DOI 10.70906/20221604062067

Article

GAIL (India) Limited: Going Green?

Joshin John*

Lincy P Thomas**

ABSTRACT:

Mr. Vipin Chandran, DGM (Operations & Maintenance) at GAIL's Regional Gas Management Center at Kochi, is considering transitioning to renewable energy to power the in-house operations at the facility. In this context, he is tasked to evaluate a proposal for solar rooftop installation at the facility. He has to appraise the economic feasibility by conducting a cost-benefit analysis and evaluate the recommendation from a holistic sustainability standpoint.

Key-words: *Capacity Addition, Green Operations, Investment Decision, Net Present Value Sustainability.*

How to cite: John, J., & Thomas, L. P. (2022). GAIL (India) Limited: Going green? Journal of Management and Entrepreneurship, 16(3), 62–67

DOI 10.70906/20221604062067

* **Associate Professor, Xavier Institute of Management & Entrepreneurship, E-mail: joshin@xime.org, Phone: +91-8138905562**

** **Assistant Professor, Xavier Institute of Management & Entrepreneurship, E-mail: lincy@xime.org, Phone: +91-9946375878**

GAIL (India) Limited: Going Green?

On a sunny afternoon in November 2017, Mr. Vipin Chandran, Deputy General Manager (Operations & Maintenance) of GAIL (India) Limited was going through the proposal for installing solar photovoltaic rooftop panels at the company's Kochi facility. As the largest gas processing and distribution company in India, GAIL aggressively pushed its green agenda to promote the use of eco-friendly and clean energy by consumers. But now, it was the company's turn to decide on the green act. GAIL's Kochi facility was powered by electricity supplied by the Kerala State Electricity Board (KSEB) that was sourced primarily from conventional hydel and thermal power plants[1]. And the Kochi unit of GAIL was considering the proposal to install-solar rooftops as part of its strategy to go green. Mr. Chandran had to evaluate the proposal and make recommendations to the management on this topic, which was tabled for the next meeting. Specifically, he had to weigh on the proposal not only from an economic standpoint but on its contribution to the company's Triple Bottom Line (TBL)[2].

Background

Incorporated in 1984[3], GAIL (formerly known as Gas Authority of India Limited) was India's largest state-owned natural gas processing and distribution company[4]. It was conferred Maharatna[5] status in 2013 by the Government of India. The company had several subsidiaries and joint ventures with other hydrocarbon-based companies for its petrochemicals and gas distribution business. GAIL pioneered in introducing city gas projects in India for supplying gas through its subsidiaries. The customers of GAIL included domestic or residential users as well as small and large industries and commercial businesses.

The operations of GAIL encompassed the entire gas value chain, including gas exploration, processing and distribution to the end user[6]. The company had a presence in multiple segments, such as exploration and production in upstream fields, pipe laying for natural gas transportation, production of petrochemicals, processing of liquid hydrocarbons, installation and production of power from renewables, and city gas distribution[7].

The company owned and operated six gas processing plants in India that produced Liquefied Petroleum Gas (LPG), propane, pentane, naphtha and other by-products. The plants were majorly located in the central belt states of India – Gujarat, Madhya Pradesh and Uttar Pradesh. The gas processing units had an LPG transport capacity of 3.8 MMTPA8. The highest demand for natural gas was from power and fertilizers companies. As of 2017, GAIL distributed thirty-four percent of natural gas supplies to fertilizer industries, twenty-nine percent to the power sector, sixteen percent to Compressed Natural Gas (CNG) and Piped Natural Gas (PNG) industries, and the remaining twenty-one percent to other businesses.

