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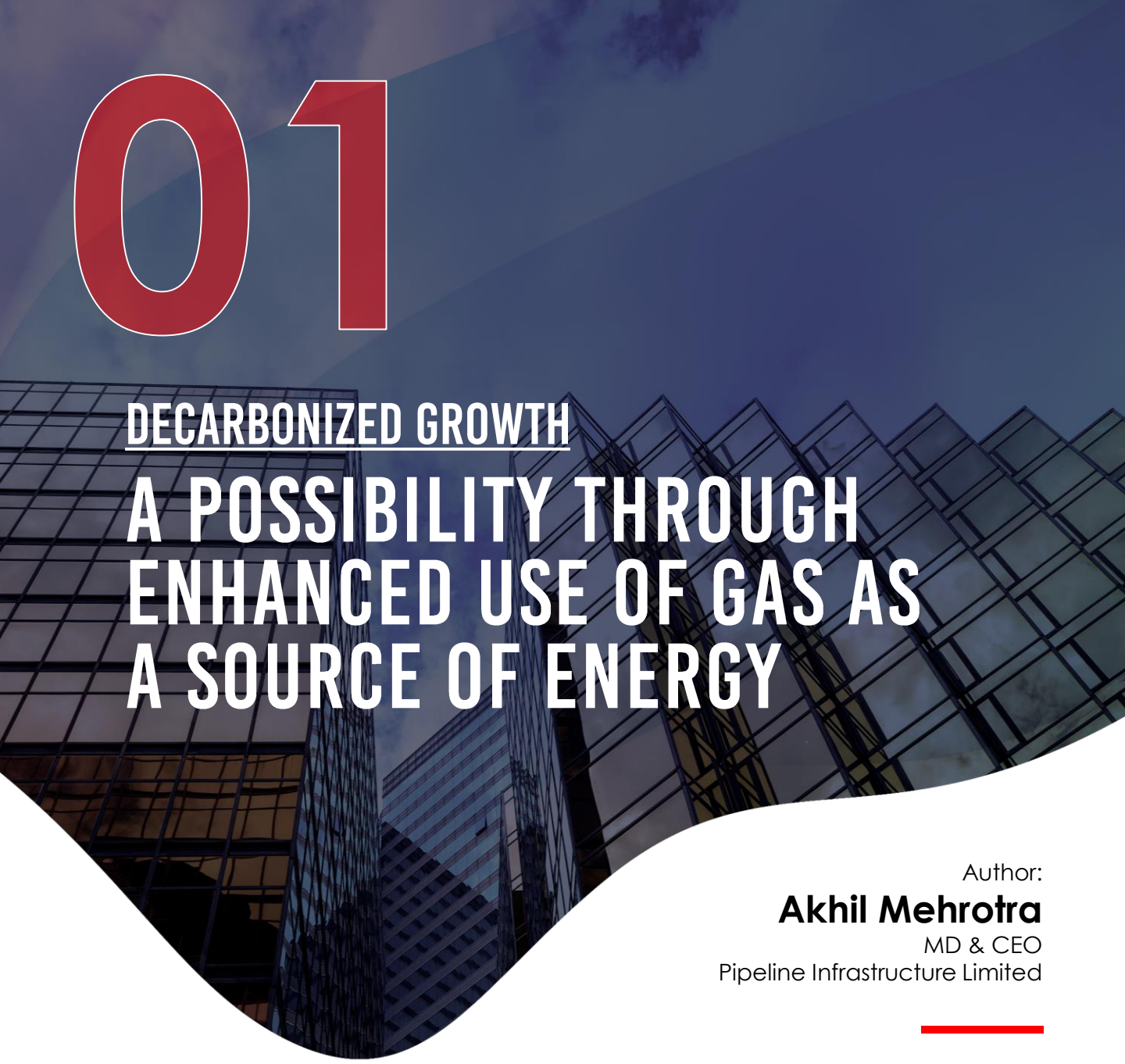

