

GAS Connect

NEWS, INSIGHTS & ANALYTICS

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Dear All,

The start of this new year has been welcoming. The initiation of the vaccine drive against COVID-19 is the key factor in winning the battle against the pandemic and taking us towards the rejuvenation of the Indian Economy.

There have been exciting developments at the Indian Gas Exchange in the last few weeks. Eminent players from the oil and gas sector - **GAIL (India) Limited, Adani Total Gas Ltd. and Torrent Gas Pvt. Ltd.**, have each acquired a 5% stake in IGX as strategic investors. We look forward to working in collaboration with these companies to build a robust gas markets ecosystem in the country. Together with a conducive policy and regulatory framework provided by the Government, we will consolidate our strengths.

It is interesting to look at the extreme price volatility in International Spot LNG prices over the past 10 months. For instance, JKM benchmark spot Asian LNG price hit an all-time low of \$ 1.825/MMBtu at the end of April 2020, before rising to an all-time high of \$ 32.50/MMBtu in mid-January. The impact of the sudden surge was also seen in the Indian market where most Indian firms paused spot buying after prices skyrocketed. The firms are now returning to the LNG spot market, as prices have receded from record-high levels.

"A gas-based economy is what India needs today," the Prime Minister mentioned recently. In line with this ambition several initiatives have been taken by the Government of India, including the recent announcements in the budget. As conveyed by Hon. Finance Minister Smt. Nirmala Sitharaman, the Government will add 100 more cities to the CGDN (City Gas Distribution Network) and commence the gas pipeline project for the UT of Jammu & Kashmir. The announcement regarding the Independent Gas Transport System will facilitate open access in gas markets, a critical enabler in developing gas markets.

With all these recent and new developments, we are eager to see the journey forward in achieving the said gas-based economy for the nation. Looking forward to your unending support, we hope this edition of Gas Connect piques your interest.

With regards,

Rajesh Kumar Mediratta
 Director, IGX

IGX BUZZ

IGX TRADING UPDATES

IGX Trade Details in MMBtu			
Product	Buy Bids	Sell Bids	Traded Vol.
Monthly	92,400	36,400	5,600

Webinar on “Overview of Recent Global Gas Trends”

29th January, 2021

On 29th January, 2021, IGX and IEA held a webinar on “Overview of Recent Global Gas Trends”, chaired by Mr. Rajesh Kumar Mediratta, Director, IGX, along with Jean Baptiste Dubreuil, Senior Natural Gas Analyst, IEA, Greg Molnar, Energy Analyst – Natural Gas, IEA, and other representatives from IGX.

Key highlights:

- As stated by JB Dubreuil, **“On the 27th January, 2021, a strategic partnership was signed between Government of India and IEA, to build on the existing areas of work within the association and the clean energy transitions programme (CETP), such as Energy Security, Clean & Sustainable Energy, Energy Efficiency, Enhancing Petroleum Storage Capacity in**

India, Expansion of Gas-based Economy in India, etc. Due to the sharp decline in natural gas demand through the first half of 2020, spot prices across all major gas consuming regions displayed strong volatility, whilst the inter-influence between regional gas hubs continued to increase.”

- Mr. Greg Molnar highlighted various factors that should be considered by policy makers that can facilitate development and trading. **“The building bricks of any competitive gas market include a transmission system providing firm physical deliverability, a regulatory framework enhancing midstream flexibility and a hub design facilitating trade.”**
- Concluding Mr. Jean Baptiste Dubreuil said that **“The key cornerstone of any competitive gas market is the establishment of a liquid gas hub, which guarantees that gas is traded in a time and cost-efficient manner. It improves allocation efficiency, supply security and ensures price discovery.”**

EXPERTS SPEAK

Evolution of UK Gas Markets

(By Anuj Mathur, Indian Gas Exchange)

Introduction

While the story of the evolution of the UK market, from a monopoly to full competition, is not directly comparable to the situation in India, it illustrates how natural monopoly assets are regulated to promote efficiency and to ensure shippers contribute positively to the mechanism. This article examines the historical background and the reasons why a successful liberalised gas market was able to develop in UK, along with examining the evolution of natural gas pricing contracts during this period and concluded by depicting the evolutionary path to hub maturity. Indian Gas Markets are currently in their elementary stages and studying the evolution of the UK gas markets will provide insights for the way forward.

