



GAIL (India) Limited
India's **Youngest** Maharatna

Rejuvenate | Resonate | Redefine



Sustainability Glimpses 2017
GAIL (India) Limited



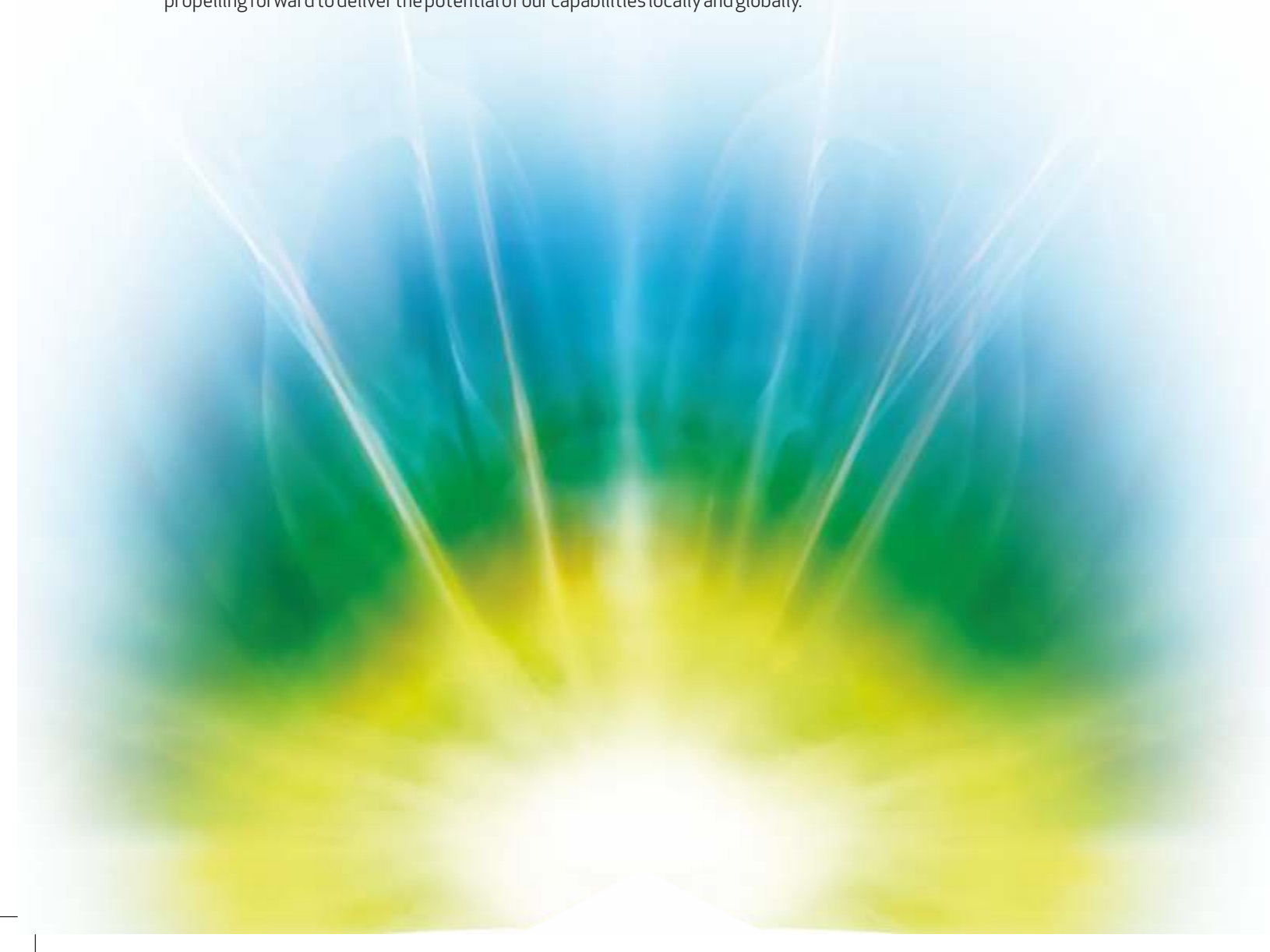
Rejuvenate | Resonate | Redefine

On the energy spectrum, there is a fresh wave of building energy highways to new geographies, thus opening immense opportunities of inclusive growth with better environment. In its bid to transform lives by transforming the gas based economy to be more vital, India has embarked on its renewed journey to harness the clean and green potential of the natural gas. After withstanding the challenges of the adverse market scenario due to mid-year oil market crash, GAIL is all set to rejuvenate its operations and projects roll-out with utmost safety consciousness and speedy implementation with its rebounding zest.

