JANUARY 2021, ISSUE 10

IGX
INDIAN GAS EXCHANGE
an IEX venture

GAS Connect

NEWS, INSIGHTS & ANALYTICS

IN THIS ISSUE...

Dear All,

Let me start by wishing you all a very happy, healthy, and prosperous new year 2021. As we enter this new year, it is a good time to pause and reflect on the year gone by and take stock of what lies ahead.

In its path towards a sustainable economy, India has set certain goals with regards to building a robust gas-based economy. Achieving this goal requires a series of sustained measures including a conducive policy and regulatory framework.

The government's recent announcement of transmission tariff and Gas Exchange regulations by PNGRB are amongst the few that will pave the growth path for the gas markets.

For efficient creation of infrastructure in the CGD network, it is crucial to ensure access to infrastructure. MoPNG, along with PNGRB, has formulated access regulations to address this. The PNGRB has recently notified the Access Code regulations for CGD networks on 23rd November, 2020. These regulations will govern processes, such as balancing of the gas system, network planning, allocation of network capacity, to be followed by all pipeline owners unanimously. The regulation will not only foster competition between gas suppliers, but also ensure an efficient utilisation and creation of infrastructure in the CGD network.

While 2020 saw several encouraging regulatory initiatives, there are several other aspects that need to be addressed. To ensure a vibrant gas market, the GoI has envisioned the presence of a System Operator to ensure that the system operates in an efficient,

economic, and coordinated manner. The main objective of a system operator is to schedule gas flows, provide transparent and neutral access, manage secure grid and maintain a continuous balance between the volume of gas injected and volume withdrawn from the network, so that it does not cause any kind of imbalance and ensures the provision of reserves that will allow for sudden contingencies.

The gas sector has been facing enormous challenges on indirect taxes front with the levy of multiple taxes, interpretation issues, C-form related issues, which are adding to the tax cost. The taxes are levied through separate statutes administered by different authorities from Central and State Government. The past year saw extensive discussions on the issue of inclusion of natural gas under the ambit of GST, seeking to replace the plethora of indirect taxes both at the Central (excise duty, CST, etc.) as well as State Government's level (VAT, entry tax, etc.). This will help reduce the cascading effect of taxes and create a common market for natural gas in India.

One of the basic tenet of competition is – separating regulated activity from competitive one. Transmission is regulated and marketing is competitive. This year, we may see key developments taking place towards it.

On the infrastructure front also, we have already added Kochi-Mangaluru pipeline and expect addition of part of Urja Ganga (Jagdishpur-Haldia-Bokaro-Dhamra), Mehsana-Bhatinda, Ennore-Tuticorin and Kochi-Bangalore pipelines in next 1-2 years. In terms of RLNG capacity, we will have 4 mtpa at Jaigarh FSRU. All of these augur well for gas buyers and market. We will also see 11th round of CGD licensing next year.

With these enablers and infrastructure in place, there is hope that this year will bring us closer to achieving the goal of becoming a gas-based economy.

We hope you find this edition of Gas Connect interesting and look forward for your feedback and continued support.

With regards,

Rajesh Kumar Mediratta
Director, IGX

IGX TRADING UPDATES

IGX Trade Details in MMBTU			
Product	**Buy Bids**	**Sell Bids**	**Traded Volume**
Fortnightly	3,43,700	1,80,200	1,500
Total	**3,43,700**	**1,80,200**	**1,500**

Note: Above trading updates are from 10th-31st December, 2020.

LEADERS SPEAK

AN EMERGING GLOBAL GAS MARKET: AN OPPORTUNITY FOR INDIA?

Gergely MOLNAR, Gas Analyst at the International Energy Agency

Provisional data from the International Energy Agency's Gas Market Report Q1 2021, shows that global gas demand shrunk by 2.5% in 2020 or 100 bcm in absolute terms – its largest drop on record. Decreasing demand has naturally weighed on inter-regional gas trade. Preliminary data shows that long-distance pipeline imports fell by over 10%, whilst global LNG trade grew by 2% – a marked slowdown from a growth rate averaging close to 10% per annum between 2016 and 2019.

