of pipeline network and markets two-thirds of all-natural gas sold in the country. It will add about 7,000 km of pipeline length in the next five years.

The company is scaling up on liquefied natural gas (LNG) import capacity. Besides owning a part of Petronet LNG Ltd, India's biggest liquid gas importer, it also owns and operates a 5 million tonnes LNG import facility at Dabhol in Maharashtra.

GAIL has awarded the contract for construction of a breakwater at Dabhol to L&T and this should get completed in two-and-half-years. The completion will help operate the Dabhol terminal at its full capacity of 5 million tonnes per annum. The company is building a 2,655-km gas pipeline from Jagdishpur in Uttar Pradesh to Haldia in West Bengal, Bokaro in Jharkhand and Dhamra in Odisha. Jagdishpur-Haldia & Bokaro-Dhamra Natural Gas Pipeline (JHBDPL) project, also known as the 'Pradhan Mantri Urja Ganga' project.

• GP Petroleum's to invest Rs 100 crore in greenfield plant at Gujarat (February 2020)

GP Petroleum's Ltd (GPPL) plans to invest Rs 100 crore in a new plant at Saronda in Gujarat to process over three lakh kiloliters of lubricants, thus enabling the company to be present across the entire gamut of Indian lubes market. This will be GPPL's second blending plant in the country and will manufacture specialty value-added products in addi-

tion to the automotive and industrial lubricants catering to the entire value chain. Apart from the homegrown Ipol brand, the plant may blend Repsol branded automotive products as well. GPPL's second blending plant in the country and will manufacture specialty value-added products in addition to the automotive and industrial lubricants catering to the entire value chain. Apart from the homegrown Ipol brand, the plant may blend Repsol branded automotive products as well. GPPL currently operates a plant at Vasai near Mumbai with an annual capacity of 80,000 tonnes and houses a storage facility of 15,000 tonnes, one of the largest in the Indian industry.

14.List of Tenders

S.no	Tender Name	Organisation	Published Date	Submission Date
1	Lubricating Oils for Refrigeration Machinery	Central Armed Police Forces	Feb 24, 2020 (Monday)	Mar 03, 2020 (Tuesday)
2	Diesel Hpp(n)(hsd) To Specification Is:1460/2000	Ordnance Factory Board (Ofb)	Feb 22, 2020 (Saturday)	Mar 14, 2020 (Saturday
3	Supply Of Light Diesel Oil In Tanker For Sbulc	Balmer Lawrie & Co. Ltd.	Feb 22, 2020 (Saturday)	Mar 09, 2020 (Monday)
4	Oil, industrial,460cst, morg Oil	Essar	Feb 22, 2020 (Saturday)	Mar 03, 2020 (Tuesday)
5	Supply of Gear Lubricants, multipurpose	Central Armed Police Forces	Feb 22, 2020 (Saturday)	Mar 03, 2020 (Tuesday)
6	Internal Combustion Engine Lubrication Oil	Central Armed Police Forces	Feb 22, 2020 (Saturday)	Mar 03, 2020 (Tuesday)
7	Supply Drive Train Transmission Oil	East Coast Railway	Feb 21, 2020 (Friday)	Mar 10, 2020 (Tuesday)
8	Supply of Gear Lubricants, multipurpose	Department Of Agriculture Cooperation And Farmers Welfare	Feb 21, 2020 (Friday)	Mar 03, 2020 (Tuesday)
9	Supply Gear Case Oil for Application In Hhp Locomotives.	Southern Railway	Feb 21, 2020 (Friday)	Mar 02, 2020 (Monday)
10	Supply Motor Spirit (Petrol)	Western Railway	Feb 21, 2020 (Friday)	Feb 26, 2020 (Wednesday)
11	Supply of Lpg 19 Kg	Ministry Of Tourism	Feb 21, 2020 (Friday)	Mar 02, 2020 (Monday)
12	Supply of Lubricating Oil, Hydraulic Oil, Transmission Oil.	North Central Railway	Feb 20, 2020 (Thursday)	Mar 18, 2020 (Wednesday)
13	Local Purchase of Oil, Lubes and Greases	Ministry Of Defence	Feb 20, 2020 (Thursday)	Feb 27, 2020 (Thursday)
14	Internal Combustion Engine Lubrication Oil	Ministry Of Power	Feb 20, 2020 (Thursday)	Mar 02, 2020 (Monday)
15	Kerosene Oil	Bharat Heavy Electricals Limited (Bhel)	Feb 20, 2020 (Thursday)	Mar 02, 2020 (Monday)

15. Conclusion:

Indigenous crude oil and condensate production during January 2020 was lower by 5.3% than that of January 2019 as compared to a de-growth of 7.4% during December 2019. OIL and ONGC registered growth of 1.1% and 1.2% respectively during January 2020 as compared to January 2019. PSC fields registered a de-growth of 21.3% during January 2020 as compared to January 2019. On cumulative basis indigenous crude oil and condensate production of the country was lower by 6% during April 2019 - January 2020 as compared to the corresponding period of the previous year. Total natural gas consumption (including internal consumption) for the month of January 2020 was 5306 MMSCM which was 6.3% higher than the corresponding month of the previous year. The cumulative consumption of 53104 MMSCM for the current year till January 2020 was higher by 3.9% compared with the corresponding period of the previous year. Preference for petrol driven vehicles, improvement in road conditions and better rural connectivity has sustained the growth in MS sales, which for twenty-nine months in a row recorded a growth and registered an increase of 3.5% during January 2020 as compared to January 2019. The consumption of MS for the period April-January 2020 registered a growth of 7.9% as compared to the same period last year.

LPG Marketing at a Glance (As on January, 2020)

Particulars	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	1.1.2020 (P)
LPG Active Domestic Customers	(Lakh)								1486	1663	1988	2243	2654	2759
	Growth									11.90%	19.60%	12.80%	18.30%	9.40%
LPG Coverage (Estimated)	(Percent)								56.2	61.9	72.8	80.9	94.3	96.9
	Growth									10.10%	17.60%	11.10%	16.50%	7.80%
PMUY Beneficiaries	(Lakh)										200.3	356	719	802.9
	Growth											77.70%	101.90%	35.10%
LPG Distributors	(No.)	9365	9366	9686	10541	11489	12610	13896	15930	17916	18786	20146	23737	24382
	Growth	0.00%	0.00%	3.40%	8.80%	9.00%	9.80%	10.20%	14.60%	12.50%	4.90%	7.20%	17.80%	7.60%
Auto LPG Dispensing Stations	(No.)	327	447	536	604	652	667	678	681	676	675	672	661	658
	Growth	48.60%	36.70%	19.90%	12.70%	7.90%	2.30%	1.60%	0.40%	-0.70%	-0.10%	-0.40%	-1.60%	-0.80%
Bottling Plants	(No.)	181	182	182	183	184	185	187	187	188	189	190	192	195
	Growth	0.00%	0.60%	0.00%	0.50%	0.50%	0.50%	1.10%	0.00%	0.50%	0.50%	0.50%	1.10%	2.10%

Coal Bed Methane (CBM) Gas Development in India (January,2020)

Prognosticated CBM resources		92	TCF
Established CBM resources		9.9	TCF
Total available coal bearing areas		26,000	Sq. KM
Exploration initiated		16,613	Sq. KM
Blocks awarded		33	Nos.
Production of CBM gas	January 2019 (P)	55.6	MMSCM
Production of CBM gas	April-January 2019 (P)	540.7	MMSCM

Ethanol Blending Programme

Particulars	Ethanol Supply Year *				
	2015-16	2016-17	2017-18	2018-19 (P)	2019-20 (P)
					(Dec 2019-Jan 2020)
Ethanol received by PSU OMCs under EBP Program (in Cr. Litrs)	111.4	66.5	150.5	188.6	24.1
Average Percentage of Blending Sales (EBP%)	3.50%	2.00%	4.20%	5.00%	3.80%

*Ethanol Supply Year : Ethanol supplies take place between 1st December of the present year to 30th November of the following year.
Note: With effect from 01.04.2019, EBP Programme has been extended to whole of India except UTs of Andaman and Nicobar Islands and Lakshadweep.

Consumption of Petroleum Products (As on January, 2020)

PRODUCTS	19-Apr	19-May	19-Jun	19-Jul	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec	20-Jan	TOTAL
LPG	1900	2054	1793	2219	2402	2164	2348	2261	2360	2450	**21951**
Naphtha	889	735	925	1373	1362	1047	1073	1198	1221	1277	**11099**
MS	2459	2737	2639	2523	2575	2372	2539	2534	2472	2456	**25306**
ATF	645	679	649	657	666	652	696	708	731	741	**6823**
SKO	254	268	260	195	231	176	170	188	153	164	**2060**
HSD	7321	7786	7449	6838	6114	5833	6506	7563	7366	6938	**69714**
LDO	45	49	54	52	63	60	48	51	46	57	**525**
Lubricants & Greases	255	354	300	305	311	310	277	292	328	327	**3060**
FO & LSHS	499	515	476	569	479	529	472	460	544	489	**5030**
Bitumen	691	727	548	407	231	321	446	585	573	595	**5122**
Petroleum coke	2254	2135	1480	1495	1783	1757	1667	1676	1992	1934	**18172**
Others	1045	982	1037	1020	903	897	1000	895	1041	987	**9806**
TOTAL	**18256**	**19020**	**17609**	**17652**	**17119**	**16120**	**17243**	**18409**	**18826**	**18413**	**178667**

Import/Export of Crude Oil and Petroleum Products (As on January, 2020)

IMPORT/EXPORT	19-Apr	19-May	19-Jun	19-Jul	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec	20-Jan	TOTAL
IMPORT											
Crude Oil	19712	18869	16866	19344	19787	16821	19303	19171	18715	19858	**188446**
Petroleum Products											
LPG	1262	1037	958	857	1220	1573	1413	1302	1232	1379	**12234**
MS	119	125	183	245	174	409	193	138	226	198	**2010**
Naphtha	104	122	70	203	260	259	118	100	166	139	**1542**
ATF	65	0	0	0	0	0	0	0	3	3	**70**
SKO	0	0	0	0	0	0	0	0	0	0	**0**
HSD	135	201	443	115	46	140	70	17	497	685	**2350**
LOBS/ Lube oil	172	263	236	211	220	187	211	175	201	221	**2097**
Fuel Oil	35	96	284	127	285	370	325	257	543	713	**3035**
Bitumen	113	137	126	93	52	64	114	120	98	105	**1023**
Petcoke	1317	1327	697	705	757	796	666	692	900	900	**8759**
Others	263	291	436	227	191	239	373	131	313	216	**2679**
Product Import	**3585**	**3600**	**3434**	**2784**	**3208**	**4036**	**3484**	**2931**	**4180**	**4559**	**35800**
Total Import	**23297**	**22469**	**20300**	**22128**	**22994**	**20857**	**22787**	**22102**	**22894**	**24417**	**224247**
EXPORT											
LPG	38	36	34	38	32	40	37	42	42	39	**377**
MS!	1002	1377	867	1156	904	1133	994	993	1329	813	**10568**
Naphtha$	615	974	521	401	681	780	880	736	973	787	**7349**
ATF#	554	473	634	484	544	720	618	714	656	497	**5893**
SKO	2	2	2	2	2	2	1	2	2	59	**75**
HSD	2017	2101	2220	2614	2357	3322	3119	3270	3143	2141	**26305**
LDO	0	0	0	0	0	0	0	0	0	0	**0**
LOBS/ Lube Oil	0	1	1	1	1	1	1	1	1	1	**7**
Fuel Oil	55	99	127	152	171	365	157	152	33	0	**1310**
Bitumen	4	3	1	1	4	2	2	2	0	4	**23**
Petcoke / CBFS	50	73	0	68	251	0	0	0	0	11	**454**
Others%	71	296	281	155	357	219	163	221	286	296	**2344**
Total Product Export	**4407**	**5434**	**4689**	**5071**	**5305**	**6584**	**5971**	**6131**	**6464**	**4650**	**54705**
Net Import	**18890**	**17036**	**15611**	**17057**	**17689**	**14274**	**16816**	**15971**	**16430**	**19767**	**169541**

SKO (Non PDS) Prices in Major Cities (As on February, 2020)

Month	Delhi	Kolkata	Mumbai	Chennai
		Rs/KL		
16-Feb-20	59,278.27	61,776.21	62,445.60	62,941.20
01-Feb-20	62,216.47	64,749.81	65,596.20	66,115.40
16-Jan-20	65,815.47	68,360.61	69,419.40	69,774.00
01-Jan-20	64,836.07	67,369.41	68,381.00	68,923.80
01-Dec-19	63,573.47	66,118.61	67,035.80	67,566.80
16-Nov-19	63,384.67	65,918.01	66,835.20	67,366.20
01-Nov-19	63,455.47	65,988.81	66,906.00	67,437.00
16-Oct-19	64,257.87	66,803.01	67,767.40	68,310.20
01-Oct-19	65,780.07	68,325.21	69,384.00	69,926.00
16-Sep-19	63,539.86	66,130.56	67,106.00	67,637.00
01-Sep-19	63,110.06	65,634.96	66,587.40	67,118.40
16-Aug-19	63,204.46	65,741.16	66,693.60	67,224.60
01-Aug-19	63,747.26	66,201.36	67,260.00	67,791.00
16-Jul-19	63,192.66	65,646.76	66,670.00	67,201.00

SKO (Non PDS) Prices in Major Cities (As on February, 2020)

Month	Delhi	Kolkata	Mumbai	Chennai
06-Jul-19	61,068.66	63,510.96	64,416.20	64,935.40
01-Jul-19	58,732.26	61,174.56	61,926.40	62,433.80
16-Jun-19	60,647.07	62,625.81	63,932.40	64,510.60
01-Jun-19	64,222.47	66,213.01	67,720.20	68,333.80
16-May-19	63,328.03	65,202.93	66,729.00	67,342.60
01-May-19	64,177.63	66,052.53	67,590.40	68,204.00
16-Apr-19	62,301.43	64,164.53	65,582.40	66,186.20
01-Apr-19	61,273.23	63,598.13	64,982.00	65,572.00
01-Mar-19	64,460.83	66,335.73	67,885.40	68,499.00
01-Feb-19	61,145.03	63,008.13	64,369.00	64,947.20
16-Jan-19	56,590.23	58,347.13	59,531.00	60,073.80
16-Dec-18	57,959.03	59,715.93	60,994.20	61,548.80
01-Dec-18	61,888.43	63,764.65	65,171.40	65,761.40
16-Nov-18	68,661.63	70,560.13	72,357.60	73,006.60
01-Nov-18	72,413.80	74,443.65	76,369.60	77,054.00
16-Oct-18	73,983.20	76,013.05	78,033.40	78,729.60
06-Oct-18	70,455.00	72,484.85	75,284.00	74,953.60
01-Oct-18	72,165.91	74,171.71	77,148.40	76,829.80
01-Sep-18	67,681.91	70,678.91	72,381.20	72,027.20
16-Aug-18	66,147.91	69,133.11	70,741.00	70,375.20
01-Aug-18	65,251.11	68,236.31	69,797.00	69,419.40
16-Jul-18	66,560.91	69,321.91	71,201.20	70,835.40
01-Jul-18	65,028.18	67,775.47	69,490.20	69,112.60
16-Jun-18	66,219.98	68,967.27	70,988.80	70,387.00
01-Jun-18	68,166.98	70,926.07	73,065.60	72,475.60
16-May-18	65,547.38	68,294.67	70,280.80	69,667.20
01-May-18	63,576.78	66,477.47	68,192.20	67,557.36
01-Apr-18	60,508.78	63,409.47	64, 935.40	64,276.96
16-Mar-18	58,939.38	61,828.27	63,271.60	62,589.56
01-Mar-18	58,538.18	61,438.87	62,787.80	62,117.56
16-Feb-18	59,611.98	62,524.47	63,932.40	63,262.16
01-Feb-18	60,791.98	63,716.27	65,195.00	64,536.56
01-Jan-18	57,936.38	60,848.87	61,902.80	61,468.56
16-Dec-17	57,251.98	60,152.67	61,183.00	60,736.96
01-Dec-17	57,381.78	60,294.27	61,324.60	60,878.56
16-Nov-17	56,473.18	59,385.67	60,357.00	59,910.96
01-Nov-17	55,045.38	57,946.07	58,846.60	58,376.96
16-Oct-17	54,809.38	57,710.07	58.842.28	58,129.16
01-Oct-17	56,956.98	59,857.67	60,942.28	60,418.36
16-Sep-17	55,694.29	58,570.93	59,644.28	59,108.56
01-Sep-17	53,759.09	56,635.73	57,591.08	57,013.76
16-Aug-17	54,396.29	57,273.93	58,263.68	57,716.16
01-Aug-17	53,204.49	56,081.13	57,001.08	56,453.56
16-Jul-17	52,850.49	55,727.13	56,623.48	56,075.96
11-Jul-17	51,174.89	54,063.33	54,912.48	54,341.36
01-Jul-17	51,174.89	53,626.73	56,760.36	54,267.02
16-Jun-17	52,363.21	54,697.62	57,995.19	57,126.83
01-Jun-17	53,850.91	56,159.55	59,586.68	57,722.83
16-May-17	52,812.08	55,115.31	58,473.93	57,611.33
01-May-17	55,261.66	57,490.96	61,113.48	60,219.08
15-Apr-17	54,735.83	56,968.84	60,557.11	59,663.33
01-Apr-17	53,517.46	55,715.75	59,263.21	58,366.58

REFINERY PRODUCTION (JANUARY 2020) (IN TMT)