We, as a central public-sector enterprise, have a key role in resonating country's aspirations to achieve socio-economic growth with sustainable development. We are working towards a sustainable energy mix as the country's energy demand will grow three times by 2030. While rebounding further on the strengths of a resilient infrastructure and delivery system in place, we take pride in becoming the harbinger of prosperity and socio-economic growth by echoing its positive vibes with all its stakeholders to transform the lives of millions of people who can look forward to a cleaner fuel and creating positive value.

We are committed to redefine our role in developing an integrated energy eco-system and work with the Government of India to unfold the gas grid through Urja Ganga to make gas a preferred fuel in the eastern part of the country. Also, we have expanded our business operation by importing LNG additionally and augmenting production of petrochemical polymer in variety and volume. To rejuvenate the energy sector with appropriate policy, economic, financial, and new technological interventions, all stakeholders need to resonate a common resolve to redefine an overarching energy mandate.

The theme **Rejuvenate, Resonate, Redefine** of the SR 2016-17 defines our spirit aptly with which we are propelling forward to deliver the potential of our capabilities locally and globally.





CMD's Message

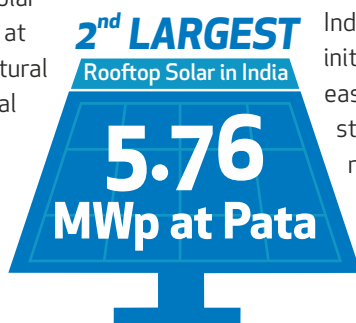


GAIL is also working with the millennial generation and public at large to create awareness of pollution and to implement mitigating actions for ensuring 'Clean Sky' under 'Hawa-Badlo' campaign across the country.

R 'Rejuvenate, Resonate, Redefine' is comprehensive report on GAIL's

Sustainability initiatives for the seventh successive year. We are into exciting times with concurrent possibilities playing out in the energy landscape. Industrial era remains deeply dependent on various fossil forms extracted from the planet. Industrial architecture is now being reshaped by sweeping technological shifts deployed to harness infinite energy reserves of solar and wind.

Our sustainability initiatives are expanding. Recently, GAIL installed India's second largest solar PV rooftop of 5.76MWp at the country's largest natural gas based petrochemical complex at Pata. Eight million units of captive generation would contribute to reducing



carbon footprint equivalent to annual GHG emission from 1350 passenger vehicles or burning over 3 million tons of coal. The project has a unique stamp of 'Make in India' in its entirety.

Progress under the 'Pradhan MantriUrja Ganga' natural gas infrastructure project has been encouraging in many ways. City gas distribution has commenced at Bhubaneswar and city networks at other locations across the Jagadishpur-Haldia-Bokaro-Dhamra pipeline route are expected to be rolled out shortly. The trunk pipeline segment from Barauni to Guwahati too has received regulator's acceptance for integrating into the Eastern India network system. These initiatives shall enable the eastern and north-eastern states to adopt a cleaner and reliable energy option for heating applications at households as well as in

industrial/commercial centres and also for transportation.

Recent months have also witnessed landmark directions from the judiciary in support of switching over to cleaner energy options such as natural gas, while ordering closure of solid and liquid fuels that threaten to corrode the environment. These strictures are applicable now across the national capital region and the adjoining States and such directions would entail upon entities marketing natural gas operating in these regions towards ensuring speedy connections to industrial and commercial consumers on priority.

The momentum for switching over to cleaner energy forms and embracing efficient technology is on the rise across the world, largely led by the ground swell of the public opinion with actionable support from the governments. We need to accelerate





our collective efforts to cut down the annual GHG emissions by half the 41 Giga tons by 2030 and also improve water efficiency through multi-pronged actions. GAIL has been supportive of technologies such as natural gas run fuel cell for reliable power generation that is not just benign on the environment but also efficient by several folds over conventional technologies.

*Moving towards
15-20% mix of natural
gas in the primary energy
basket could help achieve
India's aspiration under
COP framework at
manageable
investment*

A mix of cutting edge emerging technologies and renewable energy systems are suited to be deployed on a distributed model unlike conventional energy. Natural gas advantageously integrates with distributed energy formats.



Our plants are also working on energy efficiency benchmarks in collaboration with Bureau of Energy Efficiency to set standards of carbon emissions and specific energy consumption across petrochemicals sector. GAIL's state-of-art technologies that are now stabilised in operations are expected to clock higher efficiency in the times to come. The company's entry into the coveted group of 'FTSE4 Good Emerging Market Index' demonstrates our strong commitment to the environment, governance practices and social engagement are measured against global standards.