Signposts of a global gas market

Despite shrinking gas demand and physical trade, the global gas market continued to gain in depth and liquidity in 2020, supported by growing volumes of LNG traded on the spot and the substantial rise of volumes traded on regional gas hubs.

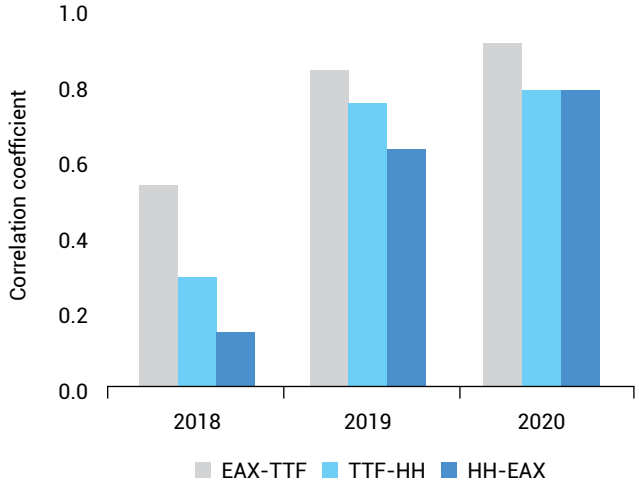
Preliminary shipping data suggests that **LNG traded on spot and short-term basis continued to grow,** increasing by approximately 8% and accounted for 37% of global LNG trade in 2020 – its highest share on record. This share of short-term volumes was driven by the higher net selling positions of portfolio players and uncontracted commissioning cargoes. The United States continued to be the largest source of flexible LNG, with a share of 20% in spot and short-term volumes and accounting for over half of their incremental supply.

Traded volumes on all major regional gas hubs increased, highlighting the growing appetite of market players to hedge their positions along the forward curve.

In theUnited States, volumes traded based on Henry Hub rose by over 17% compared to 2019. In Europe, gas traded on the region's largest hub, the TTF in the Netherlands, grew by 18% y-o-y in the first 11 months of 2020. LNG imported to Europe is increasingly priced against TTF, which effectively serves as a reference for price discovery and a hedging venue for risk management.

The growing liquidity of the global gas market, fuelled by rising volumes of destination-flexible LNG, has been accompanied in recent years by a deepening inter-influence of regional gas hubs. In essence, this means that gas prices in a given market are becoming increasingly sensitive (and responsive) to the supply-demand fundamentals prevailing in regions beyond their immediate geographical reach.

CORRELATION BETWEEN KEY REGIONAL GAS PRICES, 2018-20



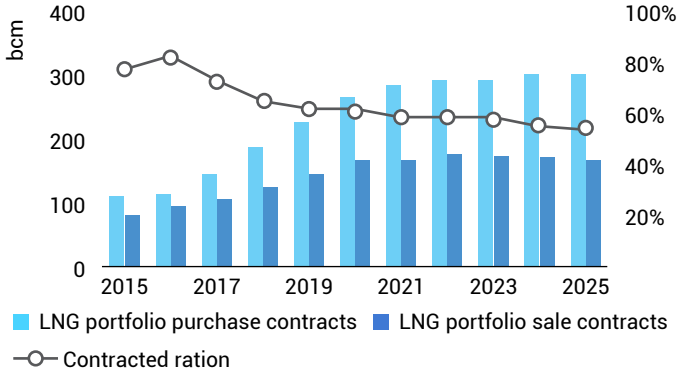
Source: IEA analysis based on ICIS (2020), LNG Edge.

