

MANAGEMENT DISCUSSION AND ANALYSIS

1. SECTORAL DISCUSSION AND ANALYSIS

A. Global Economic Development and Outlook

After the global financial crisis, world economy has enjoyed a profound growth as most emerging markets and developing economies have successfully managed to weather the global recession using extensive fiscal and monetary policy support. However, since early 2019, there have been signs of downside economic risks in the horizon as the global economic growth has started to fade off in the wake of rising tariffs, escalating trade tensions and policy uncertainty. Dwindling business and consumer confidence have led to significantly curtailed investment, and have pushed global trade growth down to 0.3% in 2019, its lowest level in a decade. World gross product growth has also slipped to 2.3% in 2019, the lowest rate since the global financial crisis of FY 2008-2009. The long-standing debate between economic development and environment sustainability has re-emerged strongly with increasing dissatisfaction over social and environmental quality of economic growth, amid prevalent inequalities and deepening climate crisis.

The world economy has further changed dramatically since the World Health Organization (WHO) declared COVID-19 a world health emergency in January 2020. Since then, the COVID-19 pandemic has quickly moved from just being a health crisis to a substantial economic crisis. The pandemic has negatively affected the global economic growth beyond anything experienced in nearly a century. The lockdown measures adopted by the most of the Governments across the globe have succeeded in slowing the spread of the virus and reducing the death toll, but have also slowed down business activities in many sectors. These measures have widened inequality, disrupted education and dented confidence in the future. Estimates so far indicate that the pandemic could trim global economic growth by 3% to 6% in 2020, with a partial recovery in 2021. Over 3/4th of countries are now forced to reopen despite the fact that the pandemic is intensifying in many emerging markets and developing economies. The recovery is likely to be more gradual in absence of a medical solution and the strength of the recovery expected to be highly uncertain with uneven impact on sectors and countries.

The pandemic has exposed the inherent risks in supply chains as more and more Governments and businesses are now seeking to source commodities, components and goods that are less distant and more secure. There are signs of a retreat from globalization and free trade, and nations may move towards greater economic nationalism to protect themselves. Persistent requirement for social distancing and advancement of technology is likely to increase use of automation and may reduce demand for travel.

B. Trends in Indian Economy and Outlook – “The enduring journey to the top”

India's economy was growing at around 7-8% for the past few years, the fastest in the world. However, since 2019, growth has started to decelerate noticeably on the back of sharp decline in private consumption and weakening growth in industrial and services sectors. As per ADB statistics, growth in Indian GDP slowed to 3.1% in the last quarter of fiscal year 2019, its slowest since early 2003. The overall economic growth reduced to 4.2% in FY 2019 as both exports and investment started to contract. India's lackluster performance has further been aggravated by the global economic downturn and ongoing international trade disputes between the US, China and the EU. Weak banking and finance sector saddled with too much bad debt and serious problems with fraud has led to liquidity crunch, triggering declines in consumer spending, business investment and exports. Non-oil exports and imports have fallen, as have production of investment goods.

Steps have been taken by the Government to strengthen the financial sector though reforms such as providing the banks with extra capital, introducing new bankruptcy rules to give extra protection to lenders, and consolidating the state-owned institutions that dominate the sector. Other steps have also been taken to bring the Indian economic growth back on track including lowering corporation tax rates from 30% to 22%; slashing corporation tax rates for investments in greenfield manufacturing plants to 15% from 25%;

raising foreign direct investment limits in a range of sectors; and reductions in interest rates to offer liquidity. Some of these initiatives has helped to bring additional investment as FDI inflows into India rose 13% on year in FY20 to a record \$49.97 billion compared to \$44.36 billion in 2018-19. India has also climbed from 134th to 77th position in the World Bank's rankings for ease of doing business.

The economic impact of the COVID-19 pandemic on India has been disruptive, as it has further magnified the pre-existing risks to the Indian Economy. COVID-19 containment measures and weaker external demand have taken a heavy toll on the Indian Economy. India's FDI dipped 62% to \$976 million in April 2020. India's Manufacturing PMI fell to 27.4 in April 2020 from 51.8 in the previous month and far below market consensus of 42. India's Services PMI fall to 5.4 in April 2020 from 49.3, and far below market expectations of 40.0. The Indian Micro, Small, and Medium Enterprises (MSMEs) sector, the backbone of national economic structure that contributes to 31% of the India's GDP has also been severely affected. The adverse effect of pandemic on low-income households has been particularly acute, jeopardizing India's continuous efforts to eradicate poverty. The lockdown, started since 25th March 2020 and extended several times, caused millions of people to lose their jobs - many of whom rely on daily labour to earn money. The World Bank and other rating agencies have revised India's growth projection for coming years with the lowest figures that India has not seen in three decades since India's economic liberalization in the 1990s. IMF projected a sharp contraction of 4.5% for the Indian economy in 2020, a "historic low," citing the unprecedented coronavirus pandemic that has nearly stalled all economic activities.

Like many other countries, the Indian Government has spared no effort to balance the control of COVID-19 and avoid economic disaster. The different phases of India's lockdown up to the "first unlock" on 1st June 2020 had varying degrees of the opening of the economy but economy is yet to show signs of stabilization.

An overall economic package worth ₹20 lakh crore (US\$280 billion), 10% of India's GDP, has already been announced to stimulate the Indian economy with emphasis on India as a self-reliant nation. Various agencies forecast that Indian economy is poised for a modest rebound and additional policy support can lead to a quicker resumption of economic activities. MSME sector along with "Make in India" initiative has the potential to drive the Indian economy, as employment opportunities can be generated with additional investment in the manufacturing sector. But, India needs additional measures to rebuild business confidence and bring further investment. IMF cited that India is expected to bounce back in 2021 with a robust 6% growth rate, but there is still high degree of uncertainty over it. Success in vaccine development, better treatment facility and additional policy support may lead to a quicker resumption of economic activities, but, further waves of infections can contract movements and spending, resulting in rapidly tightening financial conditions.

C. Trends in Global Energy – “The bold and magnificent dream of clean energy”

Global energy consumption was growing at a swift pace in past few decades riding on expanding population, rapid urbanization and higher living standards attributable to increasing prosperity. BP Statistical Review of World Energy 2020 data indicates a growth rate of 2.25% a year on an average in global energy consumption for the past half-century owing to strong economic growth across the nations. But slowly and steadily, growth in energy demand and economic growth are being "decoupled". In recent years, global energy demand has shown signs of deceleration despite of strong population expansion and economic growth, primarily driven by the penetration of renewable energy and increasing energy efficiency. Global primary energy consumption growth was around 1.6% in last decade whereas there was a mere 1.3% YoY growth in 2019, almost half of what has been seen in the preceding year at 2.8%. This slowdown was particularly apparent in the USA, Russia and India, each of which exhibited remarkably

strong growth in 2018. Despite the lower consumption, China was by far the biggest individual driver of global primary energy growth, accounting for more than three quarters of net growth. India and Indonesia were the next largest contributors, while the US and Germany posted the largest declines in energy terms.

Reliance of energy system on fossil fuels have remained stubbornly high but energy systems has shown rapid and widespread changes towards a clean energy transition. Sources of energy that emit greenhouse gases have increasingly been replaced by cleaner sources. Consumption of coal, which is one of the most preferred fuel globally owing to its low cost, has fallen by 0.6% in 2019, its fourth decline in six years, taking its share in energy mix to lowest in 16 years (27%). In pursuit of cleaner energy mix, natural gas and renewables have started to displace coal gradually as the sustainable choices particularly in the power sector. The share of renewables in power generation has increased from 9.3% to 10.4% in 2019, surpassing nuclear for the first time. Natural gas and renewables have contributed around 75% of the overall energy consumption growth in 2019. A combination of new policies and favorable economics have driven the momentum for natural gas and renewables, which is likely to continue. The growth in carbon emissions has also slowed down in 2019 from the sharp increase seen in the previous year, as primary energy consumption decelerated, and renewables and natural gas emerged as more feasible options.

A summary of key statistics is shown in table 1.

Table 1: Summary of key global energy statistics, 2019

Energy Aspect	Unit ¹	2018	2019	% Growth
Primary Energy Consumption	MTOE	13,865	14,049	1.3%
Carbon Emissions	Mn. Tons	34,008	34,169	0.5%
Gas Consumption	MMSCMD	10,552	10,765	2.0%
LNG Imports	MMSCMD	1,180	1,329	12.7%
Renewables Consumption	Twh	2,468	2,806	13.7%
Oil Consumption	Mbd	97.35	98.27	0.9%
Coal Consumption	Exajoules	159	158	-0.6%

(Source: BP Statistical Review of World Energy 2020)

¹MTOE: Million Tons of Oil Equivalent (converted "exajoules" reported by BP Statistical Review of World Energy 2019 to MTOE by multiplying the former with last year's ratio), MMSCMD: Metric Million Standard Cubic Meters per Day, Twh: Terawatt-hours, Mbd: Million Barrels per Day.

Despite of many challenges, global gas consumption continued to rise in 2019 and the share of natural gas in global primary energy hit a record high (24.2%). But growth remained sluggish in 2019 (2.0%) compared to the 10-year historical average of 2.5% during 2008-18. The USA, the largest gas consumer witnessed a growth of 3.1% in 2019, thanks to lower prices and new gas-fired capacity in the power sector and has contributed to 34% of the global growth in 2019. Europe has also shown some growth but Asian

demand has declined particularly in Japan and South Korea, as a result of a lower demand from the power sector (lower electricity consumption and increased competition from nuclear reactors and renewables). China, which is a major global demand center, accounted for 31% of the global increase, but the growth in Chinese gas consumption (8.6%) in 2019 remained only a fraction of historical average (13.2%; 2008-18) due to the economic slowdown and the relaxation of policy on coal-to-gas switching.

Since the beginning of 2020, the world has experienced the largest recorded demand shock in the history of global natural gas markets as COVID-19 pandemic led to weakening demand. The COVID-19 pandemic has further squeezed out an already declining gas demand, faced with historically mild temperatures over the first months of the year. Gas consumption is estimated to fall by 4% in 2020, under the successive impacts of lower heating demand from the warm winter; the implementation of lockdown measures in almost all countries to slow the spread of the virus, and a lower level of activity caused by the COVID-19 induced macroeconomic crisis.

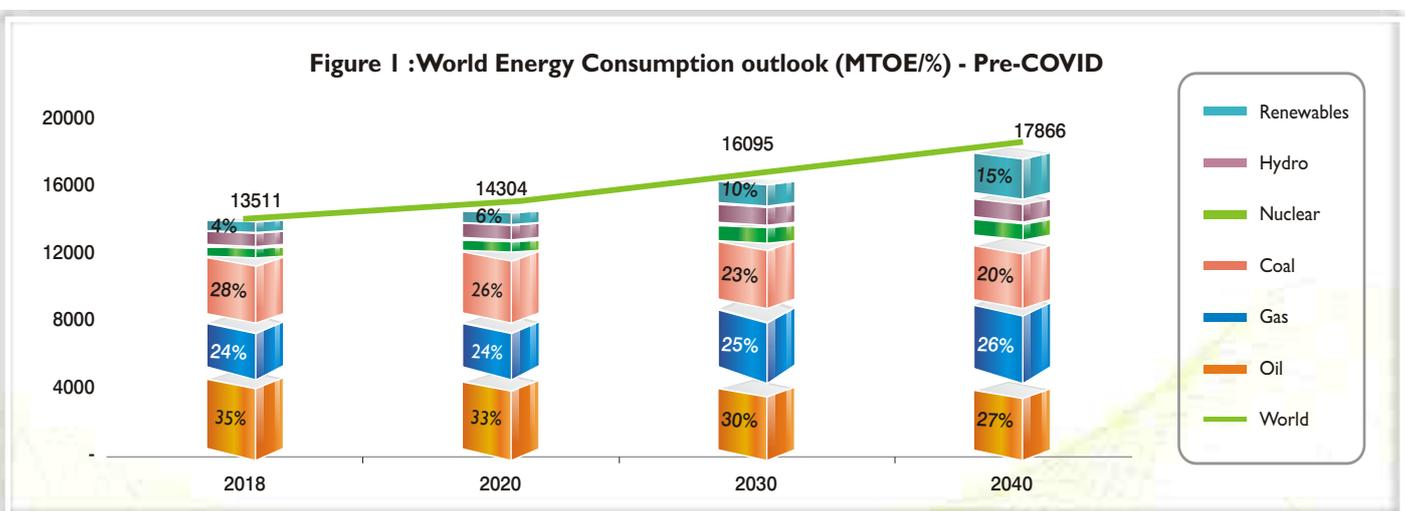
Natural gas supply value chain was not in a position to cope up to this consumption drop, resulting in a considerable build-up of gas in storages. Faced with extraordinary shocks, global natural gas markets have gone through a strong supply and trade adjustments, resulting in historically low spot prices and high volatility. The prices of three major global benchmark – JKM, NBP and Henry Hub has converged offering little scope for arbitrage. Several LNG export projects seeking final-investment decision (FID) unlikely to reach the milestone this year due to the depressed gas market and lack of offtake agreements.

Despite of muted demand, US LNG exports is expected to rise in 2020 as more than four new trains with eventual capacity of about 20 million tons a year come online, worsening the supply glut. This has provided an opportunity for countries like India to take advantage of low spot prices and increase share of cheaper available natural gas in country's consumption.

D. Global Energy Sector and COVID-19-The Black Swan Event

The COVID-19 pandemic has significantly disrupted all aspects of life, including the energy sector. With lockdowns imposed in several countries, transportation such as road and air travel has largely been restricted resulted into fall in global energy demand. Further, since millions of people were confined to their homes, domestic electricity demand has increased while there has been a sharp fall in commercial demand. It is almost certain that the year 2020 will witness some major shifts and disruptions in energy sector globally. Although the full impact on the energy sector is difficult to predict accurately, decreased energy demand, plummeting energy prices and a sharp decline in oil prices have already been observed.

Pre-COVID energy sector projections have estimated global energy sector growth at modest 1.3% from 2018 to 2040, with renewable energy and natural gas as the only fossil fuel showing accelerated growth with higher share in the energy mix in 2040 as compared to 2018. Refer Figure 1 for world energy consumption estimates made in year 2019.



Source : BP Energy Outlook 2019

Energy demand collapse brought on by the COVID-19 pandemic has impacted energy market projections everywhere. According to IEA, the global energy demand declined by around 3.8% during Jan-Mar'20 as restrictions were imposed in Europe, North America and else where. Global coal demand has witnessed its highest decline at 8% compared with the first quarter of 2019. Due to non-activity in mobility and aviation sector, which accounts for nearly 60% of global demand, demand for oil was hit strongly. Oversupply combined with demand shrinkage has quickly filled the oil storage to the brim and crude oil futures prices dropped into negative territory for the first time in history. Pandemic has also impacted the global gas demand during Jan-Mar'20 moderately as demand shrink by 2%. Renewable energy sources were the only source that witnessed growth in demand due to large installed capacities and preferential generation in most of the regions.