OIL COMPANY	TARGET	JANUARY (MONTH)				APRIL-JANUARY (CUMULATIVE)			
	2019-20 (APR-MAR)	2019-20		2018-19	% OVER LAST YEAR	2019-20		2018-19	% OVER LAST YEAR
		TARGET	PROD.*	PROD.		TARGET	PROD.*	PROD.	
A. Public Sector	147944.81	13608.73	12393.11	13144.64	94.28	121653.82	120285.43	126282	95.25
IOCL	71900.25	6612.47	5642.57	6171.76	91.43	59013.27	57959.01	60636.36	95.58
BPCL	30900	2725	2826.33	2753.47	102.65	25695	26166.09	25508.42	102.58
HPCL	16499	1598	1510.9	1508.65	100.15	13406	14150.26	15350.76	92.18
CPCL	10400	930	946.86	1003.96	94.31	8600	8572.12	8809.45	97.31
NRL	2799.8	259.1	151.52	240	63.13	2306.7	1911	2439.15	78.35
MRPL	15400	1480	1305.84	1459.31	89.48	12595	11452.22	13486.7	84.91
ONGC	45.76	4.16	9.1	7.5	121.3	37.86	74.75	51.17	146.08
B. Joint Venture	18755	1588	1807.39	1679.39	107.62	15681	16776.48	14748.79	113.75
BORL	7800	660	706.46	717.78	98.42	6520	6527.48	4377.58	149.11
HMEL	10955	928	1100.93	961.61	114.49	9161	10249	10371.22	98.82
C. Private Sector	88040.52	7120.83	7478.69	7120.83	105.03	73595.21	75002.17	73595.21	101.91
RIL	69145	5414.77	5726.64	5414.77	105.76	58069.35	57702.27	58069.35	99.37
EOL	18895.52	1706.06	1752.05	1706.06	102.7	15525.86	17299.9	15525.86	111.43
TOTAL (A+B+C)	**254740.32**	**22317.55**	**21679.19**	**21944.86**	**98.79**	**210930.02**	**212064.08**	**214626**	**98.81**

S.no.	Tender Name	Tender Refno/No.	Organisation	Published Date	
1	Procurement of 50MT of DEMULSIFIER	UA3MC20002	ONGC	25/2/2020	
2	Providing Pmc/epcm Consultancy Services For Cpcls 9 Mmtpa Cauvery Basin Refinery (cbr) Project At Nagapattinam, Tamilnadu, India - Epcm-1 With Mpmc Services	CPCL - CBRP 0519	CPCL,DGM(M AND C)	21/2/2020	
3	Supply,Testing and Commissioning of 11 Automatic Equip. for testing KV and Density of Petro products for 11 Labs under Northern Region	RCC/NR/QC/ PT-236/2019-20	Indian Oil Corporation Ltd	25/2/2020	
4	Expression of Interest (EOI) from existing Distributors	RCC/SRO/PT/--/ TNSO/2020-2025	Indian Oil Corporation Ltd	25/2/2020	
5	Services for Replacement/Installation Sprinkler Line And Other Associated Job Of Off-Site At Guwahati Refinery.	GC20MLT033	Indian Oil Corporation Ltd	25/2/2020	
6	Auto-LPG Transportation	DSO/AUTO-LPG/PT-1/2019-20	Indian Oil Corporation Ltd	25/2/2020	
7	Procurement of Various Types & Sizes of Valves After on Rate Contract Basis For 3 Years For Surface Team Of Ahmedabad Asset	D11HC20002	ONGC	24/2/2020	
7	Procurement of Various Types & Sizes of Valves After on Rate Contract Basis For 3 Years For Surface Team Of Ahmedabad Asset	D11HC20002	ONGC	24/2/2020	
8	Re-routing of 16 AKCL-KT oil pipeline across Narmada river between Ankleshwar and Bharuch.	A16PC20002	ONGC	25/2/2020	
9	Hiring of Consultancy Services For Energy Optimization & Benchmarking Study Of Uran Plant	UA6XC20006	ONGC	25/2/2020	
10	Modification in Station Piping for installation of Plug Valves at WRPL, Hazira	TSKOY192055	Indian Oil Corporation Ltd	24/2/2020	
11	Operation and Maintenance contract of PMCC/DG Sets/Fire Pump House at Port Blair BP	PBBP/PT-01/2019-20	Indian Oil Corporation Ltd	25/2/2020	
12	Filling, Packing and Transportation Of Small Packs of Lubricants	RCC/ERO/37/ 2019-20/PT-202	Indian Oil Corporation Ltd	24/2/2020	

	Submission Date	Tender Value(INR)	Tender Description
	16/3/2020	90000(EMD)	Tenders are invited for Procurement of 50MT of DEMULSIFIER
	04-02-2020	21388000(EMD)	Tenders are invited for Providing pmc/epcm consultancy services for cpcls 9 mmtpa cauvery basin refinery (cbr) project at nagapattinam, tamilnadu, india - epcm-1 with mpmc services
	20/3/2020	468519(EMD)	Tenders are invited for Supply,Testing and Commissioning of 11 Automatic Equip. for testing KV and Density of Petro products for 11 Labs under Northern Region
	24/3/2020	300000(EMD)	Expression of Interest (EOI) from existing Distributors attached to ENNORE IOCL LPG Bottling Plant for own load Transportation of Indane LPG Cylinders in vertical position on unit rate basis Ex_ ENNORE LPG Bottling Plant under TNSO
	03-10-2020	34900(EMD)	Tenders are Invited for the Services for Replacement/Installation Sprinkler line and other Associated Job of Off-Site at Guwahati Refinery.
	19/3/2020	15000(EMD)	Auto-LPG Transportation for ALDS points of DSO Loading from Mathura
	16/3/2020	1142000(EMD)	E-tender for the PROCUREMENT OF VARIOUS TYPES & SIZES OF VALVES AFTER ON RATE CONTRACT BASIS FOR 3 YEARS FOR SURFACE TEAM OF AHMEDABAD ASSET
	16/3/2020	1142000(EMD)	E-tender for the PROCUREMENT OF VARIOUS TYPES & SIZES OF VALVES AFTER ON RATE CONTRACT BASIS FOR 3 YEARS FOR SURFACE TEAM OF AHMEDABAD ASSET
	04-07-2020	559000(EMD)	E-tender for Re-routing of 16 AKCL-KT oil pipeline across Narmada river between Ankleshwar and Bharuch.
	16/3/2020	628000(EMD)	Hiring of Consultancy Services for Energy Optimization & Benchmarking Study of Uran Plant
	03-10-2020	1414834 (Tender Value)	Tender for Modification in Station Piping for installation of Plug Valves at WRPL, Hazira
	14/3/2020	17402(EMD)	Operation and Maintenance contract of PMCC,DG Sets,Fire Pump House, etc at Port Blair BP for a period of 1 year extendable to another 2 years at same terms and conditions on mutual consent basis
	19/3/2020	89000(EMD)	Tenders for Filling, Packing and Transportation of Small Packs of Lubricants

InfralineEnergy™
Research Report

EV Charging Infrastructure Framework in India

Key Highlights

- Development of Charging Infrastructure in Urban communities and Highways
- Analysis of Value Chain
- Best Practices to be Adopted
- Pricing of Components
- Effect of Emerging Technologies on EV sector

Key Questions Answered

- Suitable Technologies according to Indian market?
- Viability of Charging Stations?
- What is current support for Charging Station?
- What are Investment opportunities in Charging Infrastructure?

A must buy for

- Charging & Storage OEM's
- Investors
- Automobile Manufacturers
- Charging Equipment Provider
- Policymakers & Academia

For Priority Business

Rajesh Singh Panwar

rs@infraline.com

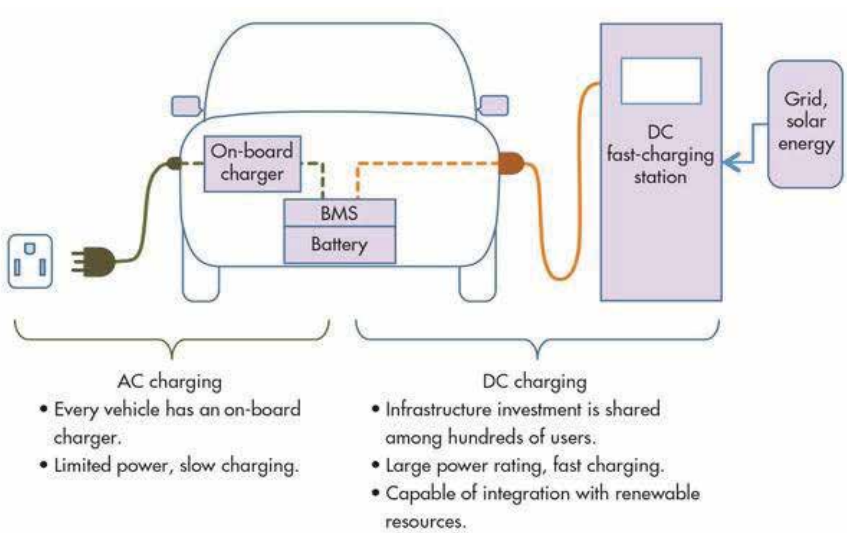
Mob: +91 9711786999

Ph: +91 120 6799125,160

Executive Summary

Administration of India has set up a yearning focus of 100 % electric mobility till 2030. As of now, Electric vehicle sale in India is just restricted to handful of the Indian population. The primary hindrance in way of the country to achieve its set target is "Charging Infrastructure for Electric Vehicles". EV manufacturers are thinking of new innovations and models in India yet absence of charging framework is impeding market development for EVs. Big players in vehicle manufacturing in domestic market are demonstrating gigantic enthusiasm after the FAME (Faster Adoption and Manufacturing of Electric vehicle) scheme. Players providing technologies and equipment for charging are yet sitting tight for a very much characterized framework for Charging Infrastructure development. Specifications and BIS standards for charging stations and hardware's have been declared by the Government of India recently. Framework for Charing Infrastructure is the defect in the methodology towards the growth of EV in India.

In this report we talk about the charging infrastructure framework, policies review, development of charging stations in urban communities and Highways, Utility investment models and the entire value chain. The report additionally examines the pricing of charging technologies and impact of rising advancements in batteries on the expense of vehicles.



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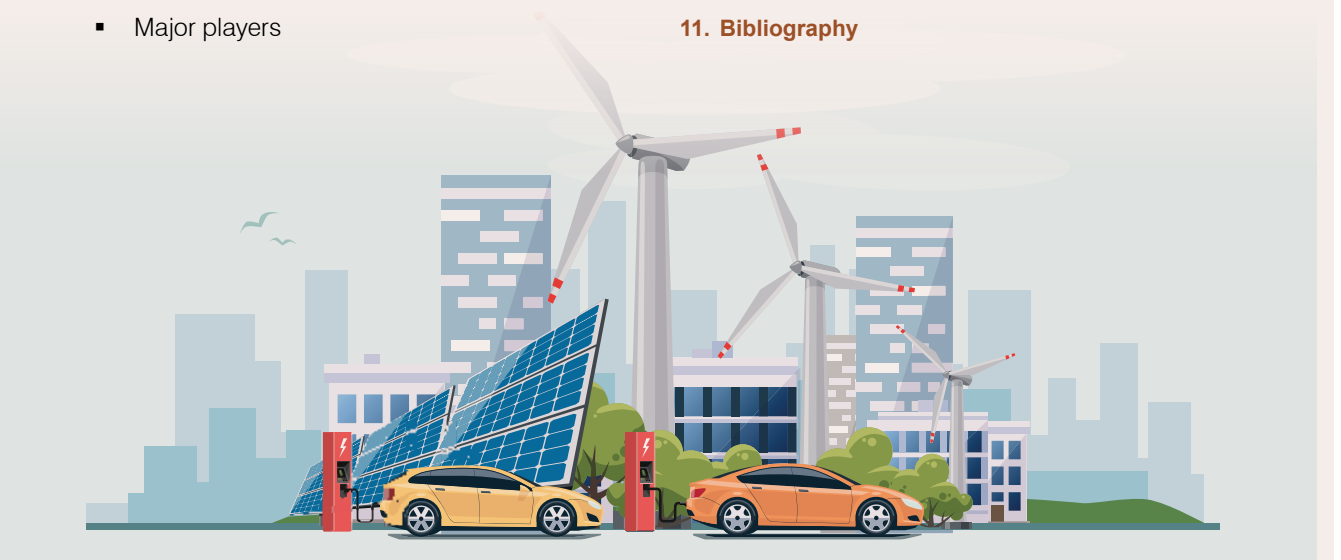

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MAGENTA POWER OPENS ITS FIRST R&D CENTRE IN NAVI MUMBAI

Mumbai based, Magenta Power (ChargeGrid), a leading EV charging solutions provider, has announced that it has opened its first R&D Centre, the national centre for Magenta's facilities in India. The new facility will help increase production rates and allow for much faster time-to-market, for the AC and DC charger (also popularly known as Gulabi Charger) for 2W, 3W and 4-Wheeler Vehicles. The R&D centre, ensures adherence to all international quality and safety standards. In sync with Magenta's Make in India vision, the facility shall address the futuristic technologies in the field of electric vehicles, Charging Supply Equipment's and Smart Data Analytics. The new facility will house 3 automation labs to design and develop cell quality, battery pack design, rapid prototyping and conduct reliability and environmental tests with its latest and sophisticated test instrumentation and advanced design tools. Established in the market since 2017, the brand has undertaken several first-timer Activities in India; India's first EV Portable Charging Station for Offices and Homes, ChargeGrid App for the network of charging stations for EV charging, first solar-based EV charging station in Maharashtra, etc.

TORRENT POWER SLASHES CAPEX PLAN ON LOW RENEWABLE POWER TARIFF

Torrent Power Ltd has cut its capital expenditure for the renewable energy sector to just a third of what was planned earlier because of unremunerative tariffs and high land prices, sources in know of the development told Cogencis. Torrent Power will now add only 291 MW of wind power to the existing capacity of 473 MW, as against its plan of adding 891 MW. Thus, the company will now invest only 20.17 bln rupees, against 56.94 bln rupees originally planned. The company intended to complete this spending by July 2020. "The tariff for wind power has dropped to relatively low levels. This is not of much comfort to any power producer and so for now we have decided to adopt a conservative approach for renewables, a source said. "The non-availability of affordable land parcel in Gujarat has only made situation difficult." Torrent Power had set out to add four major projects to its wind energy portfolio. A notable project that has been axed is a 500 MW solar power project to be built in Kutch for over 33 bln rupees. The company had won a tender floated by the Solar Energy Corp of India in Feb 2018 with a bid of 2.44 rupees per unit. Torrent Power has also cut the capacity of another 150 MW wind power plant to 50 MW and will now invest 3.35 bln rupees instead of the previously estimated 6.83 bln rupees.

ADANI, AZURE TOP BIDDERS FOR MANUFACTURING-LINKED SOLAR TENDER

Adani Green Energy and Azure Power have emerged as successful bidders in Solar Energy Corporation of India's first manufacturing-linked solar tender, a top government official said. Adani has bid for 1.5 GW solar cell manufacturing capacity and 6 GW generation capacity, MNRE Secretary Anand Kumar said on the sidelines of India Energy Forum-Renewable Energy Summit here. He also said that Azure Power bid for 500 MW solar cell manufacturing capacity and 2 GW generation capacity. With the green shoe option, the capacity for Adani would increase to 2 GW of solar cell manufacturing capacity and 8 GW generation capacity, Kumar said. For Azure, with green shoe option, it will be 1,000 solar cell manufacturing and 4 GW generation capacity, he added. "The bids have been finalised and only paperwork remains," he said adding that the tariff has been fixed at Rs 2.92. After successful auction, an investment of around Rs 6,000 crore is expected for setting up 1 GW of solar manufacturing facilities, which would generate permanent direct employment of up to 10,000 people, a source said. At present, India imports 95 per cent of its solar module requirement from China, leading to a forex outflow of around USD 10 billion per year.

JAIPUR-BASED EV STARTUP BATTRE IN TALKS WITH 10 VENTURE CAPITALISTS TO RAISE FUNDS

Jaipur-based electric vehicle (EV) startup BattRE Electric Mobility is currently in talks with 10 venture capitalists to raise Rs 7 crore in a funding round scheduled in March, Chief Executive Officer Nishchal Chaudhary told in an exclusive interview. "We have so far invested around Rs 2.5 crore and plan to raise $1 million in a funding round in March this year for the next phase of growth," Chaudhary said. He also added that the company is likely to close this financial year with a revenue of Rs 11 crore and the revenue is expected to jump to around Rs 100 crore next fiscal ending March 2021. Set-up in the year 2017, the company began with manufacturing an electric cycle model in April 2018 and has added two electric two-wheelers BattRE-One and Battery-LoEV in its portfolio. Its customer base is mostly located in Southern India apart from Maharashtra and Gujarat. The technology-driven EV startup today launched a new variant of the electric scooter LoEV in the premium entry-level segment priced at Rs 59,000. The first electric scooter BattRE-One was launched by the company in June 2019. Since then, it has ramped up distribution channel to over 50 dealers in 6 states.

INDIAN IPP RENEW POWER RAISES $450 MN VIA DOLLAR BONDS ROUTE

With 7 years of maturity, these dollar bonds were priced at 5.875 percent coupon rate and will be issued in 2 tranches with an average maturity tenure of five-and-a-half years. ReNew Power is among the leading independent power producers in India with more than 8 GW of clean energy assets and is rapidly expanding its asset base with over 4.9 GW of operational capacity and more than 3.2 GW in pipeline. The motive behind borrowing funds by the solar power developer is to refinance its existing borrowings which are maturing soon, including trade credit facilities of the holding company. However, approximately USD 65 million will be used by the company to fulfill its future capital expenditure needs. Through this fund raising, the company will now be having a next spell of long term loans for seven years. The company in its recent tweet shared the Live Mint news and confirmed that "investors are funding clean energy-backed bonds in line with their environmental, social and governance mandates." In July last year, the company raised USD 300 million dollars through rights issue, in which Goldman Sachs, Abu Dhabi Investment Authority (ADIA) and Canada Pension Plan Investment Board (CPPIB) subscribed to the issue with each of the shareholders infusing USD 100 million. This rights issue involved the company issued Compulsorily Convertible Preference Shares (CCPSs) to each of the investors which will be then converted into equity at subsequent stage. Earlier in 2019, it had raised USD 350 million in debt funding from OPIC and another USD 435 million via issuance of USD denominated green bonds.