Under its natural gas vertical, GAIL had a pipeline network spanning 11000 kilometers across the country, which was set to more than double during the expansionary phases in the coming years. The city gas distribution unit of the company served the fuel and energy needs of over 1.9 million transport vehicles and an additional 1.9 million households, either through direct subsidiary companies or joint ventures. The power and renewables unit of GAIL functioned along two sub-verticals – the wind power unit had a production capacity of 118MW[9] while the solar division had a capacity of 5MW. The petrochemicals unit had an annual production of

1 Kerala State Council for Science (2022). Technology and Environment, "Energy", database, accessed on March 4, 2021, http://www.kerenvis.nic.in/Database/ENERGY_811.aspx

2 GAIL (India) Limited, "Sustainability at GAIL", database accessed on 3 October, 2020, https://gailonline.com/SBGovernance.html.

3 GAIL (India) Limited, "GAIL Story", database accessed on 5 October, 2020, https://www.gailonline.com/ABGailstory.html

4 "GAIL (India) Ltd" Money control.com accessed on 8 October 2020. hIttps://www.moneycontrol.com/company-facts/gailindia/history/gai#:~:text=1984%20%2D%20The%20Company%20was%20incorporated,marketing%20company%20in%20the%20Country.

5 Maharatna meaning 'great gemstone' was a status conferred to Public Sector Units (PSU) by the Government of India. For a PSU to be eligible for Maharatna status, the company must be a publically listed company with an average annual net profit of ₹ 50 billion, or an average annual net turnover of ₹ 250 billion, or an average annual net worth of ₹ 150 billion. As of November 2017, there were eight Maharatna companies in India. 1 US $ = ₹ 65 Indian Rupee (Nov. 2017)

6 Ibid

7 GAIL (India) Ltd (2017). Annual Report 2017, pg. 8 accessed on October 10, 2020, URL: https://gailonline.com/pdf/InvestorsZone/AnnualReports/Annual_Report_2017_18.pdf

8 Million metric tons per annum

9 Mega-watt

0.81 MMTPA that accounted for a domestic market share of fifteen percent in the year 2017.

As on March 2017, GAIL's total assets[10] was of the order of ₹562,699 million[11]. The primary revenue source for GAIL was gas marketing, which accounted for seventy-one percent of its total revenue. This was followed by petrochemicals and liquid hydrocarbon sales that contributed nineteen percent of revenue. Ten percent revenue was generated from natural gas and liquified petroleum gas transmission sales. The purchase of raw materials was the significant cost head for the company consuming seventy-three percent of the total revenue. The consolidated profit margin for GAIL was about seven percent.

GAIL's KOCHI facility and ESG INITIATIVES

In 2015, GAIL opened a regional center for monitoring its gas pipeline project in the state of Kerala[12]. It was situated in Kinfra Hi-Tech Park, Kochi - an industrial park owned by the Government of Kerala. The center was envisaged primarily to function as the regional hub for gas distribution. To this end, the company constructed buildings and facilities at Kalamassery in Kochi, Kerala. This facility was among the only two facilitates GAIL operated from its own premises in South India, the other facility being in Rajamundry in the state of Andhra Pradesh. GAIL's regional gas management center was integrated with the national gas management center, principally for controlling the Liquefied Natural Gas (LNG) pipelines. The regional center also functioned as a valve station to regulate and control the pipeline network during emergencies (see Exhibit 1).

Over the years, the leadership at GAIL regional gas management center took several initiatives in line with the company's sustainability agenda. First, the main office building (see Exhibit 2) at GAIL Kochi was designed and constructed as a green building as per GRIHA[13] norms. The building was planned considering the tropical climatic conditions in Kochi. The building was primarily glass panelled to take maximum advantage of sunlight round the year for natural lighting. This design helped in reducing energy consumption for interior lighting. The building architects devised an innovative strategy to reduce the heating and ventilation power loads. The external glass walls were tapered outwards (see Exhibit 2) to partially reflect the harsh tropical sunrays directly falling on the glazed glass-wall panelling. Additionally, double-skinned structural glazing supported using aluminium composite panels was used to reduce the heat penetration from radiation into the building. This also decreased the burden of energy consumption by the air conditioning system during summer.

