

सत्यमेव जयते

Government of India

Ministry of Petroleum and Natural Gas







Energizing the Nation

ANNUAL REPORT 2013-14

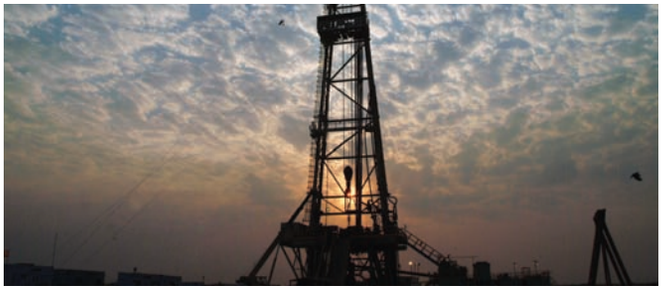
Contents

Chapter 1: Introduction



2

Chapter 2: Exploration and Production



16

Chapter 3: Pipelines & Natural Gas



44

Chapter 4: Refining



56

Chapter 5: Marketing & Distribution



70

Chapter 6: Pricing



80

Chapter 7: Undertakings/Organisations



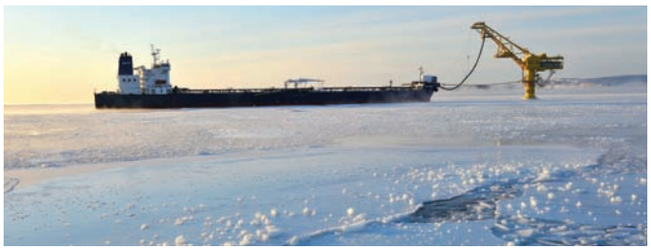
96

Chapter 8: Conservation of Petroleum Products



130

Chapter 9: International Cooperation and Engagement Abroad



140

Chapter 10: Welfare of SC/ST, OBC & Physically Handicapped



150

Chapter 11: Development of North-Eastern Region



154

Chapter 12: Welfare, Development & Empowerment of Women



164

Chapter 13: General



168

Chapter 14: Appendices



190





CHAPTER 1

Introduction

Introduction



Refinery at Mumbai

1.1 The Ministry of Petroleum & Natural Gas is concerned with exploration and production of Oil & Natural Gas (including import of Liquified Natural Gas), refining, distribution and marketing, import, export and conservation of petroleum products. The work allocated to the ministry is given in Appendix-I. The names of the Central Public Sector Enterprises and other organisations under the ministry are listed in Appendix-II.

1.2 Dr. M. Veerappa Moily and Smt. Panabaaka Lakshmi assumed the charge of Minister of Petroleum & Natural Gas & Minister of State for Petroleum & Natural Gas w.e.f. 29.10.2012 & 01.11.2012 respectively.

1.3 Shri Vivek Rae, IAS (AGMUT: 78) continued to hold the charge of Secretary, P&NG till date of his superannuation, i.e. 28.02.2014.

1.4 Shri Saurabh Chandra, IAS (UP: 78) assumed the charge of Secretary, P&NG w.e.f 01.03.2014.

4.9%

GDP growth rate in 2013-14

1.5 Shri S. C. Khuntia, IAS (KN:81) continued to hold the charge of the post of Additional Secretary & Financial Advisor in the Ministry of Petroleum & Natural Gas w.e.f. 05.07.2012 in the rank and pay of Additional Secretary.

1.6 Shri Rajive Kumar, IAS (UP: 81) continued to hold the charge of Additional Secretary in the Ministry of Petroleum & Natural Gas.

1.7 Shri Ambrish Kumar, (IES: 81) assumed the charge of Sr. Advisor in the Ministry of Petroleum & Natural Gas w.e.f. 06.03.2014.

1.8 Shri Armane Giridhar, IAS (AP: 88), Shri R. K. Singh, IAS (KL: 89), Dr. Neeraj Mittal, IAS (TN: 92), Shri P. K. Singh, IAS (MT:93) & Shri P. Kalyansundaram, CSS continue to hold the charge of the post of Joint Secretary in the Ministry of Petroleum & Natural Gas.

1.9 Smt. Archana S Mathur, (IES: 82) continued to hold the charge of the post of Economic Advisor in the Ministry of Petroleum & Natural Gas.



1.10 PRINCIPAL ACHIEVEMENTS

The important statistical data relating to the physical performance of the oil and gas sector is given in Appendices-III to VII.

1.11 PERFORMANCE OF PETROLEUM & NATURAL GAS SECTOR – SOME KEY MACRO-ECONOMIC TRENDS

The Indian economy is at a critical stage of development. During 2013-14, the growth rate of Gross Domestic Product (GDP) at current prices is estimated to have increased by 4.9%, with growth in 'Manufacturing' at -0.2% and 'Mining and Quarrying' at -1.9%.

The slowdown in growth of the industrial sector had an impact on the demand for petroleum products that increased by only 0.7% over the previous year 2012-13. It may however, be noted that given the limited domestic availability of Crude oil and natural gas the country is still compelled to import over 75% of its domestic requirement.

75%

Domestic oil and gas requirement imported

1.11.1 Ensuring Energy Security

India's energy security, at its broadest level, is primarily about ensuring the continuous availability of commercial energy at competitive prices to support its economic growth and meet the lifeline energy needs of its households with safe, clean and convenient forms of energy even if that entails directed subsidies. Given the fact that the requirement of energy in the country will rise with development and growth, demand management and increasing production & transportation efficiency are two very important measures to increase energy security. However, it is also necessary to recognise that India's growing dependence on energy imports exposes its energy needs to external price shocks. Hence, domestic energy resources must be expanded. For India, it is not a question of choosing among alternative domestic energy resources but exploiting all available domestic energy resources to the maximum as long as they are competitive. The most critical elements of our energy security, however, remain the measures to increase

efficiency, reduce requirements and augment the domestic energy resource base.

In addition to expanding domestic energy resources, strengthening the country's energy security also requires an aggressive pursuit of oil and gas opportunities overseas. Oil companies are present in 25 countries and the total investment by oil CPSEs in assets abroad is in excess of US$ 21 billion. The strategy for investing in equity oil and gas abroad has to focus on the right balance between developed assets and those at exploration stage. Equally important is the need to tap the vast hydrocarbon resources in India's vicinity, especially in Central Asia. There is a strong case for an energy corridor connecting Central Asian hydrocarbon resources with the markets in India through trans-national pipelines. To further reduce the supply risks there is merit in putting in place long-term supply contracts and for laying pipelines from our immediate neighborhood and the Middle East.

37.788 MT

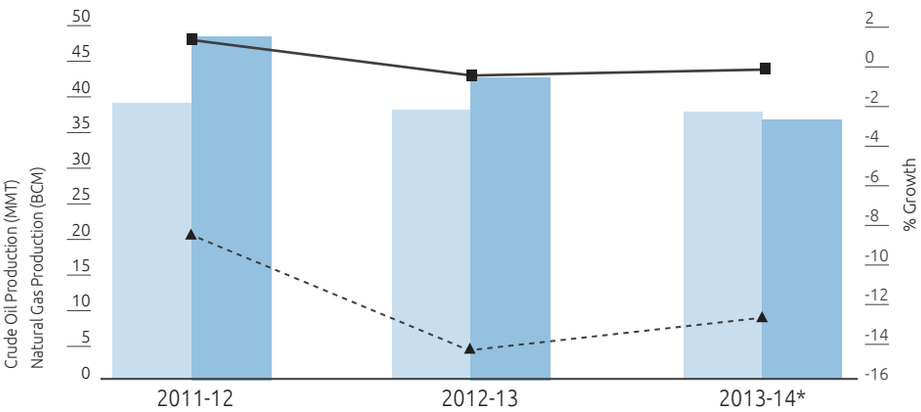
Crude oil production in 2013-14

Keeping in view the vast energy requirements of the economy, the Ministry of Petroleum & Natural Gas has taken several measures for enhancing exploration and exploitation of petroleum resources, apart from developing the distribution and marketing of petroleum products. The status of production of crude oil and natural gas as well as production, trade and consumption of petroleum products has been briefly discussed in the following paragraphs. The detailed trends in the sector are elaborated in the respective tables across different chapters.

1.11.2 Crude Oil and Natural Gas Production

The trend in production of crude oil and natural gas during the period 2011-12 to 2013-14 is given in Table 1.1 below **(details in Appendix-III).**

TABLE 1.1: CRUDE OIL & NATURAL GAS PRODUCTION



	2011-12	2012-13	2013-14*
Crude Oil Production (MMT)	38.09	37.862	37.788
Natural Gas Production (BCM)	47.559	40.679	35.407
%Growth of Crude oil Production	1.08	-0.60	-0.20
% Growth of Natural Cas Production	-8.92	-14.47	-12.96

**: Provisional*



Secretary, MOPNG Shri Saurabh Chandra during his maiden visit to a POL Terminal at Jaipur on 22nd March 2014

The crude oil production has remained at around 38 MMT during this period with marginal year to year variations. Crude oil production for the year 2013-14 was 37.788 Million Metric Tonne (MMT) as against 37.862 MMT for the previous year viz. 2012-13, showing a marginal decrease of about 0.20%. The majority of crude oil production is from ageing fields except new fields viz., Rajasthan and KG deep-water blocks. Production of crude oil was also affected due to environmental factors and bandhs/ blockades in Assam, delay in production from wells in Andhra Pradesh, and lesser production from development/side-track wells in Mumbai, poor influx, under performance of producing wells and less base potential of major fields that affected production of Ahmedabad & Ankleshwar.

Natural Gas Production for the year 2013-14 was 35.407 Billion Cubic Metre (BCM) as against 40.679 BCM in the previous year viz. 2012-13, showing a decline of about 12.96%. The decrease in natural gas production is due to decline in production from KG deep-water block where a total of 9 wells in D-1 & D-3 fields and 3 wells in MA field have ceased to flow due to water /sand ingress in KG-SWN-98/3 field and closure of MA wells due to leak observed in the MA riser. Also there is lower gas production as a consequential effect of bandhs and blockades in Assam and under performance of development of new wells.

35.4 BCM

Natural gas production in 2013-14

1.11.3 Equity Oil and Gas from Abroad

In view of unfavourable demand–supply balance of hydrocarbons in the country, acquiring equity oil and gas assets overseas is one of the important components in enhancing energy security. The Government is encouraging national oil companies to pursue equity oil and gas opportunities overseas. Oil & Natural Gas Corporation Videsh Limited (OVL) has produced about 8.357 MMT of oil and equivalent gas during the year 2013-14 from its assets abroad in Sudan, Vietnam, Venezuela, Russia, Syria, Brazil, South Sudan and Colombia. The estimated crude oil & natural gas production target in 2014-15 is about 8.155 MMT of oil and equivalent gas. The reasons for lower overseas production are geopolitical problems in south Sudan and Syria. Oil CPSEs viz. OVL, IOC, OIL, BPCL, HPCL and GAIL have acquired E&P assets in more than 20 countries.

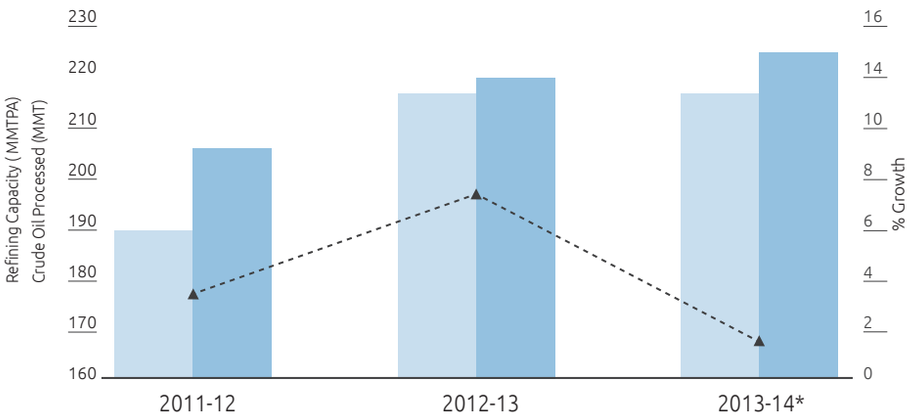
1.11.4 Refining Capacity & Production

There has been considerable increase in refining capacity in the country over the years as may be seen in the table depicted below **(details in Appendix-IV)** although during 2013-14 there was no substantial capacity expansion. The refining capacity stood at 215.066 Million Metric Tonnes Per Annum (MMTPA) as on 01.04.2014. By the end of XII Five Year Plan, refinery capacity is expected to reach 307.366 MMTPA.

Refinery Crude Throughput (Crude Oil Processed) for the year 2013-14 was about 222.497 MMT as against 219.212 MMT of the previous year 2012-13, showing a

marginal increase of about 1.50%. Year wise Refinery Capacity & Production is depicted in Table 1.2 below.

TABLE 1.2: REFINING CAPACITY & PRODUCTION



	2011-12	2012-13	**2013-14***
Refining Capacity (MMTPA)@	187.386	213.066	215.066
Crude Oil Processed (MMT)	204.121	219.212	222.497
% Growth of Crude Oil Processed	3.62	7.39	1.50
% Growth of Refining Capacity	2.18	13.70	0.94

**: Provisional @: as on 1st April of the year.*



Panoramic view of C2-C3 Extraction Plant at Dahej, Gujarat

1.11.5 Production & consumption of petroleum products

Production of petroleum products from Indian refineries has gone up from 217.736 MMT in 2012-13 to 220.756 MMT during 2013-14 i.e. higher by 1.39% as compared to the previous year. During the year, keeping pace with the economic growth trend, the consumption of petroleum products in India has grown by only 0.73% and rose to 158.197 MMT during 2013-14. Consumption of LPG increased by 4.71%, Petroleum Coke increased by 14.96%, MS by 8.79% and ATF by 4.44% during 2013-14, whereas the consumption of Naphtha declined by 6.79%, Kerosene by 4.49%, HSD by 1.03%, Fuel oil by 19.11% and Lube by 22.34% over the previous year 2012-13. Year-wise production and consumption of petroleum products during 2011-12 to 2013-14 are given in Table 1.3 below **(details in Appendices V-VI).**

1.39%

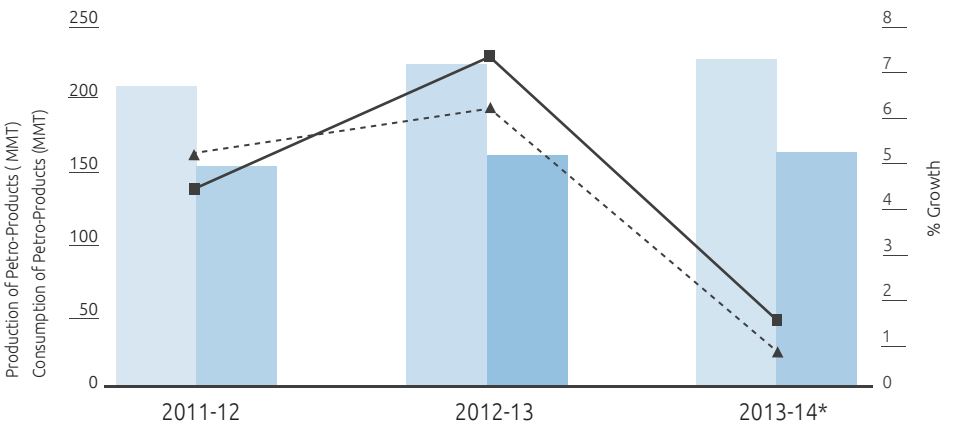
Growth in production of petroleum products

1.11.6 Imports of Crude Oil:

During the year 2013-14 the import of crude oil was 189.238 MMT valued at ₹ 8,64,875 crore. The imports were 184.795 MMT, valued at ₹ 7,84,652 crore in 2012-13 i.e. an increase of about 2.40% in quantity terms and 10.22% in value terms.

The average international crude oil price (Indian Basket) was US$ 105.52 per barrel (bbl) in 2013-14 as compared to US$ 107.97/bbl. in 2012-13. Average price of International crude oil (Indian Basket) during 2013-14 were lower by 2.27% as compared to the previous year 2012-13. The trend in growth of crude oil imports and crude oil international (Indian Basket) prices is depicted in Table 1.4 below.

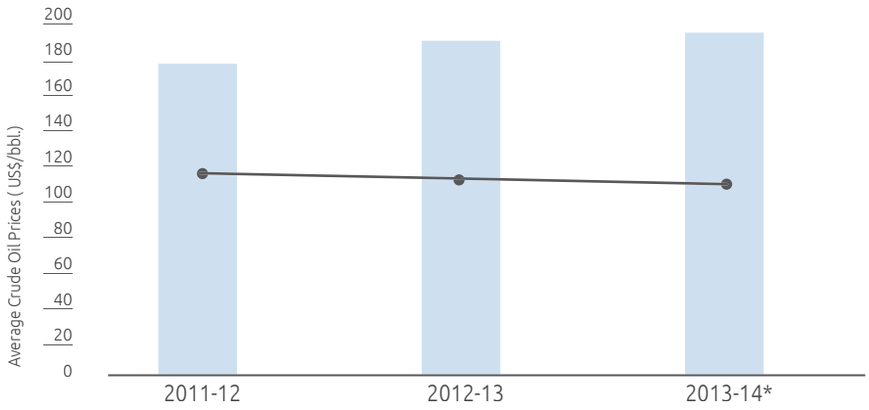
TABLE 1.3: PRODUCTION AND CONSUMPTION (INDIGENOUS SALES) OF PETROLEUM PRODUCTS



	2011-12	2012-13	**2013-14***
Production of Petro-Products (MMT)	203.202	217.736	220.756
Consumption of Petro-Prodcuts (MMT)	148.132	157.057	158.197
% Growth of Production of Petro-Products	4.3	7.2	1.4
% Growth of Consumption of Petro-Prodcuts	5.03	6.0	0.7

**: Provisional*
Notes:
1. Production of petroleum products includes Production of Petroleum Products from Fractionators.
2. Consumption of Petroleum Products excludes refinery fuels and includes imports also.

TABLE 1.4: QUANTITY OF CRUDE OIL IMPORTS AND AVERAGE INTERNATIONAL CRUDE OIL PRICES



	2011-12	2012-13	2013-14*
Import of Crude Oil (MMT)	171.729	184.795	189.238
Average Crude Oil Prices (US$/bbl.)	111.89	107.97	105.52

**: Provisional*

1.11.7 Imports & Exports of Petroleum Products

With increase in refinery capacity, production of petroleum products has increased substantially during last few years. During 2013-14, 67.864 MMT of petroleum products, valued at ₹ 3,68,279 crore were exported. During the previous year 2012-13, export of these products was 63.408 MMT valued at ₹ 3,20,090 crore. Exports of petroleum products during 2013-14 were higher by 7.03% in terms of quantity and by 15.05% in terms of value, as compared to the previous year.

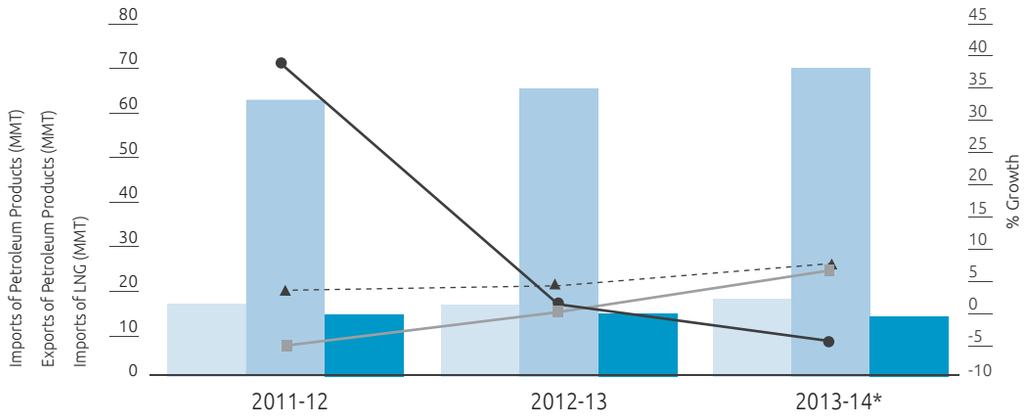
67.864 MMT

Exports of petroleum products in 2013-14

The quantity of petroleum products imported during 2013-14 was 16.718 MMT valued at ₹ 74,605 crore. During 2012-13, import of these products were 15.774 MMT valued at ₹ 68,363 crore. Imports of petroleum products increased by 5.98% in terms of quantity and increased by 9.13% in value terms, as compared to the previous year.

During 2013-14, 12.949 MMT of LNG imports valued at ₹ 51,518 crore, was imported, which marked a decrease by 4.65 % in quantity but increased by 27.08% in value terms. The trends in quantity of Petroleum Products and LNG imports & exports are depicted in Table 1.5 below (**details in Annexure-VII**).

TABLE 1.5: TREND IN IMPORTS & EXPORTS OF PETROLEUM PRODUCTS



	2011-12	2012-13	2013-14*
Imports of Petroleum Products (MMT)	15.848	15.774	16.718
Exports of Petroleum Products (MMT)	60.837	63.408	67.864
Imports of LNG (MMT)	13.46	13.58	12.949
% Growth of Imports of Petroleum Products	-5.75	-0.47	5.98
% Growth of Exports of Petroleum Products	2.98	4.23	7.03
% Growth of Imports of LNG	37.83	0.89	-4.65

**: Provisional*

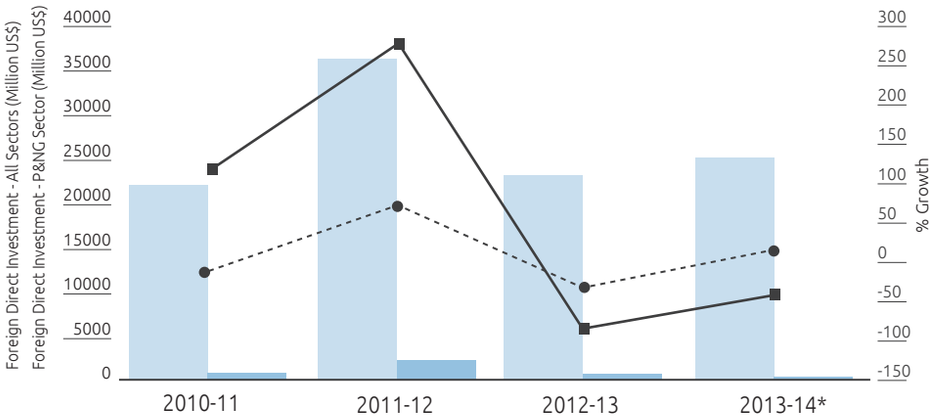
1.11.8 Foreign Direct Investment Inflows

In order to attract Foreign Direct Investment (FDI) in the sector, the FDI policy has been further liberalised in refining. FDI for petroleum refining by CPSEs was allowed with 49% foreign equity under the automatic route instead of approval through Foreign Investment Promotion Board. The present Foreign Direct Investment (FDI) policy for the Petroleum and Natural Gas Sector is laid down by para 6.2.4.2 of Circular 6 of 2013 issued on 22.08.2013 issued by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry. The relevant extracts of the Policy are reproduced below:

Item	% of FDI Cap/Equity	Entry Route
Exploration activities of oil and natural gas fields, infrastructure related to marketing of petroleum products and natural gas, marketing of natural gas and petroleum products, petroleum product pipelines, natural gas/pipelines, LNG Regasification infrastructure, market study and formulation and petroleum refining in private sector, subject to the existing sectoral policy and regulatory framework in the oil marketing sector and the policy of the Government on private participation in exploration of oil and the discovered fields of natural oil companies.	100%	Automatic
Petroleum refining by the Central Public Sector Enterprises (CPSEs), without any disinvestment or dilution of domestic equity in the existing CPSEs.	49%	Automatic

Year-wise FDI inflows under Petroleum & Gas sector is given below. It may be observed that inflow of FDI in petroleum and natural gas has varied considerably over the years that could at least partly due to the bulkiness of investment in the sector. Year wise FDI inflows under Petroleum & Gas Sector are shown in Table 1.6 below.

TABLE 1.6: YEAR WISE FDI INFLOWS UNDER PETROLEUM & GAS SECTOR



	2010-11	2011-12	2012-13	**2013-14***
Foreign Direct Investment - All Sectors (Million US$)	21383	35121	22424	24299
Foreign Direct Investment - P&NG Sector (Million US$)	556	2030	215	112
% Annual Growth - All Sectors (Million US$)	-17.23	64.25	-36.15	8.37
% Annual Growth - P&NG Sectors (Million US$)	109.55	264.82	-89.42	-47.75

**: Provisional*

TABLE 1.7: PLAN OUTLAY FOR MINISTRY OF PETROLEUM & NATURAL GAS

Companies	Outlay 11th Plan	Expenditure 11th Plan	% of Actual to BE of 11th Plan	12th Plan Budget Estimates	2012-13 Budget Estimate	2012-13 Expenditure	2013-14 Budget Estimate	2013-14 Expenditure (Provisional)	2014-15 Budget Estimate
PNG SECTOR									
Exploration & Production *	150933.63	190233.65	126.04	283788.52	52327.27	48573.73	54760.01	88245.30	57502.23
Refinery & Marketing	63096.00	65015.75	103.04	111191.82	20226.61	15812.37	19695.78	16,757.95	20054.60
Petrochemical	14728.10	15720.41	106.74	20851.64	7068.00	3489.31	4476.37	3,137.69	3008.99
Engineering	236.00	155.34	65.82	251.00	63.00	67.28	77.00	107.37	69.00
Total PNG Sector	**228993.73**	**271125.15**	**118.40**	**416082.98**	**79684.88**	**67942.69**	**79009.16**	**108248.31**	**80634.82**
GROSS BUDGETARY SUPPORT (GBS)									
Rajiv Gandhi Institute of Petroleum Technology	285.00	58.54	20.54	199.00	41.00	19.43	41.00	16.55	42.00
One Time Assistance for LPG Connection **	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
ISPRL $	0.00	0.00	0.00	4948.00	1.00	0.00	1.00	0.00	1.00
Total GBS	**285.00**	**58.54**	**20.54**	**5147.00**	**43.00**	**19.43**	**43.00**	**16.55**	**43.00**
GRAND TOTAL	**229278.73**	**271183.69**	**118.28**	**421229.98**	**79727.88**	**67962.12**	**79052.16**	**108264.86**	**80677.82**

** Amount in E&P activities includes amount for Pipeline Network under 11th Plan Outlay.* *$ = Schemes yet to be approved by the Cabinet.*
*** = It has since been decided that the scheme on LPG Connections to BPL families would not be taken from the GBS and funds would be provided from CSR funds of PSUs in the P&NG Sector.*

1.12 Plan Outlay for Ministry of Petroleum & Natural Gas

The Planning Commission has approved ₹ 5147 crore as Gross Budgetary Support (GBS) for the 12th Five Year Plan for two Schemes namely (a) Rajiv Gandhi Institute of Petroleum Technology (RGIPT) at Jais Rae Bareilly, Uttar Pradesh and (b) Strategic Storage Programme for Storage of Crude Oil. The total Internal & Extra Budgetary Resources (I&EBR) of oil & gas Central Public Sector Enterprises (CPSEs) for the 12th Five Year Plan for all activities is ₹ 416082.98 crore as against ₹ 228993.73 crore for the 11th Five Year Plan.

Budget Estimates (BE) of the Ministry of Petroleum & Natural Gas in 2013-14 was ₹ 79052.16 crore comprising ₹ 43.00 crore as GBS and ₹ 79009.16 crore of Plan investment through I&EBR of oil & gas CPSEs. Revised Estimates for 2013-14 was 35.9% higher at 107405.96 crore comprising ₹ 15.00 crore for GBS and ₹ 107390.96 crore I&EBR investment. However, against BE, ₹ 108248.31 crore as I&EBR had been utilised by the Oil & Gas CPSEs which 137% of BE. Higher investment by CPSEs during 2013-14 owing to acquisition of new assets abroad. Details are given in Table 1.7 below **(details in Appendix-VIII-IX).**

In **2014-15**, proposed BE of plan expenditure is at ₹ 80677.82 crore, i.e. about 2% higher than BE for the current year. This includes ₹ 80634.82 crore through I&EBR of oil & gas CPSEs. GBS of ₹ 42.00 crore has been provided for Rajiv Gandhi Institute of Petroleum Technology (RGIPT) against ₹ 158 crore required for completion of balance works. ₹ 1.00 crore has been earmarked as token provision for Strategic Storage of Crude Oil by ISPRL.

US$ 112 Million
FDI in P&NG sector

1.13 Strategic Crude Oil Storage

Taking into account the oil security concerns of India, the Government has decided to set-up Strategic Crude Oil Storage of 5 MMT at three locations in the country viz. Visakhapatnam (1.0 MMT), Mangalore (1.5 MMT) and Padur (2.5 MMT). These are being constructed by Indian Strategic Petroleum Reserves Ltd. (ISPRL). The capacity of Visakhapatnam site was subsequently enhanced to 1.33 MMT. Thus, storage capacity has been enhanced to 5.33 MMT. The project involves a capital cost of approximately ₹ 3958 crore. Commissioning of the Visakhapatnam facility is expected in September 2014. Commissioning of Mangalore and Padur projects is expected in October 2015. At present, the physical progress of the Visakhapatnam, Mangalore and Padur projects is 97%, 94% and 90.6% respectively. The proposed Strategic Crude Oil Storages are in underground rock caverns.

Although the crude oil requirement in the country is increasing, the need for additional crude oil storage is being felt. ISPRL was entrusted with the responsibility of preparation of Detailed Feasibility Reports (DFRs) for 12.5 MMT of Strategic Storage of Crude oil in Phase-II in four States. The locations chosen are Bikaner in Rajasthan, Chandikhol in Odisha, Rajkot in Gujarat and Padur in Karnataka. The DFR's have



A Retail Outlet at Leh in the state of Jammu & Kashmir

been prepared by EIL with capacities proposed as Chandikhol 3.75 MMT, Rajkot 2.5 MMT, Bikaner 3.75 MMT and Padur 2.5 MMT.

1.14 Non-Conventional Energy:

(a) Ethanol Blended Petrol

The Government had started the Ethanol Blended Petrol (EBP) Programme in 2003. In 2006 the same was extended to the entire country, except the North-Eastern States, Jammu & Kashmir, Andaman & Nicobar Islands and Lakshadweep. In the series of the steps to give boost to EBP Programme, the Government decided on 22.11.2012 that 5% mandatory ethanol blending with Petrol to be implemented across the country. Procurement price of ethanol was to be decided henceforth between Oil Marketing Companies (OMCs) and suppliers of ethanol. OMCs are implementing the Programme in the notified 20 States and 4 Union Territories as per the availability of Ethanol.

(b) Bio-diesel Purchase Policy

Ministry of Petroleum and Natural Gas had launched bio-diesel policy on 01.01.2006. Under this policy, OMCs would purchase bio-diesel, meeting the prescribed BIS standard, at a uniform price, as may be decided by the OMCs from time to time, for blending with High Speed Diesel (HSD) to the extent of 5%, at identified 20 purchase centres across the country.

OMCs have reviewed the procurement price of bio-diesel at the various purchase centres accordingly and presently the declared price of Bio-diesel is ₹ 42.50 per litre w.e.f. 26.10.2013. However, the Bio-diesel manufacturers have not come forward to sell their Bio-diesel produce to OMCs at this declared price.

1.15 New and Renewable Energy

Planning Commission has indicated that 12th Plan envisages development of Renewable and un-conventional energy sources to the tune of 5 million tonne of oil equivalent (MTOE) by Oil CPSEs. Accordingly, Oil CPSEs have taken various initiatives for Renewable Energy in the areas of Solar and Wind Energy projects and under Non-Conventional Energy projects on CBM, Basin Centered Gas (BCG), Under Ground Coal Gasification (UGC), etc. during 2010-11 to 2013-14.

Memorandum of Understandings (MOUs) for setting up of Special Purpose Vehicles (SPVs) on Renewable Energy installations and Off-Grid Applications have been signed by the Secretary (PNG) and Secretary



Indian Airforce Fighter Jet refuelled by IndianOil



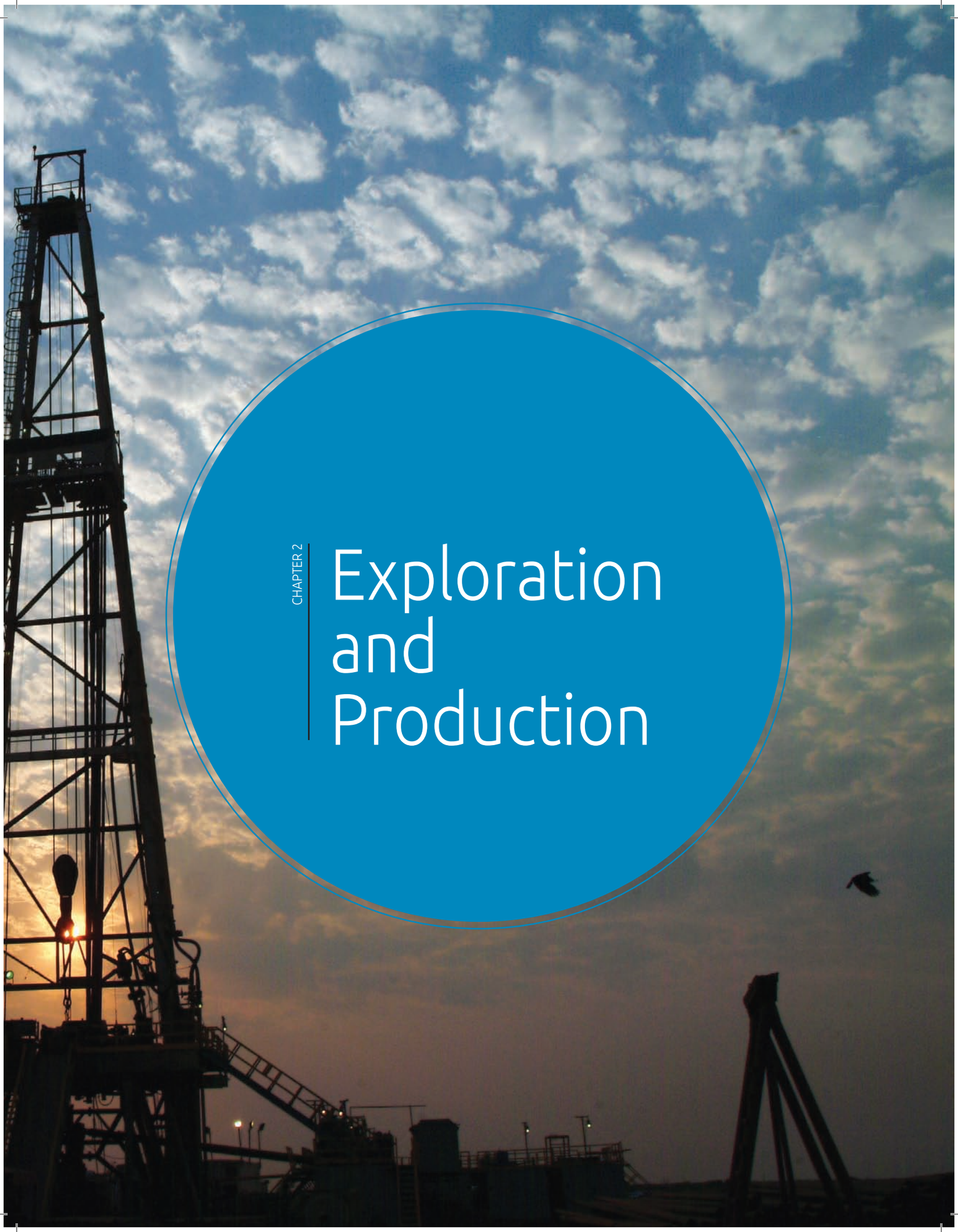
Secretary, MOP&NG, Shri Saurabh Chandra and C&MD, HPCL Ms Nishi Vasudeva signing the MoU on behalf of the Ministry of Petroleum & Natural Gas and HPCL. MoU was signed in the presence of Addl. Secretary & Financial Advisor-Dr. S.C. Khuntia, Addl. Secretary-Shri Rajive Kumar, Joint Secretary-Refineries, Shri R.K. Singh, Joint Secretary-Marketing-Dr. Neeraj Mittal, Advisor (IFD)-Shri V.L.V.S.S. Subba Rao, Director-HR Shri Pushp Joshi, Director-Finance Shri K.V. Rao and Director-Refineries Shri B. K. Namdeo

(MNRE) in the presence of Minister (PNG) & Minister (MNRE) on 25th February, 2014.

1.16 Fuel Conservation Campaign

In view of growing demands for petroleum products in the country and our dependence on imported crude oil, Ministry of Petroleum and Natural Gas launched a 'Nationwide Mega Campaign' on 1st October 2013 in association with Petroleum Conservation Research Association and Oil Marketing Companies to generate awareness amongst the consumers for making efforts to conserve precious petroleum products, with special focus on transport sector. The objective of this campaign is to motivate the consumers in cities and towns to minimise their fuel bills so as to help the Nation in reducing oil imports.





CHAPTER 2

Exploration and Production

Exploration and Production



Men at work at an Installation

2.1 PREAMBLE

2.1.1 The energy demand will rise with social and economic development in the country. Current hydrocarbon demand is much more than the domestic crude oil and natural gas production. A large amount of foreign exchange goes on import of crude oil and Liquefied Natural Gas (LNG) in order to meet the energy needs of people of India. In order to bridge the gap between energy supply and demand, it is imperative to accelerate the exploration and production activities in the country.

2.1.2 Exploration and Production sector has been opened up after implementation of New Exploration Licensing Policy (NELP) and Coal Bed Methane (CBM) Policy. These policies provide a level playing field to the private investors by giving the same fiscal and contract terms as applicable to National Oil Companies (NOCs) for the offered exploration acreage.

26
Sedimentary basins in India

2.1.3 In the upstream sector, the two Upstream National Oil Companies (NOCs) viz., Oil and Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL) play a dominant role with a total share of about 68% in oil and gas production in the country. Presently, ONGC produces nearly 58.9% of indigenous crude oil and 65.8% of country's gas production, while OIL's share is 9.2% of indigenous crude oil and 7.4% of gas production. The share of Private/Joint Venture (JV) companies in oil and gas production is 32% and 26% respectively.



2.1.4 The Directorate General of Hydrocarbons (DGH) was established under the administrative control of Ministry of Petroleum and Natural Gas by Government of India Resolution in 1993. The objective of setting up DGH was - to promote sound management of the Indian oil and natural gas resources, having a balanced regard for environment, safety, technological and economic aspects of petroleum activity. In addition, DGH has been entrusted with certain responsibilities concerning the Production Sharing Contracts for Discovered fields/Exploration blocks, promotion of investment and monitoring of E&P activities.

3.14 Million Sq. Km.

Area covered by sedimentary basins

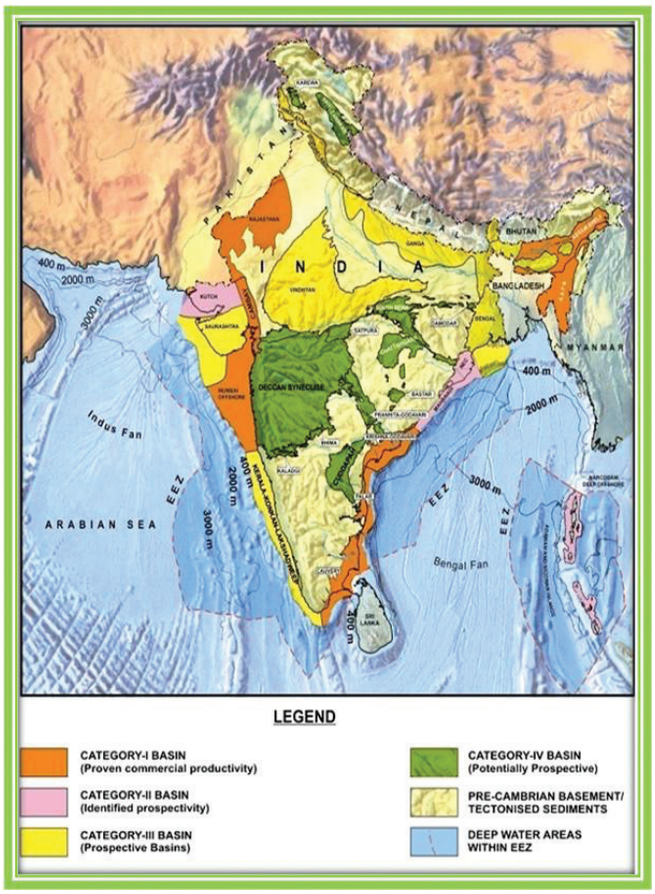
2.2 SEDIMENTARY BASINS IN INDIA

2.2.1 India has 26 sedimentary basins covering an area of 3.14 million square kilometres. The sedimentary basins of India, onland and offshore up to the 200m isobath, have an areal extent of about 1.79 million sq. km. In the deepwater beyond the 200m isobath, the sedimentary area has been estimated to be about 1.35 million sq. km. Thus, the total works out to 3.14 million sq. km.

2.2.2 Broadly Indian sedimentary basins have been divided into four categories based on their degree of prospectivity as presently known. The categorisation based on the prospectivity of the basin as presently known is as under:

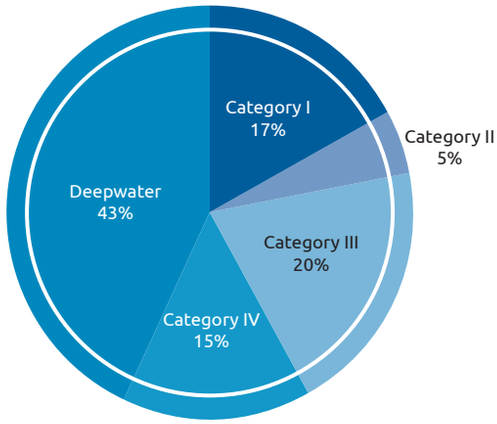
TABLE 2.1: CATEGORIES OF INDIAN SEDIMENTARY BASINS

Type of basins	Area (Sq. KM.)	Hydrocarbons Prospectivity	Basins/ Region
Category I (7 Basins)	518500	Established commercial production	Cambay, Assam Shelf, Mumbai offshore, Krishna Godavari, Cauvery, Assam Arakan Fold Belt and Rajasthan
Category II (3 Basins)	164000	Known accumulation of hydrocarbons but no commercial production as yet	Kutch, Mahanadi-NEC & Andaman-Nicobar
Category III (6 Basins)	641000	Indicated hydrocarbon shows that are considered geologically prospective	Himalayan Foreland, Ganga, Vindhyan, Saurashtra, Kerala-Konkan-Lakshadweep & Bengal
Category IV (10 basins)	461200	Uncertain potential which may be prospective by analogy with similar basins in the world	Karewa, Spiti-Zanskar, Satpura-South Rewa-Damodar, Narmada, Decan Syneclise, Bhima-Kaladgi, Cuddapah, Pranhita-Godavari, Bastar, Chhattisgarh
Deepwater	1350000		East & West coast from 400 m water depth to EEZ
Total	**3134700**	-	



2.2.3 Crude oil & natural gas production in the country is from 7 basins under category-I and deepwater areas. In category-II basins, hydrocarbon discoveries have been made but commercial production is yet to commence. The distribution of total Indian sedimentary area of 3.14 million Sq. Km. under different categories and deepwater is presented in the pie-chart:

CATEGORIES OF INDIAN SEDIMENTARY BASINS



2.3 ESTIMATED RESOURCES OF CRUDE OIL & NATURAL GAS

CONVENTIONAL HYDROCARBON RESOURCES

2.3.1 The prognosticated conventional hydrocarbon resources in 15 sedimentary basins and deepwater areas of the country are of the order of 28.1 billion tonnes (oil and oil equivalent of gas). The basin-wise details are as under:

TABLE 2.2: ESTIMATED HYDROCARBON RESOURCES IN INDIA

BASIN	OFFSHORE (MMT)	ONLAND (MMT)	TOTAL (MMT)
MUMBAI	9190	-	9190
ASSAM-ARAKAN FOLD BELT	-	1860	1860
CAMBAY	-	2050	2050
UPPER ASSAM	-	3180	3180
KRISHNA-GODAVARI	555	575	1130
CAUVERY	270	430	700
RAJASTHAN	-	380	380
KUTCH	550	210	760
ANDAMAN-NICOBAR	180	-	180
KERALA-KONKAN	660	-	660
SAURASHTRA OFFSHORE	280	-	280
GANGA VALLEY	-	230	230
BENGAL	30	160	190
HIMALAYAN FORELAND	-	150	150
MAHANADI	100	45	145
DEEP WATER	7000	-	7000
Total	**18815**	**9270**	**28085**

2.3.2 As on 01.04.2013, in-place hydrocarbon volume of 11,146 million tonnes of oil and oil equivalent gas could be established through exploration by ONGC, OIL and Private/JV companies. So, about 60% of resources are under “yet to find category”. Out of 11,146 MMT of oil and oil equivalent gas of In-place volumes, the ultimate reserves which can be produced are about 4070

MMT of oil and oil equivalent gas since inception. The balance recoverable reserves are of the order of 2110 MMT of oil and oil equivalent gas. The break-up of hydrocarbon reserves explored by ONGC, OIL and private/JV companies in the country as on 01.04.2013 are as under:

TABLE 2.3: CRUDE OIL AND NATURAL GAS RESERVE POSITION AS ON 1.4.2013

	Initial In-Place (MMT)			Ultimate Reserves (MMT)			Balance Recoverable Reserves (MMT)		
	Oil	Gas	O+OEG	Oil	Gas	O+OEG	Oil	Gas	O+OEG
ONGC	5242	2643	7885	1465	1299	2764	570	720	1291
OIL	796	342	1139	241	188	429	84	104	188
Pvt/JV	830	1292	2122	197	680	877	104	527	631
Total	**6868**	**4277**	**11146**	**1903**	**2167**	**4070**	**758**	**1352**	**2110**

O+OEG: Oil and Oil Equivalent of Gas

UNCONVENTIONAL HYDROCARBON RESOURCES

CBM RESOURCES

2.3.3 The estimated Coal Bed Methane (CBM) resources are of the order of 2600 Billion Cubic Metres (BCM) or 91.8 Trillion cubic feet (TCF) spread over in 11 states in the country. The state-wise details of CBM resources are as under:

TABLE 2.4: COAL BED METHANE RESOURCES IN INDIA

Sl. No.	STATE	Estimated CBM Resources (BCM)
1	JHARKHAND	722.08
2	RAJASTHAN	359.62
3	GUJARAT	351.13
4	ORISSA	243.52
5	CHHATTISGARH	240.69
6	MADHYA PRADESH	218.04
7	WEST BENGAL	218.04
8	TAMIL NADU	104.77
9	ANDHRA PRADESH	99.11
10	MAHARASHTRA	33.98
11	NORTH EAST	8.50
Total CBM Resources		**2599.48**

RECOVERABLE CBM RESERVES

2.3.4 Recoverable CBM reserves of about 280.3 BCM (9.90 TCF) have been established by different operators as on 01.01.2014. Block wise reserves are given in Table 2.5.

TABLE 2.5: RECOVERABLE COAL BED METHANE RESERVES AS ON 1.1.2014

Sl. No.	Block Name	Operator	Reserve Established (BCM)	State
1	SP(East)-CBM-2001/I	RIL	47.86	Madhya Pradesh
2	SP(WEST)-CBM-2001/I	RIL	55.50	Madhya Pradesh
3	Raniganj (South)	GEECL	54.37	West Bengal
4	RG(East)-CBM-2001/I	ESSAR	60.88	West Bengal
5	Raniganj (North)	ONGC	7.36	WestBengal
6	NK-CBM-2001/I	ONGC	9.63	Jharkhand
7	BK-CBM-2001/1	ONGC	30.02	Jharkhand
8	Jharia	ONGC	14.72	Jharkhand
Total			**280.34**	

SHALE GAS / OIL RESOURCE

2.3.5 It is estimated that a number of sedimentary basins (Gangetic plain, Gujarat, Rajasthan, Andhra Pradesh & other coastal areas) in India, including the hydrocarbon bearing ones – Cambay, Assam-Arakan & Damodar – have large shale deposits. Various agencies have estimated the shale gas/oil resource potential in

selected sedimentary basins / sub-basins in India. The details are as under:

I. M/s Schlumberger : 300 to 2100 TCF of shale gas resource for the country.

II. Energy Information Administration (EIA), USA in 2011: 290 TCF of shale gas in 4 basins (Cambay Onland, Damodar, Krishna Godavari Onland & Cauvery Onland)

III. Energy Information Administration (EIA), USA in 2013: 584 TCF of shale gas and 87 billion Barrels of shale oil in 4 basins (Cambay Onland, Damodar, Krishna Godavari Onland& Cauvery Onland)

IV. ONGC: 187.5 TCF of shale gas in 5 basins (Cambay Onland, Ganga Valley, Assam & Assam Arakan, Krishna Godavari Onland & Cauvery Onland)

V. Central Mine Planning and Design Institute (CMPDI): 45 TCF of shale gas in 6 sub basins (Jharia, Bokaro, North Karanpura, South Karanpura, Raniganj & Sohagpur)

VI. United States Geological Survey (USGS) has also estimated technically recoverable shale gas resources of 6.1 TCF in 3 basins (Cambay Onland, Krishna Godavari Onland & Cauvery Onland) Further, USGS has indicated that these basins have also potential for shale oil.

9.9 TCF
estimated CBM resources

RE-ASSESSMENT OF HYDROCARBON RESOURCES

2.3.6 The last Hydrocarbon resources assessment exercise was carried out approximately two decades ago. During the course of implementation of Pre-NELP and NELP rounds and other exploration and production activities, substantial geoscientific data have been generated. New oil and gas fields have also been discovered by utilising improved geological understanding and new technology. With the increase in exploration spread and quantum jump in availability of geo-scientific data generated under NELP, there is a need to revisit the hydrocarbon resource assessment of all sedimentary basins of India. Minister of Petroleum & Natural Gas has already approved the constitution of a Multi Organisation Team (MOT) to carry out re-assessment of Hydrocarbon Resources of India. The exercise will cover re-assessment of hydrocarbon resources for all the sedimentary basins in the country.

2.4 CRUDE OIL & NATURAL GAS PRODUCTION

2.4.1 Crude oil production in 2013-14 was about 37.788 Million Metric Tonne (MMT) by ONGC, OIL and Private/ JV Companies. About 68% of crude oil is by ONGC and OIL from nomination regime and remaining 32% of crude oil production is by Private/JV companies from PSC regime.

2.4.2 In 2013-14, the share of offshore crude oil production was about 48.2%. The remaining crude oil production was from 6 States viz., Andhra Pradesh (0.8%), Arunachal Pradesh (0.3%), Assam (12.5%), Gujarat (13.4%), Rajasthan (24.3%) and Tamil Nadu (0.6%). The details of crude oil production in 2013-14 and last 5 years are given in Table 2.6 below:

TABLE 2.6: STATE-WISE CRUDE OIL PRODUCTION TRENDS (In '000 MT)

State/Source	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Onshore						
Andhra Pradesh	289	303	305	305	295	297
Arunachal Pradesh	103	129	116	118	120	111
Assam	4674	4743	4724	5025	4863	4709
Gujarat	5945	5962	5904	5778	5332	5061
Rajasthan -		447	5149	6553	8593	9180
Tamil Nadu	265	238	233	246	238	226
Total Onshore	**11276**	**11822**	**16431**	**18025**	**19441**	**19584**
Share of PSUs	11033	11089	11031	11231	10605	10171
Share of Private/JV	243	733	5400	6794	8836	9413
Offshore						
Share of PSUs	17801	17154	16972	16328	15617	15541
Share of Private/JV	4431	4529	4282	3733	2804	2663
Total Offshore	**22232**	**21683**	**21254**	**20061**	**18421**	**18204**
Grand Total	**33508**	**33505**	**37685**	**38086**	**37862**	**37788**



An Oil Platform on Bombay High in the Arabian Sea

NATURAL GAS PRODUCTION

2.4.3 Natural gas production in 2013-14 was about 35.406 Billion Cubic Metre(BCM) or 97 Million Standard Cubic Metre Per Day (MSCMD) by ONGC, OIL and Private/ JV Companies. About 73.2% of natural gas production was by ONGC and OIL from nomination regime and remaining 26.8% of natural gas production was by Private/JV companies from PSC regime.

2.4.4 The share of offshore natural gas production in 2013-14 was about 74.5%. The remaining natural gas production including CBM was from 8 States viz., Andhra Pradesh (3.3%), Arunachal Pradesh (0.1%), Assam (8.1%), Gujarat (4.7%), Rajasthan (2.8%), Tamil Nadu (3.7%), Tripura(2.3%) and West Bengal(0.4%). The details of Natural gas production in 2013-14 and last 5 years are given in Table 2.7:

TABLE 2.7: STATE-WISE NATURAL GAS PRODUCTION TRENDS (MMSCMD)

State/Source	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Onshore						
Gujarat	7.1	6.7	6.2	6	5.6	4.5
Assam	7	7.4	7.4	8	8	7.9
Andhra Pradesh	4.2	4.1	3.8	3.7	3.4	3.2
Tamil Nadu	3.4	3.2	3.1	3.5	3.3	3.6
Tripura	1.5	1.5	1.7	1.8	1.8	2.3
Rajasthan	0.6	0.7	1.2	1.6	1.9	2.7
Arunachal Pradesh	0.1	0.1	0.1	0.1	0.1	0.1
CBM-WB, MP, Jharkhand	0.1	0.1	0.1	0.2	0.3	0.4
Total Onshore	**24**	**23.8**	**23.5**	**24.9**	**24.3**	**24.7**
Share of PSU	22	22	21.5	23	22.2	21.8
Share of Private/JV	2	1.7	2	1.9	2.2	2.9
Offshore						
Share of PSU	45.9	47.9	48.2	48.1	49.6	49.2
Share of Private/JV	20.1	58.5	71.4	57.3	37.5	23.1
Total Offshore	**66**	**106.4**	**119.6**	**105.4**	**87.1**	**72.3**
Grand Total	**90**	**130.2**	**143.1**	**130.3**	**111.4**	**97**

COAL BED METHANE (CBM) PRODUCTION

2.4.5 Commercial production of CBM in India has already commenced w.e.f. July 2007 in Raniganj (South) block in West Bengal operated by Great Eastern Energy Corporation Limited (GEECL). Current production in the block is about 0.32 MMSCMD. Additionally, two blocks, Raniganj (East) block operated by Essar Oil Limited is producing @ 0.14 MMSCMD and Jharia operated by ONGC is producing @ 10,000 SCMD.

BASIN-WISE CRUDE OIL & NATURAL GAS PRODUCTION

2.4.6 Currently crude oil and natural gas production is from seven sedimentary basins of the country which are - Rajasthan, Assam-Arakan, Assam Shelf Basin, Cambay, Cauvery, Krishna-Godavari and Mumbai. Crude oil and natural gas production basin-wise by ONGC, OIL and Private/JV companies during 2013-14 is as given in Table 2.8.

