TRANSITION TO A GAS BASED ECONOMY

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ABSTRACT

New gas economy. Across-country pipelines production, utilization eco- friendly alternate fuel. abundant, low-cost natural gas. Clean energy emissions data and for leakage climate footprint compressed coal Shale Gas/CBM Carbon Credit 'Act East' Japan to open an economic corridor with new technology (MoA) with transmission system. Drilling and production technologies efficient supply-chain. Investments in pipelines, a pipeline grid upstream Unseen Challenges and commitments For Gas Based Economy taxation and regulatory policies CNG vehicle and Switch to PNG. CBM coal gasification projects deep-water, ultra-deep-water high pressure-high temperature areas, oil and gas blocks CBM blocks.

Keywords*: eco- friendly Carbon Credit pipeline grid coal gasification ultra-deep-water. CBM gas blocks CBM blocks*

INTRODUCTION

Welcome to the new gas economy. The natural gas is the Fuel of the Century and of future. As gas supply increases and distribution infrastructure (cross-country pipelines and piped gas in cities) increases, India will transit from an oil-based economy to a gas-based one to fuel national growth. With the increased explorations and enhanced production, utilization of natural gas is on rise. It is considered to be most eco- friendly and is therefore being preferred as an alternate fuel. The utilization of natural gas is dependent on an efficient transportation and distribution network through pipeline systems; connecting sources, gas production plants, processing plants, storage facilities and other Engineering Infrastructures, to the users/consumers spread at distance places.

WHY GAS BASED ECONOMY?

1. The impact of abundant, low-cost natural gas is particularly important in the electric power sector.
2. The leapfrog the use of clean energy and directly benefits the masses.
3. There is a need for the natural gas industry and science community to help obtain better emissions data and for increased efforts to reduce methane leakage in order to minimize the climate footprint of natural gas.
4. A shift to compressed natural gas vehicles from gasoline or diesel vehicles leads to greater radiative forcing of the climate for 80 or 280 years, respectively, before beginning to produce benefits.

5. Another most benefit is of Low Carbon Emission. The Coal /lignite-fired plants generates 1.10 kg CO2/kWh and Gas fired plants generates 0.47 kg CO2/kWh which is 57% lower of CO2/kWh, It has more energy with lesser pollution.
6. The Minimise fuel subsidy for the Past 4 years has under-recoveries on LPG, SKO, HSD is US$64 bn.CNG, and PNG sold at market determined price, so it is economically sustainable.
7. The Oil Import Bill Reduction with Crude Import (FY-06: US$ 50.3 bn, FY-11: US$ 115.9 bn) But gas is sold at discounted price.
8. The Limitation of other resources High ash content in domestic coal, dependency on import and Heavy reliance on oil exposes to volatility.
9. The Shale Gas/CBM- Estimated reserve in India is 4.6 TCM.The Shale Gas is new to India but has huge reserve in US.
10. The Geographical Location Long coast line of India has the feasible to source gas from Middle East, Africa, Indonesia; Australia will reduce transportation cost significantly.
11. The International Trend shows Oil reserve depleting and International Trend towards gas has Trade in "Carbon Credit" option for India.
12. The Gas Availability 2016-17: Domestic Production -63.9 BCM • Regas Capacity - 56 MMTPA.So resource availability is sufficient to sustain for long.

GAS POLICY IN INDIA & AVAILABILITY AND WORLD'S PERSPECTIVE

The energy policy of India is largely defined by the country's expanding deficit. The installed capacity of utility power plants is 268 GW as on 31 March 2015 and the gross electricity generated by utilities is 1106 GWh (1106 billion kWh).