Historical Background

Old world (Early Years)

Up until 1986, state-owned British Gas (BG) held monopoly for the sale and distribution of natural gas to end users, controlling the supply from landfall to entire industrial and domestic gas markets.

During this regime, the upstream price of gas was highly variable depending on individually negotiated contract's price and terms. These negotiations were often influenced by government policy, which often changed every few years. Downstream price of gas was based on weighted average cost of gas (WACOG), plus transportation and distribution costs margin plus profit.

The first step in a 10-year long process for facilitating genuine competition came with Gas Act 1986, which removed BG's monopoly (leading to its privatisation) whilst obliging it to sell competitor's gas through its own pipelines, third-party access and established first gas regulator. This enabled end users, above a pre-determined threshold, to buy directly from gas producers. The early opaque bilateral deals formed the basis for over-the-counter (OTC) market creation and compulsory separation between actual commodity trading and transport. Gas price contracts during this period were bilaterally negotiated deals with upstream suppliers usually for 25 years or more; around 85% take-or-pay; prices indexed to lower of basket of fuel oil and gas oil or, basket of fuel oil, gas oil,

inflation, and electricity. The physical balancing of supply and demand was done on monthly basis and took up to 15 days in arrears to settle.

The opening up of the market

Gas Act of 1995, further enforced market liberalisation, established competition, and defined roles of pipeline operators and shippers. Introduction of standard short-term contracts with physical delivery to or from the grid and financial settlement between trading counterparties enabled tightening up of UK balancing regime.

The system of daily balancing established by Network Codes (1996) led to the creation of a Flexibility Mechanism, allowing TSO to trade with shippers (gas suppliers and consumers) for balancing the system. This soon evolved into a short-term trading market called "On-the-day Commodity Market" (OCM), which imitated a spot market and offered an electronic trading system. Network codes were a significant departure from earlier regime and were implemented in 2 phases: "Soft-landing" phase and "Hard-landing" phase.

"Soft-landing" phase (Mar-Sep '96)

Shippers began using standardised short-term contracts, such as "Within Day", "Day-Ahead", "Balance of Week", "Weekend" and "Working days next week", to balance their portfolios (positive/negative imbalances) amongst each other via auctions on daily basis. All successful trades at OCM allowed discovery of volume-weighted average price called System Average Price (SAP). Any resulting imbalance penalties were applied to out-of-balance shippers based on SAP, after considering generous volume tolerances and were non-punitive for an initial period of 7 months from Mar-Sep '96, called "soft-landing" phase.

This phase allowed the industry to adapt to the new regime, overcome significant data quality and submission issues especially for supply-point gas flows.

"Hard-landing" phase (Oct '96-Oct '02)

Commencing in October 1996, this phase took 6 years to be fully introduced and saw gradual tightening of volumetric tolerances by reducing the amount of over or under-delivery of gas that a shipper of transmission grid could make compared to their nominations. Imbalance penalties for out-of-balance shippers were now punitive charges based on "System Marginal Price" (SMP). The volume tolerances were eliminated in Oct '02

System Marginal Prices (SMP) for a given gas day are highest or lowest gas price traded by the TSO on the OCM and are applied to the out-of-balance shippers at the end of each gas day.

- Shippers with positive imbalances (too much gas input into system) receive, for excess gas quantity injected into transmission system, a System Marginal Price Sell (SMPs), i.e., price lower than SAP, equivalent to the lowest price at which TSO acquires gas for a gas day

o $SMPs = SAP - \text{Margin Price}$

- Shippers with negative imbalances (too little gas input into system) pay, for excess gas taken from transmission system, a System Marginal Price Buy (SMPb), i.e., price higher than SAP, equivalent to the highest price TSO receives for selling gas on that gas day

o $SMPb = SAP + \text{Margin Price}$

These soft and hard landings were designed to enable the smooth progression from monthly to daily balancing; improve technical issues related to availability of accurate and timely data to implement within day-traded market for balancing shipper portfolios on a daily basis, without manipulation or difficulties in matching volumes.

Other developments like aggressive market making from traders by quoting tight bid/offer spreads; increased mix of trading participants with varying risk appetites exponentially increased market volumes and introduced non-traditional OTC deals, like futures, swaps, and options.