TOTAL TO ACQUIRE 50PERCENT STAKE IN ADANI GROUP'S SOLAR BUSINESS FOR $510 MILLION

French oil and gas major Total SA will acquire 50% stake in Adani Group's solar business for $510 million, the companies said in a joint statement. Adani Green Energy Limited (AGEL) has a 2,148 MW solar power project portfolio, spread across 11 states. "Adani Green Energy Limited (AGEL) and Total Gas & Power Business Services SAS (TOTAL) have entered into a binding arrangement for investment of approximately USD 510 Million for acquisition of 50% stake and other instruments in a Joint Venture Company (JVCo) which will house 2,148 MWac operating solar projects presently 100% owned by AGEL. The balance 50% stake in the JVCo shall be held by AGEL," a statement said. AGEL has an overall project portfolio of 6 GW including under construction capacity. Also, it has been a successful bidder in state-run Solar Energy Corporation of India Ltd's tender of 8 GW manufacturing linked development project. "We are delighted to extend our long-term partnership with TOTAL to our renewable energy business in AGEL," Adani group chairman Gautam Adani said in the statement. Total, the world's second-largest liquefied natural gas company, also plans to buy a 37.4% stake in Adani Gas for around 5,700 crore. The Ahmedabad-based group recently also announced the sale of 25.1% stake in its arm Adani Electricity Mumbai Ltd (AEML) to Qatar Investment Authority for around Rs. 3,200 crore. The transactions come amid a tough phase for India's clean energy sector. Rising dues to generators, when new solar tenders of around 15,000 megawatt (MW) are in the pipeline, have the potential to dent India's image as a clean energy champion. With record low solar and wind power tariffs, banks are also wary of lending to renewable energy developers as they suspect the viability of such projects.

AMERICAS INSTALL OVER 13.4 GW WIND ENERGY CAPACITY IN 2019

North, Central, and South America and the Caribbean installed 13,427 MW of wind energy capacity in 2019, an increase of 12 per cent from 2018's wind turbines installations. Total installed wind farm capacity in North, Central, and South America and the Caribbean is now over 148GW, thereby tripling the wind power capacity in the region over the past 10 years. The surge for wind power in the Americas is expected to continue with GWEC forecasting over 220GW new capacity between 2020 to 2024. Regulatory and political instability in key Latin American markets for wind power along with the US-China trade war will be major challenges for further accelerating wind power growth in the Americas. The latest data released by the Global Wind Energy Council (GWEC) shows North, Central and South America and the Caribbean installed 13,427MW capacity of onshore wind power in 2019, an increase of 12 per cent on the previous year which saw 11,892MW installed. In North America (Canada and USA), new capacity additions grew by nearly 18 per cent compared to 2018. In Central and South America and the Caribbean, new capacity additions decreased by 5 per cent compared to 2018. Overall, this means that the region has tripled its wind power installations since 2010, showing the immense progress made by wind energy as leading power source in the Americas. In North America, the US saw an installation rush last year with nearly 10 GW installed.

SRI LANKA GETS COUNTRY'S FIRST FLOATING SOLAR PLANT

A 42 kW floating solar power plant has come online in Sri Lanka as the country's first such project to become operational. This floating solar project is the result of a collaboration between the University of Jaffna and the Western Norway University of Applied Sciences (HVL) that started in 2017, reported local media. The facility is stationed at Jaffna university's Faculty of Engineering in Ariviyal Nagar, Kilinochchi and is supported by the Royal Norwegian Embassy, Colombo. It was inaugurated by Norwegian Ambassador to Sri Lanka and the Maldives, Trine Jøranli Eskedal on January 24, 2020. Norway government's agency that promotes innovation called Innovation Norway and state-backed energy group Equinor helped local Norwegian solar energy firm Current Solar AS to bring the project to fruition. The project was installed as part of the Capacity Building and Establishment of Research Consortium Project. In March 2019, the Sri Lankan government announced a 100 MW floating solar power plant to come up on Maduru Oya Reservoir under a joint venture with the Canadian Solar Institute. Back then, Sri Lanka newspaper Daily Financial Times (FT) had reported that the 100 MW floating PV project is scheduled to be completed by the end of September 2020.

RE SHARE IN 2018 FOR EU INCREASED TO 18%

The 28 member nations of the European Union (EU) achieved a share of 18% of combined renewable energy in their gross final energy consumption at the end of 2018, increasing it from 17.5% a year back. The data comes from the statistical office of the EU, Eurostat. The 12 member states—Bulgaria, Czechia, Denmark, Estonia, Greece, Croatia, Italy, Latvia, Lithuania, Cyprus, Finland and Sweden—have already reached a share equal to or above their national 2020 binding targets. For the entire EU, the target is to have a minimum 20% of its energy coming from renewables by 2020 and 32% by 2030. When compared to the previous year's data from Eurostat , it is interesting to see that some of the countries that had already met their 2020 targets in 2017 had fallen back in 2018 – these are Hungary and Romania. The countries that entered the group of EU members states meeting the 2020 targets in 2018 are Cyprus, Lativa and Greece. This group increased from 11 to 12 member states. Sweden with 54.6% of its total energy consumption in 2018 coming from renewables leads the tally in the latest Eurostat list. Finland, Latvia, Denmark and Austria reported 41.2%, 40.3%, 36.1% and 33.4% renewables share respectively. The lowest share was seen in the Netherlands as renewables contributed only 7.4% of the total energy consumption. Other laggards are Malta (8.0%), Luxembourg (9.1%) and Belgium (9.4%). Member states that were closest to achieving their national 2020 targets at the end of 2018 were Romania which needs to bridge the distance of 0.1% point, followed by Hungary, Austria and Portugal at less than 1%pt away, and Germany, Luxembourg and Malta around 2%pt away.

CZECH REPUBLIC INCREASES RE TARGET FOR 2030

The Czech Republic has increased its target for renewable energy in total energy consumption from the current level of 15.6% to 22% to be achieved by 2030. The original target contemplated was 20.8%. This has been raised by the European country to increase its contribution to the EU target for renewable energy sources and is now part of its energy climate plan approved by the government, reported Ceská televize, a public television broadcaster in the Czech Republic. The local renewables industry had been asking the government to raise the target to 24.4% while the European Union (EU) had recommended the target to be at least 23%, as per the news report. The Ministry of Industry and Trade (MIT) headed by Karel Havlícek has raised the national solar PV target of installed capacity to up to 1.9 GW, something that hasn't made the local Association of Modern Energy happy at all. Martin Sedlak while welcoming the improvement, believes the country holds more potential than that. A September 2019 Deloitte study commissioned by the Association of Modern Energy and supported by Czech solar association Solarni Asociace claimed a potential between 6.85 GW to 9 GW of installed solar power capacity in the country by 2030. Solarni Asociace's website mentions a cumulative solar power capacity of Czech Republic till the end of 2018 as 2,083 MW. Between January 2019 and June 2019, distribution companies grid connected 1,241 new solar installations representing a total capacity as little as 7.51 MW.

INDONESIA TO ISSUE FEED-IN TARIFFS TO BOOST RENEWABLE ENERGY SECTOR

Indonesia plans to issue a presidential regulation on a feed-in tariff system in a bid to boost investment in its renewable energy sector. The feed-in tariffs will be divided into two stages. The first will offer renewable power plant developers a fixed electricity price for 12 years. At the second stage, and on the plant's thirteenth year, the government will offer an even lower fixed price until the end of the contract. "It's to ensure developers faster returns," Rida Mulyana, director general of electricity at the Indonesian energy ministry, told reporters. The contract period for renewable power plants usually lasts for 25-30 years. The feed-in tariffs will include hydro, solar and wind power plants but not geothermal power plants and will only apply to new contracts, he said. The government is also planning a separate law for geothermal energy, Mulyana said, adding that incentives will be given for exploration activities.

SWITZERLAND INCREASES NET METERING TARIFF FOR ROOFTOP PV

Switzerland made sweeping changes to its subsidy scheme for PV in 2018, when the federal government replaced a FIT mechanism with a net metering program supported by one-off rebates. The tariffs for surplus power are set individually by regional network operators for their service area, and there are large regional fluctuations. Swiss association of independent power producers VESE has now revealed that the operators have increased the net metering tariff by 4% from 2019 to 2020. The trade body explained that the weighted average tariff for a 10 kW PV system in 2020 was CHF 0.091 ($0.093)/kWh. Overall, eleven grid operators have already raised their tariffs at the beginning of this year, including the two largest operators and the three which previously offered the lowest tariff, according to VESE's survey. Four operators, meanwhile, decided to lower the tariff. Variance in tariffs remains high between regions. Depending on the area, they are between CHF 0.062 and CHF 0.13per kWh. "Accordingly, photovoltaic systems can be operated economically in certain regions with medium and low self-consumption, but not in others," the association stated. The association added that the tariff increase reflects the growing awareness in the country that stronger growth of PV is necessary to ensure a safe and reliable energy supply. In addition, a new law on grid expansion that allows grid operators to pass the costs of producing renewable energies on to their customers was recently adopted. This should be done reflecting the real costs of the power supply, the VESE claims."

UNION BUDGET 2020-21
HIGHLIGHTS FOR RENEWABLE ENERGY

The finance minister announced that for the year 2020-21, INR 220 billion had been allocated for the power and renewable sector.

The Union Budget for 2020-21 has provided for a budgetary allocation of Rs 2,516 crore for the solar power sector, including both grid-interactive and off-grid projects which is a 10.35 per cent increase over Rs 2,280 crore provided in the Revised Estimate for 2019-20.

20% import duty on the Solar panels has been removed to boost solar installation in the country.

The allocation for grid-interactive solar power projects stands at Rs 2,150 crore which accounts for 50.57 per cent of the total budgetary allocation of Rs 4,350 crore for renewable energy projects connected to the grid.

The budget has also provided for Central Financial Assistance for capacity addition of 7,500 megawatt of solar power in 2020-21.

Implementation of Ph-III of the off-grid solar PV programme to take place which would cover the installation of three lakh solar streetlights, distribution of 25 lakh solar study lamps and installation of solar power packs of total aggregated capacity of 100 MWp.

In addition, under AJAY Ph-II over three lakh solar street lights would be installed. Further 20MW Projects of Concentrated Solar Thermal will be undertaken.

The total allocation for wind energy projects for the current financial year stands at Rs 1,303 crore.

The Generation Based Incentive Scheme for 4 GW capacity of wind power will be commissioned in 2020-21.

15 lakh farmers would be provided funds to set up grid-connected 15 lakh solar pumps. And FM has also proposed to expand the scheme to 20 lakh farmers for setting up stand-alone solar pumps.

The government in February last year had unveiled the PM KUSUM scheme with an outlay of Rs 34,422 crore.

PM KUSUM aims at adding a solar capacity of 25,750 MW by 2022.

Union Budget has proposed the setting up of a large solar power capacity alongside rail tracks.

Sr. No.	COMPANY NAME	Sr. No.	COMPANY NAME
1	Acme Solar	21	EDEN Renewable
2	Adani Green	22	EDF Renewable
3	Aditya Birla Renewable	23	Engie Solar
4	Alfanar	24	Equis Energy
5	Alpex Solar	25	Essel Green Energy
6	Amplus Solar	26	First Solar
7	Atha group	27	Fortum Solar
8	Atria Solar	28	FRV Solar Holdings
9	Avaada power	29	General Electric
10	Ayana Renewable	30	Gensol Solar
11	Azure Power	31	Goldi Solar
12	Banga solar	32	Greenko
13	Betam Wind Energy	33	GRT Jewellers (India) Pvt Ltd
14	BHEL	34	GSE Renewables
15	BLP Energy	35	Hartek
16	Canadian Solar	36	Hero future energies
17	CETC Renewable Energy	37	Hindustan clean energy
18	cleanmax Solar	38	Inox Wind
19	Cleantech Solar	39	Jakson Power
20	Delta Electronics (FOR Electric Vehicle)	40	Jinko Solar

Sr. No.	COMPANY NAME
41	Karvy Solar
42	KCT renewable Energy
43	krannich Solar Pvt Ltd
44	L&T
45	Lanco Solar Energy
46	Longi Solar
47	Loom Solar
48	Mahindra Susten
49	Mytrah Energy
50	NLC india
51	NTPC
52	OPG Power
53	Orange renewables
54	ORB energy
55	Ornate solar
56	ostro Energy
57	Patanjali renewables
58	Premier Solar
59	Rattan India
60	Rays power Infra
61	ReGen Wind
62	Renesola
63	ReNeW Power
64	Rhine Solar
65	Rising Sun Private Limited
66	Sanelite Solar
67	SB Energy
68	Sembcorp
69	Shapoorji Pallonji Solar PV Private Limited
70	Siemens Gamesa
71	Skypower
72	Solairedirect
73	Solar arise
74	Solarmaxx
75	Solex Energy Limited
76	Solis inverters
77	Sprng Energy
78	Sterling and wilson
79	Sukam Solar
80	Sukhbir Agro
81	Sunedison Solar
82	Sunsource energy

Sr. No.	COMPANY NAME
83	Sunsure Energy
84	Suzlon
85	Tata Power Renewable energy
86	Thermax
87	Think Energy
88	Topsun Energy Ltd
89	Torrent Power
90	Trina Solar
91	ujaas Solar
92	UTL
93	Vena Energy
94	Vestas India
95	Vikram solar
96	Vivaan Solar
97	VRG energy
98	Waare Solar
99	Welspun Renewable Energy Pvt Ltd
100	Wind World

State-wise Grid connected Solar Rooftop Installed capacity as on Jan,31-01-2020

S. No.	State/ UTs	Capacity As on Jan, 2020
1	Andhra Pradesh	88.03
2	Arunachal Pradesh	4.34
3	Assam	30.56
4	Bihar	12.64
5	Chhattisgarh	15.52
6	Goa	3.83
7	Gujarat	430.24
8	Haryana	121.34
9	Himachal Pradesh	15.93
10	Jammu & Kashmir	10.81
11	Jharkhand	19.35
12	Karnataka	232.77
13	Kerala	42.23
14	Madhya Pradesh	49.98
15	Maharashtra	219.56
16	Manipur	5.16
17	Meghalaya	0.12
18	Mizoram	1.42
19	Nagaland	1
20	Odisha	14.28
21	Punjab	118.52
22	Rajasthan	224
23	Sikkim	0.07
24	Tamil Nadu	155.99
25	Telangana	90.46
26	Tripura	4.41
27	Uttar Pradesh	146.1
28	Uttarakhand	76.12
29	West Bengal	44.46
30	Andaman & Nicobar	4.59
31	Chandigarh	30.65
32	Dadra & Nagar Haveli	2.97
33	Daman & Diu	6.41
34	Delhi	147.16
35	Lakshwadeep	0
36	Puducherry	5.48
37	Others	0
	Total	**2376.5**

State/UT-wise details of solar energy capacity installed (in MW)

State/ UT	Total Cumulative Solar Capacity Installed as on 31-01-2020
Andaman & Nicobar	12.19
Andhra Pradesh	3559.02
Arunachal Pradesh	5.61
Assam	41.23
Bihar	151.57
Chandigarh	36.99
Chhattisgarh	231.35
Dadar & Nagar haveli	5.46
Daman & Diu	16.56
Delhi	156.12
Goa	4.78
Gujarat	2792.45
Haryana	252.14
Himachal Pradesh	32.93
Jammu & Kashmir	19.3
Jharkhand	38.4
Karnataka	7274.93
Kerala	142.23
Lakshadweep	0.75
Madhya Pradesh	2257.26
Maharashtra	1666.86
Manipur	5.16
Meghalaya	0.12
Mizoram	1.52
Nagaland	1
Odisha	397.84
Puducherry	5.51
Punjab	947.1
Rajasthan	5035.08
Sikkim	0.07
Tamil Nadu	3788.51
Telangana	3620.75
Tripura	9.41
Uttar Pradesh	1095.1
Uttarakhand	315.9
West Bengal	114.46
Other/ Other rooftop/MoR/PSU	-
TOTAL	**34035.66**

Programme/Scheme wise Physical Progress in 2019-20 & Cumulative upto Jan, 2020

Sector	FY- 2019-20		Cumulative Achievements (as on 31.01.2020)
	Target	Achievements (April-Jan 2019)	
I. GRID-INTERACTIVE POWER (CAPACITIES IN MWp)			
Wind Power	3000	1981.73	37607.7
Solar Power - Ground Mounted	7500	5274.86	31659.16
Solar Power - Roof Top	1000	580.15	2376.5
Small Hydro Power	50	83.4	4676.56
Biomass (Bagasse) Cogeneration)	150	83	9186.5
Biomass (non-bagasse) Cogeneration)/Captive Power	100	0	674.81
Waste to Power	2	1.5	139.8
Total	**11802**	**8004.64**	**86321.03**
II. OFF-GRID/ CAPTIVE POWER (CAPACITIES IN MWEQ)			
Waste to Energy	10	12.41	191.13
SPV Systems	400	30.15	945.76
Total	**411**	**42.56**	**1136.89**

REC Trading Volume & Price at IEX for Jan'2020

REC Type	Buy Bid (REC)	Sell Bid (REC)	Total Volume Traded (REC)	Equlibrium Price (INR/REC)	No. of Participants
Solar	1052954	39413	39413	2400	425
Non-Solar	773557	359639	323647	2200	487

REC Trading Volume & Price at PXIL for Jan'2020

REC Type	Buy Bid (REC)	Sell Bid (REC)	Equlibrium Price (INR/REC)	Total Volume Traded (REC)
Solar	519403	37028	2400	36807
Non Solar	1043459	183307	2100	170837