GAIL is also working with the millennial generation and public at large to create awareness of pollution and to implement mitigating actions for ensuring 'Clean Sky' under 'Hawa-Badlo'

campaign across the country. Over 20 million has been the outreach in a short span and the response is over-whelming.

Year after year, we have firmed our commitment to deliver growth and value for all the stakeholders as we continue to bridge climate action imperatives & growth aspirations.

I convey my sincere gratitude to GAIL's stakeholders for extending their precious support and belief in GAIL's endeavours towards creating opportunities and realising possibilities of sustainable growth. This compilation captures our journey and sustainability efforts for your keen study. Your invaluable feedback shall immensely help us in shaping a better tomorrow.

B C Tripathi,
Chairman & Managing Director,
GAIL (India) Limited





Energizing Tomorrow with Cleaner fuel

Promoting Gas Based & Clean Fuel Economy in New India

Pradhan Mantri Urja Ganga



2650 km long

To promote Gas based economy and development of eastern India, 2650 km long Jagdishpur – Haldia & Bokaro – Dhamra Natural Gas Pipeline Project, popularly known as **Pradhan Mantri Urja Ganga**, is being executed at an investment of around 13,000 Cr., which includes 40% capital grant from the Government of India. This is the first time ever that Government of India has extended capital grant to a Natural Gas Pipeline Project.

covering **40** Districts

Urja-Ganga will cater to energy requirements of five states, namely Uttar Pradesh, Bihar, Jharkhand, Odisha and West Bengal, covering 40 Districts.

Covering CGD Project in 7 Cities

Foundation stones were laid for CGD projects at Varanasi on 24.10.2016 and for Bhubaneswar and Cuttack CGD projects on 18.3.2017.

Revival of 3 large fertilizer units

This project will also lead to the revival of three large fertilizer units, Gorakhpur, U.P., Sindri, Jharkhand and Barauni, Bihar in the eastern region and industrialization of more than 20 cities and city gas network (CGD) development in 7 cities of eastern India.



Urja Ganga

GAIL is executing INR 20,000 crore worth of projects in which **4,000 km of pipelines will be laid in the next 30 months** boost India's pipeline infrastructure. These include the Vijaipur to Phulpur pipeline, Jagdishpur-Haldia-Bokaro-Dhamra pipeline (JHBDPL) and Kochi-Koottanad-Mangaluru-Bengaluru Pipeline (KKMBL) project. The Vijaipur to Phulpur pipeline shall provide the gas feed to the ongoing prestigious 2655 Km long Jagdishpur-Haldia-Bokaro-Dhamra pipeline (JHBDPL) project of GAIL, also known as the 'Pradhan Mantri Urja Ganga' project, inaugurated by Hon'ble Prime Minister of India in July 2015.

The JHBDPL is a Rs 13,000 crore project. Work has started on the Kochi-Mangaluru pipeline. GAIL is also refurbishing its old pipelines in Gujarat, which are 40 years old, and also in the Cauvery and Krishna Godavari basins. The focus is on expanding last-mile connectivity to houses and networks in cities.





Energizing Tomorrow with Cleaner fuel

FACTORIES KE PET MAIN NO MORE COKE

If you care...
Change the Air
Switch to Natural Gas
CNG | PNG

hawa badlo

An initiative by

GAIL (India) Limited

Natural Gas stoves provide even heat distribution for better cooked food.

#WorldFoodDay

Benefits of Natural Gas

- Reliable
- Economical
- Cleanest Fossil fuel
- Optimise industrial efficiency
- Easier to store
- Less transportation cost
- Uninterrupted supply
- Low Combustion Temperature

Replacing one older diesel bus with a **NATURAL GAS BUS** equivalent to taking **21 CARS** off the road

#TomorrowIsYours





Energizing Tomorrow with Cleaner fuel

GAIL (India) Limited

CITY GAS DISTRIBUTION project implementation in Bhubaneswar and Cuttack launched by:

Hon'ble Minister of State (I/C), Ministry of Petroleum and Natural Gas
Shri Dharmendra Pradhan

Pradhan Mantri Uija Ganga

Longest stretch of 'Pradhan Mantri Uija Ganga' project being built in Odisha

Natural Gas set to reach Odisha through 'Pradhan Mantri Uija Ganga'

Odisha office of GAIL inaugurated

PNG to be supplied to 5 lakh households

CNG to supply 1.5 lakh vehicles

Project to see investment of over ₹ 5,700 crore

On Facebook Live from 6:45 onwards

/GAILIndia

/GAILSocialTV

4395 sq-km of CGD Network in Bengaluru Urban & Rural Districts by 2020

GAIL (India) Limited

GAIL (India) Limited

BENGALURU TO GO GREEN

Around 60 CNG stations in next 5 years for Green gas for Buses, autos & 2 wheelers

