Oil and gas sector in indonesia environmental sciences essay

Introduction: C: Documents and SettingsAdministratorDesktopindex. jpegThe oil and gas industry, both in Indonesia and globally, has experienced dramatic swings in recent years. The industry had been experiencing a significant resurgence in investment coinciding with the run up in crude oil prices which Peaked at approximately US$145 per barrel in mid 2008. This was then tempered with the onset of the global financial crisis and ensuing global recession which gained momentum in the latter half of 2008. From its peak in mid-2008, the oil price collapsed by more than 70% and ended 2008 at approximately US$40 per barrel. Indonesia is working at developing unconventional gas such as shale gas. Indonesians hale gas potential is estimated around 574 Tcf, bigger than CBM. In order to support the potential of this energy the government plans to start completing the regulations concerning shale gas by 2012.

1. 2) Global Context

Indonesia has been active in the oil and gas sector for more than 125 years after its first oil discovery in North Sumatra in 1885, and continues to be a significant player in the international oil and gas industry. Indonesia holds proven oil reserves of 4. 2 billion barrels and ranks twenty first among world oil producers, accounting for approximately 1. 2% of world oil production. Declining oil production and increased consumption resulted in Indonesia becoming a net oil importer in late 2004.

1. 3) Resources and Production

Indonesia has a diversity of geological basins which continue to offer sizeable oil and gas reserve potential. Of the estimated 128 oil basins, only 38 have been extensively explored. Most oil production and exploration is currently

carried out in the basins of Western Indonesia (the bulk of Indonesia’s oil reserves being located onshore and offshore of central Sumatra and East Kalimantan).

(1. 4) Contribution to the Economy

It is an important contributor to Government export revenues and foreign exchange and is the largest contributor to state revenue (in 2010 it contributed to just over 15% of domestic revenues). However, as oil and gas development has slowed state revenue from the sector has declined. After a fall in 2009, revenue slightly increased to Rp 152 trillion in2010, but this still represented a drop of approximately 28% from Rp 212 trillion in 2008. In 2009 investment levels in the industry decreased by almost 11% fromUS$12. 096 billion dollars in 2008 to US$10. 874 billion dollars in 2009. This drop in investment is a reflection of a fall in the net draw down in cost recovery by investors. During 2009, of 55 oil and gas blocks offered, the Government had signed only 18 PSCs for exploratory blocks and only one new PSC for a production block

1. 6) Mode of Business

The permitted mode of entry for foreign investors in the oil and gas sector is by way of a branch of a foreign company (i. e. as a " Permanent Establishment" or " PE"). Incorporation as a limited liability company under Company Law No. 40/2007 and domiciled in Indonesia (i. e. as a " business entity" or " PT") is available for Indonesian investors only. Due to the " ring fencing" principle (Article 13 of Law No. 22/2001), where only one PSC can be granted for each PE or PT, separate bodies must be set up for each work area. For example, after the passing of Law 22/2001, PERTAMINA was

required to establish subsidiaries and enter into PSCs with BP Migas for each of its work areas. Investment Law No. 25/2007 (" Law No. 25") dated 26 April 2007 applies only to those PTs operating in the downstream sector. Law No. 25 allows investors, amongst other things, to transfer and repatriate profits, bank interest and dividends in foreign currency (Articles 6, 7 & 8) and provides for capital investment facilities. These facilities include the exemption or relief of import duty on the import of capital goods, machines or equipment for production needs; and/or the exemption or postponement of Value Added Tax (" VAT") on the import of capital goods or machines or equipment needed for production

Upstream Sector

Upstream business activities (i. e. exploration and exploitation) are conducted in regions known as " work areas". Work areas are formalized upon approval from the Ministry for Energy and Mineral Resources (" MoEMR") in consultation with BP Migas and relevant local government authorities and then specified in a Joint Cooperation Contract. A work area can be offered through either tenders (which consider the bidder’s work program, technical and financial capability, and degree of risk and efficiency), or direct offers.

