

## Infrastructure

# Indian Gas Transmission Business

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Gas supplies are expected to be more than double in the next five years in India. Well developed infrastructure of transmission pipe lines is necessary to support demand supply chain. Positive results from NELP rounds and new gas discoveries in the country have generated significant interest among various industry players in gas transmission business.

Gas infrastructure, which emanates from exploration and production (E&P) activities, can be categorized into transmission pipelines, Liquefied Natural Gas (LNG) terminals and trans-national pipelines. Transmission pipelines are the most vital segment, as they connect supply sources with demand regions. Companies which own transmission pipelines, sign Gas Transmission Agreement with E&P companies, LNG Terminals, marketing companies and other major end-users to provide access to their pipeline network. Transmission companies are immune

from the fluctuation in gas prices as they do not purchase the gas but merely transport the gas. The gas supply is governed by Gas Sales Agreements between sellers and buyers. Profitability of transmission companies is governed by transmission tariff and capacity utilization of its network.

Erstwhile, development of gas transmission network in India was primarily restricted to western, central, northern and north-east regions, as short supply of gas coupled with higher consumer concentration impeded development of country-wide gas grid.

Further, lower acceptance of natural gas amongst consumers owing to lack of visibility over supply and ambiguity over regulatory framework resulted in lower participation of private companies in development of the sector. Consequently, GAIL enjoyed virtual monopoly with over 70 per cent market share. Other players like Gujarat State Petronet Limited (GSPL) and Oil India/ Assam Gas Company remained focused on regional consumers in Gujarat and north-east region respectively.

However, encouraging results from New Exploration Licensing

**Summary of Future Gas Pipeline Network**

S/No	Gas Pipeline Network	Length (km)	Capacity (mmscmd)
<b>GAIL</b>			
1	Dabhol-Bombay-Nagpur Pipeline	621	31
2	Chennai-Gurgaon-Jaisalmer-Hisar Pipeline	443	35
3	Jagdishpur-Haldia Pipeline	2,090	32
4	Dabhol-Bangalore Pipeline	1,385	16
5	Kochi-Mangalore-Bangalore Pipeline	1,314	16
6	Dabhol-Vijapur/GRE P upgradation	1,208	60
19	Vijaywada-Nagpur-Bilaspur	1,665	30
In-Transit (GAIL)		6,390	220
<b>RGTEL</b>			
7	Kakinada-Haldia Pipeline	1,100	20
8	Kakinada-Chennai Pipeline	600	20
9	Chennai-Tiruchirappalli Pipeline	470	10
10	Chennai-Bangalore-Mangalore Pipeline	660	10
In-Transit (RGTEL)		3,039	69
<b>GSPC</b>			
11	GSPC	2,600	
<b>GSPL</b>			
12	Kakinada-Allahabad	1,875	15
13	Mehsana-Bhatinda	1,670	30
14	Bhatinda to Shrinagar via Jammu	747	15
15	Mahavaram - Bhalwara	1,385	30
16	Sour-Panaji	1,324	30
In-Transit (GSPL)		7,601	120
<b>OIL/AGCL/DNPL</b>			
17	Dubai-Daman/Dubai	192	2
18	Kumachi-Dandama	78	
In-Transit (OIL/AGCL/DNPL)		270	2
<b>Total</b>		<b>21,891</b>	<b>402</b>

Source: CARE Research

Policy (NELP) rounds and huge gas discoveries off-East coast coupled with development of additional LNG terminals generated substantial interest from various industry players in gas transmission business. The lack of visibility over future gas supply volumes also gradually evaporated amid the ramp-up of the KG Basin production and incremental gas imports from two new LNG terminals - Dabhol and Kochi. CARE Research expects gas supplies to more than double from 115.5 mmscmd in 2008-09 to 240.7 mmscmd in 2011-12. Gas production from new fields is expected to contribute 87 mmscmd, whereas LNG imports are expected to increase from 28.2 mmscmd at present to 64.8 mmscmd in 2011-12.

The increased clarity over future supply volumes, to certain extent, removed uncertainties lingering over sustainable and uninterrupted gas supply and resulted in increased

participation from private companies.

Reliance Gas Transportation Infrastructure Limited (RGTEL) constructed a 1,385 km long East-West pipeline (EWPL), country's second longest gas pipeline after GAIL's Hazira-Vijaipur-Jagdishpur (HVJ), to evacuate natural gas produced from Reliance Industries Limited's Krishna Godavari (KG) basin. After commissioning of the EWPL, India's current gas transmission network stands at 11,148 km (GAIL - 6,986 km, GSPL - 1,420 km, RGTEL - 1,385 km, others - 1,357 km) with capacity of 273.8 mmscmd. It may be