MINISTRY OF RENEWABLE ENERGY

OFFICE OF THE MINISTER

NAME & DESIGNATION	I.C	Room No.	Office Phone	Email Address
MINISTER'S OFFICE				
MINISTER				
RAJ KUMAR SINGH	-	118	MNRE 24360396 24360774 24361193 24362554 (Fax)	raj.ksingh@gov.in
MANOJ KUMAR SINGH	2123	117	MNRE 24360396 24360774 24361193 24362554 (Fax)	manoj.ksingh82@gov.in
PRIVATE SECRETARY				
NISHANT KUMAR TIWARY	2121	109	MNRE 24360396 24360774 24361193 24362554 (Fax)	manoj.ksingh82@gov.in
ADDITIONAL PRIVATE SECRETARY				
SANJAY PRAKASH BHATNAGAR	2122	116	MNRE 24360396 24360774 24361193 24362554 (Fax)	sp.bhatnagar61@gov.in
ASSISTANT PRIVATE SECRETARY				
ALOK SINGH	-	-	MNRE 24360396 24360774 24361193 24362554 (Fax)	aksingh.mps@gmail.com
UNDER SECRETARY				
D.K. PANDEY	2115, 1002	115	MNRE 24360396 24360774 24361193 24362554 (Fax)	dhrendrak.pandey@nic.in
PPS				
L.K. SURYAWANSHI	2112	113	MNRE 24360396 24360774 24361193 24362554	lalender.kumar.nic. in

NAME & DESIGNATION	I.C	Room No.	Office Phone	Email Address
MINISTER'S OFFICE				
MINISTER				
MINISTER'S STAFF	2,12,62,112	114, 113	MNRE 24360396 24360774 24361193 24362554 (Fax)	raj.ksingh@gov.in
SECRETARY				
ANAND KUMAR	2102	102	2436-1481 2436-2772 24367329 (Fax)	secy-mnre@nic.in
SECRETARY'S OFFICE				
"K.S. SUBRAMANIAN, Sr. PPS"	2101	101	2436-1481 2436-2772	secy-mnre@nic.in
A.K DAS, PS	2104	101		
SPECIAL SECRETARY				
PRAVEEN KUMAR	2211	207	24368901	as.mnre@gov.in
SPECIAL SECRETARY'S				
A.K. SETH, PPS	2213	208	24368901	ak.seth@nic.in
"Ms. MEENAKSHI SAWHNEY, PPS"	2233	208	24368901	m.sawhney.mnre@gov.in"
ADDITIONAL SECRETARY AND FINANCIAL ADVISER				
PRAVEEN GARG	2222	219	24362308, 24695385	faoffice.mnre@gov.in
Y.K. KAPOOR, PPS	2228	217	24362308	yogender.mnre@gov.in
JOINT SECRETARIES				
BHANU PRATAP YADAV	2205	206	24360359	yadavbp@cag.gov.in
MATHEW JOSEPH, PPS	2204	206	24360359	
SADISH KUMAR, PA	2204	206	24360359	sadish.mnre@gov.in
AMITESH KUMAR SINHA	2203	201	24362288	amitesh.ks@gov.in
Ms. POONAM RANI, Sr. PPS	2209	202	24362288	poonam.rani@nic.in
ROHIT KUMAR, PA	2209	202	24362288	kumar.mnre@gov.in
DINESH DAYANAND JAGDALE	2236	203	24361027	d.jagdale@gov.in
K.P. DOGRA, Sr. PPS	2202	203	24361027	k.paul@gov.in
ECONOMIC ADVISER				
Ms. SUTAPA MAJUMDAR	2225	223	24362891	sutapa.m@nic.in ecoadv.mnre@gov.in
S.P. SINGH, PPS	2239	218	24362891	shripal.singh@gov.in
DEPUTY DIRECTOR GENERAL				
Ms. JAYASREE M.G	2235	212	24360885	jayasree.mg@nic.in
KOKILA GARG, PA	2241	215	24360885	"okila.garg@nic.in
SCIENTISTS "G"				
G.L. MEENA	1008	1008	24368904	gl.meena@nic.in
PPS	1003	1003	24368904	sc.barman@nic.in
Dr. P.C. MAITHANI	2217	213	24361830	pcmaithani@nic.in
PA	2215	210		
Dr. B.S. NEGI	2207	204	24368581	negi@nic.in

OFFICE OF THE MINISTER

NAME & DESIGNATION	I.C	Room No.	Office Phone	Email Address
		SCIENTISTS "G"		
PA	2234	210		
DILIP NIGAM	2230	220	24368911	dilipnigam@nic.in
PS	2223	220		
		SCIENTISTS "F"		
(DR.) P.C. PANT	2216	211	24365496	pcpant@nic.in
PA	2241	219		
G. UPADHYAY	2227	221	24364362	upadhyay@nic.in
PA	2241	219		
(Dr.) PANKAJ SAXENA	2015	014	24368910	spankaj@nic.in
PPS	2005	003		sunil.kmr33gov.in
(Dr.) RAJESH KUMAR	2224	222	24361151	rajesh.mnre@gov.in"
	2229	222	24361151	
		SCIENTISTS "E"		
A. ANAND NARVANE	1022	1022-C	24362243	anandnarvane@nic.in
GIRISH KUMAR	1011	1009-A	24368915	gkumar.mnre@nic.in
PS	1014	10th floor Hall		
B.K. PANDA	1917	917	24363035	bivash.mnre@gov.in
PA	1915	915		
N. B. RAJU	1020	1020	24363316	nb.raju@nic.in
PS	1056	1028		mahesh.kumar@nic.in
"JEEVAN KUMAR JETHANI"	2214	209	24365666	jethani.jk@nic.in
		SCIENTISTS "D"		
SUNIL KUMAR GUPTA	1901	901	24360764	sk.gupta81@nic.in
PA	1923	901		rshyam.mnre@gov.in
Dr.PREETI KAUR	1001	1001	24362935	preeti.mnre@gov.in
Dr. VASANTA V. THAKUR	2027	008-A	24360331	vasanta.thakur@nic.in
PA	2016	008		
ANIL KUMAR	1034	1027		anil.kumar.mnre@nic.in
		DIRECTORS		
Ms. VEENA SINHA	2226	224	24362706	veena.sinha@nic.in
PS	2221	215		
RUCHIN GUPTA	2220	214	24362488	ruchin.gupta@gov.in
PA	2219	214		
		DEPUTY SECRETARIES		
Ms. ALKA JOSHI	1027	1027A	24362356	alka.mnre@gov.in
PA	1036	1022(Hall)		
SANDEEP MUKHERJEE	2113	108	24363803	sandeepm.mnre@nic.in
K. SALIL KUMAR	1009	1009	24368905	k.salilkumar@nic.in
PPS	1039	1007		
AUJENDER SINGH	1029	1029	24368906	aujender.singh@nic.in
PS	1051	1022(Hall)		

NATIONAL INSTITUTE OF SOLAR ENERGY, GWALPAHARI, GURGAON

S. N	NAME & DESIGNATION	Office	Email Address
1	Dr. A.K TRIPATHI, DG, SCIENTIST-G	"0124-2853000, 3056, 3079	aktripathi@nic.in dgnise.mnre@gmail.com
2	Dr. CHANDAN BANERJEE,DY. DIRECTOR GENERAL, [SCI. "F"],	0124-2853001 0124-2853032	banerjee.mnre@gov.in chandanbanerjee74@gmail.com
3	SANJAY KUMAR, DY. DIRECTOR, [SCI. 'F'],	0124-2853095 0124-2853089 [PA]	ddgsk.nise@gmail.com sanjay.mnre@gov.in

NATIONAL INSTITUTE OF WIND ENERGY VELACHERY-TAMBARAM MAIN ROAD, PALLIKARANAI, CHENNAI

	DIRECTOR GENERAL		
1	[Dr.] BALARAMAN K	044-22463981	dg.niwe@gov.in
	DEPUTY DIRECTOR GENERAL		
2	RAJESH KATYAL	044-65714240	katyal.niwe@gov.in
3	D. LAKSHMANAN	044-22463985	directorfa.niwe@gov.in
	DIRECTOR		
4	S.A. MATHEW	044-22463994	mathew.niwe@nic.in
5	A. SENTHIL KUMAR	044-22463988	asenthilkumar.niwe@nic.in
6	DAVID SOLOMON J.C.	9445798020	david.niwe@nic.in
7	[Dr.] P. KANAGAVEL	044-22463994	pkanagavel.niwe@nic.in
8	K. BOOPATHI	044-22463993	boopathi.niwe@nic.in
	FINANCE & ADMINISTRATION		
9	R. GIRIRANJAN	9384049988	girirajan.niwe@nic.in
	STORES & PURCHASE		
10	Smt. K. TAMILSELVI	044-22463991	tamilselvi.niwe@nic.in

NATIONAL INSTITUTE OF BIO ENERGY 12 KM STONE, JALANDHAR

	DIRECTOR GENERAL		
1	BHANU PRATAP YADAV		dgnibe@nibe.res.in
	HEAD OF OFFICE / SCIENTIST 'E'/'C'		
2	Dr. ANIL K. SARMA SCIENTIST 'E'		
3	Dr. SACHIN KUMAR, SCIENTIST 'C'	01822-507415	sachin.kumar20@gov.in
	FINANCE & ACCOUNTS OFFICER / SCIENTIST 'B'		
4	Dr.NIKHIL GAKKHAR, SCIENTIST "B"	01822-507417	nikhil.mnre@gov.in
	RTI AND PUBLIC GRIEVANCES		
5	ABHISHEK GUPTA	01822-507404	abhishek.gupta27@gov.in
	OFFICE ASSISTANT		
6	RUPESH K. VERMA	01822-507406	rupesh.verma@gov.in
7	SANJAY CHAUHAN	01822-507408	sanjay.chauhan13@gov.in

NATIONAL INSTITUTE OF SOLAR ENERGY

SOLAR ENERGY CORPORATION OF INDIA (SECI LTD.)

S. N	NAME	DESIGNATION	Phone	Email Address
		DIRECTOR GENERAL		
1	Shri Jatindra Nath Swain	Managing Director	Off. No: 71989201 Fax. No: 71989235	md@seci.co.in
2	Shri Sunil Singh Rawat	Office Managing Director (Company)	78919-216	sunilrawat@seci.co.in
		COMPANY SECRETARY (CS)		
3	Sunil Kumar Mehlawat	Manager (Company Secretary)	71989240	sunil.mehlawat@seci. co.in
		CONTRACT & PROCUREMENT (C&P)		
4	Sh. Sanjay Sharma	General Manager	71989-256	sanjaysharma@seci.co.in
5	Sh. Sandeep Rana	Manager	71989-290	sandeeprana@seci.co.in
6	Sh. Manas Ranjan Mishra	Manager	71989-294	manas@seci.co.in
7	Sh. Pratik Prasun	Dy. Manager	71989-236	pratikpr@seci.co.in
		VIGILANCE		
8	Sh. Shailesh Kumar Mishra	CVO	71989-205, Fax: 243	cvo@seci.co.in
		POWER SYSTEM (PS)		
9	Sh. Shailesh Kumar Mishra	Director (PS)	71989-205, Fax: 243	
10	Sh. Rajesh Kumar Jain	Addl. General Manager	71989-211	
11	Ms. Anita Agrawal	Manager	71989-226	
12	Sh. Chandra Kumar Singh	Dy. Manager	71989-246	
13	Sh. I. Sandeep Kumar Reddy	Dy. Manager	71989-233	
		ADMIN		
14	Sh. Naveen Mehto	Supervisor	71989-250	nmehto@seci.co.in
		FINANCE & POWER TRADING		
15	Sh. C. Kannan	Director (Finance)	71989-204, Fax: 242	c.kannan@seci.co.in
		POWER TRADING		
16	Sh. Atulya Kumar Naik	Addl. General Manager	71989-214	aknaik@seci.co.in
17	Sh. Shibasis Das	Manager	71989-228	shibasish@seci.co.in
18	Sh. Avnish Parashar	Manager	71989-238	avnish.parashar@seci.co.in
		FINANCE		
19	Sh. S.K. Gupta	Addl. General Manager	71989-210	shaileshgupta@seci.co.in
20	Sh. Ishwar Madiwal	Dy. General Manager	71989-231	ishwar@seci.co.in
21	Sh. Saurabh Maheshwari	Manager	71989-269	saurabh@seci.co.in
		FINANCE		
22	Ms. Nidhi Jain	Dy. Manager	71989-251	nidhijain@seci.co.in
23	Ms. Anuja	Dy. Manager	71989-262	anuja@seci.co.in

OFFICE OF THE MINISTER

S. N	NAME	DESIGNATION	Phone	Email Address
		HUMAN RESOURCES (HR)		
24	Ms. Shilpi Singh	Manager	71989-234	shilpi@seci.co.in
		SOLAR		
25	Col. Ajay Kumar Sinha	Addl. General Manager	71989-222	
26	Sh. Shreedhar Singh	Addl. General Manager	71989-308	shreedhar.singh@seci.co.in
27	Dr. Y.B.K. Reddy	Dy. General Manager	71989-230	ybkreddy@seci.co.in
28	Sh. Sanjeev Singh	Manager	71989-295	sanjeev@seci.co.in
29	Sh. Debajyoti Bordoloi	Manager	71989-296	debajyoti.b@seci.co.in
30	"Sh. P. Venkatesan"	Manager	71989-217	venkatesan@seci.co.in
31	"Sh. M. Karukkuvel"	Manager	71989-272	m.karukkuvel@seci.co.in
32	Sh. Abhishek Das Gupta	Manager	71989-227	abhishek.dasgupta1@s eci.co.in
33	Sh. Ankit Agarwal	Manager	71989-254	aagrawal@seci.co.i n
34	Sh. Vineet Kumar	Manager	71989-245	vkumar@seci.co.in
35	Sh. Padam Narayan	Manager	71989-223	padam@seci.co.in
36	Sh. Abhinav Kumar	Manager	71989-225	abhinavkumar@seci.co.in
37	Sh. Prashant Kr. Upadhyay	Dy. Manager	71989-239	prashantu@seci.co.i n
38	Sh. Abhishek Kumar Ambasta	Dy. Manager	71989-237	akambasta@seci.co.in
		Corporate Planning (CP)		
39	Ms. Anindita Nandy	Dy. Manager	71989-249	anindita.nandy@seci.co.in
		INFORMATION TECHNOLOGY (IT)		
40	Sh. Kuber Malhotra	Sr. Manager (IT)	71989-213	kmalhotra@seci.co.in
41	Sh. Deepak Mittal	Dy. Manager (IT)	71989-258	deepak.mittal@seci. co.in

INDIAN RENEWABLE ENERGY DEVELOPMENT AGENCY LIMITED

1	PRAVEEN KUMAR	CHAIRMAN & MANAGING DIRECTOR & SPECIAL SECRETARY (MNRE)	I HC Office: 24682202 (Fax) A KB Office 26717414 /26717415 26717416 (Fax)	as.mnre@gov.in
2	S K BHARGAVA	DIRECTOR	26717425 26717418 (Fax)	skbhargava@ireda.in
3	PHILIP BARA	CHIEF VIGILANCE OFFICER	26717436	cvo@ireda.in
4	ABHILAKH SINGH	GENERAL MANAGER (TS)	24682348	abhilakh@ireda.in
5	B.M. CHAUHAN	GENERAL MANAGER (TS)	24654585	chauhanbm@ireda.in
6	SOM PAL	GENERAL MANAGER (TS)	26712716	sompal.ireda.in
7	P SREENIVASAN	GENERAL MANAGER (HR)	26717419	psreenivasan@ireda.in
8	Dr. RAMESH CHANDRA SHARMA	GENERAL MANAGER (HR)	26717431	rcsharma@ireda.in

State-wise Year-wise Installation of Solar Pumps (as on 31.10.2019)

Sr.No.	States	2016-17	2017-18	2018-19	2019-20*	Total
1	Andhra Pradesh	4841	13925	9501	0	**28267**
2	Arunachal Pradesh	4	0	0	0	**4**
3	Assam	0	0	0	0	**0**
4	Bihar	0	0	225	0	**225**
5	Chhattisgarh	9585	28297	22548	0	**60430**
6	Delhi	0	0	0	0	**0**
7	Goa	0	0	0	0	**0**
8	Gujarat	5649	3471	0	0	**9120**
9	Haryana	0	750	0	0	**750**
10	Himachal Pradesh	0	0	0	0	**0**
11	Jammu & Kashmir	0	0	0	0	**0**
12	Jharkhand	3146	556	155	433	**4290**
13	Karnataka	697	1359	1507	0	**3563**
14	Kerala	0	8	0	0	**8**
15	Madhya Pradesh	2007	1771	12229	0	**16007**
16	Maharashtra	1777	1287	1000	5022	**9086**
17	Manipur	0	0	0	0	**0**
18	Meghalaya	0	0	0	0	**0**
19	Mizoram	0	0	0	0	**0**
20	Nagaland	0	0	0	0	**0**
21	Orissa	5922	1718	530	224	**8394**
22	Punjab	0	0	2000	0	**2000**
23	Rajasthan	9867	0	6985	0	**16852**
24	Sikkim	0	0	0	0	**0**
25	Tamil Nadu	849	0	221	475	**1545**
26	Telangana	424	0	0	0	**424**
27	Tripura	0	0	0	0	**0**
28	Uttar Pradesh	5644	1223	8382	81	**15330**
29	Uttarakhand	0	0	0	0	**0**
30	West Bengal	605	0	0	0	**605**
31	Andaman & Nicobar	0	0	0	0	**0**
32	Chandigarh	0	0	0	0	**0**
33	Lakshadweep	0	0	0	0	**0**
34	Puducherry	0	0	0	0	**0**
35	Others	0	0	609	0	**609**
36	Through NABARD	2027	1985	0	0	**4012**
	Total	**53044**	**56350**	**65892**	**6235**	**181521**

INPOWER- RENEWABLE SECTOR OUTLOOK | 2020 | JANUARY

INPOWER – AN INFRALINE'S MONTHLY STREAM WHICH HIGHLIGHTS INFORMATION RELATED TO RENEWABLE ENERGY SECTOR AND AIMS TO PROVIDE INSIGHTS OF REGULATORY AND INDUSTRIAL DEVELOPMENTS IN RENEWABLE ENERGY SECTOR VALUE CHAIN.