The correlation between TTF and Asian LNG spot prices (EAX) increased from 0.87 in 2019 to 0.95 this year – its highest annual level on record. Similarly, **the correlation between Henry Hub** and TTF and Henry Hub and Asian spot prices continued to increase to reach 0.81 and 0.76 respectively, from relatively low levels just two years ago. The rapid ramp-up of US LNG exports, rising by more than three-fold since 2017, explains the growing inter-influence between Henry Hub and other regional indices.

Outlook for an increasingly flexible global gas market

The current contract portfolio of market players suggest that the flexibility and liquidity of LNG trading is set to grow through the medium-term. The latest edition of the IEA's Global Gas Security Review, estimates that approximately 190 bcm of active contracts will expire between 2021 and 2025, with almost half of the expiring contract volumes destined to the Asia Pacific region. In parallel, the contracted ratio (purchase obligations to sales offtake) of portfolio players is expected to decrease further from 63.3% in 2019 to reach 55.5% by 2025, based on existing contracts in force.

PORTFOLIO PLAYERS' OPEN POSITION WIDENS THROUGH TO 2025



Source: IEA analysis based on ICIS (2020), ICIS LNG Edge.

Without a sharp increase in the volumes sold to end users under term contracts, the share of volumes traded under short-term contractual structures is expected to grow further, providing additional flexibility and optionality to both sellers and buyers.

Moreover, with the gradual expiry of legacy LNG contracts with fixed destination and new flexible contracts entering into force, the share of destination-flexible contracts is set to further increase to account for over half of the delivered gas volumes by 2024. This will furthermore improve the liquidity of the global LNG trade, with LNG cargoes increasingly following the price signals provided by liquid regional gas hubs.

In terms of pricing, the contractual outlook suggests an increased diversification away from traditional oil-indexation, towards contractual arrangements based on hub-linked and hybrid formulae. The current contract portfolio suggests that the share of LNG exports contract based on oil-indexation would fall from close to 70% in 2018 to just above 50% by 2025.

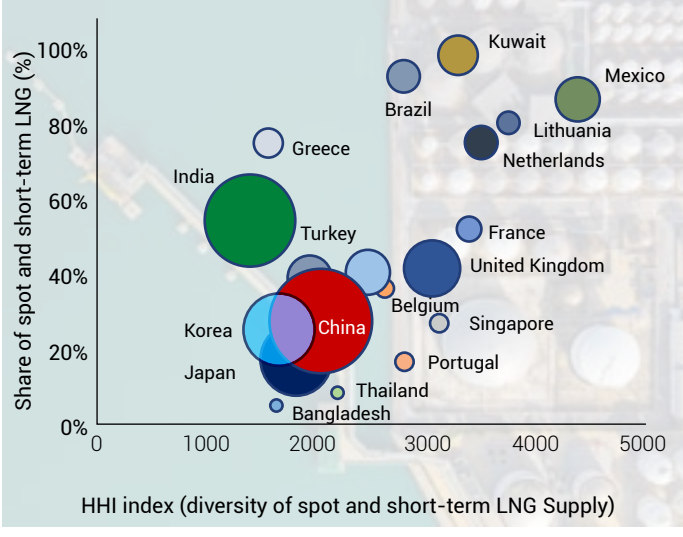
An opportunity for India

India played a key role in the continued growth and development of short and spot LNG trading through the last decade, with its imports under short-term contractual structures rising from 2.5 million tonnes (MT) in 2006 to over 15 MT in 2020.

As such, **India has become the second largest destination of spot and short-term LNG, accounting for over 10% of global imports.** In turn, spot and short-term LNG volumes represent over half of the country's total LNG imports and meet approximately one-quarter of the total gas demand.

Besides being the second largest market for short-term and spot LNG, India displays a high diversity in terms of supply sources. The Herfindahl-Hirschman[1] index of its short-term LNG imports was the lowest globally in 2019, illustrating the underlying high competition for India's contestable market space. India's position as the second largest destination of short-term LNG and the diversity of this supply, makes it an ideal candidate to grow into a regional gas hub.