2.5 HYDROCARBON POTENTIAL OF INDIAN SEDIMENTARY BASINS

2.5.1 Indian sedimentary basins need intensive exploration efforts for enhancing crude oil & natural gas supply in the country. The Hydrocarbon potential has been witnessed where exploratory inputs have been expanded. The following facts are important to understand the potential of hydrocarbons in the country:

- As per DGH report, 46.6% of the sedimentary area has been appraised. This means, more than half of the Indian sedimentary basins have the undiscovered potential of hydrocarbons.
- Total prognosticated hydrocarbon resources are estimated about 28,000 million tonnes in the sedimentary basins of the country, out of which, 11,145 MMT in-place reserves have been established by ONGC, OIL and Private/JV companies as on 01.04.2013, which means about 60% hydrocarbon reserves are yet to be find out.
- Exploration work carried out under NELP shows that every fifth block is hydrocarbon discovery block under NELP i.e. 42 hydrocarbon discovery blocks emerged out of 203 blocks till NELP-VII where E&P inputs were provided for.

2.5.2 From the above, it can be concluded that Indian sedimentary basins have enough hydrocarbon potential for future exploration and production.

2.6 APPRAISAL STATUS OF INDIAN SEDIMENTARY BASINS

2.6.1 As per India Hydrocarbon Vision 2025, 100% Indian sedimentary area is to be appraised. As of now, about 46.6% area has been appraised as reported by DGH. About 4% sedimentary basinal area has been declared as "NO GO area" by Ministry of Defence/MOEF.

2.7 BLOCKS AWARDED FOR EXPLORATION & PRODUCTION

2.7.1 National Oil Companies, viz, ONGC and OIL are carrying out hydrocarbon exploration and production (E&P) activities in the country since inception. Consequent upon liberalisation in petroleum sector in 1990s, the participation of foreign and Indian companies in the exploration and development activities to supplement the efforts of national oil companies was observed to narrow the gap between supply and demand.

2.7.2 Government of India has signed production sharing contracts for 28 discovered blocks, 28 exploration blocks under pre-NELP regime and

TABLE 2.8: BASIN-WISE CRUDE OIL AND NATURAL GAS PRODUCTION IN 2013-14

	Oil production (MMT) for 2013-14				Gas production (BCM) for 2013-14			
Basins	ONGC	OIL	PSC	Total	ONGC	OIL	PSC	Total
Rajasthan	-	-	9.18	9.18	0.02	0.20	0.77	0.98
Assam-Arakan & Assam Shelf	1.26	3.47	0.09	4.82	1.28	2.43	0.02	3.73
Cambay	4.92		0.50	5.42	1.54	-	0.22	1.77
Cauvery	0.23	-	0.00	0.23	1.30	-	-	1.30
Coal-Bed	-	-	-	-	-	-	0.17	0.17
Krishna-Godavari	0.32	-	1.31	1.63	1.28	-	5.55	6.83
Mumbai	15.52	-	0.99	16.51	17.86	-	2.77	20.63
Grand Total	**22.25**	**3.47**	**12.08**	**37.79**	**23.28**	**2.63**	**9.50**	**35.41**

254 blocks under NELP regime with National Oil Companies and Private (both Indian and Foreign)/ Joint Venture companies as licensee for blocks. At present out of 310 exploration blocks awarded so far under various bidding rounds (Discovered Field, Pre-NELP & NELP), 189 blocks/fields are operational. 17 blocks under nomination are being operated by ONGC and OIL. Petroleum Exploration Licenses (PEL) for domestic exploration & production of crude oil and natural gas were granted under four different regimes over a period time:

1. **Nomination Basis:** Petroleum Exploration License (PEL) were granted to National Oil Companies viz. Oil and Natural Gas Corporation Ltd (ONGC) and Oil India Ltd. (OIL) on Nomination basis prior to implementation of NELP.
2. **Pre-NELP Discovered Field:** Petroleum Mining Lease (PML) was granted under small / medium size discovered field Production Sharing Contract (PSCs) during 1991 to 1993 where operators of blocks were private companies and ONGC/OIL have the participating interest.
3. **Pre-NELP Exploration Blocks:** 28 Exploration Blocks were awarded to private companies between 1990 and prior to implementation of NELP where ONGC and OIL have the rights for participation in the block after hydrocarbon discoveries.
4. **New Exploration Licensing Policy (NELP) -1999 onwards :** Under NELP, exploration blocks were awarded to Indian Private and Foreign companies through international competitive bidding process where National Oil Companies viz, ONGC and OIL are also competing on equal footing.

2.7.3 Out of 310 blocks, 121 exploration blocks were relinquished and currently E&P activities in 189 blocks are in progress. The PSC regime-wise details of operational and relinquished blocks are as given in Table 2.9.

310

Total blocks awarded under Production Sharing Regime

2.7.4 The pace of exploration for oil and gas has increased after the introduction of NELP regime. The awarded 254 blocks are located in onland (111), offshore shallow water (62) and deepwater (81) areas. As a result of exploratory activities, several unexplored and poorly explored areas, in particular offshore and deepwater areas have been appraised through geophysical surveys and exploratory drilling.

2.8 AWARD PROCESS FOR NELP BLOCKS

2.8.1 Under New Exploration Licensing Policy (NELP), no preference is given to any company either Foreign/ Indian Private Company or Public Sector Company. All bidders have to compete with each other on equal footing. Exploration blocks are awarded through International Competitive Bidding process in a transparent manner based on the quantified Bid Evaluation Criteria (BEC) having 100 Points. The bid evaluation criteria have been modified under different NELP bidding rounds based on the feedback received from the stakeholders and the Government's perspective to attract more investors for bidding. The main parameters of BEC are – i) committed minimum work programme (MWP) in terms of 2D seismic, 3D seismic and exploratory wells, ii) Fiscal package (biddable profit petroleum and cost recovery limit). The bidders giving higher MWP and higher share of profit petroleum to the Government are the winner of exploration Blocks. In case of deepwater blocks, technical capability is also part of bid evaluation criteria. As an example, the BEC for the ninth round of NELP bidding, viz. NELP-IX, are given in Table 2.10:

TABLE 2.9: BLOCKS AWARDED UNDER PRODUCTION SHARING REGIME

Bidding Rounds	Active Blocks	Relinquished Blocks	Total Blocks
Pre-NELP Field	27	1	28
Pre-NELP Exploration	14	14	28
NELP I	4	20	24
NELP II	4	19	23
NELP III	8	15	23
NELP IV	7	13	20
NELP V	10	10	20
NELP VI	33	19	52
NELP VII	34	7	41
NELP VIII	29	3	32
NELP IX	19	0	19
Total	**189**	**121**	**310**



Offshore Orlan Platform - Sakhalin, Russia

TABLE 2.10: BID EVALUATION CRITERIA UNDER NELP-IX

Criterion/Points	NELP-IX		
	On-land Type-S Block	Other Onland blocks & shallow water blocks	Deepwater blocks
Technical Capability	Nil	Qualifying	25
Work Programme	50	50	25
Fiscal Package	50	50	50
Total	**100**	**100**	**100**

Note:

i) For onland and shallow water blocks except Type-S blocks, technical capability is the qualifying criteria.

ii) In case of Type-S onland blocks (area less than 200 Sq. km), bid evaluation was made on work programme and fiscal package parameters only. Technical capability was neither qualifying criterion nor a bid evaluation criterion for Type-S blocks.

iii) In order to attract multiple and experienced players in deepwater, higher weightage points has been assigned to deepwater experienced players.

Fiscal Package

i) Bidders are evaluated on the basis of annual cost recovery limit and profit share to Government at two tranches.

ii) Profit Petroleum to be computed based on assumed CAPEX, OPEX and Production Profile for each block and price and production profile scenarios as per weightages. All assumptions would be made available to bidders.

iii) Net Present Value (NPV) of Government profit petroleum shall be computed after a discount of 10% over project life. Crude oil price of US$ 90/60/30 per barrel and gas price of US$ 200/150/100 per thousand cubic metres for high/most likely/low price scenarios (US$ 5.5/4.2/2.8 per MMBTU).

iv) Bidder offering highest profit share to Government as per above will get maximum points and others will get proportionate points.

2.8.2 Under NELP, Production Sharing Contracts (PSCs) for 254 exploration blocks have been signed for blocks awarded in onland, shallow water and deepwater areas. The details of the nine NELP bidding rounds are given in Table 2.11:

TABLE 2.11: EXPLORATION BLOCKS AWARDED UNDER 9 ROUNDS OF NELP

Parameter	NELP I	NELP II	NELP III	NELP IV	NELP V	NELP VI	NELP VII	NELP VIII	NELP IX
No. of Blocks Offered	48	25	27	24	20	55	57	70	34
No. of Blocks Bid for	28	23	24	21	20	52	45	36	33
No. of Bids Received	45	44	52	44	69	165	181	76	74
No. of blocks awarded	25	23	23	21	20	52	44	34	19
No. of PSCs signed	24	23	23	20	20	52	41	32	19

2.8.3 NELP bidding rounds have attracted many private and foreign companies in addition to PSUs. Before the NELP, a total 35 E&P Companies (5 PSUs, 15 Private and 15 Foreign) were working in Nomination and Pre-NELP regime. After the conclusion of nine rounds of NELP bidding, the total number of companies has increased to 117 (11 PSUs, 58 Private and 48 Foreign Companies as Operators and Non-operators/ Consortium Partners).

2.8.4 IOC, GAIL, BPCL and their subsidiaries like Bharat Petro Resources Ltd (Subsidiary of BPCL), Prize Petroleum Company Limited (Subsidiary of HPCL), have participated in various NELP bidding rounds and have been awarded exploration blocks in India. In addition to CPSE, GSPC have participated in various NELP bidding rounds and have been awarded exploration blocks in India.

2.8.5 Under the nine rounds of NELP bidding held so far, the committed exploration investment is about US$ 11.73 billion. As against this, an investment to the tune of US$ 12.51 billion has been expended by the contractors for exploration activities in the awarded blocks. In addition, about US$ 8.81 billion has been incurred by the contractors for carrying out development activities. The details of NELP investments are given in Table 2.12.

2.9 COAL BED METHANE

2.9.1 In order to harness CBM (Coal Bed Methane) potential in the country, CBM blocks were offered through international competitive bidding for exploration and production of CBM in the country for the first time in May 2001. So far, Government has awarded 30 CBM blocks under four rounds of bidding to National, Private & Joint Venture Companies. In addition, 2 CBM blocks were awarded on nomination basis and one block through Foreign Investment Promotion Board (FIPB) route. These CBM blocks are in the states of Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu and West Bengal.

TABLE 2.12: INVESTMENT UNDER NELP (US$ MILLION) (US$ Million)

NELP Rounds	NELP Committed Investment: Exploration Investment Commitment	Actual Investment as on 30.07.2013: Actual Exploration Investment	Actual Investment as on 30.07.2013: Actual Development Investment	Total Investment
NELP-I	1082.23	3629.38	7580.85	11210.23
NELP-II	775.41	813.71	33.13	846.84
NELP-III	978.18	3132.17	1197.61	4329.78
NELP-IV	1135.05	1822.02	0.35	1822.37
NELP-V	847.22	752.18	-	752.18
NELP-VI	3570.00	1922.38	-	1922.38
NELP-VII	1504.61	317.01	-	317.01
NELP – VIII	1102.25	122.67	-	122.67
NELP-IX	733.66	-	-	-
Total	**11728.61**	**12511.52**	**8811.94**	**21323.46**

2.10 PETROLEUM EXPLORATION LICENCE (PEL) AND PETROLEUM MINING LEASE (PML)

2.10.1 PEL is granted for a period of 7 years in onland and shallow water areas and for 8 years in deepwater and frontier areas for exploration activities as per PSC provisions under NELP. Petroleum Mining Lease (PML) is awarded for 20 years for producing Hydrocarbons as per the Oilfields Regulation & Development Act, 1948 and P&NG Rules, 1959.

2.10.2 Under Nomination regime, ONGC and OIL are operating 17 PEL and 386 PML blocks covering an area of 103084 Sq. Km. The basin-wise details of PEL/PML operated by ONGC and OIL are given in Table 2.13:

TABLE 2.13: BASIN-WISE OPERATIVE PEL & PML UNDER NOMINATION REGIME AS ON 01.04.2014

Company / Operator	Basin	PEL		PML		Total	
		No.	Area (Sq. Km.)	No.	Area (Sq. Km.)	No.	Area (Sq. Km.)
OIL Nomination	Rajasthan			2	460	2	460
	Assam-Arakan	5	1239	20	4546	25	5785
	Total -OIL	**5**	**1239**	**22**	**5006**	**27**	**6245**
ONGC Nomination	Assam-Arakan	6	2556	64	5451	70	8006
	Cambay	-	-	172	5786	172	5786
	Cauvery	-	-	33	3611	33	3611
	Saurashtra	1	16557	-	-	1	16557
	Himalayan Foreland	1	1828	-	-	1	1828
	Krishna Godavari	1	1190	54	6213	55	7403
	Kutch	-	-	4	1673	4	1673
	Mumbai	2	16487	32	30395	34	46882
	Rajasthan	-	-	5	885	5	885
	Vindhyan	1	4208	-	-	1	4208
	Total -ONGC	**12**	**42826**	**364**	**54013**	**376**	**96839**
	Grand Total	**17**	**44064**	**386**	**59019**	**403**	**103084**



Transportation of Gravity Based Structure for Offshore Platform in Arkutun Dagi field - Sakhalin-1, Russia

2.10.3 Private/JV companies are operating 189 PEL and 48 PML blocks covering an area of 508841 Sq. Km. The basin-wise details of PEL/PML operated by private/JV companies are as under:

TABLE 2.14: BASIN-WISE PEL & PML WITH PVT./ JOINT VENTURE COMPANIES AS ON 01.01.2014

Basin	PEL		PML		Total	
	Nos	Area (Sq. Km.)	Nos	Area (Sq. Km.)	Nos	Area (Sq. Km.)
Andaman-Nicobar	8	49964	-	-	8	49964
Assam-Arakan	24	21519	2	63	26	21582
Bengal	3	11733	-	-	3	11733
Cambay	65	13373	33	1030.67	98	14404
Cauvery	19	109687	1	81	20	109768
Deccan Syneclise	1	2649	-	-	1	2649
Ganga	5	16766	-	-	5	16766
Kerala-Konkan	2	36341	-	-	2	36341
Krishna Godavari	21	77332	5	1479	26	78811
Kutch	6	11992	-	-	6	11992
Mahanadi	4	30096	-	-	4	30096
Mumbai	11	27889	3	2678	15	30567
Pranhita Godavari	1	21850	-	-	1	21850
Rajasthan	9	19584.32	4	3287	13	22871
Satpura-South Rewa-Damodar	2	14066	-	-	2	14066
Saurashtra	2	12479	-	-	2	12479
Vindhyan	6	22875	-	-	6	22875
Total	**189**	**500195.2**	**48**	**8619**	**237**	**508814**

2.11 MINIMUM WORK PROGRAMME (MWP) FOR NELP & PRE-NELP BLOCKS

2.11.1 Minimum Work Programme(MWP) comprises the details of exploration surveys like 2D, 3D seismic, Gravity Magnetic, Geo chemical surveys, processing & interpretation, etc., along with drilling of exploratory wells. The basin-wise exploratory inputs since inception as on 01.01.2014 are as under:

TABLE 2.15: MWP FOR NELP AND PRE-NELP BLOCKS AS ON 01.01.2014

Basin	Nos of Blocks	2D (LKM) Planned as per MWP	2D (LKM) Actual	3D (SKM) Planned as per MWP	3D (SKM) Actual	Nos. of Wells Planned as per MWP	Nos. of Wells Actual
Andaman- Nicobar	11	18780	26261	6000	18826	9	8
Assam- Arakan	31	6707	5388	3196	1898	92	22
Bengal	5	5160	5246	3840	4572	13	4
Cambay	48	13870	11828	7513	6769	282	168
Cauvery	24	56680	60650	18626	40767	53	37
Deccan Syneclise	2	325	476	-	-	10	0
Ganga Valley	6	3705	3875	300	262	8	4
Gujarat-Kutch	10	5504	2971	6992	6970	27	6
Gujarat-Saurashtra	9	14400	16034	7920	12178	21	14

TABLE 2.15: MWP FOR NELP AND PRE-NELP BLOCKS AS ON 01.01.2014

Basin	Nos of Blocks	2D (LKM) Planned as per MWP	2D (LKM) Actual	3D (SKM) Planned as per MWP	3D (SKM) Actual	Nos. of Wells Planned as per MWP	Nos. of Wells Actual
Himalaya Foreland	1	110	447	-	-	1	1
Kerala- Konkan	19	37300	50089	10900	14233	10	7
Krishna- Godavari	38	62895	68932	42568	71245	132	111
Mahanadi	20	51600	59345	21100	58550	41	37
Mumbai	26	19850	18293	17982	16361	39	24
Palar	3	3734	4076	2690	3601	10	3
Pranhita Godavari	2	1065	195	-	-	3	1
Purnea	3	2385	2601	860	1420	4	3
Rajasthan	16	5860	5670	11764	11881	109	67
South Rewa	2	2060	2051	300	304	3	2
Vindhyan	6	3040	3345	250	369	3	3
Total	**282**	**315030**	**347772**	**162801**	**270205**	**870**	**522**

2.12 EXPLORATORY EFFORTS BY PSUs

2.12.1 Oil PSUs have carried out 11, 59,253 line kilometre (LKM) of 2D seismic survey, 2,70,321 Sq. Km of 3D seismic survey and drilled 6268 exploratory wells since inception as on 01.01.2014. The company-wise details of exploratory efforts in terms of 2D, 3D seismic and exploratory wells are as under:

TABLE 2.16: EXPLORATORY INPUTS BY CPSE AND GSPC AS ON 01.01.2014

S. No.	COMPANY (OPERATOR)	Cumulative exploratory efforts as on 01.01.2014		
		2D Seismic (LKM)	3D Seismic (Sq. Km)	Exploratory Wells (Nos.)
1	GAIL (India) Limited.	-	577	-
2	Gujarat State Petroleum Corporation Ltd.	1958	6653	76
3	Indian Oil Corporation Ltd.	-	277	3
4	National Thermal Power Corporation	-	425	-
5	ONGC - PSC regime	196089	139592	184
6	ONGC- Nomination	881604	98948	5650
7	Oil India Ltd. - PSC regime	6421	11371	16
8	Oil India Ltd. -Nomination	73181	12478	339
	PSU Total	**1159253**	**270321**	**6268**

2.12.2 The list of major projects undertaken by ONGC for development of hydrocarbon discoveries and infrastructure facilities are given in Annexe I at the end of this Chapter.

2.13 EXPLORATORY EFFORTS BY PRIVATE COMPANIES

2.13.1 Indian Private Companies have carried out 1,01,995 line kilometre (LKM) of 2D seismic survey 1,04,466 Sq. Km of 3D seismic survey and drilled 265 exploratory wells since inception as on 01.01.2014. The company-wise details are as under:

TABLE 2.17: EXPLORATORY INPUTS BY INDIAN PRIVATE COMPANIES AS ON 1.1.2014

S. No.	COMPANY (OPERATOR)	Cumulative exploratory efforts as on 01.01.2014		
		2D Seismic (LKM)	3D Seismic (SQ. KM)	Exploratory Wells (Nos.)
1	Adani Welspun Exploration Ltd.	-	3586	-
2	Essar Oil Ltd.	4425	1619	17
3	Esveegee Steel (Gujarat) Pvt. Ltd.	-	135	-
4	Focus Energy Ltd.	6763	5255	78
5	Geo Enpro	52	114	2
6	Hindustan Oil Exploration Company Ltd	626	1860	15
7	Interlink Petroleum Ltd.	-	64	2
8	Jay Polychem (India) Ltd.	-	268	2
9	Jubilant Oil & Gas Private Limited.	665	638	14
10	Mercator Petroleum Private Limited.	773	175	-
11	Prize Petroleum Company Ltd.	2050	304	2
12	Reliance Industries Ltd.	86475	90316	132
13	Selan Expl. Tech. Ltd.	166	132	1
	Private Total	**101995**	**104466**	**265**

2.14 EXPLORATORY EFFORTS BY FOREIGN COMPANIES

2.14.1 Foreign Companies have carried out 63,209 line kilometre (LKM) of 2D seismic survey , 21,709 Sq. Km of 3D seismic survey and drilled 249 exploratory wells since inception as on 1.1.2014. The company-wise details are as under:

TABLE 2.18: EXPLORATORY INPUTS BY FOREIGN COMPANIES AS ON 1.1.2014 SINCE INCEPTION

S. No.	COMPANY (OPERATOR)	2D Seismic (LKM)	3D Seismic (Sq. Km)	Exploratory Wells (Nos.)
1	BHP Billiton Pty. Ltd.	12806	-	-
2	British Gas Exploration and Production (India) Ltd.	2006	5187	15
3	Cairn Energy India Pty Ltd.	18344	6250	180
4	Canoro Resources Ltd.	346	104	4
5	ENI (India) Ltd.	5141	3170	1
6	Geo-Global Resources Inc.	476	-	-
7	Geo-Petrol International Inc.	206	-	-
8	Hardy E&P India Inc.	518	718	4
9	Heramac Ltd.	-	9	2
10	Naftogaz	319	537	8
11	Niko Resources Limited.	161	1304	26
12	OAO Gazprom	4932	530	3
13	Oilex-NL Holdings Ltd	-	178	1
14	Okland Offshore Holdings Ltd.	-	-	1
15	Petrogas	440	1120	3
16	Premier Oil North East India.	261	-	1
17	Santos International Operations Pty. Ltd.	17253	2602	-
	Foreign Total	**63209**	**21709**	**249**

2.15 BASIN-WISE HYDROCARBON DISCOVER AS ON 01.04.2014

2.15.1 So far 810 discoveries comprising of 260 natural gas and 550 crude oil have been made in the country which includes 610 discoveries by NOCs and 200 discoveries by Private/Joint Venture Companies. The basin-wise hydrocarbon discoveries made so far in the country as on 01.04.2014 are as under:

TABLE 2.19: HYDROCARBON DISCOVERIES AS ON 01.01.2014 SINCE INCEPTION

Basin	ONGC			OIL			PSC			Grand Total		
	Gas	Oil	Total	Gas	Oil	Total	Gas	Oil	Total	Gas	Oil	Total
Cambay	13	188	201	-	-	-	13	52	65	26	240	266
Krishna Godavari	59	28	87	-	-	-	49	16	65	108	44	152
Rajasthan	11	-	11	-	-	-	8	28	36	19	28	47
Mahanadi-NEC	-	-	-	-	-	-	9	-	9	9	0	9
Assam-Arakan	17	43	60	12	94	106	7	-	7	36	137	173
Cauvery	10	24	34	-	-	-	3	3	6	13	27	40
Mahanadi	-	-	-	-	-	-	4	-	4	4	-	4
Mumbai	27	71	98	-	-	-	2	1	3	29	72	101
Saurashtra	-	-	-	-	-	-	3	-	3	3	-	3
Andaman-Nicobar	1	-	1	-	-	-	1	-	1	2	-	2
Cauvery-Palar	-	-	-	-	-	-	1	-	1	1	-	1
Kutch	8	2	10	-	-	-	-	-	-	8	2	10
Vindhyan	2	-	2	-	-	-	-	-	-	2	-	2
Grand Total	**148**	**356**	**504**	**12**	**94**	**106**	**100**	**100**	**200**	**260**	**550**	**810**

2.16 HYDROCARBON DISCOVERIES IN NELP BLOCKS

2.16.1 So far a total of 130 hydrocarbon discoveries (47 oil and 83 gas) have been made under the NELP regime in 42 blocks. 64 hydrocarbon discoveries have made by NOCs (ONGC & OIL) and State PSU (GSPCL) and the remaining 66 discoveries have been made by Private/Foreign Companies as operators. The details of Company-wise discoveries made are as under:

TABLE 2.20: HYDROCARBON DISCOVERIES IN NELP BLOCKS

Sr. No.	Company (Operator)	Oil Discovery	Gas Discovery	Total Discoveries
1	ONGC	10	29	39
2	Oil India Ltd.	1	-	1
3	Gujarat State Petroleum Corporation Ltd.	15	9	24
4	Reliance Industries Ltd.	14	37	51
5	Jubilant Oil and Gas Pvt. Ltd.	2	4	6
6	Focus Energy Ltd.	-	1	1
7	Cairn India Ltd.	4	1	5
8	Niko Resources Ltd.	-	2	2
9	Naftogaz	1	-	1
Total		**47**	**83**	**130**



An offshore oil platform

2.16.2 Currently 13 NELP hydrocarbon discoveries are under development. The details of these hydrocarbon discoveries are as under:

(i) Deendayal West Gas Field Development in the block KG-OSN-2001/3 in Krishna-Godavari shallow offshore, operated by GSPCL: The first gas is estimated by the contractor in first quarter 2014-15. The approved FDP envisages a peak gas production rate of 5.23 MMSCMD.

(ii) Four Satellite Gas Field Development in the block KG-DWN-98/3 (KG-D6) in Krishna-Godavari deepwater area, operated by RIL: The first gas is estimated by the contractor in 2016-17 with a peak production rate of 10.3 MMSCMD.

(iii) D-34 Gas Field Development in the block KG-DWN-98/3 (KG-D6) in Krishna-Godavari deepwater area, operated by RIL: The first gas is estimated by the contractor in 2018-19 with a peak production rate of 12 .9 MMSCMD.

2.17 NATIONAL DATA REPOSITORY (NDR)

2.17.1 National Data Repository (NDR) is being set up to populate all the geoscientific data available in the country and the same will be operational by 1st March 2016 and then Open Acreage Licensing Policy (OALP) can be launched. Once NDR becomes operational, the companies can view geoscientific data from anywhere in the world and firm up an opinion regarding prospectivity of the blocks prior to bidding for the block. When OALP comes into existence bidding rounds can be organised round the year instead of irregular frequency as at present and also operators can choose their area of interest. This will enhance the exploration activity in the country.

13
NELP hydrocarbon discoveries under development

2.18 SHALE GAS/SHALE OIL

Shale Gas can emerge as an important new source of energy in the country. India has several Shale formations which seem to hold Shale Gas. The Shale Gas formations are spread over several sedimentary basins such as Cambay, Gondwana, Krishna-Godavari and Cauvery onland.

The Government has issued "Policy Guidelines for Exploration and Exploitation of Shale Gas and Oil by National Oil Companies (NOCs) under Nomination regime" on 14th October, 2013. Under this Policy, the right to exploration and exploitation of Shale Gas & Oil will lie with the NOCs holding Petroleum Exploration License (PEL)/Petroleum Mining Lease (PML) granted under the nomination regime.

ONGC has commenced drilling of one well in Cambay basin in Gujarat for shale gas/shale oil exploration. Currently, there is no commercial production of shale gas in the country.

2.19 GAS HYDRATE

2.19.1 World over gas hydrate is at R&D stage. The presence of gas hydrate was established in the year 2006 in Krishna Godavari, Mahanadi and Andaman deep waters in numerous complex geologic settings. In accordance with the roadmap for the National Gas Hydrate Programme (NGHP). India has already acquired core samples with the help of drill ship "JOIDES Resolution", USA. The cooperation between

the Directorate General of Hydrocarbons (DGH) and U.S. Geological Survey (USGS), USA on exchange of scientific knowledge and technical personnel in the field of Gas Hydrate and research with the view to exploit the potential of Gas Hydrate as an alternate source of energy is in progress.

2.19.2 Based on the findings of NGHP Expedition-01, the Krishna Godavari deepwater basin and the Mahanadi deep waters have been considered potential areas for Gas Hydrate. Geo-scientific studies have been carried out in Krishna Godavari and Mahanadi offshore deepwater to identity potential sand channel systems. Based on critical review of over 79 potential sites, the NGHP scientists along with international scientists have prioritised 20 sites for drilling and coring during NGHP Expedition-02. Depending on the results NGHP Expedition-02, the NGHP geoscientists plan to identify a suitable site for carrying out pilot production testing during NGHP Expedition-03. The NGHP Expedition-02 is currently under the planning stage. The major challenge for gas hydrate is - how to produce gas from gas hydrate.

2.20 POLICY INITIATIVES TO BE TAKEN FOR ENHANCING CRUDE OIL & GAS PRODUCTION

2.20.1 Keeping in view the growing requirement of energy in the country, Government of India has adopted multi-pronged strategy for giving momentum to exploration and production in the country. The major steps taken in this regard are: (i) offering of exploration blocks in Indian sedimentary basins through New Exploration Licensing Policy (NELP), (ii) development of alternate sources of hydrocarbon such as Coal Bed Methane (CBM) and Shale Gas, (iii) Research & Development for new sources such as Gas Hydrate, (iv) to carry out E&P operations in safe and environment friendly manner.

2.20.2 The following new policy initiatives have been identified to be taken by the Government for enhancing domestic crude oil & natural gas in the country:

- Uniform Licensing Policy (ULP)
- Open Acreage Licensing Policy (OALP)
- Revenue Sharing Contract



Men working tirelessly in an offshore installation

- Fiscal Stability and Taxation in E&P Sector
- Appraisal of the Indian Sedimentary Basins through Public Funding

2.21 UNIFORM LICENSING POLICY (ULP)

2.21.1 A uniform licensing policy subsuming NELP and CBM policy is proposed to be introduced to enable E&P operators to explore and extract all hydrocarbon resources covered under the Oilfield Regulation and Development (ORD) Act, 1948, and Petroleum and Natural Gas (PNG) Rules, 1959 under one PEL/PML, and one contractual regime for the Contracts to be awarded in future.

2.21.2 The uniform license will enable the contractor to explore conventional and unconventional oil and gas resources such as shale gas/oil, tight gas, gas hydrates and any other resource to be identified in future which is fit for commercial exploitation, simultaneously under the overall contractual regime applicable from time to time. 52 oil & gas exploration blocks are proposed to be offered under ULP in the tenth round of NELP i.e. NELP – X.

2.22 OPEN ACREAGE LICENSING POLICY (OALP)

2.22.1 Open Acreage Licensing Policy (OALP) will enable bidders to bid for blocks on offer at any time of the year. Data for these blocks would be made available to the bidders through the NDR. Directorate General of Hydrocarbons which has initiated the process of establishing an NDR mainly to cater to the needs of E&P sector, research institutes and for academia.

2.22.2 Once NDR becomes operational, the companies from anywhere in the world can view geoscientific data and firm up an opinion regarding prospectivity of the blocks prior to bidding for the block. NDR is likely to be operational by 1st March 2016 and then Open Acreage Licensing Policy can be launched.

2.22.3 Once OALP comes into existence, bidding rounds can be organised round the year instead of irregular frequency as at present and also operators can choose their area of interest.

2.23 REVENUE SHARING CONTRACT

2.23.1 Revenue Sharing Contract model was recommended by the Rangarajan Committee considering two main objectives (i) promotion of investment in E&P sector by offering a reasonable and hassle free regime to the investors and (ii) achieving this without sacrificing Government's interest as owner of the natural resources. The Committee had recommended a new contractual system to overcome the logjam created by the existing model based on Pre-Tax Investment Multiple (PTIM) methodology and cost recovery mechanism. The design of the new regime provides a simpler and transparent hydrocarbon administration with easy-to-monitor parameters of production and price rather than cost parameter which is internal to the functioning of the companies.

52
blocks to be offered under NELP - X

2.23.2 This regime would help the Government to focus on technical and real productivity related aspects of the hydrocarbon sector. One of the main objectives of the Governments around the world is to capture economic rent while giving the industry a reasonable share of profit. Another aspect of the new model is the sharing with the Government of economic rents arising in the form of windfall profits in the event of a price surge or geological surprise by way of a huge find.

2.24 FISCAL STABILITY AND TAXATION IN E&P SECTOR

2.24.1 The fiscal parametres are required to be stable during the period of contract for Revenue/Profit calculations to be stable. Income Tax holiday was given under NELP for first 7 years after commencement of commercial production. Subsequently the same was withdrawn by the Ministry of Finance, Government of India creating confusion in the minds of contractors and new investors. Such mid-term changes of policies have caused immense damage to industry and are to be avoided. In view of the above bigger multinational companies are not attracted to India and smaller companies which invested are not able to wade through the mid-term changes in policies.

2.24.2 Ministry has submitted proposals to Ministry of Finance (MOF) on tax incentives and changes required to expedite exploration and increase domestic production. Present PSC model is rigid on various timelines and many a times lead to narrow interpretation of the various provisions. Ministry has submitted CCEA proposal on various issues to improve working of the current PSCs.

2.25 APPRAISAL OF THE INDIAN SEDIMENTARY BASINS THROUGH PUBLIC FUNDING

2.25.1 India has 26 sedimentary basins covering an area of 3.14 million sq. km. out of this area, about half

of total basin area is yet to be appraised. Generated data is used for awarding of oil and gas acreages for exploration to E&P operators. The data will also help in launching OALP. Upcoming National Data Repository (NDR) will require high quality geophysical data. The data acquisition through public funding is based on Non-Exclusive Multi-Client Model.

2.25.2 This model replaces the earlier fiscal term of profit sharing after cost recovery with the payment of one time project fee. One time project fee of US$ 10,000, and extension fee equal to 60% of one time fee would be paid by the Service Provider. Period of Survey under the agreement would be 2 years, with a provision for one extension for maximum one year. Non-Exclusive period would be Survey period plus 10 years. GOI reserves the right to reject any application on grounds of national security, Govt. policy or fraud committed by the applicant.

2.25.3 The Applicant Company would furnish a Data Delivery Bank Guarantee of US$ 100,000. This will be returned after the generated data is handed over to DGH.



Bioremediation of oily effluent at Ahmedabad

ANNEXURE I : MAJOR PROJECTS UNDERTAKEN BY ONGC FOR DEVELOPMENT OF HYDROCARBON DISCOVERIES AND INFRASTRUCTURE FACILITIES

Sl. No.	Name Of Project	Project Objective	Project Cost (in Crs. ₹)	Date of Approval	Scheduled Completion	Anticipated Completion	Overall Progress		Cumulative Expenditure (in Crs. ₹) till Nov'13	Remarks
							Planned (%)	Actual (%)		
1	Ahmedabad Redevelopment Project	Incremental Production of 5.855 MMT oil & 0.858 BCM gas by 2024-25	1,916.10	26.11.2010	Dec'2014	Dec'2016	100.00	47.46	784.08	
2	Mehasana Redevelopment Project	Incremental Production of 5.855 MMT oil by 2024-25	3,823.00	26.11.2010	Apr'2015	Mar'2017	100.00	34.77	703.14	
3	Ankleshwar Redevelopment Project	Incremental Production of 2.483 MMT oil & 6.034 BCM gas by 2024-25	2,189.63	26.11.2010	Dec'2014	Dec'2016	49.88	47.76	1,039.42	
4	Assam Renewal Project	Extraction of C2-C3 and LPG from LNG.	2,378.89	05.03.2009	Mar'2013	Mar'2014	100.00	84.69	1,496.19	
5	Upgradation of Konaban GGS and Pipeline Grid Project (Tripura)	Upgradation of facilities at Konaban GGS and pipeline network	253.66	28.07.2008	Aug'2012	Jun'2014	100.00	88.79	203.25	
6	Construction of 06 Effluent Treat Plants, Ahmedabad & Ankleshwar	As Per Pollution Control Board norm and environment protection under sustainability	240.95	04.03.2009	Sep'2012	Mar'2014	100.00	73.60	99.40	
7	Sonamura GGS and Pipeline Project, Tripura	Creation of Gas Processing and Compression Facility	128.30	17.02.2010	Mar'2013	Mar'2014	100.00	39.09	40.75	
8	Construction of 01 ETP and 03 ETP cum WIPs, Assam	As Per Pollution Control Board norm and environment protection under sustainability	119.34	16.06.2010	Jan'2014	Jan'2015	90.13	5.86	2.00	
9	102 MW Wind Power Project, Rajasthan	Generate 102 MW of Power from wind energy	678.02	29.07.2010	Jun'2012	Mar'2014	71.70	11.60	52.67	
10	Construction of 03 Effluent Treatment Plants, Mehsana	As Per Pollution Control Board norm and environment protection under sustainability	144.00	26.03.2012	Nov'2014	Nov'2014			0.52	

ANNEXURE I : MAJOR PROJECTS UNDERTAKEN BY ONGC FOR DEVELOPMENT OF HYDROCARBON DISCOVERIES AND INFRASTRUCTURE FACILITIES

Sl. No.	Name Of Project	Project Objective	Project Cost (in Crs. ₹)	Date of Approval	Scheduled Completion	Anticipated Completion	Overall Progress		Cumulative Expenditure (in Crs. ₹) till Nov'13	Remarks
							Planned (%)	Actual (%)		
11	Development of BHE, MH Asset, Mumbai	Production of 0.422 MMT of Crude oil & Condensate and 0.529 BCM of Gas over a period of 8 Years	372.11	26.08.2010	Mar'2013	Dec'2013	100.00	89.76	234.31	
12	Additional Development of D-1 Field, B&S-Mumbai	Incremental Production of 8.296 MMT oil by 2024-25	2,163.65	21.01.2010	Jun'2012	May'2014	100.00	91.66	1,557.08	Cost revised to 2331.62 Crs on 11.02.2013
13	Mumbai High North Redevelopment Phase-II	Incremental Production of 17.35 MMT oil & 2.98 BCM gas by 2029-30	7,133.39	28.01.2009	Sep'2012	Mar'2014	100.00	97.18	5,308.52	
14	Mumbai High South Redevelopment Phase-II	Incremental Production of 20.7 MMT oil & 3.32 BCM gas by 2029-30	5,713.07	03.10.2007	May'2010	Mar'2014	100.00	97.21	7,204.61	Revised on 05.05.2009 -Cost to 8813.41 Crs; Objectives to "Incremental production of 18.31 MMT of oil and 2.70 BCM gas upto 2029-30" and Scheduled Completion to Mar'2013.
15	Development of B-46 Cluster Fields, MH Asset, Mumbai	Production of 1.68 MMm3 of Condensate and 5.273 BCM gas by 2021-22	1,436.21	07.06.2007	Jul'2010	Mar'2014	100.00	87.25	1,100.32	Revised on 28.10.2010 -Cost to 1456.96 Crs and Scheduled Completion to May'2012.
16	Development of B-22 Cluster Fields, B&S Asset, Mumbai	Production of 2.46 MMT of Oil, 1.13MMT of Condensate and 6.56 BCM gas by 2019-20	2,323.40	30.01.2007	Sep'2010	Dec'2015	100.00	86.05	1,902.72	Revised on 28.10.2009 -Cost to 2920.82 Crs and Scheduled Completion to Mar'2012.
17	Development of C Series Fields (Rechristened as C-24 Cluster Development), B&S, Mumbai	Production of 15.14 BCM gas and 6.13 MMm3 of Condensate by 15 years from Completion	3,195.16	08.08.2006	Dec'2008	Mar'2014	100.00	98.23	2,520.91	Revised on 15.03.2012 -Cost to 3690.37 Crs; Objectives to "Production of 10.771 BCM gas and 2.166M3 of Condensate by 2024-25" and Scheduled Completion to Apr'2013.

ANNEXURE I : MAJOR PROJECTS UNDERTAKEN BY ONGC FOR DEVELOPMENT OF HYDROCARBON DISCOVERIES AND INFRASTRUCTURE FACILITIES

Sl. No.	Name Of Project	Project Objective	Project Cost (in Crs. ₹)	Date of Approval	Scheduled Completion	Anticipated Completion	Overall Progress		Cumulative Expenditure (in Crs. ₹) till Nov'13	Remarks
							Planned (%)	Actual (%)		
18	Integrated Development of G-1 & GS-15 Fields, Eastern Offshore, Kakinada	Incremental Production of 0.982 MMT oil & 5.92 BCM gas over a period of 15 Years from the completion of the project	1,262.93	22.04.2003	Apr'2006	Feb'2014	100.00	96.00	2,184.00	First Revision on 30.06.2010 -Cost to 2218.01 Crs and Scheduled Completion to May'2011; Second Revision on 04.01.2012-Cost to 2735.65 Crs and Scheduled Completion to Jun'2012
19	Improved Oil Recovery (IOR) Project: Rudrasagar	Incremental Production of 1.38 MMT oil & 0.16 BCM gas by 2019-20	113.90	15.09.2001	Mar'2009	Dec'2013	100.00	96.64	452.91	First Revision on 12.04.2006 -Cost to 219.22 Crs; Second Revision on 26.11.2010- Cost to 438.85 Crs, Objectives to" Incremental Production of 2.507 MMT of oil and 0.393 BCM gas upto 2023-24" and Scheduled Completion to Mar'2013; Commited Cost is 480 Crs.
20	Reconstruction of BPA & BPB Platforms, Mumbai	Revamping of facilities at BPA and BPB platforms	686.58	20.03.2013	Apr'2015	Apr'2015	10.52	4.11	0.00	
21	Pipeline Replacement Project - 3, Mumbai	Laying of 31 pipeline segments of 197.76kms length under MH, NH & B&S Assets	1,417.00	25.04.2012	May'2014	May'2014	72.30	60.16	560.90	
22	Conversion of Sagar Samrat to Mobile Offshore Production Unit (MOPU)	Project envisages the conversion of Sagar Samrat to MOPU.	761.68	14.03.2011	May'2013	Jun'2014	81.70	62.30	425.76	Revised Scheduled completion is 15.06.2014
23	Fire water Network at Uran Plan, Maharashtra	Project envisages the setting up of new fire water network	121.93	20.05.2010	Jun'2013	Mar'2014	100.00	85.39	75.60	

ANNEXURE I : MAJOR PROJECTS UNDERTAKEN BY ONGC FOR DEVELOPMENT OF HYDROCARBON DISCOVERIES AND INFRASTRUCTURE FACILITIES

Sl. No.	Name Of Project	Project Objective	Project Cost (in Crs. ₹)	Date of Approval	Scheduled Completion	Anticipated Completion	Overall Progress		Cumulative Expenditure (in Crs. ₹) till Nov'13	Remarks
							Planned (%)	Actual (%)		
24	Additional Processing Units at Uran, Maharashtra	Project envisages the setting up of additional processing units	899.11	30.10.2008	Dec'2011	Dec'2013	100.00	99.90	811.37	
25	Construction of 23 Immediate Support Vessels (ISV), Mumbai	Project envisages the construction of 23 new ISVs	269.10	26.11.2010	Aug'2013	Mar'2014	91.40	62.26	104.65	
26	Construction of one Multipurpose Support Vessel (MSV), Mumbai	Project Envisages the Construction of one new MSV with custom built DP-III, Fi-Fi I & II, Heavy Lift Crane and ROV facilities	723.64	21.01.2010	Mar'2013	Jun'2016			0.00	
27	Construction of 12 Offshore Supply Vessels (OSV), Mumbai	Project Envisages the replacement of existing ageing fleet with 12 number of new generation Offshore Supply Vessels(OSV)	736.65	25.06.2007	Sep'2011	Dec'2014	100.00	79.43	445.86	
28	Offshore Grid Interconnectivity Project (OGIP)	Installation of 81 electrical submersible pumps on 81 wells in Mumbai High spread at 26 well platforms	740.02	30.01.2007	Mar'2010	Dec'2013	100.00	97.48	731.38	Objective modified to providing power to ESPs at 12 well platforms, laying submarine cable-54Km, electrical equipment & structural modifications
29	Integrated Development of Bassein Field, Mumbai	Incremental production of 14.41 BCM gas by 2026-27	3,513.07	22.12.2012	Feb'2016	Feb'2016			0.00	
30	Heera and South Heera Redevelopment Phase-II, Mumbai	Incremental production of 13.36 MMT of oil and 1.665 BCM gas by 2034-35	5,608.40	07.03.2012	May'2015	May'2015	38.06	33.87	1,542.32	
31	Development of Western Periphery of MH South Field	Incremental production of 1.031 MMT of oil and 0.214 BCM gas by 2029-30	600.17	25.04.2012	Dec'2014	Dec'2014	38.48	32.79	130.18	

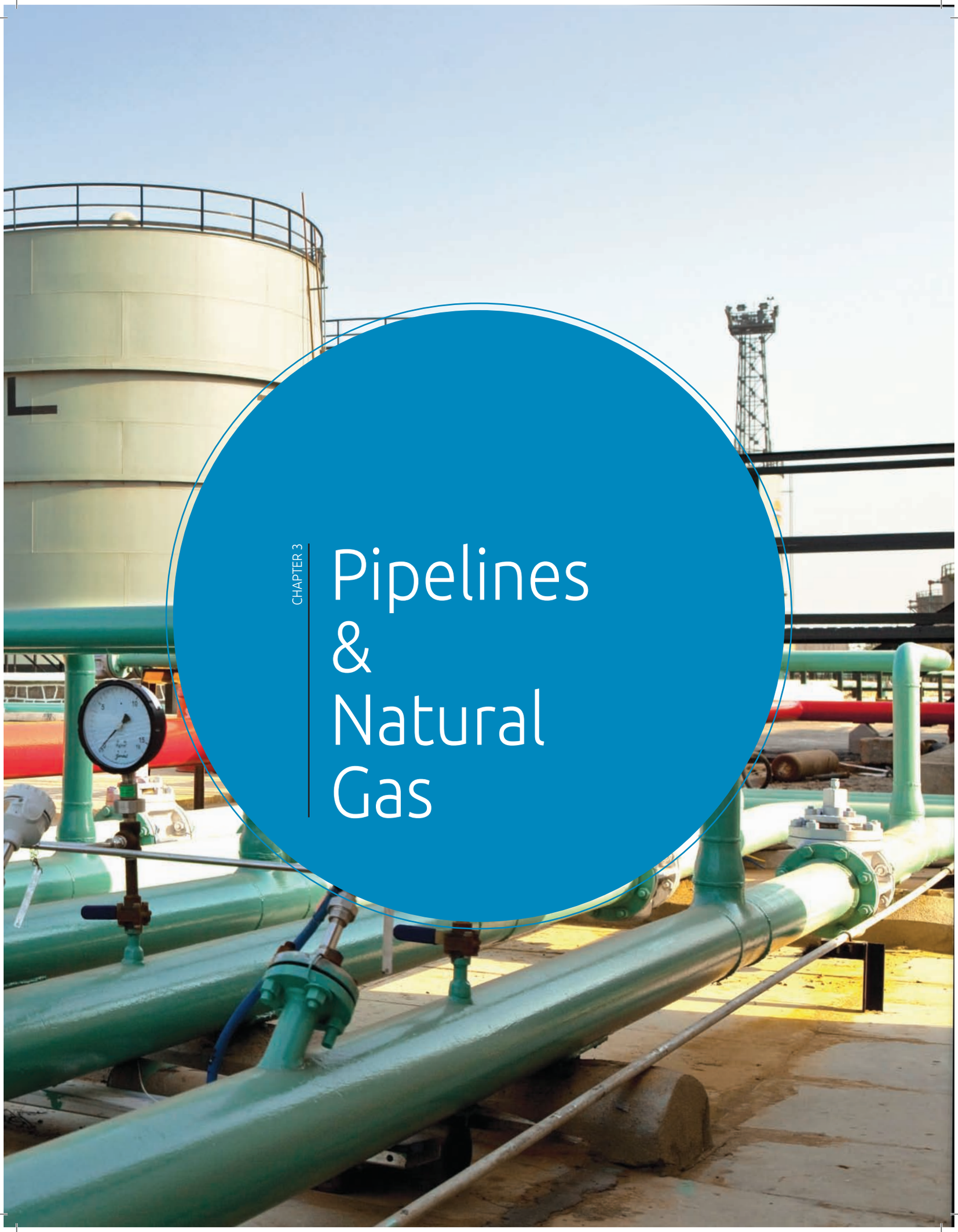
ANNEXURE I : MAJOR PROJECTS UNDERTAKEN BY ONGC FOR DEVELOPMENT OF HYDROCARBON DISCOVERIES AND INFRASTRUCTURE FACILITIES

Sl. No.	Name Of Project	Project Objective	Project Cost (in Crs. ₹)	Date of Approval	Scheduled Completion	Anticipated Completion	Overall Progress		Cumulative Expenditure (in Crs. ₹) till Nov'13	Remarks
							Planned (%)	Actual (%)		
32	Improved Oil Recovery of B-173A field	Production of 0.567 MMT of oil and 0.071 BCM gas by 2025-26	352.49	04.01.2012	Mar'2014	Dec'2014	27.28	18.58	25.85	
33	Development of C-26 Cluster Fields	Production of 0.644 MMm3 of oil and 5.94 BCM gas by 2024-25	2,592.17	15.03.2012	May'2014	May'2015	9.24	6.29	60.31	
34	Integrated Development of B-127 Cluster Fields, MH Asset, Mumbai	Production of 1.836 MMT of Crude oil & Condensate and 2.093 BCM of gas from B-127 in 10 years; 0.155MMT of Condensate and 2.583 BCM of Gas from B-55 in 13 years; from project completion	2,059.63	01.12.2011	Mar'2015	Mar'2015	38.09	20.78	362.68	Revision of Project on 11.08.2012- Cost to 2665.65 Crs.
35	Development of SB-14 Field, B&S Asset, Mumbai	Production of 0.197MMm3 of condensate and 1.641 BCM of Gas by 2025	410.44	28.01.2011	Nov'2012	Feb'2014	100.00	93.49	228.27	
36	Development of wo-16 Cluster Fields, MH-Asset, Mumbai	Production of 2.83 MMT of Crude oil & condensate and 8.58 BCM of Gas by 2025-26	2,523.00	30.06.2010	Jan'2014	Dec'2015	82.86	63.12	983.55	
37	Development of Cluster-7 Fields, MH-Asset, Mumbai	Production of 9.73 MMT of Crude oil & condensate and 4.52 BCM of Gas over a period of 16 years	4,550.40	25.03.2010	Mar'2013	Nov'2014	83.76	85.01	1,451.42	First Revision on 04.01.2012 -Cost to 5,916.65 Crs; Second Revision on 30.04.2013- Cost to 6638.94 Crs; Revised Scheduled Completion to Nov'2014; Commited Cost is 6638.94Crs.
38	Development of B-193 Cluster Fields, B&S-Asset, Mumbai	Production of 5.57 MMT of Crude oil, 0.75 MMT of condensate and 5.12 BCM of Gas by 2023-24.	3,248.78	25.06.2007	Aug'2010	May'2014	100.00	87.90	5,161.83	Revision on 28.08.2009 -Cost to 5,633.44 Crs, Scheduled Completion to Mar'2012

ANNEXURE I : MAJOR PROJECTS UNDERTAKEN BY ONGC FOR DEVELOPMENT OF HYDROCARBON DISCOVERIES AND INFRASTRUCTURE FACILITIES

Sl. No.	Name Of Project	Project Objective	Project Cost (in Crs. ₹)	Date of Approval	Scheduled Completion	Anticipated Completion	Overall Progress		Cumulative Expenditure (in Crs. ₹) till Nov'13	Remarks
							Planned (%)	Actual (%)		
39	C2-C3 and Recovery from LNG, Dahjej, Onshore Gujarat	Extraction of C2-C3 and LPG from LNG.	900.92	29.12.2003	May'2008	24.02.2011			909.72	First Revision on 14.05.2004 -Cost to 1493.49 Crs; Second Revision on 27.11.2009- Cost to 976.08 Crs; Revised Scheduled Completion to July'2010 .
40	Pipeline replacement Project, Ahmedabad	Replacement of old and ageing internal pipelines used for crude supply and water injection	160.16	07.09.2011	Jul'2016	Jul'2016	9.05	5.42	0.00	
41	Construction of one Effluent Treatment Plant at GGS-Nada, Ankleshwar	As per Pollution Control Board (PCB) norm and environment protection under sustainability.	144.00	03.10.2011	Jul'2014	Jul'2014	76.39	17.91	3.03	
42	Construction of three Effluent Treatment Plants, Rajahmundry	As per Pollution Control Board (PCB) norm and environment protection under sustainability.	108.00	22.11.2011	Dec'2014	Dec'2014	29.75	6.73	1.96	


DIANOIL



CHAPTER 3

Pipelines & Natural Gas

Pipelines & Natural Gas



Pipe rack for different grade of products

3.1 PIPELINE NETWORK

There has been a substantial increase in the pipeline network in the country. At present, there are 35 product pipelines with a length of 11771 km and capacity of 82 MMTPA. There are also 25 crude pipelines measuring 9588 km with capacity of 132 MMTPA. In addition, 2312 km of LPG pipelines with capacity of 4 MMTPA and natural gas pipelines of 15,340 km having capacity of 395 MMSCMD have been commissioned. About 10,000 km of gas pipelines with a capacity to transport 250 MMSCMD of natural gas are expected to be commissioned by 2016-17. In addition,2,000 km of pipeline network is under bidding process of Petroleum & Natural Gas Regulatory Board (PNGRB) which will add further capacity to transport 45 MMSCMD by 2017-18.

14,083 KM

total product pipeline network

3.1.1 Crude Oil Pipelines

India has around 9588 km of crude oil pipelines with a capacity to transport 132 MMTPA annually. The crude oil pipelines are primarily connecting indigenous crude oil producing fields of ONGC, OIL and CAIRN Energy to the refineries and from port locations to the nearest refineries. Company wise length and capacity of major crude oil pipelines is given in Table 3.1 below:

TABLE 3.1 : DETAILS OF MAJOR CRUDE OIL PIPELINES IN THE COUNTRY AS ON 01.04.2014

		ONGC	OIL	Cairn	HMPL	IOCL	BPCL/ BORL
Crude Oil	Length (KM)	1195	1193	670	1017	4448	937
	Cap (MMTPA)	56.9	8.4	8.7	9.0	40.4	6.0



3.1.2 Product Pipelines

Transportation of petroleum products by pipelines is carried out from Refineries/ Fractionators to the marketing locations by oil companies. As on 01.04.2014, there are 14,083 km of product pipelines having capacity to transport 86 MMT of products annually. The product pipelines are mostly located in Northern, Western and Eastern parts of the country and to some extent in the Southern region. Company-wise length and capacity of product pipelines is given in Table 3.2:

9,588 KM

Total crude pipeline network

TABLE 3.2 : DETAILS OF MAJOR PRODUCT OIL PIPELINES IN THE COUNTRY AS ON 01.04.2014

		OIL	IOCL	BPCL/ BORL	HPCL	Other*
Products	Length (Km)	654	6632	1697	2407	2693
	Cap (MMTPA)	1.7	36.6	17.5	20.5	8.7



Fire Safety Drill at a Terminal at Jaipur

As per estimates of transportation modal share, 53% of crude oil and petroleum products were transported through pipelines in 2012-13. The trends in shift of modal share during the period 2009-10 to 2012-13 are given in Table 3.3:

TABLE 3.3 : TRANSPORTATION MODAL SHARE ESTIMATES DURING 2009-10 TO 2012-13

Modes	Product Movement (Primary and Secondary)	Product Movement (Primary and Secondary) + Crude oil	Product Movement (Primary and Secondary)	Product Movement (Primary and Secondary) + Crude oil	Product Movement (Primary and Secondary)	Product Movement (Primary and Secondary) + Crude oil	Product Movement (Primary and Secondary)	Product Movement (Primary and Secondary) + Crude oil
	2009-10	2009-10	2010-11	2010-11	2011-12	2011-12	2012-13	2012-13
Pipe Line	20.8	44.5	25.8	48.40	28.5	49.6	22.8	53.0
Railways	29.1	18.1	24.5	14.60	25.9	14.8	22.8	13.5
Road	22.3	15.7	21.4	15.30	19.0	15.2	25.2	15.0
Coastal	27.8	21.6	28.3	21.70	26.6	20.4	29.2	18.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100**	**100**

3.1.3 Natural Gas Pipeline Infrastructure:

The present gas pipeline infrastructure is mainly in the northern and western regions of the country - 60% of the total pipeline network and about 80% of the country's gas consumption is confined to the western and northern parts of the country. Pipelines were initially laid from the source of gas to nearby developed markets and to major consumers like fertiliser and power plants. As a result, states closer to the gas source have had benefits of higher utilisation of gas and local development of gas market e.g. Gujarat, Maharashtra and Andhra Pradesh. In contrast, the Eastern region has no gas pipeline network and hence no consumption of gas.

