

NATURAL GAS

Natural gas is a vital component of the world's energy supply. It is one of the cleanest, safest, and the most useful of all energy sources. Given its growing resource base and relatively low carbon emissions compared with other fossil fuels, natural gas is likely to play a greater role in the world energy mix. Natural gas is a combustible mixture of hydrocarbon gases. While natural gas is formed primarily of methane, it can also include ethane, propane, butane, and pentane. When compressed at a pressure of 250 bars, natural gas is called compressed natural gas (CNG).

APPLICATIONS

Burning natural gas is relatively clean, as it produces about 30% to 40% of less carbon dioxide than petroleum and coal. Natural gas is primarily used in homes, businesses, and factories for heating, cooking, and cooling.

It is increasingly being used as a source of energy for generating electricity through gas turbines and steam turbines. CNG is commonly being used as a fuel for public transport vehicles.

In addition, natural gas is used as a base ingredient in the manufacturing of ammonia, anti-freeze, fabrics, glass, steel, plastics, and paint.

GLOBAL NATURAL GAS PRODUCTION AND CONSUMPTION

Global natural gas production stood at 1,38,505 Million MMBtu in 2022. Gas production in Inida Stood at 1,077 Million MMBtu registering a growth of 6% during 2023.

Natural gas consumption stood at 1,36,831 Million MMBtu in 2023. Gas consumption in India stood at 2,136 Million MMBtu registering a growth of 7.5% in 2023.

PRICE-MOVING FACTORS

- Natural gas inventory data
- US weather conditions and active hurricane season poses a threat to US Gulf Coast's
- Natural gas production
- Price of crude oil
- Industrial and residential demand in the U.S.

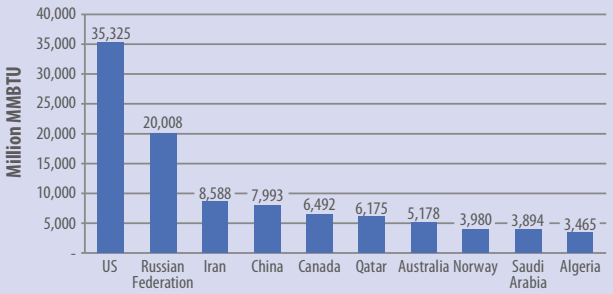
LEADING EXCHANGES DEALING IN NATURAL GAS FUTURES

- New York Mercantile Exchange (NYMEX)
- Intercontinental Exchange (ICE)
- Multi Commodity Exchange of India Ltd. (MCX)

FRACTIONS OF NATURAL GAS

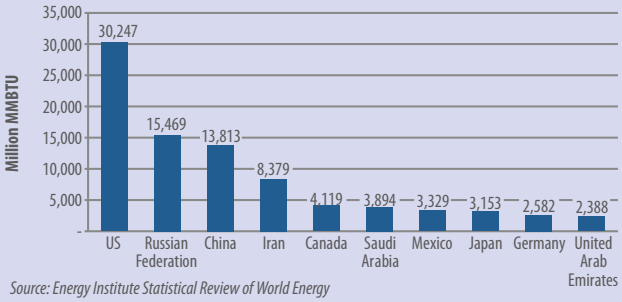
FRACTION	COMMON NAME	APPLICATIONS
C1	Methane	Fuel and feedstock for urea plants and fuel for power plants
C2	Ethane	Production of petrochemicals
C3	Propane	Production of petrochemicals, liquified petroleum gas (LPG), auto fuels, and industrial fuels
C4	Butane	Production of LPG
C5 and heavier	Other fractions	Production of solvents and pentane

GLOBAL PRODUCTION 2023



Source: Energy Institute Statistical Review of World Energy

GLOBAL CONSUMPTION 2023



Source: Energy Institute Statistical Review of World Energy

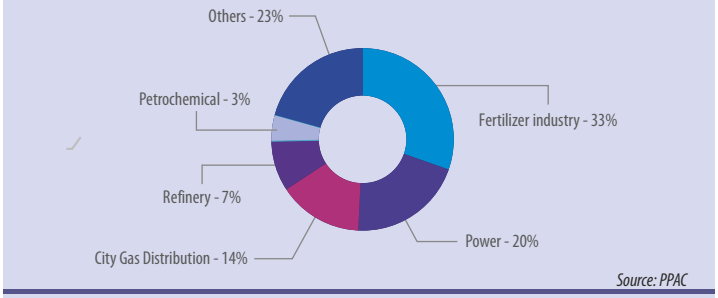


INDIAN SCENARIO

Net production of natural gas in India during FY24 stood at 1,477 Million MMBtu and LNG imports stood at 1,227 Million MMBtu

