How to Cite:
***Anand Kumar Singh* and *Dr. Manish Varshney* (Dec 2017) Indian Oil & Gas Industry: A Critical Overview**
International Journal of Economic Perspectives, 11(1), 154-159
Retrieved from: https://ijeponline.org/index.php/journal/article

Indian Oil & Gas Industry: A Critical Overview

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Abstract: *The Indian Oil & Gas industry is growing rapidly and playing an important role for the development of Indian economy. Being major consumer of energy resources, India has limited supplies of oil. The demand-supply gap however is very high. The structured industry note gives an overview and insights of the Indian Oil & Gas industry as a whole. It also appraises emerging current scenario of Indian Oil & Gas industry. It further measures the progressive step taken by the government towards India's energy security through creation of conductive policy and regulatory framework to promote Exploration & Production, Refining and Retailing of Oil and Gas for competitive and healthy growth of the industry and country as a whole.*

Introduction

The Indian Oil & Gas industry has been instrumental in fueling the rapid growth of the Indian economy. The sector meets more than two third of the total primary energy needs of the country. The oil & gas sector has been actively involved in putting India on the world map. With high rate of economic growth, India has become a major consumer of energy resources. India is fourth largest consumer of oil in the world. Despite the economic crisis, India's energy demand continues to rise steadily. India ranks 21st in terms of global oil reserve. However, demand-supply gap is very high. The country imports more than one-third of its oil requirements. The Indian Oil & Gas Industry is broadly classified into upstream, midstream and downstream segments. There are large number of key players including public sector, private sector and foreign players actively involved into Indian Oil & Gas value chain.

The Emerging Scenario of Indian Oil & Gas Industry Pre-independence Period

The origin of Oil & Gas industry in India tracked back to 1867, when oil struck at Makum near Margherita, about 8 miles from Digboi, Assam. However, Exploration and Production (E&P) started in a systematic way only in 1899, after the Assam Oil Company (AOC) was formed. AOC was a subsidiary of British owned Burmah Oil Plc. In the early stage, Oil & Gas industry in India was dominated by Burmah Oil & other companies. During the World War II, petroleum supplies to India were regulated by a committee in London while the prices

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Submitted: 26Oct 2017, Revised: 09 Nov2017, Accepted: 25 Dec 2017

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were set in India by a committee chaired in India by Burmah-Shell Oil Storage and Distribution Company of India Ltd (Burmah-Shell). During the era of pre-independence, Kerosene was the most important petroleum products in India as it was widely used for domestic purposes. Prior to independence, it was believed that India lacked large scale deposits of Oil and Gas. However, at the time of partition in 1947, India lost its most significant oil blocks to Burma and Pakistan and left with only one major oil producing field at Digboi

Post-independence Period

At the time of Independence in 1947, the Oil & Gas industry in India was controlled by the international companies and domestic oil production was just 250,000 tonnes per annum.[3] The entire production was from one state-Assam only. World's industry experts had believed and written off India as far as discovery of new petroleum reserves was concerned. In 1954, government of India announced in the Industrial Policy Resolution that petroleum would be the core sector industry. The government has developed the Geological Survey of India, which carried out extensive reconnaissance surveys and mappings, to locate structures suitable for exploration of oil & gas. A number of foreign companies have entered the Indian E&P sector since the early 50's. However, petroleum exploration in India received the real push only after the setting up of Oil and Natural Gas Commission (ONGC), in 1955.[4] Meanwhile other government-owned National Oil Companies (NOCs) including Indian Oil Corporation (IOC) and Oil India Ltd. (OIL) were formed. For the marketing of petroleum products, the government has set up another company called Indian Refineries Ltd. in 1959. During 1960, ONGC has discovered number of oil and gas-bearing structures in Gujarat and Assam. In 1964, Indian Refineries Ltd. was merged with Indian Oil Company Limited to form Indian Oil Corporation Ltd. (IOCL).