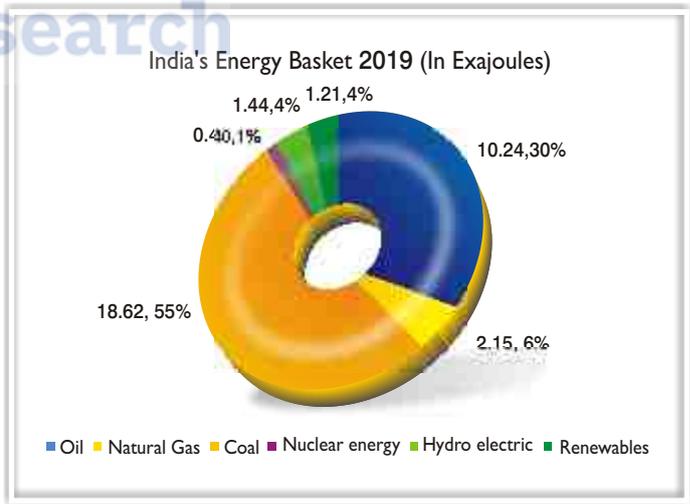
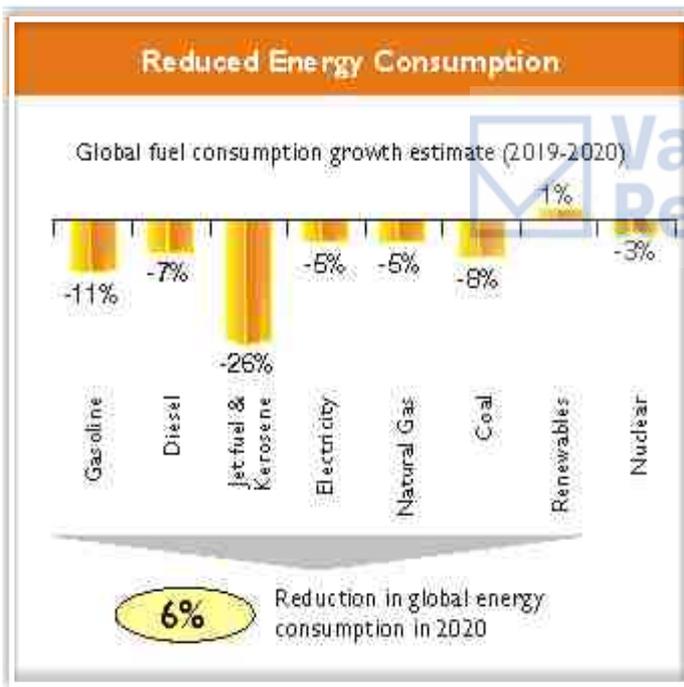
As per IEA estimation, the pandemic may result in contraction of energy demand in 2020 by 6%, which will be the largest in last 70 years in the percentage terms and the largest ever in the absolute terms. This impact will be more than 7 times larger than the impact of 2008 financial crisis on energy demand in the percentage term. The global demand for oil could drop by 9% on an average in 2020, which will return oil consumption to 2012 levels. Coal demand could decline by 8%, mainly due to a fall in electricity demand of over 5% over the course of the year. Amongst advanced economies, coal demand is expected to fall by 25% in the US, 20% in the European Union (EU) and 5-10% in Korea and Japan.

deeper. As per McKinsey study, global gas and LNG will have a favourable role in the energy transition, ensuring a place in the future energy mix, supported by the continual demand growth in the coming decade. Renewable energy sector has been the "most resilient" to the COVID-19 lockdown measures. The demand for renewables is expected to increase by 1% in 2020 in IEA estimation because of low operating costs and preferential access for many power systems.

E. Trends in Indian Energy sector – "The Usual Suspects"

As one of the world's fastest-growing major economies with a population of 1.35 billion, India is vital for the future of the global energy markets. Today, India is the third largest energy consumer in the world in spite of having very low per capita consumption, leaving past countries like Japan, Germany and the UK behind. With an ambitious vision to bring secure, affordable and sustainable energy to all, India has made an impressive progress in the recent years in increasing access to electricity and clean cooking. A three-way race is now underway amongst coal, natural gas and renewables to provide much needed energy to boost India's fast-growing economy.

India has emerged as the second biggest growth driver of primary energy consumption globally in 2019, behind China. Majority of this growth came from oil and hydro sector. Indian primary energy basket remained heavily skewed towards coal and oil, with 85% of the energy originated from these two sources in 2019. BP Statistical Review of World Energy 2020 data shows that while coal consumption has declined globally, it has marginally increased in India. But the growth of coal in India, usually a key driver of global coal consumption, was a mere 0.3%, its lowest since 2001. India posted the third biggest rise in oil consumption in the world, behind China and Iran. Natural gas sector has shown a YoY growth of around 2.7% in 2019, which was a notch higher than average YoY growth of 2.3% in primary energy consumption. Nuclear and Hydro sector has registered the biggest jump with YoY growth of over 15%.



The current crisis will have a profound impact on the oil & gas industry, both in the short and long term. Oil demand in particular is at risk and it may take years to regain its levels before the pandemic, and growing only slowly thereafter. Two of the world's largest energy companies – BP and Shell have recently write-off billions of dollars invested in fossil fuel assets, strongly signalling that the global oil and gas industry is undergoing a fundamental transformation and the future may have held dwindling oil demand. Further, the coronavirus pandemic may accelerate a global transition away from oil and world may pivot towards a cleaner energy system in order to reduce greenhouse gas emissions.

Natural gas sector may not witness severe decline compared to other fossil fuels but consumption is estimated to fall by 2% because of reduced demand in power and industry applications. LNG supply glut is likely to be longer and

Growth in coal and oil consumption has led to a high carbon emission growth from India (1.1%) as compared to the world average of 0.5%. Even during last decade (2008-2018), India has registered a carbon emission growth of over 5% compared to the world average of just over 1%. Though India consumed only 5.8% of world's primary energy in 2019, but it has contributed to over 7.3% of global carbon emissions, indicating a less-cleaner energy mix.

In spite of massive Renewable capacity addition, India is falling behind in reduction of carbon emissions as compared to the rest of the world, which is increasingly adopting renewables and natural gas as mainstay energy sources. India can look for a much cleaner energy mix, by placing gas along with renewables as sustainable energy source aligning with the rest of the world.

Table 2: Summary of key India energy statistics, 2019

Energy Aspect	Unit	2018		2019		% Growth in 2019 over 2018
		Actual	% of World	Actual	% of World	
Primary Energy Consumption	MTOE	809	5.8%	828	5.9%	2.3%
Carbon Emissions	Mn. Tons	2453	7.2%	2480	7.3%	1.1%
Gas Consumption	MMSCMD	159	1.5%	164	1.5%	2.7%
LNG Imports	MMSCMD	84	7.1%	90	6.8%	7.4%
Renewable Energy Consumption	Twh	123	5.0%	135	4.8%	9.8%
Oil Consumption	Mbd	5.11	5.3%	5.27	5.4%	3.1%
Coal Consumption	Exajoules	19	11.7%	19	11.8%	0.3%

(Source: BP Statistical Review of World Energy 2020)

F. Indian Natural Gas Sector—“Pioneering change with inclusive growth”

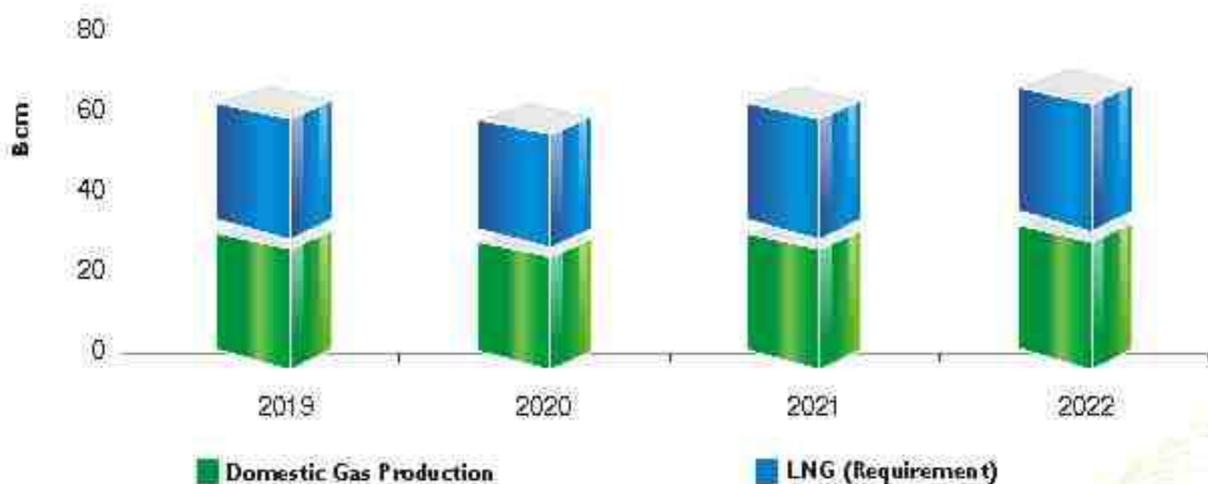
India's endeavour towards a Gas Based Economy and Natural Gas has been identified as a sustainable option to create a balanced Indian energy basket. Share of natural gas in India's energy mix is presently around 6.3% and target is to take it to 15% by 2030.

Natural Gas consumption in India has increased consistently over last five years. India is now the 13th largest consumer of natural gas globally and 3rd in Asia Pacific region, only behind China and Japan. India's Natural Gas consumption during 2019-20 has increased by around 4% in spite of restricted activities in last week of March 2020. Overall gas consumption increased significantly primarily driven by higher LNG imports and cheaper LNG prices. Most of this consumption growth came from City Gas Distribution (CGD) and Fertilizer sector. But COVID-19 had put a brake on gas consumption as LNG has almost fallen 30% due to absence of transport, commercial and industrial activities. CGD sector was the worst impacted sector due to lack of transportation and industrial activities. But gas sector is

quick to reinstate its position as most major anchor segments including Fertilizer, Power and Refinery sustained their consumption. Restrictions have been eased gradually during lockdown Phase 2 (15th April – 3rd May), Phase 3 (4th May – 17th May), and Phase 4 (18th May-31st May), with industries and transport sector gradually picked up their activities. GAIL's sales volumes were up 30% during Phase 3 of the lockdown as compared with Phase 1. However, gas consumption in MSME sector is expected to take longer time to return to business-as-usual mode.

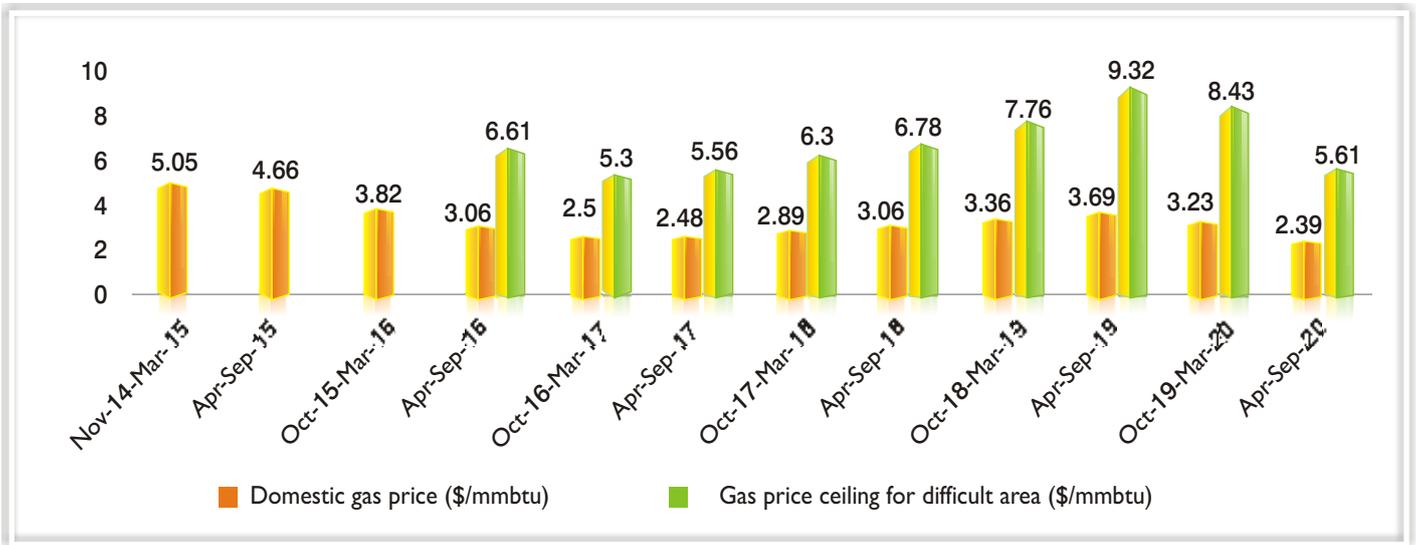
Domestic gas production has declined by over 5% to 31.18 BCM (85 MMSCMD) in FY 2019-20 from 32.87 BCM (90 MMSCMD) in the previous year, the lowest recorded output in the last 18 years. The reduction was primarily in response to less off-take by gas-based power plants, fertilizer plants, industrial customers as well as operational issues faced by E&P companies due to COVID-19. Natural gas production is expected to increase once RIL starts production from the new KG-D6 fields and ONGC ramps up production from its offshore fields.