2. 1) Joint Cooperation Contracts

Upstream activities are executed via Joint Cooperation Contracts. A " Joint Cooperation Contract" (" JCC") is defined under Law No. 22 to be production Sharing Contract (" PSC") or other form of Joint Cooperation Contract (such as a Service Contract, Joint Operation Agreement, or Technical Assistance Contract) in exploration and exploitation activities that is signed by the

business entity or Permanent Establishment (" PE")with BP Migas (the executing agency)

2. 2) Contract Period

JCCs remain valid for a maximum of thirty years from the date of approval (they must start activity within six months of signing). After this time, the Contractor can apply to the MoEMR for an extension for another (maximum) twenty years A request for extension can be submitted no earlier than ten years and no later than two years before the JCC expires; but if the contractor is party to a natural gas sale/purchase contract, the Contractor may request an extension before these stipulated time limits. The maximum thirty year period includes both the exploration and exploitation period.

2. 3) Use of Domestic Goods, Services, Technology, and Engineering and Design Capabilities

All goods and equipment purchased by Contractors become the property of the Government. Any imports require appropriate approvals from the MoEMR, the MoF, and other minister(s) and can be imported only if they are not available domestically and meet requirements of quality/grade, efficiency, and guaranteed delivery time and after sales service. Management of goods and equipment rests with BP Migas. Any excess supply of goods and equipment may be transferred to other Contractors with the appropriate government approval before any amounts can be charged to cost recovery.

2. 4) Valuation of oil

To determine the sharing of production, and for tax purposes, oil is valued on the basis of a basket of average Indonesian crude prices (" ICP") published by RIM(50%) and Platt’s (50%). The value is calculated monthly by BP Migas. Undera PSC, the Contractor receives oil or in-kind product for settlement of its costs and share of equity. This makes it necessary to determine a price to convert oil to US dollars in order to calculate cost recovery, taxes and other fiscal items such as under/over lifting. In the past, the ICP was determined monthly by BP Migas/Pertamina based on a moving average spot price of a basket of a number of internationally traded crudes, but its value did not properly account for significant fluctuations in movements in oil prices and was considered deficient for this reason.

3) Downstream sector

It formally liberalized the downstream market by opening the sector (processing, transportation, storage and trading) to direct foreign investment and ending the former monopoly of state-owned oil and gas company PT Pertamina (Persero) (" Pertamina"). Whilst the distribution of downstream products and blending of lubricants had previously been conducted by multinationals in Indonesia, since Law No. 22 was enacted many prominent multinationals have established themselves in the more capital intensive areas of the downstream sector. These areas include: tank farms/storage facilities for bulk liquids and LPG; the distribution of gas by way of pipelines (Cottages and long distance pipelines); proposed refineries and downstream LNG; proposed LNG degasification terminals; andthe retailing of fuel (both subsidized1 and non-subsidized).

3. 1) Operation and Supervision of Downstream Business

Downstream businesses are required to operate through an Indonesian in corporate entity (hereafter referred to as a " PT Company") and to have obtained a business license (issued by the MoEMR/the Government, with input from BPH Migas). As indicated in Section II (" Regulatory Framework"), BPH Migas is responsible for regulating, developing and supervising the operation of the downstream industry

3. 2) Business Licenses

A separate business license is required for each of the following downstream activities (except where the activity is the continuation of an upstream activity in which case a license is not required): processing (excluding field processing); transportation; storage; andTrading (two types of business licenses are required – a wholesale trading business license; and a trading business license).

(3. 3) Occupational Health and Safety, Environmental Management, and Development of the Local Community

PT Companies operating with a downstream business license must comply with provisions relating to occupational health and safety, the environment, and the development of local communities. This responsibility includes developing and utilizing the local community through, amongst other things, local employment. Such development must be implemented in coordination with the regional government and priority given around the area of operation.

(3. 4) Utilization of Local Goods, Services, Engineering and Design Capacity and Workforce

PT Companies operating with a downstream business license must prioritize the utilization of local goods, tools, services, technology, and engineering and design capacity. In fulfilling labor requirements, a downstream PT Company must prioritize the employment of Indonesian workers according to required competency standards. Where Indonesian workers do not meet the required standards of competence and occupational qualifications, the PT Company must arrange for training and development programs to improve those workers' capacity. BPH Migas has the power to determine and impose sanctions relating to a PT Company's breach of its business license.

(4) Regulatory framework

Law No. 22/2001 - The law regulating oil and gas activities is Law No. 22/2001 dated 23 November2001 (" Law No. 22"). Its stated objective (Article 3) is to ensure that Indonesia's oil and gas related activities: guarantee effective, efficient, highly competitive and sustainable Exploration and exploitation; assure accountable processing, transport, storage and commercial businesses through fair and transparent business competition; guarantee the efficient and effective supply of oil and gas as a source of energy and for domestic needs; promote national capacity; increase state income; andenhance public welfare and prosperity equitably as well as maintaining the conservation of the environment.