15,340 KM

total natural gas pipeline network

The entire network comprises around 15,340 km with a total design capacity of 395 MMSCMD as per details given in Table 3.4:

TABLE 3.4 : NATURAL GAS PIPELINE INFRASTRUCTURE

NETWORK/REGION	Entity	Length Km	Design Capacity (MMSCMD)
HVJ GREP - DVPL & Spur (Hazira -Vijaipur- Jagdishpur) HVJ / VDPL	GAIL	4435	57.3
DVPL - GREP Upgradation (DVPL-2 & VDPL)	GAIL	1112	54
Chhainsa - Jhajjar - Hissar P/L (Including Spur lines) commissioned up to Sultanpur, Jhajjar- Hissar under hold (111 Km) Flow of 5 Million up to 2011-12	GAIL	262	5
Dahej - Uran - Panvel (DUPL / DPPL) including Spur Lines	GAIL	873	20
Dadri - Bawana - Nangal P/L, Dadri - Bawana: 106Km, Bawana - Nangal: 501 KM, Spur Line of BNPL : 196 Km.	GAIL	803	11
Dhabhol - Banglore - P/L (Including spur)	GAIL	1004	16
Kochi - Koottanad - Banglore - Mangalore (Phase-1)	GAIL	41	6
Assam (Lakwa)	GAIL	8	2.5
Tripura (Agartala)	GAIL	61	2.3
Ahmedabad	GAIL	144	3.0
Rajasthan (Focus Energy)	GAIL	154	2.35
Bharuch, Badodara (Undera) included RLNG+ RIL	GAIL	670	15.4
Mumbai	GAIL	129	24.0
KG Basin (included RLNG+ RIL)	GAIL	877	16.0
Cauvery Basin	GAIL	268	9.0
East - West P/L(RGTIL)	Reliance	1469	80.0
GSPCL Network including Spur Lines	GSPCL	1874	50.0
Assam Gas Company (Duliajan to Numaligarh)	AGC	1000	6.0
Dadri - Panipat	IOCL	132	9.5
Uran - Trombay	ONGC	24	6.0
Sub Total		**15340**	**395**

After coming into force of the Petroleum & Natural Gas Regulatory Board (PNGRB) Act, authorisation for laying, building and operating the natural gas pipelines is given by PNGRB through competitive bidding.At present, there is a strong regional imbalance within the country with regard to access to natural gas. The states of Gujarat, Maharashtra and UP together consume more that 65% of the available gas, while a large number of states have no access to gas. This regional imbalance is on account of lack of pipeline network in many states like West Bengal, Bihar, Jharkhand, Odisha and Chhattisgarh. In order to extend the benefits to other states, it is essential that the pipeline network is expanded to all regions of the country. Ministry is contemplating development of a National Gas Grid having multiple points of injection and multiple points of withdrawal. The proposed gas grid would connect the gas sources to major demand centres such as industrial clusters, big cities etc.

3.2 NATURAL GAS SECTOR

3.2.1 Allocation and Supply of Natural Gas

Natural gas available in India can broadly be classified into two categories, viz. (i) Domestic Natural Gas and (ii) Imported Re-gasified Liquefied Natural Gas (R-LNG). Keeping in view the shortage of natural gas in the country, domestic gas is allocated to various sectors based on the Policy Guidelines issued by the Government from time to time. In case of imported gas, the marketers are free to import LNG and sell the R-LNG to customers. A statement showing sector-wise allocation and supplies of natural gas is given in Table 3.5:

TABLE 3.5 : SECTOR-WISE ALLOCATION AND SUPPLY OF NATURAL GAS (Figures are in MMSCMD)

Sl No.	Sector	Total Domestic Allocation	Supply (H1 of FY 2013-14)		
			Total Domestic (A)	R-LNG* (B)	Total (A)+(B)
1	Fertiliser	55.08	30.39	12.64	43.03
2	Gas Based LPG plants for LPG extraction	6.88	1.9	1.86	3.76
3	Power	108.30	28.33	2.51	30.84
4	CGD for CNG (Transport)&PNG (Domestic)	8.48	5.99	2.52	8.5
5	TTZ	1.1	0.98	0	0.98
6	Small consumers having allocation < 50,000 SCMD	2.91	2.79	2.57	5.36
7	Steel	9.95	1.09	1.68	2.77
8	Refineries	14.93	2	7.25	9.25
9	Petrochemicals	12.73	4.4	1.24	5.64
10	CGD for PNG to Industrial & Commercial	1.71	0.88	5.34	6.22
11	Others	13.17	1.75	1.34	3.09
12	Internal consumption - pipeline system	1.55	1.45	0	1.45
Total		**236.79**	**81.95**	**38.95**	**120.9**

** Excluding R-LNG supplied by Hazira LNG Pvt. Ltd.*

At present, the Ministry has different policy provisions for utilisation of different categories of domestic gas. In order to bring uniformity in allocation policy of different categories of domestic gas, Ministry is in the process of making a uniform policy for allocation of domestic gas, covering all categories. The various principles adopted for allocation & supply of domestic natural gas are as follows:

3.2.1.1 Allocation of APM Gas

In 1990, Ministry of Petroleum and Natural Gas formulated "Natural Gas Use Policy" considering natural gas as a premium source of fuel and feedstock with a variety of competing demands. For effective & efficient utilisation of natural gas, the production potential/availability of natural gas from various regions was considered. The potential demand of natural gas, to be used as fuel or feedstock, from various sectors, such as Fertiliser, Power, Sponge Iron, LPG, Industrial use, Petrochemicals, etc. was considered. Further, to rationalise the allocation of gas without any discrimination on the basis of sector/ region, Government of India constituted the Gas Linkage Committee (Committees of Secretaries) in July, 1991. This Committee was represented by various user departments, namely, Power, Fertiliser, Steel, Chemical and Petrochemicals and representatives from Planning Commission, Department of Economic Affairs, Department of Expenditure (Ministry of Finance) and three national oil and gas companies, namely, GAIL, ONGC and Oil India Limited. The Committee was headed by the Secretary, Petroleum & Natural Gas. The Gas Linkage Committee made allocations of gas to various consumers based on the requests received from the prospective consumers and the recommendations of the concerned Ministries in this regard, depending on the availability of gas in the concerned region. Considering the demand, availability and imputed economic value of natural gas in various sectors, GLC decided to allocate natural gas to various sectors on "firm basis" and "fall back basis". In view of the importance of the Fertiliser and Power sectors in the national economy, preference in allocations was given to these two sectors. There are occasions when the consumers do not use gas because of shutdown or due to force majeure conditions. The concept of "fallback allocations" had been created to take care of such eventualities. "Fallback allocations" are made to optimally use the temporary surplus gas in the system. Consumers are allocated gas on a "fallback – as and when available basis" as a contingency measure to ensure optimal utilisation of surplus gas. These consumers normally use an alternative fuel but have the capability to switch over to gas at short notice. Priority for supply against such allocations is given only after meeting the requirement of consumers with firm

allocations. As there was no further APM gas available for allocation to new consumers, GLC was wound up on 9.11.2005.

3.2.1.2 Allocation of Non-APM Gas

In 2010 Government allowed freedom to NOCs viz., ONGC and OIL to sell production from new fields in their nominated blocks at non-APM rate approved by the Government. Accordingly, MOPNG, on 28.10.2010, formulated a policy on pricing and commercial utilisation of non-APM gas produced by NOCs. As per the policy, the Non-APM gas is to be allocated as per following priority:

i) Gas-based fertilizers plants

ii) LPG plants

iii) Power plants supplying to the grid

iv) City Gas Distribution systems for domestic & transport sectors

v) Steel, refineries & petrochemicals plants for feedstock purposes

120.9 MMSCMD

total supply of Natural Gas for H1 FY 2013-14

vi) City Gas Distribution systems for industrial & commercial customers

vii) Any other customers for captive & merchant power, feedstock or fuel purposes.

While maintaining the sectoral priority as indicated above, preference in allocation is given to APM short fall before meeting new demand. Within a sector, priority is accorded to region where gas is produced.

3.2.1.3 Allocation from Small & Isolated Fields of NOCs

Government had come out with guidelines for selection of customers for domestic gas available from small/ isolated fields on 16.01.2012 in line with policy on pricing and commercial utilisation of non-APM gas produced by NOCs dated 28.10.2010. NOCs were given freedom to allocate gas from small discoveries whose peak production was less than 0.1 MMSCMD. This ensured that gas was allocated to customers expeditiously resulting in early monetisation of gas. Based on the experience after issue of guidelines and the issues raised by various stakeholders as well



Pipe racks at a terminal in Jaipur



CNG Outlet at Hyderabad

as keeping intact the initial goal of the policy aimed at early monetisation of gas, the guidelines dated 16.01.2012 have been reviewed and new guidelines for selection of customers for domestic gas available from small/isolated fields have been issued on 08.07.2013. According to the revised guidelines, there is no sectoral priority and the existing as well as new customers are to be treated equally for allocation of gas. In case of additional availability of gas after providing for gas supplies to the existing customers, the additional gas has to be allocated through open competitive bidding to be carried out by National Oil Companies viz ONGC & OIL. The bids have to be based on price and have to be awarded to the highest bidder. Further, the limit of peak production has been raised from 0.1 MMSCMD to 0.2 MMSCMD for the purpose of qualifying as a small and isolated field.

3.2.1.4 Pre NELP-Gas

In pre-NELP PSCs, there is a provision for government to appoint a nominee for purchasing the gas from the producers and marketing it. GAIL has been appointed the government nominee in PMT fields and Ravva fields. GAIL has been marketing this gas under the directions of the government. The producers, in rest of pre-NELP blocks, sell the gas as per the terms of PSCs.

3.2.1.5 NELP-Gas

Under NELP contracts, freedom has been given to the contractor to market gas subject to allocation made by the government under its policy on utilisation of natural gas. The government constituted an Empowered Group of Ministers (EGoM) to take decisions on utilisation of gas produced under NELP blocks (including KG-D6).

The EGoM has decided the following principles for allotment of natural gas:

i) As a matter of general policy, natural gas produced/ imported in the country should be stripped of its higher fractions, subject to availability, to ensure maximum value addition before supply to consumers.

ii) The following guidelines for sale of natural gas by NELP contractors are approved:

   a) Contractors would sell gas from NELP to consumer in accordance with the marketing priorities determined by the Government. The sale would be on the basis of formula for determining the price as approved by the Government.

   b) Consumers belonging to any of the priority sectors should be in a position to actually consume gas as and when it becomes available. So the marketing priority does not entail any 'reservation' of gas. It implies that in case consumers in a particular sector, which is higher in priority, are not in a position to take gas when it becomes available, it would go to the sector which is next in order of priority.

c) In case of default by a consumer under a particular priority sector and further in the event of alternative consumers not being available in the same sector, the gas will be offered by the contractor to other consumers in the next order of priority.

d) The priority for supply of gas from a particular source would be applicable only amongst those customers who are connected to existing pipeline network connected to the source. So, if there is a marginal or small field that is not connected to a big pipeline network, then the contractor would be allowed to sell the gas to consumers who are connected or can be connected to the field in a relatively short period (of say three to six months).

The E-GoM decided to allot gas in the following order of priority:-

i) Existing gas-based urea plants

ii) Existing gas-based LPG plants

iii) Existing grid-connected and gas-based power plants

iv) City Gas Distribution (CGD) network for domestic & transport sectors

v) Subsequently in view of the increased availability of gas, the EGoM also took a decision to supply gas to steel, petrochemicals & refineries for feedstock purposes, CGD networks for industrial & commercial customers, other gas-based fertilizers plants and to captive power plants.

3.2.2 Natural Gas Infrastructure in India

In addition to the natural gas pipelines (as detailed under para 3.1.3) the Natural Gas Infrastructure consists of R-LNG terminals, City Gas Distribution (CGD) networks.

3.2.2.1 R-LNG Terminals

At present, Natural Gas demand far exceeds domestic supply and this shortage is likely to prevail in the near future. Additional demand is catered through imported R-LNG. However, the demand for R-LNG is price sensitive.



Single Point Mooring at Visakhapatnam



Expansion Project of Gas Process Facility at Hazira, Gujarat

During 2013-14, Kochi LNG terminal having 5 MMTPA capacity for regasification has been commissioned. With commissioning of Kochi Terminal, the total re-gasification capacity of four R-LNG terminals has increased to 22 MMTPA (79.2 MMSCMD). The capacity of existing 4 R-LNG terminals is likely to be increased further to 32.5 MMTPA (117 MMSCMD) by 2016-17. The consumption of R-LNG in 2013-14 was 41.11 MMSCMD.

TABLE 3.6 : EXISTING OPERATIONAL R-LNG TERMINALS CAPACITY (In MMTPA)

Location	Owner	2014-15	2015-16	2016 – 17
Dahej	PLL	10	10	15
Hazira	Hazira LNG	5	5	7.5*
Kochi	PLL	5	5	5
Dhabol	GAIL	2	5	5
Total Existing Capacity (MMTPA)		**22**	**25**	**32.5**
Total (MMSCMD)		**79.2**	**90**	**117**

Besides the expansion plans of the above terminals, regasification terminals of about 35.5- 36.5 MMTPA are being planned on the eastern and western coasts of India by different companies. Development of these projects would depend upon techno-commercial feasibility.

3.2.2.2 City Gas Distribution (CGD) Infrastructure

The CGD sector comprises of Compressed Natural Gas (CNG) and Piped Natural Gas (PNG) customers. With increased availability of gas in the country, the CGD network has been enlarged to cover various cities supplying gas for domestic consumers, public transport, and commercial/ industrial entities. As on 31.12.2013, there are a total of 936 compressed natural gas (CNG) stations across the country and 24,14,288 households with Piped Natural Gas (PNG) connectivity. The consumption of gas in the CGD network during April 2013 to September 2013 was 14.72 MMSCMD, of which 8.5 MMSCMD was used for CNG (transport) & PNG (domestic) and 6.22 MMSCMD was used for Industrial & Commercial PNG. At present, there are a number of entities operating in 43 geographical areas (GAs) and currently 18 GAs are under bidding process by PNGRB. The PNGRB has envisaged a rollout plan of CGD network development through competitive bidding in more than 300 possible GAs in a phased manner depending upon the availability of natural gas and pipeline connectivity.

41.11 MMSCMD
consumption of R-LNG in 2013-14

In order to promote CNG (transport) and PNG (domestic) and for a developed CGD sector in the country, Ministry has taken a decision to meet 100% requirement (to the maximum extent possible) of CNG (transport) and PNG (domestic) of all CGD entities across the nation without any discrimination amongst entities through supply of cheaper domestic gas. Guidelines in this regard have been issued in February 2013. This decision has brought down the price of CNG and PNG (domestic) across the nation and has led to increase in the consumption of natural gas, an environmentally friendly fuel, in the sector.

In order to bring transparency in pricing of CNG (transport) & PNG (domestic) the Ministry has issued instructions in February 2014 to CGD entities to display the breakup of CNG price at CNG stations and to furnish the breakup of PNG (domestic) price in the invoice issued to the customers.

The Ministry is formulating guidelines relating to grant of rights to entities for sale of CNG as transportation fuel through CNG Stations. The intent of the envisaged guidelines is to promote setting up of several CNG stations in various cities/towns across the country, including along highways, and also to foster competition amongst eligible entities in the CNG segment, analogous to that in liquid transportation fuel (MS, HSD and ATF) segment. This would lead to faster rollout of large number of CNG stations across the nation.



LNG Ship berthed at Dahej LNG Terminal





CHAPTER 4

Refining

Refining



Refinery at Kochi

4.1 REFINING CAPACITY

Indian refining industry has established itself as a major player globally. India is emerging as a refinery hub and refining capacity in the country exceeds the domestic demand. The country's refining capacity has increased from a modest 62 Million Metric Tonnes Per Annum (MMTPA) in 1998 to 215.066 MMTPA at present, comprising of 22 refineries - 17 under Public Sector, 2 in Joint Venture (JV) and 3 under Private Sector.

The capacity wise details of the refineries are given in Table 4.1 below:

Sr. No.	Refinery Location and year of commissioning	Name of the Company	Name Plate Capacity (MMTPA)*
		PSU Refineries	
1	Digboi -1901#	Indian Oil Corporation Limited	1.000
2	Guwahati -1962		6.000
3	Barauni-1964		13.700
4	Koyali-1965		7.500
5	Bongaigaon-1974		8.000
6	Haldia-1975		0.650
7	Mathura-1982		15.000
8	Panipat -1998		2.350
9	Mumbai-1954	Hindustan Petroleum Corporation Limited	6.500
10	Visakhapatnam-1957		8.300



Sr. No.	Refinery Location and year of commissioning	Name of the Company	Name Plate Capacity (MMTPA)*
11	Mumbai-1955	Bharat Petroleum Corporation Limited	12.000
12	Kochi-1963		9.500
13	Manali-1965	Chennai Petroleum Corporation Limited	10.500
14	Nagapattinam-1993		1.000
15	Numaligarh-2000	Numaligarh Refinery Ltd.	3.000
16	Mangalore-1996	Mangalore Refinery and Petrochemical Limited	15.000
17	Tatipaka, AP-2001	Oil and Natural Gas Corporation	0.066
Total			**120.066**
		Joint Venture Refineries	
18	Bina-2011	Bharat Oman Refinery Ltd.	6.000
19	Bathinda-2012	HPCL Mittal Energy Ltd.	9.000
Total			**15.000**
		Private Sector Refineries	
20	DTA, Jamnagar-1999	Reliance Industries Limited	33.000
21	SEZ, Jamnagar-2008		27.000
22	Vadinar-2006	Essar Oil Limited	20.000
Total			**80.000**
Grand Total			**215.066**

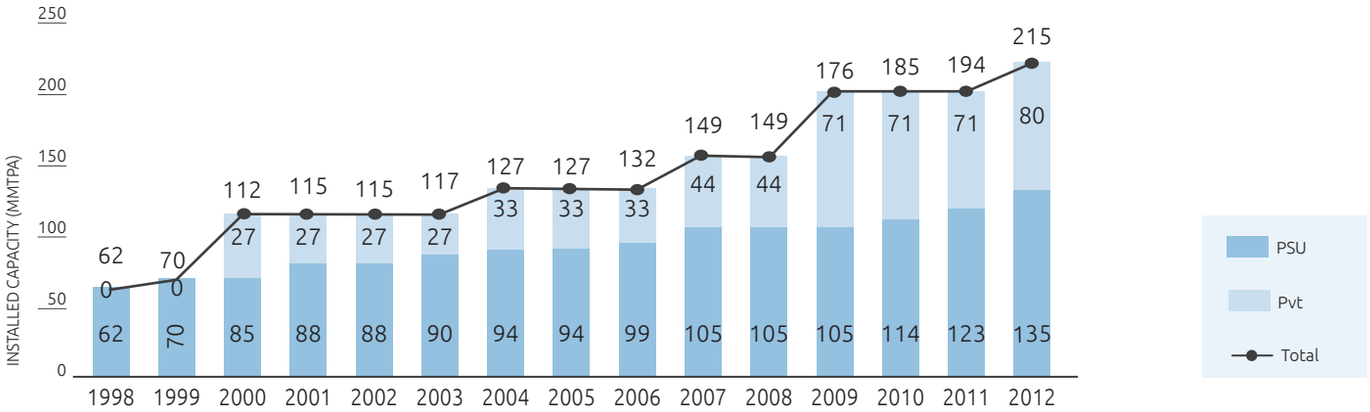
(# Refinery was set up at Digboi in 1901 by Assam Oil Company Ltd and later on IOCL took over the refinery on 14.10.1981.)
*[*MMTPA-Million Metric Tonne Per Annum.]*

The refining capacity is not only sufficient for domestic consumption but has a substantial surplus for export of petroleum products. Since 2001-02, India is a net exporter of petroleum products. During 2013-14, the country had exported 68.4 MMT of Petroleum products worth US$ 62 billion (provisional). India is the largest exporter of petroleum products in Asia since August 2009.

4.2. REFINING CAPACITY ADDITION OVER THE YEARS

The graphical representation of the refining capacity addition over the years is shown below :

REFINING CAPACITY ADDITION OVER THE YEARS



4.3. EXPANSION OF EXISTING REFINERIES

The capacity expansion planned during the 12th Five Year Plan is as under:

S.No.	Name of the Company	Location of the Refinery	Increase in Capacity (MMTPA)
	PSU Refineries		
1	Indian Oil Corporation Limited (IOCL)	Koyali, Vadodara, Gujarat	4.300
2	-do-	Haldia, West Bengal	0.500
3.	-do-	Mathura, Uttar Pradesh	3.000
4	Hindustan Petroleum Corporation Limited (HPCL)	Mumbai, Maharashtra	1.700
5	-do-	Visakhapatnam, Andhra Pradesh	6.500
6	Bharat Petroleum Corporation Limited (BPCL)	Mumbai, Maharashtra	1.500
7	-do-	Kochi, Kerala	6.000
8	Chennai Petroleum Corporation Limited (CPCL)	Manali, Tamil Nadu	0.600
9	Numaligarh Refinery Limited (NRL)	Numaligarh, Assam	5.000
10	Mangalore Refinery & Petrochemicals Limited (MRPL)	Mangalore, Karnataka	3.000
	Total		**32.100**

S.No.	Name of the Company	Location of the Refinery	Increase in Capacity (MMTPA)
	Joint Venture Refineries		
11	Bharat Oman Refinery Limited (Bharat Petroleum Corporation Limited & Oman Oil Company, Joint Venture), Bina	Bina, Madhya Pradesh	3.000
	Total		**3.000**
	Private Sector Refineries		
12	Essar Oil Limited (EOL); Private Sector	Jamnagar, Gujarat	18.000
	Total		**18.000**
	Grand Total		**53.100**

4.4. NEW REFINERIES

New grassroots refineries that are under implementation and coming up in the near future are given in the following table :

S. No.	Name of the Company	Whether PSU or JV or Private	Location of the Refinery	Capacity (MMTPA)	Expected date of Commissioning
1	Indian Oil Corporation Limited (IOCL)	PSU	Paradip, Orissa	15.000	October 2014
2	Nagarjuna Oil Corporation Limited (NOCL)	Private	Cuddalore, Tamil Nadu	6.000	Last quarter of 2016
3.	Hindustan Petroleum Corporation Limited (HPCL)	PSU	Barmer, Rajasthan	9.000	Last quarter of 2017
	Total			**30.000**	

4.5. REFINERY PERFORMANCE IMPROVEMENT

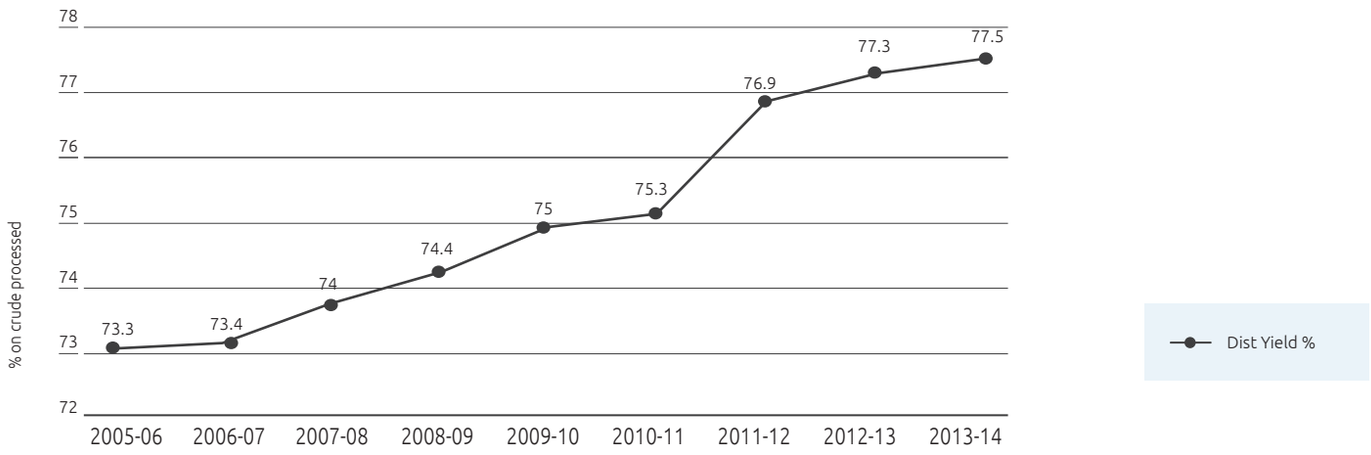
Indian public refineries are equipped with modern technologies and continuously upgrade the technologies in line with the International trend and as per the requirement. Indian refineries have accorded top priority for reducing the energy consumption through various energy conservation measures.

Centre for High Technology (CHT) had carried out Performance Benchmarking Studies of 15 PSU Refineries through M/s Solomon Associates for 2 consecutive cycles 2010-11 and 2011-12. The study reports involved the comparison of various Key Performance Areas (KPAs) and parameters, like energy efficiency index, volume expansion index, operational availability, process utilisation, maintenance & personnel index, operational costs, margins, transportation fuel, production costs, etc., with Indian as well as regional peers. The results of these studies have shown wide performance gaps between Indian CPSE refineries and the best performing Asian and Global refineries. Most of the CPSE refineries are in the last quartile in terms of performance with respect to key parameters. Industry level Group is working to improve these KPAs.

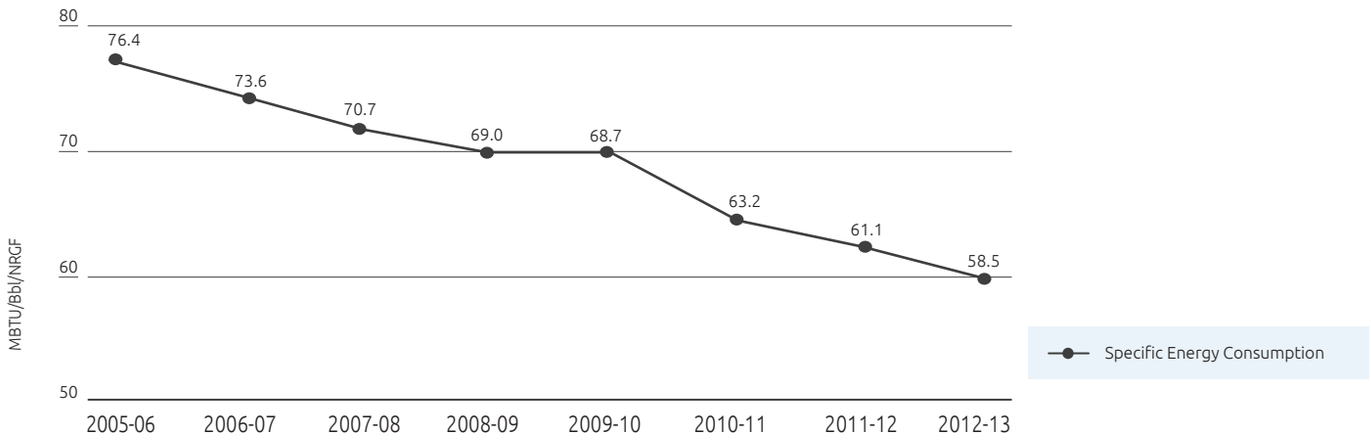
30 MMTPA
capacity of upcoming refineries

Further, adoption of modern technologies by Indian refineries and energy conservation measures has helped in increasing the distillate yield, quality upgradation of petrol/diesel and reduction in specific energy consumption (MBTU/bbl/NRGF – MBN). The industry average distillate yield (% wt. on crude) has improved from 73.3% in 2005-06 to 77.5% (provisional) in 2013-14. Similarly the industry average MBN has come down from 76.4 in 2005-06 to 58.5 in 2012-13.

DISTILLATE YIELD OF PSU REFINERIES



SPECIFIC ENERGY CONSUMPTION (INDUSTRY AVG)



4.6. AUTO FUEL POLICY

4.6.1 Auto Fuel Policy 2003

The Govt. of India constituted a Committee of Experts on September 13, 2001 under the chairmanship of Dr. R. A. Mashelkar, DG, CSIR to recommend an Auto Fuel Policy for the country. The Committee recommended a road map for upgradation of fuel quality in the country apart from other recommendations. Road map and the action taken by the Ministry in implementation of the same are mentioned hereunder:-

S.No.	Road Map	Action Taken
1	Supply of Euro-III standard auto fuels in 13 identified cities & BS-II standard auto fuels in rest of the country w.e.f. 01.04.2005	Due to production, import & other logistics constraints, the actual implementation was phased over six months for different states / locations i.e. up to September 2005.
2	Supply of BS-IV auto fuels (MS/HSD) in NCR & 13 identified cities from 01.04.2010	Implemented w.e.f. 01.04.2010 in NCR-Delhi (comprising of 108 towns, of which 17 are class I cities), Mumbai, Chennai, Kolkata, Bengaluru, Kanpur, Agra, Pune, Surat, Ahmedabad, Hyderabad, Lucknow & Sholapur.
3	Supply of BS-III auto fuels (MS/HSD) in the rest of the country from 01.04.2010	As per the revised approval of the Government, implemented in a staggered manner between April 01, 2010 and September 22, 2010 due to production and logistic issues involved.

Ministry of Petroleum & Natural Gas has decided to go beyond Auto Fuel Policy recommendations & to expand BS-IV auto fuels to 50 more cities by March 2015 with preference to most polluted cities, state capitals & cities with million plus population subject to logistics constraints. Supply of BS-IV fuels have already been expanded to following 26 cities till 2013-14:

(i) 7 cities i.e. Puducherry, Mathura, Vapi, Jamnagar, Ankleshwar, Hissar & Bharatpur in 2011-12.

(ii) 6 cities i.e. Silvassa, Daman, Diu, Aligarh, Rae Bareilly & Unnao in April to October 2012.

(iii) 4 cities i.e. Karnal, Kurukshetra, Yamunanagar & Valsad on 01.03.2013.

(iv) 3 cities i.e., Medak, Nizamabad and Mehbub Nagar on 5.7.2013.

(v) 6 cities i.e Vrindavan, Kosi Kalan, Hindaun city, Dholpur, Ahmednagar, Mahabaleshwer on 1.1.2014.

26 CITIES

with supply of BS-IV fuel till 2013-14

4.6.2. Auto Fuel Vision and Policy 2025

Ministry of Petroleum and Natural Gas vide order dated 19.12.2012 has constituted an Expert Committee for drafting Auto Fuel Vision and Policy 2025 under the Chairmanship of Shri Saumitra Chaudhuri, Member, Planning Commission, with the following terms of reference:

(i) Recommend roadmap for auto fuel quality till 2025 for the country, taking into account achievement under the last Auto Fuel Policy, emission reduction of in-use vehicles, growth of vehicles and supply and availability of fuels;

(ii) Recommend suitable mix of auto fuels including gas and its specifications considering :

  a. availability of infrastructure and logistics of fuel supplies;

  b. processing economics of auto fuels;

  c. improvement in quality of fuel vis-à-vis improvement in vehicle engine technology

(iii) Recommend vehicular emission norms for various categories of vehicles and roadmap for their implementation;

(iv) Recommend use of alternate fuels to minimise impact on environment;

(v) Recommend fiscal measures for funding requisite upgradation of oil refineries, logistics and removal of inter-fuel pricing distortions.

The Committee has recently submitted its Report to the Government.



Refinery at Mangalore

4.7. BRIEF DESCRIPTION OF THE REFINERIES

PUBLIC SECTOR REFINERIES

INDIAN OIL CORPORATION LIMITED (IOCL) REFINERIES

4.7.1 Digboi Refinery (Assam)

Digboi Refinery was commissioned in 1901 by Burmah Oil Company Ltd. (later Assam Oil Company Ltd.). Indian Oil Corporation Ltd. took over the Refinery and marketing management of Assam Oil Company Ltd. with effect from 14.10.1981 and created a separate division. This division had both Refinery and Marketing operations.

The present capacity of the Refinery is 0.650 MMTPA. The crude refining capacity utilisation of the refinery was 100.2 % in 2013-14.

Digboi refinery is the oldest operating refinery in the world and produces premium grade Paraffin wax and micro-crystalline wax.

4.7.2 Guwahati Refinery (Assam)

Guwahati Refinery was commissioned in January, 1962 with design capacity of 0.75 MMTPA. The refinery was set up in collaboration with Romania.

The present capacity of the Refinery is 1.00 Million Metric Tonnes Per Annum (MMTPA). The crude refining capacity utilisation of the refinery was 101.9 % in 2013-14.

Guwahati refinery was the first refinery in the Public Sector. It was the first refinery to install "Indmax Unit", a novel technology developed by IOCL R&D Centre for upgrading heavy ends to LPG, motor spirit and diesel oil in 2003.

4.7.3 Barauni Refinery (Bihar)

Barauni Refinery was commissioned in July 1964. The refinery was set up in collaboration with the then Soviet Union.

The present capacity of the Refinery is 6.00 MMTPA. The crude refining capacity utilisation of the refinery was 108.0 % in 2013-14.

The refinery, which was originally designed for processing indigenous Assam crudes, was subsequently revamped and expanded and is now capable of processing imported crudes.

4.7.4 Koyali Refinery (Gujarat)

Koyali Refinery was commissioned in October 1965. The refinery was set up in collaboration with former Soviet Union.

The present capacity of the Refinery is 13.700 MMTPA. The crude refining capacity utilisation of the refinery was 94.6 % in 2013-14.

Koyali refinery commissioned the country's first Hydrocracker Unit for conversion of heavier ends of crude oil to high value superior quality kerosene/ATF and Diesel. It also has the world's largest single train Linear Alkyl Benzene (LAB) plant which marked IOCL's entry into Petrochemicals.

4.7.5 Bongaigaon Refinery (Assam)

Bongaigaon Refinery & Petrochemicals Ltd. (BRPL) was incorporated on 20th February 1974, as a fully owned Central Government company. BRPL became a subsidiary of IOCL in March 2001. BRPL was amalgamated with the holding company, IOCL effective from March 25, 2009.

The present capacity of the Refinery is 2.350 MMTPA. The crude refining capacity utilisation of the refinery was 99.1% in 2013-14.

BRPL which was originally processing Assam crudes is now capable of processing imported crudes. It also has a Petrochemical Complex consisting of Xylene, Di-Methyl Terepthalate (DMT) and Polyester Staple Fibre (PSF) Units.

4.7.6 Haldia Refinery (West Bengal)

Haldia Refinery was commissioned in January 1975. The fuel sector of the refinery was built with French Collaboration and the Lube Sector with Romanian Collaboration.

The present capacity of the Refinery is 7.500 MMTPA. The crude refining capacity utilisation of the refinery was 106.0% in 2013-14.

Haldia refinery is the only refinery of IOCL producing Lube Oil Base Stocks. Catalytic Dewaxing Unit commissioned in March 2003 to produce API Group-II lube base stock was first of its kind in the country.

4.7.7 Mathura Refinery (Uttar Pradesh)

Mathura Refinery was commissioned in January 1982. The primary units of the refinery were designed by USSR.

The present capacity of the Refinery is 8.000 MMTPA. The crude refining capacity utilisation of the refinery was 83.0% in 2013-14 (lower planned shutdown for undertaking major FCC revamp jobs).

It is India's first Green Refinery equipped with elaborate environment monitoring system and ecological park. It also uses natural gas to control SO2 emissions from the refinery.

4.7.8 Panipat Refinery (Haryana)

Panipat Refinery was commissioned in 1998.

The present capacity of the Refinery is 15.000 MMTPA. The crude refining capacity utilisation of the refinery was 100.7% in 2013-14.

Panipat Refinery is the most modern refinery of IOCL. The Purified Terepthalic Acid (PTA) plant is the largest in the country. The commissioning of Panipat Naphtha Cracker Unit, Mono ethylene Glycol (MEG) unit, Poly propylene (PP) unit, Linear Low density Poly Ethylene (LLDPE) and High Density Poly ethylene (HDPE) units etc. heralded Indian Oil's entry into Plastics Industry.

HINDUSTAN PETROLEUM CORPORATION LIMITED (HPCL) REFINERIES

4.7.9 Mumbai Refinery (Maharashtra)

Mumbai Refinery was first incorporated in 1952 as Standard Vacuum Refining Company of India (StanVac) which was commissioned in 1954. In 1962 StanVac was named ESSO India Limited. In 1969, Lube India Ltd came into existence for manufacturing Lube Oil Base Stock (LOBS). On 15th July, 1974 the undertakings of ESSO and Lube India Ltd were nationalized and merged to form Hindustan Petroleum Corporation Limited (HPCL).

The present capacity of the Refinery is 6.500 MMTPA. The crude refining capacity utilisation of the refinery was 119.1% in 2013-14.

HPCL's Mumbai Refinery is the only refinery of HPCL to produce Lube Oil Base Stocks. The refinery also produces special products like Food Grade Hexane, Rubber Processing (RPO), Diana Processing Oil etc.

4.7.10 Visakh Refinery (Andhra Pradesh)

HPCL's Visakh Refinery was commissioned in 1957 by Caltex Oil Refining (India) Ltd. The Refinery was taken over by the Government of India in 1976 and was consequently amalgamated with HPCL in 1978.

The present capacity of the Refinery is 8.300 MMTPA. The crude refining capacity utilisation of the refinery was 93.6% in 2013-14.

HPCL's Visakh refinery is the first oil Refinery on the East Coast and was one of the first major industries of Visakhapatnam. With the commissioning of the Single Point Mooring (SPM) facility at Visakh in the year 2010, Very Large Crude Carriers (VLCC), which carry up to 2 million barrels of oil, can now be received at Visakh Refinery. The Indian Strategic Petroleum Reserves Ltd. (ISPRL) is coming up nearby the refinery.

BHARAT PETROLEUM CORPORATION LIMITED (BPCL) REFINERIES

4.7.11 Mumbai Refinery (Maharashtra)

The refinery in Mumbai was commissioned in January 1955 under the ownership of Burmah Shell Refineries



Then Secretary – MOP&NG, Shri Vivek Rae and Senior Executives of the Oil Industry at the 18th Refinery Technology Meet at Kochi on 11th November 2013

Ltd. Following the Government acquisition of the Burmah Shell, Bharat Petroleum Corporation Ltd came into existence on 24th January 1976.

The present capacity of the Refinery is 12.000 MMTPA. The crude refining capacity utilisation of the refinery was 106.0% in 2013-14.

BPCL's Mumbai refinery has pioneered the processing of indigenous crude oil and currently can handle processing of 72 types of crude oil. The refinery has also Lube Base Oil Unit for production of environment friendly Group II base oil.

4.7.12 Kochi Refinery (Kerala)

The Kochi Refinery Ltd (KRL), a public sector undertaking was set up in pursuance of formation agreement dated 27th April, 1963 between Govt. of India, Philips Petroleum Co. of USA and Duncan Brothers of Calcutta. The refinery has been amalgamated with Bharat Petroleum Corporation Ltd in 2006.

The present capacity of the Refinery is 9.500 MMTPA. The crude refining capacity utilisation of the refinery was 107.9% in 2013-14.

The refinery is equipped to receive crude oil in Very Large Crude Carriers (VLCC).Kochi refinery has undertaken an ambitious expansion plan to enhance refining capacity to 15.5 MMTPA and also to diversify into petrochemical manufacturing for value addition.

CHENNAI PETROLEUM CORPORATION LTD. (CPCL) REFINERIES

4.7.13 Manali Refinery (Tamil Nadu

Chennai Petroleum Corporation Limited (CPCL), formerly known as Madras Refineries Limited (MRL) was formed as a joint venture in 1965 between the Government of India (GOI), AMOCO and National Iranian Oil Company (NIOC). CPCL became a subsidiary of IOCL in 2001.

The present capacity of the Refinery is 10.500 MMTPA. The crude refining capacity utilisation of the refinery was 96.1% in 2013-14.

CPCL's Manali refinery is one of the most complex refineries in India with Fuel, Lube, Wax and Petrochemical feedstocks production facilities. The5.8 Million Gallons Per Day (MGD) Sea Water Desalination Project to augment the water requirements of its refinery was first of its kind in the industry. Under its Renewable Energy Initiative, a Wind Energy Farm with a capacity of 17.6 MW was commissioned at Pushpathur, Tamil Nadu in 2007.

4.7.14 Cauvery Basin Refinery (Nagapattinam-Tamil Nadu)

CPCL's second refinery, located at Cauvery Basin at Nagapattinamwas commissioned in 1993.

The present capacity of the Refinery is 1.000 MMTPA. The crude refining capacity utilisation of the refinery was 62.2% in 2013-14.

CBR is a small well-head refinery processing crudes from nearby ONGC fields, Rawa crude and KG-D6 crude. An Oil Jetty was commissioned in 2003 in Nagapattinam area for handling crude and products for Cauvery Basin Refinery.

NUMALIGARH REFINERY LIMITED (NRL) REFINERY

4.7.15 Numaligarh Refinery (ASSAM)

Numaligarh Refinery, popularly known as "Assam Accord Refinery" was commissioned in October 2000. Current shareholding pattern of NRL is: Bharat Petroleum Corporation Limited (61.65%), Oil India Limited (26%) and Government of Assam (12.35%).

The present capacity of the Refinery is 3.000 MMTPA. The crude refining capacity utilisation of the refinery was 88.0% in 2013-14.

NRL is the largest refinery in the North-East equipped with modern units Hydrocraker and Delayed Coker for maximising distillate yield.

MANGALORE REFINERY AND PETROCHEMICALS LTD. (MRPL) REFINERY

4.7.16 Mangalore Refinery (KARNATAKA):

Mangalore Refinery and Petrochemicals Limited (MRPL) was commissioned in March 1996. MRPL was originally set up as a Joint Venture refinery, promoted by Hindustan PetroleumCorporation Ltd. (HPCL) and the Aditya Birla Group of Companies. In March, 2003 MRPL became a subsidiary of ONGC.

The present capacity of the Refinery is 15.000 MMTPA. The crude refining capacity utilisation of the refinery was 96.8% in 2013-14.

The Refinery has got a versatile design with high flexibility to process Crudes with 24 to 46 API gravity and has high degree of Automation. MRPL is the only Refinery in India to have 2 Hydrocrackers producing Premium Diesel (High Cetane). It is also the only Refinery in India to have 2 CCRs producing Unleaded Petrol of High Octane.

OIL & NATURAL GAS CORPORATION LIMITED (ONGC) REFINERY

4.7.17 Tatipaka Refinery (Andhra Pradesh)

The Refinery, set up as mini Refinery (Phase-I) of ONGC, was commissioned in September 2001 at Tatipaka in East Godavari District of Andhra Pradesh.

The present capacity of the Refinery is 0.066 MMTPA. The crude refining capacity utilisation of the refinery was 98.5% in 2013-14.

Under Phase-II, an additional refinery of the same capacity of 0.066 MMTPA is under construction.

JOINT VENTURE REFNERIES

4.7.18 Bina Refinery - Bharat Oman Refineries Limited (BORL) (Madhya Pradesh)

Bina refinery was set up by Bharat Oman Refineries Limited (BORL), a joint venture of Bharat Petroleum Corporation Limited (BPCL) and Oman Oil Corporation Limited (OOCL) was commissioned in May 2011.



Panoramic view of a Refinery located at Mumbai



Effluent Treatment Plant at a Refinery in Visakhapatnam

The present capacity of the Refinery is 6.000 MMTPA. The crude refining capacity utilisation of the refinery was 90.8% in 2013-14.

Bina Refinery is the first Refinery in central part of India and augments the availability of petroleum products in central and northern India. Other facilities include Single Point Mooring facility (SPM), Crude Oil Storage Terminal (COT) at Vadinar in Gujarat and 935 km long cross country crude pipeline from Vadinar to Bina (VBPL).

4.7.19 Guru Gobind Singh Refinery – HPCL-Mittal Energy Limited (HMEL), Bathinda (Punjab)

Guru Gobind Singh Refinery (GGSR), owned by Hindustan Mittal Energy Limited (HMEL), a joint venture between HPCL and Mittal Energy Limited, was commissioned in April 2012.

The present capacity of the Refinery is 9.000 MMTPA. The crude refining capacity utilisation of the refinery was 103.0% in 2013-14.

The Refinery is a testimony to a successful Public Private Partnership in the oil and gas sector. Given the strategic location of Bathinda, the Refinery will serve fuel requirements of the northern States of India. HMEL has also incorporated a wholly owned subsidiary HPCL-Mittal Pipelines Limited (HMPL) to set up and operate an SPM for crude oil receipt, storage and cross country transportation of crude oil.

PRIVATE SECTOR REFINERIES

4.7.20 Reliance Industries Limited (Domestic Tariff Area) (RIL-DTA), Jamnagar (Gujarat)

The refinery was commissioned in July 1999.

The present capacity of the Refinery is 33.000 MMTPA. The crude refining capacity utilisation of the refinery was 91.8% in 2013-14.

RIL-DTA was the first private sector refinery in the country. RIL-DTA is the World's biggest grassroot Refinery having a petrochemical plant for the production of Paraxylene, a polymer plant for the production of Polypropylene and a Captive Power Plant with an installed capacity of 450 MW power through Gas Turbines & Steam Turbines.

4.7.21 Reliance Industries Limited-SEZ (RIL-SEZ), Jamnagar (Gujarat)

The refinery was commissioned in December 2008.

The present capacity of the Refinery is 27.000 MMTPA. The crude refining capacity utilisation of the refinery was 139.5% in 2013-14.

The SEZ refinery has a unique design and path breaking configuration with 'Clean Fuels' process plant. It is designed with high level of flexibility to change grades based on economy and to capture margins based on market dynamics. The new SEZ refinery is the first refinery in India to produce Euro-IV grades of gasoline and diesel.

4.7.22 Essar Oil Limited (EOL), Vadinar (Gujarat)

The refinery was commissioned in November 2006.

The present capacity of the Refinery is 20.000 MMTPA. The crude refining capacity utilisation of the refinery was 101.0% in 2013-14.

Essar refinery is the second largest single-location refinery in the country.



Then Secretary - MOP&NG, Shri Vivek Rae and Joint Secretary (Refineries) - MOP&NG, Shri L.N. Gupta inspecting the facilities of a Control Room at a Refinery in Visakhapatnam on 12th April 2013


DON'T BE SAFETY BLINDED BE SAFELY MINDED
CHANCE TAKERS ARE ACCIDENT MAKERS.
YOUR SAFETY IS EVER
RESPONSIBILITY. ESPEC
UNPREPARED
HP GAS
Indane
GP
U.H. TRANSPORT
HP GAS
HP
Danger
Diesel



CHAPTER 5

Marketing & Distribution

Marketing & Distribution



The highest selling retail outlet in Andhra Pradesh at Visakhapatnam

5.1 RETAIL MARKETING INFRASTRUCTURE

The retail marketing of petroleum products in India is done by the Public Sector Oil Marketing Companies (OMCs) i.e. Indian Oil Corporation Ltd. (IOCL), Hindustan Petroleum Corporation Ltd. (HPCL), Bharat Petroleum Corporation Ltd. (BPCL), Numaligarh Refinery Ltd. (NRL), Mangalore Refinery & Petrochemicals Ltd. (MRPL) and private companies such as Reliance, Essar, Shell.

There are 320 Terminal/Depots, 186 LPG Bottling Plants, 52248 Retail Outlets (ROs), 13896 LPG Distributorships, 6582 SKO/LDO Dealers in the country. The prices of sensitive petroleum products such as Superior Kerosene Oil (SKO), Liquid Petroleum Gas (LPG) and High Speed Diesel (HSD) are controlled by the Government. All other products are deregulated and are subject to market forces. The Ministry regulates the distribution policies of the sensitive petroleum products including petrol (MS).

52,248
Retail Outlets in India

5.2 STATUS OF TARGETS UNDER VISION 2015

Vision 2015 covered all sensitive petroleum products to ensure better availability in unserved and rural areas and ensure quality products by 2015.

The vision document 2015 for MS/HSD aimed at better facility for truckers, vehicle servicing stations along with rest areas/dhabas on National Highway (NH) at every 50 Kms, fleet tracking service on all NH, provision of a RO within 15 Kms for all citizens, all ROs selling more than 100 KL/month to be automated by 2015 and installation of GPS on all Fuel and Kerosene tankers. All these targets were met during the year. For LPG, the target was to raise the population covered by LPG from 50% to 75% by releasing 5.5 crore new LPG connections between 2009 and 2015, especially in rural areas and under-covered areas. The current coverage of LPG is 64%, which has increased from a coverage of 54.6% at the beginning of the Vision 2015 i.e, in 2009. The target of 5.5 crore LPG connections of Vision 2015 was also exceeded by releasing 5.87 crore LPG connections.



5.3 DEMAND & SUPPLY OF SENSITIVE PETROLEUM PRODUCTS

5.3.1 MS/HSD/SKO

Demand of MS, HSD and SKO was fully met during the year, whereby 17.13 MMT of MS, 68.37 MMT of HSD was supplied to the consumers. The allocation of SKO for the year 2013-14 was 7.07 MMT which has been fully utilised for the first three quarters of the year.

5.3.2 LPG

The actual availability of LPG in the country in financial year 2013-14 was 15.93 MMT as against the RFD target of 15.1 MMT to secure excellent rating and the demand of 18.36 MMT project in 12th Five Year Plan for 2013-14. The reason for lower demand vis-à-vis the projection in 12th Plan was on account of several initiatives taken by this Ministry such as Capping, de-duplication and Direct Benefit Transfer to LPG consumer(DBTL) which reduced the diversion of subsidised LPG and thus reduced the demand.

92.57 MMT

Demand for MS, HSD and SKO in 2013-14

LPG was introduced as an automotive fuel in India after the issue of the LPG (Regulation of Use in Motor Vehicles) Order in the year 2001 by Ministry of Petroleum & Natural Gas. PSU Oil Companies as well as Private players have setup Auto LPG Dispensing Stations (ALDS) in various parts of the country to dispense Auto LPG to registered vehicles fitted with permanently fitted Auto LPG tanks and approved LPG conversion kits as notified by Ministry of Surface Transport, Govt. of India. So far 678 ALDS have been set up by Oil PSUs and 0.194 MMT of LPG was dispensed by ALDS during 2013-14.

5.3.3 Allocation of PDS Kerosene to States/ Union Territories (UTs)

SKO is one of the sensitive petroleum products distributed through Public Distribution System (PDS). Allocation of PDS SKO is made by the Government of India to different States/Union Territories (UTs) on a quarterly basis for distribution under PDS for cooking and lighting only. PDS kerosene has been allocated to States/UTs based on historical allocations. Further



Floating Retail Outlet at Namkhana, West Bengal

distribution within the States/UTs through their PDS network is the responsibility of the concerned States/UTs.

The quota of PDS Kerosene in respect of various States/UTs was rationalised to 7.07 MMT based on, inter alia, increase in domestic LPG/PNG connections, non-lifting of PDS Kerosene quota by the concerned States/UTs and a cap on the per capita PDS Kerosene allocation for non-LPG and non-PNG population. No reduction was made for J&K, North East States, Andaman & Nicobar Islands, Union Territory of Lakshadweep and Sikkim on account of peculiar geographical/security situation in these areas except on account of quota that was not lifted.

5.4 IMPROVE THE DISTRIBUTION OF SENSITIVE PETROLEUM PRODUCTS IN RURAL/UNSERVED AREAS

5.4.1 MS/HSD

For increasing the coverage of Retail Outlets in rural areas, concept of Kisan Seva Kendra (KSK) was developed by IOCL in 2004-05. These are low cost retail outlet in rural / agricultural market in distribute diesel, other petroleum products and non-fuel products such as Pesticides Vegetables, Banking products and Stationary items. As on 01.01.2014, 5774 KSKs have been set up in the country, and further KSKs are being set up based on feasibility and commercial viability.

5.4.2 LPG

(a) Rajiv Gandhi Gramin LPG Vitran Yojana

In order to spread LPG in rural and uncovered areas, a new scheme namely, "Rajiv Gandhi Gramin LPG Vitaran Yojana" (RGGLVY) for establishing small-size LPG distribution agencies, was launched on 16.10.2009. As on 31.03.2014, 3037 nos. of RGGLVs have been commissioned out of 7824 advertisements released by OMCs. The actual number of Letter of Intent (LOI) issued by OMCs in 2013-14 was 1680 as against the MOU target of 1642 thereby improving distribution of LPG in rural/unserved areas.

(b) BPL Scheme under CSR fund of PSU Oil Companies.

The scheme provides one time grant to Below Poverty Line (BPL) families in the rural areas for release of new LPG connection under Rajiv Gandhi Gramin LPG Vitaran Yojana (RGGLVY) is in operation in the country. As per the scheme, the security deposit for the cylinder and Pressure Regulator is paid from the fund created for the purpose by contributions from the CSR Fund of ONGC, OIL, GAIL, BPL, HPCL and IOCL.

5.5 CHALLENGES IN MARKETING OF SENSITIVE FUEL PRODUCTS

5.5.1 Adulteration of MS/HSD by PDS SKO

Several technological and regulatory measures have been taken to contain adulteration and prevent diversion such as :

(a) Regulatory measures

Control Orders issued by the Government to prevent fuel adulteration, under the Essential Commodities Act 1955, empowers the State Governments to take action against those indulging in adulteration. Marketing Discipline Guidelines (MDG) have been implemented to take action against RO dealers for irregularities/malpractices.

(b) Automation of Retail Outlets

In order to monitor the activities at retail outlets by adopting the latest technological improvements, automation of retail outlets is being implemented. There are nearly 11900 number of ROs selling more than 100 KL of fuel per month. In nearly 10550 ROs, automation has been completed and in 8676 ROs No Automation – No Operation (NANO) has been implemented as on 01-01-2014.

(c) Tamper proof locking system

OMCs have introduced new tamper proof tank-truck locking systems to prevent en-route adulteration by transporters.

(d) Third Party Certification of Retail Outlets

OMCs are required to obtain third party certification for all the retail outlets selling more than 100 KL per month. Number of ROs whose third party certification has been done as on 01-01-2014 is 18561.

(e) GPS Tracking of Tank Trucks

In order to prevent adulteration during transportation, OMCs have been directed to install GPS for complete monitoring of the movement of all the company owned/dealer owned/contractor owned tank trucks. Nearly 29000 tank trucks have been covered with Vehicle Management System by OMCs as on 1-1-2014 covering nearly 82% of tank trucks.

5.5.2 Subsidy Leakage in LPG and SKO Distribution

To reduce the subsidy burden in Kerosene and LPG, several initiatives have been undertaken by the Ministry including capping and elimination of ghost/ duplicate LPG connections. These are detailed as under:

(a) Capping of Subsidised LPG Cylinders

W.e.f. 14th September 2012, the number of subsidised domestic cylinders per household was restricted to 6 per annum. This cap was subsequently revised to 9 and then to 12. The aim of the capping scheme is to restrict the number of subsidised cylinders resulting in reduction in subsidy burden of Government. Currently, 99.2% of LPG cylinders sold are subsidized and it covers 97.7% of LPG consumers who consume less than 12 cylinders per annum.