India: Short term natural gas sectoral demand



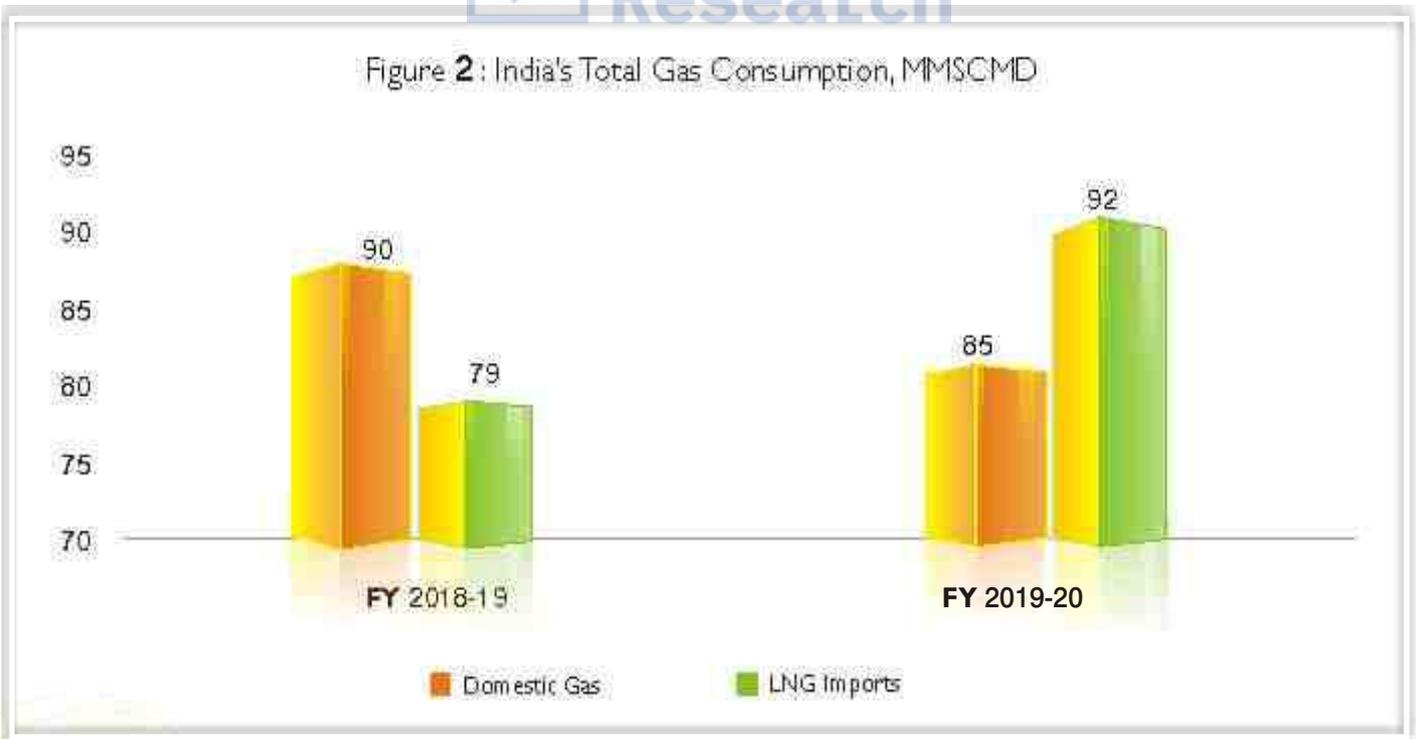
Source : IHS Markit

Domestic natural gas price which takes into account international benchmarks price including Henry Hub, Alberta Hub, Russia and UK NBP has fallen 26% to \$2.39 per Million British Thermal Units (MMBTU) for the period between 1st April 2020 to 30th September 2020, the lowest recorded price of domestically produced natural gas. The gas price for difficult areas (deep water, ultra-deep water, and high-pressure high temperature areas) has also been notified at \$5.61 per MMBTU for the period between 1st April 2020 to 30th September 2020, 33.45% down as compared to Oct'19-Mar'20 period.



Source: PPAC

India's increasing appetite for LNG has continued and India has become the 4th largest LNG importer globally. LNG consumption has increased by over 16% in 2019-20 to 33.68 BCM (92 MMSCMD) which is now around 52% of the total gas consumption. India also has witnessed commissioning of two new LNG terminals – One in East coast and another in West coast of India. With these two new terminals, regasification capacity of India has reached 39 MMTPA. With another 4 greenfield LNG terminals under construction and expansion in Dabhol terminal, India's regasification capacity is set to cross 60 MMTPA in the coming years.



Source : PPAC

India also moved towards a market-based pricing by setting up the first gas exchange. Indian Gas Exchange Ltd. (IGX), India's first automated national level trading platform was launched in June 2020 to promote an efficient and robust Gas market and to foster gas trading in the country. IGX is expected to start its operations at three physical hubs in Dahej, Hazira in Gujarat and Odoru in Andhra Pradesh with day-ahead market and forward contracts.

India has also witnessed a successful transition towards cleaner energy at industrial cluster “Morbi” in Gujarat which can be the benchmark model for the rest of the India. Morbi accounts for more than 950 ceramic units, almost 70% of the ceramic industry in India and almost 5% worldwide. Nearly 50% of ceramic companies were relying on coal gasifiers at the start of 2019 and gas consumption was around 2.5 MMSCMD. In view of the local pollution from this cluster, the National Green Tribunal (NGT) restricted use of the polluting fuel and passed orders to switch to cleaner alternative like natural gas. This move has resulted in additional LNG consumption of around 5 MMSCMD within a span of 8 months with significant improvement in the air quality levels in Morbi region.

CGD has been identified as an enabler for the gas-based economy to provide affordable energy to the masses. Number of authorized Gas/Cities in India has reached 232 in 2019-20 covering 407 districts across India. Early in June 2020, PNGRB has clarified that any entity can set up an LNG filling station in any Geographical Area (GA) or anywhere else, even if it is not the authorized entity for that GA. This development could potentially provide a big boost to the sector to promote green fuels like LNG and will promote the participation of more players across the value chain starting from OEMs and the fleet operators to the LNG dispensing infrastructure.

COVID-19 will have a lasting impact on the Indian gas sector and the next 1-2 years are expected to be the most challenging. Lockdowns may have had a significant impact with gas demand possibly falling by approximately 3-6% during 2020. Supply may be tightened globally in the coming years due to slowdown in exploration and delayed FID on liquefaction plants and import terminals. Before, COVID-19, it was expected that the natural gas demand in India would be driven by Fertilizers, CGD, Refineries and emerging applications. But post COVID-19, demand from the end-use sectors would be influenced from various factors including economic growth, cost competitiveness and govt. support received in the short term and long term. But current circumstance also opens up new market opportunities for LNG suppliers in power and emerging applications such as LNG trucking and LNG for mining equipment that offer very attractive cost savings to the end users in the current LNG price environment.

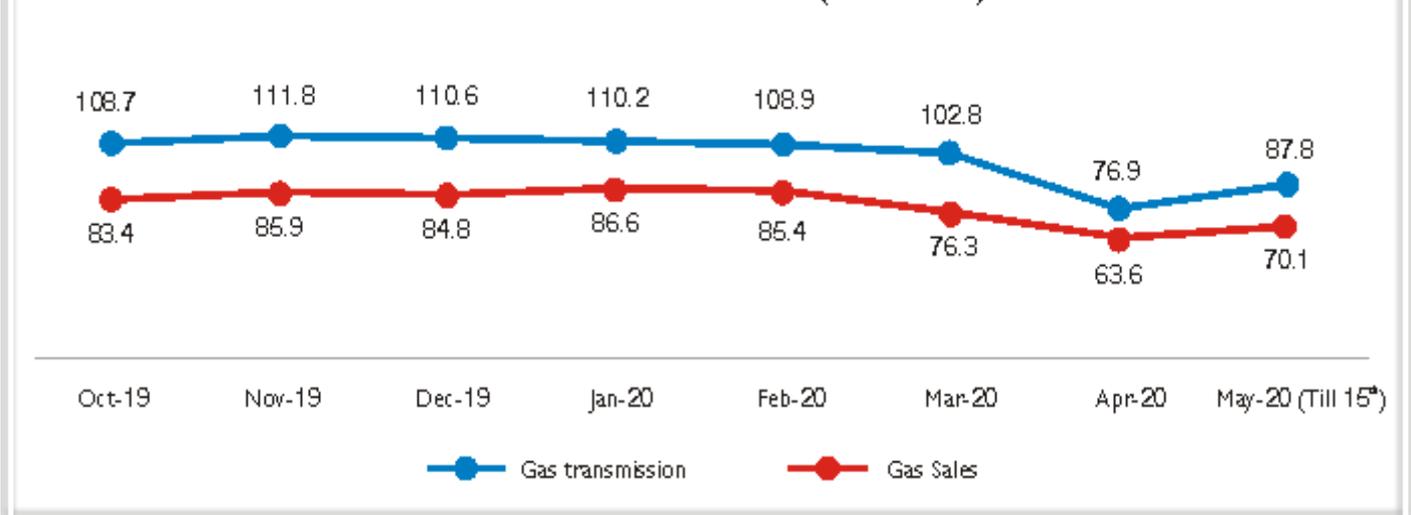
India's natural gas consumption needs to increase by more than three-folds in the next 10 years to increase its share to 15% in the country's energy basket. This target is highly ambitious and needs sustained and robust policy support. India's future gas demand growth is expected largely from the industrial and CGD sector. Expansion of gas infrastructure and offering affordable supply will be the key to unlock this demand. A new pipeline tariff policy is expected to be unveiled to rationalize gas prices across the country.

G. GAIL during COVID-19 – Service to the Nation

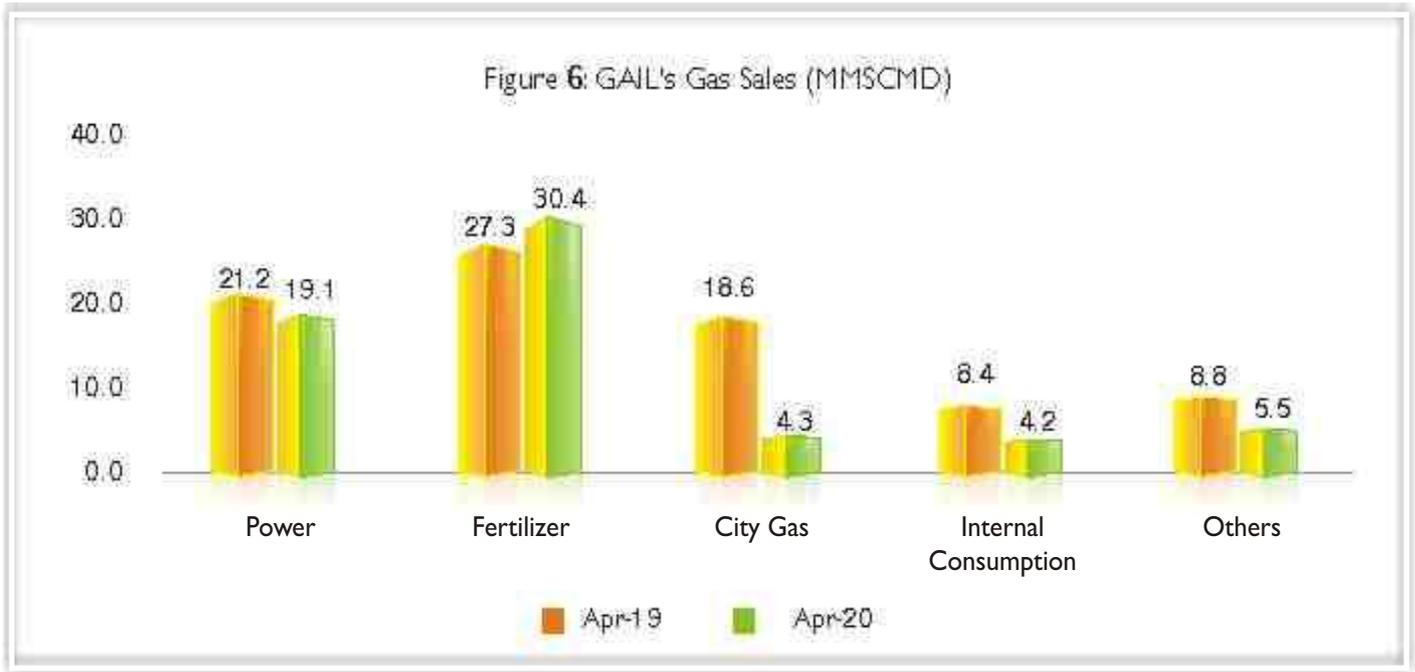
GAIL is committed to provide uninterrupted supply of natural gas even in the times of crisis. Despite of pandemic situation, GAIL has maintained uninterrupted and safe operations of pipeline systems and has ensured uninterrupted gas supply to all the key customers including the fertilizer and power sector. Operations of its LPG pipelines also remain normal. All the gas processing units operated normal during this crisis maintaining stable LPG production. Only the Petrochemical complex at Pata was under temporary shutdown for 15 days from 3rd April 2020 to 18th April 2020 due to reduction of demand as well as transport restrictions. Further, there were no challenges for releasing of payment to Vendors, Contractors etc. during lockdown due to large scale adoption of digital mode.

	Daily Average (Apr'19 – Feb'20)	8 th April 2020 (lowest sale)	26 th June 2020
GAIL's Domestic Gas Sales	49.04	39.20	44.87
GAIL's RLNG Gas Sales	35.90	20.43	37.87
Total Sale within India	84.94	59.63	82.74
Total Gas Transportation in GAIL's Network	108.70	73.30	106.71

Gas sales and Transmission (MMSCMD)



GAIL's supply to Fertilizer sector was reduced by 20% but offtake has recovered to normal level within one month. Consumption of gas in power sector has witnessed miniscule decrease despite of reduced electricity consumption by almost 20-30% during lockdown which confirms the significance of gas-based power sector in meeting power requirements of the country. CGD faced highest decline with over 75% reduced offtake due to closed commercial, industrial and CNG mobility. Other sectors comprising refineries, petrochemicals, steel, sponge iron have shown decline in consumption. Force majeure notices were served to Petronet LNG Ltd., Qatar Gas and Gazprom due to reduction in consumption and ullage constraints in LNG regasification terminals.



Source : GAIL Data

Construction work on all ongoing pipeline projects of GAIL has been resumed. Project activities are also back on track in all CGD projects (GAIL & GAIL Gas). Corrective measures have already been taken to catch up the delayed project schedule. To strengthen the fight against COVID-19, GAIL has contributed ₹ 50 crore and GAIL's employees have come forward to donate another ₹ 3.8 crore (2 days' salary) to the PM Cares Fund. Apart from these, support was provided to various district administrations across India by contributing PPEs / ventilators / masks / medical equipment and food packets / ration kits etc. Relief measures worth ₹4.74 crore were rendered.



2. GAIL's PERFORMANCE – DOMESTIC & OVERSEAS

2.1 Operational Performance

The operational performance of GAIL for the FY 2019-20 is as follows:

Particulars	UoM	2019-20		2018-19	
		Quantity	Total Revenue* ₹ Cr.	Quantity	Total Revenue* ₹ Cr.
Natural Gas Throughput	MMSCMD	108.37	6,034	107.43	5,779
Natural Gas Trading	MMSCMD	96.26	59,955	96.93	61,338
Liquid Hydrocarbon Sales	TMT	1,263	4,234	1,329	5,083
Polymers Sales	TMT	737	5,432	735	6,704
LPG Transported	TMT	3,909	637	3,975	624

*including intersegment sales.

➤ **NG Marketing**

Natural gas trading continues to be one of your Company's core businesses. During the FY 2019-20, your Company clocked a sales figure of 96.26 MMSCMD (which included sales within India of 84.60 MMSCMD and overseas sales of 11.66 MMSCMD) as against 96.93 MMSCMD during FY 2018-19. Gross revenue of your Company from Natural Gas Marketing in FY 2019-20 was ₹ 59,955 crore as against ₹ 61,338 crore in FY 2018-19.