01

DECARBONIZED GROWTH

A POSSIBILITY THROUGH ENHANCED USE OF GAS AS A SOURCE OF ENERGY

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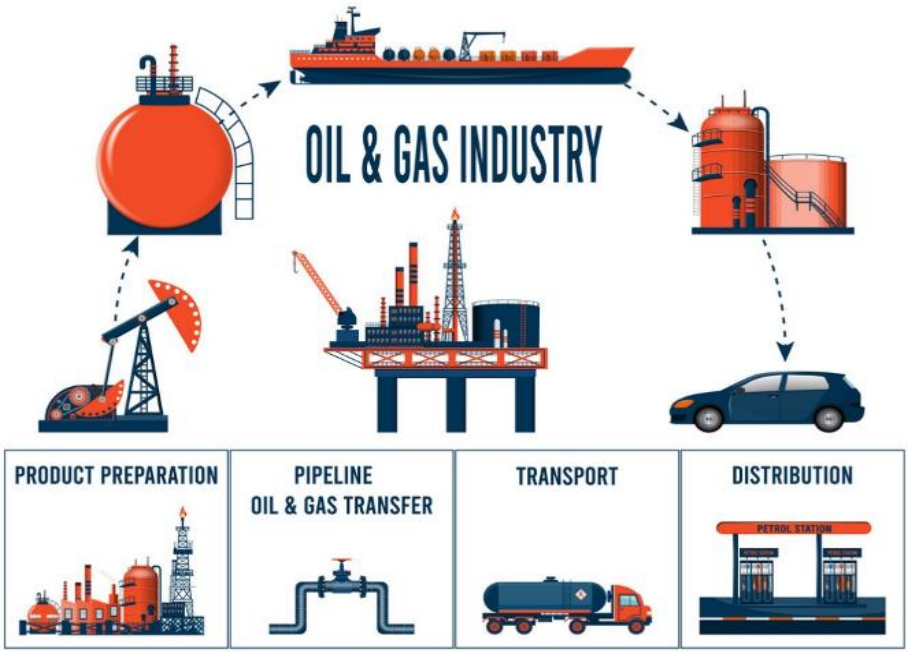
Energy is paramount for the development of every nation. There is a positive correlation between the growth in the energy production and the GDP growth of a country. GDP growth in India is projected at 8-9% over medium term. Additionally, the demand for energy in India will also grow multiple times, given the low per capita consumption of its growing population, urbanization and focus on Make in India by the federal government. The energy mix in India has been dominated by Oil & Coal for decades. Today more than ever, India needs to shift its focus towards greener and sustainable resources like gas and renewables, to meet its COP21 targets (reducing emission intensity by 35% by the year 2035). However, it is heartening for India, that it has been proven by European nations that climate concerns and GDP growth are not necessarily discordant. Decarbonized growth is possible, provided India promotes clean energy by encouraging greater use of renewables and gas, thus increasing share in the energy mix. Furthermore, the nation must also focus on cleaner mobility options to reduce city pollution and have the privilege to see blue sky more often.

The share of gas in the total energy mix in India is currently approximately 7%. The Government of India is working towards increasing the share to 15% to enable sustainable growth. The above goal is in addition to the objective of increasing the production from renewables to 430 GW by the year 2030. Electricity production has seen an increase in the share of renewables which will also entail the use of gas- based power plants to meet the peaking demands due to fluctuating production levels from erstwhile renewable sources.

The increasing share of renewables in the electricity production would also entail use of gas-based power plants to meet peaking demands due to fluctuating production from renewable sources.



While the government is working on mission mode to increase the share of renewables, more can be done to push the case of gas in the energy mix. The development of gas sector has witnessed multiple challenges, even after opening the sector for 100% FDI in the 1990s. Hence, growing the share of gas in the total energy mix requires few additional enabling interventions; both on supply and demand side.

On the supply side, India oil and gas acreages are not very prolific. Despite opening the exploration sector, it has been plagued with disputes and arbitrations with private players. Directorate General of Hydrocarbons (DGH) has moved away from cost plus method to revenue sharing method, reducing oversight, but placing the burden of facing high risk on the shoulders of the contractor is counter intuitive to the deep-water High Pressure High Temperature (HPHT) blocks in India. A balance in risk and return is required to attract more investments.