(5) Basic Condition for Gas Businees in India

The Basis System of Gas system

This figure represents a fairly complete processing setup for handling produced fluids. It encompasses almost all system used. Not all elements shown are currently or potentially present in a given system. The purpose is to show most of the common alternatives.

5. 1) Anatomy of Gas Contract in Indonesia

To build a Gas Sales Agreement in Indonesia, there are five important elements based on figure below: a. Start and Firm Dateb. Gas Sourcec. Contract Volumed. Penaltiese. Contract Pricef. Legal IssueGas quality of all quantities of gas supplied usually measured at the Buyer Delivery Point with the provisions is normally included in a gas sales contract: Heating Value. The gross heating value is the heat produced on combustion of the gas with the theoretical amount of air required if the water formed by combustion is cooled to the reference temperature and then condensed. The wobbe number is a measure of burner compatibility. Sulfur content. This limits the amount of sculpture compounds to prevent corrosion, toxicity and odor when the gas is burned. Maximum Temperature. A maximum delivery temperature at the transfer point may be specified. It is often about 49 degree Celsius (120 degree Fahrenheit)Water content (dew point). This specification will be stated as the mass of water per unit value of gas or the maximum allowable water dew point temperature at a specific pressure. Hydrocarbon dew point. As most contracts recently specify that the gas shall be free of liquids, solids, dusts, gums and gum-forming constituents, along with this, a specification is included that fixes the maximum allowable hydrocarbon dew point

temperature at a given pressure. Other. Non-hydrocarbons (N2, He, Ar), CO2, O2, Hg. The typical of gas contract in Indonesia can be described as figure below:

5. 2) Gas Delivery Concept in Indonesia

There are two basic concepts of gas delivery in Indonesia, especially for gas export: 1. Flow control. It uses nomination term as reference. 2. Pressure control. It uses short-fall and undertake terms based on pressure number at delivery point as reference.

5. 3) Types of Gas Contract in Indonesia

There are four types of gas contract in Indonesia: 1. Firm Supply Contract2. Dedicated Reserve Contract3. Interruptible Contract4. Retail Contract

5. 4) Natural Gas Development

It needs 9 years and more of its development, divided by 3 phases: 1. Exploration phase (5 years)2. Project Execution phase (4 years)3. Long Range Plan (next years)

5. 5) Exploration phase

It begins with the offering by the government to some oil and gas company as contractors in Indonesia. It usually takes one year of tender process before Production Sharing Contract awarded. The contractor will continue to have seismic and mapping process for a year. This result will define the exploration wells of this concession area. This phase is the most critical phase. If the input is from a petroleum reservoir, one must recognize the future performance is not absolutely controllable. The reservoir engineering

does not dictate how said reservoir will perform in the future; current analyses and flow conditions will certainly change with time. Based on that, they may be classified as very likely, probable and possible.

5. 6) Availability and Distribution of Certain Types of Fuel Oil

To guarantee the availability and distribution of certain types of fuel oil, a trading business at the moment is unable to operate in a fully fair and transparent market. The MoEMR has the authority to designate areas of trading certain types of fuel oil domestically. This may include trading fuel oil where: the market mechanism has been effective; the market mechanism has been ineffective; orthe market is located in a remote area. If necessary, the Government, with input from BPH Migas, may determine the retail price for certain types of fuel oil by calculating its economic value. A PT Company holding a wholesale trading business license that trades certain types of fuel oil to transportation users or trades kerosene for household and small enterprises must provide the distributor it has appointed with opportunities. The distributor includes cooperatives, small enterprises, and/or national private enterprises the trademark fuel oil of the corporate body. The PT Company must report to BPH Migas and the MoEMR the name of its distributor

(5. 7) Standard and Quality

The MoEMR sets the type, standard and quality of fuel oil, gas, other fuels, and certain processed products that are marketed domestically. In determining the quality standards, the MoEMR reviews the technology to be applied, the capacity of the producer, the consumer’s financial position,

safety, health, and environmental standards. A PT Company operating as a processing business must have an accredited laboratory to perform tests on the quality of the processing output. Likewise, a PT Company operating a storage business, which does blending to produce fuel oil, must provide a testing facility on the quality of the blending output. If the PT Company is unable to provide a self-owned laboratory, it is allowed to use unaccredited laboratory facility owned by another party. Fuel oil, gas, and processing output in the form of finished products, which are imported or directly marketed domestically, must comply with the quality standards determined by the MoEMR. For fuels and processing output that are exported, a producer may determine the standard and quality based on the buyer's request. Fuels and processing output specially requested must report their determined standard and quality to the MoEMR.