(b) De-duplication to eliminate ghost/duplicate LPG connections

As per the Liquefied Petroleum Gas (Supply and Distribution) order 2000 every domestic LPG consumer (household) is entitled for one subsidised connection. However, it was observed that in reality there are several multiple connections registered with OMCs either in same name or in different name but in same address of household. The presence of multiple

connections has led to leakage of subsidy. To detect such multiple connections MOPNG prescribed a Know your Customer (KYC) Process for new connections and has asked OMCs to undertake a de-duplication exercise. This exercise has resulted in massive savings of subsidy. The OMCs de-duplicated the LPG consumers within the OMCs and so far 0.87 crore connections have been blocked so far leading to a recurring savings in subsidy of ₹ 2870 crore per annum (@ ₹ 500 subsidy average of 13-14 per cylinder and average consumption of 6.6 cylinder per connection). This Ministry has also asked OMCs to de-duplicate the LPG waitlist prior to release of new connections. As a result 2.8 million people have been blocked from registering for new connections leading to a recurring subsidy saving of ₹ 924 crore per annum. OMCs have also conducted Aadhaar number based de-duplication and have detected 6.18 lakh multiple LPG connections having same Aadhaar number. All these connections have been blocked. This will lead to additional subsidy saving of ₹ 102 crore per annum assuming 50% duplication. The next logical step was to initiate inter-company de-duplication, and so far this process has been completed in 291 districts. This has led to detection of 1.13 crore connections as suspected duplicate connections, which will be subjected to KYC process before blocking them. Based on random sample verification, it is expected that 50% of them will be duplicate connections, and thus blocking of these would result in expected annual savings of ₹ 1864 crore in subsidy burden.

Thus, the multiple connection detection initiative has led to subsidy savings of the order of ₹ 5764 crore per annum.

The initiatives of capping and de-duplication have led to reduction in diversion and consequently lower demand for LPG. As a result OMCs cancelled 0.865 MMT LPG import during 2013-14 leading to a forex saving of more than ₹ 4000 Crore.

The subsidy savings from these initiatives is summarised below:

Blocking ghost/duplicate connections based on	Annual Subsidy Saving (₹ Crore)
Intra Company check	2870
Pre Connection Release check	924
Aadhaar check	102
Inter Company check	1864

(c) Direct Benefit Transfer to LPG consumer (DBTL) Scheme

In line with the recommendation of Task Force on direct Subsidy, Government of India launched the Direct Benefit Transfer for LPG (DBTL) consumer in their Aadhaar enabled bank accounts.

The first phase of Scheme was launched in 18 districts on 01.06.2013. Later DBTL scheme was expanded to 291 districts in 6 phases by 01.01.2014. So far ₹ 5391 Crore has been transferred directly into the bank accounts of 2. 8 crore LPG consumers.The DBTL scheme was kept in abeyance till further order and a review committee has been appointed under the chairmanship of Mr. S.G. Dhande (ex-director IIT Kanpur) to look into the functioning of DBTL scheme and to submit the report by 31.05.2014.

On introduction of uniform pricing under DBTL scheme the incentive of diversion of subsidised cylinders to commercial sector reduced drastically. According to analysis of the sales data from DBTL districts, it was found to have reduced by 10-15% post implementation of capping and DBTL.

(d) Direct Transfer of Cash Subsidy on PDS Kerosene (DTCK)

After the interim recommendations of the Task Force constituted by the Government under the Chairmanship of the Chairman, UIDAI on the issue of Direct Transfer of Cash Subsidy on PDS Kerosene (DTCK) and 'in principle' approval of EGoM thereon (dated 8th August, 2011), DTCK was intiated.

A Pilot Project for 'Direct Transfer of Cash Subsidy of PDS Kerosene' was launched in the Block Kotkasim, District Alwar (Rajasthan) in December 2011 by MOPNG, in collaboration with Government of Rajasthan. During the Pilot, Subsidy was transferred into the Bank account of PDS SKO beneficiaries and PDS SKO was moved at full market price at all points of supply including the PDS beneficiary. As per the report of the State Government of Rajasthan, the demand of SKO fell by around 67%. This indicates the amount of savings possible through plugging leakages in SKO supply chain.

Under the DTCK 2012, a lump-sum one time grant of ₹ 100 crore for each State was provided for States joining the Scheme prior to 31.03.2012. 11 States/ UTs (namely Rajasthan, Madhya Pradesh, Sikkim, Maharashtra, Andaman & Nicobar Islands, Jharkhand,



A Gas Agency Showroom at Bengaluru

Himachal Pradesh, Pudducherry, Kerala, Goa & Andhra Pradesh) confirmed their participation in the Scheme within the stipulated period. Out of these 11 States, only three States i.e. Rajasthan, Maharashtra and Goa have confirmed to implement DTCK in the selected districts in the following districts:

States	Districts
Rajasthan	Alwar, Ajmer, Udaipur
Maharashtra	Nandurbar, Wardha, Amaravati
Goa	North Goa

An amount ₹ 10 crore was released for establishment of institutional mechanism for direct transfer of subsidy in cash for PDS Kerosene beneficiaries to each of the state of Rajasthan, Maharashtra and Goa.

5.6 EMPOWERING LPG CONSUMERS AND IMPROVE SERVICES

Several Consumer Empowering Initiatives in LPG Marketing Project "Lakshya" were launched with a view to improve the LPG supply chain.

(a) Transparency Portal

It provides online sales and distribution of LPG of 3 million cylinder delivery data to 15 crore Consumers on a near real time basis. Various features such as LPG usage, LPG booking status, LPG refill history, request for surrender of connection, subsidy availed and transferred, rating of distributors by cylinder delivery time, rating the distributor on the five perceived parameters and Aadhaar Linking Status have been provided for use of consumers.



LPG Bottling Plant at Hyderabad

(b) Rating of Distributors based on Delivery Performance

Each distributor is now being rated from 5 stars (best performance) to 1 star (***** to *) based on his delivery performance. The aim is to measure, increase and improve the delivery performance of each distributor. Rating of distributor helps a consumer in deciding the change of distributor. It also motivates distributors to improve delivery times so as to retain consumers and acts as a monitoring mechanism for OMC sales officers to make efforts to improve the performance of low rating distributors. The Star rating distribution based on time taken for refill delivery has improved substantially towards higher Star rating since its launch as can be seen from the fact that between December 2012 to October 2013 the proportion of 5 and 4 star distributors has increased from 43% to 68%, signifying a jump in LPG cylinder delivery service quality.

(c) Consumer Relationship Management through Mobile Platform

Around 50% LPG customers have registered their mobile numbers with OMCs. An Android based application has been launched for LPG functions such as refill booking, new connection booking, booking for second cylinder, complaints, history of supplies, hotplate repair, surrendering connections, and rating of distributors. With the focus on providing better services to customers, OMCs, namely IOC, BPCL and HPCL have also introduced a common Unique Toll Free telephone Numbers viz 18002333555, to redress the customers complaint.

68%

proportion of 4 and 5 star distributors

(d) LPG Distributor Portability

An LPG consumer has been given the choice to switch from his old distributor to another better star rating distributor within the cluster as per his choice within or across the OMCs. The objective of introducing portability was to provide customer greater choice to select his distributor and to bring competition amongst distributors. The portability Scheme has been implemented in 484 Districts of the country. The portability request can be made electronically and will be completed without manual intervention. As on 31.03.2014, 3701 consumers have placed portability request and 1765 have successfully migrated to new distributors.

These consumer empowering E-initiatives in LPG marketing were recognised and Ministry of Petroleum & Natural Gas won the CSI Nihilent e-Governance (2012-13) Award of Excellence for its entry titled **"Empowering Consumers : Transparent Supply Chain and Efficient Subsidy Administration"** during 48th Annual Convention of Computer Society of India (CSI-2013) at Vishakhapatnam.

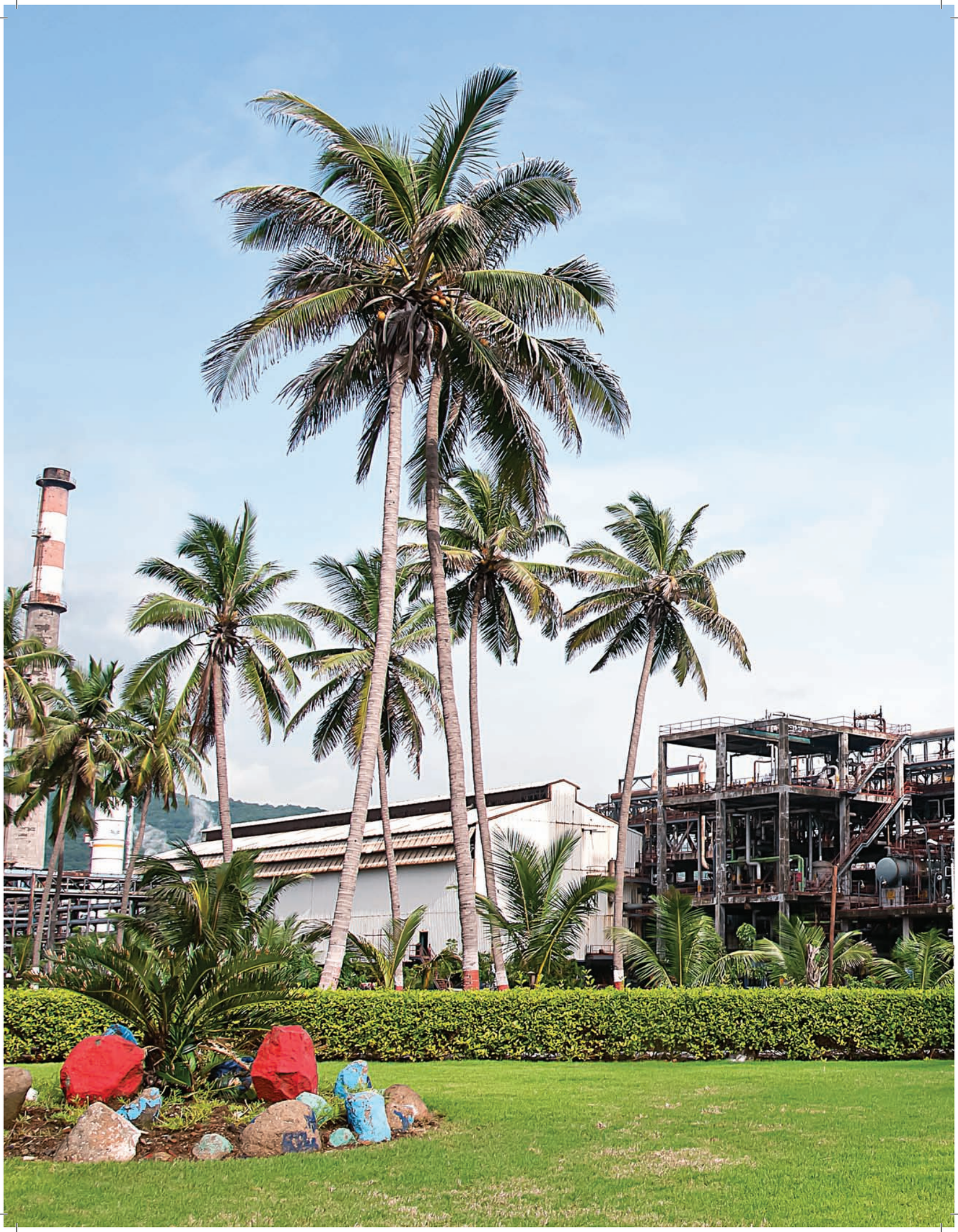
(e) 5 KG LPG COCO Scheme

The LPG sold under the scheme is called Free Trade LPG (FTL). At the time of first sale cost of equipment (DPR plus cylinder), cost of product at prevailing non-domestic 5kg cylinders price and administrative charges will be payable. At the time of subsequent refill only the cost of product is payable. Any proof of ID is acceptable and no proof of address is required.

This was launched to cater to a new category of consumers that who are mobile and do not want a permanent LPG connection but may still require LPG for their needs. Initially the scheme was launched at Company Owned Retail Outlets in Mumbai, Chennai, Kolkata and Bengaluru. The scheme has now been extended to 33 cities and to outlets other than Company Owned Company Operated (COCO) ROs, and retail shops as well. More than 5000 LPG cylinders have been sold in these cities and more than 8000 queries have been made at different ROs.BPCL has also introduced dial a cylinder scheme as an extension to this scheme. Under this scheme a person can dial a specified number to book the cylinder which will be supplied to consumer with two hours time by a special van.



An oil bowser fuelling an international aircraft





CHAPTER 6

Pricing

Pricing



LPG Trucks on their way out of a bottling plant at Hyderabad

This chapter deals with Natural Gas pricing scenario in India and the pricing of sensitive petroleum products and Crude Oil.

6.1 NATURAL GAS PRICING SCENARIO IN INDIA

At present, natural gas occupies about 8% of the energy basket in India and is projected to occupy 20% of the energy basket by 2020. Natural gas is a scarce resource. At present, there is a wide gap between demand and supply of natural gas in India. The gas market in India is still in a developing phase and far from a mature market. It is likely to take a while before the demand-supply gap is bridged in India and the gas market is mature.

Natural gas can be broadly classified into two categories, viz., domestic natural gas and imported Re-gasified Liquefied Natural Gas (R-LNG). The price of domestic gas is determined/ approved by the Government. Liquefied Natural Gas (LNG) is under Open General Category for import, and Government does not control the price of R-LNG. The domestic natural gas can be further classified into four categories, viz., APM, Non-APM, Pre-NELP and NELP. The pricing mechanism for various categories of domestic gas is explained below:

US$ 4.2 PER MMBTU
revised APM price from June 2010

6.1.1 Administered Pricing Mechanism (APM)

APM gas has been defined as domestic gas that is produced by National Oil Companies (NOCs) - ONGC and Oil India Ltd – from their fields that existed in June 2005 in the blocks that had been allocated to NOCs on nomination basis.

The price of APM gas is determined by the Government. From June 2010, the APM price has been revised to US$ 4.2/MMBTU (including royalty). In North East region, APM price is US$ 2.52 /MMBTU, which is 60% of APM price, rest 40% is paid from government budget to National Oil Companies. APM gas has been allocated predominately to fertilizer and power sector. However, small quantity of APM gas is supplied to other sectors also. APM gas is supplied at APM rate to only power sector, fertilizer sector, consumers



covered under court orders and consumers having allocation of less than 50,000 SCMD. Customers other than these categories are supplied APM gas at Market Determined Price.

6.1.2 Non-APM Gas produced by NOCs from Nominated Fields

Domestic natural gas produced by National Oil Companies (ONGC and OIL) from new fields (after June 2005) in their existing nominated blocks is termed as non-APM gas. The pricing of non-APM gas is done in accordance with guidelines of the Ministry dated 28.06.2010. In the guidelines, the price of non-APM gas sold by NOCs (in 4 supply zones) has been determined by government as follows:

1. Western & Northern Zones (covering Maharashtra, Gujarat and other States covered by HVJ/ DVPL viz., Rajasthan, M.P., U.P., Haryana & Delhi) - US$ 5/ MMBTU
2. Southern Zone - KG Basin - US$ 4.5/MMBTU
3. Southern Zone - Cauvery Basin - US$ 4.75/MMBTU
4. North-East - US$ 4.2/MMBTU

Further, a premium of US$ 0.25/MMBTU for production of non-APM gas from offshore fields has been provided, as higher investment is required in development and production of offshore fields.

6.1.3 Pre-NELP Gas

(i) Pre-NELP Discovered Fields

Certain blocks where discoveries were made by NOCs were auctioned to private sector E&P companies to overcome funding constraints and lack of advanced technologies. Under these PSCs, viz., Panna-Mukta, Tapti (PMT) and Ravva, the gas produced is being sold to the Government of India (GOI) nominee (GAIL), as per the pricing formula specified in the PSC. Hence, the entire gas produced from these fields is sold to GAIL, which in turn sells it to end consumers. In case of Panna-Mukta & Tapti PSCs, the price formula for gas is linked with an internationally traded fuel oil basket. At present, the floor price in case of both Panna-Mukta and Tapti is US$ 2.11/MMBTU, and the ceiling price in



Offshore Platform

case of Panna-Mukta gas is US$ 5.73/MMBTU and in case of Tapti, it is US$ 5.57/MMBTU.

As per the provisions of PSCs for Ravva & Ravva satellite fields, upon expiry of five years from the date of first delivery of gas, the JV and the Government are required to enter into good-faith negotiations to determine the basis for calculation of the purchase price, taking into account all reasonably relevant factors. The present price of Ravva field is US$ 3.5/ MMBTU and that of Ravva satellite is US$ 4.3/MMBTU.

(ii) Small-sized Discovered Fields & Pre-NELP Exploratory Blocks

24 small-sized discovered fields and 28 pre-NELP exploratory blocks (out of these fields and blocks, 17 are in operation) have been signed with private E&P companies (viz. Hazira, RJ-ON-90/1 etc.). These provide for sale of gas in the domestic market at prices obtained as per the arm's length principle, in case the gas is sold to a buyer other than the Government nominee. There is no pricing formula specified under the PSCs and the price fixation does not require prior approval of the Government.

6.1.4 Pricing under NELP

The Production Sharing Contracts (PSCs) signed under New Exploration Licensing Policy (NELP) require the contractor to sell gas in the domestic market in accordance with the Gas Utilisation Policy of the Government. Further, as per PSC provisions, gas has to be sold at a competitive, arm's length price, to the benefit of parties to the Contract and it also provides that the gas price formula/basis should have approval of the Government prior to sale of natural gas to consumers/buyers.

The following provisions of the PSC are relevant in the context of sale of natural gas and the price to be adopted for valuation purposes to calculate cost of petroleum, profit petroleum share and royalty:

"Article 1.8 "Arms Length Sales" means sales made freely in the open market, in freely convertible currencies, between willing and unrelated sellers and buyers and in which such buyers and sellers have no contractual or other relationship, directly or indirectly, or any common or joint interest as is reasonably likely to influence selling prices and shall, inter alia, exclude sales (whether direct or indirect, through brokers or otherwise) involving Affiliates, sales between Companies which are Parties to this Contract, sales between governments and government-owned entities, counter trades, restricted or distress sales, sales involving barter arrangements and generally any transactions motivated in whole or in part by considerations other than normal commercial practices.

Article 21.6 Valuation of Natural Gas: The Contractor shall endeavor to sell all Natural Gas produced and saved from the Contract Area at arm's length prices to the benefits of Parties to the Contract.

Notwithstanding the provision of Article 21.6.1, Natural Gas produced from the Contract Area shall be valued for the purposes of this Contract as follows:

(a) Gas which is used as per Article 21.2 or flared with the approval of the Government or re-injected or sold to the Government pursuant to Article 21.4.5 shall be ascribed a zero value;

(b) Gas which is sold to the Government or any other Government nominee shall be valued at the prices actually obtained; and

(c) Gas which is sold or disposed of otherwise than in accordance with paragraph (a) or (b) shall be valued on the basis of competitive arm's length sales in the region for similar sales under similar conditions.

The formula or basis on which the prices shall be determined pursuant to Article 21.6.2 (b) or (c) shall be approved by the Government prior to the sale of Natural Gas to consumers/buyers. For granting this approval, Government shall take into account the prevailing policy, if any, on pricing of Natural Gas, including any linkages with traded liquid fuels, and it may delegate or assign this function to a regulatory authority as and when such an authority is in existence.

From NELP VII onwards, in order to ensure that the gas is valued at arms length price or where arms length price is impossible to arrive at the formula or basis on which the prices shall be determined pursuant to Article 21.6.2 (c) shall be approved by the Government prior to invitation of price bids or other price discovery steps by Contractor for the sale of natural gas to consumers / buyers, within sixty (60) business days from the receipt of the proposal or from the date of receipt of clarification / additional information, where asked for by the Government. For granting this approval, Government shall take into account amongst other relevant considerations, the domestic and international prices of comparable gas and the linkages with traded liquid fuels.

The price formula approved in 2007 by the Empowered Group of Ministers (EGoM) was as under:

SP (US$/MMBTU) = 2.5 + (CP-25)^ 0.15

Where, SP is the sales price in US$ /MMBTU [on Net Heating Value (NHV) basis] at the delivery point at Kakinada and CP is the average price of Brent crude oil in US$/barrel for the previous financial year, based on the annual average of the daily high and low quotations of the FOB price of dated Brent quotations as published by Platts Crude Oil Market wire. CP is capped at US$ 60/bbl, with a floor of US$ 25/bbl. CP is fixed for each contract year and is based on the CP for the preceding financial year. FY means the financial year, which commences each year on 1st April and ends on the following 31st March.

The selling price comes to US$ 4.2/MMBTU for crude price greater than or equal to US$ 60/barrel. This is equivalent to ₹ 7,500/MSCM at an exchange rate of ₹ 60 per US$. The price basis/formula is valid for five years from the date of commencement of supply.

6.1.5 Rangarajan Committee

The Government of India constituted a committee under the chairmanship of Dr C. Rangarajan, Chairman, Economic Advisory Council to the Prime Minister in May 2012, to look into the Production Sharing Contract (PSC) mechanism in petroleum industry. The Terms of Reference (TOR) of the Committee included, among others, formulating a structure and elements of the guidelines for determining the basis or formula for the price of domestically produced gas, and for monitoring actual price fixation.

The Committee submitted its report in December 2012. It has made the following observations while examining the gas price matter:

"24.1.2 Public sector companies producing gas have a highly regulated pricing system in place. Gas prices in India can, in principle, incentivise investment in the Indian upstream sector, so that production in India reaches optimum levels and all exploitable reserves put to production expeditiously. India also needs to ensure that producers don't cartelise as there is a huge unmet demand. The twin objectives of expediting production and avoiding cartelisation can be achieved by ensuring that producers in India get at least the average price of what producers elsewhere are getting."

"24.1.4.1 Gas-on-gas competition is the soundest of all mechanisms when free trade prevails in the gas market. The supply side in India is dominated by two large players, NOCs and RIL. Together they control the entire domestic production. R-LNG supplies are again dominated by two entities, PLL and GAIL. The greatest constraint, however, is the lack of infrastructure for importing gas. All these result in a seller's market, with pricing power, which can lead to undue benefits. The consumption side is again dominated by PSU fertilizer units and power sector utilities, which are heavily subsidised by the Union and State Governments. Further, both these sectors have been encouraged through state policy to adopt gas-based technologies and they constitute a huge stranded market vulnerable to exploitation by gas suppliers. Thus, the supply curve at present is almost vertical and demand is highly price inelastic. Therefore, pure gas-on-gas competition will remain an aspiration till supply constraints are remedied substantially."

"24.2.1 As discussed above, it may not be feasible to introduce gas-on-gas competition at this juncture. Therefore, a policy for pricing natural gas, till such time when gas-on-gas competition becomes feasible. However, it is recommended that Government review the situation after five years to examine the feasibility of introduction of gas-on-gas competition. "

"24.2.2 In the light of the discussion in § 24.1, a policy on pricing of natural gas for India is proposed. Since a competitive domestic price for gas does not currently exist and may not be expected to come about for several more years, the policy will have to be based on searching out from global trade transactions of gas the competitive price of gas at the global level. As the global market is not fully integrated in terms of physical flows and is also not everywhere liquid enough, it is proposed to combine two methods of search for such prices."

6.1.6 Based on the Committee Report, Government of India (GoI) approved the Natural Gas Pricing Guidelines in its meeting held on 27th June, 2013 and 19th December, 2013. The Government on 10.01.2014 has issued a Notification regarding Domestic Natural Gas Pricing Guidelines. Some salient features of the Domestic Natural Gas Pricing Guidelines, 2014 are:

a) These guidelines will be applicable to all natural gas produced domestically, irrespective of the source, whether conventional, shale, CBM etc. These guidelines shall apply from 1st April, 2014.

b) These guidelines shall not be applicable where prices have been fixed contractually for a certain period of time, till the end of such period. These guidelines shall also not be applicable where the production sharing contract provides a specific formula for natural gas price indexation / fixation. Further, the pricing of natural gas from small / isolated fields in the nomination blocks of NOCs will be governed by the extant policy in respect of these blocks issued on 8th July, 2013.

c) The prices determined under these guidelines shall be applicable to all consuming sectors uniformly.

d) These guidelines shall also be applicable for natural gas produced by ONGC/OIL from their nominated fields.

e) The pricing of natural gas produced domestically shall be based on the following methodology:

First, the netback price of all Indian imports at the wellhead of the exporting countries will be estimated. Since there may be several sources of gas imports, the weighted average of such netback of import prices at the wellheads would represent the average global price for Indian LNG imports.

Secondly, weighted average of prices prevailing at trading points of transactions – i.e., the hubs or balancing points of the major global markets will be estimated. For this, (a) the hub price (at the Henry Hub) in the US (for North America), (b) the price at the National Balancing Point of the UK (for Europe), and (c) the netback wellhead price at the sources of supply for Japan will be taken as the average price for producers at their supply points across continents.

Finally, the simple average of the prices arrived at through the aforementioned two methods will be determined as the price for domestically produced natural gas in India.

f) Netback FOB Pricing: Netback FOB, according to Argus, is calculated based on daily spot LNG vessel chartering rates and accompanied and accompanying shipping related costs. These additional costs shall include:

- Daily spot LNG vessel chartering rates for east and west of Suez voyages based on 138,000 – 155,000 cum standard size vessel.
- a daily boil off rate of 0.15% /day based on 98% vessel capacity utilisation rate
- An average 50% of fuel consumption based on daily bunker consumption of 150 t based on local rates
- An average of 50% of LNG fuel consumption based on the boil-off rate.
- Voyage timing based on a laden leg speed of 19.5 knots.

Netback FOB prices reported in governmental or standard industry sources shall be adopted.

g) Producer's Net back pricing shall be arrived as per the following procedure:



Float over rig in the Arabian Sea

I. Calculation of Producer's Netback Price for Indian Imports

(i) While calculating netback to producers, the following components are deducted from the FOB price as they do not accrue due to production activity:

Netback Price, N = A – B – C. (I)

PIAV = (N1 * V1 + N2 * V2 + ……) / (V1 + V2 + V3+ ….) (II)

Where:

A = Imported LNG Price on Netback FOB available from standard industry sources.

B = Liquefaction costs at the respective loading port (source)

C = Transportation and treatment costs of natural gas from wellhead to liquefaction plant

N1, N2 … are Producers' Netback, calculated as per Formula (I).

V1, V2 ……are the volumes corresponding to N1, N2…… etc.

PIAV = Weighted average Producer Net Back for Indian gas imports for trailing four quarters with a lag of one quarter.

All imports, term and spot, will be included in the calculation.

V1, V2, V3 and A shall be for the trailing four quarters with a gap of one quarter. PIAV shall be calculated on quarterly basis for trailing four quarters with a lag of one quarter. The weighted average of quarterly PIAV shall be the applicable PIAV. This data will be made available by Indian importers and confirmed through customs department. This will be further validated from leading industry publications.

(ii) An average of US$ 2.5/MMBTU shall be adopted as the liquefaction cost for plants which have started deliveries in or up to 2010, and US$ 3.5/ MMBTU for exports from plants starting deliveries after 2010. These figures will be reviewed after a period of five years.

The trend of liquefaction costs can be ascertained from the data available from the reports of Facts Global LNG and Wood Mackenzie. Where it is not possible by any means (through customs or through industry sources, etc.) to ascertain whether a particular shipment is from pre-2010 or post 2010 LNG Train, an average of US$ 3.0/ MMBTU will be assumed as the liquefaction cost.

(iii) The transportation cost from the well-head to the liquefaction plant will be considered as US$ 0.5/MMBTU. This includes handling charges and sweetening costs of gas.

II. Calculation of World Average Producer's Netback Price

PWAV = (A1*PHH+A2*PNBP+ A3*PJAV)/ (A1+A2+A3) (III)

PWAV = Weighted average price to producers in the global markets for trailing four quarters with a lag of one quarter.

A1 = Total volume consumed in North America in the relevant year i.e. trailing four quarters with a lag of one quarter.

PHH = Weighted average of quarterly hub prices at Henry Hub. Quarterly hub prices will be a weighted average of monthly prices. Monthly prices will be based on simple average of daily prices during the month. PHH shall be calculated for trailing four quarters with a lag of one quarter.

A2 = Volume consumed in EU and FSU in the relevant year i.e. trailing four quarters with a lag of one quarter.

PNBP = Weighted average of quarterly hub prices at National Balancing Point (NBP) in UK. Quarterly hub prices will be a weighted average of monthly prices. Monthly prices will be based on simple average of daily prices during the month. PNBP shall be calculated for trailing four quarters with a lag of one quarter.

A3 = Volume imported by Japan in the relevant year i.e. trailing four quarters with a lag of one quarter.

PJAV = Weighted average producer's netback price of gas imported by Japan for trailing four quarters with a lag of one quarter. All imports, term and spot, will be included in the calculation.

PJAV shall be calculated in the same manner as PIAV is calculated in Formula (I)

(iv) The netback price of LNG to be delivered in Japan from various potential sources across the globe can be determined from the FOB price at the loading country. The netback FOB prices and volumes at those prices from various exporting countries are available from LNG Daily and World Energy Intelligence, Argus, Platts, etc. The FOB price includes liquefaction costs of gas at the plant in the producing country at the loading port, plus the transportation, including handling and sweetening charges of the gas from the producing asset to the liquefaction plant. Thus,

Producer's Netback for LNG Import = Netback FOB Price - Liquefaction Cost – Transportation Cost (including Sweetening and Handling Charges) (IV)

(v) The formulae for PIAV and PWAV give an average price which producers across the world are realising through production of natural gas. The average of PIAV and PWAV will be the price PAV for domestic producers:

PAV = (PIAV + PWAV) / 2

6.2 POLICY ON SENSITIVE PETROLEUM PRODUCTS

6.2.1 The pricing of petroleum products was brought under Administered Price Mechanism (APM) effective July 1975 when the pricing of petroleum products was shifted from import parity principles to cost plus principles. Under APM (1975 to 2002), various oil pool accounts were maintained with the objective to i) ensure stability in selling price; ii) insulate consumers against international price fluctuations; and, iii) subsidisation of consumer prices of certain products like SKO for public distribution and domestic LPG by cross subsidisation from certain products like MS, Aviation Turbine Fuel (ATF) etc. and indigenous crude oil.

6.2.2 Effective 01.04.2002, the APM was dismantled and the Government decided to provide subsidy on sale of PDS kerosene and domestic LPG at specified flat rates under the Budget. To administer these budgetary subsidies, the Government formulated two schemes viz. 'PDS Kerosene and Domestic LPG Subsidy Scheme 2002' and 'Freight Subsidy (For Far Flung Areas) Scheme 2002'. Under these schemes it was decided that subsidy on PDS Kerosene and Domestic LPG will be phased out in 3-5 years.

6.2.3 The sharp rise and volatility of prices of oil and petroleum products in the International markets since 2004 became a matter of global concern. Indian basket of crude oil, which averaged about US$ 23/bbl at the time of dismantling of APM in March 2002 and US$ 36/bbl in May 2004, went up to an average of US$ 85.09 per barrel during 2010-11. The average price of Indian crude basket further increased to US$ 105.52 per barrel in 2013-14. In the current financial year, the average price of Indian basket crude oil is at US$ 105.62 per barrel (up to 30.04.2014). The trend of Indian Basket of Crude Oil during 2002-03 to 2013-14 is at Annexure-I.

6.2.4 Even though APM was dismantled effective 01.04.2002, since 2004, the consumers of sensitive petroleum products, viz. Petrol (decontrolled now w.e.f. 26.06.2010), Diesel, PDS Kerosene and Domestic LPG are being insulated from the impact of unprecedented high international oil prices by the Public Sector Oil Marketing Companies (OMCs), namely Indian Oil Corporation Ltd. (IOCL), Hindustan Petroleum Corporation Ltd. (HPCL) and Bharat Petroleum Corporation Ltd. (BPCL). Inspite of international oil prices remaining persistently high, the retail selling price of sensitive petroleum products are kept lower than what is warranted by international oil

prices. This resulted in huge under-recoveries of OMCs with corresponding subsidisation of prices for the consumers. However, long-term mismatch between domestic retail prices and international oil prices has become unsustainable for the oil companies. The trend of under-recovery in the three sensitive petroleum products and their Retail Selling Price is given in Annexure-II.

6.2.5 In June 2006, based on the recommendations of the Rangarajan Committee, the Government changed the pricing of Diesel to Trade Parity Pricing (TPP). The brief details of IPP/TPP are given below:

Import Parity Price (IPP) – IPP represents the price that importers would pay in case of actual import of product at the respective Indian ports and includes the elements of: {FOB price + Ocean Freight + Insurance + Custom Duties + Port Dues, etc.}

Export Parity Price(EPP) – EPP represents the price which oil companies would realise on export of petroleum products: {FOB price + Advance License benefit (for duty free import of crude oil pursuant to export of refined products)}

Trade Parity Price (TPP) - TPP consists of 80% of Import Parity Price and 20% of Export Parity Price.

Examples of Price Buildup of Diesel, PDS Kerosene and Subsidised Domestic LPG price effective 1st October 2013 at Delhi are given in Annexure-III.

As per the prevailing pricing policy, the OMCs pay Trade Parity Price (TPP) for purchase of Diesel and Import Parity Price (IPP) for purchase of PDS Kerosene and Domestic LPG from refineries. The Retail Selling Price (RSP) of these products is calculated by taking into account the following elements:

i. Price paid to refinery
ii. Inland freight up to the market
iii. LPG bottling charges
iv. Marketing Cost & Margin
v. Dealers/ Distributor commission
vi. Excise duty
vii. VAT & local levies

The Government set up a Committee under Dr. Kirit S. Parikh in June 2013 to examine inter alia Pricing methodology for Diesel, Domestic LPG and PDS Kerosene. The terms of Reference of the Committee were as under:

(i) To revisit the current pricing methodology of petroleum products, and suggest a pricing mechanism benchmarked to Export Parity Pricing, which is also relatable to the actual FOB export realisation of the petroleum products exported from India by private refiners;

(ii) To suggest a formula for compensation of under-recoveries which is fair and does not over compensate either the domestic suppliers of petroleum products or the Oil Marketing companies;

(iii) To examine the operational and procurement efficiencies of the oil marketing companies and suggest improvements in the same.

The Committee submitted its recommendations on 30th October 2013 which are under consideration.

6.2.6 The under-recoveries arising out of selling petroleum products at a price below the prevailing international prices are being shared by all the stakeholders under the Burden Sharing Mechanism in the following manner:-

(i) Government through Oil Bonds/Cash Assistance

(ii) Public Sector Upstream Oil Companies namely, Oil and Natural Gas Corporation (ONGC), Oil India Limited (OIL) and GAIL (India) Limited (GAIL) by way of price discount on crude oil and products

(iii) Public Sector Oil Marketing Companies, by absorbing a part of the under-recovery

6.2.7 The under-recovery of OMCs on sale of Diesel during 2011-12 was around 60% of the total under-recovery. As per the Industry Performance Review of March 2012 (as released by Indian Oil Corporation Limited), about 17.77% of the total Diesel was sold to the bulk consumers during 2011-12. Accordingly, in order to reduce under-recovery of the OMCs on sale of Diesel, the Cabinet Committee on Political Affairs (CCPA) in its meeting held on 17.01.2013, inter alia, decided to authorise OMCs to sell Diesel to all consumers taking bulk supplies directly from the installations of the OMCs at the non-subsidised market determined price with immediate effect. OMCs are not eligible to any subsidy on such direct sale of Diesel to bulk consumers. OMCs have also been authorised to increase the retail selling price of Diesel in the range of 40 paisa to 50 paisa per litre per month (excluding VAT as applicable in different State/Union Territories) until further orders. The Government has also put a cap of 12 cylinders of Subsidised Domestic LPG for each consumer annually.

6.2.8 The product-wise and total under-recoveries of the OMCs from 2002-03 to 2013-14 are given in the table below:

TABLE 6.1 : UNDER-RECOVERIES

Year	Petrol	Diesel	PDS Kerosene	Domestic LPG	Total Under-recoveries	
	₹ Crore	₹ Crore	₹ Crore	₹ Crore	₹ Crore	US$ Billion
2002-03	-	-	2,067	3,363	5,430	1.12
2003-04	-	-	3,751	5,523	9,274	2.02
2004-05	150	2,154	9,480	8,362	20,146	4.48
2005-06	2,723	12,647	14,384	10,246	40,000	9.03
2006-07	2,027	18,776	17,883	10,701	49,387	10.90
2007-08	7,332	35,166	19,102	15,523	77,123	19.17
2008-09	5,181	52,286	28,225	17,600	103,292	22.50
2009-10	5,151	9,279	17,364	14,257	46,051	9.71
2010-11	2,227**	34,706	19,484	21,772	78,190	17.15
2011-12	0	81,192	27,352	29,997	1,38,541	28.89
2012-13	0	92,061	29,410	39,558	1,61,029	29.57
2013-14	0	62,837	30,574	46,458	1,39,869	23.12
Total	**24,791**	**4,01,104**	**2,19,076**	**2,23,360**	**8,68,332**	**177.66**

** Gross under-recoveries without considering oil bonds and upstream assistance.*

*** Under-recovery on petrol is only up to 25th Jun'10*

As can be seen from the above table, the actual under-recovery in 2012-13 was ₹ 1,61,029 crore, out of which Diesel alone accounted for ₹ 92,061 crore (57%). Government provided cash compensation of ₹ 1 Lakh crore while upstream companies (ONGC/OIL/GAIL) contributed ₹ 60,000 crore. ₹ 1029 crore was absorbed by the OMCs. The actual under recovery for 2013 -14 is ₹ 1,39,869 crore. The Government provided cash assistance of ₹ 70,772 crore while upstream oil companies contributed ₹ 67,021 crore. ₹ 2076 crore was absorbed by the OMCs themselves.

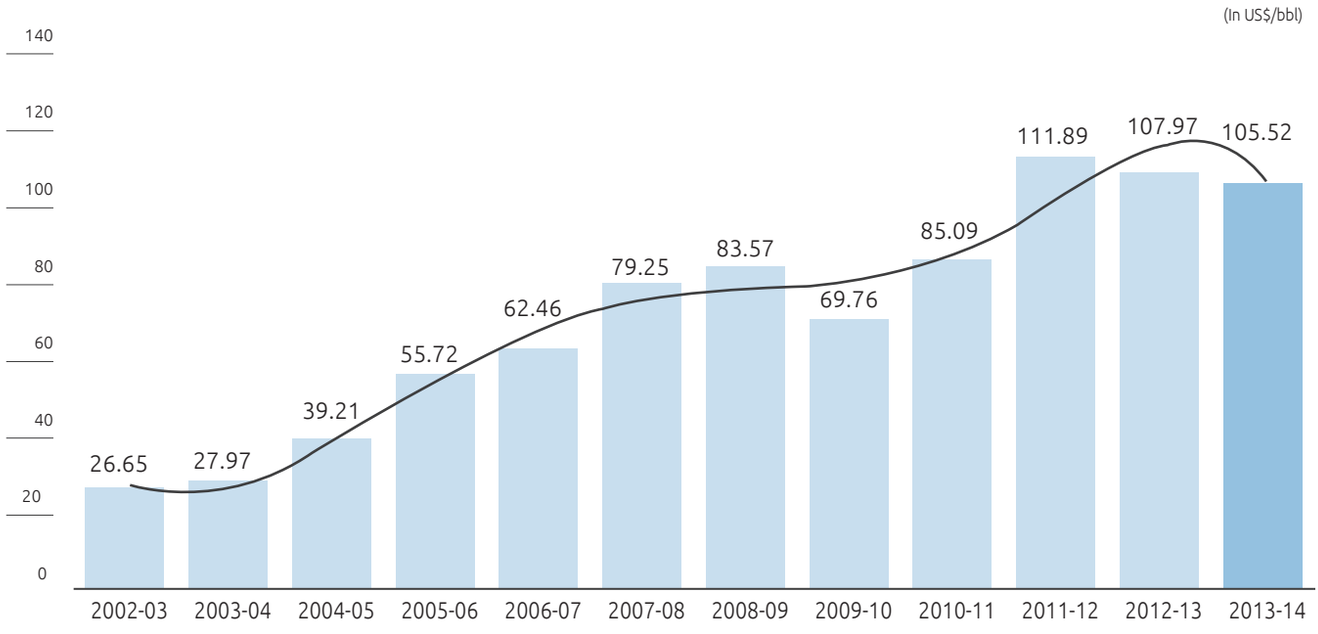
6.3 PRICING OF CRUDE OIL

6.3.1 Indian Basket of Crude Oil represents the average of crude oil being processed by Indian Refineries in the ratio of actual processing of sweet crude and sour crude in the immediate preceding year. For sweet crude oil price, the daily Platts assessments for benchmark crude oil "Brent" is considered. For sour crude oil, the average of Platts assessment for benchmark crude oil " Dubai" and "Oman" is considered. During 2012-13, Indian refineries processed 69.9% sour crude and 30.1% sweet crude. Therefore, for 2013-14, Indian Basket of crude oil represented the daily price assessment by Platts for benchmark crude "Brent" (sweet crude) and average of "Dubai" and "Oman" (sour crudes) in the ratio of 30.1: 69.9.

6.3.2 Domestic crude oil producing companies are also offered international crude oil prices benchmarked to an international crude that corresponds to their crude assay. Import of crude oil takes place at international price.

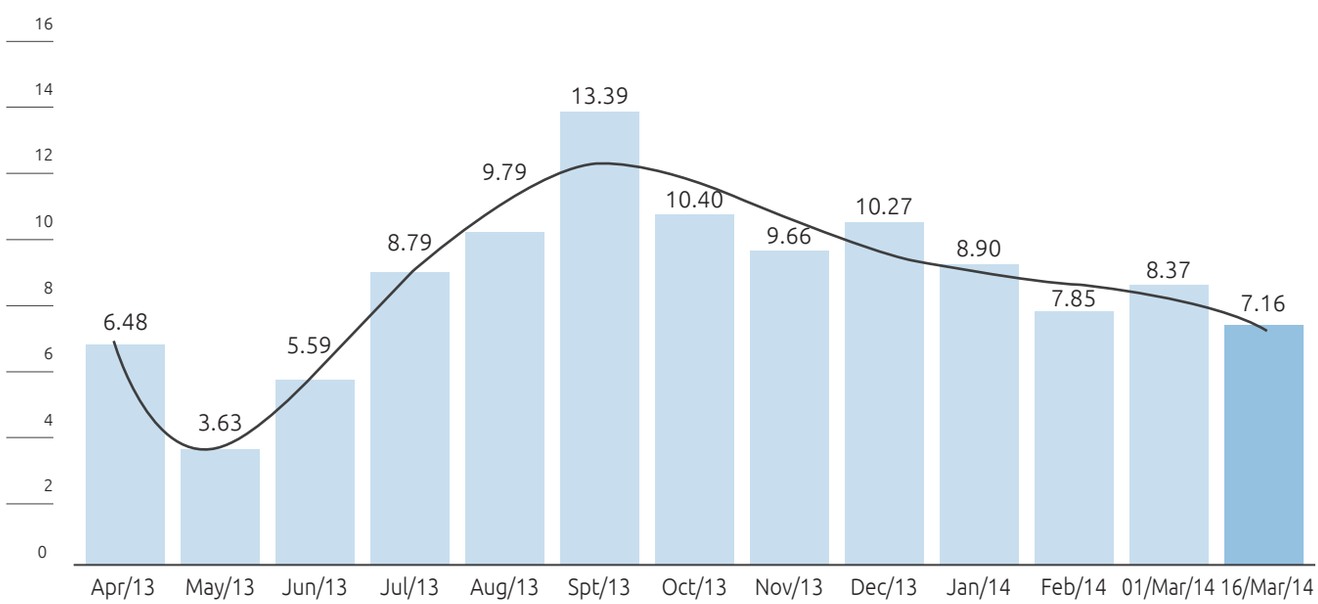
ANNEXURE I

TREND OF INDIAN BASKET OF CRUDE OIL



ANNEXURE II

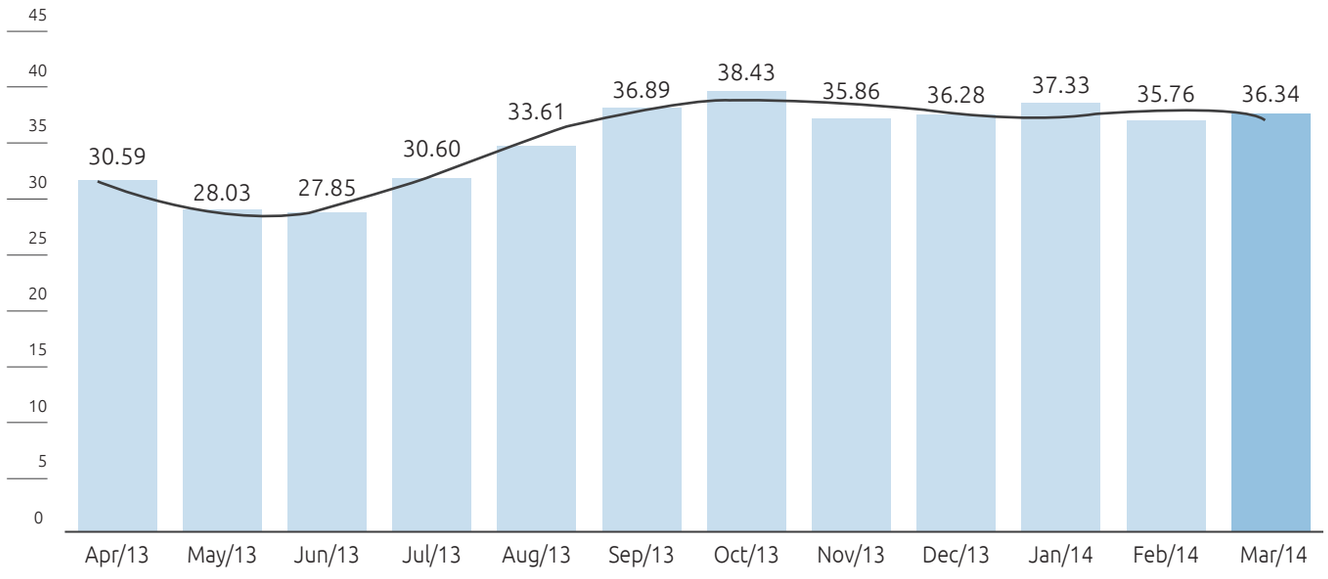
TREND OF DIESEL UNDER-RECOVERY



ANNEXURE II

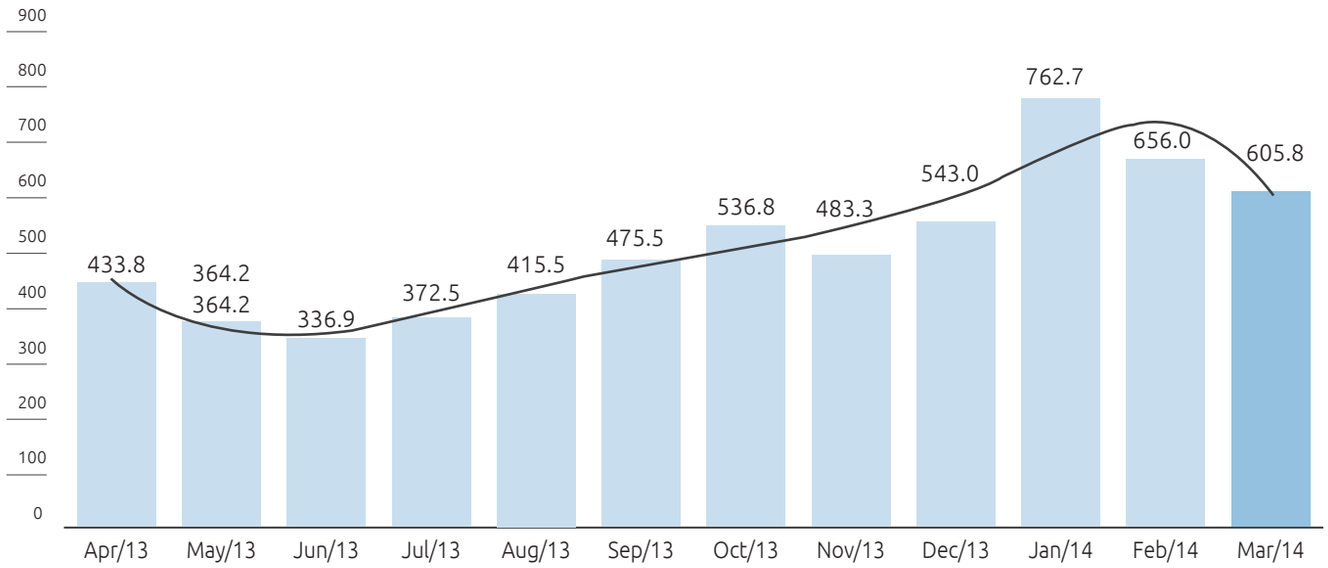
TREND OF KEROSENE UNDER-RECOVERY

(₹/Litre)



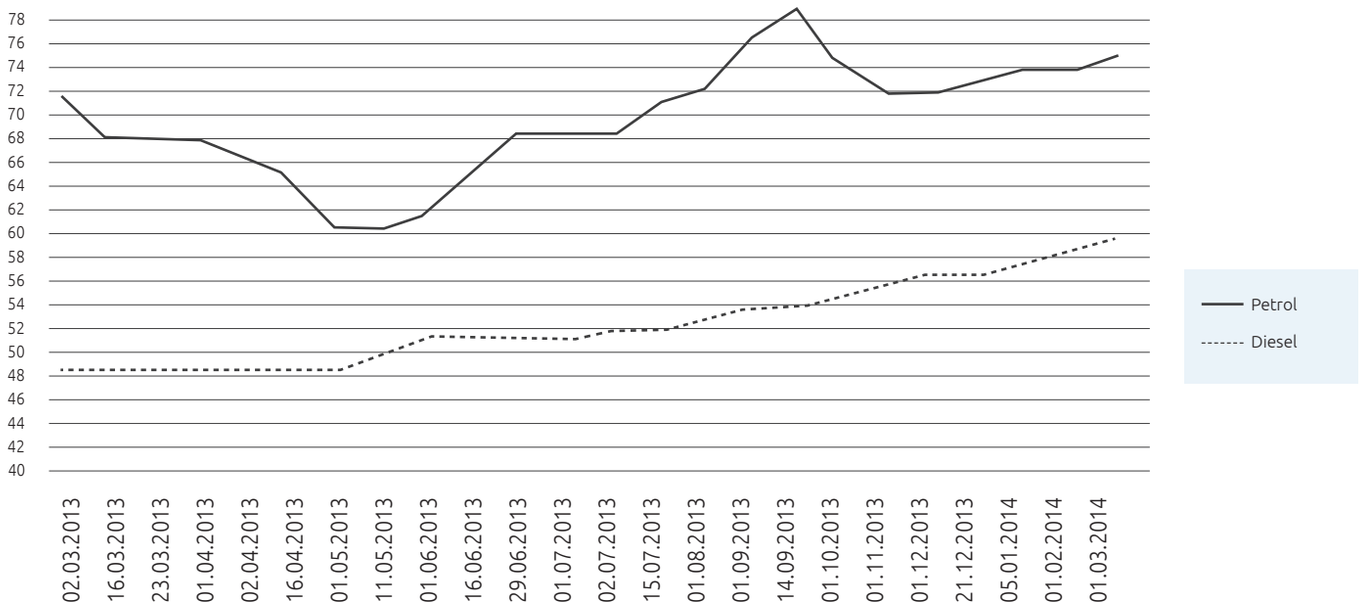
TREND OF LPG UNDER-RECOVERY

(₹/Cylinder)

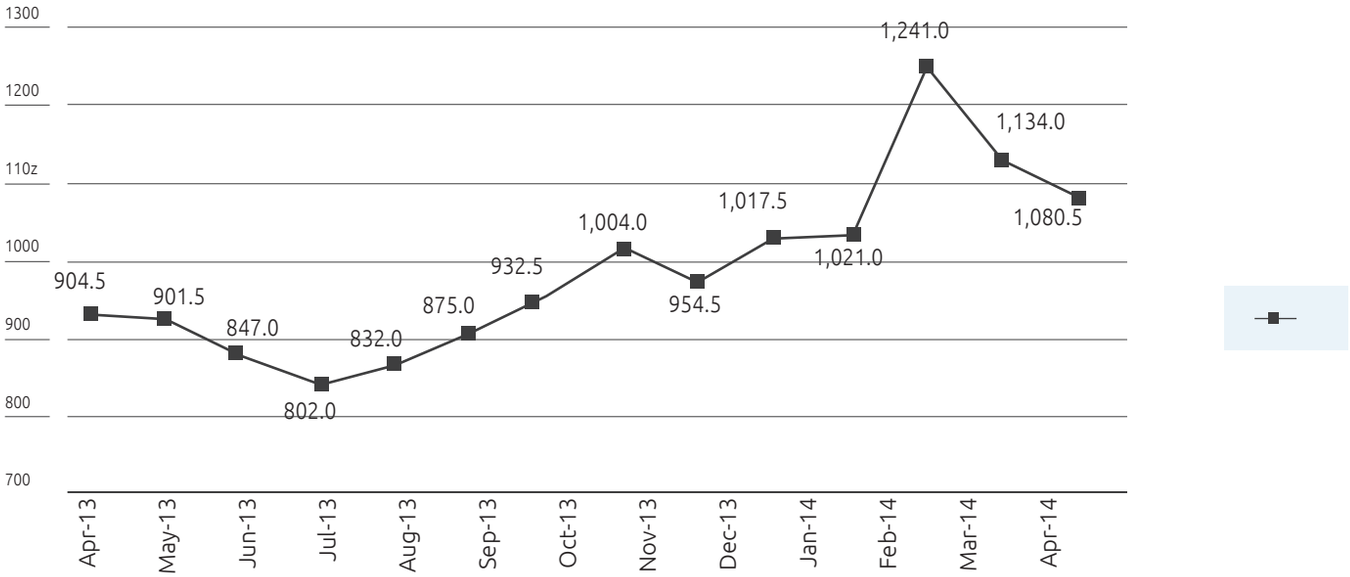


ANNEXURE II

RETAIL SELLING PRICE OF PETROL AND DIESEL AT DELHI



NON SUBSIDISED LPG PRICE AT DELHI



Rates of Subsidised LPG and PDS Kerosene have not been increased since June 2010. The current RSP of subsidised domestic LPG at Delhi is ₹ 414/cylinder (14.2 kg).