A second focus area for GAIL was to conserve water and prevent water run-off during monsoon. The company had initiated many project proposals for water conservation, including maintaining natural water bodies and creating new water reservoirs at different stations in India.[14] At the Kochi facility premises, GAIL developed a pond that was christened as 'KINFRA[15] pond' (see Exhibit 3). This water body was developed for two purposes: One, to recharge the ground water from monsoon rains; and two, to act as a water supply source for the fire hydrant systems at the facility during emergencies.

Additionally, a sewage treatment plant was set up at the GAIL facility to treat sewage water. The treated sewage water was subsequently used for horticultural purposes – to grow a vegetable and fruit garden on the premises. The company also installed a fixed dome-type biogas plant at its Kochi facility for converting kitchen waste into biogas. This way, the office kitchen's fuel needs were met self-sustainable without external fuel requirements.

GAIL's vision was to "be the leading company in natural gas and beyond, with a global focus, committed to customer care, value creation for all

[10] GAIL (India) Limited, (2017). "Annual Report 2016-17", pg 98, accessed on October 10, 2020, https://www.gailonline.com/pdf/InvestorsZone/AnnualReports/Annual_Report_2017.pdf

[11] The Reserve Bank of India's Reference Rate for the US Dollar is ₹ 64.8386 on March 31, 2017. accessed on July 15, 2021 from https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=40015.

[12] Jacob, K. J. (2015, July 28). Gail to open regional gas management centre in Kochi. Deccan Chronicle. accessed on February, 2021. https://www.deccanchronicle.com/150728/nation-current-affairs/article/gail-open-regional-gas-management-centre-kochi

[13] Green Rating for Integrated Habitat Assessment

[14] Rajkamal, Kiran (2022) Green Initiatives at GAIL (India) Ltd. SSRN accessed on 25 October 2022 https://ssrn.com/abstract=4286086.

[15] KINFRA stands for Kerala Industrial Infrastructure Development Corporation, a special economic industrial park zone where GAIL Kochi facility was located.

stakeholders and environment responsibility''. This was the guiding force, and its trickle-down effects were observable in the company's environmental and social interventions and governance policies. Regarding its day-to-day business operations, GAIL consistently kept pollutants much below the nationally stipulated norms. As GAIL was using natural gas for its feedstock and fuel requirements, the company also ensured that the air quality level in the area was within the stipulated parameters. For the emissions from its stack, GAIL provided adequate stack height for effective dispersion of pollutants and installed gas detectors to ensure quick detection of any gas leak. The company developed a solid waste management system to effectively manage waste by segregation, treatment and disposal based on hazardous and non-hazardous waste management practices. Over the years, GAIL has reinvented itself to become greener in several areas of its operations at its Kochi facility and align with sustainability's tenets. The company regularly monitored environmental parameters through an in-house team and an independent third-party agency to assess ecological quality. Internal and external laboratories also analyzed the water and wastewater sample regularly to keep water quality under check. The company also adopted an auditing system to ensure the proper functioning of the plants and pipeline in compliance with sound environmental management practices.

As of 2017, GAIL achieved an aggregate ESG Score[16] of 63. The company's ESG performance in environmental, social and governance categories were 79, 76 and 21, respectively (see Exhibit 4, refer to case supplement or Refinitiv database for more details on the ESG metrics). On the social dimension, GAIL Kochi center had a health and safety training program for employees and employee welfare programs. The accident and injury rate incidents also showed a decreasing trend over the years (Source: Refinitiv). GAIL Kochi centre introduced and instituted six sigma and quality management systems in its business operations for process quality management. The company also supported the local community through its CSR initiatives, particularly in education and skill development.

While the company was in the energy business, it was yet to achieve energy neutrality, i.e. to produce all the energy that was consumed, at its Kochi unit. While this was one sticky point, new regulatory requirements[17] were expected to be put in place shortly by the Securities and Exchange Board of India (SEBI), requiring all top 1000 listed companies to report their ESG initiatives. This had implications for many large-cap[18] companies to improve their TBL by standard Business Responsibility and Sustainability Reporting (BRSR) or equivalent frameworks. At GAIL Kochi, a proposal was brewing at the leadership level to discuss an investment proposal to achieve energy neutrality at the company's regional facility. The discussion was tabled at a high-level meeting in November 2017.