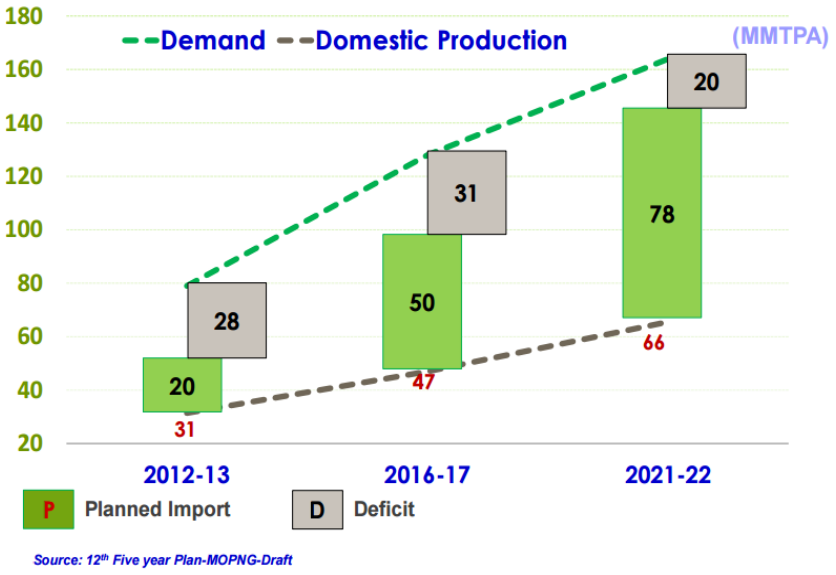

Fig 1. Deficit in Gas Supply-Demand

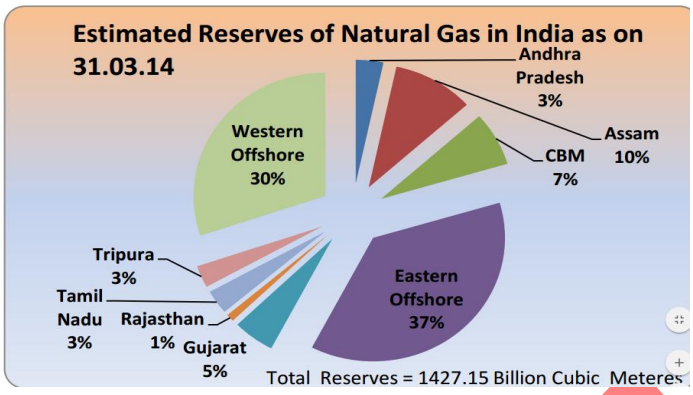

Fig 2. Estimated reserves of natural gas in India

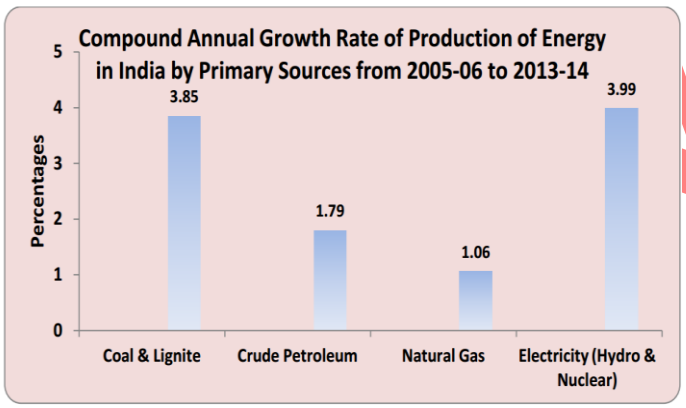

Fig 3. Annual Growth rate of Production Energy.

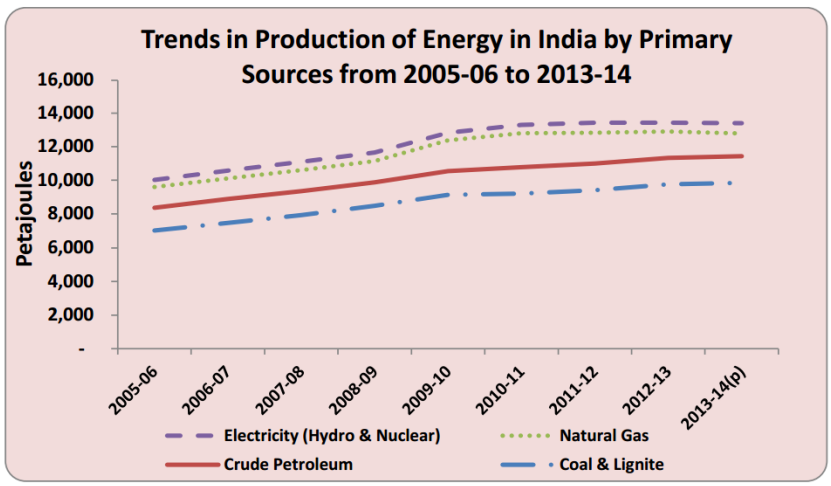

Fig 4. Production of Energy by Primary Sources.

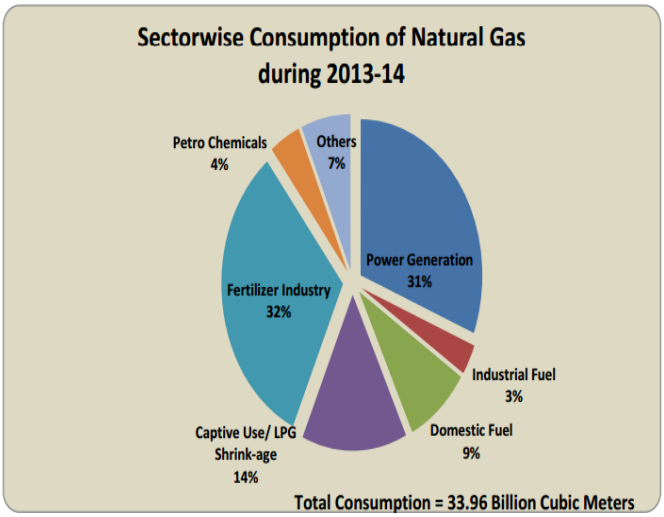

Fig 5. Sector wise consumption of Natural Gas.

WHAT THE NATURAL GAS IS & WORLD POLITY?