ANNEXURE-III

Price Build-up of Diesel at Delhi Retail Outlets

Sr. No.	Elements		Unit	Effective 01-10-2013
1	FOB AG Price for Gasoil 0.5% Sulphur		US$/bbl	119.82
2	Trade Premium AG Price for Gasoil 0.5% Sulphur		US$/bbl	2.61
3	Derived Quality Premium for BS-III Grade		US$/bbl	0.52
4	Ocean Freight from AG to Indian Ports		US$/bbl	1.75
5	C&F (Cost & Freight) Price	(Sum of 1 to 4)	US$/bbl	124.70
	OR		₹/Litre	48.64
6	Import Charges (Insurance/Ocean Loss/ LC Charge/Port Dues)		₹/Litre	0.45
7	Customs Duty @2.58% (2.50% + 3% Education cess)		₹/Litre	1.27
8	Import Parity Price (at 29.5° C)	(Sum of 5 to 7)	₹/Litre	50.35
9	Export Parity Price (at 29.5° C)		₹/Litre	47.96
10	**Trade Parity Price**	(80% of (8)+20% of (9))	**₹/Litre**	**49.87**
11**	**Refinery Transfer Price (RTP) for BS-III Diesel** (Price Paid by the Oil Marketing Companies to Refineries)		₹/Litre	**49.87**
12	Add: Premium recovered for BS-IV Grade over BS-III		₹/Litre	0.04
13	Add : Inland Freight and Delivery Charges		₹/Litre	1.00
14	Add : Marketing Cost of OMCs		₹/Litre	0.69
15	Add : Marketing Margin of OMCs		₹/Litre	0.71
16	**Total Desired Price** -Before Excise Duty, VAT and Dealer Commission	(Sum of 11 to 15)	₹/Litre	**52.32**
17	Less: Under-recovery to Oil Marketing Companies		₹/Litre	10.51
18	**Price Charged to Dealers (Depot Price)** - Excluding Excise Duty & VAT	(16-17)	₹/Litre	**41.80**
19	Add : Specific Excise Duty @ ₹ 3.56/Litre (₹ 3.46/Litre+ 3% Education cess)		₹/Litre	3.56
20	Add : Dealer Commission		₹/Litre	1.09
21	Add : VAT (including VAT on Dealer Commission) applicable for Delhi @ 12.50% and Air Ambience Charges @ ₹ 250/KL.		₹/Litre	6.09
22	**Retail Selling Price at Delhi**	(Sum of 18 to 21)	₹/Litre	**52.54**

**Fortnightly RTP is weighted average of all Indian Pricing Ports.

Price Build-up of PDS Kerosene at Delhi

Sr. No.	Elements		Unit	Effective 01-10-2013
1	FOB Price at Arab Gulf of Jet / Kero (Kerosene)		US$/bbl	123.73
2	Add: Ocean Freight from AG to Indian Ports		US$/bbl	2.04
3	C&F (Cost & Freight) Price		US$/bbl	125.77
	OR		₹/Litre	50.12
4	Import Charges (Insurance/Ocean Loss/ LC Charge/Port Dues)		₹/Litre	0.32
5	Customs Duty		₹/Litre	NIL
6	**Import Parity Price (at 29.5° C)**	(Sum of 3 to 5)	**₹/Litre**	**50.45**
7**	**Refinery Transfer Price (RTP) for PDS Kerosene** (Price Paid by the Oil Marketing Companies to Refineries)		₹/Litre	**50.45**

Sr. No.	Elements	Unit	Effective 01-10-2013
8	Add : Inland Freight and Delivery Charges	₹/Litre	0.85
9	Add : Marketing Cost of OMCs	₹/Litre	0.43
10	Add : Marketing Margin of OMCs	₹/Litre	0.36
11	**Total Desired Price** (Sum of 7 to 10) -Before Excise Duty, VAT and Wholesale & Retailer Commission	**₹/Litre**	**52.09**
12	Less : Subsidy by Central Government	₹/Litre	0.82
13	Less: Under-recovery to Oil Marketing Companies	₹/Litre	38.32
14	**Price Charged to Dealers (Depot Price)** (11-12-13) - Excluding Excise Duty & VAT	**₹/Litre**	**12.95**
15	Add : Excise Duty (Including Education Cess)	₹/Litre	0.00
16	Add : Wholesale & Retailer Commission and Other charges fixed by State Government	₹/Litre	1.29
17	Add : VAT (including VAT on Wholesale & Retailer Commission) applicable for Delhi	₹/Litre	0.71
18	**Retail Selling Price at Delhi** (Sum of 14 to 17)	**₹/Litre**	**14.96**

**Monthly RTP is weighted average of all Indian Pricing Ports.

Price Build-up of Domestic LPG (Subsidized) at Delhi

Sr. No.	Elements	Unit	Effective 01-10-2013
1	FOB Price at Arab Gulf of LPG	US$/MT	859.76
2	Add: Ocean Freight from AG to Indian Ports	US$/MT	45.72
3	C&F (Cost & Freight) Price	US$/MT	**905.49**
	OR	₹/Cylinder	825.95
4	Import Charges (Insurance/Ocean Loss/ LC Charge/Port Dues)	₹/Cylinder	6.63
5	Customs Duty	₹/Cylinder	NIL
6	Import Parity Price (Sum of 3 to 5)	₹/Cylinder	**832.58**
7**	**Refinery Transfer Price (RTP) for Domestic LPG** (Price Paid by the Oil Marketing Companies to Refineries)	**₹/Cylinder**	**832.58**
8	Add : Inland Freight and Delivery Charges	₹/Cylinder	40.18
9	Add : Marketing Cost of OMCs	₹/Cylinder	10.52
10	Add : Marketing Margin of OMCs	₹/Cylinder	6.89
11	Add : Bottling Charges (Filling and Cylinder Cost)	₹/Cylinder	38.68
12	**Total Desired Price** (Sum of 7 to 10) -Before Excise Duty, VAT and Distributor Commission	**₹/Cylinder**	**928.85**
13	Less : Subsidy by Central Government	₹/Cylinder	22.58
14	Less: Under-recovery to Oil Marketing Companies	₹/Cylinder	532.86
15	**Price Charged to Distributor (Bottling Plant Price)** (12-13-14) - Excluding Excise Duty & VAT	**₹/Cylinder**	**373.41**
16	Add : Excise Duty (Including Education Cess)	₹/Cylinder	0.00
17	Add : Distributor Commission	₹/Cylinder	37.25
18	Add : VAT(including VAT on Distributor Commission) applicable for Delhi	₹/Cylinder	0.00
19	**Retail Selling Price** (Sum of 15 to 18)	**₹/Cylinder**	**410.66**
20	**Retail Selling Price at Delhi (Rounded)**	**₹/Cylinder**	**410.50**

**Monthly RTP is weighted average of all Indian Pricing Ports.


Bharat Petroleum
GY NOW AT YOUR SE
ATED FUEL STATION
OTELY MONITORED
D SECURED DISPENSERS
Petrol
Hi - Speed Diesel
Diesel
Speed

CHAPTER 7

Undertakings/ Organisations



Undertakings/ Organisations



Bagging of petrochemical products at Panipat Plant

7.1 MAHARATNA CPSEs

7.1.1

GAIL (India) Limited

GAIL (India) Limited, one of the seven Maharatna Public Sector Undertakings, is India's largest company dealing with marketing and transportation of Natural Gas. GAIL is the youngest PSU to be accorded Maharatna status. GAIL owns pipeline network of about 10,900 km length for the purpose of transmission of natural gas, and markets around 79 MMSCMD of natural gas. GAIL also transports Liquefied Petroleum Gas (LPG) through pipeline network of about 2038 Km. GAIL has seven Gas Processing Plants for production of LPG, Propane, Naphtha and Pentane, with a combined production capacity of 1.4 MMTPA. GAIL has a gas based integrated petrochemical plant of capacity 410,000 TPA of polymer, which is further being expanded to a capacity of 900,000 TPA. GAIL is also in the Optical Fibre Cable (OFC) based telecom business. Apart from above, the Company has its presence in Power, Liquefied Natural Gas (LNG), City Gas Distribution (CGD) and Exploration and Production through equity and joint venture participation.

79 MMSCMD
natural gas marketed by GAIL

Performance

The physical and financial performance for the year 2013-14 is given in tables below:

Physical parameter	Performance
Natural Gas Throughput (MMSCMD)	96.22
Natural Gas Trading (MMSCMD)	79.18
Liquid Hydrocarbon Sales (TMT)	1307
Polymers Sales (TMT)	445
LPG Transported (TMT)	3145



Financial parameter	Performance (₹ in Crores)
Sales Turnover (Net of Excise Duty)	57,245
Gross Margin (EBDITA)	7,599
Profit Before Tax (PBT)	6,402
Profit After Tax (PAT)	4,375
Net-worth	26,858
Loans Outstanding	10,268

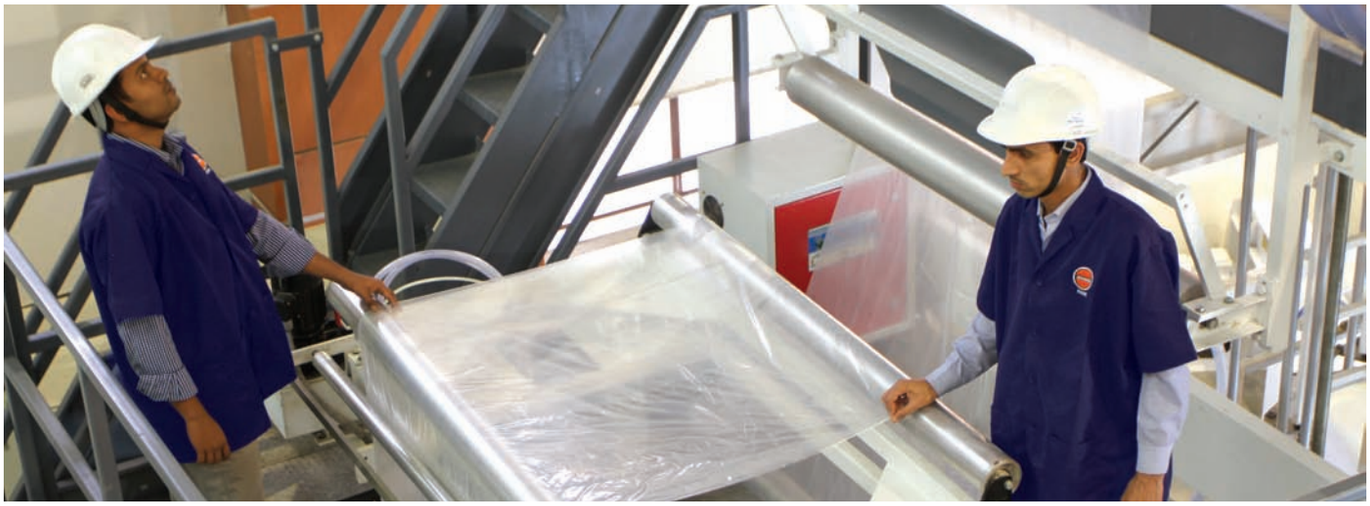
International Cooperation and Engagements Abroad

- In April 2013, GAIL Global (USA) LNG LLC (GGULL), a wholly owned subsidiary of GAIL Global (USA) Inc, entered into agreement with Dominion Cove Point LNG, LP for booking of LNG tolling capacity of 2.3 MMTPA in the Cove Point LNG liquefaction terminal located at Lusby in the state of Maryland, USA and for booking capacity in the associated Dominion Cove Point Pipeline.

₹ 57,245 CRORES

Sales Turnover in 2013-14 (GAIL)

- The partial divestment of GAIL's equity stake in China Gas Holdings Limited (China Gas) was successfully completed in October 2013. GAIL has sold 60 million shares out of 210 million shares held in China Gas at a consideration of ₹ 345 crore.
- Asian Development Bank (ADB) has been appointed as Transaction Advisor for the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline project, a joint effort of four countries for procuring 90 MMSCMD of natural gas from Turkmenistan for Afghanistan, Pakistan and India. GAIL is the nominee of India for participating in the project. ADB (Transaction Advisor) will assist the Parties in formation of TAPI Limited and selection and induction of the Consortium Leader in TAPI Limited, the entity that has to execute the project.



Product Application & Development Centre at Panipat

Projects

- Cumulative Capital Expenditure for FY 2013-14: ₹ 4070.04 Crore.
- Petrochemical Plant by Brahmaputra Cracker and Polymer Limited (BCPL), a subsidiary of GAIL with 70% equity participation: Project has achieved overall physical progress of 96% and financial progress of 81% .
- A project for setting up 110 KTA capacity Poly Butadiene Rubber (PBR) Plant at a cost of ₹ 2,575 crore at Dahej in joint venture with ONGC has been approved.
- GAIL and Shipping Corporation of India (SCI) have entered into a MoU for cooperation in shipping LNG contracted by GAIL from US.
- GAIL has signed a MoU with Paradip Port Trust Limited for setting up a LNG terminal at Paradip in Orissa.
- The gas production from A-1 and A-3 Blocks in Myanmar has started in FY 2013-14 and GAIL has earned revenue of ₹ 148 Crore through the gas produced & transported.

Corporate Awards

- Received ***Premier Project Award inConstruction categoryinPlatts Global Energy Award 2013,*** at New York, USA for Dabhol Bangalore Phase-1 Pipeline Project (1000 Km).
- GAIL has been ranked 1st among Gas utilities in Asia in the ***Platts Global Ranking of Energy Companies in 2012.***

₹ 4,57,553 CRORE

Turnover in 2013-14 (IOCL)

7.1.2

Indian Oil Corporation Ltd. (IOCL)

Indian Oil Corporation Ltd. (IOCL) is India's flagship Maharatna national oil company with business interests straddling the entire hydrocarbon value chain to R&M, R&D, E&P, petrochemicals and marketing of natural gas. By venturing into Renewables and Nuclear Energy, the company has grown and evolved itself from a pure petroleum refining and marketing company to a full-fledged energy company.

Financial Performance

With a turnover of ₹ 4,57,553 crore for the year 2013-14 against ₹ 4,14,909 crore during 2012-13. During the year 2013-14, IOCL registered a profit (after tax) of ₹ 7019 crore vs. ₹ 5005 crore during 2012-13. GRM stood at US$ 4.24/ bbl in 2013-14 as against US$ 3.16/ bbl in 2012-13.

Physical Performance

IOCL refineries marked a throughput of 53.1 MMT during 2013-14. While processing high quantity of HS and highest-ever quantity of Heavy/ High TAN crudes (48.9% and 16.0% of the total crudes processed respectively), the refineries also maintained their highest-ever distillate yield of 78.1%. Support of crude oil pipelines was also in tandem as they transported 45.9 MMT of crude oil, recording capacity utilisation of over 113%. Product pipelines recorded throughput of 27.2 MMT during the year. IOCL maintained its dominance in the domestic POL market during the year with sales of 70.03 MMT of POL products and market

share of 47.1% in the industry. In the petrochemicals segment, highest-ever sales of 2114 TMT were achieved during 2013-14. Highest-ever R-LNG sales volume were also recorded during the year with a sales volume 3.22 MMT.

Marketing & Associated Infrastructure

IOCL reaches millions of people every day through an unmatched countrywide ever-expanding infrastructure network to deliver petroleum products. The network, comprising 41,640 touch points as on 31.03.2014, was strengthened from 39,460 touch points in the last fiscal. Largest and most extensive network of retail outlets, numbering 23993 (17991 Regular ROs; 6002 Kisan Seva Kendras) along with 135 depots, 6359 consumer pumps, 3930 SKO/ LDO Dealers and 98 AFS are some of the vital components of this network, ensuring availability of products and inventory at the doorstep of customers. The needs of domestic fuel (LPG) are fulfilled through 90 plants and 7035 LPG distributors, serving nearly 82 million customers. During the year, IOCL commissioned 1717 ROs including 964 KSKs. In its drive towards automation, 1700 ROs were brought under automation during 2013-14 taking the total to 6077 automated ROs.

Exploration & Production

IOCL's plans of venturing into upstream segment was further strengthened with the successful acquisition of 10% stake in Pacific NorthWest integrated LNG project in Petronas' Canadian asset. With the said acquisition, IOCL has 3 overseas producing assets. In total, IOCL has presence in 13 domestic and 11 overseas blocks as on 31.03.2014.

Major New Projects

Major projects commissioned during 2013-14 include FCCU revamp at Mathura; Butadiene Extraction Unit, Butene-1 unit and Styrene Butadiene Rubber (SBR) plant, all at Panipat. It is worth mentioning that SBR is a 100% import substitution product and is the 1st such plant in the country.

IOCL has a planned capex of ₹ 56,200 crore during XII plan against actual expenditure of ₹ 48,655 crore in XI plan period. Out of the planned capex of XII plan, the company has already invested ₹ 26,038 crore in the first two years of the plan, i.e. up to 31.03.2014. Some of the major ongoing projects are listed below:

7.9%

increase in contribution to National Exchequer compared to previous year

Approved Project	Approved/ Anticipated Cost (₹ Crore)
Paradip Refinery	29777
DCU at Haldia	3076
PP at Paradip	3150
PRRPL	1793
Debottlenecking of SMPL	1584
Paradip-Hyderabad PL	2300

Besides these major approved projects, various other projects in the field of refinery expansion, pipelines, petrochemicals, marketing etc., are under advanced stage of planning.

CSR & Contribution To Exchequer

Corporate Social Responsibility (CSR) has been the cornerstone of success right from inception of IOCL. IOCL has adopted 3 thrust areas under CSR, viz. 'Clean Drinking Water', 'Health & Medical Care' and 'Expansion of Education'. During 2013-14, IOCL's CSR investment was ₹ 85.36 crore.

IOCL paid ₹ 27,293 crores to Central and ₹ 58,871 crore to various State exchequers in 2013-14. The total contribution of ₹ 86,164 crore is 7.9% higher as compared to that in 2012-13.

Major Awards

Major awards and accolades won by IOCL include:

- Ranked 11 in Business India's list of Super 100 companies
- 'Indian Market Capital Deal of the Year' by IFR Asia
- Gold Trophy of 'SCOPE Meritorious Award for Corporate Governance'
- 'ICSI National Award for Excellence in Corporate Governance' instituted by ICSI
- Readers Digest 'Trusted Brand Award 2013', for 7th consecutive year
- PetroFed awards in four categories
- SCOPE Gold Award for Corporate Social Responsibility.

7.1.3

Oil and Natural Gas Corporation Ltd. (ONGC)

Physical Performance

During the year 2013-14, ONGC has made 14 discoveries. Of these, 6 are new prospects and 8 are new pool discoveries. Out of the 14 new discoveries 5 discoveries (3 new prospects and 2 new pools) are in NELP blocks. The process of estimation of oil & gas reserves for the year 2013-14 is in progress. For the sake of record; ONGC accreted Ultimate reserves of 84.84 MMTOe during 2012-13. Domestic production including ONGC's share in JV-PSCs was 50.86 MMTOe (crude oil being 22.246 MMT; natural gas being 23.284 BCM; the rest being ONGC's share of production from domestic JVs); production of Value Added Products-VAP like LPG, C2-C3, SKO, ATF, Naphtha, HSD etc; being 3016 KT.

Financial Performance (nine months ending 31.12.2013)

As per board approved results, ONGC earned a total income of ₹ 67934 Cr; with the PBT & PAT being ₹ 25455 Cr and 17206 Cr respectively. With an under-recovery discount given to OMCs standing at ₹ 40182 Cr, the Net oil price realisation stood at 43.75 US$/bbl. The Plan expenditure during the same period stood at ₹ 23076 Cr against an annual target of ₹ 35049 Cr.

Major Corporate Highlights

1. ONGC acquires 5% equity of Indian Oil Corporation Ltd amounting to 121,397,624 equity shares for ₹ 26,707,477,280/- .
2. ONGC Tripura power Company (OTPC) formally announced the Commercial Operation Date (CoD) of its first unit (363.3 MW) on 31st December 2013.Fetching 1.6 million carbon credits per year, this is one of the biggest CDM projects in the world.
3. ONGC's first deep water sub-sea well G1-11 was completed in eastern offshore and was successfully put on production on November 17, 2013. The well is located at a water depth of 429 meters and is connected to the sub-sea manifold installed at a water depth of 205 meters.

14

new discoveries by ONGC during 2013-14

4. ONGC and Engineers India Limited (EIL), intend to set up a 500 KTPA Propane-de-hydrogenation (PDH) based integrated Facility in the Domestic Tariff Area (DTA)/ Mangalore SEZ Area, by creating a Joint Venture (JV) Company. In pursuance of this, ONGC & EIL signed a Summary of Understanding (SOU) on June 6, 2013.
5. ONGC signed an MoU on April 9 2013 , with M/s Chambal Fertiliser and Chemicals Ltd. (CFCL) and the Government of Tripura for setting up a 1.3 MMTPA capacity urea fertilizer plant in Tripura. Feedstock for the proposed plant (Natural gas) will be supplied from Khubal field in AA-ONN-2001/1 block where substantial gas reserves have been established. Gas requirement for the plant is estimated to be 2.4 MMSCMD. The project cost is estimated to be ₹ 5,000 Crore. Government of Tripura will have 10% equity in the venture.
6. ONGC Deepwater Drilling team has set record for drilling deepest ultra-deep-water well in India by successfully drilling well KG-DWN-2005/1-D-1 by Rig DDKG1.
7. ONGC has commissioned its first ever FPSO (Floating Production Storage & Offloading) facility at NBP (D 1) Field recently. First FPSO loading commenced in the second week of May 2013.
8. ONGC's has inked an MoU with Halliburton Offshore Services Inc. for cooperation in certain thrust areas like stimulation, sand control, conformance control, heavy oil, exploitation of tight gas reservoirs etc.,
9. ONGC has made an impressive jump of 16 places from last year's position to be ranked 155 globally in the latest list of "The Forbes Global 2000" released on April 17, 2013.Out of 56 Indian companies figuring in the list RIL stands at 121, SBI at 136, followed by ONGC. In the industry ranking of the list, ONGC stands at 23, globally, under the Oil and Gas Operations industry.



LPG Bottling Plant at Bareilly

7.2 Navratna CPSEs

7.2.1

Bharat Petroleum Corporation Ltd. (BPCL)

Bharat Petroleum Corporation Ltd., (BPCL) a Government of India Undertaking (Navratna), came into existence on 24th January, 1976 subsequent to the Government of India acquiring Burmah-Shell Oil Storage & Distribution Company of India and Burmah-Shell Refineries Limited.

BPCL is an integrated oil company in the downstream sector engaged in refining of crude oil and marketing of petroleum products. The Authorised Share Capital and Paid up Capital of the company as on 31/12/2014 was ₹ 2500 crore and ₹ 723.08 crore respectively

BPCL has Refineries at Mumbai and Kochi with a combined refining capacity of 21.5 MMTPA. The Refineries are certified for ISO 9001, ISO 14001 and OHSAS 18001, had throughput of 13.03 MMT and 10.32 MMT respectively during 2013-14.

BPCL with 13,213 employees has an all-India presence through its extensive marketing network and is the second largest oil marketing co. with Market Sales of 34.0 MMT & market share of 23.49%.

Marketing Profile

BPCL has a robust distribution network comprising of 115 storage depots, 12 major installations, 50 LPG bottling plants, 36 Aviation Service Stations, 12531 Retail Outlets, 3367 LPG Distributorships, 2 lubricant blending plants and 1938 KM cross-country pipeline.

21.5 MMTPA

combined refining capacity at BPCL

Financial Performance

The financial performance of the Corporation during 2013-14 stood at a Gross Sales Turnover of ₹ 2,70,910.31 crores and Profit After Tax (PAT) of ₹ 4060.88 crores.

Exploration and Production

Bharat Petro-resources Ltd (BPRL), BPCL's 100% subsidiary company and which was conferred B type company recently, has participating interest in 24 exploration blocks in consortium with various partners in India and abroad.

Out of these 24 blocks, 11 are in India, 9 in Brazil, and 1 each in Mozambique, Indonesia, Australia and East Timor with total acreage of 100000 Sq.Kms. BPRL consortium has a total of 18 discoveries.

BPRL has invested over ₹ 6550 crores for its projects and commitments in excess of USD 1.5 bn. The total cumulative outlay for a 5 year period till the end of 2015-16 is to the tune of USD 2.2 bn.

Ongoing Projects

Replacement of CDU/VDU at Mumbai Refinery

The project envisages installation of new state-of-the-art integrated Crude & Vacuum Distillation unit (CDU/VDU) of capacity 6 MMTPA as a replacement of old Crude and Vacuum units to enhance safety & environment with improved mechanical integrity. The approved cost of the project is ₹ 1419 crs and is expected to be completed by December 2014.



Lube Blending Plant at Silvassa

Integrated Refinery Expansion Project (IREP) at Kochi Refinery

The project envisages expansion of the capacity of Kochi refinery by 6 MMTPA from the present 9.5 to 15.5 MMTPA and modernise the refinery to produce auto fuels conforming to Euro –IV/V specs. The approved cost of the project is ₹ 14225 crs. and is expected to be completed by May 2016.

LPG transfer pipeline from BPCL & HPCL refineries at Mumbai to Uran

The project envisages laying of submarine pipeline of 10" diameter and 28 Km length from BPCL and HPCL Mumbai refinery to Uran LPG plant at an approved cost of ₹ 276.84 crs and is expected to be completed by June 2014.

Kota Jobner Pipeline Project

The project envisages laying of 210 Km long 14 inch dia. pipeline from Kota to Jobner at an approved cost of ₹ 276.27 crores and is expected to be completed by March 2015.

CSR

BPCL has a strong commitment towards CSR. The main thrust areas amongst others in CSR are Education, Water Conservation, Skill Development, Health & Community development.

Contribution to Exchequer

BPCL's contribution to the exchequer during 2013-14 is ₹ 43602.22 crs. (Provisional)

₹ 43,602 CRORE

BPCL's contribution to the National Exchequer during 2013-14

Major Accolades / Awards received

- National HRD Network award for creating conducive environment for women at the workplace
- Kerala State Pollution Control Board award to Kochi refinery
- Star PSU of the Year award for 2013 by Business Standard
- ICC's PSE Excellence Award 2013 for Operational Performance
- CSI National Award for Excellence in IT to Mumbai Refinery
- CSR Excellence Award to KR
- BPCL featured amongst the four Indian Companies in the top category of "BRICS Carbon Ranking".

7.2.2

Hindustan Petroleum Corporation Ltd. (HPCL)	

Hindustan Petroleum Corporation Limited (HPCL) is a Navaratna and a Global Fortune 500 company, ranked at 260 with an annual Gross sales of ₹ 2,32,188 crore during FY 2013-14 and having a strong presence in Refining & Marketing in India with about 21% Marketing share and 18% Refining capacity in the PSU category in the country.

The **2012-13** performance of the Corporation has qualified for **'Excellent'** rating in terms of the MOU signed with the Government of India with an **MOU score of 1.034,** which is the best score amongst all the PSUs under MOP&NG for the second successive year.

Physical Performance

The total sale of products during 2013-14 was 31.1 MMT, achieving a growth of 4.1% over historical. Domestic sales were 30.3 MMT, Pipeline throughput was 15.7 MMT and the refineries processed 15.51 MMT of crude. During 2013-14, HPCL has become India's largest lube marketer with Lubricant sales of 484 TMT during the year.

Financial Performance

The Corporation has earned a Profit after Tax of ₹ 1,734 crore during 2013-14 as compared to ₹ 905 crore in 2012-13. HPCL has contributed a sum of ₹ 36,423 crore to the exchequer by way of duties and taxes as compared to ₹ 32,174 crore in 2012-13.

Marketing and Associated Infrastructure

HPCL owns and operates Refineries at Mumbai & Visakh with a designed capacity of 6.5. MMTPA & 8.3 MMTPA respectively. HPCL also owns the largest Lube Refinery in the country at Mumbai for producing Lube Oil Base Stockswith a capacity of 450 TMTPA. HPCL in collaboration with M/s Mittal Energy Investments Pte Ltd. is operating a 9 MMTPA capacity Refinery at Bathinda in Punjab andalso holds an equity of about 16.95% in the 15 MMTPA Mangalore Refinery and petrochemicals Ltd. (MRPL).

HPCL has the second largest share of product pipelines in India with a pipeline network of more than 2,500 kmsfor transportation of petroleum products and a vast marketing network consisting 13 Zonal offices in major cities and 101 Regional Offices facilitated by a Supply & Distribution infrastructure comprising of 35 Terminals, 68 Inland Relay Depots, 35 Aviation Service Stations, 46 LPG Bottling Plants, 7 Lube blending plantsand 22 Exclusive Lube Depots. The customer touch points constitute of 12869 Retail Outlets, 3506 LPG Distributorships, 1638 SKO/LDO dealerships189 CNG outlets, 218 Auto LPG Dispensing stations and 94 Commissioning & Forwarding Agents as of March 2014.

HPCL's Foray into Exploration & Production

The E&P activities of HPCL are being undertaken through M/s Prize Petroleum Company Limited (PPCL), a wholly owned subsidiary company of HPCL. During 2013-14, PPCL has signed a Sale Purchase Agreement with M/s AWE, Australia to acquire stake in two natural gas blocks in Australia, viz., 11.25% participating interest in a producing field "Yolla" and 9.75% interest in a discovered, to be developed field "Trefoil" for a total consideration of AUD 85 Million. During 2013-14 about 5.564 TMT of crude oil was produced.

31.1 MMT

HPCL's total sale of products

New Projects

HPCL has taken up a number of infrastructure projects for capacity expansion, viz., Mounded LPG Storage and Jetty Facility at Mangalore LPG Import Facility, Mangalore; New LPG Bottling Plants at Solapur, Bhopal and Bangalore, New POL Depots at Bokaro ,Bihta and Kadapa and Revamping of POL Terminals at Paradeep and Budge Budge; 3 Product Pipelines i.e., (i) 442 km long Rewari–Bharatpur-Mathura–Kanpur product pipeline, (ii) 93 km long Awa–Salawas product pipeline and (iii) 14 km long Bahadurgarh-Tikrikalan product pipeline, and 1 LPG Pipeline i.e., 397 Kms long Mangalore–Hassan–Mysore-Solur LPG Pipeline.

In the Natural Gas segment, HPCL has initiated the project activities for setting up a 5 MMTPA LNG terminal at Chhara, Gujarat in a JV partnership with M/s S P Ports Pvt Ltd (a group company of M/s Shapoorji Pallonji). Further, HPCL is participating in two separate Joint Venture companies for laying, building and operating three (3) natural gas pipe lines.

The future plans in Refining include expansion of the existing Refineries at Mumbai to 10 MMTPA and Visakh to 15 MMTPA and setting up a new 9 MMTPA Refinery-cum-Petrochemical complex at Barmer, Rajasthan as a JV with Govt. of Rajasthan.

CSR

HPCL is committed to achieve the economic, ecological & social responsibility objectives of sustainable development consistently through varied operations and activities. HPCL's focus areas are in the fields of Child Care, Education, Health Care, Skill Development & Community Development, touching lives of weaker section of society and a total of ₹ 23.74 Crore was spent for CSR activities during 2013-14.

Awards and Recognitions

HPCL has received a number of Awards and Recognitions in various national and international forums for the various initiatives undertaken. Some of the salient awards are the PSU Award - 2013 for Overall Growth & Competitiveness under Navaratna Category, Golden Peacock Award for Corporate Governance, Reader's Digest Trusted Brand Gold Award in Petrol Station category, Greentech Gold Award for Best HR Strategy,

BML Munjal award for Learning & Development, Civic award for sustainable development by Bombay Chambers, the FICCI CSR award 2012-13, Golden Peacock Special Commendation Award for CSR, BT-STAR PSU Excellence award 2013 for CSR and Indira Gandhi Rajbhasha Puraskar for best usage of Hindi.

7.2.3

Oil India Limited (OIL)	ऑयल इंडिया लिमिटेड OIL INDIA LIMITED

Oil India Limited (OIL) is engaged in the business of Exploration, Production and Transportation of Crude Oil and Natural Gas and Production of LPG. A Navratna Company under the Ministry of Petroleum and Natural Gas, Government of India, it is the second largest national oil and gas company in India as measured by total proved plus probable oil and natural gas reserves and production. OIL was incorporated as a private limited company in 1959. With a glorious legacy of hydrocarbon exploration spanning over five decades and with the Core Purpose of "The fastest growing Energy Company with Global presence providing value to stakeholders" OIL has carved a niche as a premier Indian national oil company engaged in the upstream sector with a share of 10% of the country's total crude oil production and over 6 % of natural gas production. The authorized and paid up capital of the Company as on 1st of April 2014 are ₹ 2000 crore and ₹ 601.14 crore respectively with 68.43 % being held by the Government of India.

A fully integrated upstream company, OIL has a Pan-India presence, with blocks all over India from the North East to the deserts of Rajasthan as also in the deep waters in the East Coast. Its Main Producing Areas are in Assam and Arunachal Pradesh in North East India and Rajasthan in the western frontier from where its entire crude oil production and majority of gas production comes from. Rajasthan is the other area of OIL from where it is producing around 9 % of its total gas production. OIL is also accelerating exploration in frontier areas and NELP blocks pan-India in prospective basins. OIL has been participating in the NELP since its inception and has participated in all the 9 rounds held so far. From the first nine rounds of NELP bidding, OIL now has 30 blocks, either alone or in partnership with other national or international companies with operatorship in fifteen blocks. The strategy is to achieve sustainable growth. To consolidate its position globally OIL is also scouting to acquire producing assets and exploration blocks in prospective countries.

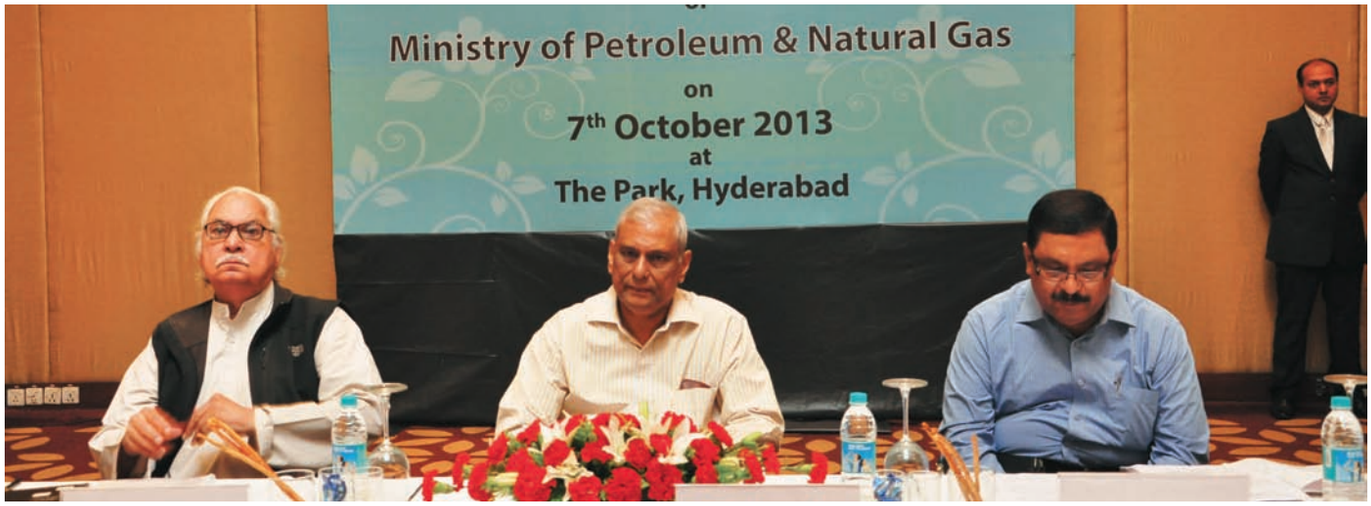
1.6 LAKH SQ KM
acreage of OIL's E&P blocks

Over the last decade OIL has spread its wings overseas and is present in Libya, Gabon, Nigeria, Sudan, Yemen, Venezuela as well as in USA, with 20% stake in Carrizo Oil & Gas Inc's liquid rich Niobrara shale assets in Colarado, USA. In 2013 OIL along with OVL acquired 10% stake in Rovuma Area 1 Offshore Block in Mozambique and also won two offshore shallow- water blocks in Bangladesh. Further OIL won two shall-water exploration blocks in Myanmar. These ventures are big overseas wins for OIL and are in line with the Company's strategy for overseas acquisitions.

OIL has a strong oil and gas reserves base and is having about 1.60 lakh Sq. Km of acreages including domestic and international for its exploration & production activities OIL primarily conducts its activities with respect to its domestic producing blocks and exploration activities in nomination blocks independently. It also conducts exploration activity, both in India and overseas, through Joint Venture (JV) arrangements and Production Sharing Contract (PSC) with other oil companies.

The Company also made its first discovery in an NELP Block as operator in Rajasthan. Heavy oil was discovered in Block: RJ-ONN-2004/2, Punam -1 well located to the North-East of Baghewala structure within the Bikaner-Nagaur Basin. In Gabon overseas Block where OIL is the operator, a discovery was made in the third well that was drilled. This is the first discovery of OIL in an overseas venture as an operator. These discoveries have opened up new avenues which reflect a significant growth potential.

OIL has interests in downstream activities through a 26% equity stake in NRL, a 10% equity stake in BCPL and a 23% equity stake in DNP Limited. It also holds 10% equity stake in a 741 kilometre pipeline construction project in Sudan that was completed in 2005. OIL has the ability to provide various exploration and production-related services to the oil and gas industry, both domestically and internationally, including pipeline construction, pipeline consultancy services, drilling and well work-over services, research & development services and logging services.



Meeting of Scientific Advisory Committee of Hydrocarbons, MOP&NG on 07.10.2013 at Hyderabad

OIL also sells its produced gas to different customers in Assam viz. AGCL, BVFCL, ASEB, NEEPCO, IOC (AOD), APL and Tea Gardens (over 350 nos) and to RRVUNL in Rajasthan. The Company also produces Liquefied Petroleum Gas (LPG) in its plant at Duliajan, Assam.

The company operates a 1157 Km long crude oil pipeline in the North East for transportation of crude oil produced by both OIL and ONGCL in the region, to feed Numaligarh, Guwahati, Bongaigaon and Barauni refineries and branch line to feed Digboi refinery. Besides its crude oil trunk pipeline, OIL had also commissioned a 660 Km long product pipeline from Numaligarh Refinery to Siliguri. Since many of the facilities associated with the pipeline are more than 50 years old, the Company has currently undertaken a project for upgradation of all the pump stations.

Oil India had successfully completed its IPO in September, 2009, with an overwhelming over-subscription of 31 times. The shares were listed with NSE/BSE and since then it has been consistently performing well on the bourses viz. NSE and BSE. This shows the confidence of the shareholders and investors in the Company.

It was a moment of reckoning for OIL in April 2010 when it was awarded Navratna status in recognition of its core competencies in the petroleum business, especially in prospecting and pipeline technology apart from best practices associated with them

The Fiscal 2013-14 for OIL was marked with a number of achievements, highlights of which include:

- The Company made a total of six(6) hydrocarbon discoveries including one in overseas block in Gabon.
- Crude oil production was 3.502 MMT as compared to 3.70 during 2012-13 and Natural gas production was 2626 MMSCM as compared to 2639 MMSCM during 2012-13
- Production of LPG was 46640 MT as compared to 46010 MT during the year 2012-13.
- Profit After Tax (PAT) was ₹ 2981.30 crore.
- The turnover for 2013-14 was ₹ 9612.70 crore.
- Earnings per Share (EPS) was ₹ 49.59.
- Dividend payment of 215%
- The Company obtained International credit ratings-Moody's "BAA2" (higher than sovereign rating) and Fitch Rating "BBB-" (Stable) (equiv alent to sovereign rating).
- Invested ₹ 6,412,84 crore in acquisition of 40% shares in Beas Rovuma Energy Mozambique Limited(BREML) (formerly Videocon Mozambique Rovuma 1 Limited) holding 10% participating interest in Rovuma Area 1 Offshore Block in Mozambique.
- Raised short term bridge loan of USD 1.03 billion for financing Mozambique acquisition.
- Raised first External Commercial Borrowing of USD 250 million for financing domestic capital expenditure.
- Acquired 5% Equity Stake in IOCL for ₹ 2,670.74 crore.
- Highest ever subsidy discount to the tune of ₹ 8,737 crore in line with Government policy.



Petrochemical Plant at Dahej Gujarat

- Under Bangladesh Offshore Bid Round 2012, the consortium of ONGC Videsh Ltd(OVL) & Oil India Ltd.(OIL) were awarded two offshore shallow – water blocks in Bangladesh with 50% participating Interest in each block.
- An OIL led consortium participated in Myanmar Offshore Bidding Round-2013 and was awarded two shallow-water exploration blocks. OIL with 60% Participating Interest is the operator in both the blocks.
- In its endeavour to harness Unconventional Energy, OIL successfully commissioned its first mega Solar Power Project of capacity 5MW in Jaisalmer, Rajasthan during the year. Commercial generation from the plant also started from 23rd January 2014 onwards.
- The Company also made substantial contribution both to the State and Central exchequer in terms of Cess, Royalty, Sales Tax etc.
- It is also a matter of great pride that the Company's audited annual accounts have "Nil" comments from the Comptroller and Auditor General of India for the eleventh year in succession.

Competitive Strengths

OIL believes that its success can be attributed to a combination of the following competitive strengths:

- Its large proved plus probable reserves of crude oil and natural gas in the Upper Assam basin.
- Sizeable domestic and international exploration acreage in basins with a track record of commercial discoveries and known accumulation of hydrocarbons.
- Track record of making and exploiting small to medium size discoveries.
- Its reservoir management skills for ageing and depleting fields.
- Its beneficial cost structure resulting from its status as an integrated exploration and production company with over five decades of operating experience, development and production operations, and effective use of its large store of geological data and expertise.

Strategy For Growth

OIL would like to be "The fastest growing Energy Company with Global presence, providing value to stakeholders." The key focus areas for growth of the Company broadly cover the following:

- Continue to induct world class technology
- Maintain and enhance reserves & production from NE assets.
- Focus on organic growth
- Vertical integration along oil and gas value chain
- Acquire blocks to augment existing reserve base
- Acquisition of companies that are value accretive
- Selective diversification along the value chain
- Explore alternate energy opportunities in existing acreage as well as inorganic opportunities
- Expand further in to renewable energy segment i.e. wind / solar
- Becoming a world leader in IOR/EOR services

In order to ensure competitiveness vis-à-vis industry players, the Company has undertaken growth initiatives towards streamlining the business process and practices with focus on :

- Investing in state-of-the-art technology;
- Addressing the challenge of integrating risk with corporate strategy and business plans.

Renewable Energy

In its endeavour to harness Unconventional Energy, the Company had commissioned a 13.6MW Wind Turbine plant at Ludhureva in Jaisalmer District in Rajasthan on 31st March, 2012. The wind farm was successfully connected to the power grid of Rajasthan Rajya Vidyut Utpadan Nigam Ltd (RRVUNL). During the financial year 2012-13 the Company successfully commissioned additional 54 MW Wind power in Rajasthan. Additionally a 100 KW solar energy power project at Duliajan, Assam and one at Jaisalmer, Rajasthan also commissioned in 2012-13.In 2013-14 OIL OIL successfully commissioned its first mega Solar Power Project of capacity 5MW in Jaisalmer, Rajasthan. OIL has plans to take up larger projects in the future in both Wind Power and Solar Power.

Core Competency

Exploration

OIL's synergic approach to exploration has been mirrored in its high exploration success of over seventy percent. OIL has been pioneer in the field of exploration and has E&P experience of more than 100 years in logistically difficult and geologically complex areas in North East India. It possesses latest state-of-the-art technology resources for 2D and 3D seismic data acquisition, processing and interpretation. OIL has set up a new state-of-the-art Virtual Reality (VR) Centre, named "Kalpalok", in its Field headquarter at Duliajan, Assam. At the VR Centre, hi-end computers create realistic, interactive environment where multi-disciplinary teams can visualize and interact with the subsurface data in a realistic three dimensional work frame and analyze the hydrocarbon prospects in a particular area. OIL owns advanced equipments (Global Positioning Systems, Differential Global Positioning Systems, Electronic Total Stations for Geodetic survey, GMG soft-ware for field survey design and state-of-the-art RSR and SN-388 equipment) for 2 D and 3D seismic data acquisition. Its state-of-the-art Processing Centre at Duliajan has capability to carryout 2D, 3D and VSP processing, AVO Modeling and Inversion studies. OIL is fully equipped in terms of resources to carry out Structural and Stratigraphic interpretation, Seismic attribute analysis, Source rock evaluation, Bio-stratigraphy, Petrophysical analysis, Basin analysis and Techno-economic evaluation of prospects.

Drilling

The drilling professionals of OIL possess vast experience and expertise of drilling in very difficult surface and sub surface environment and extreme climatic conditions. The drilling challenges contrast through shallow wells to super deep wells, sub normal to highly abnormal pressure & temperature wells and development to real wild cat wells having straight and directional trajectories. OIL operates in deep waters of Bay of Bengal & Arabian sea, both the banks of mighty Brahmaputra including deep & wild rain forests of North East India, the Thar desert of Rajasthan and in the foothills of Himalaya in Ganga Valley with average peak performance of 20,000 M/Rig/yr. OIL has a legacy of pioneering innovations and achievements. The first directional well of India was drilled by OIL as far back as 1962 to explore the horizon below the Dihing River in Upper Assam.

Well Logging

Oil India Limited possesses modern wire line logging and interpretation technology resources for catering to the Exploration & Production needs in its onshore operational areas.

Production

Company's remarkable production performance in crude oil and gas production over the last few years has been primarily possible due to measures like:

- Prioritization of development / infill drilling
- Debottlenecking of production infrastructure and flow lines
- Work Over of wells / Well Stimulation and servicing
- IOR/EOR
- New discoveries brought on production early

Pipelines

Commissioned in 1962, the 1157 Km long fully automated crude oil pipeline is the lifeline of OIL. This 5.5 MMTPA capacity pipeline transports crude

oil produced fro-m oilfields in Upper Assam to the public sector refineries at Numaligarh, Guwahati and Bongaigaon. The pipeline runs through the states of Assam, West Bengal and Bihar traversing hostile terrain, dense forests and cuts across 78 rivers including the mighty Brahmaputra. The 600 Km pipeline segment between Bongaigaon and Barauni has been re-engineered to enable oil flow in either direction and is now transporting RAVVA crude from Baruni to Bongaigaon. Digboi refinery is fed through a separate pipeline. A 16" dia and 660 KM long product pipeline of capacity 1.7 MMTPA was constructed from Numaligarh to Siliguri to evacuate products of Numaligarh refinery. The project was completed in August 2008 and in now under regular operation.

OIL has also 23% participating interest in the Duliajan-Numaligarh Gas Pipeline under construction. OIL is providing specialist services to DNP Ltd for this new gas pipeline. State-of-the art power plant, telecommunication, SCADA and cathodic protection systems are in place for the management and automation of the pipeline since inception. The systems are maintained in-house and continually upgraded. The SCADA has been upgraded and expanded to cater to both the crude and product pipelines. Sophisticated leak detection system has been installed for the product pipeline. The telecommunication systems have been upgraded with broadband OFC and the spare capacity leased out to third parties generating additional revenue to the Company.

The Pipeline Business Development Cell continues to explore new business opportunities in the multiple disciplines of the Pipeline Industry both in country and overseas.

7.3 MINIRATNA CATEGORY - I CPSES

7.3.1

Balmer Lawrie & Company Limited

BalmerLawrie& Co. Limited (BL) is a company headquartered at Kolkata with operations spread throughout India. The company has significant transnational business interests with joint ventures in Dubai and Indonesia and a wholly owned subsidiary in UK. The Company also has several joint ventures in India.

The Company's business interest span both manufacturing and services. The Company achieved a Gross Turnover of ₹ 2842.89 crores during 2013-14 and Profit before Tax of ₹ 219.62 cores. The actualplan expenditure for the 2013-14 in the 12th Plan Period is ₹ 119.55 crores. Expenditure proposed for the year 2014-15 in the 12th Plan Period is ₹ 62 crores.

The major activities of the Company have been classified into Strategic Business units with fair autonomy in running of each business unit. The business units are shown as under classifying them under manufacturing and services :-

I. Manufacturing

(a) Industrial Packaging

(b) Greases & Lubes

(c) Performance Chemicals

II. Service

(a) Logistics Infrastructure

(b) Tours & Travel

(c) Logistics Services

III. Research & Development

(a) Technology Product Development, Kolkata

(b) Applications research Laboratory, Kolkata

(c) Product Development Centre, Chennai

The company also operates a wholly owned subsidiary in UK and seven joint ventures, two of which are outside the Country (one in UAE and the other one in Indonesia) and the rest are in India.

7.3.2

Chennai Petroleum Corporation Limited (A group company of IndianOil)

Chennai Petroleum Corporation Limited (CPCL) (formerly known as Madras Refineries Limited) is a group company of Indian Oil Corporation Limited with IOCL holding a share of 51.89%. CPCL has two refineries at Manali and Nagapattinam (Cauvery Basin Refinery) each having capacities of 10.5 MMTPA and 1.0 MMTPA respectively. Refinery at Manali has all the secondary processing units to produce products meeting the Euro IV quality norms.



Training of Community Health volunteers for maternal health care in rural areas

The main products of the company are LPG, Motor Spirit, Superior Kerosene, Aviation Turbine Fuel, High Speed Diesel, Naphtha, Bitumen, Lube Base Stocks, Paraffin Wax, Fuel Oil and Hexane. In addition, CPCL, as a mother industry, supplies Petrochemical feed stocks like Propylene and Butylenes stream to other downstream industries for the manufacture of Propylene Oxide, Propylene Glycol, MEK and Polybutylene, and Kerosene stream for the manufacture of Linear Alkyl Benzene.

Performance

Physical Performance

- CPCL processed 10,624 Thousand Metric Tonnes (TMT) of crude oil during 2013-14 as against 9,742 TMT in 2012-13.
- The Total distillate yield was 69.9 % during 2013 -14 as against 67.8% during 2012-13.
- Energy index (MBN) for Manali refinery was the lowest at 62.1 for 2013-14 as against 65.8 in 2012-13.

Financial Performance

- CPCL achieved a turnover of ₹ 52474.22 Cr (Provisional, subject to Audit) during 2013-14 (₹ 46912.75 Cr during 2012-13).
- Profit After Tax for the year 2013-14:

10,624 TMT

Crude Throughput for Chennai Petroleum Corporation in 2013-14

Summary of Performance

	2012-13	2013-14
Crude Throughput in TMT	9742	10624
Total Distillate %	67.8	69.9
Turnover (₹ Cr.)	46913	52474 (Provisional, subject to Audit)
Profit Before Tax (₹ Cr.)	(1698)	To be finalised
Profit After Tax (₹ Cr.)	(1767)	

Note –A: The financial results for the year 2013-14 are proposed to be taken up at the ensuing Board Meeting of the Company on 16.05.2014.

Projects

Resid up-gradation Project

To improve the distillate yield of Manali refinery, a Resid Upgradation Project is under implementation at an estimated cost of ₹ 3110.36 Crores. This project involves installation of Delayed Coker Unit and Revamping of existing Hydrocracker Unit along with other associated facilities. The project is anticipated to be completed by November 2015.

Mounded Bullet Storage

As a risk reduction measure and in order to provide intrinsically passive and safe environment, the Mounded Bullet Project is under implementation for LPG and Petrochemical feed stock storage at an estimated cost of ₹ 279 Crores. This project will be completed mechanically by October 2014.



ISOM Plant of Euro IV Project at a Refinery in Manali

New 42" Crude Oil Pipeline

A new 42 inch Crude Oil Pipeline Project, from Chennai Port to Manali Refinery, with enhanced safety features is initiated to ensure reliable and faster crude transfer from Port. The estimated cost of the project is ₹ 126 crore. The scheduled completion is by July 2015.

7.3.3

Engineers India Limited

Engineers India Limited (EIL), established in 1965, with its head office in New Delhi, provides project engineering and consultancy services to the hydrocarbon industry and has, over the years, diversified its services portfolio to include fertilizer, water, nuclear and solar power segments of the industrial sector. EIL entered its 50th year of operations on March 15, 2014 with celebrations marking the beginning of its Golden Jubilee year.

The range of services provided by the company span from project conceptualising to project commissioning including revamp, capacity expansion and modernisation of plants. The services portfolio includes Pre-Project Services, Specialist Services and Turnkey Contracting comprising EPC (Engineering, Procurement & Construction) and OBE (Open Book Estimate) modes of project execution. To enhance business growth which leverages the organisation's current assets and capabilities, a business growth and diversification strategy plan has been developed taking into account the organisational factors intrinsic to EIL.

₹ 1,824 CRORES

Turnover for EIL in 2013-14

A ISO 9001 certified company, EIL has a network of Regional Offices in Chennai, Vadodara and Kolkata; branch office in Mumbai, overseas engineering / marketing office in Abu Dhabi which is the hub of company's activities in Middle East. There are Inspection/Procurement offices at various locations all over India and in London, Milan and Shanghai with construction offices at project sites both in India and abroad. EIL has a subsidiary, Certification Engineers International Ltd for providing certification and inspection services and has two joint ventures – M/s TEIL Projects Ltd with M/s Tata Projects Ltd in New Delhi and M/s. Jabal EILIOT Company with M/s IOT Infrastructure & Energy Ltd and M/s Jabal Dhahran Company Ltd in Saudi Arabia.

EIL has one of the largest multi disciplinary engineering workforce with over 4.5 million manhours available in its design offices along with 7500 man months of construction management services annually. The company's employee strength as on 31.03.2014 was 3276 with women employees comprising 12.18%.

During the year, the Government divested 10% of equity through an FPO thereby reducing its equity shareholding in the company to 69.4%.

Performance Highlights

Business Secured: During the year new business worth ₹ 1155 crores was secured, comprising consultancy business of ₹ 477 crores and LSTK business of ₹ 678 crores.

Financial Performance: The turnover and profit before tax of the company for 2013-14 was ₹ 1824 crore and ₹ 698 crore, respectively.

Policy Initiatives:

Salient policy initiatives of the year include the following:

Business Development: For enhancing business reach, MOUs were signed for engineering consultancy services and the company participated in various international forums, seminars/conferences including PETROTECH 2014 and the International Seminar and Conference ADIPEC 2013.

HR Development: Besides the various ongoing HR interventions, the initiatives pursued in the year include implementation of Assessment & Development Centres for senior executives; Mentorship Development Programme for new joinees; Leadership Development programme "Aarohan" to develop young leaders and signing of Performance Contracts based on Balance Score Card.

Technology & Sustainable Development: The technology development projects initiated during the year included high level oxygen enrichment process to enhance SRU capacity; generic mathematical model of fluidised bed gasifier for processing coal, high ash coal and mixture of coal and petcoke for pilot gasifier being setup at EIL-R&D and Gas Membrane Technology for H2 recovery from refinery off-gases. The technology commercialisation initiatives included successful commissioning of CFC technology-based LPG treating units at MRPL, Mangalore and AOD, Digboi. For sustainable development and adoption of green technologies, statutory environmental & safety requirements during design and delivery of project services were addressed.

CSR Initiatives: The Company's CSR activities focus on backward areas and the underprivileged in society. The initiatives include adoption of 100 villages/ vidyalayas in rural/tribal areas of Dibrugarh, Assam; Free Health & Eye Check up camps in backward and slum areas of NCR; Mega Eye Screening and Cataract operation camp in Dibrugarh, Assam; construction of Reverse Osmosis (RO) water treatment plant for augmenting potable water supply in Kancheepuram District; RO plants in six villages of Kakinada District; construction of water supply pipeline from overhead tanks to individual houses in villages of Padur; installation of RO water treatment plant in 8 rural villages of Chickballapur and installation of ROs in Boys & Girls Hostels / Blocks in Bapatala & Prakasm district. Other CSR initiatives include completion of solar power plants in two remote villages of Kargil region; distribution of sewing machines for training of underprivileged women & girls of Bapatla District; distribution of adult diapers and items for the elderly and destitute persons of Old Age Home and Orphans Welfare Society at Delhi. Projects under implementation include construction of one block of Old Age Home at Lathira, UP; renovation of toilet blocks of Andh Vidyalaya at Delhi; supporting vocational training for hearing impaired and handicapped women and construction of a multi-purpose hall for the Old Age Home in Mirzapur, Uttar Pradesh and installation of Green Cremation Systems in various locations of Delhi NCR.

