



INDIAN GAS-BASED POWER PLANTS: A Regulatory Paradox

India's emerging gas story is deeply connected with its critical economic transitions in mobility, urbanisation and reliability in an increasingly market based system. India will account for one third of the growth in global energy demand in the coming decades and developing the country's natural gas markets will aid India's ability to meet the demands of a growing middle class in a modernising economy. ¹

Move Towards a Gas-Based Economy

As part of its ambition to develop India as a gas-based economy and diversify the energy mix, and increasingly employ gas as a way to meet the climate challenge, India's Ministry of Petroleum and Natural Gas has set a goal to increase the share of natural gas in India's primary energy mix from the current 6 percent to 15 percent in the next ten years. India is at an inflection point for gas markets, with supportive government policies, appropriate market structures and a positive investment climate.²

With domestic production in short supply, consumption levels devalue potential demand. With India being the world's 4th largest LNG importer, gas imports have placed significant pressure on the Indian economy with the government looking at ways to improve production whilst allocating gas to critical demand centers such as the City Gas Distribution (CGD) network, fertiliser plants and power plants. However, according to industry estimates, India's gas deficiency will continue to rise in the coming years.

Government Initiatives to Promote Natural Gas

To promote a gas-based and clean fuel economy, the government in India has developed the following measures:

- Gas sources either through domestic gas exploration and production (E&P) activities or through building up facilities to import natural gas in the form of liquified natural gas (LNG);
- Adequate gas pipeline infrastructures including the nationwide gas grid and the CGD network; and
- Gas consuming markets including fertiliser, power, transport and industries.



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¹India Gas Story – USISPF

²MoPNG – <http://petroleum.nic.in/>

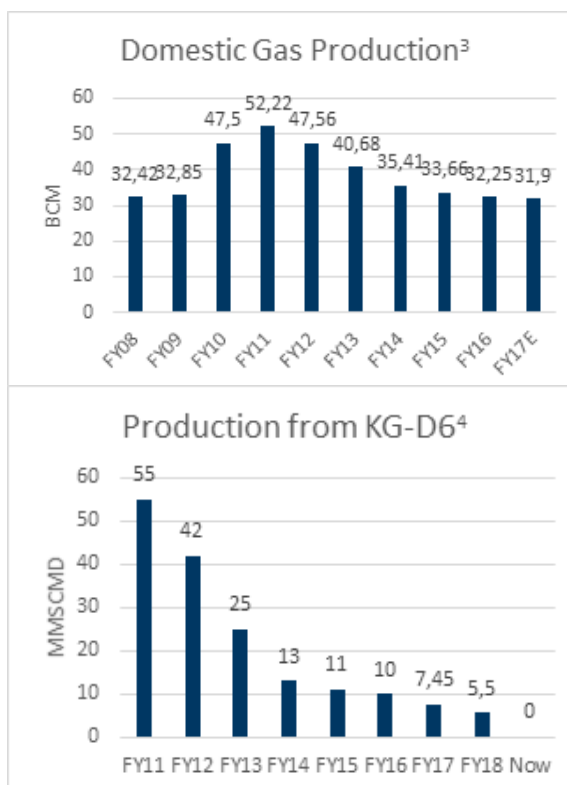
There have been a number of significant initiatives that have been undertaken to enhance the domestic natural gas production, expand the gas pipelines and secondary infrastructure and develop gas consuming markets including:

- 100 percent Foreign Direct Investment (FDI) in multiple segments of the hydrocarbon sector.
- Introduction of the Hydrocarbon and Exploration Licensing Policy (HELP).
- Ministry of Petroleum and Natural Gas India launched the DSF, with the motive of extracting the oil and natural gas from the un-monetised small oil/gas discoveries that are available in the country.
- Linkage of gas prices to the market/important hub prices under the New Domestic Natural Gas Price Guidelines of 2014.
- Marketing and pricing freedom for new gas production from Deepwater, Ultra Deepwater and High Pressure-High Temperature areas, subject to certain conditions.
- Marketing and pricing freedom for gas produced from Coal Bed Methane (CBM) fields to incentivise CBM operations in the country.
- A capital grant of 40 percent for the development of a 2,650 km-long Jagdishpur-Haldia & Bokaro-Dhamra natural gas pipeline to ensure the supply of natural gas to eastern India.
- Reduction of basic customs duty on LNG from 5 percent to 2.5 percent in the 2017 federal budget to boost LNG demand in industrial and commercial sectors, especially power, petrochemical, fertiliser and CGD, and also help in reviving stranded capacity of power and fertiliser plants.
- Gas pooling mechanism for the fertiliser sector to encourage utilisation of fertiliser units in the country.
- Priority for allocation of domestic gas granted to Piped Natural Gas (PNG)/Compressed Natural Gas (CNG) segments to meet 100 percent of their demand and faster roll out of PNG connections and NG stations to promote the use of natural gas in the transport sector, households and small industries.

India Power Sector – Gas Woes

India's total installed power capacity stood at 345 Gigawatt (GW) at the end of September 2018. Of this, 7.2 percent or 25 GW comprised gas-based power plants. However, gas-based projects were responsible for only 3.8 percent or 49.77 billion units of India's total electricity generation in the last financial year 2017-2018. This was mainly due to the total gas-based installed capacity of 24,867 MW. 14,305 MW of gas-based capacity is currently stranded due to non-availability of domestic gas and unaffordability of imported gas.