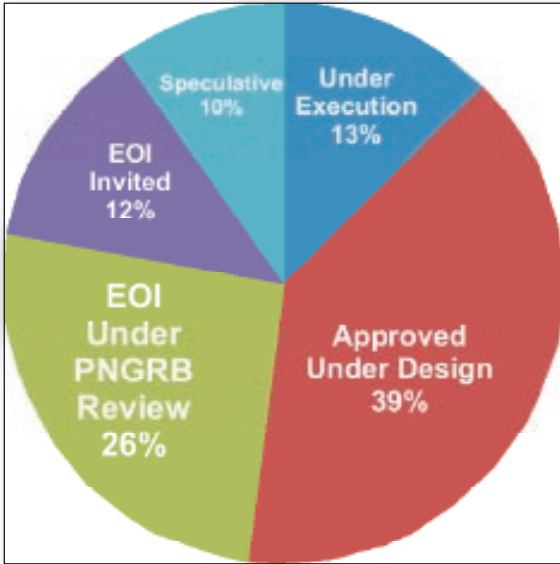
noted that the current capacity exceeds the gas supplies of 115.5 mmscmd, but does not indicate adequacy of current infrastructure, as (a) the HVJ-Dahej-Vijaipur pipeline (DVPL) network, main supply trunk-line to northern region, has already been operating at full capacity and cannot take any additional gas requirement (b) technically, capacities of gas transmission network along with its spur lines, when expressed in volumetric terms, are not additive and would result in double counting.

Nevertheless, the extant regulatory structure is of utmost importance while determining attractiveness of an industry segment. Ambiguity over regulatory framework and multiple regulatory authorities haunted Indian gas transmission business in the past. Sensing the immediate need to provide regulatory clarity and promote infrastructure development, Petroleum

& Natural Gas Regulatory Board (PNGRB) was formed as a nodal agency to regulate and monitor the downstream sector. The PNGRB notified a number of regulations pertaining to pipeline networks such as open access, tariffs, exclusivity, common carrier principal and approval for new projects. PNGRB notified three pillar regulations in 2008, namely, (a) Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines Regulations; (b) Common Carrier or Contract Carrier Natural Gas Pipeline Regulations; and (c) Natural Gas Pipeline Tariff. These regulations were formulated with underlying objectives of protecting the interests of the end-consumers and ensuring reasonable return to investors. This is evident by the Government's preference for (a) lower tariff/compression charges and (b) higher steel pipelines and consumer connections, while awarding authorization for gas transmission pipelines. This was aimed to result in lowest delivery price for end-consumers and faster network penetration.

Implications of the above regulations have been perceived positive for the industry on several accounts. Firstly, fixing tariff for natural gas pipelines at post-tax Return on Capital Employed (ROCE) of 12 per cent takes in to account the capital intensive nature of business. In the past, similar mechanism has yielded successful results in case of pricing of crude oil (15 per cent post-tax ROCE, dismantled in 1998) or pricing of petroleum products (12 per cent post-tax ROCE, dismantled in 2002). Secondly, Government allowed entities with no prior experience in operation/maintenance of gas pipeline to participate through joint-ventures with experienced partners. This provided level playing field for non-energy players willing to explore opportunities in gas transmission business. Further, the timeframe of 25 years ensured that

Status Break-down of New Gas Pipeline Projects (21,891 km)



Source: CARE Research

only serious players with long-term investment focus participated. Lastly, full flexibility on gearing levels and lower applicable volumes in first few years of operations is not only expected to result in higher profitability for transmission players but also ensure faster ramp-up of gas transmission network. Although these regulations are silent on number of issues like treatment of spot volumes, exclusivity period for expansion plans, etc., CARE Research believes the same to be addressed in near future. These regulations have given the much-needed clarity to the existing and prospective investors.

Attractiveness of the segment, coupled with supportive Government policies has spurred tremendous investment in the sector. CARE Research expects gas transmission pipeline capacity to increase three-fold in next five years. As per CARE Research estimates, about 21,891 km of gas pipeline capacity have been proposed with total investments in excess of Rs.700 billion. This includes GAIL's proposed investment of about Rs.290 billion over the next two years in developing

gas transportation infrastructure of 6,725 km. RGTEL has also rolled-out aggressive investment plan targeting to add 3,030 km of pipeline by the end of 2011-12. GSPL is also planning to invest around Rs.310 billion in augmenting its transmission capacity by a further 7,601 km. GSPC has planned a total investment of about Rs.32 billion under the Gujarat Gas Grid project.