SHORT-TERM AND SPOT LNG IMPORTS IN 2019



Sources: IEA based on IEA Energy Data Centre (2020), GIIGNL (2020), ICIS (2020).

The government's vision for a gas-based economy, with a target to increase the share of natural gas in the country's energy mix from the current 6.5% to 15% by 2030, is closely interlinked with a liberalisation agenda for the gas market.

The growing liquidity of the global gas market with ample uncontracted supply of LNG, should be seen as an opportunity to fast-track gas market reforms, as they can hugely benefit consumers, reduce import bills and support economic recovery.

In essence, the establishment of a liquid wholesale market would foster competition among suppliers, improve the efficiency of resource allocation, and ensure transparent price discovery. This can serve as an anchor for both domestic and import prices, providing an alternative to other pricing mechanisms, such as oil-linkage or indexation-to other regional gas hubs.

The launch of India's Gas Exchange in June and the announced unified tariff structure for gas pipeline transportation in December 2020, are important steps towards the establishment of a liquid wholesale market and are clear signs that the timeline of gas market reforms in India is speeding up.

The International Energy Agency has been supporting market reform programmes for decades through knowledge sharing and by dissemeninating international expertise via white papers, conferences and dedicated work programmes with Member and Association countries.

Most recently, the Agency has launched its cooperation programme with India on gas markets, which will be followed by a series of technical workshops on gas market reforms. The Agency will present its Quarterly Gas Report in a Gas Webinar at the Indian Gas Exchange on 29th January, 2021.

[1]The Herfindahl-Hirschman Index (HHI) is a measure of the level of concentration in a market. A lower HHI implies a lower concentration and a greater diversity of supply sources.

MEDIA PULSE

APP ASKS POWER MINISTRY TO REINTRODUCE GAS SUBSIDY SCHEME TO REVIVE POWER PLANTS

Economic Times, 21st December 2020

https://energy.economictimes.indiatimes.com/news/oil-and-gas/app-asks-power-ministry-to-reintroduce-gas-subsidy-scheme-to-revive-power-plants/79837571

- The Association of Power Producers (APP) has urged the government to reintroduce gas subsidy scheme for revival of gas-based electricity generation projects in the country.
- APP has also sought dedicated allocation of gas for power sector and inclusion of natural gas under GST regime to maintain 5% tax across the country.
- The body asked for a reintroduction of a modified Electronic Auction of subsidy to buy Regasified Liquified Natural Gas (E-RLNG) scheme to improve the Plant Load Factor (PLF) or capacity utilisation of stressed gas-based power generation plants.
- According to this recommendation, there will be exemptions like 50% reduction on pipeline tariff charges, 75% reduction on marketing margin and 50% reduction on regasification charges.
- APP has also asked for a separate window for gas allocation to power plants.
- Natural gas allocation should be done like coal allocation.
- As per the APP estimates, operationalising gas-based assets can cut down CO2 emissions by 74 million metric tonnes.

SHARE OF NATURAL GAS IN ENERGY BASKET WILL BE MORE THAN DOUBLED: PM MODI

Economic Times, 6th January 2021

https://energy.economictimes.indiatimes.com/news/oil-and-gas/share-of-natural-gas-in-energy-basked-will-be-more-than-doubled-pm-modi/80125552

- PM Modi emphasised his energy roadmap and said that the share of natural gas in India's energy basket will be more than doubled, energy sources diversified and country connected with one gas pipeline grid to bring affordable fuel to all citizens and industry.
- He recently inaugurated the 450 km natural gas pipeline between Kochi in Kerala to Mangaluru in Karnataka to aid India's economic development.
- India has an all-inclusive integrated approach to energy planning. The natural gas pipeline network is being doubled to 32,000 km in 5-6 years.
- Simultaneously, work is being done on the world's biggest hybrid renewable plant combining wind and solar power in Gujarat.
- He also emphasised on manufacturing biofuels as well as electric mobility.
- These efforts will help India move from being dependent on coal and liquid fuels, which produce a significant amount of pollution.