The SOLAR ROOFTOP INVESTment proposal

In November 2017, during a high-level meeting at GAIL Kochi Office, Mr. Tony Mathew, General Manager of GAIL took up the point on the agenda to adopt cost-effective green initiatives. Mr. Vipin Chandran, Deputy General Manager (Operations & Maintenance), proposed installing solar photovoltaic rooftop panels on its building. He said, "It might be to our benefit to use solar energy to run the center. The electricity cost could be minimized drastically." Mr. Tony Mathew suggested conducting an in-depth and comprehensive analysis of the pros and cons of installing solar photovoltaic rooftop panels, considering existing electricity consumption and the associated costs at GAIL's Kochi facility.

In his proposal, Mr. Chandran recommended installing a solar power plant with a capacity of 50KW on the rooftop of GAIL's Regional Gas Management Centre at Kochi. The total was limited to 50KW by the area available at the regional center. In consideration of the future capacity expansion plans for the building, only half of the available roof top area could be used for installing the solar photovoltaics, and the remaining area was reserved for future expansion. For installing the solar power plant, the initial cost

[16] Source: Refinitiv EIKON – Thomson Reuters Database, accessed on December 22, 2021.

[17] SEBI, Business Responsibility & Sustainability Reporting. Accessed on 20 April 2022 from URL:

https://www.sebi.gov.in/sebi_data/commondocs/may-2021/Business%20responsibility%20and%20sustainability%20reporting%20by%20listed%20entitiesAnnexure1_p.PDF

[18] Companies with a market capitalization of ₹562,699 or more

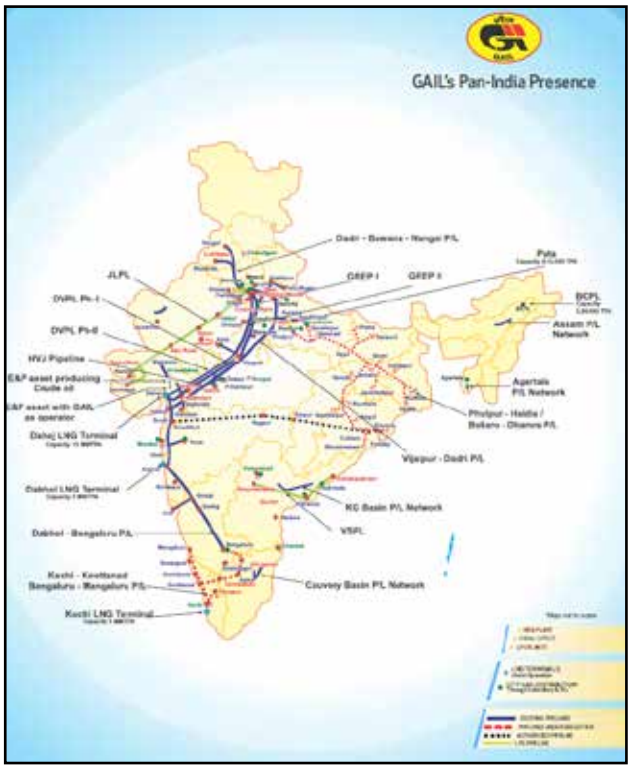
of investment was estimated to be ₹ 3.5 million[19]. This This included the cost of solar panels, support structure, cabling and wiring, energy monitoring and metering systems. The average daily electricity production from the facility's proposed solar plant was estimated to be 200 KWH per month. Currently, GAIL pays the state government's KSEB for its energy consumption at a subsidized average energy tariff of ₹ 5.4 per KWH[20] in the financial year 2016-2017. This subsidy was available only to industrial units housed within Kinfra Hi-Tech Park. For calculating GAIL's energy requirements post the proposed solar installation, Mr. Chandran based his numbers on last year's energy consumption report (see Exhibit 5). The life of the solar panels was expected to be twenty-five years.