India's natural gas-based power plants have been reeling under an unexpected decline in domestic production and the high cost of imports. The domestic supply was mainly dependent on expectations of a boom in supplies from Reliance Industries Ltd.'s KG-D6 oil and the gas block. However, the block was permanently shut down after production declined to zero.



Stranded Assets

According to the Power Ministry, 31 gas-based power plants have been declared stranded, of which one belongs to the central government, six belong to the state-government and 24 plants belong to the private sector.⁵

The normative gas requirement to operate the existing gas-based power plants of 23,813 Mw capacity at 85 percent Plant Load Factor (PLF) is approximately 102 Million Standard Cubic Meter per Day (MMSCMD). However, the total domestic gas allocated to gas-based power projects is 87.05 MMSCMD and the average gas supplied to these gas-based power plants during the year 2017-18 was only 30.72 MMSCMD, including 7.92 MMSCMD of imported RLNG).⁶

The gas grid connected capacity had received 21.16 MMSCMD gas during 2017-18 and achieved average PLF of around 20 percent only and gas-based capacity connected with isolated gas fields had received 9.55 MMSCMD gas and achieved a PLF of 51 percent. Therefore, the average PLF of gas-based generation capacity in the country during 2017-18 is approximately 22.86 percent.⁷

^{3,4} <https://qz.com/india/1516472/government-policies-are-turning-indias-gas-power-plants-to-junk/>

^{5,6,7} <https://energy.economictimes.indiatimes.com/news/oil-and-gas/sbi-chairman-says-no-future-for-gas-based-power-plants-in-the-country/67384877>

⁸ <https://www.livemint.com/Industry/TGOYIFT1w45mib2JuXAGM/India-Lawmakers-Panel-Seeks-Gas-Subsidy-to-Revive-Power-Pla.html>

⁹ http://164.100.47.193/Isscommittee/Energy/16_Energy_42.pdf

Investment Turned Bad

Thirty-one plants, comprising nearly 60 percent of India's 24.9 gigawatts gas-power capacity, are struggling to repay their debt as fuel shortages affect operations, potentially pushing them into bankruptcy. Developers have invested roughly 650 billion rupees (USD\$9.3 billion) in the stranded gas power plants, including bank loans of about 500 billion rupees (USD\$7.15 billion).⁸

High Delivered Cost & Offtake

Apart from the basic cost of domestic natural gas/RLNG, VAT (as high as 26 percent), CST and entry tax, pipeline tariff, marketing margin by gas transporter is levied. Furthermore, in the case of RLNG, service tax on regasification is levied. In the new GST regime, natural gas has been kept outside of GST which is a huge impediment to development of the gas-based power sector in India.

With a higher cost of power produced from gas-based plants, the DISCOMS refuse to buy as they adhere to the Merit Order despatch formulation, prioritising low cost power, further compounding the issue.

Comparing the cost of delivered price for power plants domestic gas vis-à-vis RLNG below:⁹

Domestic Gas	Base price + transportation cost + various taxes and duties etc.
RLNG	Imported gas price at port + regasification cost (1-1.5\$/MMBtu) + Transportation cost (1.0\$/MMBtu) + Marketing margin (0.5\$/MMBtu) + various taxes and duties etc.

Perceived Outlook

In view of the of the current challenges faced by gas-based power plants in India, the following measures may be implemented across the value chain to ensure energy supply for the country and at the same time, optimise returns for stakeholders:

- **Inclusion of Natural Gas under GST** – As India moves towards rationalising its tax structure with the rollout of GST in July 2017 and subsequent inclusion of energy sources such as coal, has put gas at a disadvantage in terms of being a preferred fuel source due to the higher levy of taxes and uncertain tax structure.

- **Review of current gas pricing formula** – One of the major concerns of the domestic gas producers has been artificially low prices as per various pricing formulas devised by the government over the years. Even the current pricing of \$3.69/mmBtu is insufficient for domestic gas breakeven for the producers and the six-month window always creates hurdles for longer-term planning.

- **Prioritisation of gas-based plants** over non-core sectors under the guidelines for allocation of domestic gas.

- As an effective measure to ensure grid stability, gas-based power plants must be operationalised as **Peaking Plants**.

- Implementation of **Report of the Committee on 'Stressed/Non-Performing Assets in Gas based Power Plants'** at the earliest.

- **Pooling of RLNG with domestic gas** with increased supply from new and upcoming fields such as ONGC deepwater fields.

- **Incentivising the DISCOMs** – As an effective policy measure the government must look at incentivising the DISCOMs directly to further lower the per unit cost for the consumer. As power supply from gas-based plants compete with thermal and RE sources, incentivising gas power will be an important step towards achieving significant price parity.

- Revisit policy measures such as **merit order dispatch and compulsory offtake** from DISCOMs.

- **Rationalisation** of gas value chain prices and continued thrust towards **infrastructure creation** viz. – LNG terminals, pipelines and gas grids.

- **Reintroduction** of schemes such as the eBid RLNG Scheme which was introduced in 2015.

- **Allowing** gas-based power plants to sell power on power exchanges without depending on PPAs.

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