15 MMTPA

Refining capacity for MRPL

7.3.4

Mangalore Refinery and Petrochemicals Limited (MRPL)

Mangalore Refinery and Petrochemicals Limited (MRPL), the first ever Joint Venture Petroleum Refinery in India, was formed in 1987 by M/s Hindustan Petroleum Corporation Limited, a Navratna public sector oil company and M/s Indian Rayon & Industries Limited and its associate companies (AV Birla Group). Subsequently ONGC acquired equity upto the level of 71.62% in MRPL. Consequently MRPL became a schedule-B Miniratna Category II-Public Sector Company.

The refinery is located on the western coast of India close to the Middle East and Far East Crude and product markets. The refinery was primarily conceived to maximise middle distillates and Fuel oils which were then in short supply in India. The Refinery is designed to process light to heavy and sour to sweet crude. It is connected to an all weather major Port viz new Mangalore Port. It has developed on user funded basis two dedicated berths for handling import of crude and export of products. A new SPM (Single Point Mooring) was commissioned during the current financial year for handling of Suez Max and VLCC crude vessels.

The initial processing capacity of MRPL was 3.69 million metric tonnes per annum. It was subsequently expanded from time to time. Presently capacity of MRPL is 15 MMTPA. The crude reefing capacity utilised in the refinery was 96.8% in 2013-14.

The Refinery has got a versatile design with high flexibility to process Crudes with 24 to 46 API gravity and has high degree of Automation. MRPL is the only

Refinery in India to have 2 Hydrocrackers producing Premium Diesel (High Cetane). It is also the only Refinery in India to have 2 CCRs producing Unleaded Petrol of High Octane.

MRPL has signed a MoU with the Government of Karnataka to further expand the Refining Capacity from 15 MMTPA to 21 MMTPA and also to put up a linear Alhyl Benze Plant (LAB) at an estimated cost of ₹ 8500 crores (US$ 1.7 Billion) is next phase of expansion.

MRPL has undertaken many initiatives under CSR in and around the areas of company's business. These include help in protecting and preserving the social, cultural and environmental heritage, construction of class rooms, setting up of computer labs, construction of community halls, providing scholarship and financial assistance to girl and SC/ ST students, etc. Special mention may be made here about MRPL gifting a new block in association with ONGC to the Lady Goschen Hospital at an estimated cost of ₹ 91 crores.

MRPL has received many awards including 'Refinery of the year 2012', 'Export Excellence Award 2013' in Best Manufacture Export Capacity, First prize for Energy Performance for 2012-13 and 'BT-Star PSU Excellence Award 2013' etc.

2.613 MMT

Crude throughput for NRL in 2013-14

7.3.5

Numaligarh Refinery Limited (NRL)

Numaligarh Refinery Limited (NRL) was incorporated on 22nd April, 1993. NRL's establishment is rooted in the "Assam Accord" signed by the Government of India on 15th August, 1985. NRL is a subsidiary of Bharat Petroleum Corporation Limited (BPCL) and operates a petroleum refinery at Numaligarh in Golaghat district of Assam. NRL is a Category-I Miniratna PSU. NRL's commercial operations commenced from 1st October, 2000.

NRL's refinery has a high complexity factor owing to advanced secondary processing technologies that has enabled achievement of high distillate yield. Product slate of NRL comprises LPG, Naphtha, Motor Spirit, Aviation Turbine Fuel, High Speed Diesel, Superior Kerosene Oil, Raw/Calcined Petroleum Coke and Sulphur. NRL is expected to start commercial production of Paraffin and Microcrystalline Wax from second quarter of 2014-15.

NRL has an LPG Bottling Plant of 10 TMTPA capacity at Numaligarh besides two marketing terminals at Numaligarh and Siliguri. White Oil products, viz. MS, SKO and HSD are transported from Numaligarh to Siliguri through the Numaligarh-Siliguri product pipeline (NSPL) of Oil India Limited.



MRPL celebrating a decade of partnership with ONGC. Seen lighting the lamp is Shri K. T. Krishnamoorthy, the first Senior Vice President of MRPL (when it was still a Joint Sector), along with former CMD - ONGC, Shri Sudhir Vasudeva; MD, MRPL Shri P P Upadhya and other members of ONGC and MRPL Board

During 2013-14, NRL recorded crude throughput of 2.613 MMT. Distillate yield for the year at 92.16% was the highest-ever achieved so far. Specific Energy Consumption during 2013-14 was recorded at 53.6 MBN.

There has not been any loss-time-accident (LTA) in NRL's refinery since the last LTA on 18.02.2002. Cumulative LTA free man-hours as on 31.03.2014 reached 22.5 million (12 years, 1 month).

NRL achieved 'Excellent' rating for performance during 2012-13. This was the tenth consecutive year of 'Excellent' MOU performance.

NRL is certified under ISO 9001 for Quality, ISO 14001 for Environment Management and OHSAS 18001 for Occupational Health and Safety, ISO 27001 for Information Security Management System and ISO 50001 for Energy Management.

NRL received the Refinery Energy Performance Award 2013 from the Centre for High Technology in three categories of Specific Energy Consumption, Boiler Efficiency and Steam Leak.

7.3.6

ONGC Videsh Limited (OVL)

Introduction

ONGC Videsh Ltd. (OVL), a wholly owned subsidiary of Oil and Natural Gas Corporation Ltd. (ONGC) was rechristened on 15th June, 1989 from the erstwhile Hydrocarbons India Pvt. Ltd. which was incorporated on 5th March, 1965. The authorised and paid-up share capital of OVL as on March, 2014 stood at ₹ 10,000 crore. The primary business of the company is to prospect for oil and gas acreages abroad, which includes acquisition of oil and gas fields in foreign countries as well as exploration, production, transportation and sale of oil and gas.

Performance

(a) Physical

OVL started production of oil and gas with a meagre production of 0.253 MMTOE in FY'03 and during the year 2013-14, OVL achieved a production level of (O+OEG) 8.357 MMTOE. The details of production for the last five years are given below:

Particulars	YE Mar'14	YE Mar'13	YE Mar'12	YE Mar'11	YE Mar'10
Crude Oil (MMT)*	5.486	4.343	6.214	6.756	6.513
Gas (BCM)	2.871	2.917	2.539	2.692	2.357
Total Oil + Gas (MMTOE)	**8.357**	**7.260**	**8.753**	**9.448**	**8.870**

* Including Condensate

Since inception, OVL achieved cumulative production level of 83.741 MMToe (60.312 MMT oil, 23.429 BCM gas).

(b) Reserve

As on 1st April 2014, the remaining 1P and 2P reserves are 207.13 MMTOE (Oil 112.182 MMT, Gas 94.948 BCM) and 600.691 MMTOE (Oil 261.4 MMT, Gas 339.291 BCM) respectively in 11 countries.

(c) Financial

The consolidated total revenue of OVL increased by 23.27% from ₹18,029 Crore for the year 2012-13 to ₹ 22,224 Crore for the year 2013-14 mainly due to higher production. The consolidated net profit after tax was up by 13.14% from ₹ 3,929Crore for the year 2012-13 toRs. 4,445Crore for the year 2013-14.Net worth increased from ₹ 29,167 Crore as on 31.03.2013 to ₹ 41,549Crore as on 31.03.2014, inter alia due to increase in equity share capital from ₹ 5,000 Crore to ₹ 10,000 Crore to the parent company ONGC during FY'14, additions to Foreign Currency Translation Reserve and addition of profits for the year.

New acquisitions made by OVL in last one year areas mentioned below:

Azerbaijan

The acquisition of Hess Corporation's 2.7213% participating interest in the Azeri, Chirag and the Deep Water Portion of Guneshli Fields in the Azerbaijan sector



Supporting Basket Making to Women Artisans

of the Caspian Sea ("ACG") and 2.36% interest in the Baku-Tbilisi-Ceyhan ("BTC") Pipeline was completed on 28th March 2013. The acquisition would bring about 9% additional proved reserves to OVL portfolio and daily oil production of about 19,000 barrels or about 0.9 MMTPA.

Mozambique

(a) OVL and Oil India Limited acquired 10% PI in the Rovuma Area 1 Offshore Block in Mozambique for USD 2,475 million (OVL's 6% share at US$ 1511 million) from Videocon on 7th January, 2014.

(b) OVL has also acquired a direct 10% PI in the same Rovuma Area 1 for USD 2,640 million from Anadarko on 28th February, 2014.

Area 1 covers approximately 2.6 million acres in the deep-water Rovuma Basin offshore Mozambique and represents the largest gas discovery in offshore East Africa with estimated recoverable reserves of 35 to 70 trillion cubic feet.

BC-10 Asset, Brazil

In December, 2013, acquisition of an additional 12% PI in Block BC-10, a deep-water offshore block in Campos Basin, Brazil for a purchase consideration of USD 561 Million taking its total PI in the block to 27%. The operator (Shell) now holds the balance 73% PI in the block. The additional 12% PI is expected to have a peak production of about 9,000 barrels oil equivalent per day in 2017 for OVL.

The Block BC-10 also known as Parque das Conchas is in Campos Basin of Brazil and includes 4 offshore deep-water fields - Ostra, Abalone, Argonauta and Nautilus and a few identified exploration prospects. The block is in the deep-waters of Brazil in the water depths ranging from 1500 to 1950 meters and 120 km from Vitoria town on the shore. The license for the fields expires in December 2032.

Myanmar Onshore Blocks Bidding Round-2013

ONGC Videsh has been awarded two onshore blocks namely B2 (Zebyutaung-Nandaw) and EP-3 (Thegon-Shwegu) in the Myanmar Onshore Bidding Round 2013. This was announced by the Ministry of Energy, Republic of the Union of Myanmar. Block B-2, having an area of 16995 sq. kms. Is located in Northern Myanmar, bordering state of Manipur in India and Block EP-3 having an area of 1650 sq. kms. islocated in Central Myanmar.

Bangladesh Offshore Blocks Bidding Round-2012

In February, 2014, OVL in 50-50 consortium with OIL acquired two shallow water blocks in Bangladesh namely SS-04 and SS-09.

OVL presently has participation in 33 E&P projects in 16 countries namely Azerbaijan (2 projects, Vietnam (2 projects), Russia (2 projects), Sudan (2 projects) and South Sudan (2 project), Iran (1 project), Iraq (1 project), Libya (1 project), Myanmar (2 projects), Syria (2 projects), Brazil (2 projects), Colombia (8 projects), Venezuela

(2 projects),Kazakhstan (1 project), Bangladesh (2 projects) and Mozambique (1 project) and is actively seeking more opportunities across the world. Out of 33 projects, OVL is Operator in 11 projects and Joint Operator in 7 projects and non-operator in remaining 15 projects.

Currently, OVL has oil and gas production from 13 projects in 10 countries, namely, Russia (Sakhalin-1 and Imperial Energy), Syria (Al-Furat Petroleum Co.), Vietnam (Block 06.1), Colombia (MECL), Sudan (Greater Nile Petroleum Operating Company), South Sudan (Greater Pioneer Operating Company and Sudd Petroleum Operating Company), Venezuela (San Cristobal), Brazil (BC-10), Azerbaijan (ACG) and Myanmar (Blocks A1, A3). Presently there is no production from AFPC, Syria project which is under force Majeure since December, 2011 after EU imposed sanctions on Syria and in South Sudan due to political instability.

There are 4 projects where hydrocarbons have been discovered and which are at various stages of development, out of these 4 projects, first oil production from Carabobo1, Venezuela, through early accelerated production system started in January 2013 and 14 projects are under various stages of exploration.

The target of 11th plan outlay of OVL was ₹ 45,334 Crore & actual expenditure was ₹ 39,276 (utilisation of 87%). The actual plan expenditure for the last 5 years is given as under:

(₹ Crore)

Particulars	YE Mar'14 (Provisional)	YE Mar'13	YE Mar'12	YE Mar'11	YE Mar'10
Total Plan Expenditure	35,300	10,891	8,000	5,650	4,992

During the year 2013-14, the actual plan expenditure was ₹ 35,300 Crore (Provisional) as againstRs.36,117 Crore kept in Revised Estimates (RE), showing 97.7% utilisation.

Investments

OVL has invested a total amount of ₹ 113,300 Crore (Provisional) upto 31st March, 2014 since inception.

7.4 OTHER CPSES

7.4.1

Biecco Lawrie Limited

Biecco Lawrie Limited (BLL), 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 31.03.2013, the Company had an authorized share Capital of ₹ 75 Crores, while the issued, subscribed and paid-up Capital was ₹ 74.76 Crores. The president of India and the Oil Industry Development Board (OIDB) holds 32.33% and 67.33% respectively, of the Equity Share Capital.

During the financial year 2013-14 total Sales and other income was ₹ 8789 lacs(provisional) which is substantially higher than the figure of ₹ 4,707.73 lakhs pertaining to 2012-13. The Net loss during 2013-14 is estimated to be ₹ 733.35 lacs which was much less than the loss of immediately preceding financial year ₹ 1195.33 lacs. This is despite the fact that manufacturing and infrastructure sector showed sluggish growth during the year. This reduction in loss has been made possible due to high sales turnover, cost reduction in certain areas such as material consumption, finance cost, employees cost, withdrawal of post-retirement medical benefit, prior period items.

The major operations of the Company cover various areas including Switchgear & Spare Parts, Electrical Repairs, Projects and Lube Oil Blending & Filling.

7.4.2

Balmer Lawrie Investments Limited

Government of India, in view of its planned deregulation of oil and globalisation of the economy, decided to disinvest 33.58%, of its total equity holding of 59.58%, in IBP Company Limited (IBP) to a strategic partner with management control. Consequently, the shareholding of IBP, in its erstwhile subsidiary Balmer Lawrie & Company Limited (BL), was de-merged in favour of Balmer Lawrie Investments Limited (BLIL), which was incorporated on 20th September, 2001 under the Companies Act, 1956. The President of India holds 59.67%, of its total paid up equity capital. BLIL is under the administrative control of Ministry of Petroleum & Natural Gas having its Registered office at Kolkata.

BLIL is a non-banking financial Company as defined under section 45-I(f) of the Reserve Bank of India Act, 1934. BLIL does not carry on any business except to hold 1,00,64,700, equity shares of ₹ 10/- each of BL. The present strength of the Board is three out of which two are non- executive Government nominees and the third is the Director (Finance) of Balmer Lawrie Limited, who is the action ex-officio member on the Board of BLIL. BLIL does not have any employees except the Company Secretary who is deputed from BL. The Equity shares of BLIL are under compulsory demat mode and are listed in two Indian Stock Exchanges viz., Kolkata & Mumbai. The Authorised share capital of BLIL is ₹ 25 Crores. The issued and Subscribed capital of the Company is ₹ 22.20 Crore. The promoter of BLIL, i.e. President of India holds 1,32,46,098 equity shares of ₹ 10 each (aggregating 59.67 % of BLIL's total paid up equity share capital) in BLIL.

Financial Achievements

The total turnover of the Company during 2013-14 was ₹ 36.57 crores.The profit after tax of the Company during the said period was ₹ 34.38crores.

Physical Achievements

The major source of income of BLIL is dividend from BL.

Further, interest from deployment of surplus funds in the Fixed/Term Deposit Schemes of the schedule banks [including public sector banks] also adds to the income of BLIL.

During the period under review, the total income of BLIL comprised of :-

(a) Dividend of ₹ 30.99 crore (immediately preceding year, 2012-13, was ₹ 28.18 crore); and

(b) Interest income of ₹ 5.57 crore (immediately preceding year, 2012-13, was ₹ 4.84 crore) from deployment of its surplus funds in the FixedTerm Deposit Schemes of the schedule banks.

Joint Ventures/Subsidiaries:

(a) Joint Venture Companies -

BLIL does not have any joint venture with any corporate entity.

(b) Subsidiary Companies

BLIL has at present two subsidiary companies, namely-

(i) Balmer Lawrie & Co. Ltd. (as per Section 4(1)(b) (ii) of the Companies Act, 1956 [which is referred to herein as 'BL'];

and

(ii) Balmer Lawrie (UK) Ltd. (as per Section 4(1) (c) of the Companies Act, 1956).

7.5 OTHER ORGANISATIONS

7.5.1

Oil Industry Development Board (OIDB)

Objectives and Functions of the Board

The Oil Industry Development Board was established on 13th January, 1975 under the Oil Industry (Development) Act, 1974 to provide financial and other assistance for development of Oil Industry. The functions of the Board, as defined in Section 6 of the Act, involve rendering financial assistance including loans and grants to the promotion of all such activities as are, in its opinion, conducive to the development of the Oil Industry.

Organisational Setup

During 2013-14, the Board under the Chairmanship of Secretary, MOP&NG consisted of Secretary, Deptt of Chemical and Petrochemical, Addl. Secy and Financial Adviser, MOPNG, Addl Secretary, Deptt of Expenditure,

Joint Secretary (Exploration), MOPNG, Chairman IOCL, ONGC, GAIL, BPCL and HPCL, Director General of Hydrocarbons, Director (R&D) IOCL, Secretary, OIDB as Member Secretary.

Resources of the Board

The funds required for various activities as envisaged under the Act, are made available by the Central Government after due appropriation by Parliament from the proceeds of cess levied and collected on indigenous crude oil. So far OIDB has received an amount of ₹ 902.40 crore from the central Govt. This amount together with internal receipts generated as interest income on loans given to various oil sector companies and short term investment of surplus funds has accumulated to ₹ 11,079 crore (approx.) as on 31st March, 2014.

Deployment of Funds

During 2013-14, OIDB has extended loansto IOC, GAIL, MRPL, BCPL, HPCL, NRL & GGL amounting to ₹ 2487 crore and Grants to institutions viz. DGH, PCRA, CHT, OISD, PPAC and Rajiv Gandhi Institute of Petroleum Technology (RGIPT) (for R&D activities) amounting to ₹ 151 crore. Indian Strategic Petroleum Reserves Ltd (ISRPL), a wholly owned subsidiary of OIDB hasbeen entrusted with the construction of Strategic Storage for crude oil at three locations.During 2013-14, an amount of ₹ 547 crore was released to ISPRL towards advance against equity.

Setting up of Hydrocarbon Sector Skill Council for Oil & Gas Sector

OIDB has been entrusted with the nodal responsibility of forming a Hydrocarbon Sector Skill Council (HSSC). A joint application was filed with National Skill Development Council by OIDB during the year.

7.5.2

Oil Industry Safety Directorate (OISD)	

The Oil Industry Safety Directorate (OISD)is a Technical Directorate of the Ministry of Petroleum & Natural Gas created by Govt. Resolution in 1986. It operates as an OIDB grantee organisation under the Safety Council. The Safety Council is headed by Secretary (P&NG) and has members across the entire spectrum of stakeholders from PSU, JVs, Pvt. Sector and expert bodies in the sector. Main functions of OISD are development of safety standards conducting safety audits, investigating and analysing major incidents and keeping track of implementation of safety audit recommendations. Some of the important activities carried out by OISD during 2013-14 are detailed below:

Development of Safety Standards

OISD develops Standards / Guidelines / Recommended Practices for the oil and gas sector thru a participative process involving all the stakeholders (including the public at large), drawing inputs from international standards and adapting them to Indian conditions by leveraging the experience of the constituents. These standards cover inbuilt design safety, asset integrity and best operating practices in the field of production, processing, storage and transport of petroleum. OISD standards are reviewed periodically to ascertain needs of developing new standards, updating / amending existing standards to incorporate the latest technological developments as well as current experiences on the ground. As on date, OISD has developed 113 technical safety standards for the oil industry. 11 of these standards had also been included in statutory provisions of Petroleum Rules and Gas Cylinder Rules.

During the year 2013-14, OISD has formulated two numbers of New Standards and revised/amended 05 Numbers of the existing standards. Currently, five numbers of New Standards including a comprehensive standard for POL installations and same number of revised/amended standards of OISD are in advanced stage of formulation.

"Consent to Operate" for Offshore Installations

OISD, as the competent authority to oversee implementation of the Petroleum & Natural Gas (Safety in Offshore Operations) Rules, 2008 accords "consent to operate" to offshore installations including Drilling Rigs. 62 drilling platforms, 13 drilling rigs and 1 SPM were accorded "consent to operate" during 2013-14.

Safety Audits (ESA / SSA)

OISD carries out periodic safety audits of all types of Oil & Gas installations to monitor their compliance with the OISD standards. 2013-14 Safety Audit Performance of OISD surpassed the RFD target as indicated below:

Activities (in No.)	Plan (2013-14)	Actual (2013-14)
Refinery & Gas Processing plants	19*	21
Mktg. Installations	70	77
E&P Onshore	60	69
E&P Offshore	8	9
Cross Country Pipelines (in KM)	2900	4200
Single Point Mooring Installations	03	06
Jetty Pipelines carrying Hydrocarbons	03	03

** Includes three numbers audits of LNG terminals as decided in 30th Safety Council meeting held in October'2013*

Pre-Commissioning Safety Audits (PCSA)

Pre-Commissioning safety audits are conducted where, green-field developments and also major additional facilities at existing locations are being done, to ensure ab initio compliance of these facilities to the OISD standards at the construction stage itself.

During 2013-14, 44 nos. of such audits had been conducted on the request of the user Industry members. 115 Km of Pipeline were also audited in this context.

Safety Performance Evaluation of Industry

Annual evaluation of Safety Performance of the Industry Members is done by a specially developed methodology, which takes cognisance of hazards associated, incident recorded during the year and safety management system of the installation.

Knowledge sharing collaborations

OISD has entered into MOU with following organisations:

(a) Centre for Chemical Process Safety (CCPS) under the aegis of AIChE, USA for knowledge sharing in the area of Process Safety Management of Chemical Process Plant

(b) American Petroleum Institute **(API)** – the world leader in Safety Standard formulation in Petroleum Sector

Technical Seminars / Conferences

Technical Seminars / Conferences for oil industry are conducted by OISD to discuss the latest technological developments, sharing of incident experiences etc.

During the year 2013-14 OISD organised the following three seminars/workshops:

(i) Conference on "Well Integrity" was organised during 25th – 26th November 2013 at New Delhi.

(ii) International conference on "Occupational & Environmental Health" held during 13th – 14th December, 2013 at New Delhi.

(iii) Seminar on "Process Safety in Marketing Operations" on 16th January, 2014 at New Delhi.

Incident Investigation & Analysis

OISD investigates as well as participates in investigation of major incidents (depending upon the severity/damage) to analyse root cause of the incident. A databank of incidents of the oil industry is maintained and analyzed to assess trends, areas of concern and required corrective action. These are then disseminated to the industry through safety alerts, advisory notes, workshops, training programmes, website links etc. During 2013-14, 14 major incidents were investigated by OISD.

Knowledge Management

OISD functionaries continued to share and disseminate domain expertise with trade & industry bodies. Faculty support had been provided by OISD forevaluative courses of Academic Institutions like RGIPT.

Participation in International Delegations/Events

ED, OISD participated and presented paper on Process Safety Management in International Conferences organised by Fleming Gulf at Kuala Lumpur and London besides being part of delegates from India in USTDA, USA.

Other significant activities

Following significant activities were also undertaken by OISD during 2013-14:

1. Organisational Development study for transfer of PESO work to OISD completed. The findings of the study report presented to MOPNG and were accepted.

2. The draft bill for providing statutory status to OISD (Petroleum & Natural Gas Industry Safety Board) prepared. Comments from various Ministries were received and addressed; subsequently cabinet note to the effect submitted.
3. The technical evaluation committee (TEC) constituted to establish Equivalent System to Rim Seal Fire Protection System as prescribed in OISD 116 & 117 has submitted its final report.
4. Bench scale demonstration of Two-wired based detection & suppression system successfully held meeting the performance parameters. Field trial of the system on existing EFR tanks of OMCs planned.
5. Implementation status of MB Lal Committee recommendations is being monitored on a regular basis. It has enhanced the pace of implementation significantly.
6. Emerging sectors like LNG Terminals had been added to the repertoire of OISD's Safety Audit capability thru development of requisite Safety Audit checklist. In 2013-14 two LNG Terminals of PLL have been audited.
7. On successful completion of the due diligence, ISO 9001-2008 accreditation was conferred on OISD. The Accreditation Certificate was handed over to ED, OISD by the Hon'ble Minister, P&NG during the Safety Award presentation function held in July, 2013.

7.5.3

DGH (Directorate General of Hydrocarbons)

In view of the need to establish an agency that could effectively supervise the activities of all E&P companies from the private & joint sectors in the national interest, Directorate General of Hydrocarbons was set up through GOI resolution No. O-20013/2/92/ONG-III, on 8th of April, 1993 under the administrative control of the Ministry of Petroleum and Natural Gas.

The objective of DGH is to promote sound management of the Indian Petroleum and Natural Gas resources having a balanced regard for the environment, safety, technological and economic aspects of the petroleum activity.

Role and Functions

- To review the exploration programmes of companies operating under Petroleum Exploration Licences granted under the Oilfields (Regulation and Development) Act, 1948 and the Petroleum and Natural Gas Rules, 1959 with a view to advising Government on the adequacy of these programmes.
- To evaluate the hydrocarbon reserves discovered and estimated by the operating companies.
- To advise the Government on the offering of acreages for exploration to companies as well as matters relating to relinquishment of acreage by companies.
- To review the development plans for commercial discoveries of hydrocarbon reserves proposed by the operating companies and advise Government on the adequacy of such plans and the exploitation rates proposed and matters relating thereto.
- To review and audit concurrently the management of petroleum reservoirs by operating companies and advise on any mid course correction required to ensure sound reservoir management practices in line with the optimal exploitation of reserves and the conservation of petroleum resources.
- To regulate the preservation, unkeep and storage of data and samples pertaining to petroleum exploration, drilling, production of reservoirs etc. and to cause the preparation of data packages for acreage on offer to companies.
- All other matters incidental thereto and such other functions as may be assigned by Government from time to time.
- Assist Govt. in Contract management functions.
- Exploration & Development of unconventional hydrocarbon resources like Gas Hydrate, Shale gas/oil and oil shale.

DGH Achievements for the year 2013-14

1. Domestic Crude Oil and Natural Gas Production
   Highest ever crude oil production under PSC (Production Sharing Contract) regime by private/ joint venture companies of about 12.07 MMT was achieved in 2013-14 as against 11.64 MMT produced during the year 2012-13 (i.e. an increase of about 3.75 %)

2. **Start of Commercial Oil Production**
   Commercial Oil production started from two NELP blocks CB-ONN-2002/3 & CB-ONN-2003/2 for the first time

3. **Offer of New Exploration Areas**
   The Ministry of Petroleum & Natural Gas is planning to launch tenth bidding round of NELP (NELP-X) shortly. Comprehensive Data has been gathered and so far, a total of 52 blocks have been carved out for offer under next bidding round.

4. **MIS (Management Information System)**
   DGH has embarked on a project of implementing Integrated Management Information System (MIS) to facilitate better information management across its departments and operators and all other stakeholders. Detailed Project Report has been prepared by NICSI appointed consultant M/s Wipro Consulting Limited and has been submitted on 31.03.2014. Next stage of the project which includes selection of the system integrator and project implementation is under process.

5. **Setting up of NDR (National Data Repository)**
   Tender Process has been completed and Contract awarded through letter of award for setting up of NDR to Halliburton Offshore Services Inc. on 28-02.2014.

6. **Evaluation of Field Development Plan and Declaration of Commerciality**
   DGH evaluated 24 proposals of Declaration of Commerciality and 12 proposals of Field Development Plans.

7. **Identification of issues/concerns in operation of existing PSCs**
   Various Issues and concerns regarding PSCs were identified and addressed by issuing different circulars and forming committees. Further, two inter-Ministerial Committees viz. Site Restoration Committee and Committee for firming up GIPIP (Good International Petroleum Industry Practices) have been formed for drafting the detailed guidelines on these.

8. **Shale Oil and Gas Policy**
   Shale Gas and Shale Oil Policy has been announced by the Government of India in October, 2013 for National Oil Companies (NOCs) to explore and exploit shale oil and gas resources in nomination regime acreages. ONGC has completed drilling of one well (Jambusar # 55) in Gujarat for assessment of shale gas/shale oil potential of Cambay Shale. Data gathered from the drilled well is under analysis. Additionally, 55 PEL (Petroleum Exploration Lease) /PML (Petroleum Mining Lease) under nomination regime have been identified by NOCs ONGC and Oil India Limited for shale oil & gas exploration.

9. **Re-assessment of Hydrocarbon Resources of India**
   A Multi Organisation Team (MOT) has been constituted to carry out re-assessment of Hydrocarbon Resources of India in all its 26 sedimentary basins. The Exercise will cover all the 26 sedimentary basins of India. Resource assessment is required to be completed within 30 months.

10. **Policy for Geo-scientific data generation for hydrocarbons in Indian sedimentary Basins**
    In order to acquire geophysical data in poorly explored and unexplored areas, the Government has formulated a new policy for Geo-scientific data generation for hydrocarbons in Indian sedimentary Basins and Agreement to carry out Non-exclusive Multi-Client Geo-scientific surveys/ Activities.

11. **Exploration activities in the Mining Lease (ML) areas**
    Policies allowing the Contractors to carry out exploration activities in the Mining Lease (ML) areas after the expiry of exploration period and submission of Integrated Development Plans for a cluster of discoveries etc. have been introduced to facilitate early monetisation of discoveries and exploring additional hydrocarbon potential in the ML areas.

12. **Gas Hydrate**
    20 locations have been approved for probing during the NGHP Expedition-02 for identifying sand depositional systems within Krishna-Godavari & Mahanadi offshore deep water basins of India. The steering committee of NGHP has approved two new R&D projects under NGHP R&D activities.



President (Refinery Business), Reliance Industries Ltd, Shri P Raghuvendran addresses delegates at the OISD Seminar

7.5.4

Centre of High Technology

Centre for High Technology (CHT) was established by Ministry of Petroleum & Natural Gas (MOPNG) in 1987 as a specialised agency of the oil industry to assess futuristic technology requirements for acquisition, development and adoption in the field of refinery processes, petroleum products, additives, storage and handling of crude oil, products and gas.

CHT acts as the Technical Wing of MOPNG for implementation of scientific and technological programmes of Govt. of India. Major functions of CHT include assessment of technology requirement as also operational performance evaluation and improvement of the refineries. CHT acts as a focal point of oil industry for centralised technical assistance, knowledge dissemination, performance data base, exchange of information and experience. CHT also coordinates funding of research work in refining and marketing areas and pursue the programmes of "Scientific Advisory Committee on Hydrocarbons" of MOPNG.

Following are the main activities carried out by CHT during 2013-14

1. CHT carried out **Performance Benchmarking of 15 PSU refineries** through M/s Solomon Associates, USA for the calendar year 2012. Based on the refinery data submission and validation, the final Study Report was submitted in October 2013. The study has identified a gap of more than US$ 1.5 billion for which action plans are being developed by the refineries.

2. **The Integrated Refinery Business Improvement Program (IRBIP) Phase-II** was undertaken through M/s Shell Global Solutions International (SGSI) for 3 PSU Refineries viz. BPCL Mumbai, HPCL Mumbai and MRPL. The total benefit through implementation of the identified proposals for improvementis estimated to be around US$ 30 million.

3. **A Technical Services Agreement (TSA)** with Shell Global Solutions International (SGSI), a world renowned consultancy, licensing, engineering and refining company for providing back-up services and consultancy to the Indian oil and gas companies was executed by CHT.

4. CHT received the **Quality Management System Standard, ISO 9001:2008 Certification** from M/s DNV for "providing technical advice, guidance and support to the downstream hydrocarbon sector and refineries under the aegis of Ministry of Petroleum and Natural Gas".

5.0 Organised a 2-day **"Oil and Gas PipelinesWorkshop"** on "Dynamics of Pipeline Transportation – Ensuring Safe & Sustainable Energy"in association with GAIL (India) Limited on 12th and 13th April, 2013 at Visakhapatnam. The Workshop was inaugurated by Smt. Panabaka Lakshmi, Union Minister of State for P&NG and Textiles. More than 145 delegates and senior executives from the oil and gas industry from India in the Workshop.

6. Organised the **18th Refinery Technology meet (RTM)** in association with Bharat Petroleum Corporation Ltd. (BPCL) from 11th to 13th November, 2013 at Kochi. The theme of the



OISD Workshop on Well Integrity at New Delhi on November 25-26, 2013

Meet was "Pacesetter Performance for Improving Margin, Reliability and Efficiency".The Meet was inaugurated by Shri Vivek Rae, IAS, Secretary, Ministry of Petroleum & Natural Gas.More than 650 delegates from India and abroad participated in the three day Meet.

7. **Auto Fuel Vision & Policy 2015 :** CHT provided extensive technical and secretarial support to the Expert Group constituted by MOPNG under the Chairmanship of Shri Saumitra Chaudhuri, Member, Planning Commission, Government of India to prepare a **"Draft Auto Fuel Vision & Policy 2025".** CHT was actively associated with the finalisation of the Draft Report.

8. CHT compiled and evaluated the **Energy Performance of refineries,** including Private refineries, viz., Essar and Reliance, in terms of specific energy consumption (MBTU / BBL / NRGF) for distribution of 'Jawaharlal Nehru Centenary' Awards for 2012-13, instituted by MOP&NG.

9. As a part of **Oil & Gas Conservation Fortnight 2013,** CHT organised survey in the area of **"Steam Leak"** in January 2013. The survey was conducted simultaneously at all Refineries including Jamnagar Refinery of Reliance Industries Limited and Vadinar Refinery of Essar Oil Ltd.

10. CHT coordinated the activities of **Scientific Advisory Committee (SAC) on Hydrocarbons of MOPNG** in identifying and funding of research projects for hydrocarbon sector. CHT also coordinated the various activities connected with approval and funding of projects under the **Hydrogen Corpus Fund.**

11. CHT coordinated on behalf of the industry and Ministry on **USTDA Reverse Trade Mission on Refinery Modernisation**. Based on the visit/ interaction with US companies, CHT developed an Approach Paper for assistance under USTDA.

12. CHT organised **Activity Committee Meetings** on major areas of refinery operations & pipelines with the aim of sharing of best operational practices & improvements and dissemination of information on latest developments.

7.5.5

Rajiv Gandhi Institute of Petroleum Technology (RGIPT)

Introduction

In order to meet the shortfall of trained technical manpower in the petroleum sector, the Government of India has approved in July, 2007 setting up the Rajiv Gandhi Institute of Petroleum Technology (RGIPT) at Jais, near Rae Bareli in Uttar Pradesh. Through an Act of Parliament passed in December 2007, RGIPT was accorded the status of an Institute of National Importance. The Institute is envisaged to serve as the fountainhead for the nurturing the world class technical human resources capable of serving as leaders and innovators of tomorrow in the field of Petroleum Technology and Engineering covering the

entire hydrocarbon value chain. The RGIPT Act 2007 came into effect from 01.06.2008. The First Statues of RGIPT came into force with effect from 16.10.2009 which stipulated the provisions for appointment of various authorities of the Institute, their powers, functions and responsibilities for running the Institute.

Approval

The total expenditure approved for RGIPT for the project period (2007-2016) is ₹ 695.58 crore, comprising of total capital expenditure of ₹ 435.00 crore and total recurring expenditure of ₹ 260.58 crore, out of the capital expenditure, ₹ 150.00 crore will be borne by the Oil Industry Development Board (OIDB) and the remaining (₹ 285.00 crore) will be met with the budgetary support from the Government of India. The total estimated recurring expenditure of ₹ 260.58 crore will be met from the interest accruing on Endowment Fund of ₹ 250.00 crore which has been created with contribution of oil Public Sector Undertakings (PSUs), student fees and the amount raised by the Institute through its own sources.

Academic Activities and Construction of Campus

Academic

The academic programmes of the Institute have started from 2008 onwards. RGIPT is operating from temporary campus at Rae Bareli and Noida introduced two B.Tech programmes (Reservoir Engineering and Chemical Engineering) and MBA programme in Petroleum & Energy Management at Noida. In 2009, M. Tech and later Ph. D programme has been added. By 2015-16, the Institute becoming fully functional at Jais, more programmes are proposed to be introduced in under-graduate and post graduate levels (B.Tech, M.Tech, M.Sc., Integrated M.Sc/ MBA etc). Besides this, the focus on research activities will increase and more number of Ph.d programmes in various areas of specialization can be inducted.

Campus Construction

Jais Campus

The acquisition of major portion of land (95 acres) for RGIPT's own campus at Jais has been delayed due to various reasons. The phase –I civil work construction activities have started from August, 2010 on the available plot of 47 acres of land purchased from Indian Oil Tanking Limited. However, due to the poor performance of the contractor and invoking arbitration process, the contract was terminated in May 2013. A new composite contract has been awarded in September 2013 with completion schedule by December 2015.

Assam Centre

Hon'ble Prime Minister, during his visit to Assam in August, 2008 made an announcement, for setting up of a centre of RGIPT in the State of Assam. The primary objective of the Assam Centre is to offer programmes of education and training of skilled technical manpower in the petroleum sector at the diploma and advance diploma levels.

The Government of Assam has allotted 100 (One hundred) acres of land at village Gohain Gaon, Distt. Sivasagar to RGIPT for setting up the Centre. Hon'ble Prime Minister of India has laid the foundation stone for the Assam Centre of RGIPT at Sivasagar, Assam on in February 2011. The Site Grading and Piling work has been delayed due to scarcity of earth borrows area in the vicinity of the site and also due to prolonged monsoon, water logging at work site etc. Plans for starting the construction work is under finalization. The capital cost of ₹ 143 crore is being funded by OIDB and Oil PSUs. No budgetary support has been proposed for the Assam Centre.

7.5.6

Petroleum Planning & Analysis Cell (PPAC)

Introduction

The Petroleum Planning & Analysis Cell (PPAC) was created as an attached office of MOP&NG 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). Its purpose is of assisting the Government, inter alia, in the discharge of the following functions:

1. Administration of subsidy on PDS Kerosene and domestic LPG and freight subsidy for far-flung areas;
2. Maintenance of an information data bank and communication system to deal with emergencies and unforeseen situations;
3. Analysing the trends in the international oil market and domestic prices;

4. Forecasting and evaluation of petroleum import and export trends;
5. Operationalising the sector specific surcharge schemes, if any.

Important Database

PPAC maintains data related to production, consumption, import and export of crude and petroleum products.

Production of Petroleum Products: Production of petroleum products from Indian refineries including fractionators has gone up from 122.7 Million Metric Tonnes (MMT) in 2004-05 to 220.2 MMT (Provisional) in 2013-14 which shows growth of around 79.5% during the last decade. Production growth of 1.1% was noted in 2013-14 when compared to 217.8 MMT in 2012-13.

Consumption of Petroleum Products: Consumption of petroleum products in India has grown 0.7% during 2013-14. From a level of 157.1 MMT during 2012-13, consumption rose to 158.2 MMT (Provisional) during 2013-14.

Imports and Exports of Crude Oil and Petroleum Products

- Crude oil: During 2013-14, India imported 189.64 MMT (Provisional) of crude oil valued at ₹ 8,71,016 crores which is an increase of 2.6% in quantity and 11.0% in value terms over the preceding year 2012-13. On domestic consumption basis, India imported 77.6% of its crude oil requirement. The country is, however, a net exporter of petroleum products.
- Petroleum Products: During 2013-14, India imported 16.09 MMT (Provisional) of petroleum products valued at ₹ 72,808 crore which is an increase of 2.0% in quantity and 6.5% in value terms, as compared to the previous year.

  During 2013-14, India exported a total of 68.4 MMT (Provisional) of petroleum products, valued at ₹ 3,71,143 crore which is higher by 7.9% in quantity and 16.0% in value over the previous year.

Production of Indigenous Natural Gas and Import of LNG in India

- Gross Production of Indigenous Natural Gas further declined by 13.16% to reach 35.28 BCM in 2013-14. The main reason of decline is lower production in KG-D6 Block of RIL.
- LNG imports have increased marginally by 1.82% with import of 13.38 MMT (Provisional) during 2013-14.

Price Trends of Petroleum products and impact on under-recoveries

(i) About 3/4th of domestic requirement for petroleum products in the country is met through imports of crude oil. Therefore, the prices of crude oil and petroleum products in the international oil markets have a decisive influence on the domestic prices of petroleum products. Crude prices have been steadily increasing since Dec 2008 and the average price of Indian basket of crude oil during 2012-13 was US$ 107.97 per barrel and is marginally lower at US$ 105.52 per barrel during 2013-14.

(ii) Post de-control of the price of petrol effective 26th June 2010, the OMCs are free to fix the retail selling price of petrol. Currently, the retail selling prices of only 3 products i.e. Diesel (retail sales), PDS Kerosene and Subsidised Domestic LPG are regulated by the Government.

(iii) On 17th Jan 2013, the Govt. authorised the OMCs to (a) increase the retail selling price of Diesel in the range of 40 paisa to 50 paisa per litre per month until further orders; and (b) sell Diesel to all consumers taking bulk supplies directly from the installations of the OMCs at the non-subsidised market determined price. The capping on subsidized domestic LPG which initially was fixed at 6 cyl/annum was progressively increased to 12 cyl/annum in Jan 2014. Even after the above measures, the OMCs incurred under-recoveries of ₹ 1,61,029 crore during 2012-13 and ₹ 1,39,869 crores in 2013-14.

(iv) The PSU OMCs had reported combined profit of ₹ 8,552 crore during 2012-13 which is only 0.96% of their turnover. Further, the OMCs have reported net loss of ₹ 5,253 crore during Apr-Dec 2013. The OMCs' rising under-recoveries coupled with delay in timely compensation of the under-recoveries have worsened the cash flows of the OMCs compelling them to borrow heavily. The combined borrowing of the PSU OMCs is ₹ 1,34,109 crore as on 31st Dec 2013.



Then Secretary – MOP&NG Shri Vivek Rae and Senior Executives of the Indian Oil & Gas Industry at the 18th Refinery Technology Meet

Important Activities

The following important activities and initiatives were taken by PPAC besides the routine work:

a) All India Study on Sectoral Demand of Diesel and Petrol

This study was commissioned by PPAC to find out sector-wise consumption of diesel sold through retail outlets, which accounts for about 82% of total diesel consumption in the country. The remaining about 18% of the diesel sale in the country is done directly by the Oil Marketing Companies, like the Railways, Defense, big industries, etc. This primary survey was conducted in 2,000 PSU retail outlets covering 16 states and 150 districts. The study has since been completed and circulated to all concerned Ministries / Departments.

b) Emergency Response Assessment of India

In pursuance to an MOU signed between the MOP&NG and IEA, PPAC coordinated an Emergency Response Assessment (ERA) for India in collaboration with International Energy Agency (IEA). The Assessment was designed to ascertain the country's preparedness to mitigate the negative impacts of sudden oil supply shortages through a combination of emergency response measures, which include both increasing supply and moderating demand. The report on Emergency Response Assessment of India was submitted by IEA in March 2014.

c) India-Japan joint study on "LNG Pricing in the Asia Pacific Market"

DG, PPAC was the Convener from India for the joint India-Japan study group with members from GAIL, Petronet LNG, IOCL, BPCL, GSPC and Hazira LNG. This joint study was constituted as a follow up of the discussions at the 6th round of India-Japan Energy Dialogue in Oct, 2012. This study discussed the issues related to the pricing of LNG in the Asia Pacific region. A joint statement based on the outcome of the study was signed by the Minister of Petroleum & Natural Gas of India and the Minister of Energy, Trade and Industry of Japan on Sep 9, 2013 in Tokyo.

7.5.7

Petroleum Conservation Research Association (PCRA)

Vision: To become a Centre of Excellence for Conservation of Hydro-carbons and Environment Protection for sustainable development on our inherent strength

Mission: Efficient energy utilisation and environment protection leading to improvement in quality of life.

Objectives

PCRA is a registered society working under the aegis of the Ministry of Petroleum and Natural Gas, Government of India. Its main objectives are:



A Seminar 'Oil Springs 2014' organised by the Rajiv Gandhi Institute of Petroleum Technology at Noida on 1st & 2nd February 2014

- To formulate strategies and promote measures for accelerating conservation of petroleum products leading to environment protection, energy security and sustainable development.
- To create awareness among masses about the importance, benefits and methods of conserving petroleum products and clean environment by enhancing information and capacity building.
- To promote research, development and deployment efforts aimed at petroleum conservation and environment protection, support and facilitate efforts for adoption and dissemination of fuel efficient technologies and substitution of petroleum products with alternate fuels and renewable.
- To establish synergistic institutional linkages at the national and international levels in the areas of petroleum conservation and environment protection.
- To provide training and technical advisory services, designed to achieve economy and efficiency in use of petroleum products for cleaner environment.

To function as a "Think Tank" to the Govt. of India for proposing policies and strategies on petroleum conservation and environment protection aimed at reducing excessive dependence on oil.

Activities

MOPNG has formulated a strategy for conservation of petroleum fuels in close coordination with PCRA in the country during 2013-14. The strategies include technical and fiscal interventions that can help in increasing the efficiency in usage of petroleum products.

Field Activities are one of the core areas of PCRA operations. Through Sectoral field activities, PCRA engineers and its external experts are able to reach the target groups with innovative energy conservation programmes. These activities are designed to cover a large spectrum of socio-economic profile of our country in different sectors viz Industry, Transport, Domestic, Agriculture and Commercial.

During 2013-14 , a total of 7318 field activities were carried out in Transport, Industry, Agricultural and Domestic sectors.

Research & Development

During the year 2013-14 , PCRA's energy conservation efforts were enhanced by development of processes and technologies through Research & Development activities. During this period, draft completion report of 4 (four) R&D projects have been accepted by the Screening Committee.

Mega Campaign (SAVE FUEL YAANI SAVE MONEY)

With this background in mind, PCRA launched its Mega Campaign-2013 in a bigger manner than the previous ones, in terms of money as well as the number of activities. The specialty of the Mega Campaign was to involve the entire oil marketing companies and to initiate a number of people connect activities so as to drive a point at home to generate awareness about judicious use of petroleum products amongst the general masses leading to saving of petroleum products.

Outdoor media is very effective media for dissemination of conservation messages for users of vehicles. This time, the conservation messages were displayed also by oil marketing companies at their retail outlets and LPG distributorship through hoardings and banners. Realising the importance of information technology, PCRA carried out the campaigns through bulk SMS push carrying conservation tips, campaigns through digital media and internet websites also.

7.5.8

Petroleum and Natural Gas Regulatory Board (PNGRB)

The Petroleum and Natural Gas Regulatory Board (PNGRB) was constituted under the Petroleum and Natural Gas Regulatory Board Act,2006 notified by Gazette Notification dated 31st March, 2006. The Board was constituted on 1st October,2007. The Board consist of Chairperson, one Member (Legal) and three other Members, appointed by the Central Government. Presently, the Board is functioning with full strength.

The Board regulates the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas excluding production of crude oil and natural gas to ensure uninterrupted and adequate supply of petroleum, petroleum products and natural gas in all parts of the country and to promote competitive markets for matters connected therewith or incidental thereto.





CHAPTER 8

Conservation of Petroleum Products

Conservation of Petroleum Products



Wind Energy

8.1 PREAMBLE

Impressive growth rate in Indian Economy has resulted in higher demand for various forms of energy including energy obtained from the petroleum products. The growing energy demand, coupled with substantial increase in import of crude oil to meet a large percentage of the energy needs, puts pressure on economy due to high crude oil prices in the international market. With the projected increase in the demand of petroleum products of approximately 5% per annum, conservation of petroleum products assumes special significance.

The need of the hour is to create an environment where conservation methods / techniques / energy efficient equipments are adopted in the various sectors. Effective energy conservation measures can go a long way to serve the dual purpose of energy conservation and environmental protection.

In our country, an identified scope of reducing energy consumption by 20% to 25% exists in all major sectors through conservation measures. As there are millions of consumers in the country, any savings achieved by individual consumers will cumulatively amount to large quantities and obviate the need to produce or import equivalent amount of new energy on a recurring basis.

5% P.A.

projected increase in demand for petroleum products

8.2 ETHANOL AND BIODIESEL

The Transport Sector has become a major consumer of petroleum products, which has put a heavy pressure on the quality of environment. Deteriorating ambient air quality in the urban areas due to emissions from transport vehicles has been a matter of great concern in recent years. Apart from better quality of existing petroleum fuels, the use of less polluting fuels like Hydrogen and blending of Bio-diesel and Ethanol are some of the steps which have the potential to control the impact on the environment and reduce the burden on the National exchequer.

8.2.1 Ethanol Blended Petrol Programme

The Government had started the Ethanol Blended Petrol (EBP) Programme in 2003. In 2006 the same was extended to the entire country, except the North-Eastern States, Jammu & Kashmir, Andaman & Nicobar Islands and Lakshadweep. In a series of steps to give boost to the EBP Programme, the Government decided on 22.11.2012 that 5% mandatory ethanol blending with Petrol should be implemented across the country. The 5% mandatory blending is to be reckoned for the country as a whole and was to be achieved by 30.06.2013. Procurement price of ethanol was to be decided between Oil Marketing Companies (OMCs) and suppliers of ethanol and in case of any shortfall in domestic supply, the OMCs and Chemical Companies would be free to import ethanol. Accordingly, a Gazette Notification was issued by MOPNG on 02.01.2013 directing OMCs to implement the Government decisions of 22.11.2012.

Subsequently, Cabinet Committee on Economic Affairs (CCEA) decided on 03.07.2013 that sugarcane or sugarcane juice may not be used for production of ethanol and it be produced only from molasses and that OMCs will procure ethanol only from domestic sources to achieve the mandatory requirement of 5% ethanol blending with Petrol by October 2013 in areas/parts of the country where sufficient quantity of ethanol is available. In other parts of the country, blending of ethanol may be increased progressively depending upon the availability of ethanol to reach the 5% mandatory level. OMCs and Sugar Industry Associations may interact with each other on a regular basis to achieve the target.

Pursuant to the above mentioned decisions, OMCs are implementing the Programme in the notified 20 States and 4 UTs as per the availability of Ethanol by procurement of ethanol through a tender process.

8.2.2 Bio-diesel

Bio-diesel is a fatty acid having properties similar to diesel derived from crude oil by distillation process which can be a substitute of High Speed Diesel (HSD). The properties of bio-diesel are such that it can be mixed with any diesel fuel. There are many tree species which bear seeds rich in oil. Of these, jatropha curcas has been found most suitable for the purpose. It can be planted on under-stocked forest lands, field boundaries to provide protective hedge, fallow lands, as agro forestry on farmlands along with agricultural crops, public lands along railway tracks, highways, canals and community and government lands in villages.

20-25%

identified scope of reduction in energy consumption

8.2.3 Bio-diesel Purchase Policy

To encourage production of bio-diesel in the country, the Ministry of Petroleum and Natural Gas announced a Bio-diesel Purchase Policy, in October 2005, which became effective from 01.01.2006. Under this scheme Oil Marketing Companies (OMCs) are to purchase Bio-diesel (B100), meeting the fuel quality standard prescribed by BIS for blending with High Speed Diesel (HSD) to the extent of 5% at identified purchase centres across the country. The Policy has identified 20 purchase Centres of the public sector OMCs all over the country. The OMCs would purchase bio-diesel from those bio-diesel manufacturers who register with them after satisfying the technical specifications, at a specified delivered price.

8.3 NATIONAL POLICY ON BIO-FUELS

Ministry of New and Renewable Energy (MNRE), GoI has promulgated the National Policy on Bio-fuels, in December 2009. As per the policy, the responsibility of storage, distribution & marketing of Bio-fuels rests with OMCs. The minimum purchase price for bio-diesel will be determined by the National Biofuel Steering Committee (NBSC) and decided by National Bio-fuel Coordination Committee (NBCC) taking into account the entire value chain comprising production of oil seeds, extraction of bio-oil, its processing blending, distribution and marketing. The Minimum Purchase Price (MPP) for bio-diesel by the OMCs will be linked to the prevailing retail diesel price.

8.4 LATEST STATUS

OMCs have reviewed the procurement price of bio-diesel at the various purchase centres accordingly and presently the declared price of Bio-diesel is ₹ 45.00 per litre w.e.f. 28.04.2014. However, the Bio-diesel manufacturers have not come forward to sell their Bio-diesel produce to OMCs at this declared price.

8.5 ACTIVITIES UNDERTAKEN BY PCRA FOR CONSERVATION

8.5.1 Implementation of Standards & Labeling Programme

PCRA, in association with BEE (Bureau of Energy Efficiency), has undertaken the initiative leading to development of Standards & Labeling Programme for Appliances consuming petroleum products viz. Domestic LPG Stoves, Diesel Generator sets, Diesel Engine Driven Monoset Pumps for Agricultural

Purposes etc. The objective of this programme is to achieve fuel savings at consumer end by using fuel efficient appliances.

A. Domestic LPG Stoves

LPG in India is predominantly marketed by Public Sector Oil companies and there are more than 14 crore customers enrolled as LPG consumers with these Oil companies. The consumption of domestic LPG has steadily increased over the years (with 9% CAGR) & indigenous production has fallen short to meet the demand resulting in import of LPG.

PCRA identified this as one of the potential areas, wherein conservation of LPG could be achieved through use of energy efficient LPG Stoves in order to reduce the import bill and the subsidy amount. As per market study carried out jointly by PCRA & BEE, average thermal efficiency of available LPG stove was found to be 66%. As a result of labeling programme, the thermal efficiency of LPG stove is now proposed to be increased to minimum 68%.

8.6%
total diesel consumption used for irrigation

The following Star labeling programme has been proposed:

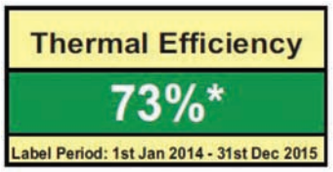
Star Rating	Thermal Efficiency (As per IS 4246:latest)
1 Star	If Thermal efficiency ≥ 68% &<72%
2 Star	If Thermal efficiency ≥ 72% &<75%
3 Star	If Thermal efficiency ≥ 75% &<78%
4 Star	If Thermal efficiency ≥ 78% &<81 %
5 Star	If Thermal efficiency ≥81 %

Current Status

Ministry of Power accorded approval to PCRA's above benchmarking proposal in association with BEE under Energy Conservation Act 2001 on 11-12-2013, including mention of **"In Association with PCRA"** on all labels to be put up on Star rated products. BEE has released the schedule on their portal for registration of domestic LPG gas stove manufacturers/ traders on voluntary basis.

The following "Label Design" is approved:





LPG Stove Type : XX
Brand : XXX
Model No./Year : ABC / XXXX
Material of Burners : XX
Total Gas Consumption : XX

In Association with PCRA

*Under test conditions when tested in accordance with XXX
(Actual Fuel Consumption will depend on how the appliance is used).



This programme will be implemented jointly by PCRA and BEE.

