



Natural Gas: A Strong Enabler for Indo-US Energy Partnership

US perceives natural gas as an effective tool for strategic partnership with other countries. Given India's quest of cleaning its energy system, it serves an incredible opportunity for both the countries. The past trend has been healthy, but a deeper collaboration on natural gas requires engaging on issues of knowledge transfer, investment and regulatory reforms. This Policy Note discusses some pertinent challenges.

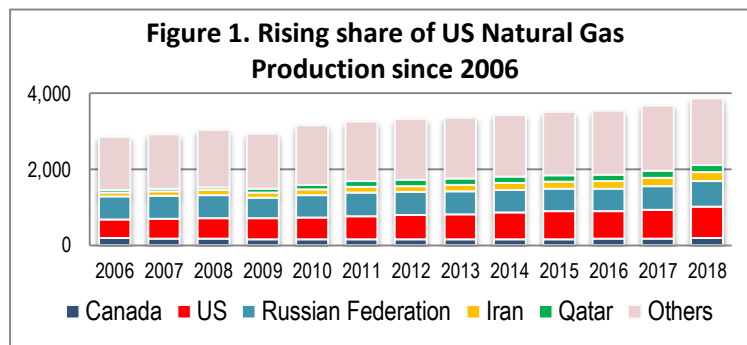
Background

United States (US) Natural gas production hit a record high in 2018. The production from 2017 to 2018 grew at a rate of 11.5% compared to average growth rate of 3.6% for 2007-17.

As a result, US now commands [22% of the overall natural gas production in the world](#). Intensifying rig activity and further infrastructure development suggests that the production growth rate in future will remain strong. US net natural gas exports in February 2019 stood at 4.6 Bcf/d, [making it net exporter of natural gas for consecutive 13 months](#).

As per a forecast by Energy Information Administration, the US net natural gas exports will average 4.7 Bcf/d in 2019 and 7.5 Bcf/d in 2020 primarily driven by LNG exports. Given the investment to the tune of USD \$1.3 trillion in last couple of years in LNG liquefaction capacity, it is projected that US LNG export capacity will reach 8.9 Bcf/d by the end of 2019, making it the largest in the world behind Australia and Qatar. US perceives LNG as a key strategic tool for long-term partnership with friends and allies in the world.

This is an opportunity for India to firm up its energy transition and bolster its strategic engagement with United States. Oil and gas is intended to be one of the four pillars of cooperation under the US-India Strategic Energy Partnership. While US leads the production of Natural Gas, there have been developments elsewhere



such as investment in LNG and natural gas projects in Asia-Oceania that makes a strong case for natural gas transition in India.

The Opportunity

Unlike oil, India's use of natural gas is still limited with

highest consumption in FY 2011-12 at 5.8 Bcf/d, experiencing a continuous downtrend afterwards. Overall natural gas consumption in FY18-19 has just come up to level in FY11-12. Natural gas is being anticipated as the fuel of the future as it is cleaner compared to other fossil fuels, particularly the low-quality coal that dominates in India. In cooking sector, there are plans to replace dominantly used LPG with PNG, whereas in transport, LNG and CNG can replace heavily used petrol and diesel, reducing air pollution in cities.

Nevertheless, owing to fast ramp rates and flexibility of gas-based power generation, it has great compatibility with planned renewable intensive power generation capacity.

Globally, Natural gas has taken a mainstream role in this context, given its abundant availability around the world, and efforts made by countries through policies and partnership to absorb the surplus.

In 2016, out of total LNG traded around the world, 70% of that was imported in Asia Pacific. Currently, it is the second biggest region in terms of natural gas consumption and with its high demand growth at 5.0%, its consumption is expected to surpass all the other

regions by 2020. Though the consumption within Asia is mainly anchored by countries such as Japan, South Korea and China, but [India intends to increase the share of Natural Gas in its energy mix](#), taking it to 15% from current 8% by 2022.

The Challenge

Natural gas has not been able to strengthen its position in the Indian energy markets because of three key reasons.

First, in the power sector it competes with cheap, albeit poor quality, domestic coal. The problem is further compounded by irrational subsidy structure which demotivates users in other sectors for a natural gas switch.

Second, is the issue of reliability. India has been unable to tap Natural Gas from Middle East and neighboring countries because of geo-political challenges, and then domestic supply in past has been unstable. Supply constraints, further compounded by existing domestic gas allocation policy, stranded more than half of India's gas-based power generation capacity as per a report tabled by Standing Committee on Energy.

Third, nevertheless, the greatest concern related to natural gas is the inefficient and regulated market structure which does not operate based on demand-supply dynamics. Domestic gas pricing formula links price with the average of four Global benchmark prices for the last year, locking it for a period of 6 months, which remains out of sync with current international prices.

Imported gas price, on the other hand, is linked with a crude oil benchmark, costlier compared to domestic gas generally. Such price contrast creates distortions and inefficiencies in market. It has discouraged domestic producers from expanding their capacities who might find that gas prices are not worth the effort and investments.

On a positive note, Indian Government has started giving freedom for gas pricing under its new Hydrocarbon Exploration Licensing Policy, but this is not the case for existing gas fields. Therefore, the challenge to provide access to cost-effective abundant supply of natural gas to consumers persists.

Developing a Robust Natural Gas Market in India

Henry Hub in US is one of the most successful gas market hubs, with a large futures market linked to the price index at the hub, serving as a benchmark indicator of the value of gas in the United States. The

development of gas market hub in US can provide important lessons for India.

There are some key [prerequisites for development of a typical gas hub in a region](#), such as multiple independent individual buyers and sellers,

who have non-discriminatory access to transport facilities, trading liquidity, clear and transparent pricing and volume reporting by concerned reporting entities.

Therefore, regulation of gas prices, vertically integrated industry structure and restrictions on third party access to transport facilities and terminals are inherent barriers to creation of a competitive gas market in India.

Asian countries are also unique in terms of hub development, provided the geography, heavy reliance on LNGs, long term contracts and associated destination clauses.

Apart from regulatory hurdles, development of such hubs is challenged by unavailability of sufficient physical infrastructure and regional inter-connectivity. There have been efforts in Japan, China, South Korea and India to establish a trading hub through more spot-based purchases and change of destination clauses.

Conclusion

India has been importing about 9 MTPA of LNG under long-term contract from US. But, both the countries can work on developing a robust and efficient gas market within India by moving to a short term contractual regime under the proposed Indo-US strategic partnership.

It would require necessary policy and regulatory support and investment in infrastructure. Simultaneously, India also needs to engage with American companies to develop its own domestic resources, rather than relying solely or majorly on imports.

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