An alternative route is through import of gas. Although there have been many terminals across India and greater capacity is being built on both East and West coast, gas import cannot substitute the benefits of domestic production. Higher domestic production will result in less price fluctuations, thus enabling price sensitive sectors to use gas as the preferred fuel source.

Availability of gas does not necessarily mean use of gas across the country. Gas consumption requires connecting sources to customers. Currently, we have transmission pipelines of around 17,000km which is likely to go up to 35,000km in the next few years. Nonetheless, this is not adequate for gas to be accessible throughout the nation. To increase the use of gas, pipelines traversing a total distance of 20,000 – 30,000 km more need to be developed by the public sector, since most of these would be unviable for private sector to develop. Innovative funding through Invit needs to be explored. The current pipelines owned by the Government can be monetised and the funds generated can be used to develop new pipelines to reach the length and breadth of this vast country. In addition, virtual pipelines in the form of LNG tankers can be used to serve LNG stations for fuelling large trucks. Pushing LNG in large trucks needs alignment between auto manufacturers and distributers. This will further help in reducing vehicular pollution.

Moreover, distribution is being ramped up by authorizing new city gas licenses across India. But it is discouraging to see no large oil & gas private sector players taking part in the sector. A consolidation is in progress, and this should help ramp up infrastructure in the city gas distribution.

The above aspects of exploration & production, import, transportation, and distribution would help resolve the supply side issues, but there are still demand side issues which need to be resolved.

The demand is distorted due to subsidized prices in downstream Oil & Gas and power markets. The power cost allowed by most state regulators are not cost reflective and hence the distribution companies are not able to buy gas-based power. Frequent cross subsidy, although to a lesser extent now, also impacts reach of gas in mobility and domestic sector. The answer lies in a targeted subsidy regime.

In summary, the gas sector is in balance. The government and regulators have come with enabling provisions, but a more comprehensive solution is required to address issues in Upstream, Midstream and Downstream segments. The measures suggested above would help gas to play a major role in decarbonised growth along with renewables.

Company Description

Pipeline Infrastructure Limited (PIL) is owned by India Infrastructure Trust, sponsored by Brookfield Asset Management, a global leader in alternative asset management. PIL owns and operates a 48 inch diameter cross-country natural gas pipeline with a length of approximately 1,480 kms, stretching from Kakinada (Andhra Pradesh) in the east of India to Bharuch (Gujarat) in the west of India.

PROFILE

Akhil is a business leader in energy Sector with over 29 years of experience across Oil & Gas, Power and Telecom industries. Out of 29 years he has spent more than 16 years in leadership roles. Over the years he has managed P&L of businesses, led setting up & growing business, ideated and developed strategy, managed risk & performance turnaround, driven continuous improvement & lean initiatives in O&M, have been recognized as a thought leader in gas policy matters, promoted culture of care and ethics in organizations, managed projects, led HSSE turnaround in companies and coached leaders and employees. He has successfully negotiated complex M&A deals in his career. He has been instrumental in drafting many gas sector regulations and also led a report for MoPNG/PNGRB on "Vision 2030" in the year 2013.

Akhil has been Chairman of Mahanagar Gas Limited (MGL), a Fortune 500 company and listed on Indian Stock Exchanges. He was instrumental in leading the Initial Public offer of MGL in the year 2016. He has also been on Boards of many other companies including Shell Energy India Pvt ltd and Hazira Ports Private Limited.

Before Joining Pipeline Infrastructure Limited as its CEO in July 2019, he was with Shell (Including BG Plc) for almost 16 years. In Shell he led the MGL and Hazira import terminal business as GM – IG Ventures & Head –City Gas Distribution Business. He also worked as Director – Downstream Business and Director – Regulations and Business Development at BG India and Gujarat Gas Limited (on deputation from BG Group).

He has also worked with Reliance Group for 9 years prior to working with Shell Plc.

Akhil is a BE-Mechanical Engineering graduate, MBA in Finance and a PhD in Gas markets. He has done many other courses including management program with IIM Bangalore and many specialized courses with Harvard Business School, Kellogg's School of Management and London Business School.

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