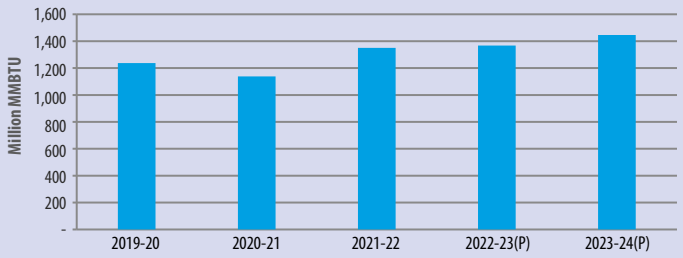
LNg imports were 46% of total gas consumption and growth in LNG imports during FY24 stood at 16%.

INDUSTRY-WISE CONSUMPTION OF NATURAL GAS IN INDIA DURING FY 2023-24



Source: PPAC

INDIA'S NATURAL GAS GROSS PRODUCTION

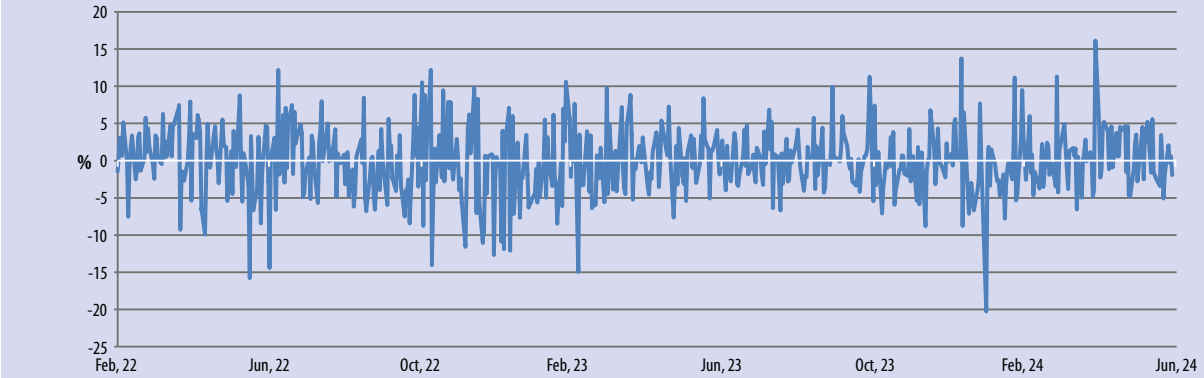


Source: PPAC

BENEFITS OF TRADING ON MCX

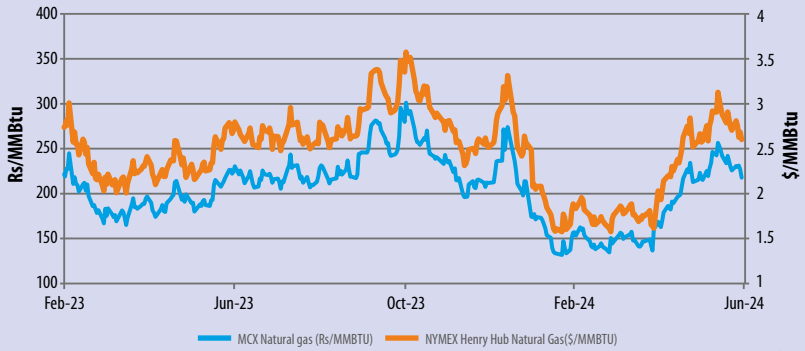
- Standardized, accepted, and liquid financial instruments
- Cost-efficient trading and risk management opportunities
- Trading in an anonymous and secure environment
- MCX futures prices closely mirror world benchmark prices
- MCX offers a fair, and orderly trading platform protected by its rigorous operational standards and surveillance procedures
- Performance of futures contracts is supported by a strong financial system, backed by the exchange's clearing members, including some of the strongest names in the brokerage and banking industries