Your Company marketed 49.21 MMSCMD domestic gas in FY 2019-20 as against 53.8 MMSCMD in the previous financial year. Domestic gas volume contributed around 58% of overall natural gas volume marketed by GAIL in India. The rest 35.4 MMSCMD (42%) gas marketed in India was through imported long-term, mid-term and spot LNG volumes. Sector-wise details are as below:

Fertilizer Sector: Your Company supplies majority of the gas consumed in the Fertilizer sector. In the recent years, your Company

has tied up with various Fertilizer users to supply around 12 MMSCMD of gas. During this FY, your Company has commenced gas supply to Ramagundam Fertilizers & Chemicals Limited (RFCL), w.e.f. October, 2019 for pre-commissioning of the plant.

Power Sector: Your Company supplies around 60% of the gas consumed by gas-based power plants in the country. Over the past few years, GAIL has successfully partnered with various power producers to operationalize their stranded units. GAIL continues to explore opportunities for supply of natural gas to gas based power generation units at affordable prices and is currently supplying around 4.12 MMSCMD of RLNG to power plants apart from allocated domestic gas.

➤ **Natural Gas Transmission**

Your Company owns and operates a network of around 12,426 km of natural gas pipeline across the length and breadth of country. The average gas transmission during the FY 2019-20 increased to 108.37 MMSCMD as compared to 107.43 MMSCMD in the previous financial year, registering a moderate growth of a little less than a percent.

LPG Transmission

Your Company owns and operates 2,038 km LPG pipeline network for LPG transmission namely Jamnagar-Loni (JLPL) & Vizag-Secunderabad (VSPL). JLPL and the VSPL pipeline networks achieved a throughput of 3.91 MMTPA during the year against 3.97 MMTPA in the previous year.

➤ **Petrochemicals**

Your Company has polymer production capacity of 810 KTA at Pata complex. Your Company's subsidiary (70% equity share) Brahmaputra Cracker & Polymer Limited (BCPL) has a capacity of 280 KTA. The marketing right of the BCPL plant is with your Company taking the total marketing portfolio to 1,090 KTA.



Shri Manoj Jain, CMD (2nd from right), Shri P.K. Gupta, Director (HR) (4th from right), Shri A.K.Tiwari, Director (Finance) (3rd from right) and Shri E.S.Ranganathan, Director (Marketing) (1st from right) addressed the Investors and Analysts Meet 2020

Further, your Company has a joint venture with ONGC and GSPC i.e. ONGC Petro- Additions Limited (OPAL) which has a 1,400 KTA capacity plant at Dahej.

Overall production from the Pata Petrochemicals complex in FY 2019-20 was 788 KTA. A combined volume of approx. 1,000 KTA of polymers including that of BCPL was marketed by your Company during the year. Your Company also exported 9 KTA of polymers to various Asian markets. Your Company has successfully maintained its market share in the domestic polyethylene market and remained the second largest player in the Indian petrochemical market with a portfolio of over 1,000 KTA of polyethylene. Your Company and BCPL together have a combined production share of 17.4% of the High Density and Liner Low Density Polyethylene (HDPE & LLDPE) market in the country.

BCPL has achieved 100% capacity utilization in FY 2019-20 also, making it two consecutive years of achieving its capacity utilization of more than 100% production.

➤ **LPG and Other Liquid Hydrocarbons (LHC)**

Your Company has 5 LHC plants at four locations across the country having production capacity of 1.4 Million MT. In FY 2019-20, total liquid hydrocarbon production was 1.266 Million MT, 90% of which was LPG and Propane.

➤ **Exploration & Production**

Your Company is having interest in both domestic and overseas blocks. The participating interest is in 9 domestic E&P blocks and another 2 blocks in Myanmar (A-1 & A-3). Your Company is Operator in two onshore domestic E&P blocks. During FY 2019-20, your Company has made its first oil discovery in Cambay basin as Operator. There is an additional gas discovery in A-3 asset in Myanmar and the production periods of this block may get extended after the successful appraisal of this discovery.

➤ **Renewable Energy**

Your Company is committed to reduce carbon emissions and implement renewable projects. Further, your Company has a total installed capacity of 130.26 MW of alternative energy; out of which 118 MW are wind energy projects and 12.26 MW are solar energy projects. Your Company is implementing a 1.8 MW captive Solar Energy PV Project at Vijaipur unit in Madhya Pradesh. The power generated from the plant will substitute the power drawn from the grid which will help your Company in reducing its carbon footprint in addition to optimization of the power cost.

Further, roof-top and ground mounted solar units are also being installed at various offices/ work centers for captive use.

Your Company is exploring various business opportunities in the Production and Marketing of Compressed Bio Gas (CBG) from organic waste. Your Company is an integral part of the MoP&NG's initiative – SATAT (Sustainable Alternative Towards Affordable Transportation) and accordingly has invited Expression of Interest (EOI) from various CBG Producers for providing Marketing tie up of CBG at the Retail Outlets of your Company and its JVs. This has led to issuance of number of letter of intents (LoI) to potential CBG producers. In order to sensitize the CBG entrepreneurs, a Road Show was organized by your company in Ranchi.

Your Company has taken the decision of venturing into CBG business by setting up CBG production plants. Your Company is in the advance stage of tie up with Ranchi Municipal Corporation for supply of Municipal Solid Waste (MSW) and associated infrastructure for setting up CBG plant at Ranchi. Your company already has the City Gas Distribution license from PNGRB for Ranchi District and has established its Eastern Regional office at Ranchi. This will help in integrated management of CBG plant operations and CBG marketing.

➤ **City Gas Distribution**

Your Company (including group companies) is currently authorized to operate in 61 Geographical Areas through-out India including metro cities of Delhi, Mumbai, Hyderabad, Bengaluru, Kolkata, etc. These CGD networks together cater to around 66% of total 62.05 lakh domestic PNG connections in the country. Out of the total 2,207 CNG stations in the country, your Company's group operates 1,385 CNG stations representing 63% share. This year, your Company registered record addition of 9.52 lakh household PNG connections and 311 CNG stations.

Your Company was authorized to take up CGD projects in six cities as a part of PM URJA Ganga project namely, Varanasi, Bhubaneswar, Cuttack, Patna, Ranchi and Jamshedpur. Supply of gas has already commenced to CNG, PNG customers in Varanasi, Bhubaneswar, Cuttack and Patna, while supply of gas has commenced in Ranchi and Jamshedpur through cascades during this financial year. Your Company is executing the CGD project at Kolkata through its JV - Bengal Gas Company Limited.

GAIL Gas Limited (a wholly owned subsidiary of your Company) is executing and operating CGD (City Gas Distribution) projects in 14



GAIL awarded the “Project Management Company of the Year” for successfully completing Phase I of the Pradhan Mantri Urja Ganga Pipeline Project by Shri Dharmendra Pradhan, Hon’ble Union Minister of Petroleum & Natural Gas and Steel

GAs, including Bengaluru. Currently, GAIL Gas has 07 nos. of JVCs and they are implementing CGD projects in 09 GAs. GAIL Gas along with its JVCs is providing DPNG to 4.64 lakh households and catering to clean fuel requirement for vehicles through its 166 CNG stations spread across various GAs.

During FY 2019-20, GAIL Gas along with its Joint Venture Companies (JVC) has achieved around 1.63 lakh domestic PNG connections, the highest figure ever achieved by GAIL Gas since its formation. During the same period, GAIL Gas along with its JV companies have also set up 81 CNG stations.

Bengaluru remained a major focus for your Company for CGD expansion. 26 CNG stations were set up and 55,582 domestic PNG connections were provided in Bengaluru CGD area in during FY 2019-20 ahead of schedule.

2.2 Financial Performance

➤ Capex

Your Company executed a capex of ₹ 6,114 crore (including equity contribution to subsidiary and JV) during the FY 2019-20 as against a capex of ₹ 8,344 crore in the FY 2018-19.

➤ Profitability

The Turnover in FY 2019-20 decreased by 4% to ₹ 71,730 crore against ₹ 74,808 crore in the previous year. The PAT increased to ₹ 6,621 crore in FY 2019-20 against ₹ 6,026 crore in the previous year, registering an increase of 10%. This is the highest ever PAT reported by your Company.

➤ Shareholders’ Funds

The Reserves and Surplus (excluding Transition Reserve & Other Comprehensive Income) at the end of the FY 2019-20 stood at ₹ 37,434 crore as compared to ₹ 37,022 crore in the corresponding previous year. As on March 31, 2020, net worth of the Company stood at ₹ 41,854 crore, as compared to ₹ 39,202 crore as on March 31, 2019.

➤ Debt and Interest

Total Debts outstanding as on 31st March, 2020 is ₹ 5,257 crore as against ₹ 1,000 crore as on 31st March, 2019. The total Foreign Currency Loans of ₹ 407 crore outstanding as on March 31, 2020, over 95% (i.e. ₹ 385 crore) is hedged with financial derivatives such as currency swaps or forwards.

Debt–Equity ratio as on March 31, 2020 increased to 0.09 as compared to 0.03 as on March 31, 2019. The Debt–Equity Ratio has increased to 0.09 mainly due to additional borrowings during the year to meet the capital expenditures of the company. The long term debt as on 31st March 2020, increased to ₹ 3,757 crore from ₹ 1,000 crore as on 31st March 2019.

The Debt Service Coverage Ratio (DSCR) was 30 times as on March 31, 2020 as against 7 times on March 31, 2019. The DSCR increased

during the year mainly due to substantially lower scheduled repayments during the year as compared to the previous year. Further, the Interest Coverage Ratio was 59 times as on March 31, 2020 as against 66 times on March 31, 2019. This reflects the strong financial position of your Company and ability to take up new projects.

➤ Ratio Analysis

Return to Net Worth (PAT/Net Worth) for the Company as on March 31, 2020 improved to 15.82% as compared to 15.37% as on March 31, 2019. The PAT to Networth Ratio improved during the current year mainly on account of higher PAT which increased by 10% to ₹ 6,621 crore as compared to ₹ 6,026 crore in FY 2019. The higher PAT during the year is attributable to higher Natural Gas and LPG transmission profits and due to the adoption of the lower Corporate Income Tax rate of 25.17% during the year.

Return on Capital Employed (PBIT/Capital Employed) decreased to 15.36% in FY 2019-20 as compared to 18.07% in FY 2018-19.

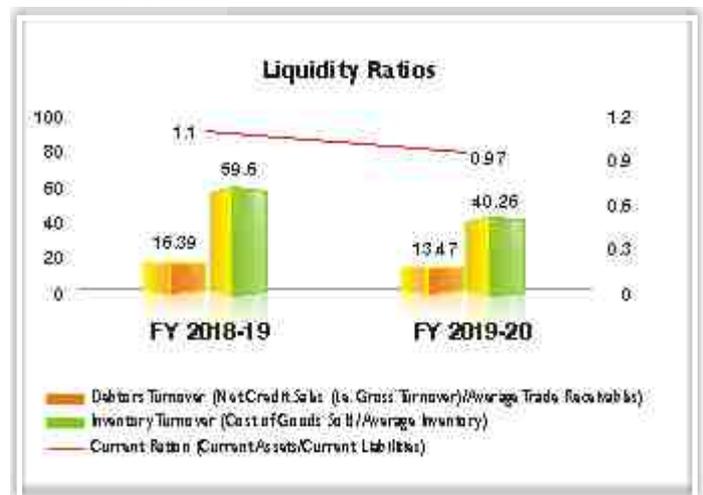
Debtors Turnover (Net Credit Sales i.e. Gross Turnover/Average Trade Receivables) for the Company as on March 31, 2020, stood at 13.47 as compared to 16.39 as on March 31, 2019.

Inventory Turnover (Cost of Goods Sold/ Average Inventory) was 40.26 as on March 31, 2020, as compared to 59.60 as on March 31, 2019. The primary reasons for the decline in Inventory Turnover Ratio is the sharp increase in Petrochemical Inventory due to lockdown, increase in LNG Inventory as 2 LNG Cargoes were in transit.

Current Ratio (Current Assets/ Current Liabilities) for the Company as on March 31, 2020, stood at 0.97 as compared to 1.10 as on March 31, 2019.

Operating Profit Margin (%) [Operating Income (Operating EBIT) / Revenue from Operations (Net)] for the Company as on March 31, 2020 stood at 11.06% as compared to 12.71% as on March 31, 2019.

Net Profit Margin (%) [Profit after Tax (PAT) / Revenue from Operations (Net)] for the Company as on March 31, 2020 stood at 9.21% as compared to 8.02% as on March 31, 2019.



➤ Market Capitalization

Market capitalization of the Company decreased from ₹ 78,398 crore as on March 31, 2019 to ₹ 34,525 crore as on March 31, 2020, due to meltdown of equity markets across the globe in view of the outbreak of COVID-19 pandemic.

2.3 Company's Global Presence

Your Company is constantly expanding its global presence through its participation in projects / ventures along the natural gas value chain. With the LNG portfolio of around 14 MMTPA from the USA, Qatar, Australia, etc. your Company has emerged as one of the leading global LNG player and is actively involved in LNG trading business in the international market.

Your Company is a part of a consortium in two offshore E&P blocks (A-1 & A-3) in Myanmar. Around 14 MMSCMD of gas is being produced from these blocks, and supplied to China and Myanmar through South East Asia Gas Pipeline Company Limited (SEAGP), in which your Company is also an equity partner. SEAGP is paying dividends to your Company regularly. Your Company's Branch Office in Myanmar is scouting business opportunities in Myanmar and other South East Asian countries, in the areas of gas value chain and beyond. Further, your Company and IGL are jointly pursuing a natural gas supply and distribution project in New Yangon for which techno-commercial study has already been completed.

Your Company is the Govt. of India's nominee in the Turkmenistan-Afghanistan-Pakistan-India (TAPI) natural gas project for import of gas to India from Turkmenistan. TAPI Pipeline Company Limited (TPCL) has been incorporated in Isle of Man to build, own, and operate the TAPI Pipeline. The project is currently under pre-FID stage, wherein various activities are being undertaken by TPCL. Considering the changes in the global energy market, your Company is discussing with Turkmen gas for arriving at mutually acceptable terms and conditions to enhance the marketability of the pipeline gas to be received from Turkmenistan. In addition to the GSPA, discussions are being held on the Business Principles at the commercial level. MoP&NG, under Govt. of India is monitoring the development of the Project.

Your Company holds equity interests in two CGD companies in Egypt, namely Fayum Gas Company (FGC) and National Gas Company (Natgas), involved in the supply of natural gas to residential, commercial and small industrial customers in Egypt. The investment in Natgas was made through GGSPL. Political uncertainty in Egypt during 2011-12 affected all foreign investors in Egypt including your Company. However, over the last few years, the situation in Egypt has improved. Fayum Gas has started making profits and after a gap of 3 years, Fayum Gas has paid dividend for CY 2018. For CY 2019 also, Fayum Gas has declared dividend for its shareholders. Natgas is declaring dividends for its shareholders on regular basis.