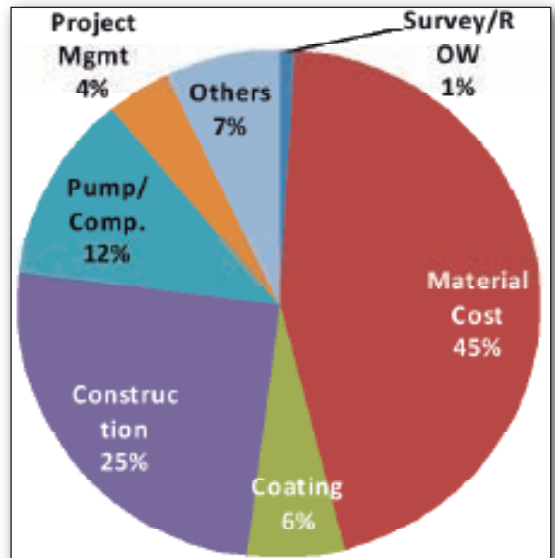
Although the proposed plans look aggressive, there is a fair chance of timely implementation as around 52 per cent of proposed pipeline length has either been under execution or under designing stage. PNGRB is currently evaluating Expression of Interests (EOI) submitted by various companies for nearly 26 per cent of proposed pipe length and has invited EOI for around 2,500 km or 12 per cent of total capacity. Nevertheless, considering huge capital requirement and plethora of regulatory clearances, viability of every announced gas transmission pipeline project needs to be viewed cautiously.

Tariff structure remains as one of the important elements in gas transmission business. The existing tariff charges are capped so as to offer post-tax ROCE of 12 per cent. Based on this policy, PNGRB has approved provisional tariff rates of Rs. 52.23 per million british thermal units (mmbtu) for EWPL; Rs. 25.46/mmbtu for HVJ-GREP-DVPL and Rs. 53.65/mmbtu for DVPL/GREP up-gradation projects. We have observed

that the Board has approved capital expenditure of around Rs 1.5 million-per-km-per-mmscmd, which shall be finalized based on actual figures. We believe that this is primarily stemming from Gol's hindsight and is more of a precautionary measure as historically similar regulated returns has eventually resulted in higher return for operators owing to substantial savings on capital expenditure. For example, regasification margin for the Dahej LNG terminal operated by Petronet LNG (PLL) was fixed at Rs 23.7 per mmbtu in CY2004 with annual escalation of 5 per cent, based on project IRR of 16 per cent and capital expenditure of Rs 25 billion. However, the actual capital expenditure was Rs 21 billion leading to PLL realizing RoE in excess of 25 per cent. Also, the cost-plus pricing of 12 per cent for transporting LPG resulted in LPG transmission charges about 125 per cent of rail freight for an equivalent product.

With significant clarity over tariff structure, currently, transmission business in India is facing the key risk of capacity utilization. Firstly, there

Capex Break-up of Typical Gas Pipeline (Rs1.5 mn-per-km-per-mmscmd)



Source: Industry and CARE Research

has not been enough transparency over pipeline wise gas tie-ups and consumer profiles. Further, end-users may continue to rely on costlier alternative fuels such as FO/LSHS or naphtha, as even firm gas allocation may not result in actual delivery. For example, as on Nov-09, fertilizer sector was supplied with around 13.0 mmscmd of gas as against the government allocation of 15.3 mmscmd. The situation was much difficult in case of LPG plants, CGD and steel sectors, where actual supplies averaged at around 2.0, 0.5 and 2.5 mmscmd, as against the allocations of 3.0, 0.9 and 3.75 mmscmd. This

uncertainty over supply might lower consumer willingness to use natural gas and therefore, poses gas transmission companies with risk of adequate capacity utilization.

CARE Research believes that "Sun is shining, the weather is sweet" for Indian gas transmission business. The incredible combination of strong fundamentals and supportive government policies augur well for the industry. Spurt in gas supplies coupled with increasing regulatory clarity would make gas transmission an attractive investment destination. The recent judgment by High Court over the applicable gas

price would gradually remove any concerns over consumer acceptance and likely to result in increased utilization of transmission network. ■



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## ONGC May Receive 4.5-6 MT Refinery Plan in Rajasthan

New Delhi: Oil and Natural Gas Corp (ONGC), a state owned Oil company, may receive a 4.5-6 million tons refinery plan in Rajasthan if the state government agrees to pick up 26 percent stake in the Rs 9,230 crore project. If the refinery is set up, the production may be raised to 9-12 million tons in future.

With this regards, a report submitted by the expert group has revealed that the project would not be viable in a country that already had surplus refining capacity without fiscal incentives. Rajasthan government has been pressing for a refinery at Barmer after Cairn found 6.5 billion barrels of reserves that can produce up to 240,000 barrels per day (12 million tons a year) of oil at plateau. ONGC is, however, not keen on the project unless the state government defers local sales tax or extends an interest-free loan of Rs 1,300 crore per year for 16 years, gives free land



and water, exempts crude oil from entry tax/cess/octori and central sales tax is waived for 16 years. SBI Caps, which also went into the viability of the project, also suggested an interest free loan of Rs 1,200 crore per year for 16 years to ONGC, the report said.

"Government of Rajasthan can also bear the liability of 5 percent discount on the refinery price to be given to oil market-

ing company for the purpose of marketing tie-up by giving equal amount of sale tax/VAT relief on year to year basis," the report said. "Alternatively, this discount can be in the form of interest free loan or grant." The Central Government should give at least 50 percent relief in excise duty on the products for at least five years. "The Government of Rajasthan can participate with an equity of quasi-equity or preferential share support... subject to overall limit of 26 percent of equity," the report added.