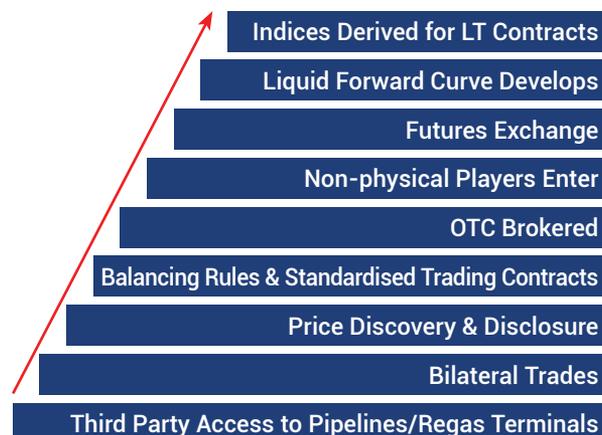
"New World" (Since Oct '02)

Since October 2002, UK gas markets have been trading in the "new world", where all shippers have a primary responsibility to manage their daily end-of-day positions commercially trading at virtual/physical point by the way of accurate input/output of gas from/to the grid or suffer financial penalties. The TSO, acting as residual system balancer, balances the gas grid physically within the day to always maintain safe operating pressure.

Current (Since 2005)

Uniform Network Code replaced Network Code (1996) and

added a new user Distribution Network Operator (DNO). It added new capacity type "NTS Offtake Capacity", which is capacity



Source: OIES

Fig. 1 Evolutionary Path to Hub maturity

at National Transmission System/Local Distribution Zone offtake point that can only be used by distribution network user to take either flat or flexible volume of gas from the national transmission system.

Successful trading markets are characterised by their liquidity, transparency, anonymity, price volatility and volumes traded. The current UK gas market has gone through the evolutionary stages, highlighted in Fig.1 above, to develop competitive gas hub price references for their respective and adjoining markets. Their case study shows that to develop gas markets, a single leap to the finished article is not appropriate. UK did this through firm regulation and has influenced gas hub design in other EU and non-EU member states.

Indian gas markets are at a nascent stage and there is need to observe and learn from international markets in order to achieve India's Gas Vision 2030 and evolve into a gas-based economy. The launch of Indian Gas Exchange in 2020 will bring about the evolution of the gas markets and become a gas trading platform, that facilitates automated trading of natural gas which will allow buyers and sellers to trade on the spot as well as the forward markets. The hope is that IGX shall generate clear signals for making rational economic decisions over consumption and investments in the relatively opaque gas sector in India.

MEDIA PULSE

INDIA NOW LOOKS TO BUILD STRATEGIC GAS RESERVE

Economic Time, 11th January, 2021

<https://energy.economictimes.indiatimes.com/news/oil-and-gas/india-now-looks-to-build-strategic-gas-reserve/80206401>

- ◆ India is aiming to build a strategic reserve of natural gas to further strengthen the country's security and shield itself from supply disruptions and frequent price fluctuations.
- ◆ The reserve will also help the country cope with demand spike and price rise in the event of border skirmishes and war like situations (like that with China).
- ◆ Spot LNG prices are attractively priced to push the initiative on strategic reserve.
- ◆ For building strategic gas reserve, the plan is to inject depleted gas fields with fuel or develop storage in large salt energy caverns.
- ◆ The plan for strategic gas reserves emerges from an official study that suggests that consumption of natural gas would grow two-fold by 2030, resulting in large gap between demand and domestic production.
- ◆ At present, almost half of the domestic consumption of natural gas is met from imports. With the government keen on building a cleaner gas-based economy, consumption is set to rise, pushing up imports of LNG.
- ◆ India has 5.33 million tonne operational underground strategic oil reserve facility at Vishakhapatnam, Mangalore

and Padur. This is further being expanded to augment strategic oil reserves facility with 90-100 days' stock.

- ◆ The strategic gas reserve will work well for the country as it would ensure uninterrupted fuel supply to key infrastructure projects.