Your Company is also an equity partner in China Gas Holdings Limited (China Gas), a retail gas company involved in the city gas and CNG business in China and listed in Hong Kong Stock Exchange. China Gas is performing well and paying dividend to your Company regularly.

3. FUTURE ROADMAP

3.1 Strategy

Your Company framed '**Strategy 2020**' in the year 2011 and has implemented several strategic initiatives identified under the Strategy including commissioning of major gas pipelines, international gas sourcing

contracts for enhancing energy security of India and expansion of petrochemicals capacity.

During the year, your Company has undertaken '**Strategy 2030**' exercise to define its journey through the next decade. The strategy has been developed with an objective of building a strong business portfolio and organization structure which is not only robust enough to respond to the fast-changing business scenario but also unlocks growth opportunities for a long term growth of the Company and in turn delivers long term value to stakeholders.

Your Company is planning to bid consistently for new pipelines put on offer through PNGRB. Your Company shall continue to grow its gas transmission business by laying important sections of National Gas Grid (NKG) i.e. Jagdishpur-Haldia-Bokaro-Dhamra Pipeline, Kochi - Kootanad - Bengaluru - Mangalore Pipeline Phase-II, Vijaipur Auraiya Pipeline, Barauni Guwahati Pipeline, North East Gas Grid (through Joint Venture company Indradhanush Gas Grid Limited with IOCL, ONGC, OIL, NRL) aligning with the Govt's priorities and by providing last mile connectivity.

Development of Indian gas market is a major focus area of your Company. To grow the gas market share, your Company shall be pushing for higher gas usage in the industrial segment, transport segment using CNG & LNG, trigeneration, etc., ensuring off-take of envisaged additional domestic gas production and increasing pace of activities in the fast growing CGD sector through GAIL Gas and JVs. Your Company is under discussion for development of LNG stations by CGD companies having authorized Geographical Areas along the important National Highways primarily Golden Quadrilateral Highway. Your Company is also in discussions with various stakeholders for developing Market Seeding Schemes for Fleet Operators for promoting use of LNG as Transport Fuel. Discussion is undergoing with a prominent company in energy efficiency for cooperation for use of natural gas in trigeneration system.

Your Company is the largest LNG portfolio holder in India having diverse price linkages and shall be looking to offer value and reliable supply to the consumers by selling the right mix in the domestic and international geographies. Your Company is consistently looking for new international geographies to sell LNG volumes.

Your Company shall be exploring opportunities in the petrochemicals segment to leverage upon GAIL's extensive presence and high future demand of polyethylene and polypropylene. Your Company shall also be assessing whether opportunities exist in certain specialty chemicals in India.

Your Company will be selectively making investments in the Renewable Energy domain given the future growth potential and also to partner with Govt. in meeting India's INDC (Intended Nationally Determined Contributions) commitments on climate change. Your Company is exploring the opportunity of acquiring stakes in renewable energy assets of existing players and also looking towards participating in the solar park tenders as Solar Power Producer.

Your Company shall also be focussing on preparing the next line of leadership and developing capabilities to realize the strategic direction that has been envisioned.

Your Company is continuously exploring new business opportunities which have the potential to offer future growth engine and substantially add to the portfolio. To promote new technologies, GAIL has invested in the startups which focus on new technologies like Electric Vehicles, digitization, etc.

Digital Strategy

Your Company has always been at the forefront of implementing and adopting new technologies and has made significant investments in digital technologies in the past. Given the dynamic market environment, your Company has assumed a '**Digital Strategy**' exercise to leverage on the recent advances in digital technologies and advanced analytics to support effective decision making and build a scalable, and agile enterprise with improved business performance and competitive advantage. This '**Digital Strategy**' exercise is aimed at to address the future needs of your Company in terms of mission critical services, supporting operations, maintenance, planning, sustainability and overall vision. Your Company has



Hindi Diwas 2019 being celebrated at GAIL

also defined its digital vision to bring alignment amongst various stakeholders and the potential digital themes. The new Digital Vision of your company is

“Be a digitally empowered organization for operational excellence and stakeholder value creation”

The new Digital vision of your Company addresses the needs and aspirations of all the key stakeholders, including employees, customers, vendors, shareholders, and society. Under the **‘Digital Strategy’** exercise, key digital themes were identified focusing on various business value drivers such as Brand strength, Customer Satisfaction, Health Safety & Environment, People Effectiveness, Sourcing Effectiveness and Trustworthiness. A roadmap has been established with potential digital initiatives to bridge the gaps between the current state and leading practices/emerging digital trends. Implementations of various digital initiatives are in process to bridge the gaps between the current state and the leading practices/emerging digital trends.

Adoption of latest digital technologies by your Company is expected to make huge contributions to promote sustainability through enhanced monitoring and data capturing. A broad multi-stakeholder alliance and platforms for sharing digital solutions and services are essential to attain the Sustainability Development Goals. New digital methods are facilitating timely and precise monitoring of data relevant for promoting sustainability in your organization and helping to do the operations in a right manner. Digital co-operation on platforms are helping in creating a database, which could be used for big data analytics-based solutions to support better planning and optimization.

3.2 New Initiatives

➤ Natural Gas Marketing

Your Company is strengthening its existing customer base while simultaneously working on expanding gas consumption in emerging sectors. Your Company has tied-up more than 13 MMSCMD of gas supply in FY 2019-20 including customers along the new pipelines viz. JHBDPL and KKB MPL, reinforcing its position as a trusted supplier. For the first time in its history, your Company has imported 74 LNG cargoes to India amounting to approx. 4.8 MMT of LNG volumes to cater the growing need. In CGD, 39 new GA's have commenced off-take of gas from your Company during the year.

➤ Sourcing & Trading

Your Company has established itself as a major global LNG player and is now trading substantial amount of LNG in international markets. Your Company has concluded various deals to de-risk the existing portfolio including destination swap transactions, time swap transactions and third-party sales on FOB basis to ensure delivery of competitively priced LNG in the Indian market. Further, your Company has successfully handled the impacts of COVID-19 pandemic through cancellation/re-scheduling of cargoes under various long-term LNG contracts, ensuring uninterrupted LNG/RLNG supply to customers.

➤ LNG Shipping

In order to transport the LNG sourced from USA, your Company hired the LNG vessel **‘Meridian Spirit’** from Total E&P NORGE AS, Norway for a period of 3 years extendable by one year at Charterer's option. With this vessel, your Company has been able to significantly increase its trading footprints not only in India but also in the European region.

During the last year, your Company sub-chartered the vessel **‘Meridian Spirit’** to other counter parties for a short period and also concluded a unique vessel swap transaction. These transactions have not only optimized the vessel utilization but also generated revenue from shipping activities.

Your Company signed a Charter Party Agreement with a subsidiary of Mitsui OSK Lines (MOL) for hiring of a new build LNG vessel of latest technology for a period of 03-05 years from the year 2021 onwards.

Depending upon the LNG trading strategy for FY 2020-21, GAIL may charter hire additional LNG ship(s) on spot / term basis. Your Company has developed LNG shipping capabilities in a very short span of time and is now fully equipped to meet its spot / short / mid / long term shipping requirements.

➤ LNG Regasification Terminals

During the year, Konkan LNG Limited (KLL) has become a subsidiary of your Company and management and operational control over Dabhol LNG terminal has further enhanced. It shall provide greater operational flexibility to your Company in LNG business in terms of sourcing, regasification and trading of LNG.

Your Company has under taken the debt resolution process with the lenders to improve the financial viability of KLL. Your Company has provided the required financial support to KLL for debt resolution exercise and in lieu of providing financial support to KLL, lenders of KLL transferred their equity shareholding in KLL to your Company and also novated the residual loan in favor of your Company.

Your Company is the commercial operator of 5 MMTPA Dabhol terminal in Maharashtra under KLL. The terminal is currently operating only during non-monsoon months due to non-availability of breakwater facilities and thus utilizing only 1.9 MMTPA capacities. The construction work for breakwater has been started and is likely to be commissioned in mid-2022, after which the terminal shall be able to operate throughout the year, utilizing its full capacity. Further, your Company is making all the efforts for full utilization of regasification capacity of Dabhol terminal by selling surplus regasification slots to third party.

Your Company has booked additional 2.5 MMTPA long term regasification capacity in Petronet LNG Limited (PLL) Dahej terminal. PLL is using its regasification capacity of Dahej and Kochi terminals for supply of around 5.0 MMTPA of RLNG to GAIL under various long-term Gas Supply Agreements (GSAs).

Your Company also signed Tolling Agreement with Dhamra LNG Terminal Pvt. Ltd. In 2018 for 1.5 MMTPA regasification capacity at Dhamra LNG Terminal, Odisha to market LNG in the Eastern Region.

➤ Natural Gas Transmission

Your Company is committed to increase the physical network infrastructure and completion of NGG. To offer seamless and transparent pipeline access to its customers, an online portal was launched by your Company in 2018 for displaying and online booking of the pipeline capacity. This platform is available 24x7 and can be accessed through mobile as well. Around 1800 Capacity Tranche (CT) requests have been processed through the portal during FY 2019-20 while the total CT requisitions processed till 31.03.2020 since the launch of online portal is around 3000.

Further, to ensure higher utilization of the commissioned trunk pipelines, 8 new Last Mile Connectivity and 5 Hook-ups were completed to supply/transport gas during FY 2019-20.

➤ Developing the National Gas Grid (NGG)

Your Company is a significant number of gas pipelines as part of National Gas Grid. Currently, your Company is executing around 7,500 km of gas pipelines across India and another 1,800 km pipelines through its two JVs.

1. Kochi-Koottanad-Bengaluru-Mangalore Pipeline (KKB MPL) Phase-II (879 km): Construction of Kochi to Mangalore pipeline (434 km) section is in full swing and is expected to be completed soon.
2. Vijapur-Auraiya-Phulpur Pipeline: To de-bottleneck supply of JHBDPL project, a parallel pipeline from Vijapur to Phulpur via Auraiya (672 km) is under execution in phases. Phase-1 from Auraiya to Phulpur (315 km) is already commissioned. Phase-2 of the pipeline i.e. Vijapur to Auraiya (357 km) is under execution and is expected to be completed by Dec-2020.

- Jagdishpur-Haldia & Bokaro-Dhamra Pipeline (JHBDPL) (2,655 km) and Barauni- Guwahati Pipeline (729 km) section as an integral part of JHBDPL. This pipeline network shall pass through the Eastern part of U.P., Bihar, Jharkhand, Odisha, West Bengal and Assam. The pipeline network shall have two gas sources, one at Phulpur (Allahabad, U.P.) and the other at Dhamra RLNG Terminal (Odisha). Recently, PNGRB has granted authorization for capacity expansion of JHBDPL network by laying Dhamra-Haldia pipeline and increasing size of Paradip spur line. With this expansion capacity of integrated JHBDPL network is now 23 MMSCMD from earlier 16 MMSCMD.

Construction of these two pipelines is under progress in phases. JHBDPL pipeline network of total length of 730 km including Phase-I from Phulpur to Dobhi to Barauni (585 km) with spur-lines to Varanasi and Patna has been completed during the year. The work is in progress for the balance sections but may get delayed due to COVID-19. Construction activity of Barauni-Guwahati section had started in FY 2018-19.

- For development of the regional gas pipeline grid in the North East India, a Joint Venture Company (JVC) – Indradhanush Gas Grid Ltd. has been formed among 5 Oil & Gas PSUs viz. IOC, ONGC, GAIL, OIL and NRL as equal equity partners. This 1,656 Km Gas grid with an estimated project cost of ₹ 9,265 crore is connecting eight North-Eastern States-Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim. Viability Gap Funding (VGF) of ₹ 5,559 crore (60%) for this project was approved by the cabinet on 8th Jan 2020.
- Board's approval has been received for Srikakulam (AP)-Angul (Odisha) pipeline (690 km). Pipeline is currently under execution.
- Your Company has received PNGRB's approval for capacity expansion of the JHBDPL Network by way of a new Pipeline from Dhamra to Haldia and resizing of the Dhamra-Paradip section of JHBDPL.
- Your Company has received PNGRB's authorization for Mumbai-Nagpur-Jharsuguda Pipeline (MNJPL).

➤ City Gas Distribution (CGD)

Your Company's subsidiaries and CGD JVs have won 15 Geographical Areas (GAs) in the 9th round of CGD bidding and 8 GAs in the 10th round of CGD bidding.

In the 9th round of CGD bidding, GAIL Gas Limited received authorization for 05 Geographical Areas (viz. Dakshin Kannada Districts, Sundargarh & Jharsuguda Districts, Ganjam Nayagarh & Puri districts, Dehradun district and Giridh & Dhanbad Districts) apart from 02 Geographical Areas in Assam (viz. Kamrup & Cachar) through a consortium with Assam Gas Co. Ltd. & Oil India Limited. GAIL Gas formed a Joint Venture Company - Purba Bharti Gas Private Limited (PBGPL) to execute these two CGD projects in Assam.

In 10th round of CGD bidding, GAIL Gas Limited has been authorized 04 GAs (Saraikela-Kharaswan District, West Singhbhum District, Raisen-Shajapur-Sehore Districts and Mirzapur-Chandauli-Sonbhadra Districts). Project related activities have already commenced in GAs, authorized in the 9th and 10th bidding round.

Further, GAIL Gas has awarded 22 Letters of Intent (LoI) to entrepreneurs to promote compressed biogas (CBG) under SATAT. Agreement has been signed with one of the entrepreneurs for setting up Compressed Biogas plants.

➤ Petrochemicals

After creating history in 2019, by becoming the first ever producer of Metallocene grade polymer in India, your Company has successfully produced around 12,800 MT of Metallocene grade polymers during

the year, without needing assistance of the process licensor (M/s Univation, USA), thereby successful in absorbing the technology. Apart from that, the Pata petrochemical complex has also established sustained production of Hexene-1 based polymer grades in its New LLDPE Swing Unit, after which it has become the first plant of the Univation technology, in India, having produced the slated Polymer grades using different catalysts in a single reactor.

6 new consignment stockiest (CS) are appointed by your Company to increase wide network & sales of petrochemical marketing. SAS is hired for developing Advanced analytical tool for optimizing & improving margin.

Your Company is looking to develop export capability and has been exploring new petrochemical market of other Asian countries. This year, your Company has exported 9 tonnes of polymer to various overseas markets.

Your Company envisages to enhance the production of Polypropylene grade petrochemicals and is in the process of setting up a 500 KTA Propane dehydrogenation and Polypropylene (PDH-PP) Plant at Usar, Maharashtra at an investment of around ₹ 8,800 crore. This would be the first plant in India using Propane Dehydrogenation technology for production of Propylene. The technology Licensor selection for PDHPP unit is in Progress. Environment clearance for the Project site in Usar, is under consideration by the Ministry of Environment, Forest & Climate Change.