6) Taxation Framework

6. 1) Indirect Taxes

Indirect taxes, regional taxes, and regional levies are stated as cost recoverable. Indirect taxes include VAT, customs duty, land and building tax, regional taxes and regional levies. This is a significant change as these taxes have generally been reimbursable in the past. Investors can therefore expect to see some change in the standard PSC language post GR 79 around this point (i. e. the removal of the VAT reimbursement language). Customs Duty and import taxes (such as VAT and Article 22 Income Tax) due on the importation of goods related to exploration and exploitation activities are to be exempted. This is a positive development as it should alleviate some of

the recent tax concerns with rig and similar imports although detail on the exemption is still to issue.

6. 2) Tax Calculation, Payment and Audit

For JCCs signed after GR 79/2010, the Income Tax rate is that which prevailed at signing or that prevailing from time to time. This appears to breathe life into the Income Tax rate " election" which is in Law No. 22. For JCC’s signed before GR 79/2010, the Income Tax rate is that which prevailed when the JCC was signed. This grandfathering is consistent with the retention of the uniformity principle. Oil and Gas in Indonesia. If the Income Tax payment is reduced, including via a change in the domicile of the Head Office (say due to a favorable tax treaty), the after tax " government share" shall remain the same. This enshrines the recent trend in PSCs to counter tax treaty use. Contractors pay Income Tax on a monthly basis based on actual lifting with the tax due by the 15th of the following month. The Government may demand the Income Tax payment in the form of crude oil or natural gas. This is a new feature for which detailed guidance is needed. Income Tax payments are subject to tax audit out by the DGT. The DGT will issue any assessments after audit. Whilst this is not new in practice guidance will be needed on the technical aspects of these new procedures. As a general remark, upstream investors will need to be prepared for the tight deadlines that apply in a tax audit context and any associated tax dispute proceedings. This includes a 30-day time limit to produce documents especially those that might be held at the Head office. Apart from providing documents on a timely basis, there are also obligations to provide (written) responses to DGT enquiries on a timely basis. For contractors in exploration, unrecovered costs

are subject to tax audit on an annual basis by the Government auditor (eg. BPKP) on behalf of the DGT. This is effectively a new development as BPKP audits have historically not commenced until production.

7) Future Investment in Oil & Gas Sector

The oil and gas industry is optimistic about the future of reform in the Indonesian energy sector through using comprehensive dialogue to tackle investment challenges. This approach expected to boost exploration activities. The Indonesian oil and gas industry needs to conduct more exploration and develop further reserves of oil and gas in the frontier areas to meet growing domestic demand and also increase revenues from exports," said the Indonesia Petroleum Association (IPA) president Elisabeth Proust at the closing ceremony of the 36th IPA Annual Convention and Exhibition (Convex) in Jakarta last week. At the IPA convention, oil and gas companies emphasized their readiness to invest and this was indicated by their commitment to support the Indonesian government in achieving the target set for the oil production, said Proust.

India Oil & Gas sector

Introduction

The Indian oil and gas sector is one of the six core industries in India and has very significant forward linkages with the entire economy. India has been growing at 8-9 per cent annually and is committed to accelerate the growth momentum in the years to come. This would translate into India's energy needs growing many times in the years to come. Hence, there is an emphasized need for wider and more intensive exploration for new finds,