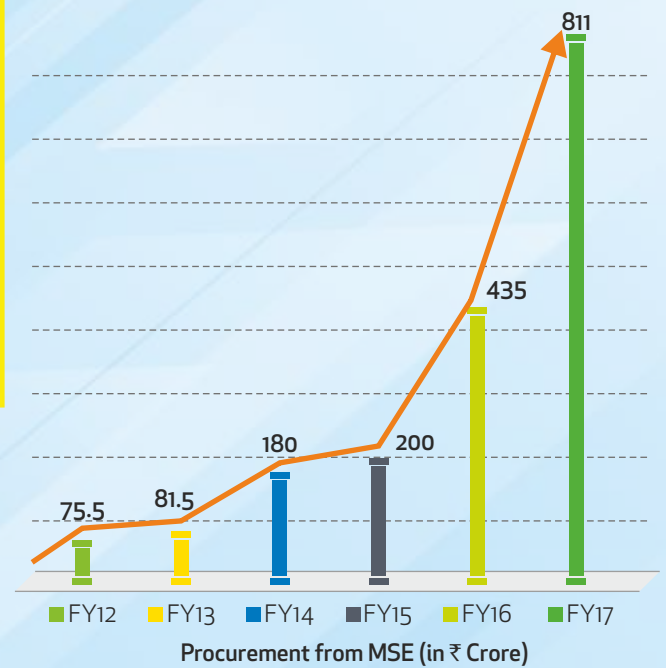
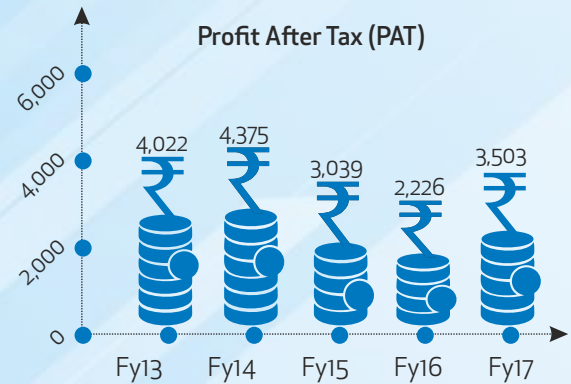


GAIL's Natural Gas Spur Pipeline to Bhubhaneshwar, Cuttack & Paradip inaugurated by Hon'ble Minister, MoPNG, Shri Dharmendra Pradhan.





Energizing Tomorrow with Cleaner fuel



- Highest ever sale of ~ 577 KTA of Polymer including export of ~14 KTA
- GAIL signs swap deal for U.S. LNG to swap ~0.6 MMTPA of LNG
- NG Marketing and Transmission volumes are up by 10% & 9 % to 81.2 & 100.4 MMSCMD respectively in FY 16-17 vis previous FY

GAIL's Talcher JV of estimated cost of Rs.11611 crores will be the 1st Coal Gasification plant for production ammonia/urea in India. Talcher JV has achieved a great milestone of Environmental Clearance recommendation by Expert Appraisal Committee constituted by MoEF&CC





Fantastic PLASTICS



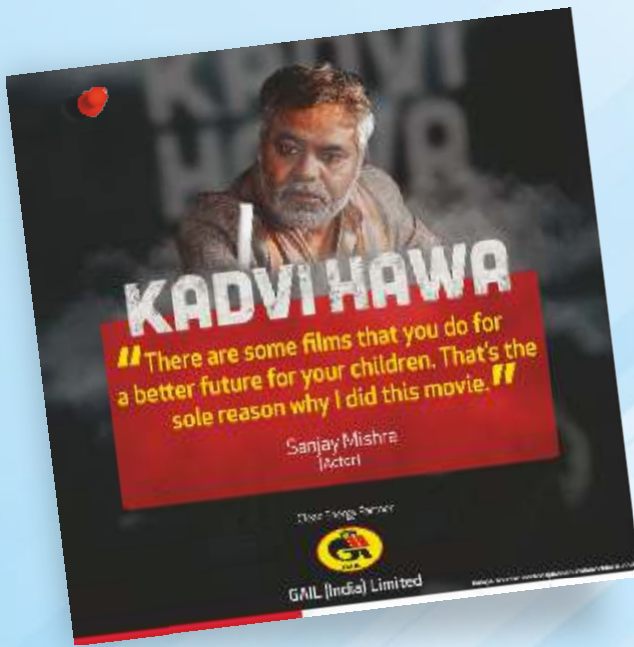
GAIL's polymer products provides a wide choice of grades with consistent and reliable quality to its customers.