Your Company has also received Board's approval for setting up a 60 KTA Polypropylene (PP) plant at Pata at an estimated investment of ₹ 910 crore. Technology Licensor Selection for PP unit is in progress.

➤ Coal Gasification

Your Company is in the process of setting up a coal gasification-based Urea project through a JV- Talcher Fertilizers Limited (TFL), formed with Coal India Limited (CIL), Rashtriya Chemicals and Fertilizers Limited (RCF), each having 31.85% stake and Fertilizer Corporation of India Limited (FCIL) having 4.45% equity. The project, with an estimated cost of around ₹ 13,277 Crore is envisaged for the production of 2,200 MTPD Ammonia and 3,850 MTPD Urea. The coal for the project shall be sourced from captive mine of North Arkhaphal in Talcher region which has been allotted to TFL by Ministry of Coal. TFL has already signed the mine allotment agreement with the Coal Ministry. Petcoke, which is the second feedstock, shall be sourced from IOCL's Paradip refinery for which TFL has already executed an MoU with IOCL.

The project has received an investment approval from all the JV partners in August 2019 and project activities have already commenced with the award of 02 major LSTK tenders of coal gasification and ammonia/urea at a cumulative cost of approx. INR 8,000 crore to M/s Wuhuan Engg. Co. Ltd., China. Further, debt syndication of the project is under progress. Selection of other vendors is in progress along with other pre-project construction activities at site. Department of Fertilizers is in the process of preparing Urea Policy for coal gasification-based Urea Plant.

➤ Fertilizer

Your Company had taken 14.3% equity stake in Ramagundam Fertilizers and Chemicals Limited (RFCL) incorporated by NFL, EIL and FCIL for producing 2,200 MTPD Ammonia and 3,850 MTPD Urea. The unit is in the verge of completion and pre-commissioning activities have already been commenced. Supply of gas to RFCL has started.

➤ Start-up Initiative

Your Company has an on-going Start-up Initiative to make investments in Start-ups. To give a boost to this initiative, an additional corpus of ₹ 50 crore was provided during the year, thereby increasing the total corpus to ₹ 100 crore.

Focused investments were made in Start-Ups operating in Electric vehicles value chain to participate in this high growth area. Your Company has signed Investment Agreements with 9 Start-Ups during the year with a commitment of ₹ 22.42 crore. Till date, 24 Start-Ups are supported with a total commitment of ₹ 45.72 crore and ₹ 35 crore has been already disbursed. A new round of Solicitation for Investment Proposals from Start-Ups operating in the Area of 'Renewable and Alternate Energy' was carried out during the year. The main aim of this Round is to invest in Start-Ups in the Area of Compressed Bio Gas (CBG) to support the Sustainable Alternative Towards Affordable Transportation (SATAT) initiative of Government, and to promote CBG as an alternative green transport fuel for efficient management of Biogas and organic waste.

➤ Advocacy Initiatives

Your Company has been running *Hawa Badlo (Change the Air)* campaign with the primary aim to sensitize people on the harmful effects of air pollution. The *Hawa Badlo* campaign has digitally touched more than 100 million lives enabling people to make a direct link between their energy consumption patterns and the impact on their health and environment, and motivating them to voluntarily switch to the more economic and environmentally friendly 'natural gas'. Your Company also partnered with the UN patronised "**Interdependence**" - An eleven short film global campaign, for raising awareness on environment & climate change organized by Art for the World, an NGO associated with the United Nations Department of Public Information (UNDP/PI). The world premiere of the Interdependence campaign took place during Rome Film Festival on 22nd October, 2019. The idea behind the film was to create a dialogue for prompting some measurable actions to mitigate the problem of air pollution.

4. RISKS, CHALLENGES AND MITIGATION

➤ Regulatory Framework

The Petroleum & Natural Gas Regulatory Board (PNGRB) was established by the Government of India on October 1, 2007, for carrying out the various provisions of the PNGRB Act, 2006. The PNGRB Act provides a legal framework for regulating the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas, but excluding the activities of production of crude oil and natural gas, so as to protect the interests of the consumers and the entities engaged in these activities. The main functions of PNGRB include, inter-alia, (a) granting authorizations for laying, building, operating or expanding new pipelines as common carriers or contract carriers and for laying, building, operating or expanding new city gas distribution networks (CGD networks), (b) declaring existing natural gas pipelines, petroleum & petroleum product pipelines and CGD networks as common carriers or contract carriers, (c) regulating access to common carriers or contract carriers, (d) regulating transportation rates of common carriers or contract carriers and (e) to perform such other functions as may be entrusted to it by the Central Government to carry out the provisions of this Act.

During the financial year 2019-20, PNGRB has notified various Amendments to the Regulations in respect of Natural Gas Pipelines, CGD networks and Petroleum Product Pipelines and has also issued various authorizations, orders and decisions in relevant matters. The details of the said regulations, amendments, authorizations, orders, and decisions are available on the official website of PNGRB (www.pngrb.gov.in) and have varying implications on the business. These regulations, amendments, authorizations, orders, decisions of PNGRB are appealable before the PNGRB Bench, Appellate Tribunal and Courts and accordingly, some of them pertaining to your Company are also under various stages of appeals. The timing and content of any final changes in the regulations made by the Regulator is

not in your Company's control. However, regular participation in public consultation exercises conducted by the Regulatory Board and making submissions to the Regulator in writing helps us to anticipate or to minimize risks associated with any sudden or unforeseen changes in the regulations.

➤ Natural Gas Prices

Your Company currently market's natural gas purchased from domestic and international sources.

The Government of India, vide its order dated October 25, 2014, had notified the New Domestic Natural Gas Pricing Guidelines, 2014. As per the notification w.e.f. November 01, 2014, the gas price is determined bi-annually as per a specific formula, which, in essence, is a twelve-month average price (minus transportation and treatment charges) of natural gas traded in the major hubs worldwide. The New Domestic Natural Gas Pricing Guidelines, 2014, are applicable uniformly to all nominated fields to ONGC & OIL, NELP blocks and Pre-NELP blocks that require Government's Approval as per PSC, whereas the same are not applicable in case of small and isolated fields of nominated blocks that are covered under the pricing guidelines of 2013.

Further, the Government of India, vide its order dated March 21, 2016, has notified guidelines on marketing including pricing freedom for the gas produced from discoveries in deep water, ultra-deep water and high pressure-high temperature areas. As per the guidelines, the Government has decided to ensure freedom of pricing for gas produced in these fields up to a ceiling price level calculated by taking lower of twelve-month average of landed price of imported fuel oil, substitute fuels and LNG.

Your Company earns the marketing margin on the sale of domestic natural gas. Further, the Government of India, in its notification dated December 24, 2015, applicable from November 18, 2015, has put a ceiling on marketing margin for the supply of domestic gas to fertilizer (Urea) and LPG producers to ₹ 200 per 1000 SCM.

In addition to the above, your Company purchases imported natural gas mainly from Petronet LNG Limited (PLL) at Dahej, Gujarat. The purchase and selling prices of such Natural Gas (RLNG) is based on international crude price indices. Further, your Company also directly imports LNG through carriers from various suppliers worldwide and gets it re-gasified either at PLL's regasification terminal at Dahej, Gujarat and Kochi, Kerala or at KLL regasification terminal at Dabhol, Maharashtra or at Hazira LNG Private Limited (HLPL) regasification terminal at Hazira, Gujarat. Such LNG import is either under a medium-term agreement ranging up to three years or under spot cargo purchases. Under medium-term imports, the selling price is largely based on the purchase price. However, under spot cargo imports, the selling price is dependent upon the demand and supply scenario and customer affordability. Import of LNG spot cargo is based on a thorough assessment of the affordability & requirement of the end consumers and the availability of LNG in the international markets.

➤ LNG Portfolio

Your Company and its subsidiaries / joint ventures / affiliates till date have executed two long-term LNG contracts in the USA and one long-term LNG contract from Russia to meet the growing LNG demand and enhance capacity utilization of pipeline infrastructure:

- LNG Sale and Purchase Agreement with Sabine Pass Liquefaction LLC for sourcing of 3.50 MMTPA of LNG from Sabine Pass Liquefaction terminal, USA with supplies commenced from February, 2018.
- Terminal service agreement for booking of 2.30 MMTPA liquefaction capacity in the Cove Point LNG liquefaction terminal, USA with supplies commenced from April, 2018 and Gas sale and Purchase Agreement with WGL Midstream for the commensurate gas quantities.

- LNG Sale and Purchase Agreement with Gazprom for sourcing up to 2.85 MTPA, i.e. around 10.26 MMSCMD of LNG (primarily from Yamal Liquefaction terminal) with supplies commenced from 2018-19.

The aforesaid LNG contracts were entered by your Company with the primary objective of meeting the demand of a growing Indian economy and ensure energy security of the nation. During the finalization of the Sale Purchase Agreement (SPA) of above, power sector was envisaged as the key buyer. However, power produced from LNG doesn't come under the Merit Order Dispatch due to availability of cheaper alternative power including renewables.

To mitigate the above risks, your Company is exploring opportunities to market LNG volumes in the international markets either directly and/or through its Singapore based subsidiary, GGSP. L.

In parallel, your Company has also optimized LNG sourced from the US through destination swap transactions to optimize cost of shipping HH LNG to the Indian ports resulting in efficient management of the portfolio.

Your Company has also executed agreements for LNG supply to the upcoming/revived Fertilizer units in the domestic market. Efforts are also on to market RLNG to anchor customers like refineries and steel plants along upcoming and existing pipelines.

Since FY 2016-17, your Company undertook hedging transactions for a part of the LNG volume used for your Company's internal consumption and sale to domestic and international customers, to mitigate the price risk and fix the margins. Such mitigating measures of commodity hedging are underway based on the regular assessment of managing cash flows from trading transactions.

➤ **Unified/Pooled Tariff for the integrated Natural Gas Pipeline system**

Present tariff methodology requires tariff to be levied separately for each pipeline resulting in additive tariffs for multiple pipelines. Such pipeline tariff is not viable for new customers located in far-flung regions. There is a constant demand for equitable tariffs to manage input costs for maintaining competitiveness of their end-products/service. Integration of natural gas pipelines and determination of unified/pooled tariff for such an integrated pipeline system provides an optimal solution to tide over wide variation in tariff structure across regions and can lead to an equitable gas based economic development. Unified/Pooled tariff removes the distortion in the tariffs applicable to the existing and new customers as the pipeline network expands.

To facilitate equitable market growth, while granting the capital grant for JHBDPL, the Cabinet Committee of Economic Affairs (CCEA) inter-alia directed MoP&NG to examine your Company's request for Unified/Pooled tariff for all its inter-connected cross-country pipelines for ensuring financial viability and sustainability of such infrastructure projects. It also empowered MoP&NG to either vest the responsibility of fixing such a tariff by the nodal Ministry itself or by PNGRB through suitable directions based on the parameters of phase-wise actual/anticipated capacity utilization, operating expenses (including unaccounted gas loss), future capital costs for last mile customer connectivity etc. to ensure 12% post-tax return on GAIL's investment. In this regard, draft regulations have been framed, public consultation is complete and the matter is under deliberation by PNGRB.

➤ **Power including Renewables**

India is increasing its renewable energy capacity at a brisk pace with an aim to reduce Carbon emissions. With an increase in the renewable energy portfolio, the stability of grid is a major concern for industry. Natural gas-based power plants can act as a balance to provide grid

stability as gas plants can respond more quickly to load changes than coal-based plants and can further help in reduction of emissions, being cleaner than the Coal. Plant Load Factor (PLF) for conventional fuel plants is on a decline and natural gas-based power plants continued to run with structural issues requiring resolution through policy intervention. Your Company has been working on case to case basis and in close co-ordination with MoP&NG and Ministry of Power to increase/revive off take of natural gas by the power sector.

➤ **Polymer, LPG and other LHC**

Your Company is also marketing petrochemicals, LPG and other LHC products. The prices of these products are influenced and determined by global and domestic factors influencing demand and supply. Your Company has developed a range of market acceptable products to ensure steady consumption of the petrochemical products and has optimized its portfolio by having production facilities at Pata (UP) and Assam. LPG marketing is decided in close co-ordination with the PSU Oil Marketing Companies. Continuous measures are taken towards managing margins across your Company's range of products.

➤ **Foreign Exchange Fluctuation Risk**

Your Company, largely imports capital goods and stores & spares for various new projects, and operation & maintenance. It has also taken loans in foreign currency for meeting the capex requirement and making overseas investments. The majority of loan portfolio is hedged by way of derivative products (currency swap and interest rate swap) and through natural hedge from the foreign currency inflows. Your Company has an approved Foreign Currency & Interest Rate Risk Management Policy to manage foreign exchange exposure which has been reviewed during the year. The short-term and long-term exposure of foreign currency of your Company is being monitored as per the approved policy.

➤ **Commodity Price Risk**

Your Company also has approved Natural Gas Price Risk Management Policy to manage the price risk of natural gas. The price risk of natural gas used for internal consumptions as well as for selling to various downstream customers is being monitored as per the approved Policy. As and when the opportunity arises in the market, your Company has undertaken various derivative transactions to hedge the price risk arising out of fluctuations in the prices of imported natural gas.

➤ **Natural or Man-made Calamity Risk**

Various risks are associated with gas transmission and distribution like blowout of pipelines, earthquake, tsunami, terrorist activities etc. These risks are being mitigated right from the designing stage of these projects. However, such natural or man-made risks are emergent events and cannot be totally eliminated. If such an event occurs, it will incur significant liabilities for the Company.

➤ **Risk Management Framework**

Your Company has an approved Risk Management Policy available at the website [https://gailonline.com/pdf/others/RiskManagementPolicy Rev 4.0. pdf](https://gailonline.com/pdf/others/RiskManagementPolicyRev4.0.pdf) and procedure to protect and add value to the organization and its stakeholders with the objective to establish a risk intelligence framework for objectively managing expected risk exposures by the decision makers in compliance to prevailing statutory regulations so as to assure demonstrable achievement of objectives and improvement of financial stability of your Company.

The Risk Management committee consists of the Chief Risk Officer, Head of Treasury and all the functional directors except the Chairman & Managing Director. In the changing business scenario and expansion of your Company into various other activities, business risk and their mitigation plans are assessed on regular basis. Top corporate level key risks are as under:

1. Market Risk of LNG, linked with HH, in case of adverse movement of crude oil price, continuously suppressed spot LNG prices and expected increase in domestic gas volumes.