B. Diesel Engine Driven Monoset for Agricultural purposes (2-10 HP)

According to Market Survey carried out by PCRA, India produces 1.5 million pumps per year with an expected annual growth of 7%. The existing population of diesel driven pump sets in country is about 14.42 million. According to study, nearly 8.55% (5.9 MMT) of country's total diesel consumption (69.1 MMT in 2012-13) is being used for irrigation purposes. The survey also reveals that about 90% of pumps used in farms are of 21 % efficiency only.

PCRA identified this equipment with substantial potential for conservation of Diesel through use of fuel efficient Agricultural pump sets.

The following Star labeling programme has been proposed -

Star Rating	Specific Fuel Consumption (SFC) in g/h/m/l/s of pump at duty point w.r.t. SFCmax** (given in IS 11501: latest)
1 Star	If SFC > 0.90 &≤ 1.00 x SFCmax
2 Star	If SFC > 0.80 & ≤ 0.90 x SFCmax
3 Star	If SFC > 0.70 & ≤ 0.80 x SFCmax
4 Star	If SFC > 0.60 & ≤ 0.70 x SFCmax
5 Star	If SFC ≤ 0.60 x SFCmax

** **SFCmax**(Maximum Specific Fuel Consumption) of Diesel Engine Driven Monoset Pump at duty point is derived from chart given as per IS 11501: latest

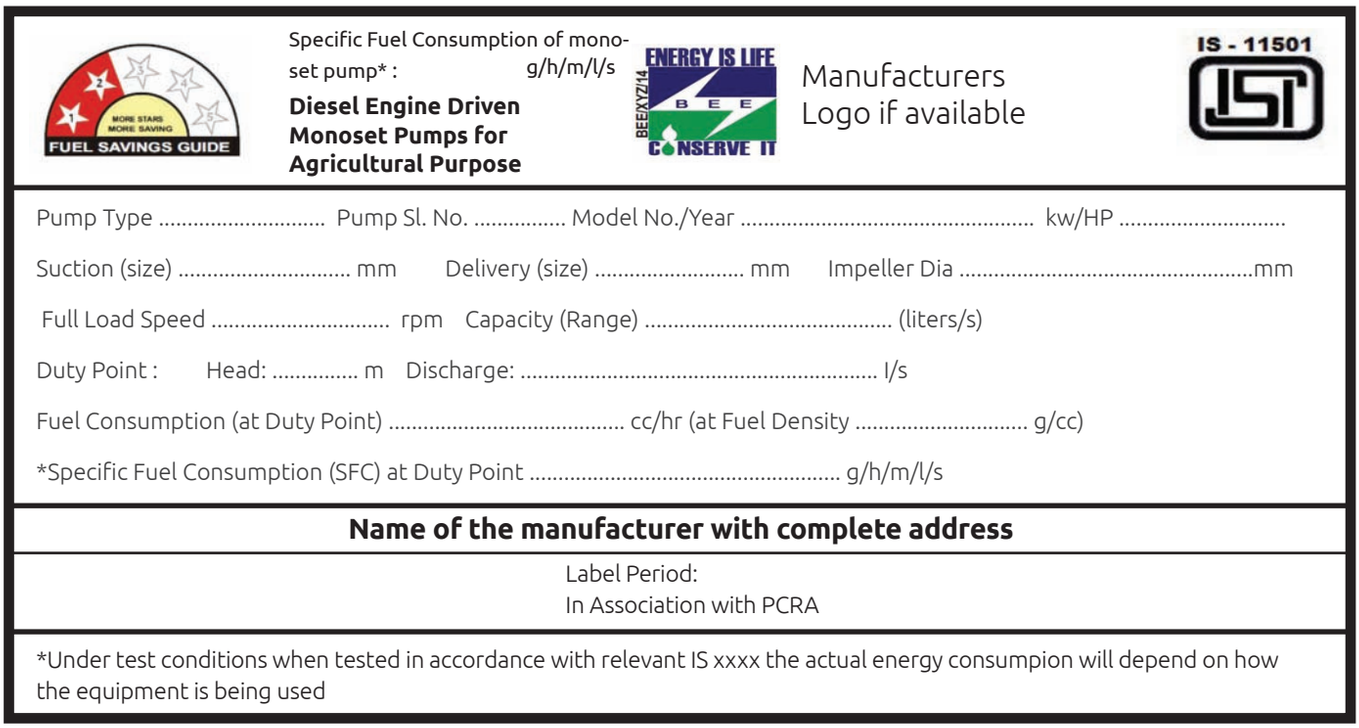
Permissible fuel consumption (cc/hour) is calculated as follows:

Permissible Fuel Consumption (cc/hour)={SFC (g/h/m/l/s) x Head(m) x Discharge (l/s)} / (Density of Fuel) in g/cc

Current Status:

Ministry of Power accorded its approval to PCRA's above benchmarking proposals in association with BEE under Energy Conservation Act 2001 on Diesel run Monosets for agricultural purposes (2-10 HP) on 30-12-2013, including mention of **"In Association with PCRA"** on all labels to be put up on Star rated products.

The 'Label Design' is given below:



This programme will be implemented jointly by PCRA and BEE.

8.5.2 Fuel Economy Norms for Heavy Duty Vehicles (Trucks and Buses)

PCRA completed a study on" Market Survey leading to fuel consumption norms for Diesel (Engine Driven) Trucks and Buses in India.

A meeting of stakeholders was held on 18.12.2013 where in presentation was made on Market Survey for Fuel Consumption norms for Diesel (Engine) driven Trucks and Buses.

The Presentation touched upon the following parameters:

- Diesel Consumption Pattern In India
- Major Diesel Consuming Vehicles
- Growth rate of Trucks and Buses in India
- Future vehicle projections for the year 2025 for Trucks and Buses in India
- Fastest growing segment
- Estimated Vehicle Park
- Global Fuel Consumption Norms
- Dimensions of Fuel Consumption standards for Diesel.
- Testing Scenario for Heavy Vehicles



Then Secretary, MOP&NG Shri Vivek Rae and other Dignitaries at an International Conference on Occupational & Environmental Health held at New Delhi on 3rd December 2013

Action is on to take this initiative forward under the guidance of a high level committee consisting of Senior Officials from Ministry, Research Institute, Statutory Bodies and Stake Holders for its recommendations with respect to formulation and implementation of fuel consumption norms for Diesel Engine Driven Trucks and Buses in India.

8.5.3 Other Activities undertaken by PCRA for Conservation

In association with major national industrial associations, Petroleum Conservation Research Association (PCRA) has initiated steps to approach the small and medium Industries clusters where energy consumption is substantial and a large scope for its optimisation exists. Through interaction, the areas where Research and Development (R&D) interventions are sought by the Industrial clusters are finalised and then necessary action initiated for required R&D and its implementation.

PCRA has been active in undertaking fuel conservation awareness campaigns through the Print, Electronic and Outdoor Media. These awareness campaigns together with various efficient energy utilisation measures undertaken by PCRA has led to improvement in use of petroleum products in all major sectors of economy viz. transport, industry, agriculture, domestic and commercial.

The PCRA team executes several activities like energy audits and institutional training programmes for industries, driver training programmes and Model Depot Project studies for the State Transport Undertakings (STUs) and other large fleet operators and conservation / safety workshops for the domestic sector. PCRA also bridges the gap between the users of energy and the energy efficient equipments available in our country by sharing their features during the technical seminars and workshops, which are conducted for a wide spectrum of industries depending on their requirements. Efforts to showcase the results achieved are made through participation in National exhibitions targeted for the industries and also through Kisan Melas where information for the farmers is conveyed through the medium of films and literature.

PCRA's efforts are focused towards sharing and motivating the energy users to adopt the conservation techniques and practices. This is achieved through various mass media campaigns, seminars, training programmes, printed literature, essay and quiz competitions.

8.6 FIELD ACTIVITIES

Field Activities are one of the core areas of PCRA operations. Through Sectoral field activities, PCRA engineers and its external experts are able to reach

the target groups with innovative energy conservation programmes. These activities are designed to cover a large spectrum of socio-economic profile of our country in different sectors viz Industry, Transport, Domestic, Agriculture and Commercial.

During 2013-14 (up to Dec'13), a total of 3172 field activities were carried out in Transport, Industry, Agricultural and Domestic sectors as below:

Sr. No	Activity	Till Dec'13
1	Energy Audit	86
2	Fuel Oil Diagnostic Study	35
3	Service to Small Scale Industry	39
4	Follow-up	87
5	Institutional Training Programme	194
6	Seminar/Technical Meet/ Consumer Meet	60
7	Model Depot Project	38
8	Driver Training Programme	636
9	Kisan Mela	35
10	Youth Programme	576
11	Exhibition	62
12	Workshop-Industrial	247
13	Workshop-Transport	313
14	Workshop-Domestic	461
15	Workshop-Agriculture	291
16	Van Publicity Cycle	5
17	Training to DTI	7
Total		**3172**

8.7 ENERGY AUDITS

During 2013-14 (up to Dec'13), PCRA conducted 160 energy efficiency studies in the Industrial sector, which include Energy Audits (86), Fuel Oil Diagnostic Studies (35) and walk through audits (39) in Small-scale industries.

8.8 ENERGY EFFICIENCY OPPORTUNITIES UNDER PAT

PAT (Perform, Achieve & Trade) is part of the BEE-initiated National Mission on Enhanced Energy Efficiency, which intends to enhance energy efficiency in the country, and is aimed at large energy-intensive industries and facilities.

3,172
field activities carried out till Dec 2013

Under the PAT scheme, 478 industrial units across the country have been given targets for reducing energy consumption. The companies that better their targets will be allowed to sell energy-saving credits **ESCerts** to those failing to achieve the required cuts.

Above Market-based approaches shall unlock energy efficiency opportunities, estimated to be about 6.686 Million Tonnes of Oil Equivalent (MMTOE) at the end of present PAT Cycle (April 2012 – March 2015)

PCRA looks at big role in the PAT progress and make all efforts to be a partner in harnessing this opportunity. PCRA is approaching all the 478 industries to provide PAT related efficiency services. The results achieved are very encouraging.

8.9 SEMINARS

Technical seminars are an effective tool for the dissemination of recent advances in technologies and also for improvement in operational practices for improving energy efficiency. In this direction, PCRA, during 2013-14 (up to Dec'13), has organised 60 Seminars / Technical Meets in different parts of the country for the benefit of specific industry sectors. During these seminars, PCRA's experience of conducting energy efficiency studies in that sector were shared through case study presentations where in details of investment required and the benefits accrued through implementation of the energy conservation measures were shared.

8.10 EXHIBITIONS

Through participation in National and International exhibitions, PCRA exhibits its in-house capabilities and expertise through display of information about successful case studies about its services provided to various sectors. PCRA participated in / organised 62 exhibitions during 2013-14 (up to Dec'13).

8.11 INSTITUTIONAL TRAINING PROGRAMMES

PCRA's Institutional Training Programme (ITP) is an activity primarily meant to share the experience gained by PCRA during industry audits. These training programmes are targeted at raising the awareness level of the members of industry about the conservation opportunities that can be realised through the energy audit of their plant. In 2013-14



New recruits of an Oil PSU helping farmers in Jawahar, Maharashtra in planting ragi

(up to Dec'13), PCRA conducted 194 Industrial Training Programmes in various industries.

8.12 EMPANELMENT OF ENERGY AUDITORS

Over the years, PCRA has been playing an important role of developing quality energy auditors whose services become available to industries and commercial establishments in the country. Our empanelment committee comprises of members from BEE, NPC, TERI and PCRA. Today a strong force of more than 80 PCRA empanelled energy auditors is providing service to the Indian industry.

8.13 ISO 50001

Industrial profits usually get depleted through inefficient energy utilisation. Increasing industrial competition and ever-increasing costs of available forms of energy, especially fossil fuels have focused attention on the need to cut down on wasteful energy consumption - to enhance & to sustain industrial profits. With the recent announcement of PAT (Perform Achieve & Trade) targets for the Energy Intensive Industries by Bureau of Energy Efficiency (BEE), now the industries have to formulate their strategy to achieve their targets.

In order to sustain positive growth, it has become imperative for any progressive organisation to enhance its competence in evolving " Energy efficient management systems to save energy and reduce costs and avoid Green House Gas (GHG) emissions". Hence it is essential for the senior management team to equip themselves with latest tools & techniques and systems that are to be in place for monitoring and verification of actual Energy savings through ISO 50001.

30
certified Energy Auditors form part of PCRA team

PCRA has been actively engaged in energy efficiency improvement efforts in the major economic sectors of industry, transport, and agriculture, domestic and commercial buildings. PCRA, so far has done more than 15,000 energy efficiency studies in small, medium and large industries. These include petroleum refineries, drilling rigs, integrated steel plants, fertilizer plants, petrochemical complexes, steel re-rolling mills, dairy plants and a large number of small and medium enterprises. PCRA's Team consists of 30 certified Energy Auditors and 3 Accredited Energy Auditors who have been associated in Energy Efficiency Studies across industrial sectors of varying capacity which was stepping-stone for getting ISO-50001 certification.

With a view to further enhance PCRA's reach to Industry, PCRA is consulting for ISO 50001 implementation in many industries & big Oil Installations.

8.14 NETWORKING WITH OTHER AGENCIES

8.14.1 Energy Conservation Centre Japan (ECCJ)

As part of Government of India's initiative for cooperation with Japan in the field of Energy Conservation, PCRA executed an MoU with "The Energy Conservation Centre Japan (ECCJ)" on 28th June 2006 in New Delhi. This MoU has been extended

on an annual basis and for current year, it has been extended. The activities leading to reduction in Energy Intensity including training, presentation of Technical paper, development of Energy Audit Manual for textile industry etc. are being jointly executed by PCRA and ECCJ.

8.15 PCRA'S DRIVER TRAINING PROGRAMMES (DTPS)

Transport sector that accounts for around 50% of the country's consumption of petroleum products remained another major area of focus for PCRA. During 2013-14 (up to Dec'13), PCRA conducted 636 DTPs, resulting in improvement of average KMPL. Since 1985-86, more than 1.8 lakh drivers have been trained. 38 integrated Model Depot Project studies and 313 transport workshops were also conducted in 2013-14 (up to Dec'13).

8.16 CONSERVATION TECHNOLOGY CENTRE

Conservation Technology Centre (CTC) was inaugurated in February 2008 at Petroleum Conservation Research Association, Sanrakshan Bhawan, New Delhi. The Conservation Technology Centre has been set up to ensure effective information dissemination on energy efficient products and technologies to the general public. Apart from products, the Conservation Technology Centre is also intended to be a nodal point for exposition of energy efficient technologies, both in nascent and in different stages of development. Large number of visitors, School Students and Engineering College Students are regularly visiting Conservation Technology Centre. PCRA's special drive to invite school students to visit the CTC at its premises helps in generating awareness on energy conservation amongst them as they are explained the utility and feature of different energy efficient products displayed at CTC. Films on conservation are also shown to these students during their visit. The initiative is highly appreciated by School students and teachers as it not only helps in providing an in-depth understanding of energy conservation, but also raises awareness about important issues such as global warming and environment.

50%

consumption of petroleum products by the Transport sector


SCF



CHAPTER 9

International Cooperation and Engagement Abroad

International Cooperation and Engagement Abroad



9.1 To strengthen the country's energy security, the Government is encouraging oil companies to aggressively pursue equity oil and gas opportunities overseas. India is actively engaged in bilateral and multi lateral cooperation with foreign counties. To strengthen the country's energy security, the Ministry of Petroleum & Natural Gas is engaged in oil diplomacy. India's oil PSUs in particular are being encouraged to adopt a global vision in their pursuit of raw materials and raw material-producing assets abroad, and to vigorously pursue acquisition of oil and gas assets overseas. In this mission, the International Cooperation (IC) Division provides a comprehensive international template / framework along with diplomatic support to the oil companies.

9.2 THE MAJOR COMPONENTS OF MOPNG'S OIL DIPLOMACY ARE:

(i) Engaging with Governments of hydrocarbon-rich countries for seeking exploration & production blocks on nomination basis or Government-to-Government basis;

(ii) Participating in the Global Energy Dialogue through multilateral fora, such as the International Energy Forum and the International Energy Agency;

(iii) Leveraging India's pre-eminent position in the International Energy Forum to effectively ventilate issues of direct concern to India, such as transparency in oil markets and pricing issues;

(iv) Entering into collaborative arrangements with international organisations in the energy sector, such as the International Energy Agency through Memoranda of Understanding, Agreements/ Declarations for cooperation in the areas of specific relevance to an emerging economy like India;

(v) Pursuing the acquisition of oil & gas assets abroad, with the objective of increasing the oil & oil equivalent gas available for the country.

(vi) Entering into collaborative arrangements with international organisations, to facilitate technical



H.E. Mr. Begliyev, Deputy Director, Hydrocarbon Resources, Turkmenistan, H.E Mr. Rumhy, Minister of Oil and Gas, Sultanate of Oman at Petrotech 2014 held at India Exposition Mart, Greater Noida on 12.01.2014

assistance in R&D, data sharing, statistical model building and analytical tools for energy sector forecasts, etc.

9.3 THE MECHANISMS FOR ACHIEVING OIL DIPLOMACY OBJECTIVES ARE:

(i) Meetings at the level of Heads of State/ Government/Oil Minister of hydrocarbon-rich countries;

(ii) Inter-Governmental Agreements with oil and gas-rich countries;

(iii) The instrumentality of Joint Working Groups with oil & gas-rich countries;

(iv) Through Memoranda of Understanding/ Declarations of Cooperation with the Governments of oil-rich countries and the relevant international organisations;

(v) Bilateral meetings at the level of the Minister and Secretary;

(vi) Attending important Ministerial meetings of international organisations, such as the International Energy Forum, etc.;

(vii) Utilising the services of Indian High Commissions/ Embassies abroad for issues relating to the country's energy security;

(viii) Holding high-level conferences, such as the India-Africa Hydrocarbons Conference, Petrotech, etc., to seek engagement with oil & gas producing countries/international oil companies.

9.4 In order to explore new avenues and fortify existing bilateral cooperation in the hydrocarbon sector, the Minister/Minister of State led a number of delegations on visits abroad and also received foreign delegations in India. List of important visits by Minister/Minister of State and foreign delegations to India are shown below:

(i) Visit to Thailand

Minister (PNG) was the Chief Guest in the 119th Graduation Ceremony of Asian Institute of Technology (AIT), Thailand on 23rd May, 2013.

(ii) Visit by Iranian Delegation

H.E. Mr. Rostam Ghasemi, Minister of Oil of the Islamic Republic of Iran led a delegation to India on 27th May, 2013. Both sides reviewed on-going cooperation in the hydrocarbons sector and agreed to resolve outstanding issues.

(iii) Visit to Finland and Estonia

Minister of State in the MOPNG led a delegation to Finland and Estonia from 11-14 June, 2013 and 14-16 June, 2013 team of experts from ONGC to foster and promote cooperation between companies from both the countries in mutually agreed areas.

(iv) India-Iraq Joint Commission Meeting (JCM)

The 17th Meeting of the India-Iraq Joint Commission Meeting (JCM) was held during 7-8 July, 2013 at Baghdad, Iraq under the Co-Chairmanship of Minister (PNG).

(v) Second LNG Producer-Consumer Conference in Tokyo

Minister (PNG) led a delegation to participate in the Second LNG Producer-Consumer Conference on 10th September, 2013 at Tokyo, Japan. Prior to the Conference Minister had a bilateral meeting with Mr. Toshimitsu Motegi, Minister for Economy, Trade and Industry, Japan. Both the Ministers signed a joint statement.

(vi) 5th Asian Ministerial Energy Roundtable Meeting in Seoul

Minister (PNG) led a delegation to participate in the 5th Asian Ministerial Energy Roundtable Meeting in Seoul on 12th September, 2013.

On the sidelines of the Ministerial, the Minister also had meetings with his counterparts from Qatar, Kuwait, Kazakhstan, Vietnam, Sri Lanka and UAE and discussed important strategic bilateral issues in the oil and gas sector. During these bilateral meetings, there was agreement on the broad framework of co-operation in the hydrocarbons sector, including opportunities for investment in each others' countries, with an assurance that specific action points would be initiated on priority.

(vii) Visit by Venezuelan Delegation

A delegation led by Mr. Rafael Ramirez, Minister of Energy and Mines of the Bolivarian Republic of Venezuela visited India on 24th September, 2013. In the meeting the two Ministers reviewed on-going cooperation in the hydrocarbon sector.

Both sides agreed to finalise a comprehensive package for collaboration not only in the oil and gas sector but also for participation by Indian companies in providing expertise for development of infrastructure and technology, as well as boosting trade in goods and services between the two countries.

(viii) 7th EAS Energy Ministers Meeting

Minister of State (PNG) participated in the 7th EAS Energy Ministers Meeting held at Bali, Indonesia on 26th September, 2013. In her address, MoS (PNG) emphasized on the need to adopt energy efficiency and conservation along with exploring use of alternative energy sources. She stated that there is a need for open and transparent energy market in the region and Asia must aspire to the degree of regional cooperation and integration in the region, similar to that prevailing in other regions.

(ix) India-Russia Joint Working Group

The 18th India-Russia Joint Working Group on energy and Energy and Efficiency under the Russia-India Inter-Governmental Commission on Trade, Economic, Scientific & Technological and Cultural Cooperation was held in Moscow on 3rd October, 2013.

(x) India-Brazil Joint Commission Meeting (JCM)

India-Brazil JCM on Political, Economic, Scientific, Technological and Cultural Cooperation was held on 14-15 October, 2013 in Brasilia.

(xi) Visit by Dy. Prime Minister and Oil Minister, Kuwait

A delegation led by H.E. Mr. Mustafa J. Al Shamali, the Deputy Prime Minister and Oil Minister, met Minister (PNG) on 9th November, 2013 at New Delhi. Both sides agreed to enhance and build further on the already robust relationship between the two countries.

(xii) Visit to Abu Dhabi

Minister (PNG) participated in the official opening ceremony of Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) 2013 on 10th November, 2013 in Abu Dhabi and also held an Investor's Meet in Abu Dhabi, UAE on 11th November, 2013.

(xiii) PETROTECH 2014

PETROTECH 2014 was held in January 2014 in New Delhi. Eleven Ministerial level delegations participated in the Petrotech. India held bilaterial meetings with Libya, United Arab Emirates, Bahrain, Canada, Ecuador, Uganda, Sudan, Turkmenistan, Azerbaijan and Mozambique and several bilateral issues of mutual importance were deliberated.

9.5 MEMORANDUM OF UNDERSTANDING (MOU)

i) MoU with Liberia

MOPNG has signed a MoU for cooperation in the field of oil and gas with the Ministry of Land, Mines and Energy of the Republic of Liberia on 11th September, 2013.

ii) MOU with Iraq

MOPNG has signed an MOU for cooperation in the field of Energy with the Ministry of Oil of the Republic of Iraq on 23rd August, 2013.

iii) MOU with Canada:

MoU has been signed between the Ministry of Petroleum & Natural Gas of the Republic of India and the Department of Natural Resources of Canada for cooperation in the field of Petroleum & Natural Gas on 28th October, 2013.



H. E. Mr. Gholmareza Ansari, Ambassador of Iran to India in a meeting with Mr. D K Sarraf, MD, OVL



H.E. Dr. Awad Ahmed Al-Jaz, Minister of Petroleum, Sudan meets Directors' of OVL

9.6 AN OVERVIEW OF INTERNATIONAL OPERATIONS OF OIL PSUS

MOPNG is encouraging the domestic oil and gas companies to emerge as global energy players, to pursue interests in hydrocarbons wherever they exist, to acquire equity in raw material-producing assets, with an overarching objective of enhancing the country's energy security.

Our oil companies are present in 25 countries namely, Australia, Brazil, Colombia, Cuba, East Timor, Egypt, Gabon, Indonesia, Iran, Iraq, Kazakhstan, Libya, Mozambique, Myanmar, Nigeria, Russia, South Sudan, Sudan, Syria, Timor-Leste, UK, USA, Venezuela, Vietnam, Yemen.

The total investment by oil PSUs (OVL, GAIL, IOC, OIL, BPCL & HPCL) is more than US$ 20.465 billion (₹ 1,22,790 Crore). OVL's exploration and production activities span 4 continents (Africa, Asia, Europe and South America) with participation in 32 projects in 16 countries at a cumulative investment of more than US$ 18.395 billion (₹ 110,370 crore), of which US$ 15.801 billion (₹ 94,806 crore) is in producing assets.

OVL is currently producing oil and gas from 10 projects in 7 countries viz., Russia, Sudan, Vietnam, Syria, Colombia, Venezuela and Brazil. During 2012-13, OVL's share in production of oil and oil-equivalent gas was 7.26 MMTOE, constituting about 10% of country's total oil and gas production.

9.7 The International Cooperation Division provides support in many of the initiatives of PSUs to acquire overseas assets through diplomatic support. PSUs overseas oil & gas and pipeline assets are listed below:

Overseas Projects/Assets			
S.NO.	Country	**Name of Project**	**Participating companies along with P.I.**
1.	Vietnam	Block 06.1 (offshore)	OVL 45%, TNK-35% (Operator); PetroVietnam 20%
		Block 128 (offshore)	OVL 100%
2.	Sudan	GNPOC (Onland)	OVL 25%; CNPC 40%; Petronas 30%; Sudapet 5%. Jointly operated
3.	South Sudan	GPOC (Onland)	OVL 25%; CNPC 40%; Petronas 30% Nilepet 5% (Jointly operated)
		SPOC (Block 5A), Onland	OVL 24.125%; Petronas 67.875%; Nilepet 8%. Jointly operated
4.	Russia	Sakhalin-I (Offshore)	OVL 20%; ENL 30% (Operator) Sodeco 30%; SMNG-S 11.5% RN Astra 8.5%
		Imperial Energy (Onland)	OVL 100%
5.	Colombia	MECL (Onland	OVL 25-50%; SIPC 25-50%; Ecopetrol 50% Jointly operated
		Block RC # 8 (Offshore)	OVL 40% – (Operator), Ecopetrol – 40%; Petrobras – 20%
		Block RC # 9 (Offshore)	Ecopetrol – 50% (Operator), OVL – 50 %
		Block RC # 10 (Offshore)	OVL-50% (Operator), Ecopetrol – 50%
		CPO-5 (Onland)	OVL-70% (Operator), Petrodorado-30%
		SSJN-7 (Onland)	PSE 50%(Operator), OVL 50%
		Gua off-2 (Offshore)	OVL-100%
		LLA-69 (Onshore)	OVL-50%, SIPC-50%
6.	Syria	AFPC (Onland)	SSPD(Operator) 62.5 - 66.67 %, HES BV 33.33 TO 37.5 %
		Block 24 (onland)	OVL 60%, IPR 25% (Operator), TOM (15%)
7.	Venezuela	Sancristobal, PIVSA (Onland)	OVL 40%, PDVSA 60% Jointly operated
		Carabobo Project-1 (Onland)	PdVSA-60%; Repsol-11%, Petronas-11%; OVL-11% OIL-3.5% IOC-3.5% Jointly operated
8.	Brazil	BC- 10 (offshore)	OVL 27 %; Shell 50% (Operator) & Petrobras 35%
		BM-SEAL-4 (Offshore)	Petrobras–75%(Operator), OVL- 25%
		Espirito Santo/Brasil	Petrobras- 40-70%, IBV Brasil* - 30%, Anadarko- 0-30%
		Campos/Brasil	Anadarko - 30%, IBV Brasil*-25%, BP - 25%, Maersk - 20%
		Sergipe/Brasil	Petrobras - 60%, IBV Brasil* - 40%
		Potiguar/Brasil	Petrobras - 30%, BP - 30%, IBV Brasil* - 20%, Petrogal - 20%
9.	Azerbaijan	ACG	OVL-2.7213%;BP:-36% (Op) SOCAR-12%, Chevron-11% INPEX-11%, Exxon-8%, Stat Oil-8%, TPAO-7%, ITOCHU-4%
10.	Myanmar	Block A-1 (offshore)	OVL 17%, GAIL 8.5%, Daewoo 51%(Operator), Kogas 8.5%,MOGE 15%
		Block-A3 (offshore)	OVL 17%, GAIL 8.5%, Daewoo 51%(Operator), Kogas 8.5%,MOGE 15%
11.	Iran	Farsi Offshore	OVL 40% (Operator), IOC 40%, OIL 20%

Overseas Projects/Assets			
S.NO.	Country	**Name of Project**	**Participating companies along with P.I.**
12.	Mozambique	Rovuma Area-1 (Offshore)	OVL 6%, OIL 4%, Anadarko 36.5%, PTTEP 8.5%, BPCL 10%, ENH 15%, MITSUI 20% (additional acquisition of 10% share of Anadarko by OVL is also under finalization).
13.	Libya	Block 43 Contract Area (Offshore)	OVL 100%
		Area 86	OIL-50% (Operator) IOC-50%
		Area 102/4	OIL-50% (Operator) IOC-50%
		Area 95-96	Sonatrach-50% (Operator) OIL-25%; IOC-25%
14.	Gabon	Block Shakthi	OIL-45%(Operator)
			IOC-45%
			Marvis Pte Ltd-10%
15.	Iraq	Block 8 (onland)	OVL 100%
16.	Cuba	Blocks 34 & 35 (offshore)	OVL 100%
17.	Nigeria	Block 285 {Block 279,297 (reliquished)}	OMEL(O): 64.33% Total: 25.67%, EMO: 10%
		OML 142	Summit Oil -30% (Operator) Suntera Nigeria 205 Ltd-70%* * Suntera-50%
			OIL-25%
			IOC-25%
18.	Kazakhstan	Satpayev	OVL-25%, Kazmunaygaz-75% (Operator)
19	East Timor	JPDA -06-103	Oilex (10%), Japan Energy (15%), Videocon (20%), GSPC (20 %), BPRJPDA (20%), Pan Pacific Petroleum (15%)
20.	Timor-Leste	Block-K	REP DMCC- 75%(Operator) OIL-12.5% IOC-12.5%
21.	Australia	EP 413	Norwest Energy NL(27.945%), BPRL (27.803%);ARC Energy Limited (44.252%)
		T/L1 & T/18P	HPCL's PI 11.25% & 9.75%
22.	Indonesia	Nunukan	BPRL Venture Indonesia BV (12.5%), Pertamina (35%); MEDCO (40%); Videocon (12.5%)
23.	USA	Niobrara Shale JV Asset	Carrizo Oil & Gas Inc., USA (60%) OIL India (USA) Inc. (20%) IOCL (USA) Inc. (10%) Haimo Oil & Gas LLC (10%)
		Eagle Ford Shale Gas Asset in Texas, USA	GAIL Global USA Inc (GGUI)- 20%, Carrizo Oil & Gas (Operator)-80%

Overseas Projects/Assets			
S.NO.	Country	**Name of Project**	**Participating companies along with P.I.**
24.	Yemen	Block 82	Medco Energi - 45% (Operator) Kuwait Energy-25% OIL-15% IOC-15%
		Block 83	Medco Energi -45%(Operator) Kuwait Energy-25% OIL-15% IOC-15%
Pipeline Projects			
1.	Sudan	741 Kms. Pipeline Project (onland)	OVL 90%; OIL 10%
2.	Azerbaijan	1,768 Kms. BTC Pipeline	BP - 30.1%, SOCAR - 25.00%, Chevron - 8.90% Statoil - 8.71%, TPAO- 6.53%, ENI -5.00%, Total - 5.0%, ITOCHU - 3.4%, INPEX-2.50%, ConocoPhillips- 2.50%, OVL- 2.36%
3.	Myanmar	Pipe Co-1 (Offshore)	OVL 17%, GAIL 8.5%, Daewoo 51% (Operator), Kogas 8.5%, MOGE 15%
		Onshore Pipeline, SEAGPCL-Separate Company	OVL- 8.347%, CNPC-SEAP-50.9%, Daewoo-25.041%,GAIL-4.1735%,Kogas-4.1735%, MOGE-7.365%





CHAPTER 10

Welfare of SC/ ST, OBC & Physically Handicapped

Welfare Of Scheduled Castes/ Scheduled Tribes, Other Backward Classes and Physically Handicapped

10.1 PREAMBLE

The guidelines in respect of the Reservation for the Scheduled Castes/ Scheduled Tribes, Other Backward Classes and Physically Handicapped persons issued from time to time by the Department of Personnel & Training, the Department of Public Enterprises, the Ministry of Social Justice and Empowerment and Ministry of Tribal Affairs are being implemented in the Ministry of Petroleum & Natural Gas and the Public Sector Undertakings under its administrative control. The SCT Cell of this Ministry monitors the implementation of reservation policies in PSUs as well as in the Ministry. The PSUs have also constituted Implementation Cells under the supervision of their Liaison Officers to safeguard the interests of SCs/STs, OBCs and Persons with the Disability (PWD) employees and to redress their grievances. The Liaison Officers of the PSUs are responsible for ensuring implementation of the Presidential Directives as well as the various orders of the Government on the subject. Remedial action on the grievances of the SCs/STs, OBCs and PWD employees of PSUs received through Members of Parliament, National Commission for SC and ST, National Commission for Backward Classes are taken, wherever necessary. The status of appointment of SCs/STs/OBCs/PWD persons is monitored by the Ministry through half yearly report furnished by PSUs separately.

In pursuance of the observations of Parliamentary Committee on the Welfare of SCs/STs/PWD persons and the Presidential Directives on Reservations for SCs/STs in service, a team led by the Liaison Officer of this Ministry inspects the Reservation Rosters maintained by the Units of PSUs annually. In 2013 the team has inspected rosters randomly many units of PSUs where Rosters are maintained.

10.2 SPECIAL COMPONENT PLAN FOR SC/ST/PH FOR 2013-14

Under this plan, most of the PSUs of this Ministry are undertaking the following developmental activities for the Welfare of SC/ST population during 2013-14:

- Scholarship/Financial Assistance for purchase of books/ uniforms etc to SC/ST students in neighbouring schools
- Every year ₹ 2.00 crore has been allocated to various work centres of ONGC and SCP/ STP towards Welfare and upliftment of SC/ST communities
- Education for Primary level Schools, hiring of teacher, provision of Uniform, note books, stationary etc. to school going children
- During the financial year 2013-14 the PSUs of this Ministry have made provision in the plan outlet for award of scholarship to ST/ST students
- A Special recruitment drive relating to SC/ST/OBC/ PH welfare activities has been launched during the period 2013-14.
- Most of the PSUs of this Ministry are implementing the provisions under Disability Act, 1995 with respect to identification of course, implementing various provision of 3% reservation of course in Orthopedically Handicapped (OH), Visually Handicapped (VH) and Hearing Handicapped (HH) category.
- Special Recruitment Drive (SRD) for filling the Backlog Reserved Vacancies for SC/ST/OBC/PH categories was launched and almost 50% of these vacancies were filled. Remaining vacancies will be filled in the year 2014-15 so that this backlog is completely eliminated.

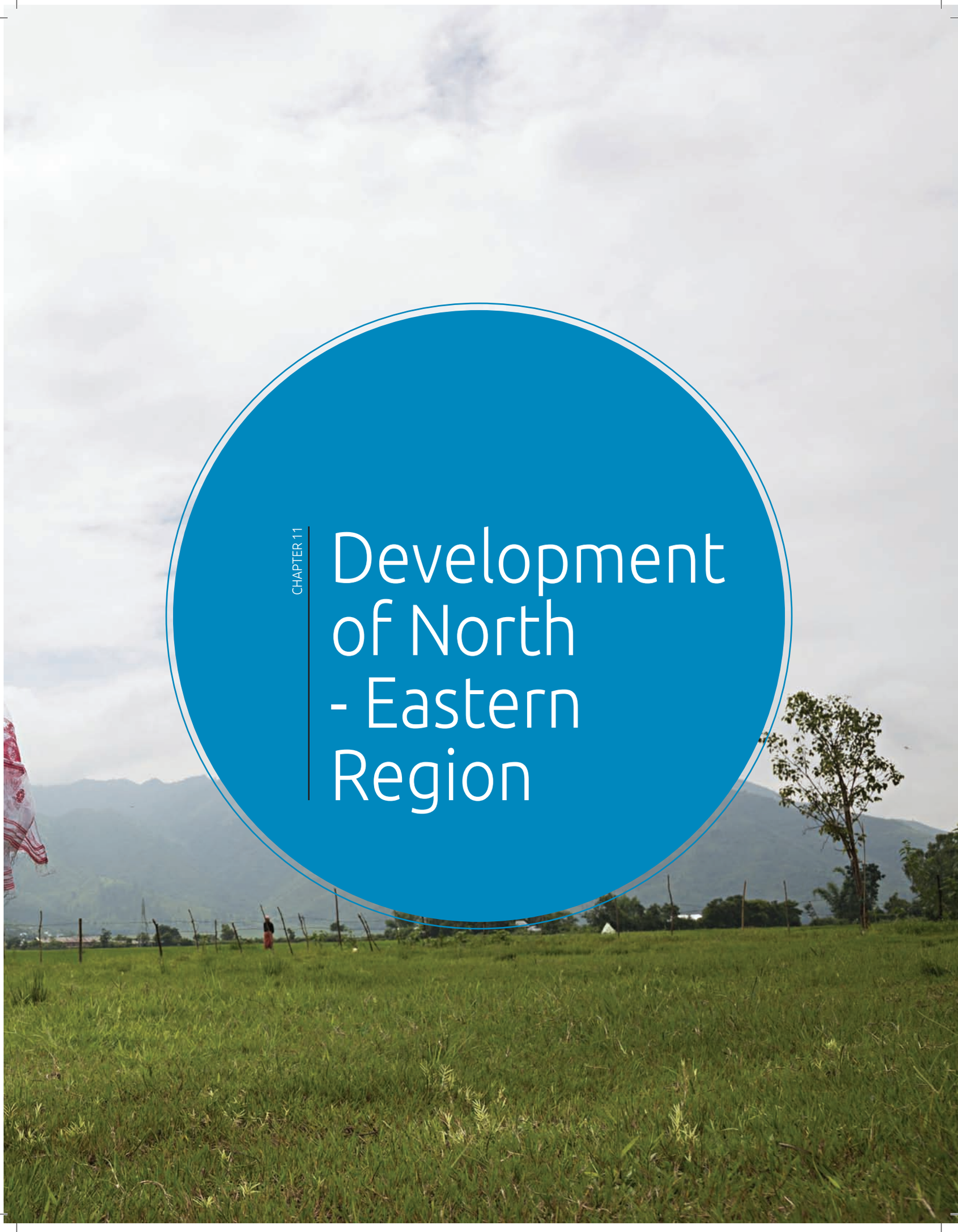
10.3 Backlog of SC/ST/OBC/PH in Oil Companies under the Administrative Control of the Ministry as on 31.12.2013.

Number of backlog Reserved Vacancies remaining (Direct Recruitment)

PSU	Group A		Group B		Group C		Group D	
	SC/ ST	OBC/ PH	SC/ ST	OBC/ PH	SC/ ST	OBC/ PH	SC/ ST	OBC/ PH
Balmer Lawrie	6/4	14/1	0/1	5/0	9/7	12/3	35/25	18/5
OIL	Nil	Nil/5	Nil	Nil	11/11	7/23	Nil/1	Nil/26
EIL	13/5	1/14	Nil	Nil/1	Nil	1/2	Nil	Nil
BPCL	Nil	42/34	Nil	Nil	Nil	Nil/6	Nil	Nil
NRL	7/2	2/1	Nil	Nil	Nil	Nil/2	Nil	Nil
IOC	22/21	41/1	Nil	Nil	3/7	15/42	1/0	1/22
GAIL	9/5	19/2	2/5	23/2	13/6	0/1	Nil/2	Nil
HPCL	Nil	0/2	Nil	Nil	Nil	9/13	Nil	63/5
ONGC	4/2	4/2	Nil	Nil	2/2	11/19	1/16*	24*/2
ONGC Videsh	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
CPCL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
BIECCO LAWRIE	Nil/1	5/Nil	Nil/2	6/1	1/Nil	Nil	Nil/9	4/4
MRPL	1	Nil/7	Nil	Nil	16	Nil/19	Nil	Nil/1

** Backlog in Class-IV / Group 'D' is due to appointments made through Court orders.*





CHAPTER 11

Development of North - Eastern Region

Development of North - Eastern Region



OIL's mobile dispensary in remote areas of Assam

11.1 OIL & GAS EXPLORATION

11.1.1 The history of oil and gas exploration in India dates back to the 19th century in the state of Assam located in the extreme North-Eastern corner of India. The first well that struck oil was in Makum area near Margherita during 1867 drilled by McKillop, Stewart & Co., barely 9 years after Drake's well in 1859 in Titusville, Pennsylvania. Subsequently, a number of wells were drilled in Makum and Namdang areas of Margherita and produced crude oil in minor quantities for more than two decades. The Assam Railway & Trading Co. Ltd, which was involved in the business of timber, coal, tea & construction of railway lines, drilled the first commercial well Digboi-1 (September 1889 - November 1890, total depth of 662 ft) with an initial production of 200 gallons per day, opened up a new chapter in exploration and production of oil in this part of the world and the oil industry of India was officially born. During the subsequent years before independence of India, Digboi oil field was extensively developed and searched for new oil fields continued.

3,180 MT

estimated hydrocarbon resources for Upper Assam Shelf basin

11.1.2 Other significant milestones in oil and gas exploration in North East took place mainly during post independence. These include the discoveries of the Nahorkatiya and Moran fields by Assam Oil Company (AOC) and Rudrasagar oil fields by ONGC in 1953, 1956 and 1960 respectively. Subsequently, more than 100 oil and gas fields, that include fields such as Jorajan, Kumchai, Hapajan, Shalmari, Dikom, Kathaloni, Tengakhat, Bhogpara, Chabua, Baghjan, Barekuri, Mechaki, Lakwa, Lakhmani, Geleki, Amguri, Kharsang, Charali, Borholla-Champang, Khoraghat, Baramura, Tichna, Gojalia, Rokhia, Khobal, Hortokihave been discovered by Oil India Limited (OIL) and Oil & Natural Gas Corporation Limited (ONGC) in the North Eastern states of Assam, Arunachal Pradesh, Nagaland, Tripura and Mizoram.

11.1.3 Since then, both the National Oil Companies viz., OIL and ONGC have proven substantial amount of producible hydrocarbons and have technical know-how of producing and managing complex reservoirs and contributing to more than 8 MMT of oil plus oil



equivalent of gas (O+OEG) from their producing assets in North-East.

11.1.4 The total prognosticated hydrocarbon resources (O+OEG) of Upper Assam Shelf basin are estimated to be the order of 3180 MMT and for Assam-Arakan Fold Belt basin, the total prognosticated hydrocarbon resources is of the order of 1860 MMT. Thus, there is a total 5040 MMT of prognosticated hydrocarbon resources in the North- East. About 2224 MMT of in-place hydrocarbon reserves have been established so far by E&P companies, which means about 56% of hydrocarbon resources are under "yet to find" category.

11.1.5 The two National Oil Companies (NOCs), namely, ONGC and OIL have been engaged in the North East Region for exploration and exploitation of oil and gas, since the past 56 years and generated a vast geo-scientific database and geological understanding of the basin.

1,860 MT

estimated hydrocarbon resources for Assam-Arakan Fold Belt basin

11.1.6 With the advent of New Exploration Licensing Policy (NELP) by the Government in 1999, the E&P activities were further intensified by award of new acreages to various national and international E&P Companies on the basis of open bidding system. This has helped in inducting new technology in drilling and production of hydrocarbon as well as enhancing geo-scientific knowledge and overall understanding of Assam-Arakan Basin.

11.2 EXPLORATION ACTIVITIES IN NORTH-EAST UNDER THE NOMINATION REGIME

11.2.1 Oil India Limited since its inception in February 1959 has been actively pursuing exploration & development activities in the state of Assam. During 1962-65, various new technologies were adopted such as deviation drilling, dual completion, pressure maintenance etc. In 1968, exploration programme in Kharsang, Arunachal Pradesh began and in Kusijan areas, west of Digboi hydrocarbon was discovered.



OIL's Handicraft Training and Development Centre at Duliajan, Assam

11.2.2 During 1969-79, extensive geophysical survey and development effort in Assam and Arunachal Pradesh was carried out which led to the discovery of the Jorajan field in 1972 and establishment of gas resources in Eocene of Tengakhat (west of Naharkatiya) in 1973.

11.2.3 OIL started its seismic survey campaign in the year 1976-77 and till date has acquired more than 25,000 GLKM of 2D seismic data and nearly 8500 Sq. Km of 3D seismic data in Upper Assam Basin.

11.2.4 During 1984-87, intensive exploration/ exploratory well drilling & development activities resulted in discovery of fields such as Bogapani, Kumchai, Hapjan, Shalmari and Rajgarh. After discovery of hydrocarbon in the deeper Eocene-Paleocene horizons, more thrust was given to explore into these horizons in different fields of Upper Assam. As a result, production from deeper reservoirs during late 1990's surpassed the production from shallower reservoirs (Barail and Tipam). This led to significant discoveries involving deeper prospects subsequently with depths ranging between 3550-3800 m in the central basement high areas of Dikom-Kathaloni-Chabua-Matimekhana to more than 5500 m in Mechaki areas towards the eastern flank of Upper Assam Basin.

11.2.5 North Bank Exploration: In 1993-94, a project cell was set up to explore North bank of river Brahmaputra. Extensive 2D seismic data acquisition was done and number of drillable prospects identified. Since then, a total of 8 wells have been drilled in the North Bank. However, there is no commercial success as yet.

11.2.6 So far, OIL has made 102 hydrocarbon discoveries under the Nomination regime in the North-Eastern region.

11.2.7 ONGC started its exploration work in Assam in 1956. Seismic surveys and geological mapping of the outcrop areas were initiated while gravity-magnetic surveys began in 1961. The analysis of seismic data along with the outcrop mapping data generated by ONGC and earlier workers helped refining the basin architecture and its evolution.

11.2.8 The first wild cat well of ONGC was drilled on Disangmukh structure in 1960, However, the first commercial oil discovery was on Rudrasagar structure in the same year. As a result of initial successes encountered in pursuing structural prospects, the focus remained on identification of such prospects through seismic data. Since then ONGC has drilled 710 exploratory wells in the state of Assam.

11.2.9 The reservoirs of Barail Group belonging to Upper Eocene to Lower Oligocene age and those of Tipam Group of Upper Miocene age proved to be most prolific and drew significant attention of explorationists. A significant number of oil and gas fields, including Panidihing, Disangmukh, Lakwa, Lakhmani, Sonari, Geleki, Demulgaon, Amguri and Charali, were discovered with this exploration philosophy.

11.2.10 During the past nearly five decades, it has been ONGC's endeavour to prove the extension of the established hydrocarbon bearing areas of Sivasagar and Dhansiri Valley of North Assam Shelf and at the same time step out and explore new areas. In the process it has established hydrocarbon fields in the

logistically difficult areas of Cachar and neighbouring states of Tripura and Nagaland.

11.2.11 So far, ONGC has made 56 hydrocarbon discoveries in the North-Eastern region under the nomination regime.

11.3 EXPLORATION ACTIVITIES IN NORTH-EAST UNDER THE PSC REGIME

11.3.1 Under the PSC regime, exploration blocks were first awarded in the States of Assam in the year 1998 under Pre-NELP rounds of bidding. Subsequently, blocks were awarded under various rounds of NELP. 31 awarded NELP blocks are in the states of Arunachal Pradesh-1, Assam-19, Manipur-2, Mizoram-3, Nagaland-2 and Tripura-4 covering an area of 43,722 Sq. km. Out of these, so far 9 blocks have been relinquished which are in the states of Arunachal Pradesh-1, Assam-6, Tripura-1 and Mizoram-1. In addition, there are 2 discovered fields that are in operation under PSC regime, namely, Kharsang in Arunachal Pradesh and Amguri in Assam.

7

gas discoveries made in North East under the PSC regime

11.3.2 The following exploration activities have been carried out as on 31.12.2013 under the PSC regime in the awarded blocks:

I. Acquisition, Interpretation and Processing (API) of 5,794 Line Kilometer (LKM) of 2D seismic data & 2,350 Sq. Km of 3D seismic data completed.

II. Drilling of 39 exploratory wells have been carried out

III. A total of 6 hydrocarbon discoveries (gas) have been made (1 in Assam, 1 in Mizoram and 4 in Tripura)

IV. Expenditure to the tune of US$ 499 Million has been incurred under PSC for exploration, development and production activities.

11.3.3 The status of discoveries made under the PSC regime is given in Table 11.1:

TABLE 11.1

Block Name	Operator	State	Gas Discovery	Month of Discovery	Current status
AAP-ON-94/1	Hindustan Oil Exploration Company Ltd.	Assam	1	January, 2008	DoC reviewed by MC, FDP yet to be submitted
AA-ONN-2001/1	ONGC	Tripura	2	a. February, 2009 & b. December, 2013	a. Under appraisal & b. PCI Submitted
AA-ONN-2002/1	Jubilant Oil & Gas Pvt. Ltd.	Tripura	3	a. November, 2009 b. December, 2009 & c. May, 2013	(a) DoC reviewed, MCR yet to be finalized by MC (b) PCI Submitted (c) PCI Submitted, Appraisal Plan not yet submitted
AA-ONN-2001/2	ONGC	Mizoram	1	December, 2011	Under testing. PCI yet to be submitted

(DoC: Declaration of Commerciality)

11.3.4 The following exploration activities by OIL and ONGC have been carried out so far under the PSC regime in the awarded blocks:

11.3.5 OIL has been awarded eight exploration blocks in the North Eastern part of India out of which seven blocks are in the State of Assam and part of Upper Assam Basin and one block is in the state of Mizoram which constitutes part of Assam-Arakan Basin. Out of the seven blocks in the state of Assam, two are in Phase-II exploration stage where pre-drilling activities are in progress; however, in one of the block i.e., AA-ONN-2004/2 forest clearance is still awaited where the drilling location falls in forest area. In block AA-ONN-2009/4, 3D seismic data acquisition has already been completed and presently data processing and G&G interpretation is in progress. Two blocks, viz., AA-ONN-2010/2 and AA-ONN-2010/3 are in initial phase of exploration and PEL for block AA-ONN-2010/3 has been granted by Govt. of Assam on 12.12.2012 while block AA-ONN-2004/1 is under relinquishment process and block AA-ONN-2003/3 has been relinquished.

11.3.6 In the state of Mizoram, OIL has initiated exploration activities in logistically difficult hilly terrain following award of NELP block MZ-ONN-2004/1. After completion of 2D seismic API and subsequent G&G studies, commencement of drilling in the block is in advance stage with pre-drilling activities nearing completion.

11.3.7 The present status of NELP blocks in North-Eastern region awarded to OIL is given in Table 11.2:

TABLE 11.2 : STATUS OF OIL'S NELP OPERATED BLOCKS IN NE INDIA

Sl. No.	Basin	Blocks	Area (Sq km)	Phase of Exploration	Exploration Activity
1	UPPER ASSAM BASIN	AA-ONN-2002/3 (Karbi Anglong, NELP-IV)	1095	In Phase-II extended to 01.05.2013	Pre-drilling activities In progress
2		AA-ONN-2004/1 (Amguri, NELP-VI)	144/108	**Under Relinquishment process**	The block validity stands expired on 27.12.2011.
3		AA-ONN-2004/2 (Dibrugarh, NELP-VI)	218	In Phase-II, expiry on 27.06.14	Loc-DRB falls in forest, forest clearance awaited
4		AA-ONN-2009/4 (Teok, NELP-VIII)	84	Initial exploration period, expiry on 08.12.15	Acquisition of 3D Seismic data completed. P&I is in progress.
5		AA-ONN-2010/2 (Karbi Anglong NELP-IX)	396	Initial exploration period	PSC signed. PEL awaited from Govt of Assam.
6		AA-ONN-2010/3 (Sadiya, NELP-IX)	171	Initial exploration period	PSC signed. PEL awaited from Govt of Assam.
7		AA-ONN-2003/3	275	Relinquished	
8	ASSAM ARAKAN BASIN	MZ-ONN-2004/1 (Mizoram, NELP-VI)	3213	A request has been made to MOPNG, for grant of three (3) years additional period (w.e.f 23.05.12) for Phase-1 as special dispensation. Decision is awaited.	2D API completed, 4 locations released for drilling, pre-drilling activities in progress. 3D data acquisition through Seis-Loop technique has already been started for an area of 200 Sq Km.

11.3.8 ONGC has been awarded seven blocks in north east. Out of these 2 blocks are in Nagaland, one each in state of Tripura & Mizoram and the remaining three are in state of Assam. ONGC has notified discoveries in blocks located in Tripura (AA-ONN-2001/1) & Mizoram (AA-ONN-2001/2). Khubal discovery made in Tripura is under appraisal wherein 4 appraisal wells are to be drilled. The results of appraisal drilling will be integrated and the DoC would be submitted. For Hortoki discovery made in Mizoram NELP block, the potential commercial interest is to be established through hydro-fracturing. The process for awarding the job on contract is under way. Whereas, in reference to three blocks falling in state of Assam, 3D seismic data of 130 sq.km could be acquired only in AA-ONN-2001/3. However the drilling activities in this block are in suspended state. In block AA-ONN-2005/1, ONGC could not expend any exploratory inputs on account of being falling in disputed border area. The block AA-ONN-2009/3 (ONGC as an operator in consortium, with OIL) has acquired 146 GLK of 2D & 84 Sq. Km of 3D seismic data.

11.3.9 The status of NELP blocks (as on 31-12-2013) awarded to ONGC are as under.

Block	NELP	Work Carried out			Discovery	Remarks
		2D(GLK)	3D(SKM)	Wells		
AA-ONN-2001/1	III	70	50	6	Khubal-4	Under appraisal
AA-ONN-2001/2	III	301	0	1	Hortoki-1	HF job planned.
AA-ONN-2001/3	III	-	130	-	-	Disputed Area Belt issues
AA-ONN-2001/4	III	-	-	-	-	Nagaland acreages.
AA-ONN-2002/4	IV	-	-	-	-	
AA-ONN-2005/1	VII	-	-	-	-	Disputed Area Belt issues
AA-ONN-2009/3	VIII	146	84	-	-	

11.4 CRUDE OIL & NATURAL GAS PRODUCTION IN NORTH-EAST

11.4.1 As far as commercial production of oil and gas is concerned in the North East, ONGC and OIL produced about 4.93 Million Metric Tonnes (MMT) of oil and 3.73 Billion Cubic Metres (BCM) of gas in North East in the year 2013-14. The oil and gas production under the PSC regime in North East was about 0.089 MMT and 0.022 BCM respectively during the year 2013-14.

11.4.2 Under the PSC (JV) regime, two discovered fields were awarded under Medium and Small Sized Discovered Fields rounds of bidding. The Medium Sized field Kharsang in Arunachal Pradesh, covering an area of 11 Sq. Km was awarded in 1995 and the Small Sized field Amguri in Assam, covering an area of about 52.57 Sq. Km was awarded in 2001.

11.4.3 So far till 31.03.2014, Kharsang field has cumulatively produced about 7.597 Million Barrel of crude oil and 219 MMSCM of associated natural gas. The current oil and gas production rate is about 1,657 bbl/day of oil and 48,333 cubic metre of gas respectively. Amguri field has cumulatively produced about 0.496 Million Barrel of crude oil plus condensate and 203 MMSCM of associated and non associated natural gas. There is currently no oil/gas production from the field as the gas producing well ceased to flow since November 2011 due to sanding in wellbore. The gas production was about 45,000 cubic metres per day before the well ceased. Further, the contract of one of the Joint Venture partner's viz. Canoro Resources Ltd in Amguri was terminated on 29.08.2010 due to contractual issues. Efforts are being made to re-start the field operations.