BUDGET 2021-22: KEY GAINS FOR PETROLEUM SECTOR

Hindustan Times, 1st February, 2021

<https://www.hindustantimes.com/budget/budget-2021-key-gains-for-petroleum-sector-include-gas-pipeline-project-in-jk-101612168510441.html>

- ◆ In this year's budget FM Nirmala Sitharaman announced key initiatives for the Petroleum and Natural Gas Sector.
- ◆ Firstly, the Ujjwala Scheme, which has already benefitted 8 crore households, will be extended to cover 1 crore more beneficiaries.
- ◆ Additionally, the government will add 100 more districts to the City gas Distribution Network in the next three years.
- ◆ In a major boost for the UT of Jammu & Kashmir and the sector, the government has also announced that a gas pipeline project will be taken up.
- ◆ Another key announcement by the government includes an Independent Gas Transport System Operator, which will be set up for a facilitation and coordination of booking of common carrier capacity in all-natural gas pipelines on a non-discriminatory open access basis.

INDUSTRY HIGHLIGHTS

ASIAN SPOT LNG PRICES RETREAT AFTER SURGE IN JANUARY

(By Camille Klass, Asia Editor, LNG, Argus Media)

Recently, we observed that the Asian spot LNG prices have retreated from their historic high in mid-January, reversing the direction after moving to an unprecedented high from an unprecedented low within the space of nine months. This was mainly due to factors such as firm consumer demand, freezing weather across northeast Asia, and an acute shortage of prompt supplies and spot tanker availability.

The front half-month Argus Northeast Asia (ANEA) price, the assessment for spot LNG deliveries to northeast Asia, had risen 23-fold between its record low of \$ 1.675/mn Btu on 30th April and its all-time high of \$ 39.70/mn Btu on 14th January, with the sharpest gains of \$ 23.30/mn Btu posted over 4th -14th January.

Forecasts for a warmer winter across northeast Asia and increased spot supply availability have reduced the urgency to replenish consumer stocks for the rest of the winter, causing spot prices to significantly tumble from their peak a few weeks ago.

Market participants do not expect prices to delve into the depths they sank to at the end of April last year due to a mild winter that left northeast Asian buyers with a large supply overhang and Covid-19 lockdowns that significantly cut global demand.

The front half-month ANEA price had fallen by around 79 pc from its all-time high on 14th January to \$ 8.395/mn Btu on 3rd February, but was still slightly more than double the level it was in the previous year.

Opportunistic Demand

The recent fall in prices has pushed Asian buyers back into

the market to seek March and April cargoes, after having been side-lined by a seemingly unstoppable upwards momentum, particularly between December and mid-January.

India's state-controlled buyers IOC, Bharat Petroleum and Gujarat State Petroleum have bought a total of 5-6 spot cargoes for delivery in March within a space of three weeks. A few more Indian buyers are also expected to emerge with demand, although this may well be opportunistic and dependent on how much lower prices fall. March cargo purchases reflect earlier unfulfilled requirements that had been pushed back, rather than an increase in monthly demand, market participants say.

Demand from northeast Asian buyers for March and April deliveries appears opportunistic as well, with many buyers holding off any purchases in anticipation of prices falling closer in line with prices for their oil-linked long-term contracted supplies. Most legacy contracts held by northeast Asian buyers are indexed at around 14-15 pc of oil. The Argus Japan oil-linked des price for April was \$ 7.28/mn Btu on 3rd February.

Prospects for Asian Markets

Covid-19 continues to pose a risk to LNG demand, especially given the fresh lockdowns in some parts of China, another state of emergency declared in Japan and extended lockdowns across Europe this year. But northeast Asian buyers do not expect the level of diminished LNG demand last year as governments encourage continued industrial production and economic activity.

Asian spot LNG and European gas hub prices have weakened but continue to hold a significant premium to US feedstock gas costs, reducing the prospect of substantial US cargo cancellations and ensuring continued shipments from the US and ample supply availability across the globe. Weaker demand and lower Asian LNG and European gas prices fuelled the cancellation of around 165 cargoes between June and November last year, helping the market to rebalance and set the stage for the acute supply tightness experienced in December and January.

Market participants are closely eyeing the differential between delivered LNG prices to northeast Asia in April and northwest Europe in March to determine the economics of shipping a US cargo to northeast Asia or Europe. The Argus Round Voyage spot freight rate for shipping a cargo from the US Gulf Coast to the UK was \$ 0.72/mn Btu on 3rd February compared with \$ 1.81/mn Btu to China via the Panama Canal.