Mr. Tony Mathew knew that GAIL was enjoying concession in energy tariff from its locational advantage in the industrial park. So, he was also sceptical about the cost-benefit of installing solar panels given the prevailing subsidized energy tariff. However, economic benefit was only one consideration. It was also noted that although there were seasonal variations in energy consumption, the average energy consumption was about 662 KWH per month. The inflation rate in India for 2017 was 3.6%[21], and a risk-free rate of return on investment was 6.5%[22] on average for the last ten years.

DECISION POINT

Mr. Chandran was tasked to evaluate the solar investment proposal. He had to weigh the pros and cons of the solar rooftop investment that was discussed from an economic standpoint and a holistic perspective, anchoring on the pillars of sustainability. Should GAIL install the solar rooftop energy system in Kochi?

Exhibit 1: GAIL'S PAN-INDIA PRESENCE



Source: GAIL (India) Limited, Annual Report 2016-17, pg. 245

Exhibit 2: GAIL Kochi Building

Source: SSRN, https://ssrn.com/abstract=4286086, pg. 20.

[19] The Reserve Bank of India's Reference Rate for the US Dollar was ₹ 64.9 as on March 31, 2017. accessed on July 15, 2021 from https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=40015.

[20] Rajkamal, Kiran (2022) Green Initiatives at GAIL (India) Ltd. SSRN accessed on 25 October 2022 https://ssrn.com/abstract=4286086, pg 28.

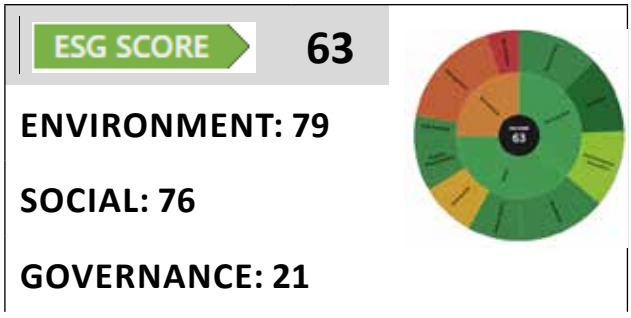
[21] Accessed on 27th July, 2021 https://m.rbi.org.in/Scripts/AnnualReportPublications.aspx?Id=1302#

[22] Accessed on 27th July, 2021 from https://www.macrotrends.net/countries/IND/india/inflation-rate

Exhibit 3: KINFRA POND FOR water conservation

Source: SSRN, https://ssrn.com/abstract=4286086, pg. 29.

Exhibit 4: ESG score of GAIL



Source: Adapted from Refinitiv database

Exhibit 5: GAIL KOCHI: ENERGY CONSUMPTION DATA

Month (Time Period)	Total Energy Consumption (kWh)	Daily Average Energy Consumption (kWh)
Apr-16	23439	781
May-16	21495	693
Jun-16	18783	626
Jul-16	19981	645
Aug-16	21865	705
Sep-16	16925	564
Oct-16	20415	659
Nov-16	19911	664
Dec-16	19647	634
Jan-17	19790	638
Feb-17	19759	706
Mar-17	19408	626

Source: SSRN, https://ssrn.com/abstract=4286086, pg. 28.

Note: This case was written solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. This case was developed largely based on information from public sources. The author may have disguised certain names and other identifying information to protect confidentiality. The responsibility on details and sources based on which the case was developed lies with the authors and not with the journal. The instructor's manual (teaching note) for the case is available from the journal for educators.

SIMULATION: Case Supplement

A simulation on financial analysis for decision making under varying scenarios is available as case supplement. Interested parties may write to contact@johnslab.online or get in touch with the case authors or journal to use the simulation.