MCX NATURAL GAS VOLATILITY IN %



Source: MCX

Correlation between MCX Natural Gas prices and NYMEX Henry Hub Natural gas price



Source: MCX & Refinitiv

IMPORTANT WEB SITES

www.eia.gov.in
www.petroleum.nic.in
www.cmegroup.com
www.ppac.gov.in

CONTRACT SPECIFICATIONS OF NATURAL GAS AND NATURAL GAS MINI FUTURES CONTRACTS

Symbol	NATURALGAS	NATGASMINI
Description	NATURALGASMMMYY	NATGASMINIMMMYY
Contract Listing	Contracts are available as per the Contract Launch Calendar.	
Contract Start Day	As per the Contract Launch Calendar.	
Last Trading Day	As per the Contract Launch Calendar.	
Contract Duration	Maximum of 3 months, at any point of time 3 calendar months will be available for trading.	
Trading		
Trading Period	Mondays through Fridays	
Trading Session	Mondays through Friday: 9.00 am to 11.30/ 11.55 pm*	
Trading Unit	1,250 mmBtu	250 MMBtu
Quotation/ Base Value	Rs. per mmBtu	
Maximum Order Size	60,000mmBtu	
Tick Size (minimum price movement)	10 paise (0.10 rupees)	
Daily Price Limits	The base price limit will be 4%. Whenever the base daily price limit is breached, the relaxation will be allowed upto 6% without any cooling off period in the trade. In case the daily price limit of 6% is also breached, then after a cooling off period of 15 minutes, the daily price limit will be relaxed upto 9% In case price movement in international markets is more than the maximum daily price limit (currently 9%), the same may be further relaxed in steps of 3%.	
Initial Margin*	Minimum 10% or based on SPAN whichever is higher	
Extreme Loss Margin	Minimum1%	
Additional and / or Special Margin	In case of additional volatility, an additional margin (on both buy & sell side) and/ or special margin (on either buy or sell side) at such percentage, as deemed fit, will be imposed in respect of all outstanding positions.	
Maximum Allowable Open Position	For individual client: 60,00,000 mmBtu Or 5% of the market wide open position, whichever is higher, for all Natural Gas contracts combined together. For a member collectively for all clients: 6,00,00,000 mmBtu or 20% of the market wide open position, whichever is higher, for all Natural Gas contracts combined together.	
Quality Specifications	Natural Gas meeting the specifications set forth in the FERC approved tariff of Sabine Pipe Line Company.	
Due Date Rate (Final Settlement Price)	Due date rate shall be the settlement price, in Indian rupees, of the New York Mercantile Exchange's (NYMEX)# Natural Gas (NG) front month contract on the last trading day of the MCX Natural Gas contract. The last available RBI USDINR reference rate will be used for the conversion. The price so arrived will be rounded off to the nearest tick. For example, on the day of expiry, if NYMEX Natural Gas (NG) front month contract settlement price is $3.440 per mmBtu and the last available RBI USDINR reference rate is 80.4205, then DDR for MCX Natural Gas contract would be Rs. 276.60 per mmBtu (i.e. $3.440 x 80.4205 and rounded off to the nearest tick.)	Due date rate shall be the settlement price, in Indian rupees, of the New York Mercantile Exchange's (NYMEX)# Natural Gas (NG) front month contract on the last trading day of the MCX Natural Gas Mini contract. The last available RBI USDINR reference rate will be used for the conversion. The price so arrived will be rounded off to the nearest tick. For example, on the day of expiry, if NYMEX Natural Gas (NG) front month contract settlement price is $3.440 per mmBtu and the last available RBI USDINR reference rate is 80.4205, then DDR for MCX Natural Gas Mini contract would be Rs. 276.60 per mmBtu (i.e. $3.440 x 80.4205 and rounded off to the nearest tick.)
Settlement Mechanism	The contract would be settled in cash	

** A) The Margin Period of Risk (MPOR) shall be in accordance with SEBI Circular no. SEBI/HO/CDMRD/DRMP/CIR/P/2020/15 dated January 27, 2020. For applicable minimum MPOR, refer latest circulars issued by MCXCCL from time to time.*
B) For all the applicable margins, refer the latest circulars issued by Multi Commodity Exchange Clearing Corporation Limited (MCXCCL) from time to time.