- Gas based Petrochemical Complex at PATA
- 70% equity in joint venture company Brahmaputra Cracker & Polymer Limited (BCPL) in Dibrugarh
- GAIL has acquired equity in OPal's Greenfield petrochemical project at Dahej





Energizing Tomorrow with Cleaner fuel



HSE score of 92.94 during FY 16-17, well above the MoU target of 90.



133 Quality Circle projects registered with 110 success story resulting in cost saving INR 10.43 Crores

Advantages of CNG vehicles over Diesel vehicles:

- CNG vehicles are more environment friendly in comparison to BS – IV compliant diesel vehicles due to lesser Sulphur content, lower NOx emissions, lower carbon dioxide emissions, lower visible PM / black soot and greenhouse gas emissions.
- CNG vehicles increase life of lubricating oils as CNG does not contaminate and dilute the crankcase oil.
- In CNG vehicles, there are no fuel losses from spills or evaporation as CNG fuel systems are sealed.
- CNG buses are more economical than diesel busses in the long term. A cost benefit analysis between new BS IV compliant diesel busses and CNG busses shows that new CNG busses save approx. 12% of cost in long term.





Creating Value Beyond Business





Global Recognition



- Reaffirmed the highest domestic credit rating of AAA from ICRA, CARE and CRISIL and India Rating.
- GAIL participated in 7 domestic and 1 international investor conference organized by top brokerage houses of the country.
- GAIL also organized two day Plant visit (Auraiya Compressor Station)





City Gas Distribution

In order to provide clean fuel for domestic, vehicular and commercial use and to facilitate development of smart cities, GAIL plans to expand its city gas distribution network. GAIL Gas Limited, a wholly owned subsidiary of GAIL, is implementing CGD projects in the cities of Kota, Dewas, Meerut, Sonapat, Bengaluru & Taj Trapezium and through its JVs in Haridwar, North Goa & Vadodara. Further, as a part of the Urja Ganga Project (JagdishpurHaldiaBokaroDhamra pipeline Project), GAIL shall on its own or through its subsidiary also implement CGD in six new cities in eastern India. CGD in Kolkata shall be operated through our JV. GAIL through its Subsidiary and JV companies own over 63% of the CNG stations and has 50% share of the domestic PNG connections. Consumption of gas by CGD sector in FY 16-17 at 20 MMSCMD emerged to be the fastest growing segment. In Bengaluru, GAIL Gas has laid 42 KM of steel

Pipeline and 245 KM of MDPE Pipeline network. 19,370 Domestic customers have been connected during the financial year. GAIL Gas also commissioned 3 CNG station in Bengaluru and commercial operations has started at 1 CNG station. Further, 10 CNG stations are planned in FY 2017-18.

PNG- As on 30.11.2017, approximately 39.22 lakhs households are getting benefited from PNG connections in India. Out of the 39.22 lakhs PNG (D) connections, 22.09 lakhs PNG connections (56.32%) have been provided by GAIL CGD JVs / Subsidiaries. Households in rural/remote areas are getting benefitted from the LPG connection thus freed.

CNG Stations and vehicles- GAIL is supplying to approximately 65.30% CNG stations of the total 1282 CNG stations and approximately 65.94% CNG vehicles of the total 29.66 lakhs CNG vehicles in India as on 30.11.2017

Advantages of CNG vehicles over Diesel vehicles:

- CNG vehicles are more environment friendly in comparison to BS – IV compliant diesel vehicles due to lesser Sulphur content, lower NOx emissions, lower carbon dioxide emissions, lower visible PM / black soot and greenhouse gas emissions.
- CNG vehicles increase life of lubricating oils as CNG does not contaminate and dilute the crankcase oil.
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Economic Performance

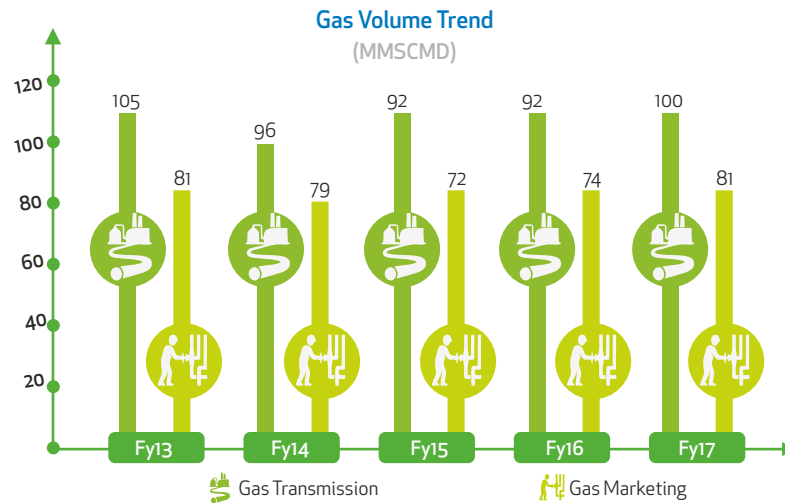
We are one of the largest natural gas processing and distributing public-sector enterprise in India. The Maharatna status was endowed upon us and added us as the seventh member to