Cargo Availability Impact for Asia

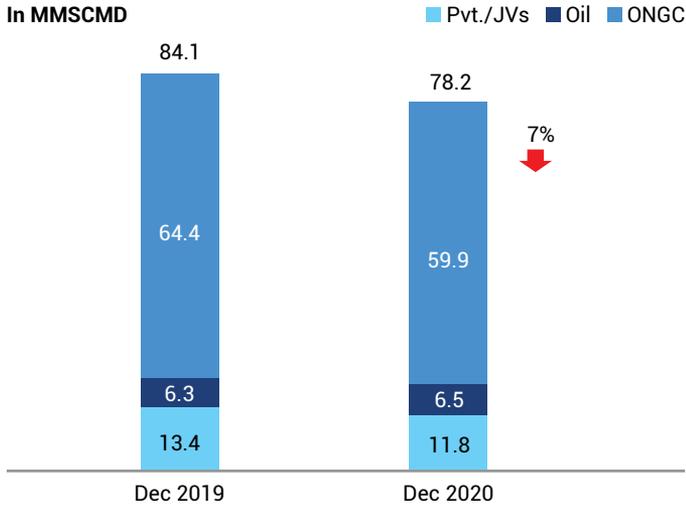
A tight differential could reduce cargo availability for Asia and pull US supplies to Europe, especially as gas storage levels are considerably lower than a year earlier. Storage in Europe was 50.38 pc full on 2nd February compared with 70.76 pc of capacity a year earlier, according to data from gas infrastructure body GIE. The data indicates greater scope for Europe to absorb more US LNG. But a widening differential would attract US cargoes to northeast Asia especially with spot charter rates expected to remain in backwardation through to this year's second quarter.

The Argus-assessed round-voyage rate for a shipment from the US Gulf Coast to northeast Asia by tri-fuel diesel-electric (TFDE) carriers – the ARV3 – has weakened on increased vessel availability to \$ 90,932/d on 3rd February after soaring to an all-time peak at \$ 289,651/d on 13th January.

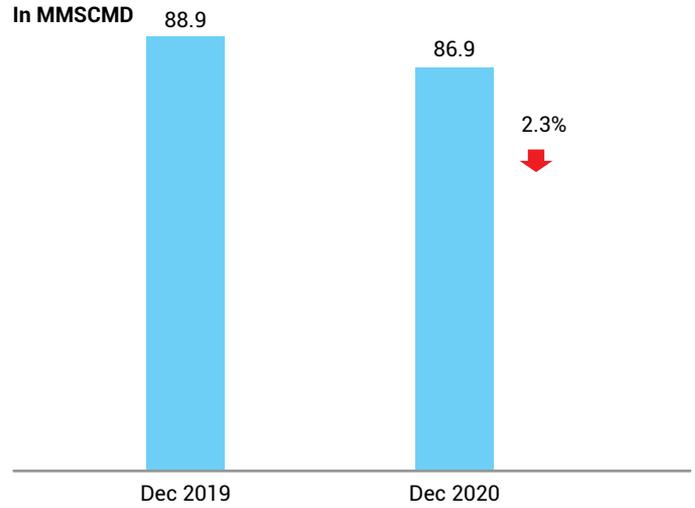
The Argus-assessed price for deliveries to northwest Europe in March of \$ 6.10/mn Btu on 3rd February was at a \$ 0.85/mn Btu discount to the ANEA price for April at \$ 6.953/mn Btu. This discount has narrowed from \$ 0.975/mn Btu on 1st February and is insufficient to cover the additional shipping costs associated with delivering an Atlantic cargo to Asia instead of Europe.