- The share of natural gas transported through pipelines is targeted to be raised to 15% by 2030.
- At the same time, petrol will have 20% of ethanol extracted from sugarcane and other agro-products

MAJOR U.P. HIGHWAYS TO TURN INTO GREEN ENERGY CORRIDORS

Economic Times, 28th December 2020

https://energy.economictimes.indiatimes.com/news/renewable/major-up-highways-to-turn-into-green-energy-corridors/79986888

- The government of Uttar Pradesh has issued guidelines for the supply of piped natural gas (PNG) to industrial development authorities.
- This is done with an aim of environmental conservation and providing safe fuel to industries.
- Measures taken for converting major highways into green corridors to promote pollution free fuel in transport sector.
- Government order has been issued to implement the 'Dig & Restore' policy of urban development department in industrial areas in compliance with PNGRB directives for development of city gas distribution network.
- 4,875 sq. m. land has been earmarked in Bilhaur on Agra-Lucknow Expressway for a green energy corridor.

GAS MARKET HIGHLIGHTS

1. Asian LNG Prices in Spotlight

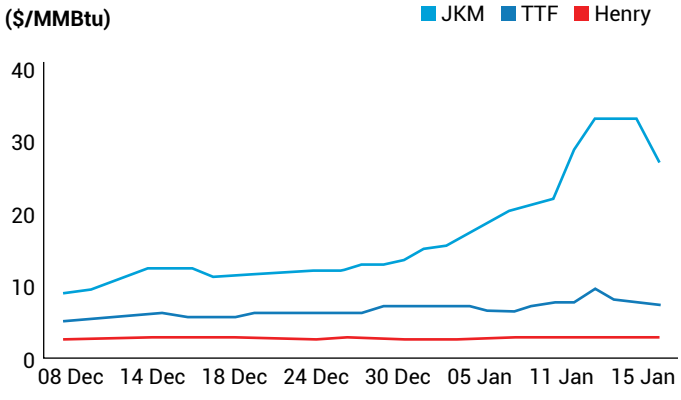
Spot Asian LNG prices are up to more than 1000% since touching a record low below $ 2 per MMBtu in May 2020, during the lockdowns, to stem the spread of the coronavirus.

Global LNG demand jumped about 10% a year from 2017-2019, mostly due to strong growth in China and India.

S&P Global Platts' Japan-Korea-Marker (JKM), a reference point for Asian spot LNG prices for February, was assessed at $ 26.990/MMBtu, while March also weakened to $ 9.826/MMBtu.

High Asian LNG prices have dragged the whole natural gas complex higher. Dutch gas prices traded at the TTF hub, the European benchmark, rose to near three-year highs as LNG cargoes were re-routed to Asia and as speculative buying increased.

NATURAL GAS/LNG



Source: S&P Global Platts

2. US and European hub gas prices - Feb 2021

U.S. Landed vs. European Prices Feb 2021 8 Jan 2021			
U.S. LNG Price ($US/MMBtu)			
Source **GOM**	**Pricing Point** **Henry Hub**	**HH Price** **$ 2.700**	
European NatGas Futures Prices (Eur/MWh & Pound/therm)			
Country	**Pricing Point**	**Local Price MWh or therm**	**Local Price US$/MMBtu**
Belgium	ZTP	€ 20.12	$ 7.209
Czech Republic	CZ VTP	€ 19.66	$ 7.043
France	PEG	€ 20.40	$ 7.309
Germany	NCG	€ 19.58	$ 7.013
Italy	PSV	€ 20.17	$ 7.228
Netherlands	TTF	€ 20.12	$ 7.208
Slovakia	CEGH VTP	€ 18.98	$ 6.798
Spain	PVB	€ 21.85	$ 7.828
UK	NBP	60.69 p	$8.233
Euro Exchange Rate:		1.2225	
Pound Exchange Rate:		1.3566	