INPOWER- JANUARY 2020

Sector Statistics

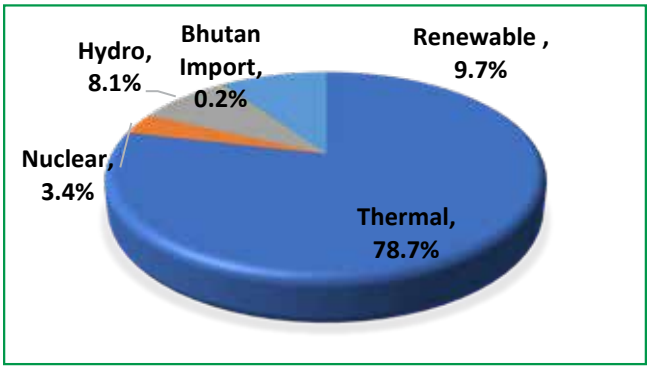
Installed Capacity

Installed Capacity As on 31.01.2020	
Sector	**Capacity (MW)**
Wind Power	37607.7
Solar Power	34035.66
Small Hydro Power	4676.56
Biomass Bio Energy	9861.31
Waste to Power	139.8
Total	**86321.03**

Generation Outlook

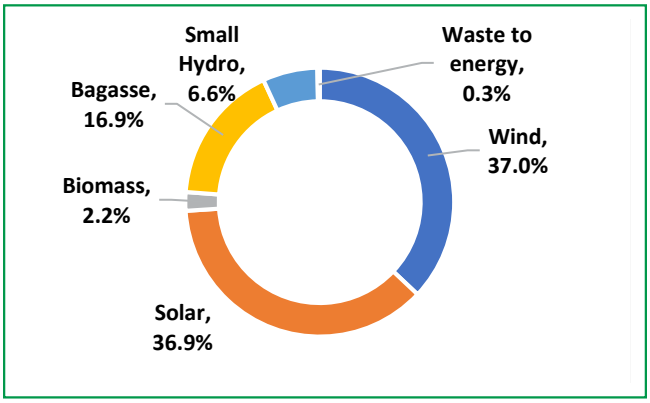
Renewable Energy Share in energy Mix

During the Dec'2019 RE sources contribute 9.7% in the total generation. Renewable energy sector generates 10.6 Bu in Dec'2019. RE generation was 7.6 Bu in previous month. RE generation Increased as compare to November due to changing season.



Technology Wise share breakup in generation during December'19

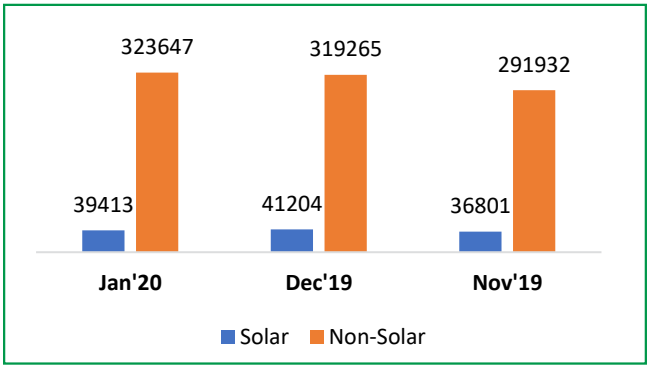
During the December'2019 Wind energy take highest share in generation and contribute around 37% of total Re generation. Solar and small hydro contribute 36% and 6.6% respectively. Wind energy Share increase due to season change.



Renewable Energy Certificates Trading

REC Trading in IEX for January'2020

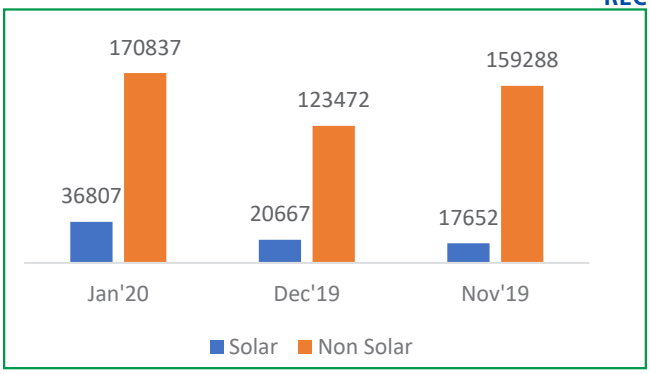
Non-Solar REC trading in IEX during January increase with respect to previous month. On another end the Solar REC trading is following decreasing trend



REC Trading in PXIL for January'2020

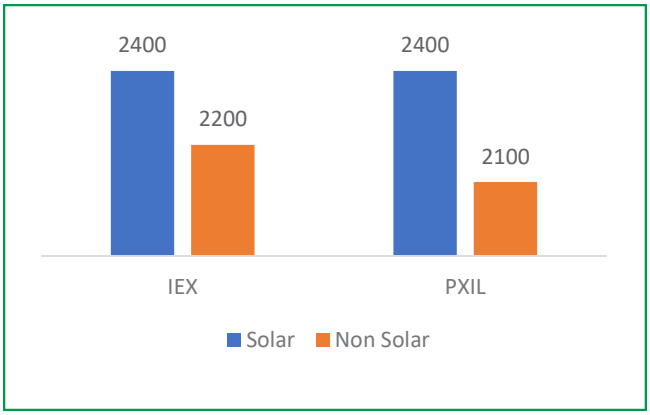
Non-Solar REC trading in PXIL during January increase with respect to previous month. On another end the Solar REC trading is following increasing trend

REC



Price for January'2020 in PXIL & IEX

Price for Solar REC hit the INR 2400/REC in both the exchanges. Non Solar REC price in IEX hit 2200/REC and 2100/REC in PXIL.



Auction Results

SECI 1.2 GW RE Peak Power (Solar, Wind and Storage)Trenche-VII Auction Result (dt. 31.01.2020)					
Sr. No	Bidders	Capacity	Peak Tariff Rs./KWh	Off-Peak Tariff Rs./KWh	Weighted Avrage Tariff Rs./KWh
1	Greenko	900	6.12	2.88	4.04
2	ReNew Power	300	6.85	2.88	4.3

SECI 1500 MW CPSU Scheme Solar Tender result (Trench-II) dt. 05.01.2020			
Sr. No	Bidders	Capacity Won (MW)	VGF Rs./MW
1	The Singareni Collieries Company Limited	81	6800000
2	Indore Municipal Corporation	100	6880000
3	NTPC Limited	923	7000000

Regulatory & Policy Update

Key Policy Announcements for Renewables from January 2020
The month of January witnessed some key policy announcements that were aimed at facilitating the growth of the renewable sector in the country and removing the bottlenecks for fostering a wider adoption of renewables.

Central Government Policies
The Ministry of New and Renewable Energy (MNRE) published a clarification for the second phase of its rooftop solar program under which distribution companies—or its authorized agencies will invite Expressions of Interest (EoI) for empaneling the agencies to supply, install, test, and commission rooftop solar systems in residential premises. However, to ensure the quality and post-installation services, only manufacturers of solar panels and system integrators who fulfill the pre-determined technical and financial criteria would be eligible to participate in the bidding process.

The Ministry of Power (MoP) asked the state and union territory governments to request the state electricity regulatory commissions (SERC) to consider reducing the retail power tariff to consumers who purchase power through prepaid meters. It also stated that the necessary changes in the relevant regulations, orders, or mechanism to reduce the power tariff in case of advance payments or prepayments by the consumers, should be implemented six months from the time of issuance of the letter.

The MNRE issued a circular stating it has held talks with the Department of Financial Services, Ministry of Finance, and the Insurance Regulatory and Development Authority of India (IRDAI) regarding the availability of insurance products for domestic solar modules. The insurance of solar products is a crucial component for developers in the solar ecosystem, and currently, there are not many players in this business.

The MNRE released a draft plan to supply round-the-clock (RTC) power from renewable (solar, wind, and hydro) projects, which will be complemented with power from thermal projects.

The MNRE has asked for feedback from various stakeholders, including the Ministry of Power, renewable energy associations, and state governments and their power distribution companies, among others. The first phase of JNNSM provided for the 'bundling' facility, where solar power could be bundled with the comparatively cheap thermal power from the unallocated quota generated at National Thermal Power Corporation (NTPC) coal-based stations.

The Ministry of Environment, Forest and Climate Change (MoEF & CC) notified that the issue of license for the import of hydrochlorofluorocarbon (HCFC)-141b would be prohibited from January 1, 2020. This move comes after the ministry amended a set of regulations and renamed it as 'Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019.

State Government Policies
The Uttar Pradesh Energy Regulatory Commission (UPERC) reviewed its regulations for captive and renewable energy generating projects (CRE Regulations, 2019) in response to a petition from the Uttar Pradesh Power Corporation Limited (UPPCL). The UPPCL had filed an instant petition seeking the inclusion of specific provisions and amendments in the existing CRE Regulations.

In a significant development, the Madhya Pradesh Electricity Regulatory Commission (MPERC) amended regulations for co-generation

and generation of electricity from renewable energy sources. This is its eighth amendment to the regulations issued in 2010. As part of the amendment, the MPERC has defined "captive renewable energy generation source" as a project set up by any person to generate electricity primarily for his own use and includes a project set up by any co-operative society or association of persons for generating electricity primarily for use of members of such co-operative society or association.

In another development, the Jharkhand Electricity Regulatory Commission (JSERC) published regulations for Renewable Purchase Obligation (RPO) for obligated entities within the state. The earlier regulations are set to expire in March 2020. RPO is the single most important policy driving renewable energy installations in India towards achieving its aggressive goal of installing 175 GW by 2022, with solar comprising 100 GW of this portfolio. These regulations will apply to distribution licensees, captive users, and open access consumers within the state.

The month of January also saw the Himachal Pradesh Electricity Regulatory Commission (HPERC) announce the generic levelized tariffs for solar PV projects for the last six months of the financial year 2019-20. In December 2019, the Commission had requested the major stakeholders to send their suggestions on the proposal. The proposed tariff will be applicable only for small capacities up to 5 MW. The Commission prefers that distribution licensees purchase power from higher capacity projects through Solar Energy Corporation of India (SECI) or competitive bidding route.

The Chhattisgarh State Electricity Regulatory Commission (CSERC) issued a draft order announcing generic levelized tariffs for the fiscal year (FY) 2019-20 and 2020-21 for renewable energy sources. The generic tariff would be set on a levelized basis for the tariff period from the commercial operation date (COD) of the projects up to the useful life of the projects. The useful life of a small hydro project is considered to be 35 years and 25 years for solar photovoltaic (PV).

Industry Update

India in talks with World Bank for Modi global electricity grid plan

India has started consultations with the World Bank as its technical partner to implement an ambitious global electricity grid plan pitched by Prime Minister Narendra Modi. With the world grappling with climate change concerns, a senior government official said the multilateral funding organization may prepare a feasibility report for the project announced in October 2018, that can further bolster India's image as a clean energy champion.

The proposed global grid plans to leverage solar power generated in one geography to feed the electricity demands of other nations. This comes against the backdrop of China's attempts to co-opt countries into its ambitious One Belt One Road initiative, a programme to invest billions of dollars in infrastructure projects, including railways, ports and power grids, across Asia, Africa and Europe.

"The government has had preliminary discussions with us. It's too early to share any details at this stage. For any further information, you may want to contact MNRE (ministry of new and renewable energy) ," a World Bank spokesperson said in an emailed response.

"This is quite an ambitious project and not a simple one. We have started deliberations with the World Bank for them to prepare a report on the same. A similar mechanism exists in Europe. One grid is very advantageous to the participating nations," said a senior Indian government official, requesting anonymity.

India has been supplying power to Bangladesh and Nepal and has been championing a South Asian Association for Regional Cooperation (Saarc) electricity grid minus Pakistan to meet electricity demand in the region. Also, power-starved Bangladesh wants to buy electricity from large solar parks being set up in Gujarat and Rajasthan, with fostering cross-border energy trade being an important part of Modi's South Asia-focused neighborhood-first policy.

Rajasthan set to take the solar crown in 2020

The list of the leading solar states in India is due a shake-up this year, according to Norwegian analyst Rystad Energy, with Rajasthan set to usurp Karnataka as the PV capital and Andhra Pradesh expected to fall away thanks to policy uncertainty.

The annual review of the Indian market published by Rystad on Tuesday predicted Rajasthan will this year take advantage of the fact Karnataka has called a halt to solar tenders because it has already met its renewable energy purchase obligation for this year and next.

Solar development in Andhra Pradesh – India's fourth biggest solar state, behind Tamil Nadu – ground to a halt last year after the election of Jaganmohan Reddy as chief minister at the end of May. Reddy swiftly set about attempting to reverse the clean energy policies of predecessor and political rival N Chandrababu Naidu and his threat to revise signed power purchase agreements in the state has spooked project developers.

Reseacher predicts Gujarat, Telangana, Maharashtra andUttar Pradesh will join the leading solar states this year, with the latter expecting to deploy more than 1 GW of new generation capacity in 2020.

Punjab seeks central assistance for biomass projects

Pointing out that the state government had already submitted a detailed proposal on the subject, Punjab Chief Minister Captain Amarinder Singh has written to the Centre reiterating his demand for Viability Gap Funding (VGF) for Biomass Power Projects and Biomass Solar Hybrid Power Projects to check stubble burning in the state.

In a letter to Union Minister of State for Power, New & Renewable Energy, RK Singh, the Chief Minister has sought his personal attention towards framing of scheme/ guidelines for promoting biomass power projects by providing one-time viability gap funding in a phased manner, and for a pilot Biomass Solar Hybrid Power Project by MNRE, as suggested by the state government on several occasions.

This, stressed Captain Amarinder, would go a long way in complying with the directions of the Supreme Court of India for tackling the problem of stubble burning in Punjab. He once again asked the Ministry to provide to Punjab Rs. 5 Crore per MW of Biomass Power Projects and Rs. 3.5 Crore per MW for Biomass Solar Hybrid Power Projects (bundled solar biomass energy in the ratio of 2:1) to help the state address the problem of pollution arising from stubble burning.

The Chief Minister pointed out that the issue was first raised by the state government in a letter dated February 5, 2019, seeking in-principle approval of VGF @ Rs. 5 Cr per MW for biomass power projects of 150 MW. However, the Ministry had responded on May 6 that there was no scheme in operation at present to provide VGF for Biomass Power Projects.

States selling renewable power at less than INR 3/kWh

The States of Karnataka, Tamil Nadu, Gujarat, Maharashtra, Rajasthan and Andhra Pradesh, with a combined capacity of 65.3 gigawatts (GW) of variable renewable energy, are selling power at less than INR 3/kWh or $41.5/MWh.

According to the Institute for Energy Economics and Financial Analysis (IEEFA), India's tariffs are lower then the average renewable tariff achieved by South Australia over the last three months in real terms as there is zero inflation indexation for 25 years incorporated into these transformational contracts.

The Australian State of South Australia (SA) has been a leader in transitioning its electricity sector to a low-cost, low-emission and a renewable energy-driven system and in a short space of time, has achieved the price of AU$56.84/MWh in November, 2019.

South Australia boasts of one of the highest renewable energy penetrations in the world, despite being located at the 'end' of a national grid which severely limits its ability to leverage interstate electricity flows, according to IEEFA.

The State produced 54.6% of its total power generation from variable renewable sources during 2019. Onshore wind and solar (both utility scale and rooftop) represented 49% of total installed electricity capacity, and battery storage another 2%.

"South Australia's accelerated energy system transformation is a model for States and territories transitioning their power systems, such as India's top six renewable energy states," said Kashish Shah, energy finance analyst, IEEFA India in a report.

Andhra Pradesh government plans 10,000 MW solar project

The state government is planning to set up a mega solar power project with an installed capacity of 10,000 MW in order to meet the increasing demand for power and to supply free, uninterrupted power to the agricultural sector.

Addressing employees of the energy department after Republic Day celebrations here on Sunday, energy secretary Nagulapalli Srikant said that the project will ensure an abundant supply of power to the agricultural sector.

The energy secretary noted that the number of agricultural connections in the state now stand at 18.1 lakh after the recent addition of 25,000 connections. The department is planning to increase the number of connections by another 25,000 in the current fiscal.

Srikant further said that the government is working on various options to optimise its power purchase cost with a mix of power from thermal, hydel and renewable energy sources.

The objective, the energy secretary said, is to make power cost-effective and to contribute to industrial, agricultural and economic growth and improve the living standards of consumers.

Despite severe financial constraints, the state government has allocated Rs 7,779 crore as subsidy for agriculture and aquaculture, said Srikant. The government has also strengthened human resource in the power sector by appointing 7,000 linemen and 175 assistant engi

neers. Power utilities in the state have also saved Rs 500 crore through power purchase under open market bidding and Rs 180 crore in coal supply tenders. Srikant further noted that stage-V of Vijayawada Thermal Power Station and stage-II of SDSTPS at Krishnapatnam will be commissioned in 2020, adding 1,600 MW capacity.

MNRE recommends imposition of basic customs duty on imported solar cells and modules

Ministry of New and Renewable Energy (MNRE) has recommended to its commerce and finance counterparts to impose basic customs duty on the imports of solar cells and modules mainly from China.

"We have recommended to the Ministry of Commerce and Ministry of Finance that the Government of India should levy basic custom duty on import of solar cells and modules," MNRE secretary Anand Kumar said speaking at an industry event here.

The revenue department of the finance ministry had in July 2018 imposed a Safeguard Duty on solar imports based on a recommendation from the Directorate General of Trade Remedies (DGTR). That duty was imposed at 25 per cent on solar cells and modules from China and Malaysia for one year beginning July 30, 2018; followed by 20 per cent for the next six months and 15 per cent for another six months period ending July 2020. Currently India attracts 20 per cent safeguard duty and no basic customs duty on imported solar cells and modules from China, Malaysia and Vietnam. Kumar said there the government is working on a plan to set up a manufacturing base of solar equipment locally. "No manufacturing facility can come up in the country unless you give them protection. We all know that we largely depend on China for the import of solar cells and modules," he said.