In the early 1970, NOCs were supplied about 70% of the domestic requirement in the country.[5] In 1974, discovery of oil in significant quantities in Bombay High opened up new avenues of oil exploration in offshore areas. During 1970 to mid 1980, ONGC and OIL had taken major exploratory efforts, which yielded discoveries of oil and gas in number of structures in Bassein, Tapti, Krishna-Godavari-Cauvery basins, Cachar (Assam), Nagaland, and Tripura. However, by the end of 1980, the supply reached at diminishing stage due to decline in oil production and steady increase in consumption of petroleum products. The domestic oil companies were able to meet only 35% domestic requirement in India.[6] This was further compounded by the resource crunch in the beginning of the early 90s. The Indian government had no money to give NOCs forthe development of some of the newly discovered fielsd like Gandhar, Heera (Phase-II and III), Neelam, Ravva, Panna, Mukta, Tapti, Lakwa (Phase-II), Geleki, Bombay High Final Development schemes etc. Though, some of these fields were developed by ONGC (Gandhar, Neelam, Bombay High, Lakwa, Heera, Geleki etc.), for others, there was no money available for indigenously developing fields. Different factors such as the administered oil price, non- availability of appropriate technology, logistics etc. were also a main problems. The situation forced government to go for petroleum sector reforms to attract funds and technology from abroad.

Post-Independence Period

The Indian Oil & Gas industry underwent major changes throughout the 1990s due to

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introduction of liberalization policies. Afterward, three rounds of exploration bidding had been initiated but gone through with no success in finding a new oil/gas deposits by the foreign companies, who were only allowed to bid. The government of India, further liberalized the petroleum exploitation and exploration policy in 1991, and invited private companies, both foreign and Indian, to participate in the E&P and Refine and Marketing (R&M) activities in Oil & Gas sector. Some of the global companies that entered India in the R&M segment were ExxonMobil, British Petroleum and Marathon while the companies in E&P were Shell, Geopetrol, Niko Resources Ltd., Conoro Resources Ltd., and Cairn Energy Plc. During 1991-1994, government announced fourth, fifth, sixth, seventh and eighth rounds of exploration bidding under the petroleum sector reforms. Starting from the fourth round of exploration bidding, for the first time Indian companies were allowed to bid with or without previous experience in E&P activities. Lack of previous experience, forced the Indian companies to seek foreign partner to work as operator and to share costs.

In order to increase exploration activities, government formulated New Exploration Licensing Policy (NELP) in 1997-98 to provide level playing field on which all parties including private and public sector companies would compete in all fiscal and contract matters. NELP conceived to address the increasing demand supply gap of energy in India, has proved to be successful in attracting the interest of both domestic private sector players and some foreign players with eight rounds of bidding, with Reliance Industries and Cairn being particularly active in this arena. Since its operationalization in 1999, NELP has completed eight rounds of bids and 239 Production Sharing Contract (PSC) have been signed[7] (Exhibit II). In addition, 28 exploration blocks were signed prior to NELP under various bidding rounds with private Indian and foreign companies and National Oil Companies as Licensee. After the implementation of NELP, India's oil and gas E&P scenario has been changed significantly in terms of both exploration and investment. NELP has created healthy competition between public and private sector companies, which is good signfor Indian economy as well as upstream oil sector. NELP IX has been announced in October 2010 with various road shows being planned in major Indian and international cities by the government to attract private investment.

The Governance Framework

The Oil & Gas industry in India is closely regulated by the Ministry of Petroleum and Natural Gas, Government of India subjected to each link in the chain including E&P, refining, marketing and distribution; and import, export, and conservation of petroleum products and Liquefied Natural Gas (LPG). There are several leading Public Sector Undertakings (PSUs) and private players across the value chain. The pricing of petroleum products and natural gas continued to be controlled and regulated by the government. The Petroleum & Natural Gas Regulatory Body (PNGRB) is the regulatory body, responsible to regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas excluding production of crude oil and natural gas so as to protect the interest of consumers and entities engaged in specified activities and to ensure uninterrupted & adequate supply and to promote competitive markets.

Leading Players

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Both public and private players are playing an important role in Indian Oil & Gas industry. IOC, ONGC, HPCL, BPCL, OIL and GAIL are the leading public sector companies where as RIL, Essar Oil Limited, Adani Gas, Petronet LNG, Cairn, Shell, BG Group and BP are the leading private sector firms playing a major role in the industry. The industry players are mainly involved in different range of operations, from exploration to production, refining, marketing, infrastructure and diverse multi-sector operations. Cut-thought competition among the existing service providers have been scaling up their activities and capabilities, enhancing their fleet size and widen their portfolio by offering different specialized services and developing their manpower. Some of the local firms are also planning to offer their service to E&P firms across the world. The Indian refineries are also focusing on integrating horizontally to venture into the production of more value-added products to gain additional revenues.

Rise towards the Economic Growth.