INDIAN GAS SECTOR HIGHLIGHTS

NATURAL GAS GROSS PRODUCTION

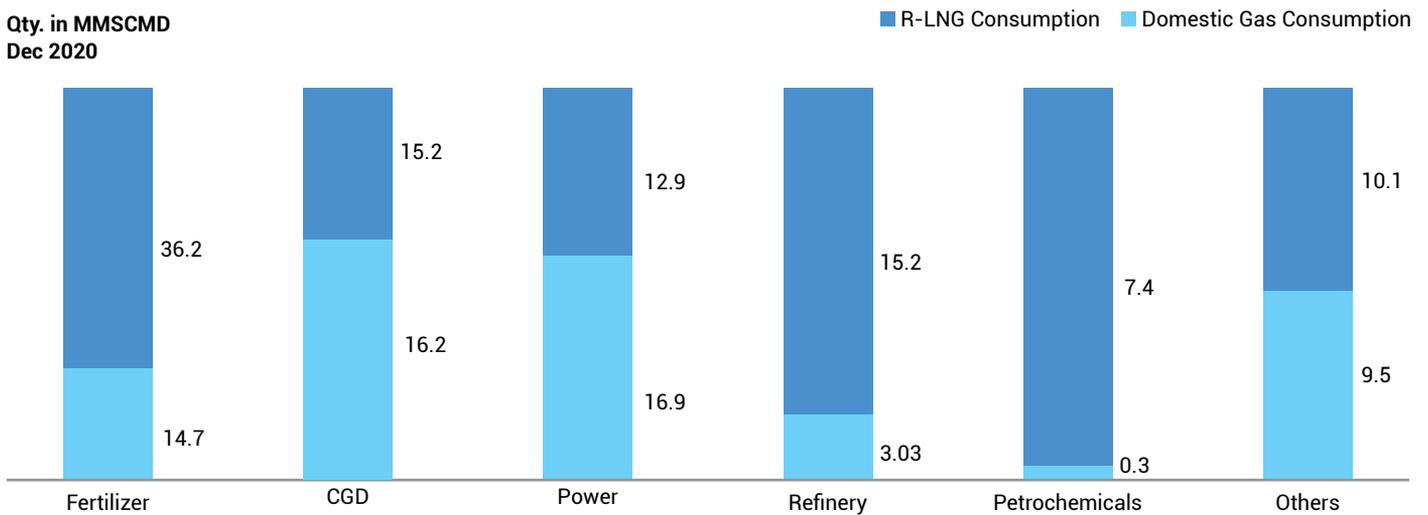


LNG IMPORTS



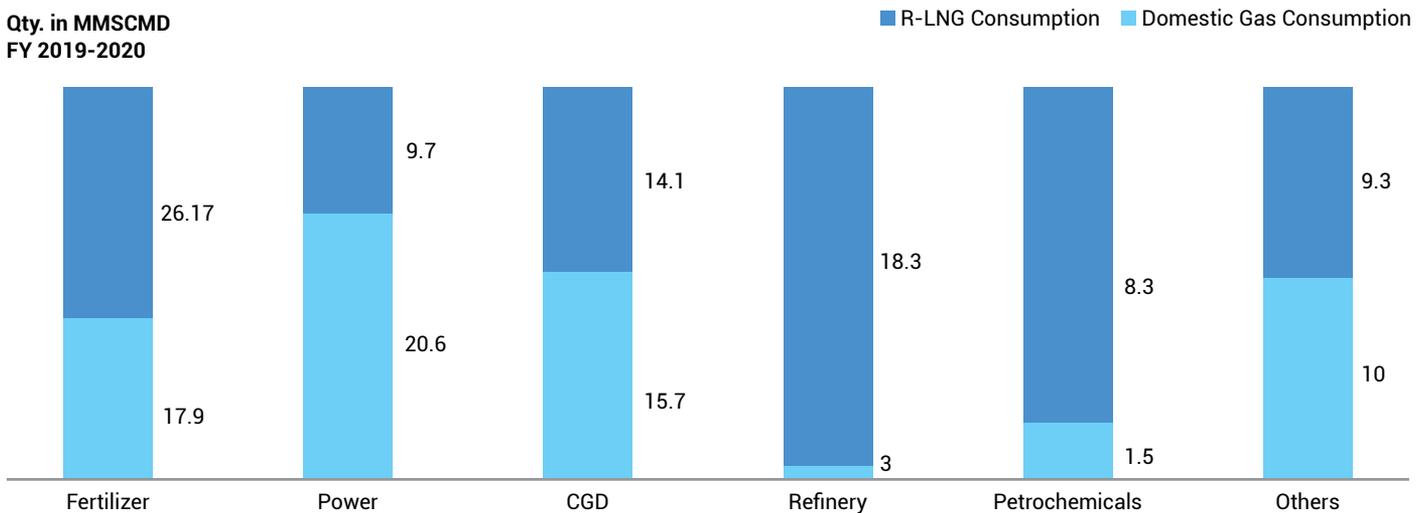
SECTORAL CONSUMPTION OF NATURAL GAS

Qty. in MMSCMD
Dec 2020



Source: PPAC

Qty. in MMSCMD
FY 2019-2020



Source: PPAC

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