The secretary also said the government had launched a manufacturing-linked tender with inbuilt subsidy for solar projects in order to boost domestic production. "More and more investors are coming in to know when the MNRE will announce the next round of manufacturing-linked tenders," said Kumar.

He further added that the levying of customs duty on imported solar modules will be in our domestic interest and will not be a violation of international trade agreements, as has been said earlier. At the same time, the government will ensure projects already installed or in the process do not get impacted.

Commenting on the government's plan, Ameya Pimpalkhare, a renewable energy expert and an Associate Fellow at the Observer Research Foundation said: "The present safeguard duty comes to an end in July 2020. I guess this shall be replaced by customs duties on cells and modules."

He added the solar-linked manufacturing tender has been floated and re-floated multiple times in the past but this time there is an actual interest from developers looking at the amount of deployment and manufacturing being promised

Renewable-Tenders

Tender Issued By	Capacity	Location	Last date of Bid Submission
NTPC	1200 MW	India	19-Mar-20
SECI	14 MW Solar Power Plant with 42 MWh BESS	Leh, Kargil	16-Mar-20
RUMS	500 MW	Neemuch Solar Park	15-Jun-20
RUMS	450 MW	Shajapur Solar Park	22-May-20
RUMS	550 MW	Agar Solar Park	01-May-20

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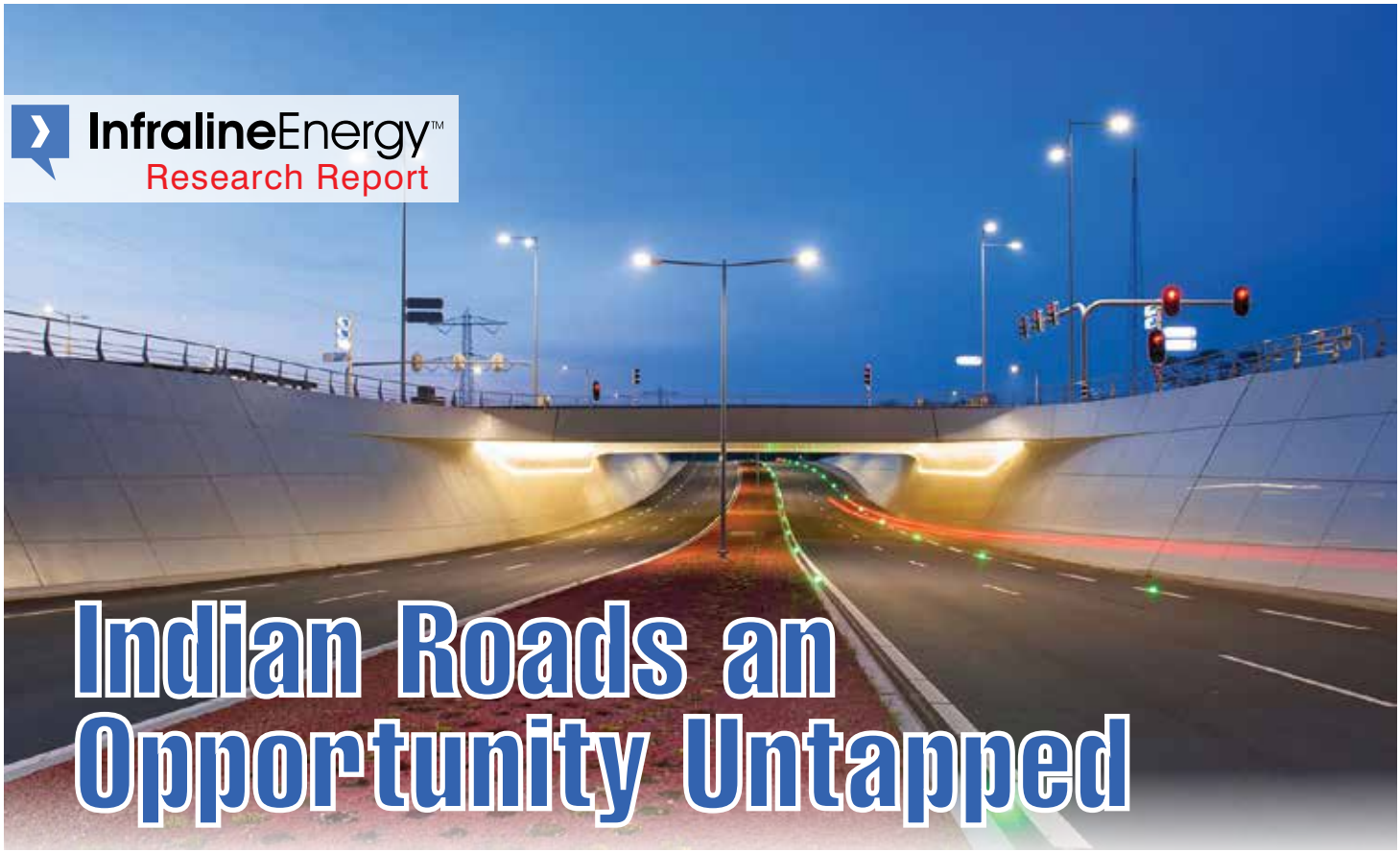

Indian Roads an Opportunity Untapped

Key Highlights

- Growth and Investment Opportunity
- NHAI Roads Award Mix
- PAN India Top Players in the Sector
- Financial Trends
- Significant Policy Amendments to Revive Growth

Key Questions Answered

- What are the key catalysts for increasing the demand?
- What are the major risks and challenges?
- What is the Experience and Opportunities under Hybrid Annuity Mode?
- How new Funding Sources and Financing Strategies are impacting the sector?

A must buy for

- Road Projects Developers
- Heavy Equipment Manufactures
- Financial Institutions
- Consultants
- Toll Operators
- Regulatory Bodies
- Government Agencies
- New Market Entrants

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Rajesh Singh Panwar
rajesh.panwar@infraline.com
Mob: +91 9711786999
Ph: +91 120 6799125, 160

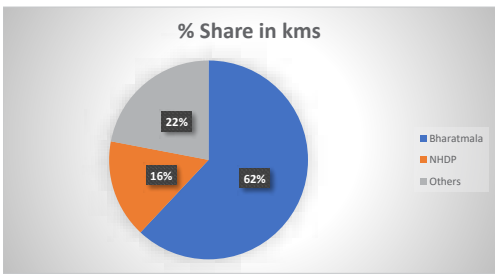
EXECUTIVE SUMMARY

For financial year FY19 total constructed length was 10855 kms (less award due to land acquisition), 2018-19 where delays in acquiring land affected project costs as the average cost of land has escalated from Rs. 0.80 crore per hectare during 2012-13 to Rs. 3.20 crore per hectare .Currently 839 Projects on monitor where Delayed Projects w.r.t original schedule are 219.

NHAI Projects Worth 30,000km (Rs 5tn) Likely To Be Awarded Over FY20E-FY24E under the government's Bharatmala and NHDP programmes, NHAI to bid out 6,000km (worth Rs 1tn) for development during FY20

MASSIVE PIPELINE OF OPPORTUNITIES OVER NEXT FIVE YEARS (NHAI)

	Bharatmala	NHDP	Others
Length (in kms)	18763	4667	6570
Investment	3 tn	770 bn	1.1 tn
Time Period	Award Over 5Yrs	Award Over 15-18 Months	Award Over 5Yrs



The report will provide a sector outlook with untapped investment opportunity under Bharatmala Pariyojna , which will help to understand how NHDP was the biggest road development plan in India before Bharatmala. Further report will explore the window of investment in different states, it will explain the rise of hybrid annuity model over EPC and did it really help to get more private participation in the sector?

This report will explain future target and award of road length by different nodal agencies and projects in pipeline.

GANGA EXPRESSWAY, ONE OF INDIA'S LONGEST ROADWAY PROJECTS, GETS RS 2000 CRORE BOOST FROM YOGI GOVERNMENT

Ganga Expressway has received a staggering Rs 2000 crore allocation from the Yogi Adityanath government. In the Uttar Pradesh Budget 2020, the state government has allotted Rs 2000 crore for the Ganga Expressway, which it said will be one of the longest in India. Ganga Expressway will be 637 kilometres long. This will connect Meerut in western Uttar Pradesh to Prayagraj. UP Chief Minister Yogi Adityanath has stated that efforts would be made to lay the foundation stone of Ganga Expressway by the end of 2020.

NORM CHANGE MAY HIT 1,000 KM ROAD PROJECTS

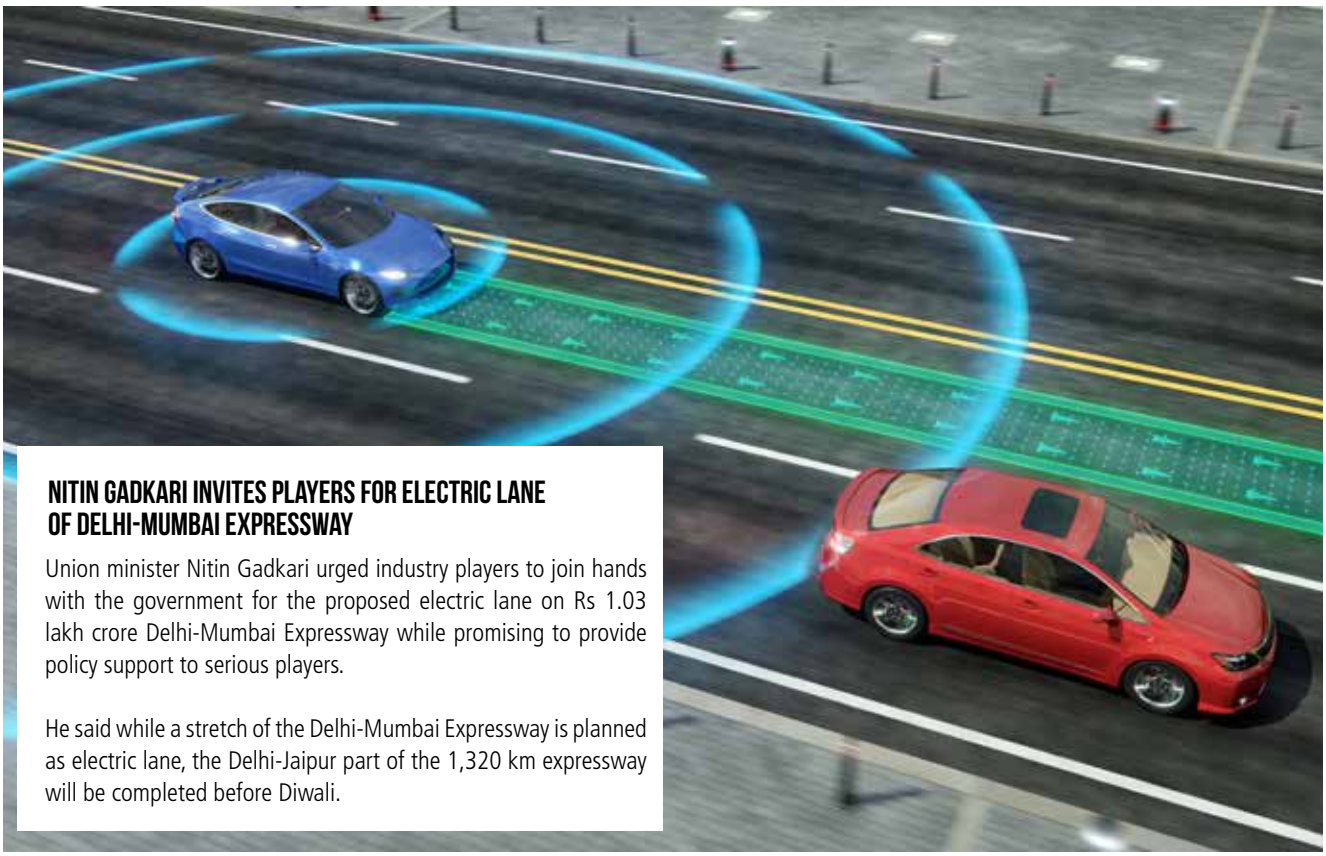
The finance ministry's decision to treat highway projects as a single entity that cannot be divided into small packages could impact award of about 1,000 km of key infrastructure projects, including the Delhi-Mumbai and Ahmedabad-Dholera Expressways.

As a norm, any public-private infrastructure project costing over Rs. 2,000 crore is sent to the PPP Appraisal Committee (PPPAC) and then to the cabinet for its nod.

However, PPP projects up to Rs. 2,000 crore are appraised and approved by the highways ministry's Standing Finance Committee (SFC). To keep large projects under the finance ministry-set threshold, the highways ministry has been splitting big ticket projects

NHAI HAS A ''SPV'' PLAN TO STAVE OFF DEBT BY ADOPTING PROJECT-BASED FUNDING

In another attempt at reducing debt by innovative funding, the National Highways Authority of India (NHAI) plans to adopt a project-based funding model for future projects. "We will convert each project into a special purpose vehicle (SPV) and the funds will be arranged by that company. We have a list of 22 expressways and access-controlled highways where we plan to implement this model," NHAI Chairman Sukhbir Singh Sandhu said.



NITIN GADKARI INVITES PLAYERS FOR ELECTRIC LANE OF DELHI-MUMBAI EXPRESSWAY

Union minister Nitin Gadkari urged industry players to join hands with the government for the proposed electric lane on Rs 1.03 lakh crore Delhi-Mumbai Expressway while promising to provide policy support to serious players.

He said while a stretch of the Delhi-Mumbai Expressway is planned as electric lane, the Delhi-Jaipur part of the 1,320 km expressway will be completed before Diwali.

HIGHWAYS CONSTRUCTION BUCKS MODI 1.0 TREND; ACTIVITIES IN THE SECTOR SLOWDOWN IN CURRENT FINANCIAL YEAR

Bucking the trend of a steady increase in the pace of highway construction since the Modi 1.0 government assumed office, activities in the sector seem to have slowed in the current financial year. With award of new projects being in the slow lane since FY19, investments in this key infrastructure sector could take a further hit if efforts to encourage private investments and newer ways of resource mobilisation explored by NHAI don't yield intended results.

Construction of highways slowed to 27 km a day during April-January in the current fiscal, from 29.7 km a day achieved in all of 2018-19. Also, awards of new projects in the first 10 months of the current year were only 35% of the targeted 10,000 km for the whole fiscal

Sr. No.	COMPANY NAME	Sr. No.	COMPANY NAME
1	Dilip Buildcon Ltd	21	Terra Infra Development Limited (TIDL)
2	Ashoka Buildcon Ltd	22	S. S. Civil Construction Private Limited
3	J. K. Infraprojects Private Limited	23	Khurana Engineering Limited
4	Shapoorji Pallonji Infrastructure Capital Company Ltd.	24	Ushatech Projects Private Limited
5	Bridge & Building Construction Co Private Limited	25	Anil Kumar Construction Company
6	ABCI Infrastructures Private Limited	26	Desai Contractors & Engineers Private Limited
7	Hanwha Engineering & Construction Corporation	27	Mapex Infrastructure Private Limited
8	ASB Infrastructure Private Limited	28	Abhishek Infraventures Limited
9	Vijai Infrastructure Limited. (VIL)	29	A.L. Sudershan Construction Company Limited
10	S L M I Infra Projects Private Limited	30	SMS Limited
11	Amberg Engineering India	31	Birla Gtm Entrepose Private Limited
12	GVR Infra Projects Limited	32	Sadbhav Engineering Limited
13	Infinite Civil Solutions Private Limited	33	Navayuga Engineering Company Limited (NECL)
14	R.G Buildwell Engineers Limited	34	HCC infrastructure Company Limited
15	Priyanka Constructions (Baroda) Private Limited	35	CH2M HILL Companies Limited
16	Montecarlo Limited (MCL)	36	Sunway Construction India Limited
17	Pari Road Contractor	37	Progressive Constructions Limited
18	Sairaj Infrastructure & Builders Private Limited	38	Centrodorstroy (India) Private Limited
19	Manisha Infrastructure Private Limited	39	Oriental Structural Engineers Private Limited
20	Vetrivel Construction Private Limited	40	Fluor Daniel India Private Limited

Sr. No.	COMPANY NAME
41	OPBK Constructions Private Limited
42	Millenium Road Construction Private Limited
43	D. K. Project Private Limited
44	KK Gupta Constructions Private Limited
45	Dhingra Construction Company
46	C.P. Arora Engineers Contractors Private Limited
47	Akash Infra Projects Private Limited
48	R.K. Mishra & Sons
49	Vastu Kiriti Construction Private Limited
50	Gemini Construction
51	Upama Construction Private Limited
52	Unique Construction
53	Shetusha Engineering & Construction Private Limited
54	Ray Construction Limited
55	Ravi Infrabuild Projects Private Limited
56	Monarch India Infracon Private Limited
57	Likproof India Private Limited
58	KRIS CONS Design & Management Private Limited
59	Dynasoure Concrete Treatment Private Limited
60	Development & Consultants Private Limited

Sr. No.	COMPANY NAME
61	Modern Construction Co. (Delhi)
62	Canter Engineering Private Limited
63	Aquarrest Systems
64	AK Construction Contractors & Engineers
65	Aakar Civil Engineer Private Limited
66	Lalit Construction
67	Paresh Constructions And Foundations Private Limited
68	Renjin Construction
69	M.Devang Construction Company
70	Royal Infraconstru Limited
71	D.S. Construction
72	Gondwana Engineers Private Limited
73	Thakur Infraprojects Private Limited
74	Shantilal B.Patel
75	Asphalt India Corporation
76	Reliance Roads
77	NCC Infrastructure Holdings Limited (NCC INFRA)
78	Advance Constuction Company Private Limited
79	B.G. Shirke Construction. Tech. Private Limited
80	Uttar Pradesh Rajkiya Nirman Nigam Ltd.
81	L&T Construction
82	Virender Singh & Company
83	SriGro Interactive Private Limited
84	Shivansh Realtors
85	Hari Shanker Constructions
86	Amity Contractors Private Limited
87	HT Techno Solutions Private Limited
88	Vivan Enterprises Private Limited
89	Antrix Financial Engineers Private Limited
90	GKC Projects Limited
91	ARG Infra Projects
92	GHV (India) Private Limited
93	L&T IDPL
94	Bronze Infra Tech Private Limited
95	Shelter Infra Projects Limited
96	Kaushalya Infrastructure
97	Jitendra Singh Engineers and Contractors
98	Raunaq EPC International limited
99	PVV Infra Limited
100	MEP Infrastructure

KEY HIGHLIGHTS OF UNION BUDGET 2020-21

Union Budget for 2020-21 was presented by Hon'ble Union Finance Minister Ms. Nirmala Sitharaman on 1st Feb 2020 in the parliament. The finance minister talked about improving the ease of living and the physical quality of life in India through the development of the National Infrastructure Pipeline as it would offer a huge opportunity for employment in the construction industry itself.