more efficient and effective recovery, a more rational and optimally balanced global price regime - as against the rather wide upward fluctuations of recent times, and a spirit of equitable common benefit in global energy cooperation. The Oil & Gas industry is complex, asset-intensive, multi-enterprise series of interconnected supply chains. The Oil & Gas industry has experienced tremendous growth and is a driving engine for the Indian economy. Performance of these companies depends on the performance of critical assets and equipment reliability and safety are top considerations. The Oil & Gas industry comprises two parts:• Upstream _ the exploration and production.• Downstream – refining, processing, distribution and marketing. Oil & Gas value chain:• Oil and gas exploration and production• Marine supply, transport and support• Oil & gas transportation and distribution• Refining• Petrochemical• ChemicalsAsset-intensive companies need to build and operate plants and assets in a reliable, environmentally friendly, safe and cost effective manner. Today’s Oil & Gas companies are on a quest for operational excellence - to improve safety, reliability and compliance while controlling costs. Success depends on how well Oil & Gas companies manage physical assets and human capital and leverage operational intelligence, making use of available information to make better and quicker decisionsOil and gas companies of India Baan Offshore Bharat Petroleum Bongaigaon Refinery and Petrochemicals Limited Castrol India Chennai Petroleum Corporation Limited Essar Energy Essar Oil GAIL Gujarat Gas Company Gujarat State Petroleum Corporation Hindustan Petroleum IBP (merged subsidiary of Indian Oil) Indraprastha Gas Mahanagar Gas Mangalore Refinery and Petrochemicals Limited Oil and Natural Gas Corporation Oil India Petronet LNG Ratnagiri Gas and Power Reliance Software solution

approach for Oil & Gas companies are different since it involves complex procedures and diverse requirements such as asset lifecycle management (ALM), field service, supply-chain management, technical document management, geographical information systems, SCADA integration and other business functionalities. Sensor-based technologies help improve planning and decision support. Hence it is not possible to mold a general software solution, that can integrate and handle these diverse needs. The Oil & Gas companies have run into a real challenge when trying to find Software System capable of effectively managing all of these, even though most of the Oil & Gas companies run different software solution. The distillation of crude oil gives different Products (more than 6, 000), such as Petrol, Naphtha, Kerosene, Diesel, Lubricating oil, Fuel oil, Bitumen, sulfur, polymers etc.

Upstream sector

(2. 1) Exploration and Production

The growing demand for crude oil and gas in the country and policy initiative of Government of India towards increased E&P activity, have given a great impetus to the Indian E&P industry raising hopes of increased exploration

(2. 2) Crude Oil & Gas Production

Oil and Natural Gas Corporation Limited (ONGC) and Oil India Ltd. (OIL), the two National Oil Companies (NOCs) and private and joint-venture companies are engaged in the exploration and production (E&P) of oil and natural gas in the country. Crude oil production by the NOCs during 2007-08 is expected to be about 29. 663 MMT as against the production of 29. 11 MMT of crude oil

during 2010-2011Consequent upon liberalization in petroleum sector, Govt. of India is encouraging participation of foreign and Indian companies in the exploration and development activities to supplement the efforts of national oil companies to narrow the gap between supply and demand. A number of contracts have been awarded to both foreign and Indian companies for exploration and development of fields on production sharing basis.

(2. 3) Exports

The export of petroleum products during the last year increased by 17% over the quantityexported during 2010-2011. In dollar terms, the increase was close to 50%. Exports accounted for 24% of gross imports of oil and products during 2010-11.

(2. 4) Domestic Oil and Gas Production

Crude oil production from the deepwater block D6 in KG Basin began on 17th September2008. The block promises to yield a peak production of around 34, 000 barrels per day nextyear and its life is projected to be 11 years. The Improved Oil Recovery and Enhanced Oil Recovery projects of ONGC are under operation in its 15 largest fields. ONGC expects to extract additional production of 14 million tons of oil and 16 BCM of gas from its marginal fields during the current Plan period.

(2. 5) Natural Gas

Natural Gas has emerged as one of the most preferred fuel due to its environmentally benign nature, greater efficiency and cost effectiveness. At present, the main producers of natural gas are Oil and Natural Gas

Corporation Limited (ONGC), Oil India Limited (OIL) and the JointVentures of Panna Mukta & Tapti, and Ravva.

Public Sector Undertakings

(2. 6) Oil & Natural Gas Corporation Limited (ONGC)

Oil & Natural Gas Commission (then Commission) was established on 14th August, 1956 as a statutory body under Oil & Natural Gas Commission Act (The ONGC Act), for the development of petroleum resources and sale of petroleum products.. The Government disinvested around 10% of the equity shares of ONGC in March 2004 through a public offer in the domestic capital market at Rs. 750 per share. After the above disinvestment, the shareholding of the Government in ONGC came down to around 74. 15%. At present, paid-up equity capital has increased to Rs. 21, 388. 73 crores after issuing bonus shares in ratio of one bonus share for every two shares held.