the list. We are engaged in gas transmission, production of LHCs and petrochemicals. We transport natural gas, imported LNG and LPG. We have a 11,507 kms Natural Gas network and

operate in business segments namely exploration and production, natural gas, liquid hydrocarbon, city gas distribution, petrochemicals, and power and renewables.

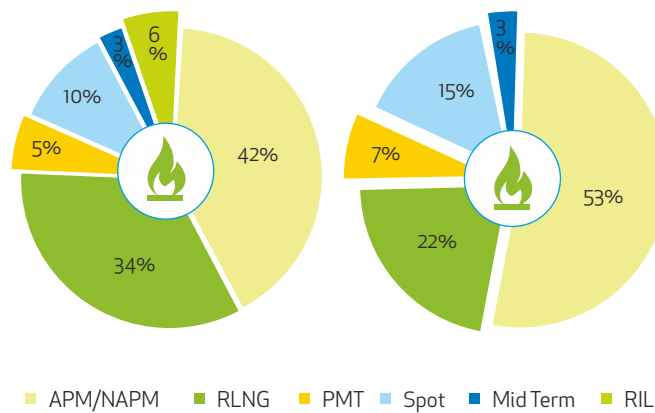
Parameter*(INR Millions)	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY15-16#	FY 16-17#
Economic Value GeneratedG4-EC1						
Revenues	4,11,745	4,83,572	5,88,153	5,78,555	5,26,233	4,98,306
Economic Value Distributed						
Operating Cost	3,54,411	4,10,176	5,17,312	5,18,271	4,17,317	4,73,215
Employee wages and benefits	7,208	10,674	9,082	10,608	10,741	13,537
Payments to providers of capital	14,352	17,240	20,368	14,983	15,399	19,873
Payment to Government	18,652	22,386	22,513	13,988	9,776	22,032





Gas Transmission Mix

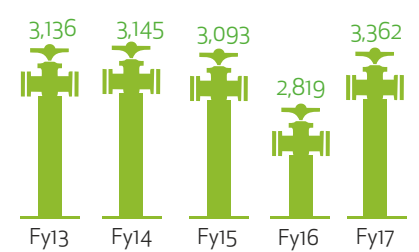
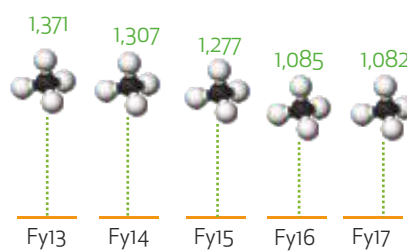
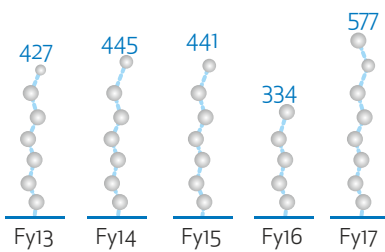
Gas Transmission Mix



Petrochemicals Sales

Liquid Hydrocarbons Sales

LPG Transmission



Reaffirmed the highest domestic credit rating of AAA from ICRA, CARE and CRISIL and India Rating.

GAIL's significant Sustainability Global Achievement-Coveted entry into "FTSE4Good Emerging Market Index"

GAIL appreciated and complimented by Tata Motors, for efficiency, quality and delivery of Natural Gas.





Operational Excellence

Delivering vital and clean low carbon energy to our customers is our core business. We seek to provide the customer with an efficient and timely

response, quality product and services. It is achieved by combining our extensive experienced and engineering skills, with responsible consideration for