Note: U. S. landed price is to the Gate Terminal in the Netherlands, and exclude any regas of European pipeline grid access fees. We estimate the variable portion of such charges range between $ 0.10-0.50 per MMbtu. All local European prices are Eur/MWh, except UK, which is pence/therm

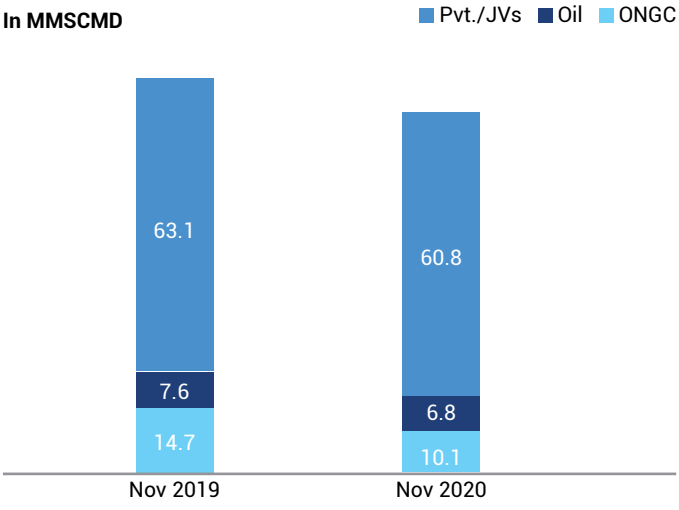
*Negative numbers indicate imported U. S. LNG is more expensive than the local price.