(2. 7) ONGC Videsh Limited (OVL)

ONGC Videsh Limited (OVL), a wholly owned subsidiary of ONGC, was incorporated as Hydrocarbons India Limited on March 5, 1965 with an initial authorized capital of Rs. 5 Lakhs, for the business of international exploration and production. Its name was changed to ONGC Videsh Limited on June 15, 1989. The authorized and paid-up share capital of OVL as on March 31, 2007 was Rs. 1, 000 crores. The primary business of the company is to prospect for oil and gas abroad. This includes acquisition of oil and gas fields in foreign countries as well as exploration, production, transportation and sale of oil and gas. OVL has presence in 17 countries. It has 37 oil and gas

projects. OVL has production of oil and gas from Sudan, Vietnam, Syria, Russia and Colombia.

(2. 8) Oil India Limited (OIL)

Oil India Limited (OIL), a Government of India Enterprise, under the administrative set-up of Ministry of Petroleum and Natural Gas, is engaged in the business of exploration, production and transportation of crude oil and natural gas. The authorized capital of the company is Rs. 500. 00 crores and the paid up capital of the company is Rs. 214. 00 crores. OIL produces crude oil and natural gas from its oilfields in Assam and Arunachal Pradesh, no associated gas from its fields in western Rajasthan and processes LPG from the natural gas in Assam. The Company presently has operational areas in Assam, Arunachal Pradesh, Mizoram, Orissa, Uttar Pradesh, Uttarakhand and Rajasthan in the country. The Company also holds Participating Interests (Pis) in another four Pre-NELP JV blocks in India and Production Sharing Interest(PSI) in one Joint Venture Contract with other partners in Arunachal Pradesh OIL is presently active overseas in seven countries, viz. Libya, Gabon, Iran, Nigeria, Yemen, Sudan and Bangladesh, pursuing various upstream E&P activities. In addition, the Company is continuously scouting for suitable E&P opportunities in other countries like Syria, Indonesia, Oman, Kazakhastan, Russia, etc., either alone or with suitable partners.

(2. 9) GAIL (India) Limited

GAIL (India) Limited, India’s principal Gas Transmission and Marketing Company, was created in 1984 with the objective of accelerating and optimizing the effective and economic use of natural gas and its fractions to

the benefit of national economy. Currently, GAIL’s market share in gas transmission and marketing is 79% and 70% respectively.

Down stream

(3. 1) Refining

The present refining capacity in the country is 148. 97 Million Metric Tonnes Per Annum (MMTPA) comprising of 105. 47 MMTPA by PSUs and 43. 50 MMTPA by private sector. At present, there are 19 refineries operating in the country, out of which 17 are in public sector and two in private sector. Out of the 17 Public Sector refineries 7 are owned by Indian Oil corporation Limited (IOCL), 2 each by Chennai Petroleum Corporation Limited (a subsidiary of IOCL), Hindustan Petroleum Corporation Limited (HPCL), Bharat Petroleum Corporation Limited (BPCL) and Oil and Natural Gas Corporation Limited, 1 each by Numaligarh Refinery Limited (a subsidiary of BPCL) and Bangaigaon Refinery and Petrochemicals Ltd. (a subsidiary of IOCL). The private sector refineries belong to Reliance Industries Limited and Essar Oil Limited. Indian refineries have been performing well in contributing to the domestic availability of sensitive petroleum products as well as in exports. During the first half of the current year, the average capacity utilization of our refineries has been 104%.

(3. 2) Chennai Petroleum Corporation Limited (CPCL)

Chennai Petroleum Corporation Limited (CPCL) formerly known as Madras Refineries Limited was formed as a joint venture in 1965 between the Government of India (GOI), AMOCO India Inc., U. S. A. and National Iranian

Oil Company (NIOC) having a share holding in the ratio 74%: 13%: and 13% respectively.

(3. 3) Bongaigaon Refinery & Petrochemicals Limited (BRPL)

BRPL was incorporated on February 20, 1974 , with the objective of installation of Refinery having crude processing capacity of 1 MMTPA and a Petrochemical Complex consisting of Xylene, Dimethyl Terephthalate (DMT) and Polyester Staple Fiber (PSF) units. The crude processing capacity of the Refinery was enhanced to 2. 35 MMTPA in 1995-96 by commissioning of its Refinery Expansion Units.