SALIENT SPECIFICATIONS OF NATURAL GAS AND NATURAL GAS MINI OPTIONS CONTRACTS

Symbol	NATURALGAS	NATGASMINI
Underlying	Underlying shall be Natural Gas Futures contract traded on MCX	Underlying shall be Natural Gas Mini Futures contract traded on MCX
Description	Option on Natural Gas Futures	
Option Type	European Call & Put Options	
Expiry Day (Last Trading Day)	Two business days prior to the Expiry day of the underlying Futures Contract	
Trading Unit	One MCX Natural Gas Futures Contract (1,250 MMBTU)	One MCX Natural Gas Mini Futures Contract (250 MMBTU)
Underlying Quotation/ Base Value	Rs. / MMBtu	
Strikes	15 In-the-money, 15 Out-of-the-money and 1 Near-the money (31 CE and 31 PE). The Exchange, at its discretion, may introduce additional strikes, if required.	
Strike Price Intervals	Rs. 5	
Tick Size (Minimum Price Movement)	Rs. 0.05	Rs. 0.05
Daily Price Limit	The upper and lower price band shall be determined based on statistical method using Black76 option pricing model and relaxed considering the movement in the underlying futures contract. In the event of freezing of price ranges even without a corresponding price relaxation in underlying futures, if deemed necessary, considering the volatility and other factors in the option contract, the Daily Price Limit shall be relaxed by the Exchange.	
Margins	The Initial Margin shall be computed using SPAN (Standard Portfolio Analysis of Risk) software, which is A. Price Scan Range – 3.5 B. Volatility Scan Range – 10 % (or such other % as prescribed by MCXCCL based on risk framework) C. Short Option Minimum Margin – 10% (or such other margin as prescribed by MCXCCL based on risk framework) D. Extreme Loss Margin – Minimum 1% (or such other margin as prescribed by MCXCCL based on risk framework) E. Premium of buyer shall be blocked upfront on real time basis The Margin Period of Risk (MPOR) shall be at least three days (or such other margin period of Risk (MPOR) as prescribed by MCXCCL based on risk framework). Parameters would be reviewed and changed, if required.	
Premium	Premium of buyer shall be blocked upfront on real time basis.	
Margining at client Level	Initial Margins shall be computed at the level of portfolio of individual clients comprising of the positions in Futures and Options Contracts on each Commodity	
Maximum Allowable Open Position	Position limits for Options would be separate from the position limits applicable on Futures Contracts. For individual clients: 120,00,000 MMBtu or 5% of the market wide open position, whichever is higher for all Natural Gas Options Contracts combined together. For a member collectively for all clients: 12,00,00,000 MMBtu or 20% of the market wide open position, whichever is higher for all Natural Gas Options Contracts combined together. Upon expiry of the Options Contract, after devolvement of Options position into corresponding Futures positions, open positions may exceed their permissible position limits applicable for Future Contracts. Such excess positions shall have to be reduced to the permissible position limits of Futures Contracts within two trading days.	
Exercise Mechanism at expiry	All In the money (ITM)# option contracts shall be exercised automatically, unless 'contrary instruction' has been given by long position holders of such contracts for not doing so. The ITM option contract holders, who have not submitted contrary instructions, shall receive the difference between the Settlement Price and Strike Price in Cash as per the settlement schedule. In the event contrary instruction are given by ITM option position holders, the positions shall expire worthless. All Out of the money (OTM) option contracts shall expire worthless. All devolved futures positions shall be considered to be opened at the strike price of the exercised options. All exercised contracts within an option series shall be assigned to short positions in that series in a fair and non-preferential manner. #ITM for call option = Strike Price < Settlement Price | ITM for put option = Strike Price > Settlement Price	
Due Date Rate (Final Settlement Price)	Daily Settlement Price of underlying Futures Contract on the expiry day of Options Contract.	

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