Key Highlights of Union Budget (2020-21) - Roads Infrastructure

- Accelerated development of highways to be undertaken.
- This will include development of 2500 km of access control highways, 9000 km of economic corridors, 2000 km of coastal and land port roads and 2000 km of strategic highways.
- Delhi-Mumbai Expressway and two other projects would be completed by 2023.
- Chennai-Bengaluru Expressway would also be started.
- FASTag mechanism to encourage greater commercialization of highways so that NHAI can raise more resources.
- Monetize at least twelve lots of highway bundles over 6000 km before 2024.

NAME OF THE SCHEME	BE 2019-20 (INR CRS)	RE 2019-20 (INR CRS)	BE 2020-21 (INR CRS)
Pradhan Mantri Gram Sadak Yojana	19,000	14,070	19,500
Ministry of Road Transport and Highways	83,016	83,016	91,823

The NIP worth Rs 1.03 trillion consists of more than 6,500 projects, which range across different sectors – the outlay for the NHAI remains flat even as budgetary support by the government rises by 16 per cent.

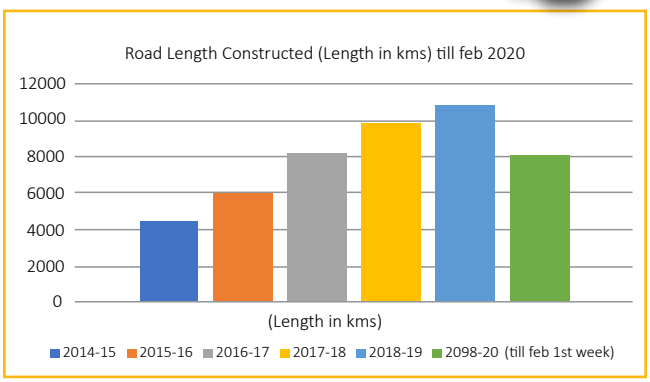
Funds Allocated During the Last Four Years and Current Year Under PMGSY (Rs. in Cr.)

S. No.	State (s)	2015-16	2016-17	2017-18	2018-19	2019-20 (upto 03.02.2020)
		Allocated	Allocated	Allocated	Allocated	Allocated
1	Andhra Pradesh	379.2	197.59	40	200	243.14
2	Arunachal Pradesh	375	205.92	700	1350	324.08
3	Assam	347.822	475.76	575.58	2506.58	2,029.92
4	Bihar	2781	2958.33	1349.32	60.58	0
5	Chhattisgarh	498	449.8	338.96	664.39	1,114.07
6	Goa	0	0	0	0	0
7	Gujarat	474.1	31.04	0	0	0
8	Haryana	304.6975	44.01	0	0	0.36
9	Himachal Pradesh	268.4	396.61	360.17	677.25	1,032.80
10	Jammu And Kashmir	488	755.61	1400	581.46	342.5
11	Jharkhand	865	819.6	1087.89	757.33	0.87
12	Karnataka	140.8	331.95	5	0.56	0
13	Kerala	151	179.45	169.13	100.77	41.98
14	Madhya Pradesh	1122	1979.48	1075.08	913.3	1,119.26
15	Maharashtra	553.3	606	270.59	6.75	0
16	Manipur	299.8	412.19	219	293.63	263.85
17	Meghalaya	150.7	211.98	45.68	196.42	195.5
18	Mizoram	50.9	93.36	200	51.32	576.06
19	Nagaland	4	8.05	8.8	149.63	0
20	Odisha	1382.7	1925.67	2038.19	2461.5	573.19
21	Punjab	221.1	275.66	318.73	0	0
22	Rajasthan	559.9	559.41	889.89	0	0
23	Sikkim	68.6	138.16	337	199.4	4.39
24	Tamilnadu	205	309.58	591.07	589	268.39
25	Telangana	273.73	146.03	99.22	99.64	184.21
26	Tripura	274.83	392.27	135.38	73.31	0.98
27	Uttar Pradesh	1110.35	1234.87	866.81	253.54	0
28	Uttarakhand	409.1998	550.2	686.31	988.23	554.9
29	West Bengal	1427.5807	819.18	1000	1386.44	237.83
Total		**15186.71**	**16507.75**	**14807.8**	**14561.03**	**9,108.26**

Road Length Constructed Under PMGSY in Last Five Years till 3rd Feb 2020

S. No.	State	2015-16	2016-17	2017-18	2018-19	2019-20 (As on 03.02.2020)
1	Andaman And Nicobar Islands (UT)	0	0	0	0	0
2	Andhra Pradesh	972.733	733.55	154.057	336.73	226.264
3	Arunachal Pradesh	306.14	1,360.51	1,132.02	1317.637	410.155
4	Assam	989.48	929.515	1,618.63	4300.533	1576.91
5	Bihar	3445.513	6,601.12	5,221.59	4227.133*	415.029
6	Chhattisgarh	2041.4	1,019.57	1,901.49	3112.355	879.045
7	Goa	0	0	0	0	0
8	Gujarat	693.867	211.875	50.306	14.39	0
9	Haryana	549.177	62.845	38.28	4.95	0
10	Himachal Pradesh	658.64	1,429.27	1,772.53	1334.35	916.044
11	Jammu And Kashmir	789.858	1,785.16	1,804.54	1622.198	1275.634
12	Jharkhand	1281.224	3,119.52	4,519.15	3571.619	484.11
13	Karnataka	999.508	908.14	47.93	6.36	6
14	Kerala	393.904	314.327	372.971	314.466	87.377
15	Madhya Pradesh	4980.966	5,081.97	5,222.45	4520.839	1512.76
16	Maharashtra	890.707	2,000.70	569.758	266.828	55.826
17	Manipur	364.553	1,485.85	731.199	852.235	265.615
18	Meghalaya	150.96	368.865	150.329	211.424	128.207
19	Mizoram	117.32	298.08	237.132	266.585	229.5
20	Nagaland	93.5	395	85	208.99	172.6
21	Odisha	3894.04	5,796.93	7,175.61	8151.299	2771.509
22	Punjab	728.207	586.53	851.75	246.775	28.98
23	Rajasthan	2175.372	3,113.10	3,253.05	2528.273	58.879
24	Sikkim	390.769	247.422	419.155	351.919	35.305
25	Tamilnadu	588.974	883.189	1,611.36	2166.856	746.606
26	Tripura	357.326	405.622	313.138	169.087	55.334
27	Uttar Pradesh	3406.929	3,095.25	4,106.46	1688.272	313.43
28	Uttarakhand	1025.287	1,989.32	1,839.11	1756.269	1160.388
29	West Bengal	2466.151	2,825.53	3,213.11	5111.82	1324.957
30	Telangana	397.251	408.644	302.929	381.195	144.528
Total		**35149.756**	**47,457.39**	**48,715.03**	**49041.387**	**15280.992**

Year	Length Constructed (in km)
2014-15	4410
2015-16	6061
2016-17	8231
2017-18	9829
2018-19	10855
2019-20 (till feb 1st week)	**8100 (MoRTH 4700 + NHAI 3024 + NHIDCL 376)**



State Wise State Roads Notified as National Highway Since 2014

S. No.	State / UT	Length in km
1	Andhra Pradesh	2,677
2	Arunachal Pradesh	733
3	Assam	109
4	Bihar	810
5	Chhattisgarh	460
6	Delhi	86
7	Goa	31
8	Gujarat	2,338
9	Haryana	1,123
10	Himachal Pradesh	246
11	Jammu & Kashmir	339
12	Jharkhand	685
13	Karnataka	1,488
14	Kerala	21
15	Madhya Pradesh	3,493
16	Maharashtra	11,422
17	Manipur	257
18	Meghalaya	0
19	Mizoram	245
20	Nagaland	217
21	Odisha	1,099
22	Punjab	1,396
23	Rajasthan	2,567
24	Sikkim	324
25	Tamil Nadu	1,843
26	Tripura	229
27	Telangana	1,367
28	Uttarakhand	432
29	Uttar Pradesh	3,970
30	West Bengal	644
Total		**40,650**

FASTag Transactions in the Country till December 2019

Months	Transaction Count (in lakhs.)	Transaction Amount (in Crores)
Fiscal Year 2019-20		
April, 2019	259.77	585.38
May, 2019	230.19	515.31
June, 2019	266.12	596.18
July, 2019	272.62	608.51
August, 2019	277.79	610.52
September, 2019	290.12	658.94
October, 2019	314.59	702.86
November, 2019	349.23	773.95
December, 2019	643.29	1256.84

Active Bids for Roads Project by MoRTH

S. No.	e-Published Date	Closing Date	Opening Date	Title and Ref. No./Tender ID	Organisation Chain
1	21-02-2020 **17:00**	07-04-2020 11:00	08-04-2020 11:00	[Construction of Margao Western National Highway Bypass for NH 17 Balance work between wholesale Fish Market road to Varca road] [PWD/WDXIV[NH]/ASW/13][2020_MoRTH_546867_1]	Ministry of Road Transport and Highways P6 Delhi - MoRTH RO Mumbai - MoRTH PWD / CE[NH]-Goa - MoRTH
2	20-02-2020 18:40	07-04-2020 11:00	08-04-2020 15:00	[Balance work of construction of Two_Four lane with paved shoulder from Km 54.370 to Km 101.400 (Bidar to Humnabad Section) of NH 50 in the state of Karnataka through an Engineering Procurement and Construction (EPC) Contract] [RW/BNG/NH-50/Km.54-101/96/2019][2020_MoRTH_546610_1]	Ministry of Road Transport and Highways P6 Delhi - MoRTH RO Bangalore - MoRTH
3	20-02-2020 18:15	07-04-2020 11:00	08-04-2020 11:00	[2-laning of Lalpul- Manmao- Changlang road NH-215 Length 68.30Km on EPC Mode in the State of Arunachal Pradesh] [NH-12013/12/2019/LMC/Ar.P/Z-V][2020_MoRTH_546623_1]	Ministry of Road Transport and Highways NER and SARDP-NE - MoRTH
4	13-02-2020 18:00	21-04-2020 16:30	22-04-2020 16:30	[Construction Of Two Lane With Paved Shoulders From Km.39.950 To Km. 52.000 on NH367 Bhanapur Gaddankeri Section in the State of Karnataka on EPC mode] [ENH/HBL/NH367/19/20/2571 Dt 12/02/2020][2020_MoRTH_544476_1]	Ministry of Road Transport and Highways P6 Delhi - MoRTH RO Bangalore - MoRTH NH Division-Hubli - MoRTH
Active Bids for Roads Project by NHAI					
1	20-02-2020 17:00	07-04-2020 17:00	08-04-2020 17:30	[Expression of Interest for empanelment of Plantation Agencies to participate in tender process of Plantation (Avenue and Median Plantation, Landscaping, Beautification, Transplantation and maintenance) Works along National Highways] [NHAI/RO/CHD/11133/EOI/EPA][2020_NHAI_43841_1]	National Highways Authority of India RO-Chandigarh - NHAI
2	20-02-2020 12:00	07-04-2020 11:00	08-04-2020 11:30	[Construction of Underpass at Km.211 and Extension of Service road on Hyderabad Bangalore Section of NH44 in Kalur Mandal of Kurnool District in the state of Andhra Pradesh on EPC Mode.] [NHAI/Tech/AP/Hyd-Ban/NH-44/][2020_NHAI_43816_1]	National Highways Authority of India Head Office - NHAI Technical - NHAI
3	06-03-2018 17:30	08-04-2020 11:00	09-04-2020 11:30	[Rehabilitation and Upgradation to 4-Lane configuration and Strengthening of Punjab/HP Border to Sihuni from km 10.808 to km 47.950 (Design Length 37.142 km) of NH-20 (New NH-154) of Pathankot Mandi Section in Himachal Pradesh on EPC mode(Pkg-I)] [NHAI/Pathankot-Mandi/ Pkg-1/HP/2017][2018_NHAI_8652_1]	National Highways Authority of India Head Office - NHAI Technical - NHAI

MINISTRY OF ROAD TRANSPORT AND HIGHWAYS

MINISTRY - NHAI

NAME	DESIGNATION	Office Phone	Email Address
Dr. Sukhbir Singh Sandhu, IAS	Chairman	25076503	chairman@nhai.org
Shri Asheesh Sharma, IAS	Member - Finance	25076530	memberfinance@nhai.org
Shri R. K. Pandey	Member - Projects	25093522	rkpandey@nhai.org
Shri Amitabh Kant	CEO, Niti Aayog	23096574, 23096575	amitabh.kant@nic.in
Shri Sanjeev Ranjan, IAS	Secretary, Ministry of Road Transport & Highways	-	-
Shri G. C. Murmu, IAS	Secretary, Department of Expenditure	-	-
Shri I. K. Pandey	DG(Road Development) & Special Secretary, MoRTH	-	-
Sh. Rajeev Saxena	CVO	25083531	cvo@nhai.org
Dr. H. M. Naqvi	(Tech)-RSC	8800702288	naqvihm@nhai.org
Sh. Aditya Prakash	Kerala	9501622744	adityaprakash@nhai.org
Sh. Amarnath Mishra	T/CO	9650062421	anmishra@nhai.org
Sh. Amrendra Kumar	Tech	7354733331	amrendra@nhai.org
Sh. P.C Arya	Tech	9675565999	pc.arya@nhai.org
Ms. Jyoti Sinha	HR/Admin-I	9560071678	jyotisinha@nhai.org
Sh. Ajmer Singh	Gujrat/AP/Telangana	9910706592	ajmersingh@nhai.org
Sh. Akhilesh Kumar Srivastava	T/IT & Highway Operation	9491993344	aksrivastava@nhai.org
Sh. Alok Deepankar	T/Kar/Pondicherry/TN/Ker	9868564436	alokdeepankar@nhai.org
Sh. Atul Kumar	T/MAH/CMD/Legal	8800640999	kumara@nhai.org
Sh. K. Venkata Ramana	Technical/OSD to Chairman	9899897444	kvenkataramana@nhai.org
Sh. L. P. Padhy	Technical/Chatt/WB/NE	9810652215	lppadhy@nhai.org
Sh. Madhup Kumar	Finance	9910045532	madhupkumar@nhai.org
Sh. Maneesh Rastogi	T/Pr.M-Punj Har/NCR/HP/JK	9717788014	maneesh@nhai.org
Sh. Manoj Kumar	Technical/RO-Delhi/Bharatmala	9999903668	manoj.kumar@nhai.org
Sh. Narayan Nayak Siba	Finance	9599962224	sibanayak@nhai.org
Sh. Navin Kumar	T/UP/Bihar/UK	9811871987	navinkumar@nhai.org
Sh. S.K. Mishra	T/Raj/MP/HO	8800592272	sushilkumarmishra@nhai.org
Sh. V.K. Sharma	Land Acquisition/ENV./GHD	9810624760	vksharma@nhai.org
Sh. V.S. Darbari	HR & Admn-II	9818147172	vsdarbari@nhai.org
Sh. Ajay Mishra	(HR/Admin-II)/ Highway Operations (including Wayside Amenities) and Skill Development	9891805070	ajaymishra@nhai.org
Sh. Akhil Khare	(Har/Punj)	9891805070	akhilkhare@nhai.org
Sh. Awadhesh Kumar Singh	(T/Bridge Cell)	9810089045	-
Sh. B.K. Thakur	Jharkhand Div.	9968628905	binaythakur@nhai.org
Sh. B.M. Rao	Fin	9910466508	bmrao@nhai.org
Sh. Gupta Kr. Rohin	BM	9491144767	rohingupta@nhai.org
Sh. Harish Sharma	UP Division	9868374414	harishsharma@nhai.org