Swachhata Pakhwada pledge taking at GAIL

2. Risk emanating out of GAIL's Comfort letter to Bank for providing PBG (₹ 5,200 Crore) to GAIL Gas Ltd. (wholly owned subsidiary of GAIL (India) Limited for Bengaluru CGD Project).
3. Risk of reduction in margin of Petrochemicals due to lower industry demand, lower sale price & high input cost.
4. Risk of delay in Project Execution due to delay in obtaining Right of Use (RoU)/Land.
5. Risk of Underutilization of pipeline due to sluggish growth in gas energy consumption.
6. Major LPG Leakage in RT / SV Stations / LPG Pipeline.
7. Risk of third-party damage & encroachment in pipelines.
8. Risk of statutory/regulatory non-compliance.
9. Risk of unfavorable regulatory changes.
10. Risk on further investment in RGPPL/KLL.

As covered in the preceding paras, identified risks have been deeply examined and reasonable mitigating measures/safeguards have been initiated. Your Company endeavours to pro-actively initiate measures towards maintaining financially stable business operations.

5. INVESTOR RELATIONS AND ENGAGEMENT

Your Company believes in continuous interaction with investor community with transparent & symmetric information for creating value for all stakeholders. Your Company delivers on this front through continuous engagement with investor community, timely disclosures and unbiased access for various stakeholders. Values like long-term relationship, trust and fairness are the guiding principles for your Company's Investor Relations program. Along with the dedication to create value for stakeholders, your Company is also committed to promote transparency & excellence in Corporate Governance standards. The link to access the information related to Investors is - <https://gailonline.com/IZ-InvestorsZone.html> and <https://gailonline.com/IZ-InvestorInformation.html>

During FY 2019-20, your Company organized **"Annual Investors' & Analysts' Meet-2019"** at Mumbai, organized 3 conference calls to discuss quarterly results, participated in 12 domestic and 2 international investor conferences and conducted more than 50 one on one meetings for maintaining engagement with the investor community. All these meetings/calls/ conferences were attended by the Top Management/Senior Executives of the Company. The link of Analysts Presentation and their transcripts are provided at the following link of our website- <https://gailonline.com/IZ-GeneralInformation.html>

Your Company also take active role on ground in sensitizing its employees about handling of the Unpublished Price sensitive Information (UPSI). Last year your Company has conducted companywide workshops to spread awareness of Unpublished Price sensitive Information amongst its employees. Fairness, transparency and strong Corporate Governance

standards of this company has led to appreciation and trust of Investor community time and again.

As per the requirements of SEBI (Prohibition of Insider Trading) Regulations, 2015 & SEBI (Prohibition of Insider Trading) (Amendment) Regulations, 2018, Company's Board has approved:

- a) Code of Conduct to Regulate, Monitor and Report Trading by Insiders (Insider Trading Code) and the link to access the Insider trading code is- <https://gailonline.com/pdf/InvestorsZone/GAIL-Insider%20Trading%20Code%202018-10.04.2019.pdf>
- b) Code of Fair Disclosure and Conduct- Practices and Procedures for Fair Disclosure of Unpublished Price Sensitive Information (Principles of fair Disclosure). The link to access the Code of Fair Disclosure and Conduct is <https://gailonline.com/pdf/InvestorsZone/GAIL-Principles-of-Fair-Disclosures.pdf>

The investor presentation(s) and the mentioned guidelines are shared with Stock exchanges and are also hosted on the website of your Company.

6. CAPABILITY DEVELOPMENT

➤ Human Capital

As on 31st March 2020, your Company has 4682 (including Whole-time Directors and CVO) employees on its roll. Your Company is keen to develop its human capital through training and coaching. It has dedicated resources to place itself as an employer of choice and source best available talent. The Company's Intellectual Capital is carefully nurtured and channelized to cater to its business plans for maximizing value. Value Added per Employee reflects its emphasis to make the optimal & productive use of the available resources and business opportunities. For the year under review, Value Added per Employee was ₹ 247.06 lakh.

Your Company is also imparting One-year Apprentice training to ITI/ Diploma/ Degree Graduates equivalent to 10% of total manpower every year, as a part of skill development initiative, at various work centers.

➤ Leadership Development Program

Your Company believes that capability building and enhancing competency of employees is the key to successful execution of its strategic plans. As a part of preparedness for coming challenges, your Company has put an Integrated Leadership Development Framework and Succession Planning Framework for facilitating leadership development and career planning.

The Development strategy comprise of two focused Talent Development Interventions: 360 Degree Feedback Exercise and Senior Management Development Centre (SMDC) Exercise. 360 Degree Feedback is aimed to provide an effective feedback to concerned executive(s) via his/her peers, subordinates and seniors. Senior Management Development Centre (SMDC) exercise has been undertaken for senior executives in E-5 Grade & above. SMDC is an aid to ensure better and inspiring leadership in the organization. Post SMDC, the executives are provided with books, e-learning modules and competency specific training in premier B-schools. Customized Management Development Programs on Leadership have been conducted for E-5 and above Women executives. Additionally, a structured Management Development Program is also imparted to all newly promoted E7 and E8 Executives. From the next year, we also plan to include the newly promoted E6 Executives into this structured Management Development Program.

Your Company is grooming the senior level executives of GAIL at the level of Executive Director and Chief General Manager for the Board Position through capability building programs like Master Class for Directors and Board Room Effectiveness, wherein Directors of GAIL's Board also conducted sessions. In line with the global business environment and India's future growth trajectory, Capability building

programs on the emerging areas such as Renewable and Alternate energy (Solar and Wind Energy), Water Value Chain, Specialty Chemicals Segment and other upcoming areas such as Mobility Future, Industry 4.0 and Automation are being conducted regularly for meeting the objectives of GAIL's Strategy-2030.

➤ **Capability Development**

A dedicated training center, GAIL Training Institute (GTI) is in place to provide systematic and structured training programs for capability building across all levels within the organization on a continuous basis.

Your Company is also playing a proactive role to support the National Skill Development Mission through active participation in the activities of Hydrocarbon Sector Skill Council (HSSC), establishment of Skill Development Institute at Raebareli and providing Training and Recognition of Prior Learning (RPL) under Pradhan Mantri Urja Ganga Pipeline and City Gas Distribution Projects. 280 students have already been trained in SDI Raebareli during FY 2019-20. Out of 280 trained students, 162 have been successfully placed. Under RPL, 2,166 beneficiaries have been covered till March, 2020.

➤ **Industrial Relations**

The Industrial/Employee relations climate remained congenial and constructive. There were no Man Days or Man Hours lost on account of any sort of industrial conflict during past three years in your Company. Discussions with employee collectives are held through Monthly / Bi-Monthly / Quarterly Meetings, both at Work Centres and Corporate levels.

With the objective to keep pace with the changing business requirements and employees' aspirations, and to maintain a Sustainable competitive advantage, review of HR strategy and policies is undertaken on a continuous basis to align with the Organizational Strategy.

7. HEALTH, SAFETY AND ENVIRONMENT (HSE) MANAGEMENT

➤ **Corporate HSE Policy**

The HSE Best Practices in your Company are primarily driven through a Corporate Health, Safety & Environment (HSE) Policy which is a statement of commitment of the management of your Company. Your Company endeavours to generate value through Sustainable Development by placing commitment to Occupational Health, Safety and Environment of Plants, Pipelines including CGDs and Personnel. Uniform well-designed HSE Management System is in place to support its commitment. Being a leader in Safety, your Company focuses on Occupational Health and Environment protection by adopting latest Technology and Digitalization. Employees and contract workers are encouraged to adopt safe working habits and behaviour to create positive HSE culture within the organization and are empowered to notify and stop any unsafe work / act, as may so arise.

➤ **Safety Performance**

Safety Performance is measured in your Company through the **"HSE Score"**, which is evaluated on the basis of the key elements of HSE Management System. Your Company achieved an **"HSE Score"** of 95.98% in the FY 2019-20.

10th of every month is observed as **"Safety Day"** at each O&M site in your Company. On this day, the Officer In-Charge of all installations (OICs) review all the safety related aspects of their installations under their jurisdiction. The exceptions report on Monthly Safety Day Observations is reviewed at the level of Director.

➤ **Safety Training & Awareness**

Training and awareness is key to the safety of people to understand the hazards and risks associated with workplace and the appropriate mitigation measures to be taken which lead to loss control. Your Company having excellent training institutes at Noida and Jaipur, impart regular Operational and Safety Trainings to employees. Internal

Safety System is also in place at O&M Installations where structured HSE trainings including Behaviour Based Safety etc. are being imparted to employees and contract workers to upgrade their skills, knowledge and competence, in order to perform their HSE functions effectively and develop an effective safety culture.

Your Company has also organized Regional HSE Meet at Kochi and Vadodara to strengthen the implementation of HSE Management in focused approach.

To further strengthen and reinforce positive behavior, your Company has launched **'Behaviour Based Safety (BBS) Advance'** focusing on Safety Leadership, at all O&M Installations. BBS Workshops have been organized and handholding is in progress.

➤ **Safety Audits**

Safety Audits are regularly conducted to ensure the implementation of the HSE Management System Guidelines and Emergency Preparedness. These audits are performed by PNGRB accredited Third Party Inspection Agencies and experienced In-house Team, in accordance with the applicable National Codes and Standards. Recommendations given during the various audits are being complied in a time bound manner.

➤ **Occupational Health**

Your Company has implemented occupational hygiene measures and medical surveillance programs to monitor and control the occupational health of its employees, based on defined guidelines. All employees at various work centers undertake periodic medical examination as per these guidelines. The Corporate Occupational Health Committee meets on a quarterly basis to monitor the occupational health program in your Company and the effectiveness is evaluated based on the outcome of the Health Audit undertaken through in-house multi-disciplinary teams. Periodic audits on Occupational Health are also being conducted at Installations to ensure effective implementation of Occupational Health Management.

➤ **HSE Initiative and Achievements**

Your Company has taken various initiatives to further improve the HSE Management System. Some of the important HSE initiatives and achievements are:

1. 2nd Edition of HSE Oil & Gas Conclave on theme **'Driving HSE Culture for Building Resilient Organization'** organized by your Company on 11-12 December 2019 at India Habitat Centre, New Delhi. Around 400 Dignitaries, foreign delegates and experts from across the globe have participated in the conclave to discuss the Health, Safety and Environment measures in the Oil and Gas industry.
2. Centre for Chemical Process Safety (CCPS) Asia Pacific Regional Technical Steering Committee (TSC) Meeting held on 6th February, 2020 at Jubilee Tower, Noida to deliberate the emerging issues with Process Safety Management.
3. 4 Workshops and 33 Handholding Visits have been organized for successful implementation of **'BBS Advance'** respectively.
4. Disaster Risk Reduction (DRR) in accordance with the guidelines of **'Sendai DRR framework'** & NDM plan of India was formulated and released by Mr. G. V. V. Sarma, Member Secretary, NDMA during the 2nd Edition of HSE Oil & Gas Conclave.
5. Leveraging IT in recording and tracking Safety Activities like OISD Safety Audits, PNGRB Audits, Risk Assessments, Mock Drill, etc. Compliances through SAP in addition with existing processes of Incident Management System, Job Safety Analysis & Management of Change.
6. Emergency Response and Disaster Management Plan for City Gas Distribution Networks owned by GAIL was formulated in accordance

with PNGRB [Codes of Practices for Emergency Response and Disaster Management Plan (ERDMP)] Regulations, 2010.

8. INNOVATION, RESEARCH AND DEVELOPMENT (R&D)

As a benign fossil fuel, Natural gas has an important role to play in reducing India's emission intensity under Intended Nationally Determined Contribution (INDC) commitment to the United Nations Framework Convention on Climate Change (UNFCCC). In the coming days, this obligation would help ratchet up the natural gas share in the overall energy mix of the country. Apart from Policy regulations, Technology developments in the natural gas sector are going to play a vital role.

In this direction, your Company has increased its R&D efforts in scope and scale for comprehensive and integrated research works in the identified Thrust areas. Your Company allocates 1% of its PAT for carrying out various collaborative R&D projects and Developmental Projects.

Your Company implements various Developmental projects at its natural gas processing and petrochemical units to optimize process parameters, improve energy efficiency, and enhance safety and plant performance to meet emission regulations, minimize risk, extend equipment life and reduce costs, etc.

During the year, your Company has pursued various Technology upgradation projects. The firefighting systems and turbine control systems are being upgraded with eco-friendly firefighting system and advanced turbine control system for performance and efficiency improvement. In addition, under corrosion mitigation plan, new Materials of Construction are being tried out for pumping lean amine solution. A novel and environment friendly Scheme has been developed for Neutralization of acidic Waste water streams using CO₂ Carbonation Process, replacing Mineral acids for implementation at our petrochemical complex.

Under collaborative R&D initiatives, your Company has developed and set-up a Pilot plant for conversion of '**Waste plastic to Diesel**' of 1TPD capacity at Indian Institute of Petroleum (IIP), Dehradun. The Pilot plant was inaugurated on 27th Aug'19 by Dr. Harsh Vardhan, Hon'ble Minister of S&T, Earth Sciences and Health & Family Welfare in the presence of Sh. Trivendra Singh Rawat, Hon'ble Chief Minister of Uttarakhand. Currently, extensive operational data is being generated for validation of the Technology for commercialization.

Your Company has developed a prototype of '**Adoptive Intelligent Pipe Health Monitoring Robot for Fuel transporting systems**' with IIT-Kanpur under Uchhatar Avishkar Yojana (UAY) funded by MHRD and GAIL. The prototype was showcased in the Technology Exhibition (Tech Ex) on 4th Aug'19 at IIT-Delhi and further, extensive trials are under way. Your Company is also developing a '**Low Altitude Long Endurance (LALE) Unmanned Aerial System (UAS) for Surveillance, Reconnaissance and Asset Monitoring (SRAM)**' system for airborne monitoring of pipeline ROU.

Under the Natural gas to value addition initiative, a research project on direct conversion of Methane to Olefins is being pursued. Further, novel 3-D Covalent Organic Framework (COF) based adsorbents with high surface area with promising methane storage capacity were synthesized for Adsorbed Natural Gas (ANG) Technology. Further, collaborative research works on; Demonstrative up gradation of existing BS-IV CNG HCV Engine to meet BS-VI emissions; Development of Hollow fibre membranes and modules for separation of Acid gases from Natural Gas; and Methane Production from Marine Hydrates by CO₂ replacement are being pursued in collaboration with reputed R&D labs across the country.

Moreover, to perpetuate innovation culture, your Company has a Central Suggestion Scheme for identifying and promoting best ingenious idea for its implementation in our business operations. The selected individual or team are appreciated through the award of CMD trophy and monetary incentives.

Your Company has joined hands with other Oil & Gas PSUs to create a Centre of Excellence in Oil, Gas and Energy (CoE-OGE) at IIT-Bombay. The CoE-OGE aims to enhance industry-academia interaction and develop

solutions for Oil & Gas industry. Your Company will contribute 10% towards the expenditure in setting-up and operating the Centre.