The Oil & Gas Industry has been actively involved in stimulating rapid growth of the Indian economy, comprised over 15% of the GDP.[8] During past few years, India's economy witnessed a healthy 7% to 9% growth rate, which led to current growth in energy demand across industrial, commercial, transportation and residential sectors.[9] The government has also been doing its bit in recent times to deregulate the industry and encourage greater foreign participation to create level playing field and healthy competition in the industry.

Growth & Demand Drivers

To maintain this high economic growth, India needs substantial quality of crude oil and natural gas. The energy needs are growing at a faster rate as income levels and population both are showing rising trends in the country. Increasing automobile sales in India has led to significant investment being made for development of oil exploration and production and to expand the petroleum retail market in the country. According to US-based consultancy firm Keystone, automobile sales are likely to grow from present 1 million to about 20 million by 2030, making India as the third largest automobile market in the world.[10] The Ministry of Petroleum has estimated that the demand for oil and gas is likely to increase from 186.54 million tonnes of oil equivalent (mmtoe) in 2009-10 to 233.58 mmtoe in 2011-12.[11] The national attempt is to bridge the ever-increasing gap between demand and supply of petroleum products by intensifying exploratory efforts for oil and gas products. To meet this ever increasing petroleum demand, Indian petroleum sector heavily investing abroad. The government owned firms already have a stake in oil and gas field in Russia, Iraq, Sudan, Egypt, Libya, Qatar, Ivory Coast, Australia, Vietnam and Myanmar.

Being third-largest global coal producer, India has limited supplies of oil. Currently, India imports around 75% of its oil requirements. India have reserves of 791 million metric tonnes (MMT) of crude oil and 112 trillion cubic metric (TCM) of natural gas.[12] An extensive increase in the domestic supply of natural gas and reduced prices of Liquefied Natural Gas (LNG) in the country, are likely to encourage the consumption of gas in power, fertilizers, city gas distribution and other industrial segments. Given the commencement of production from RIL's KG Basin fields, the commencement of Cairn India's production and the potential development of the discoveries announced by GSPC and ONGC, the E&P sector is poised to

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see considerable activity in the near future.

Retail & Distribution

Fuel Retailing – Until 2002, private sector was not allowed fuel retailing in India. Subsequently, the government has decided to open the fuel retailing market for private players with certain restrictions. The government was insulting the Indian consumer from volatility of crude oil prices in the international markets, has been subsidizing end-user prices. The huge amount of subsidy provided to the domestic consumer being shared by the Oil Marketing Companies (OMCs) and the upstream PSU firms. In June 2010, a major step was taken in the area of moving towards fuelprice deregulation. Government has decided to give free hand to oil companies to determine petrol prices in the line with the market price.

However, diesel prices were not allowed the same freedom due to fear of significant inflationary impact on Indian economy.

Fuel retailing in India is still dominated by the PSUs. Accounting for about 50% market share, Indian Oil is a leading player in Indian fuel retailing market, while the other PSU retailers like HPCL and BPCL holds about 5% and 25% market share respectively.[17] Private sector players like RIL, Essar and Shell have entered the market, but they have found it difficult to sustain operations given the price deregulation in place. However, there are indications that private sector interest has renewed in this space. Currently, private sector firms operates its retail outlets successfully through providing a customer centric service across the value chain. Petro-retail outlets are also helping in the sales of other petroleum products like automotive lubricants. In addition to buying fuel, walk into petrol pump today one could, buy automobile accessories, groceries, ice cream, coffee and snacks, medicines, send a courier, access the Internet, draw cash at an ATM, make a bill payment, buy a cell phone SIM card and more.

Gas Transmission & Distribution – The transmission and distribution segment of the natural gas sector remains relatively under-developed, but this is to change in medium term. The existing pipeline capacity of about 220 mmscmd is expected to increase to about 660 mmscmd in the near future. The expansion in gas transmission would definitely lead to better gas availability, better tapping of demand and thus in turn increase the natural gas demand. The City Gas Distribution(CGD) space in India have been steadily increasing and government is playing an important role to provide a level playing field for both domestic and foreign entities in competitive bidding process – to grant licenses for CGD service in different cities and geographical areas. Increasing urbanization and strict environment norms around the urban centres is likely to increase the demand for piped natural gas as a clean and efficient fuel. India's main focus is to enhance the energy security of the country. The government has been taking many progressive measures to create a conductive policy and regulatory framework, to promote E&P, to meet the rising consumption of oil and gas in the country through attracting investment from more number of domestic private and foreign players. Considering an important strategic action of different industry segment like E&P, Refining, LNG, CGD, R&M, etc. the trend of Oil & Gas industry is on changing track.

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