(3. 4) Numaligarh Refinery Limited (NRL)

Numaligarh Refinery, Popularly known as " Assam Accord Refinery" had been set up as a grassroots refinery at Numaligarh in the District of Golaghat (Assam) in fulfillment of the commitment made by Government of India in the historic " Assam Accord", signed on 15th august, 1985 for providing the required thrust towards industrial and economic development of Assam. Both the Refinery and its adjacent Marketing Terminal were completed within the approved project cost of Rs. 2724 crores. Commissioning process of Numaligarh Refinery was completed in June 2000 and commercial production commenced from 1st October, 2000.

(3. 5) Mangalore Refinery & Petrochemicals Limited (MRPL)

Mangalore Refinery and Petrochemicals Limited (MRPL), first joint venture company for setting up a crude petroleum Refinery in India was formed in

1987 jointly by Hindustan Petroleum Corporation Limited along with Indian Rayon and Industries Limited and its associate companies (A. V. Birla Group). The refinery project was commissioned in March, 1996 with an actual capacity of 3. 69 MMTPA. The expansion project of MRPL, having capacity of 9. 69MRPL is the first refinery in India to produce Euro-II High Speed Diesel (HSD) and Euro-IIIMotor Spirit (Petrol).

Other Undertakings/organizations

(3. 6) Directorate General of Hydrocarbons (DGH)

The Objectives of DGH are to promote sound management of the oil and natural gas resources having a balanced regard for environment, safety, technological and economic aspects of the petroleum activity. In addition, DGH is also engaged in opening up of new/unexplored areas for future exploration and development of nonconventional hydrocarbon energy sources.

(3. 7) Engineers India Limited (EIL)

Engineers India Limited (EIL) was established in 1965 to provide engineering and related technical services for petroleum refineries and other related projects. EIL has emerged as Asia’s leading design, engineering and turnkey contracting company in Petroleum Refining, Petrochemicals, Chemicals & Fertilizers, Pipelines, Offshore Oil & Gas, Onshore Oil & Gas, Terminals & Storages, Mining & Metallurgy and Infrastructure.

(3. 8) Balmer Lawrie & Co. Ltd. (BL)

Balmer Lawrie & Co. Ltd. (BL) was established in 1867 as a Partnership Firm and wasincorporated as Private Limited Company in 1924. It was

subsequently converted into a PublicLimited Company in the year 1936 with its Registered Office at Kolkata. The authorized capital, paid-up capital and reserves & surplus of the Company as on 31. 3. 2007 was Rs. 30crores, 16. 29 crores and 254. 02 crores respectively.

(3. 9) Biecco Lawrie Limited (BLL)

Biecco Lawrie Limited (BLL), a Government of India Enterprise, under the administrative control of the Ministry of Petroleum & Natural Gas (MOP&NG), was established in 1919 and became a Government Company in 1972. This is a medium sized Engineering Unit with diversified activities having two factories located at Kolkata. As on 31. 3. 2007, the Company has an Authorized Capital of Rs. 50 crores while the Issued, Subscribed and Paid-up Capital is Rs. 42 crores.

(3. 10) Petroleum Planning & Analysis Cell (PPAC)

The Petroleum Planning & Analysis Cell (PPAC) was created w. e. f. 1st April 2002 after dismantling of the Administered Pricing Mechanism (APM) in the petroleum sector and abolition of the erstwhile Oil Coordination Committee (OCC).

Policy Initiatives

(4. 1) National Auto Fuel Policy

The Auto Fuel Policy aims to comprehensively and holistically address the issues of vehicular emissions, vehicular technologies, and auto fuel quality in a cost-efficient manner while ensuring the security of fuel supply. The policy objectives are: Ensure sustainable, safe, affordable and uninterrupted supplies of auto fuels of right quality to support social and economic