9. TOTAL QUALITY MANAGEMENT

Your Company is committed to enhance customer satisfaction and standardizing business processes through the implementation of a Quality Management System. Your Company endeavors for continual and sustainable improvement through the implementation of effective quality practices, innovation and standardization. Quality Management System and Energy Management System have been implemented along various Pipelines & Process units also at Corporate and Marketing offices. Your Company undertakes Quality Circle Projects with engagement of its employees resulting in high employee morale and increased productivity. Voice of customers is being captured through Customer Value Management and Customer Satisfaction Index surveys.

Your Company is proud to share that Customer Satisfaction Index for FY 2019-20 is 95 %.

10. SUSTAINABILITY INITIATIVES

This year marks the decade of publishing Sustainability Report of your Company. 10th Sustainability Report for FY 2019-20 shall be published, based on the Global Reporting Initiative (GRI) Standards. The report shall conform to Sustainability Assurance Standard AA1000AS. It is a Type 2 Moderate level assured report including data verification at different sites of your Company. The report shall be hosted on the website www.gailonline.com

In these testing times, it has become imperative to understand the long-term interests of our stakeholders and co-create a positive value for the society. Your Company is committed towards achievement of the **Sustainable Development Goals (SDGs)**. We have been aligning our various initiatives across different segments and departments with the SDGs in our Sustainability Report.

This year also marked our foray into the '**CII GreenCo Rating System**'. GreenCo Rating is the '**first of its kind in the World**' holistic framework that evaluates companies on the environmental friendliness of their activities using life cycle approach. Implementation of GreenCo rating provides leadership and guidance to companies on how to make products, services and operations greener. United Nations Industrial Development Organization (UNIDO) has acknowledged GreenCo as one of the top 50 best practices in the World promoting green industry initiatives. Exclusive workshops have been conducted at the CII- Green Business Centre at Hyderabad for the senior executives of GAIL's sites to take forward the implementation. Several sites have already initiated the implementation of the same.

Further, several initiatives such as Carbon Neutral meetings, discarding use of Single-use plastics, awareness and sensitization of employees on Sustainability and biodiversity have been also taken up across sites.

This year, your Company also amended its Sustainability Policy. The main objective was to take into consideration of the national and international priorities such as UN Sustainable Development Goals (SDGs), Climate actions, India's Nationally Determined Commitments (INDCs) among others.

We are proud to announce that the '**FTSE4 Good Emerging Market Index**', a market-leading tool for investors seeking to invest in companies that have strong management of ESG risk, has included your Company for the fourth year in a row. It facilitates your Company to get the investment and financing/loans at low interest rates. Commitment towards Sustainability related aspects is the key for inclusion of your Company in this coveted index.

The sites took up various other projects under the Annual Sustainability Work Plan. To monitor the progress made by the implementation of these projects a digital platform '**e-Pragati**' is established. In FY 2019-20, Projects under Annual Sustainability Work Plan were undertaken across sites on Energy, Renewables, water, GHG management among others. Further, various initiatives pertaining to water, energy & waste management were also

taken across sites **which have been covered in our Sustainability report**. Due to these initiatives, many of our sites achieved Paper recycling, increased water harvesting and recycling measures amongst others. Further, your Company has been expanding its renewable energy portfolio.

Our Petrochemical plant is working on energy efficiency benchmarks in collaboration with Bureau of Energy Efficiency to set standards of carbon emissions and specific energy consumption with the Petrochemical sector becoming part of the PAT scheme (Perform, Achieve & Trade).

With the commitment and efforts of our employees, GAIL treads towards the holistic success of the organization to create long-term value for its stakeholders. With every year, our approach to sustainability agenda becomes more enriched and refined through our experiences and learnings.

In line with the SEBI requirements, your Company provides a complete disclosure on Company's performance on the 9 Principles of National Voluntary Guideline and Core Elements. The BRR FY 2019-20 is contained in the separate section in the Annual Report FY 2019-20.

11. ENVIRONMENT PROTECTION AND CONSERVATION/ RENEWABLE ENERGY DEVELOPMENTS/ FOREIGN EXCHANGE CONSERVATION

From its humble beginning as a gas transmission Company, your Company today has become the largest integrated Natural Gas Marketing & Transmission Company in the country. Being a flagship energy Company, your Company is committed to play a key role in building sustainable energy future for the country. As India's leading Maharatna public sector enterprise, we are consistently enhancing our investments to help meet the long-term energy requirements of the nation while ensuring sustainability on economic, environmental and social front.

Your Company by virtue of its business in Natural Gas plays an instrumental role in transitioning towards a low-carbon economy. Operations of your company have significantly contributed in reducing the flaring of gas from exploration and production activities and development of pipeline networks, which has led to supply of gas as fuel and feedstock to power, fertilizer, CGD and other industries. Further, **the Liquid hydrocarbon business, the City Gas Distribution** in many important cities of the country has been instrumental in improving the air quality and consequent reduction in pollution.

Considering the life cycle impact on environment and health, Natural Gas is much more benign fossil fuel when compared to coal and liquid fuel. Unlike coal, natural gas does not require huge amount of water for its purification and it does not contaminate the ground water. Further, it is either transported through pipeline as gas or closed cryogenic vessel as liquid and therefore, does not contaminate air during transportation. When used in power generation or as a transport fuel, Natural Gas results in negligible emissions of SO₂, NO_x, Hg and particulates compared with other fuels. **The increased use of natural gas offers a significant contribution to improved local air quality and public health.**

In line with **India's commitment in the INDC**, which aims to reduce the country's carbon emission intensity, Natural gas will play a key role for decarbonizing India's energy system, both replacing carbon-intensive fuels and facilitating the development of renewable power. The increasing use of gas in non-power sectors will allow to reduce CO₂ emissions and improve air quality as gas will replace (or complement) higher emitting oil products: fuel oil/naphtha and pet coke in the industrial sector, diesel in transportation and traditional biomass, and kerosene in the residential/commercial sectors.

Further, in order to increase reach of natural gas to customers beyond the areas connected by natural gas pipelines, an innovative model of **L-CGD (LNG-CGD)** has been introduced in Bhubaneswar, Orissa. CNG and PNG are supplied by setting up **L-CNG stations** where LNG (Liquefied Natural Gas) is stored and supplied to customers.

With ISO 9001:2015, ISO 14001:2015 and BS OHSAS 18001:2007 certifications, your Company is committed towards producing quality products while creating, maintaining and ensuring a safe and clean environment. **Your Company's polymer products are**

environment-friendly and fully recyclable. Your Company provides a wide choice of grades with consistent and reliable quality to its customers. Its manufacturing processes and quality systems ensure that the products conform to the technical specifications, backed by high quality services to provide complete solution to the customers.

Your Company monitors **environmental parameters to assess the environmental quality** on regular basis through an in-house team and as well as by independent third-party agencies. Updated and sophisticated instruments are used for monitoring environmental quality. The monitoring is done regularly and reports are sent to the respective State Pollution Control Boards. Audit is also conducted for the process plants and pipelines to ensure proper functioning of the environment management systems.

Our plants consistently operate under the national stipulated norms. Since your Company uses natural gas for its feedstock as well as fuel requirements, **the level of pollutants emitted is consistently much below the national stipulated norms.** Adequate stack height has been provided for effective dispersion of pollutants. Low NO_x burners are used in all the furnaces. Loading facilities are provided with vapor-return circuits. Gas detectors have been installed to ensure quick detection of any gas leak. Your Company's petrochemical complex at Pata and Vijapur have the facility of monitoring stack air and ambient air on continuous basis. State-of-the-art permanent ambient air monitoring stations measure sulphur dioxide, oxides of nitrogen, hydrocarbons, carbon monoxide and noise levels on real time basis.

All installations of your Company carry out an extensive afforestation in their respective sites and maintain at least one-third of the area as **Green belt**. Your Company has been continuously taking initiatives to safeguard the environment and biodiversity along with its diverse business segment. Your Company understands the value of the green spaces present within its premises, and desires to feature the unique aspects of the flora and fauna to the general audience.

Adequate measures are also taken for **management of water resources**. Your Company considers water as a precious natural resource and hence its consumption is closely monitored and controlled. Further, state-of-the-art technologies have been adopted to reduce and treat the wastewater generated. Your Company maximizes the concept of reuse and recycle of water. Discharge at all locations is compliant to the norms of the respective State Pollution Control Boards. Your Company's operations at all locations are state-of-the-art and involves clean technologies. Adequate treatment and reuse of treated waste waters is adopted across the Company. Treated effluent water is recycled and used in-house for horticulture purposes within the plant and township premises. Further, adequate measures are taken for **waste management**. Your Company **manages its waste** by efficiently segregating, treating and disposing based on the type of waste generated i.e. hazardous and non-hazardous. The water and waste water samples are also analyzed at the in-house laboratory as well as external laboratories on a regular basis.

12. CORPORATE SOCIAL RESPONSIBILITY

Your Company as a socially responsible Corporate understands and acknowledges its responsibilities towards the communities, the environment all other stakeholders involved in the process. CSR function at your Company aims to promote social good and integrate economic, environmental and social objectives with the Company's operations and growth. In alignment with the vision of your Company, the CSR initiatives strive to enhance value creation in the society and the communities in which it operates, through its services, conduct & initiatives, so as to trigger poverty alleviation, promote sustained growth for the society, the community and those at the bottom of the pyramid, with the long term goal of contributing towards development of prosperous and inclusive India. In the year 2019-20, your Company has incurred an expenditure of 2.01% of the average net profit of the preceding three financial years on CSR activities.

13. INTERNAL CONTROL SYSTEMS & THEIR ADEQUACY

Your Company has distinct and efficient Internal Control Systems in place. It

has a clearly defined organizational structure, manuals and standard operating procedures for its business units and service entities to ensure orderly, ethical and efficient conduct of its business. The Company's internal control system ensures efficiency, reliability, completeness of accounting records and timely preparation of reliable financial and management information. Internal financial controls framework and Risk Control Matrix (RCM) for various business processes is in place and reviewed continuously by the management. In addition, it also ensures compliance of all the applicable laws and regulations, optimum utilization and safeguard of the Company's assets.

Your Company has independent and integral internal audit department having diligent professionals covering aspects relating to commercial and technical domains. The Internal Audit department functionally reports to the Audit Committee and administratively reports to the Chairman & Managing Director as per the best global practice. The audit assignments are conducted as per the annual audit program approved by the Audit Committee. Internal audit examines the effectiveness of internal controls through risk-based audit of business processes. In congruence with the mission of internal audit **'Assurance and advice that adds value to the organization'**, the root cause and impact of the significant audit observations are reported to the management. The Audit Committee of the Board reviews the significant findings of internal audit and CAG audit regularly.

In addition to delivering superior financial & physical performance in this financial year, your Company has also taken various initiatives to optimize processes and improve effectiveness of internal controls. Your Company has implemented centralized payment and centralized compliance system of TDS thereby reducing man hours and is also amongst the first PSU to successfully implement the first digital worker named **"GAIL Manu"** in production system for review of Accounts under its Robotic process automation program.

14. ACCOLADES

➤ Corporate

- Dun & Bradstreet Award 2019 in the category **'Gas - Processing, Transmission & Marketing'**.
- FIPI Oil & Gas Awards 2019 under **'Project Management – Company of the Year'**.
- First position in 16th National Awards for Excellence in Cost Management by Pata Petrochemical Complex.
- Economic Times Brand Equity Kaleido 2019 Bronze Award for the Best Campaign under PSU/Government category for Hawa Badlo Campaign.
- First prize in Petrochemical Sector category in National Energy Conservation Award (NECA)- 2019 by Bureau of Energy Efficiency, Ministry of Power, Gol.
- Certificate of Appreciation for its Pata Unit by Chief Minister, UP and facilitation as **'Best Taxpayer'** by CGST & Excise, Lucknow.

➤ CSR

- Social Imprints CSR Awards on 14th June, 2019 by Hon'ble Sh. Murlu Manohar Joshi, former Minister of HRD.
- The CSRTimes Award on 18th September, 2019.
- Recognition by USAID for contribution on TB elimination project on 31st October, 2019, at Hyderabad, at the 50th world conference of The Union for TB & Lung disease.
- Golden Peacock Award for CSR on 04.03.2020 in Mumbai, Maharashtra.

➤ HSE

- **'International Safety Award 2020'** with Merit from British Safety Council, UK for GPU Vaghodia and GPU Gandhar.
- **'Safety Innovation Award 2019'** by The Institution of Engineers (India) for GPU & Petrochemical Vijapur, GPU Vaghodia, GPU Gandhar, Visakhapatnam-Secunderabad LPG Pipeline and Chhainsa Compressor Station, Haryana for implementing innovative safety management systems.
- GOLD Award in **'6th Exceed Award 2019'** for GAIL Pata complex under OHS Category in Petrochemical Sector from Sustainable Development Foundation, New Delhi.
- Safety Awards 2019 from National Safety Council, India for various installations for displaying exemplary Occupational Safety & Health (OSH) performance, commitment to reduce workplace injuries, implementations of the best OSH practices and encourage continual improvements: -
- **SARVASHRESTHA SURAKSHA PURASHKAR (GOLDENTROPHY)** for HVJ Compressor Station, Vijapur under Category Group A (LPG CNG Bottling Plants, Oil/Gas Terminal Depots, Aviation Fuel Stations, Lubricating Oil Plants and Oil/Gas Pipelines).
- **SHRESTHA SURAKSHA PURASHKAR (SILVER TROPHY)** for GPU, Vijapur under Category Group A (Petroleum Refineries, Gas Processing Units and Petro-Chemical Complexes).
- **SURAKSHA PURASKAR (BRONZE TROPHY)** for GPU, Vaghodia under Category Group A (Petroleum Refineries, Gas Processing Units and Petro-Chemical Complexes).
- **PRASHANSA PATRA** for GPU, Gandhar under Category Group A (Petroleum Refineries, Gas Processing Units and Petro-Chemical Complexes).

CAUTIONARY STATEMENT

Statements in the Directors' Report and Management Discussion & Analysis, describing the Company's objectives, strategies, projections and estimates, expectations, etc. may be "forward looking statements", identified by words like 'plans', 'expects', 'will', 'anticipates', 'believes', 'intends', 'projects', 'estimates' and may be progressive within the meaning of the applicable laws and regulations. Forward looking statements contained herein are subject to certain risks and uncertainties and accordingly actual results may differ materially from the expectations. Critical factors that could influence the Company's operations include global and domestic demand and supply conditions, changes in Government regulations/tax laws, economic developments within the country and factors such as litigation and industrial relations. Readers are cautioned not to place undue conviction on the forward-looking statements. The Company assumes no responsibility to publicly amend, modify or revise any such statements on the basis of subsequent developments, information or events. The Company disclaims any obligation to update these forward-looking statements, except as may be required by law.