Source: NGI calculations, CME, ICE, EEX, Powernext, CSI, Fearnleys

3. Indian Gas Sector Highlights

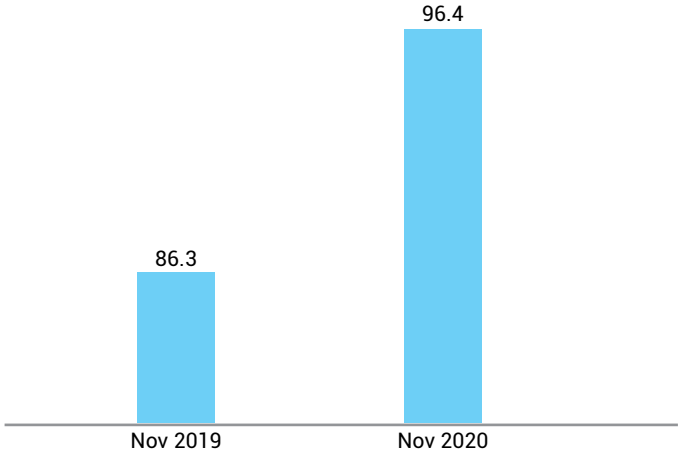
DOMESTIC NATURAL GAS GROSS PRODUCTION

In MMSCMD



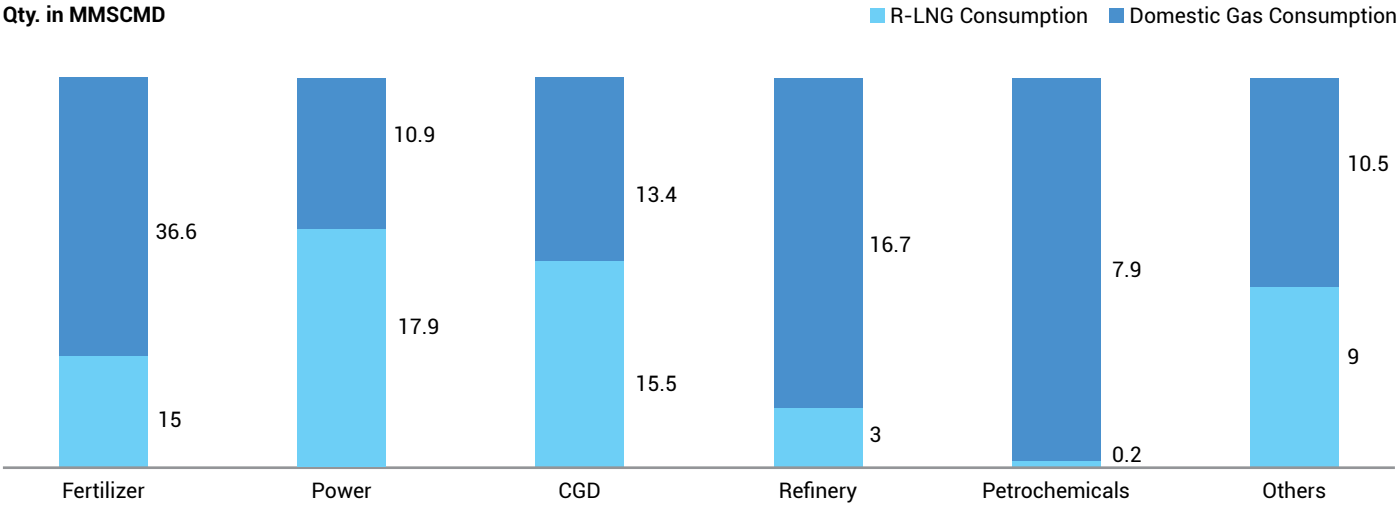
LNG IMPORTS

In MMSCMD



SECTORAL CONSUMPTION OF NATURAL GAS

Qty. in MMSCMD



Source: PPAC.GOV

LNG TERMINALS (OPERATIONAL)			
LOCATION	**PROMOTERS**	**CAPACITY AS ON 1.11.2020**	**CAPACITY UTILISATION IN % APR-SEP 2020 (P)**
Dahej	Petronet LNG Ltd (PLL)	17.5 MMTPA	95.0
Hazira	Shell Energy India Pvt. Ltd.	5 MMTPA	96.9
Dabhol	Konkan LNG Limited	*5 MMTPA	40.9
Kochi	Petronet LNG Ltd (PLL)	5 MMTPA	15.8
Ennore	Indian Oil LNG Pvt Ltd	5 MMTPA	11.3
Mundra	GSPC LNG Limited	5 MMTPA	36.2
Total Capacity		**42.5 MMTPA**	

*To increase to 5 MMTPA with breakwater; Source: PPAC.GOV

MAJOR NATURAL GAS PIPELINE NETWORK AS ON 30.06.2020								
Nature of Pipeline	Operational		Partially Commissioned		Total Operational	Under Construction		Total Length
	Length	Capacity (In MMSCMD)	Length	Capacity (In MMSCMD)	Length	Length	Capacity (In MMSCMD)	
GAIL	8,241	171.6	3,533	-	11,744	6,352	-	18,126
GSPL	2,265	43.0	-	-	2,265	-	-	2,265
PIL	1,460	85.0	-	-	1,460	-	-	1,460
IOCL	132	20.0	23	-	155	1,398	-	1,553
AGCL	105	2.4	-	-	105	-	-	105
RGPL	312	3.5	-	-	312	-	-	312
GGL	73	5.1	-	-	73	-	-	73
DFPCL	42	0.7	-	-	42	-	-	42
ONGC	24	6.0	-	-	24	-	-	24
GIGL	-	-	442	-	442	2,335	-	2,777
GITL	-	-	364	-	364	1,678	-	2,042
Others*	-	-	-	-	-	3,780	-	3,780
Total	**12,654**	**337.3**	**4,362**	**-**	**17,016**	**15,543**	**-**	**32,559**

Source: PNGRB, PPAC; *Others-APGDC, HEPL, IGGL, IMC, Consortium of H-Energy;

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https://forms.gle/5QNHGac5t5tPvML66