development. Over the years, infrastructure for the import of crude and crude products their processing and production, and storage and transportation has been created in the country. The Auto Fuel Policy is committed to an optimal utilization of such an infrastructure. Assess the future trends in emission and air quality requirements from the view point of public health, and establishment of a consistent framework within which different policy options to reduce emissions can be assessed. Adopt such vehicular emission standards that they together with other measures, will be able to make a decisive impact on air quality, without placing an undue burden on the people. Vehicular emission standards and auto fuel quality should offer choice to the citizens and equally a choice to automobile manufactures in matters of technology selection. As elsewhere in the world, the Government should decide only the vehicular mission standards and the corresponding fuel specifications without specifying vehicle technology and the type of fuel. The requirement of investments to reach vehicular technology and fuel quality of Euro III equivalent levels throughout the country is estimated in the range of Rs. 50, 000 - Rs. 60, 000 crores. Therefore, to achieve the air quality targets by gradually improving emission standards and a phased up gradation of fuel quality and vehicular technology, taking note of the financial, technical and institutional considerations as also the absorptive capacity is required. Determination of fuel prices on the principles of import parity and putting in place a medium term fiscal regime as early as possible are necessary for the sustainability of fuel usage pattern. the Auto Fuel Policy must undergo periodic revisions, preferably at an interval of five years. This will allow adjustments in the

Policy that may become necessary on account of the technological and other changes that are inevitable in the country and the world.

(4. 2) Policy Initiatives to Attract Foreign Direct Investment

The policy on FDI in the Petroleum & Natural Gas sector vide Press Note 1(2008) andPress Note 4(2009) permits FDI up to 100% under the automatic route in exploration, petroleum product marketing, petroleum product pipelines, Natural Gas/LNG pipelines, and Petroleum refining in the private sector. FDI up to 26% is permitted with prior Government approval in petroleum refining by the Public Sector Undertakings (PSU). In the case of actual trading and marketing of petroleum products, FDI is allowed up to 100% with the condition that 26% foreign equity would be divested in favor of Indian partner/public within 5 years. On a review of the extant policy for the Petroleum & Natural Gas sector, it has been decided toDelete the condition of compulsory divestment of up to 26% equity within 5 years for actual trading and marketing of petroleum products. Allow FDI up to 49%, with prior approval of FIPB, in petroleum refining by PSUs without involving any divestment of dilution of domestic equity in the existing PSU

(4. 3) International Cooperation

The India-Romania Joint Working Group met in New Delhi in March 2008 and the possibility of Indian companies participating in the modernization and up gradation of refineries, and GAIL in CNG/ piped gas distribution network, in Romania were discussed. The India-Turkey Joint Working Group also explored the scope of Investment by the Indian oil companies in Turkey’s pipelines and refineries. A delegation visited Venezuela in April 2008 and a Joint Venture agreement between OVL and CVP of Venezuela was signed to

exploit the San Cristobal field in Venezuela. This marked a turning point in our bilateral cooperation with Venezuela. Bilateral cooperation with Colombia has taken shape with an MOU signed between the two countries on 5th September 2008 in New Delhi. The Energy Minister of South Africa met the Indian Petroleum & Natural Gas Minister Shri Murli Deora on 16th October 2008 and identified a number of areas of cooperation in South Africa's hydrocarbon sector. A delegation visited Russia on 5th November 2008 to strengthen the bilateral cooperation in oil and gas between the two countries. Soon after, the India-Russia Joint Working Group met on 7-8 November 2008 in New Delhi and identified areas of investment by ONGC/ OVL in the upstream sector of Russia.

(4. 4) Policy and Regulatory Environment

Country's upstream policies such as the New Exploration Licensing Policy (NELP) are focused at increasing investments in domestic exploration and production (E&P) activities. Nine rounds of acreage awards have been completed in ten years in which over 260 blocks were licensed out to companies. In the coming years, additional rounds of awards are expected to be rolled out for investors to bid. Total foreign direct investment is permitted without any necessity of NOC carry. The production share, cost recovery and work programme are biddable. The local NOCs – ONGC, OIL, GAIL, IOC, BPCL and HPCL – have actively participated, and so have the Indian private companies. They compete on equal footing with international investors. However, despite many promising discoveries in the NELP blocks, the policy has had limited success in reducing the dependence on foreign imports. The government has reaffirmed its intents to determine the marketing priorities

for natural gas with a pricing formula stipulated by the government. In the downstream sector, the government has introduced certain reforms including deregulation of petrol prices. However, with the marketing companies, under the control of central Government, still set the prices at levels which are more reflective of the consumer concerns and not markets, the sector represents an extremely risky environment to operate in for private fuel retailers which do not qualify for subsidy dissuading them from using or expanding their retail portfolio. The regulatory and legal landscape in the sector involves many agencies and ministries.

(4. 5) Players

Indian OilRelianceBharat PetroleumHPONGCBPBG GroupGas de France