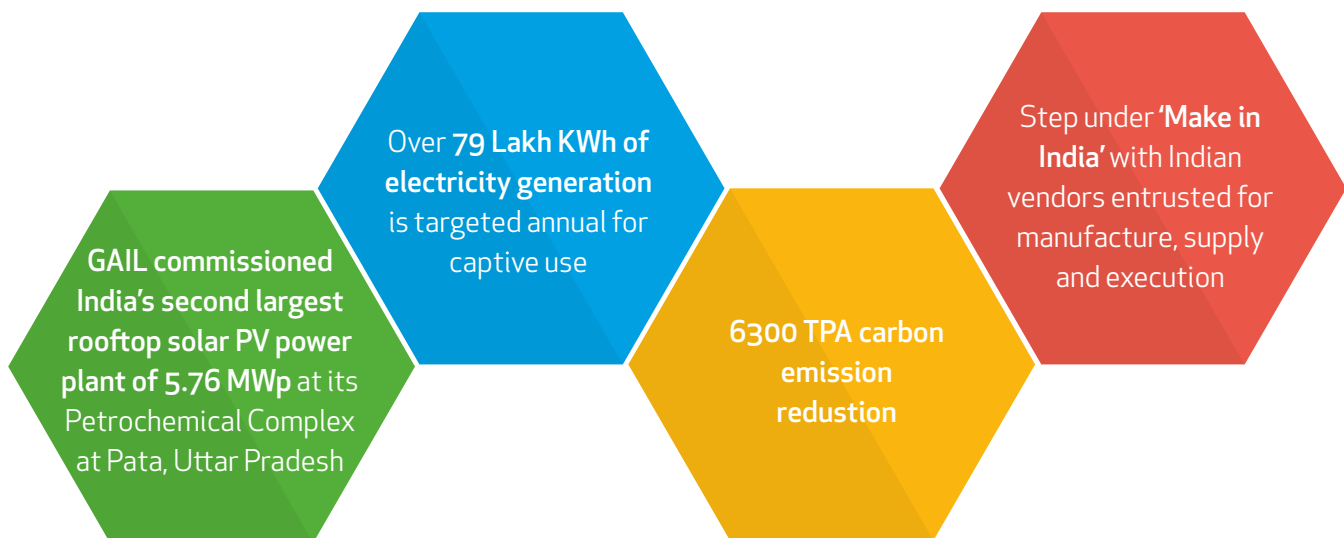
all our stakeholders and the environment. We follow the 5-pillar approach of ABCDE: Attitude, Behavior, Commitment, Discipline, Efficiency.

- ▶ Zero Accidents/ Incidents
- ▶ Zero deviation in implementing preventive/predictive measures to curb corrosion
- ▶ Zero Encroachments
- ▶ Zero deviation in Statutory compliances
- ▶ Zero deviation in compliances with Standard Operating Procedures (SOP)

- ▶ HSE Signature campaign,
- ▶ Environment Day celebrations
- ▶ Birthday Garden concept - every month GAIL Employees plant saplings on their birthday.
- ▶ In FY 16-17, our Pata site planted 1496 saplings as part of Birthday garden initiative.

Technology Utilization

- ▶ National Gas Management Centre (NGMC) - availability of live data at centralized location for monitoring pipeline parameters
- ▶ Monitoring of pipeline - SCADA
- ▶ Mobile apps for P/I information
- ▶ Information Security Management System
- ▶ Digi-Dhan - awareness campaign on cashless transaction at GAIL Vijaiapur





Biodiversity Assessment Study

Introduction

Biodiversity - is the term given to the variety of life on Earth. It is the variety within and between all species of plants, animals and micro organisms and the ecosystems within which they live and interact. The connections between biodiversity and our sustainable future appear closer and closer the more we look into it. We literally need to conserve biodiversity like our lives depend on it.

India is one of the 17 recognized mega-diverse countries of the world, having only 2.4% of the world's land area but harbouring nearly 7-8% of the recorded species of the world including over 45,000 species of plants and 91,000 species of animals.

We have been continuously taking initiatives to safeguard environment and biodiversity along with its diverse business segment. We understand the value of the green spaces present within its premises, and would like to feature the unique aspects of the flora and fauna to the general audience.

Biodiversity Assessment and Documentation is the first and most essential step towards its conservation. With this in view, a project on Assessment of Biodiversity was undertaken by us.

All our Process Plants have created a huge & significant green asset at their respective premises. The Green Reservoir so created with painstaking efforts of local management over the

years is now home to many exotic and indigenous species both flora & fauna. This was in spite of hostile soil conditions at various installations.