MINISTRY OF ROAD TRANSPORT AND HIGHWAYS

MINISTRY - NHAI

NAME	DESIGNATION	Office Phone	Email Address
Sh. P.K Mohapatra	IT	9810874066	pramod@nhai.org
Sh. Prashant N. Gawasane	Odisha	7533985985	prashant@nhai.org
Sh. R.K. Singh	(TN)	9005552581	rakeshsingh@nhai.org
Sh. S. K. Patel	LC / Coordination	9811674733	skpatel@nhai.org
Sh. Sanjeev Kumar Sharma	West Bengal Division (Tech)	9649008999	sanjeevsharma@nhai.org
Sh. Sanjeev Sharma	T/ Parl.&Cord	9313078889	sanjeevsharma@nhai.org
Sh. Vishal Pankaj	T/ROB	8860853665	pankajvishal@nhai.org
Dr. A.K. Sharma	RSC/BRD/PC	9968309230	aksharma@nhai.org
Dr. B Muhkopadhaya	Environment Div.	9868972511	biswajit@nhai.org
Lt Col Shailesh Yadav	IT	9211318389	shaileshyadav@nhai.org
Sh S. Q. Ahmad	GM(FIN)	9458348837	sqahmad@nhai.org
Sh. A.K. Sabharwal	TIC Division/ SRDP	9868833190	ajaysabharwal@nhai.org
Sh. Ahmad Akil (KTK)	Karnataka Division	9999188298,	akilahmad@nhai.org
Sh. Akhilesh Kumar	HR-I Div	9434254624	akhileshkumar@nhai.org
Sh. Arora Kr. Kamal	NE Division	9423145787	kamalarora@nhai.org
Sh. Arun Jagga	UP Div.	9868255880	arunjagga@nhai.org
Sh. Asati Ashish	Maharashtra	9540538108	ashishasati@nhai.org
Sh. Awadhesh Kumar	CO Division	8826670605	awadheshkumar@nhai.org
Sh. Chaurasia Kumar Navin	AP & Telangana	8130132762	navinchaurasiya@nhai.org
Sh. Deepak Saxena	(P&IS/Elect.)	9810902815	deepaksaxena@nhai.org
Sh. Dhiman Kr. Krishan	(HR/Admin)-IIB	9781115055	krishankumar@nhai.org
Sh. Dinesh Yadav	Tech	9717788595	dineshyadav@nhai.org
Sh. Joshi V.K.	(Planning/RO Delhi & Exp.)	9968411232	vkjoshi@nhai.org
Sh. Kamal Kumar Arora	Utility	9423145787	kamalarora@nhai.org
Sh. Kapoor Rajneesh	(CO)-I Division	9818208634,	rajneeshkapoor@nhai.org
Sh. Kushal Veer Singh	T/ MP & Gujarat Division	9810202983	kvsingh@nhai.org
Sh. MPS Rana	Uttrakhand Div.	9811424380	mpsrana@nhai.org
Sh. Neeraj Saxena	HO	7903476996	NeerajSaxena@nhai.org
Sh. R.B. Sinha	T/Bihar Div.	9810470681	rbsinha@nhai.org
Sh. Rajender Kumar	CMD Division	9818609464	rajenderkumar@nhai.org
Sh. Rajesh Gupta	F & A	9810405504	rajeshgupta@nhai.org
Sh. Ram Ashraya Singh	HR-V Div	9868534484	ramashraya@nhai.org
Sh. Ravinder	Pudu	9560715959	ravinder@nhai.org
Sh. S.S. Jha	Guj. Division	9234503333	sheoshankar@nhai.org
Sh. Sanjeev Kumar	finance Div.	9999213058	sanjeevkumar@nhai.org
Sh. Shyam Krishna	Vigilance Division	9971385272	shyamkrishna@nhai.org
Sh. Virender Sambiyal	J&K and HP	9811999220	virendersambyal@nhai.org
Smt. Pratima Gupta	Tech	9950651320	pratimagupta@nhai.org

ROADS SECTOR OUTLOOK

INFRALINE INHOUSE MONTHLY STREAM SPECIALLY FOCUSED ON DAY TO DAY INDUSTRY DEVELOPMENT TO HELP DIFFERENT STAKEHOLDERS MAKING BOLD DECISION IN INFRASTRUCTURE SECTOR

INPOWER-FEBRUARY 2020

Sector Statistics

In the Budget, NHAI was also allowed monetise to dozen highway bundles with a length of 6,000 km. Experts say such monetisation exercise, including through InvITs, securitisation of toll receipts and TOT routes, could fetch around Rs 60,000 crore by 2024-25.

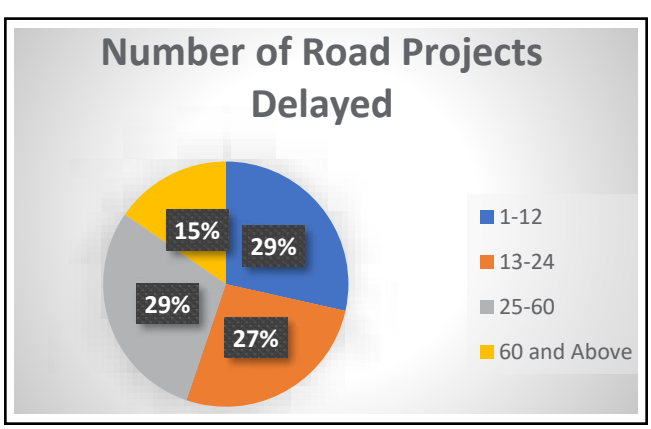
At present, around 35% of NHAI's annual expenditure goes into construction of national highways, 30% into acquisition of land, 16% in extending grant for projects under HAM, 15% in debt servicing and the remaining 4% into payment of annuity.

Against the combined target of building 11,000-km highways in the current fiscal by all agencies — NHAI, ministry of road transport and highways (MoRTH) and NHIDL — the achievement till the first week of February was 8,100 km. MoRTH has built 4,700 km of highways in the period, NHAI 3,024 km and NHIDCL, 376 km. For the current fiscal, NHAI's target for construction was set at 4,500 km at the beginning of the year while the rest was to be done jointly by MoRTH and NHIDCL.

	MoRTH	NHAI	NHIDCL
FY 20 (till feb) in kms	4700	3024	376

Construction of highways slowed to 27 km a day during April-January in the current fiscal, from 29.7 km a day achieved in all of 2018-19.

Break up of 221 Delayed Roads Project



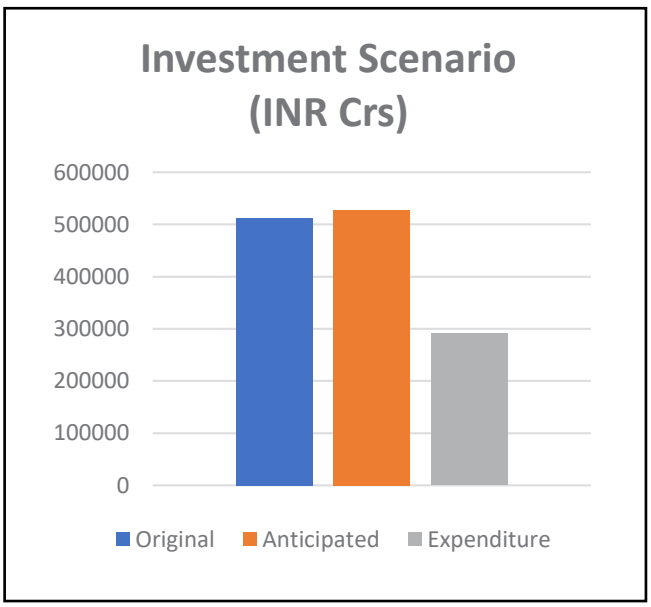
Some of the National Highway projects are running behind schedule due to multiple reasons, such as poor performance of contractor, utility shifting, delay in environment/forest clearance, land acquisition, cash flow problem of the concessionaire/contractor and law & order problems etc.

Total DPR and Civil Works in Progress under NHIDCL As on January 2020

S. No.	State	Total Civil works in progress		Total DPR works in progress	
		Length (in Km)	Cost (Rs in Cr)	Length (in Km)	Cost (Rs in Cr)
1	Andaman &	321	2083	138	1314
	Nicobar Island				
2	Arunachal	712	9526	342	3306
	Pradesh				
3	Assam	434	9022	2888	46593
4	Himachal	0	0	198	3254
	Pradesh				
5	Jammu &	158	10430	453	0
	Kashmir				
6	Manipur	510	2661	1191	14728
7	Meghalaya	85	860	1152	16390
8	Mizoram	351	6168	423	5800
9	Nagaland	343	5937	311	5147
10	Sikkim	109	1842	446	6348
11	Tripura	124	1693	421	6496
12	Uttarakhand	104	2804	313	6851
13	West Bengal	41	1101	53	2065
	Grand Total	**3292**	**54126**	**8948.34**	**125407.34**

Investment Scenario

Total original cost of implementation of 866 projects when sanctioned, was of the order of Rs. 513255.97 crore but this was subsequently anticipated to Rs. 527964.98 crore implying a cost overrun of 2.9%. The expenditure incurred on these projects till November, 2019 is Rs. 290564.48 crore, which is 55% of the anticipated cost of the projects.



Outcomes From Minutes of Meeting held on January 22nd 2020

S. No.	Projects Name	Length in kms	Remarks
1	Four/Six Laning Of Aunta-Simaria (Ganga Bridge With Approach Roads) Section Of NH-31	8	• G/o Bihar should disburse the balance compensation amount quickly. As all the issues of project have been resolved, • M/o Road Transport & Highways should speed up execution to complete the project on time (February, 2022).
2	Four Laning Of Bellary-Hiriyur Section Of NH-150a	161	• G/o Karnataka should acquire and handover the balance land by March, 2020. • G/o Andhra Pradesh should acquire and handover the balance land by 15.02.2020. State Governments should disburse the balance compensation amount quickly. • M/o Road Transport & Highways in co-ordination with State Governments should speed up execution.
3	Six Laning Of Kozhikode Bypass (Calicut Bypass) Section Of NH-66	28	• M/o Environment Forest & Climate Change should expeditiously process the proposal of CRZ clearance. • M/o Road Transport & Highways in co-ordination with State Government should speed up execution.
4	Four Laning Of Sultanpur-Varanasi Section Of NH-56	138	• M/o Environment Forest & Climate Change should expeditiously process the proposal of CRZ clearance. • M/o Road Transport & Highways in co-ordination with State Government should speed up execution.
5	Four Laning Of Varanasi–Gorakhpur Section Of	203	• G/o Uttar Pradesh should disburse the balance compensation amount quickly. • M/o Road Transport & Highways in co-ordination with State Government should speed up implementation and complete the project by June, 2020.

Industry Update

Union Budget 2020: NHAI to borrow less next year while targets elude

The government's allocation for infrastructure is not in line with the road map laid down by the National Infrastructure Pipeline (NIP), which projected about Rs 4.9 trillion and Rs 6.7 trillion for FY20 and FY21, respectively. In her second Budget, Union Finance Minister Nirmala Sitharaman proposed an allocation of Rs 1.7 trillion for transport infrastructure for FY21.

The outlay for the NHAI remains flat even as the budgetary support by the government has seen a rise of about 16 per cent. The outlay for the NHAI for 2020-21 is down about 4 per cent to Rs 1.075 trillion from about Rs 1.12 trillion in 2019-20. The budgetary support for the authority in the current fiscal is Rs 36,3691 crore, which has been raised to Rs 42,500 crore in FY21.

New 8-lane expressway from Delhi to Mumbai will cut travel time in half; expect services by 2023

In just a matter of three years, Mumbaikars will be able to take a 12-hour drive to get all the way down to Delhi, and vice versa. The 8 lane highway that is the NHAI"s (National Highways Authority of India) pet project has just been put on the fast track to completion by January 28, 2023. Authorities have stated that there will be no flexibility in this date.

Govt Accepts in Parliament: Wait Time at Toll Plazas Has Increased After FASTags

Ever since FASTags have been made mandatory for vehicles in India to pay toll tax, there has been reports that FASTags have actually increased wait time of vehicles at plazas, rather than reducing it. Numbers from the central toll plaza traffic monitoring system suggest that waiting times for vehicles have actually gone up by 29%, even though FASTags accounted for more than 60% of the total toll collection.

Centre moots 32 road, 21 rail projects to boost port connectivity in Andhra

The central government has identified 32 road and 21 rail projects in Andhra Pradesh to improve port connectivity as part of its Sagarmala programme. The roads and rail projects would help connect various ports in the state.

New BOT model may still not be preferred mode for highways: Experts

The Union government's ambitious Bharatmala project would only see a miniscule contribution from the Build Operate Transfer (BOT) model projects as there are few takers for such projects.

To revive the BOT mode, the National Highways Authority of India (NHAI) recently came out with new set of guidelines — draft Model concessionaire agreement (MCA) — a move that may provide relief to the stuck projects. "The MCA has tightened the norms for BOT but the bigger part of the equation is market risk. Healthy traffic forecast is the primary factor,"

Chennai-Bengaluru Expressway update: Work on 262 km long highway project to begin soon

Modi government accelerates highway development in India further! In her Union Budget speech, Finance Minister Nirmala Sitharaman announced that work on the Chennai-Bengaluru expressway will start soon. As part of the Narendra Modi government's ambitious plan of building a network of "world-class expressways", the Chennai- Bengaluru Expressway worth Rs 20,000 crore will be built. The Chennai-Bengaluru expressway will be 262 km long.

Company Update

PNC Infratech Bags a new Hybrid Annuity Highway Project of Rs.1530.0 crore

PNC Infratech Limited has been declared the L1 (lowest) bidder for a NHAI Project of 60.22 km long Four Laning of Jagdishpur-Faizabad section of NH 330-A from km 47.800 to 108.020 in the state of Uttar Pradesh under Bharatmala Pariyojna to be executed on Hybrid Annuity Mode for a Bid Project Cost of Rs. 1530.0 crore. Three firms participated in the bidding and the price bids were opened on Monday, February 10, 2020, with PNC"s bid being the lowest (L1).

IL&FS gets govt approval for Rs 2,700 crore claims towards stuck road projects

Crisis-hit IL&FS Group has received approvals from various government authorities for claims worth about Rs 2,700 crore towards stuck or incomplete road projects, officials said. The NHAI Conciliation Committee recently approved a claim for approximately Rs 707 crore for the ILFS-Fagne Songadh Expressway Limited project (in Gujarat-Maharashtra border area), while the committee had earlier approved claims of Rs 902 crore for the Khed Sinnar Expressway project (in Maharashtra).

HG Infra Engineering bags two NHAI projects worth Rs 2,100 crore in Rajasthan

HG Infra Engineering Ltd (HGIEL) has been declared as the lowest bidder by National Highways Authority of India (NHAI) for two projects worth Rs 2,100 crore on engineering, procurement and construction (EPC) mode under the Bharatmala Pariyojana in Rajasthan.

The first project is for construction of an eight-lane carriageway on the Baonli-Jhalai road section of Delhi-Vadodara greenfield alignment (NH-148N). The NHAI"s estimated project cost is Rs 903.43 crore.

The second project is for construction of an eight-lane carriageway start near village Mui section of Delhi Vadodara greenfield alignment. The NHAI"s estimated project cost is Rs 1,198.93 crore.

IRB Infra commissions Goa-Karnataka border highway project

IRB Infrastructure Developers has commissioned its Goa/Karnataka Border - Kundapur four laning highway project, built at a cost of Rs 3,447 crore. The project has a concession life of 28 years.

Road Ahead

In current FY roads execution is more than roads project award and the reason behind is land acquisition and delay in projects also cost overrun, instead of higher execution trend we are making less road in current FY 27 km per day comparison to previous FY 29 km per day. Asset monetisation, which has been pegged at Rs 10,250 crore for 2020-21, is critical for NHAI to meet its construction targets. NHAI also needs more fund to award projects through EPC route to get more private interest in the sector in coming years.

InfralineEnergy™
Research Report

Trends & Market Outlook for Captive Power in India 2020

Key Highlights

- Current Scenario of Captive Power in India
- Policy Framework for Captive Plants
- Trends in Captive Installations
- Captive Power Forecast
- Captive Power Pricing in India
- Trading Options for Captive Producers

Key Questions Answered

- Captive Power Trends & Prices
- Portfolio for Upcoming Captive Plants
- Captive Power Pricing in India
- Captive Power Outlook for India

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- Policy Makers & Academia
- Captive Power Producers
- Consultants

For Priority Business

Rajesh Singh Panwar

rajesh.panwar@infraline.com

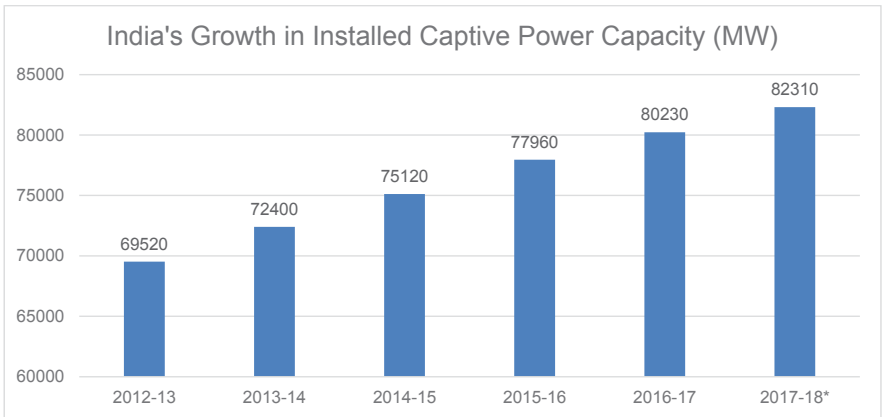
Mob: +91 9711786999

Ph: +91 120 6799125, 160

Executive Summary

Captive power plants have been growing at an aggressive pace in India. As of now, the installed capacity of Captive power plants in India is estimated around 82.3 GW as on March 2018. In 2008, the total installed capacity of captive plants in India, where plants are greater than 1MW in size, was about 25 GW; these constitute around 17 per cent of the total installed capacity in India. Studies have also inferred that it would be beneficial to encourage captive growth in India as this can add the much-needed capacity while increasing competition in the power market. Thus, by encouraging captive capacity addition so far to overcome the power crisis affecting economic productivity, policy makers have in fact devised a way to add the needed generating capacity. The phenomenal growth of captive power plants over the years has created a dual track in the power sector.

India is also faced with the daunting task of balancing its growth and development objectives with the challenge of ameliorating environmental damage and the threat of climate change. The complexity arises from the fact that India's energy use comprises mostly of fossil fuels, making the energy sector one of the greatest contributors to global emissions in the country.



The report will cover the entire Indian Captive Power Market which will give an insight on the market movement for Captive Power Producers. It will also highlight the tariffs and trading options for such producers and everyone across the entire value chain. The report will also come with data sets for all commissioned as well as planned projects for Captive generation in India.

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"Development depends on good communication. The communication between the people doing the job and the ones for whom it is being done"

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Rajesh Singh Panwar - Operation Head
Phone: +91 120 6799125/160, Mobile: +91 9711786999
Email: rs@infraline.com

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