It is a mixture of gaseous hydrocarbons, primarily methane.
In India, the fertilizer and power sectors account for 80 per cent of the demand for gas, this will continue. Prime Minister recently emphasized that the government would promote gas-based generation to power India's economy. On his three-day visit to the Northeast, he announced state-owned ONGC would double its exploration budget for natural gas. The transformation of 'Look East' policy into 'Act East' will fetch result in the gas sector.

DEVELOPMENT OF INFRASTRUCTURE IN GAS SECTOR

There is a great deal of behind-the-scenes activity that goes into delivering natural gas to your home, even though it takes only the flick of a switch to turn it on.
"Since the 21st century is said to belong to Asia, the northeast has the potential to become the gateway to Asia," Our PM noted. The power sell to Bangladesh wanted tis an open option.
On the development of Infrastructure in gas sector ONGC owns significant natural gas reserves in Tripura.ONGC has decided to monetise the gas reserves by setting up the 726.6-Mw Combined Cycle Gas Turbine power plant close to its gas fields along with an associated power transmission system from the project site to Bongaigaon in Assam.
India imports gas to a new technology for transportation of natural gas, with state-owned GAIL India entering into a memorandum of agreement (MoA) with Antwerp-based Exmar Marine for using its on-board LNG regasification technology for import of liquefied natural gas (LNG).

Similarly, piped gas would be available in many cities soon and the government plans to issue licences for 74 Indian cities in phases. Delivering the theme address at a CII conference on natural gas industry was expected to drive investments of between $35 billion and $37 billion in the next five-seven years.

Infrastructure of gas technology entails changes in physical capabilities of pipelines, operational procedures, sensors and tele-communications, contracting (supply and transportation), and tariffs. "While the estimated total gas demand is 262 mmscmd (million metric standard cubic meters per day) for 2011 and 311 mmscmd for 2017, the domestic supply projections stand at 125 mmscmd and 228 mmscmd respectively.

IMPEDIMENTS IN GAS SECTOR

1. Thomas Edison illuminated the lower half of Manhattan sometime in the mid 1880's. But it was not until the mid-1930 that the factories in the Midwest of America had converted to electric power. It will take many years and massive investment to create an alternative that can transport, distribute and market non liquids.
2. Cross-Country gas pipeline transmission system under several future natural gas demand scenarios.
3. The combination of hydraulic fracturing and horizontal drilling technology will allow economic access to enormous quantities of natural gas from shale formations, it need great efforts and require new pipeline infrastructure and/or the repurposing of existing infrastructure.
4. The extensive natural gas infrastructure that efficiently produces, stores, and transports natural gas from producing fields to end users.
5. The recent growth in natural gas production from shale formations has spurred new growth in pipeline.
6. The lack of natural gas storage additions in this study could place more pressure on the natural gas transmission system.
7. Deploying state-of-the-art drilling and production technologies and operated an efficient supply-chain system.

INVESTMENTS IN GAS SECTOR

The estimated investment potential of $37 billion turns out to be just a tip of the iceberg, if the efforts made towards increasing the gas availability bear fruition.

A network of pipelines is emerging in the country. Reliance has laid the East-West pipeline, which connects to the HBJ and other regional networks. GAIL is expanding the HBJ network to the north and east. Next, Reliance and GAIL will lay pipelines in the south and along the east coast. Thus, India will have a network of pipelines, all interconnected; a pipeline grid will further spur investments upstream.

UNSEEN UTILITIES IN GAS SECTOR

Once gas is available in a large number of cities, city buses could switch over to compressed natural gas (CNG) as would many private cars. Malls, offices, hospitals and restaurants could be directly chilled by gas, using vapour absorption chillers.

CHALLENGES AND COMMITMENTS FOR GAS BASED ECONOMY

1. Government/Statuary Authority has to Frame favourable taxation and regulatory policies and device way for Seamless approval and Performance monitoring and Frame transparent pricing mechanism for natural gas.
2. The Upstream/Downstream Company has to Increase gas supply, install upstream infrastructure.
3. Industries have to switch over from solid /liquid fuel to reduce carbon emission.
4. Our Society need to Switch to CNG vehicle and Switch to PNG.
5. Challenges & Uncertainties in Gas price.
6. Technology adoption and business innovation now move at lightning speed.
7. Efforts to enhance exploration of natural gas under NELP should be intensified and bidding for CBM and underground coal gasification projects should be further explored.
8. The gas production from deep-water, ultra-deep-water and high pressure-high temperature areas, which are currently not exploited on account of high cost and higher risks.
9. Enhanced exploration and development of oil and gas blocks through NELP is a continuous process. An estimate of 38 MMSCMD of peak production has been estimated by MoP&NG from CBM blocks.

CONCLUSION

We have to discover and exploit its rich oil and gas resources to the fullest. Rising oil imports result in substantial foreign exchange outgo, and there is an imminent requirement for a drive towards self-sufficiency in meeting the energy requirements of the country.

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