Objective:

The specific objectives of the study are:

- Rapid Assessment of Biodiversity at Sites
- Identifying issues and threats to their sustainability
- Drawing conclusions and recommendations based on the assessments
- Translating the key biodiversity features into a Coffee Table Book

Issues and Threats

- ▶ Invasion by alien species of flora
- ▶ Water hyacinth invasion in ecological pond at Pata
- ▶ Scrap management at Vijaipur, Pata and Vaghodia
- ▶ Loss of native vegetation at Usar
- ▶ Human wildlife conflict at ymt9114 and DBPL
- ▶ Scarcity of water at Vijaipur

Recommendations

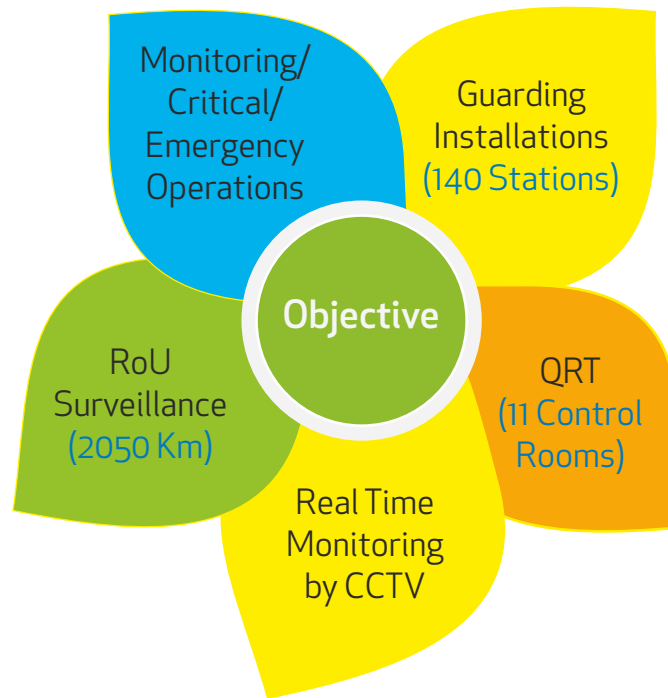




Health and Safety

We at GAIL believe that health and safety, continue to be among our crucial priorities. Keeping people and assets safe, and being good custodian of the environment are vital to us. Our Health, Safety and Environment (HSE) systems are governed by our corporate HSE Policy.

Our HSE status is reviewed by the Sustainable Development Committee (SDC). The committee is chaired by the Independent Director. Director (HR) & Director (Projects) review Safety on monthly basis. We are one of the few organisations in the oil and natural gas sector to have implemented the SA 8000, auditable certification standards for decent workplaces. SA 8000, and is based on the UN Declaration of Human Rights (UNHR), conventions of the ILO, UN and national law was implemented at GAIL Hazira.



Behavior Based Safety (BBS) implementation strives to make the workplace safer and builds a partnership between the company and its employees. We realize that only by permeating the safety policies, systems, processes, and procedures in our daily lives leads us toward an incident free environment.



- Strict adherence to OISD & PNGRB
- Established & well-documented ERDMP
- Intense Foot Patrolling
- Use of Personal Protective Equipment
- Sensitization of Employees and Robust Work Permit System
- H&S function headed by qualified by competent personnel
- Structured H&S Trainings System
- Designs of Plant & Pipeline as per International Standards
- Best in class Fire & Safety Equipment & Technologies in use





Our Commitment to United Nations' Sustainable Development Goals (SDGs)



On 1 January 2016, the Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development officially came into force. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind.

The SDGs are a collection of 17 global goals set by the United Nations. The broad goals are interrelated though each has its own targets to achieve. The total number of targets is 169.

"Just as our vision behind Agenda 2030 is lofty, our goals are comprehensive. It gives priority to the problems that have endured through the past decades. And, it reflects our evolving understanding of the social, economic and environmental linkages that define our lives... The sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet."

Sh. Narendra Modi, Prime Minister of India



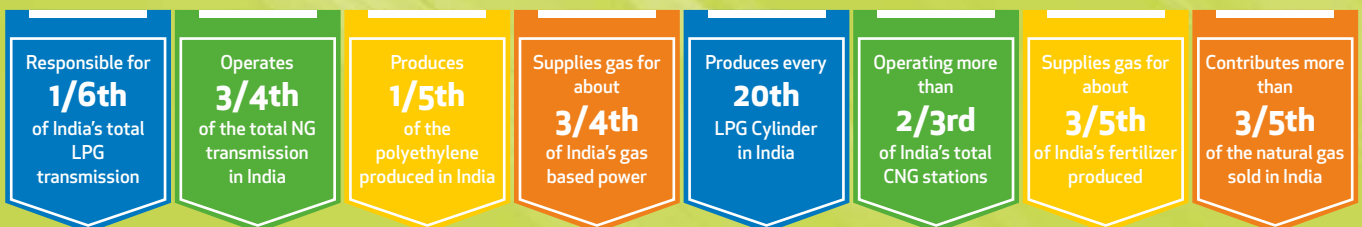
GAIL as a responsible corporate citizen and Government undertaking is committed to the achievement of SDGs.

Our efforts contributing to SDGs are mapped in the subsequent section of GAIL Sustainability Report FY 2016-17





GAIL: At a Glance





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