11.5 ALTERNATIVE HYDROCARBON SOURCES IN NORTH EAST

11.5.1 Oil Shale : DGH has completed a project in Assam-Arakan Basin in association with BRGM, France and Mineral Exploration Corporation Limited (MECL), India, to identify and estimate resources in respect of oil shale deposits and syncrude potential in North East (NE) part of India covering an area of about 250 Sq. Km., spanning 3 blocks in Assam and Arunachal Pradesh. An estimate of syncrude resources has been made by BRGM in the three blocks at 400 MMT (approx) of oil up to a depth of 500m. Further, DGH has entered into a MoU with IOC for extraction technology.

11.5.2 Coal Bed Methane (CBM) : In order to harness the CBM potential in the North-East, 1 CBM block , namely, AS-CBM-2008/IV has been awarded in the state of Assam, covering an area of about 113 Sq. Km. The block was awarded under CBM IV round of bidding to the Consortium of M/s Dart Energy and OIL. The estimated CBM resource in this block is about 60.3 BCM. The PEL has been granted by the State Government for this block in April 2012. The block is currently under exploration Phase-I.

11.5.3 Shale Gas: Based on the data available from conventional oil/gas exploration in the country for the last so many years, it appears that few sedimentary basins, including Assam-Arakan Basin may be prospective from Shale gas point of view. Resource estimation for Shale Oil/Gas has been taken up for various Indian basins, including Assam Arakan.

11.6 ISSUES AND CONCERNS IN NORTH EAST

11.6.1 Currently, exploration activities have been affected for various reasons in the following 10 blocks awarded under NELP in different States of North East:

S. No.	Location	Blocks	Issues/Problem
1	Assam	AA-ONN-2001/3	Environmental Clearance/Forest Clearance not granted byMoEF/Govt. of Assam
2		AA-ONN-2003/1	
3		AA-ONN-2004/2	
4		AA-ONN-2004/3	
5		AA-ONN-2002/3	
6		AA-ONN-2005/1	Work held up due to border dispute with Nagaland
7	Manipur	AA-ONN-2009/1	Environmental Clearance/ Forest Clearance not granted by MoEF/Govt. of Manipur
8		AA-ONN-2009/2	
9	Nagaland	AA-ONN-2001/4	Nagaland Govt. has either stopped or not allowed to commence exploration activities
10		AA-ONN-2002/4	

11.6.2 The other issues which need to be addressed are as under:

- Limited fair weather window available for development of the hydrocarbon resources due to heavy rains, flooding etc.
- Frequent bandhs, barricades and local agitations.
- Environmental issues and land acquisition problems.
- Inter-state disputes (viz. Assam and Nagaland/ Arunachal Pradesh).
- Shortage of skilled manpower for E & P activities.
- Lack of suitable Infrastructures and Transportation networks to reduce the terrain in- accessibility and logistic problems.

11.7 NORTH EAST INVESTMENT OPPORTUNITIES

11.7.1 National oil Companies, ONGC & OIL, have a long history of E & P activities in this region. Subsequently, the area was opened for exploration to the Private/ JV & Foreign Companies through Pre-NELP and NELP rounds of biddings. There was a good response from private sectors. Currently, 5 PSUs, 9 Private and 3 Foreign companies are engaged in E & P activities in North-East under the PSC regime.

11.7.2 There is an urgent need to explore the hitherto unexplored area and exploit the untapped hydrocarbon resources. Further, the region has potential for exploration & exploitation of several unconventional resources such as Oil Shale, Shale Gas, Basin Centered Gas Accumulation (BCGA) and CBM. Tight gas/oil reservoirs and high pour point oil in North East are other areas which might open up new opportunities for future exploration/exploitation. However, various issues outlined above needs to be resolved at the earliest to make the North East an attractive investment destination for E & P companies.

11.8 REFINING

In view of the availability of crude oil in the North East, following refineries have been set up since 1962:

11.8.1 Guwahati Refinery (Assam)-Indian Oil Corporation Limited (IOCL):

Guwahati Refinery, the first in public sector, was set up in collaboration with Romania at a cost of ₹ 17.29 crore and commissioned on 1st January, 1962 with design capacity of 0.75 MMTPA. The present capacity of the Refinery is 1.00 MMTPA.

11.8.2 Digboi Refinery (Assam)- Indian Oil Corporation Limited (IOCL):

The Refinery was set up at Digboi in 1901 with an installed capacity of 0.50 MMTPA by Assam Oil Company Limited. The Indian Oil Corporation Ltd. took over the Refinery and marketing management of Assam Oil Company Ltd. with effect from 14.10.1981. The refining capacity of the Refinery was increased to 0.65 MMTPA by modernisation of refinery in July 1996.

11.8.3 Bongaigaon Refinery (Assam)- Indian Oil Corporation Limited (IOCL):

Bongaigaon Refinery was established by Bongaigaon Refinery & Petrochemicals Ltd. (BRPL) (a Govt. Company incorporated on 20th February 1974 & fully owned by the Central Government), with an initial crude processing capacity of 1.0 MMTPA. The crude processing capacity of the Refinery has been increased to 2.35 MMTPA in phases. Subsequently due to disinvestment of 74.46% shares by Central Government in favour of Indian Oil Corporation Ltd, on 29th March, 2001, BRPL became a subsidiary of Indian Oil Corporation Ltd. Later on BRPL has been amalgamated with the holding company, Indian Oil Corporation Limited effective from March 25, 2009.

11.8.4 Numaligarh Refinery (ASSAM) - Numaligarh Refinery Limited (NRL):

Numaligarh Refinery, popularly known as "Assam Accord Refinery" has been set up as a grass-root refinery at Numaligarh in the district of Golaghat (Assam) in fulfilment of the commitment made by Government of India in the historic "Assam Accord", signed on 15-8-1985 for providing thrust towards industrial and economic development of Assam. Commercial production at Numaligarh Refinery commenced from 01.10.2000. The refining capacity of this refinery is 3.0 MMTPA. 61.65% shares of NRL are held by Bharat Petroleum Corporation Limited.

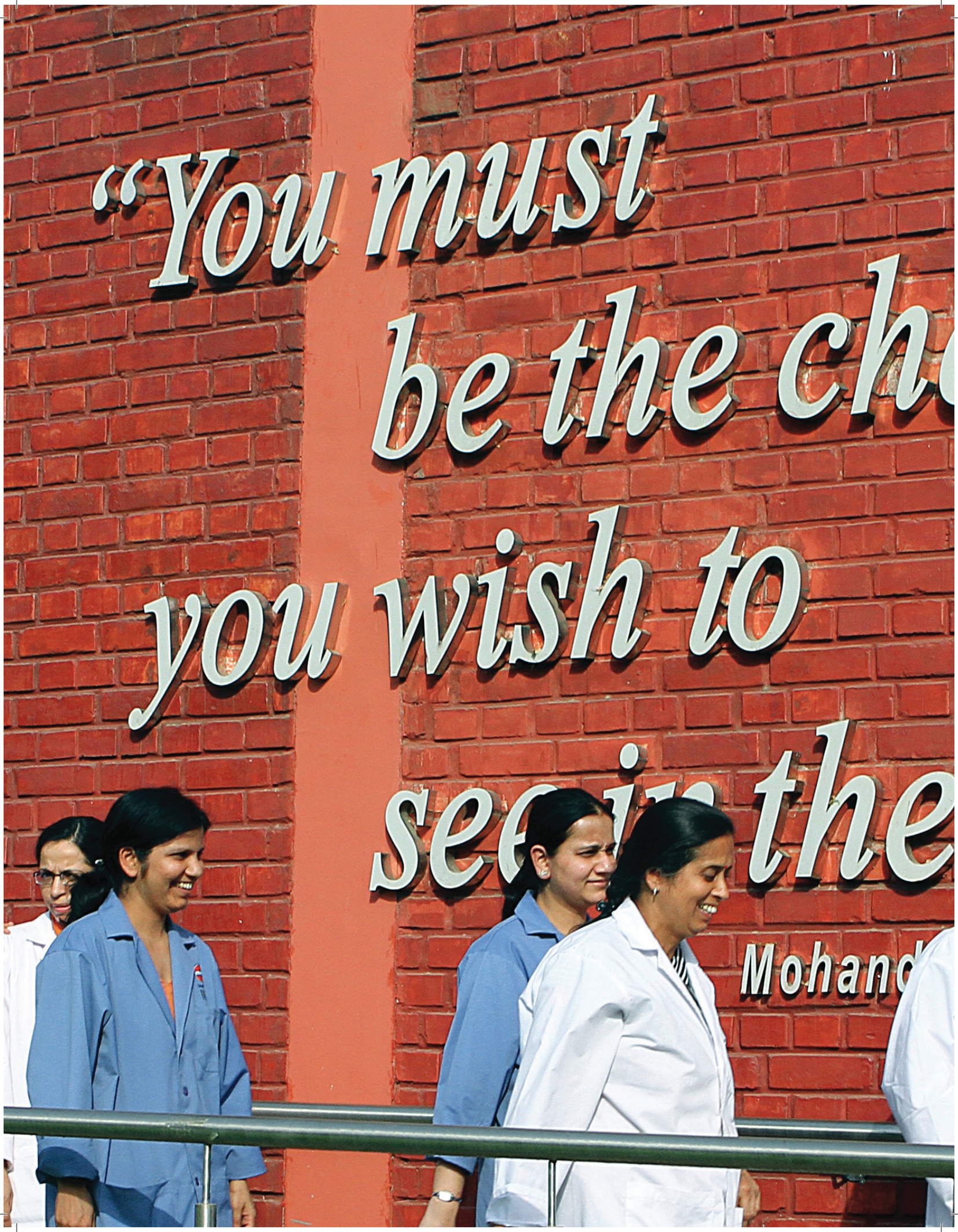
Setting up of these refineries has provided thrust towards industrial and economic development of North-Eastern Region. There has been a direct, indirect and induced economic impact on the economy of North–Eastern Region, particularly Assam which, besides industrialisation, resulted in substantial increase in income, output, employment and Tax earnings in the State of Assam.

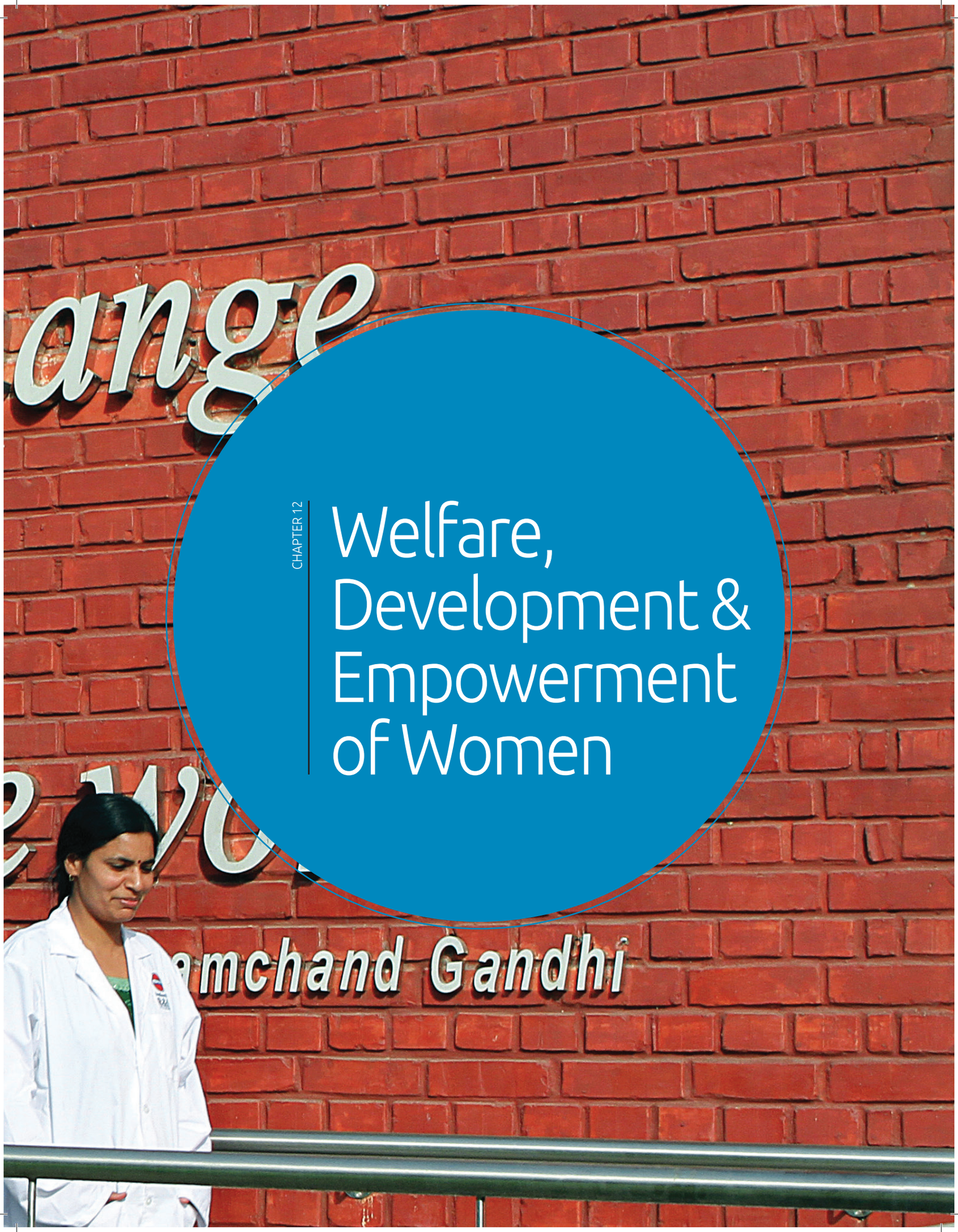
11.9 CSR PROJECTS BY OIL COMPANIES

CSR is characterised by all round development of the communities. Strengthening the rural development network in operational areas catering to more than 1400 villages in Assam & Arunachal Pradesh alone, oil companies have been continuously striving towards the overall development of the communities amongst whom they operate. Today, CSR activities of oil companies have achieved national and global recognition for its strategy of identifying and blending with the local and unique developmental needs of several ethnic groups which includes human conditions as well as environmental issues.

CSR activities conducted by oil companies are as follows:

(i) Amulya Dharohar: Conservation of Ahom Monuments.
(ii) Multi-Speciality Hospital at Sibsagar, Assam:
(iii) Eastern Swamp Deer Conservation Project in Kaziranga National Park
(iv) GICIET Computer Education Project for Improving IT Knowledge:
(v) Varishthajana Swasthya Sewa Abhiyan
(vi) NFCH Rehabilitation of child victims of societal violence for national integration
(vii) Dashrath Multi-Purpose Sports Stadium in Agartala, Tripura
(viii) Upgrading of Indian Institute of Information Technology (IIIT), Agartala
(ix) Support to Assam Medical College, Dibrugarh
(x) Augmentation of Hortoki Water Supply Scheme in Mizoram
(xi) Project SPARSHA- Mobile health care services
(xii) Project Infant Mortality
(xiii) Oil India Rural Development Society (OIRDS)
(xiv) Project RUPANTAR for unemployed youth
(xv) OIL Awards and OIL Merit Scholarships
(xvi) UTKARSH Superb-30
(xvii) Sponsoring Educational Fairs & Exhibitions
(xviii) Project Dikshya
(xix) OIL Sikshya Ratna Puraskar
(xx) OIL Chairs-Academic chairs
(xxi) Development of Sports- Sponsored Assam Football Team
(xxii) Development of rural infrastructure- 1200 kms Roads & 100 Bridges
(xxiii) Project Swavalamban- Skill building
(xxiv) Assistance to flood hit people
(xxv) Handicraft Training for Women
(xxvi) General Nursing Midwifery (GNM) training
(xxvii) Donation to Women Colleges / Schools / Organisations
(xxviii) Project Rupantar for Women
(xxix) CSR Activity Complex at Duliajan

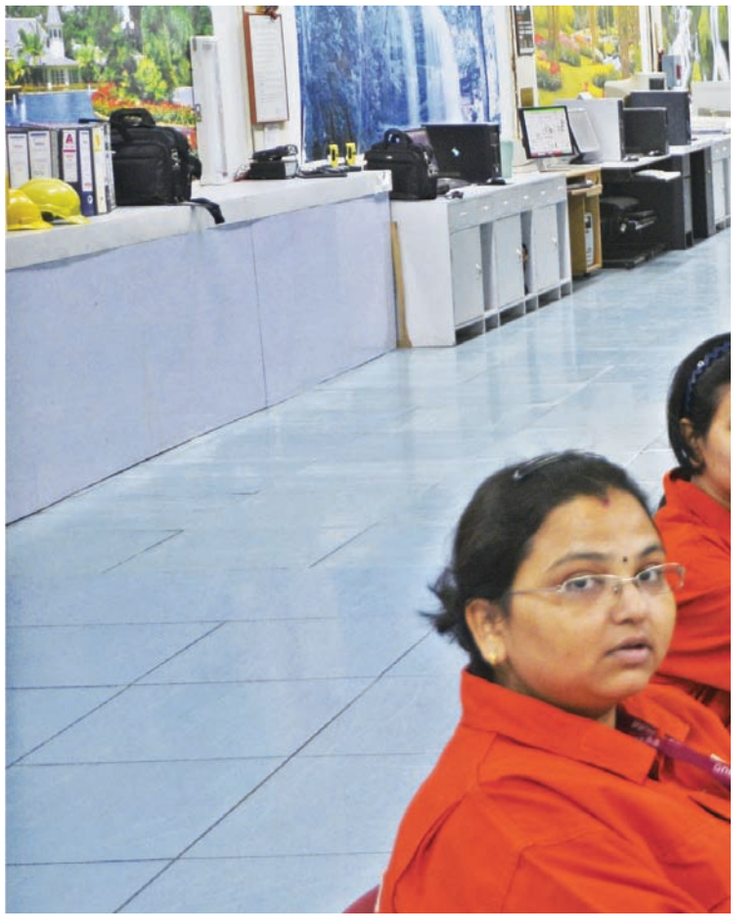

"You must
be the ch
you wish to
see in the
Mohand



CHAPTER 12

Welfare, Development & Empowerment of Women

Welfare, Development and Empowerment of Women



Lady officers at work in a control room

The Ministry of Petroleum & Natural Gas and Public Sector Undertakings/Organisations under its administrative control have been taking numerous initiatives towards welfare and development as also to empower the women employees. With a view to deal with gender sensitisation and to promote the cause of women empowerment, special programmes are organised focusing on their professional development and welfare activities. These include external and in-house training, programmes on women's health, sponsoring them to attend the National Meet of the Forum of Women in Public Sector, etc.

8,308
women in Oil PSUs

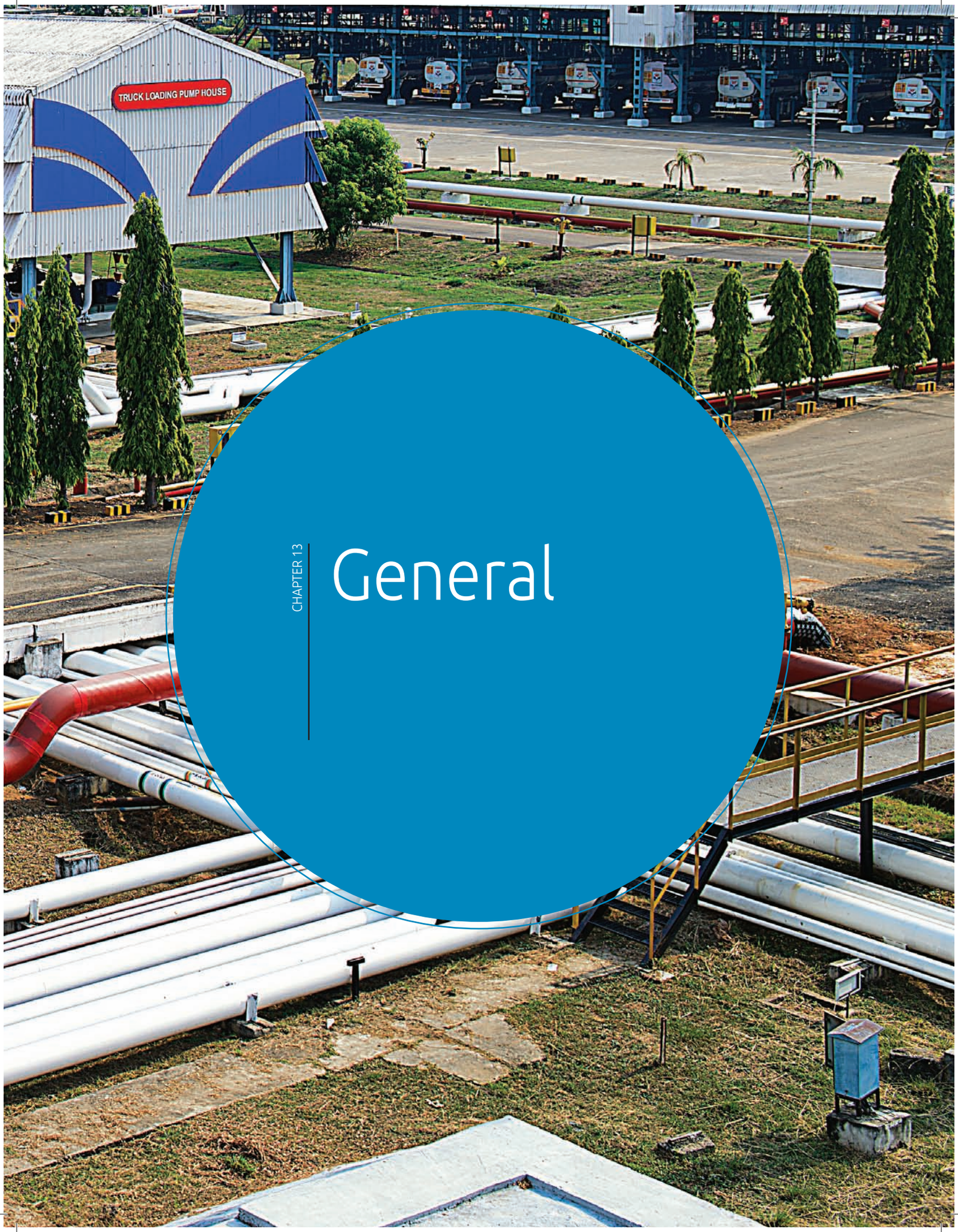
Women Fora have been formed in the PSUs to look after the interest of the women employees. List of Do's and Don'ts prepared by the National Commission for Women has been circulated for attention of all employees. Committees have been set up to attend to redressal of complaints on 'Sexual harassment at work place.'



The number of women employees vis-à-vis total number of employees as on 31.12.2013 in the oil PSUs is tabulated as below:-

Sl. No.	Name of PSU	Total No. of Employees	Total No. of Women Employees
1.	ONGC	33929	2199
2.	ONGC Videsh Ltd.	283	14
3.	IOCL	34038	2663
4.	HPCL	10995	864
5.	BPCL	13324	1201
6.	GAIL	4009	243
7.	EIL	3323	405
8.	OIL	7889	361
9.	CPCL	1672	88
10.	NRL	846	41
11.	MRPL	1679	127
12.	BIECCO LAWRIE	315	04
13.	BALMER LAWRIE	1441	98


P/L TRANSFER PUMP HOUSE



CHAPTER 13

General

General



Lube Refinery at Mumbai

13.1 PROGRESSIVE USE OF HINDI IN OFFICIAL WORK

The Ministry of Petroleum and Natural Gas continued its efforts for the promotion of official language in official work. Section 3(3) of Official Language Act, 1963 was fully complied with. All letters received in Hindi were invariably replied to in Hindi. Similarly, correspondence with the offices located in Region A and B was done in Hindi to the extent possible.

There is a Hindi Advisory Committee functioning in the Ministry under the Chairmanship of Hon`ble Minister of Petroleum and Natural Gas. The Committee consists of Six Members of Parliament, Nine non-official members as its members, besides senior officers of the Ministry and PSUs of the Ministry as its official members. The function of the Committee is to render advice to the Ministry for promotion of official language in official work. During the year under review, one meeting of the Committee was held on 23rd July, 2013 under the Chairmanship of Minister of Petroleum and Natural Gas. Follow up action was taken on the suggestions given by the members of the Committee in the meeting.

An Official Language Implementation Committee is also functioning in the Ministry under the Chairmanship of Joint Secretary (R). The function of this committee is to review the progress of official language in the Ministry and its undertakings and give suggestions for the promotion of the same. Regular meetings of the committee were organized during the year under review and follow up action was taken on the suggestions of the Committee.

Similarly, Official Language Implementation Committees are also functioning in all our PSUs. Officers from the Ministry attended the meetings of



such Committees which are located in Delhi. Officers of the Ministry also participated in various Hindi events organised by our PSUs from time to time.

The Committee of Parliament on Official Language visited 36 offices of our PSUs and reviewed the progress of official language in these offices. Follow up action was taken on the assurances given to the Committee by these offices. Senior officers of the Ministry also attended these inspection meetings of the Parliamentary Committee.

The Ministry is already notified under Rule 10(4) of Official Language Rules, 1976. During the year under review, the Ministry notified 89 offices of our PSUs under the said Rule. Under the said rule, such Central Govt. offices are notified where 80% or more staff has acquired the working knowledge of Hindi. Similarly, the Ministry specified nine of its Section to do their entire work in Hindi.

With a view to assessing the progress of official language in our PSUs and in pursuance of the targets fixed in the Annual Programme 2013-14 issued by the Department of Official Language, senior officers of the Ministry visited more than 25 offices of our PSUs and reviewed the progress of Hindi in these offices. On the spot suggestions were given to the officers concerned for removing the deficiencies.

With a view to assist the officials to do their maximum work in Hindi and to remove their hesitation to do the same, regular Hindi workshops were conducted in the Ministry. Large number of official attended these workshops and benefitted from the suggestions given in these workshops. As a result of this, percentage of Hindi correspondence in the Ministry increased considerably.

In pursuance of the directions of the Department of Official Language, Hindi Fortnight was organised in the Ministry from 1st September, 2013 to



State-of-the-art control & monitoring room in a Refinery

14th September, 2013. During this occasion, a Message from the Hon`ble Minister of Petroleum and Natural Gas was issued to all our officers as well as to all the PSUs. Various activities including different Hindi Competitions were conducted during this fortnight. Large number of officials of the Ministry participated in these competitions and successful candidate were given cash awards.

In line with in the directions of Department of Official Language, the Ministry purchased Hindi Books worth ₹ 34,375/-. Technical Glossaries, etc. were distributed to the sections of the Ministry.

In accordance with the decision taken in the meeting of Hindi Advisory Committee and with a view to promote Hindi in official work, an All India Petroleum Rajbhasha Sammelan was organised in Kochi on 14th and 15th February, 2014. All Officers connected with Official Language and their senior officers participated in the said conference.

One of the important task assigned to the Hindi Division of the Ministry is of translation of various documents of the Ministry. The Hindi Division successfully carried out these responsibilities. The translation of various documents including the Parliament Questions, Cabinet Notes, Parliamentary Standing Committee material was done well in time.

13.2 RTI ACT-2005

Right to Information (RTI) Act-2005 has been implemented in the Ministry of Petroleum & Natural Gas as per Gazette Notification of Government of India dated 15th June, 2005. RTI Act is inter-alia designed to promote transparency and accountability in the functioning of public authorities.

As per the provisions of Section 5 and 19 of the Right to Information Act-2005 and in supersession of all the earlier orders issued, with effect from 16th May, 2007, all the Under Secretaries (or Section Officers in the Sections where there is no Under Secretary) in the Ministry of Petroleum & Natural Gas have been designated as Public Information Officers (PIOs) in respect of Sections allocated to them. Accordingly, all the Directors/Deputy Secretary/Joint Adviser in the Ministry of Petroleum & Natural Gas have been designated as Appellate Authorities with respect to their concerned Under Secretary/Section Officers (PIOs). All the PSUs under the administrative control of the MOPNG have also implemented RTI Act-2005 and PIOs/APIOs and Appellate Authorities has been designated by them. Basic information in respect of the Ministry of Petroleum & Natural Gas and its all PSUs along with details of Appellate Authorities, PIOs & APIOs have been hosted on the websites of the Ministry and all Oil PSUs.

From 1st April to 31st March, 2014, 1505 applications/ receipts including 47 appeals have been received under RTI Act, 2005 in the Ministry. Out of these applications/receipts and appeals, 1505 applications/ receipts and 47 appeals have been forwarded to the respective Divisions of the Ministry for disposal under the provisions of the Act.

13.3 PUBLIC GRIEVANCES

In accordance with the guidelines of the Cabinet Secretariat, Government of India, the Public Grievance Cell has been functioning in the MOPNG. The Cell has been attending to the grievances of members of the public against the Public Sector Oil Companies and other organisations under the administrative control of this Ministry. All possible efforts are being taken to ensure the regular monitoring of the public grievances received through Department of Public Grievances, Department of Administrative Reforms and Public Grievances (DPG) and other Departments of the Government as well as the members of the public. A systematic mechanism has been evolved so as to ensure speedy and expeditious redressal of the public grievances. The Public Grievance Cell is functioning under the charge of Director of Public Grievances, MOPNG. In addition, a new online system called " Centralized Public Grievance Redress and Monitoring System" (CPGRAMS) has been introduced in the month of June 2008. With the aid of this online system, public grievances from the public and others are received speedily and is convenient for the common man.

During the year 2013-14 (from 1st April, 2013 to 31st March 2014), the Public Grievance Cell of this Ministry received a total of 4099 grievances and the pendency of the grievances as on 31st March, 2014, was 824 grievances only thus, during the aforesaid period a total numbers of 3275 grievances have been redressed.

For the grievances received through CPGRAMS, it is mentioned that around 90% of such grievances stands disposed as on 31st March, 2014. However, the grievances keep pouring in constantly through CPGRAMS in the Ministry either from citizens directly or posted/transferred by Government agencies like DARPG, DPG, President Secretariat, which are dealt/ processed by referring the same either to subordinate/ attached organizations/Oil Public Sector Undertakings under the Administrative control of the Ministry or to different sections/desks/divisions of the Ministry internally, as the case may be. However, it should be borne in mind that ideally speaking, the Government's emphasis is to make such endeavours that the public grievances should not arise ab initio.

13.4 RESULTS FRAMEWORK DOCUMENT (RFD)

SECTION 1: VISION, MISSION, OBJECTIVES AND FUNCTIONS

Vision

Affordable and secure hydrocarbon energy for fuelling India's growth

Mission

1. To formulate conducive policies and provide effective regulatory framework for the growth of hydrocarbon sector.
2. To accelerate domestic Exploration & Production (E&P) of hydrocarbons as well as equity oil and gas abroad.
3. To develop the hydrocarbon sector through technology up-gradation and capacity building in production, refining, transportation and marketing sectors.
4. To develop supply and distribution infrastructure for petroleum products, to serve the needs of the economy, including households.
5. To enhance service standards and to maximise customer satisfaction.
6. Promote fuel conservation, clean & green fuels development of alternative sources of energy.

Objectives

1 Policy framework for growth of E&P sector

2 Research & Development for bringing in higher productivity in specific area of Oil and Gas exploration, storage, transportation by the Oil sector companies.

3 Increase in exploration Activities

4 Enhancing Domestic Reserves & Production

5 Overseas crude oil & natural gas production

6 Increasing Capital Investment in Oil & Gas Sector

7 Making the sensitive petroleum products viz. Diesel, PDS Kerosene and Domestic LPG available at reasonable prices

8 Increasing Refinery capacity

9 Improvement of Refinery Performance

10 Ensuring availability of petroleum products across the nation with respect to marketing and distribution

11 Promoting cleaner and environment friendly fuels

12 To encourage use of Natural Gas

13 To promote fuel conservation

14 Develop capacity building for 5 MMTOE per year energy from renewable and unconventional hydrocarbon resources to become carbon neutral for Oil Sector Companies

15 Joint responsibility for power generation

Functions

1. Exploration for, and exploration of petroleum resources including all forms of Hydrocarbons in any state i.e., natural gas, coal bed methane, gas from gas hydrates, shale gas, gas from tight sands, shale oil, bitumen, etc,
2. Production, supply, distribution, marketing and pricing of petroleum resources including all forms of hydrocarbons in any state i.e., natural gas, coal bed methane, gas from gas hydrates, shale gas, gas from tight sands, shale oil, bitumen etc. and petroleum products.
3. Oil refineries including Lube Plants, Fuel quality upgradation.
4. Additives for petroleum and petroleum products, Lube Blending and greases.
5. Marketing, distribution and retailing of Bio-fuels and its blended products.
6. Blending and blending prescription for Bio-fuels including laying down the standards for such blending.
7. Conservation of Petroleum products.
8. Planning, development, control and assistance to all industries dealt with by the Ministry.
9. Strengthening energy security by acquiring oil, gas and shale gas equity abroad and participation in transnational oil & gas pipeline projects.
10. Creation and administration of strategic petroleum reserves.
11. Planning, development and regulation of oilfields services.
12. Public Sector projects falling under the subjects included in this list except such projects, which are specifically allotted to any other Ministry/ Department.
13. Supervision and monitoring of following Public Sector Undertakings under the administrative control of Ministry of Petroleum & Natural Gas:- i) Oil & Natural Gas Corporation (ONGC) Limited ii) Oil India Limited (OIL) iii) ONGC Videsh Limited (OVL) iv) Indian Oil Corporation Limited (IOCL) v) Bharat Petroleum Corporation Limited (BPCL) vi) Hindustan Petroleum Corporation Limited (HPCL) vii) Engineers India Limited (EIL) viii) Gas Authority of India Limited (GAIL) ix) Mangalore Refinery and Petrochemicals Limited (MRPL) 3 x) Chennai Petroleum Corporation Limited (CPCL) xi) Numaligarh Refinery Limited (NRL) xii) Balmer Lawrie and Company Limited (B&L) xiii) Biecco Lawrie & Company Limited (BLL) xiv) Balmer Lawrie Investment Limited (BLIL).
14. Supervision and monitoring of following attached/ subordinate /autonomous organizations under the administrative control of Ministry of Petroleum & Natural Gas:- (i) Petroleum & Natural Gas Regulatory Board (PMGRB), (ii) Directorate General of Hydrocarbons (DGH), (iii) Centre for High Technology (CHT), (iv) Oil Industry Development Board (OIDB), (v) Petroleum Conservation Research Association (PCRA), (vi) Oil Industry Safety Directorate (OISD), (vii) Petroleum Planning and Analysis Cell (PPAC), (viii) Indian Strategic Petroleum Reserves Limited (ISPRL) - (Special Purpose Vehicle) (ix) Society for Petroleum Laboratory (SFPL).
15. Administration of following Acts:- (i) The Oilfields (Regulation and Development) Act, 1948 (53 of 1948), (ii) The Oil and Natural Gas Commission (Transfer of Undertakings and Repeal) Act, 1993 (65 of 1993), (iii) The Petroleum & Minerals Pipelines (Acquisition of Right of User in Land) Act, 1962 (50 of 1962), (iv) The ESSO (Acquisition of Undertakings in India) Act, 1974 (4 of 1974), (v) The Burmah-Shell (Acquisition of Undertakings in India) Act, 1976 (2 of 1976), (vi) The Caltex [Acquisition of Shares of Caltex Oil Refining(India) Limited and of the undertakings in India of the Caltex (India) Limited] Act, 1977 (17 of 1977), (vii) Petroleum Act, 1934 (30 of 1934) and the rules made thereunder, (viii) Petroleum & Natural Gas Regulatory Act, 2006 (19 of 2006).

SECTION 2: INTER SE PRIORITIES AMONG KEY OBJECTIVES, SUCCESS INDICATORS AND TARGETS

Objective	Weight	Action	Success Indicator	Unit	Target / Criteria Value					
					Weight	Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
[1] Policy framework for growth of E&P sector	6.00	[1.1] Uniform Licensing Policy	[1.1.1] Submission of Cabinet Note	Date	3.00	31/12/2013	31/01/2014	28/02/2014	31/03/2014	--
		[1.2] Policy for exploration of CBM from areas under coal mining	[1.2.1] Submission of Cabinet Note	Date	1.00	31/12/2013	31/01/2014 2	28/02/2014	31/03/2014	--
		[1.3] Exploration of CBM from areas under coal mining	[1.3.1] Blocks to be offered	Number of blocks	2.00	8	6	5	3	2
[2] Research & Development for bringing in higher productivity in specific area of Oil and Gas exploration, storage, transportation by the Oil sector companies.	5.00	[2.1] Monitoring number of Patents filed	[2.1.1] Patents filed	Number	2.50	24	22	20	18	16
		[2.2] Monitoring investments of Oil sector companies in area of R&D	[2.2.1] Expenditure on R&D to be incurred by Oil PSUs	Amount ₹ in crore	2.50	500	450	400	300	300
[3] Increase in exploration Activities	10.00	[3.1] Setting up of National Data Repository (NDR)	[3.1.1] Award of NDR contract	Date	4.00	31/01/2014	28/02/2014	15/03/2014	31/03/2014	--
		[3.2] Undertaking Speculative surveys	[3.2.1] Number of blocks to be surveyed	Number of blocks	1.00	5	4	3	2	1
		[3.3] Offering of Exploration Blocks including Shale Gas blocks	[3.3.1] Offering of exploration blocks including Shale Gas	Number of blocks	5.00	35	30	28	25	20
[4] Enhancing Domestic reserves & Production	15.00	[4.1] Reserve replacement ratio (RRR) by PSUs	[4.1.1] Adding more reserves	Number	2.00	1.1	1	0.9	0.8	0.7
			[4.1.2] Accretion to proven reserves	MMTOE	3.00	60	55	50	45	40
		[4.2] Domestic Crude Oil & Natural Gas production	[4.2.1] Production of domestic crude oil by public sector	MMTOE	2.50	27.9	27	26	25	24
			[4.2.2] Production of domestic natural gas by public sector	BCM	2.50	26.2	25	24	23	22
			[4.2.3] Production of domestic crude oil by private sector	MMTOE	2.50	11	10	9	8	7

SECTION 2: INTER SE PRIORITIES AMONG KEY OBJECTIVES, SUCCESS INDICATORS AND TARGETS

Objective	Weight	Action	Success Indicator	Target / Criteria Value					
				Unit	Weight	Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
			[4.2.4] Production of domestic natural gas by private sector	BCM	2.50	14	12	11	10	9
[5] Overseas crude oil & natural Gas production	6.00	[5.1] Overseas Oil Production	[5.1.1] Overseas production of crude oil	MMTOE	2.00	4.6	4.5	4.4	4.3	4.2
		[5.2] Overseas Gas Production	[5.2.1] Overseas production of gas	BCM	1.00	2.6	2.5	2.4	2.3	2.2
		[5.3] Investment in acquisition of oil & gas assets overseas	[5.3.1] New assets to be added	Amount of Investment in US$ bill	3.00	5	4.5	3	2.5	1.5
[6] Increasing Capital Investment in Oil & Gas Sector	2.00	[6.1] Plan Investments through internal and external budgetary resources (IE&BR) of PSUs	[6.1.1] % IE&BR outlay utilized	%	2.00	95	90	85	80	79
[7] Making the sensitive petroleum products viz. Diesel, PDS Kerosene and Domestic LPG available at reasonable prices	4.00	[7.1] To modulate retail prices and also to ensure the financial health of the public sector oil marketing companies through compensation of price under-recoveries, if any	[7.1.1] Submission of a note to CCPA on international crude price situation and pricing of sensitive petroleum products.	Date	2.00	30/11/2013	31/12/2013	31/01/2014	28/02/2014	31/03/2014
		[7.2] Operationization of Aadhar based LPG Supply Scheme	[7.2.1] Launch of scheme	Date	2.00	30/08/2013	30/09/2013	30/10/2013	30/11/2013	30/12/2013
[8] Increasing Refinery capacity	3.00	[8.1] Commissioning of 15 MMTPA Paradip Refinery	[8.1.1] Increase in domestic refining capacity by 15 MMTPA	Date	3.00	15/03/2014	31/03/2014	--	--	--
[9] Improvement of Refinery Performance	6.00	[9.1] Implementation of Phase II of IRBIP in the following 3 refineries: (i) HPCL, Mumbai (ii) BPCL, Mumbai (iii) MRPL, Mangalore	[9.1.1] Implementation of Phase II of IRBIP with the following milestone: Number of Projects for implementation (PFI)	Number	3.00	15	12	10	8	7

SECTION 2: INTER SE PRIORITIES AMONG KEY OBJECTIVES, SUCCESS INDICATORS AND TARGETS

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
		[9.2] Improvement of performance parameters of PSU refineries i. Crude throughput-MMT ii. Distillate yield-% iii. Specific Energy Consumption-MBTU/BBL/NRGF	[9.2.1] Crude throughput of PSU Refineries	MMT	1.00	120	118	115	114	113
			[9.2.2] Average Distillate yield of PSU Refineries	%	1.00	76.5	75.5	75	74.5	74
			[9.2.3] Average specific energy consumption for PSU refineries	MBTU/BBL/NRG F	1.00	63.5	64	65	66	67
[10] Ensuring availability of petroleum products across the nation with respect to marketing and distribution	9.00	[10.1] Ensure availability of petroleum products i.e. petrol, diesel and LPG	[10.1.1] Quantity of Petrol made available	MMT	2.00	16.2	15.87	15.56	15.25	14.94
			[10.1.2] Quantity of Diesel made available	MMT	2.00	70.79	69.37	67.99	66.63	65.29
			[10.1.3] Quantity of LPG made available	MMT	2.00	15.1	13.59	12.08	10.57	9.06
		[10.2] Review requirement of PDS Kerosene for States/UTs in view of expansion of LPG	[10.2.1] Prepare a paper on rationalizing PDS Kerosene allocation to States/UTs	Date	1.50	31/01/2014	28/02/2014	15/03/2014	22/03/2014	31/03/2014
		[10.3] Expanding the network of Domestic LPG to rural areas	[10.3.1] Issuance of Letter of Intent for Rajiv Gandhi Gramin LPG Vitarak Agencies	Number	1.50	1000	900	800	700	600
[11] Promoting cleaner and environment friendly fuels	2.00	[11.1] Roll out BS-IV MS & HSD in 10 more identified cities	[11.1.1] Availability of BS-IV MS & HSD in 10 more identified cities	Number of cities	2.00	10	9	8	7	6
[12] To encourage use of Natural Gas	6.00	[12.1] Increase in cumulative capacity of Gas pipelines in the country.	[12.1.1] Expansion and upgradation of the existing pipelines and laying of new pipelines	MMSCM D	3.00	28	25	20	16	12

SECTION 2: INTER SE PRIORITIES AMONG KEY OBJECTIVES, SUCCESS INDICATORS AND TARGETS

Objective	Weight	Action	Success Indicator	Unit	Target / Criteria Value					
					Weight	Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
		[12.2] Increase in cumulative gas trunk transportation network in the country	[12.2.1] Laying of new trunk pipelines and expansion of existing trunk pipeline network	KM	3.00	550	500	400	300	240
[13] To promote fuel conservation	3.00	[13.1] Popularize the adoption of star labelled domestic LPG stoves	[13.1.1] Take up with Bureau of Energy Efficiency and Ministry of Power for notification of labeling norms	Date	1.00	31/08/2013	15/09/2013	30/09/2013	15/10/2013	31/10/2013
		[13.2] Adoption of norms proposed for labeling of agricultural mono set pumps by Steering Committee	[13.2.1] Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per proposal submitted by Technical Committee	Date	1.00	31/08/2013	15/09/2013	30/09/2013	15/10/2013	31/10/2013
		[13.3] Adoption of norms proposed for labeling of DG sets by Steering Committee	[13.3.1] Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per proposal submitted by Technical Committee	Date	1.00	31/08/2013	15/09/2013	30/09/2013	15/10/2013	31/10/2013
[14] Develop capacity building for 5 MMTOE per year energy from renewable and unconventional hydrocarbon resources to become carbon neutral for Oil Sector Companies	3.00	[14.1] Monitoring physical progress in work programme for developing energy from renewable sources by Oil & Gas PSUs	[14.1.1] % of target achievement	%	1.50	100	95	90	85	80

SECTION 2: INTER SE PRIORITIES AMONG KEY OBJECTIVES, SUCCESS INDICATORS AND TARGETS

Objective	Weight	Action	Success Indicator	Unit	Target / Criteria Value					
					Weight	Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
		[14.2] Monitoring physical progr-ess in work progamme for developing energy from unconventional hydrocarbon sources by Oil & Gas PSUs	[14.2.1] % of target achievement	%	1.50	100	95	90	85	80
[15] Joint responsibility for power generation	5.00	[15.1] Give necessary support and clearance	[15.1.1] Additional capacity installed	MW	3.00	18500	18000	17000	16000	--
			[15.1.2] Total power generated	BU	2.00	1030	1000	950	920	--
* Efficient Functioning of the RFD System	3.00	Timely submission of Draft RFD 2014-15 for Approval	On-time submission	Date	2.0	05/03/2014	06/03/2014	7/03/2014	08/03/2014	11/03/2014
		Timely submission of Results for 2012-13	On-time submission	Date	1.0	01/05/2013	02/05/2013	3/05/2013	06/05/2013	07/05/2013
* Transparency/Service delivery Ministry/ Department	3.00	Independent Audit of implementation of Citizens'/Clients' Charter (CCC)	% of implementation	%	2.0	100	95	90	85	80
		Independent Audit of implementation of Public Grievance Redressal System	% of implementation	%	1.0	100	95	90	85	80
* Administrative Reforms	6.00	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	1.0	100	95	90	85	80
		Implement ISO 9001 as per the approved action plan	% of implementation	%	2.0	100	95	90	85	80
		Implement Innovation Action Plan (IAP)	% of milestones achieved	%	2.0	100	95	90	85	80
		Identification of core and non- core activities of the Ministry/ Department as per 2nd ARC recommendations	Timely submission	Date	1.0	27/01/2014	28/01/2014	29/01/2014	30/01/2014	31/01/2014
* Improving Internal Efficiency/ Responsiveness.	2.00	Update departmental strategy to align with 12th Plan priorities	Timely updation of the strategy	Date	2.0	10/09/2013	17/09/2013	24/09/2013	01/10/2013	08/10/2013
* Ensuring compliance to the Financial Accountability Framework	1.00	Timely submission of ATNs on Audit paras of C&AG	Percentage of ATNs submitted within due date (4 months) from date of presentation of Report to Parliament by CAG .during the year.	%	0.25	100	90	80	70	60

SECTION 2: INTER SE PRIORITIES AMONG KEY OBJECTIVES, SUCCESS INDICATORS AND TARGETS

Objective	Weight	Action	Success Indicator	Target / Criteria Value					
				Unit	Weight	Excellent 100%	Very Good 90%	Good 80%	Fair 70%	Poor 60%
		Timely submission of ATRs to the PAC Sectt. on PAC Reports.	Percentage of ATRS submitted within due date (6 months) from date of presentation of Report to Parliament by PAC .during the year.	%	0.25	100	90	80	70	60
		Early disposal of pending ATNs on Audit Paras of C&AG Reports presented to Parliament before 31.3.2012.	Percentage of outstanding ATNs disposed off during the year.	%	0.25	100	90	80	70	60
		Early disposal of pending ATRs on PAC Reports presented to Parliament before 31.3.2012	Percentage of outstanding ATRS disposed off during the year.	%	0.25	100	90	80	70	60

* Mandatory Objective(s)

SECTION 3: TREND VALUES OF THE SUCCESS INDICATORS

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[1] Policy framework for growth of E&P sector	[1.1] Uniform Licensing Policy	[1.1.1] Submission of Cabinet Note	Date	--	--	31/01/2014	--	--
	[1.2] Policy for exploration of CBM from areas under coal mining	[1.2.1] Submission of Cabinet Note	Date	--	--	31/01/2014	--	--
	[1.3] Exploration of CBM from areas under coal mining	[1.3.1] Blocks to be offered	Number of blocks	--	--	6	3	3
[2] Research & Development for bringing in higher productivity in specific area of Oil and Gas exploration, storage, transportation by the Oil sector companies.	[2.1] Monitoring number of Patents filed	[2.1.1] Patents filed	Number	--	--	400	520	600
	[2.2] Monitoring investments of Oil sector companies in area of R&D	[2.2.1] Expenditure on R&D to be incurred by Oil PSUs	Amount ₹ in crore	--	20	22	24	26

SECTION 3: TREND VALUES OF THE SUCCESS INDICATORS

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[3] Increase in exploration Activities	[3.1] Setting up of National Data Repository (NDR)	[3.1.1] Award of NDR contract	Date	--	--	28/02/2014	--	--
	[3.2] Undertaking Speculative surveys	[3.2.1] Number of blocks to be surveyed	Number of blocks	--	--	4	2	2
	[3.3] Offering of Exploration Blocks including Shale Gas blocks	[3.3.1] Offering of exploration blocks including Shale Gas	Number of blocks	32	21	30	30	20
[4] Enhancing Domestic reserves & Production	[4.1] Reserve replacement ratio (RRR) by PSUs	[4.1.1] Adding more reserves	Number	1	1.1	1	1	1
		[4.1.2] Accretion to proven reserves	MMTOE	93.84	--	55	55	55
	[4.2] Domestic Crude Oil & Natural Gas production	[4.2.1] Production of domestic crude oil by public sector	MMTOE	27.6	26.12	27.0	28.8	27.9
		[4.2.2] Production of domestic natural gas by public sector	BCM	25.94	26.10	25.0	27.6	29
		[4.2.3] Production of domestic crude oil by private sector	MMTOE	10.53	11.65	10.0	11.43	10.89
		[4.2.4] Production of domestic natural gas by private sector	BCM	21.61	14.79	12.0	15.0	16.5
[5] Overseas crude oil & natural Gas production	[5.1] Overseas Oil Production	[5.1.1] Overseas production of crude oil	MMTOE	6.21	4.3	4.5	6.48	7.02
	[5.2] Overseas Gas Production	[5.2.1] Overseas production of gas	BCM	2.53	2.7	2.5	2.61	2.79
	[5.3] Investment in acquisition of oil & gas assets overseas	[5.3.1] New assets to be added	Amount of Investmen t in US$ bill	0.1	--	4.5	2	3
[6] Increasing Capital Investment in Oil & Gas Sector	[6.1] Plan Investments through internal and external budgetary resources (IE&BR) of PSUs	[6.1.1] % IE&BR outlay utilized	%	86	96	90	95	95
[7] Making the sensitive petroleum products viz. Diesel, PDS Kerosene and Domestic LPG available at reasonable prices	[7.1] To modulate retail prices and also to ensure the financial health of the public sector oil marketing companies through compensation of price under-recoveries, if any	[7.1.1] Submission of a note to CCPA on international crude price situation and pricing of sensitive petroleum products.	Date	25/06/2011	17/01/2013	31/12/2013	--	--
	[7.2] Operationization of Aadhar based LPG Supply Scheme	[7.2.1] Launch of scheme	Date	--	--	30/08/2013	--	--

SECTION 3: TREND VALUES OF THE SUCCESS INDICATORS

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[8] Increasing Refinery capacity	[8.1] Commissioning of 15 MMTPA Paradip Refinery	[8.1.1] Increase in domestic refining capacity by 15 MMTPA	Date	--	--	31/03/2014	--	--
[9] Improvement of Refinery Performance	[9.1] Implementation of Phase II of IRBIP in the following 3 refineries: (i) HPCL, Mumbai (ii) BPCL, Mumbai (iii) MRPL, Mangalore	[9.1.1] Implementation of Phase II of IRBIP with the following milestone: Number of Projects for implementation (PFI)	Number	--	--	12	--	--
	[9.2] Improvement of performance parameters of PSU refineries i. Crude throughput-MMT ii. Distillate yield-% iii. Specific Energy Consumption- MBTU/ BBL/NRGF	[9.2.1] Crude throughput of PSU Refineries	MMT	121	122	118	130	133
		[9.2.2] Average Distillate yield of PSU Refineries	%	75	75	75.5	76	76.5
		[9.2.3] Average specific energy consumption for PSU refineries	MBTU/BB L/ NRGF	66	65	64	63.5	63
[10] Ensuring availability of petroleum products across the nation with respect to marketing and distribution	[10.1] Ensure availability of petroleum products i.e. petrol, diesel and LPG	[10.1.1] Quantity of Petrol made available	MMT	14.99	13.00	15.87	18.60	21.10
		[10.1.2] Quantity of Diesel made available	MMT	64.75	57.60	69.37	72.00	75.10
		[10.1.3] Quantity of LPG made available	MMT	14.9	15.1	13.59	18.3	19.7
	[10.2] Review requirement of PDS Kerosene for States/UTs in view of expansion of LPG	[10.2.1] Prepare a paper on rationalizing PDS Kerosene allocation to States/UTs	Date	25/05/2011	28/02/2013	28/02/2014	--	--
	[10.3] Expanding the network of Domestic LPG to rural areas	[10.3.1] Issuance of Letter of Intent for Rajiv Gandhi Gramin LPG Vitarak Agencies	Number	968	900	900	1000	1000
[11] Promoting cleaner and environment friendly fuels	[11.1] Roll out BS-IV MS & HSD in 10 more identified cities	[11.1.1] Availability of BS-IV MS & HSD in 10 more identified cities	Number of cities	7	10	9	13	12
[12] To encourage use of Natural Gas	[12.1] Increase in cumulative capacity of Gas pipelines in the country.	[12.1.1] Expansion and upgradation of the existing pipelines and laying of new pipelines	MMSCMD	27	54	25	10	10
	[12.2] Increase in cumulative gas trunk transportation network in the country	[12.2.1] Laying of new trunk pipelines and expansion of existing trunk pipeline network	KM	1256	1280	500	954	4100

SECTION 3: TREND VALUES OF THE SUCCESS INDICATORS

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[13] To promote fuel conservation	[13.1] Popularise the adoption of star labelled domestic LPG stoves	[13.1.1] Take up with Bureau of Energy Efficiency and Ministry of Power for notification of labeling norms	Date	--	--	15/09/2013	--	--
	[13.2] Adoption of norms proposed for labeling of agricultural mono set pumps by Steering Committee	[13.2.1] Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per proposal submitted by Technical Committee	Date	--	--	15/09/2013	--	--
	[13.3] Adoption of norms proposed for labeling of DG sets by Steering Committee	[13.3.1] Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per proposal submitted by Technical Committee	Date	--	--	15/09/2013	--	--
[14] Develop capacity building for 5 MMTOE per year energy from renewable and unconventional hydrocarbon resources to become carbon neutral for Oil Sector Companies	[14.1] Monitoring physical progress in work programme for developing energy from renewable sources by Oil & Gas PSUs	[14.1.1] % of target achievement	%	--	--	95	95	95
	[14.2] Monitoring physical progress in work progamme for developing energy from unconventional hydrocarbon sources by Oil & Gas PSUs	[14.2.1] % of target achievement	%	--	--	95	95	95
[15] Joint responsibility for power generation	[15.1] Give necessary support and clearance	[15.1.1] Additional capacity installed	MW	0	0	18000	0	0
		[15.1.2] Total power generated	BU	0	0	1000	0	0
* Efficient Functioning of the RFD System	Timely submission of Draft RFD 2014-15 for Approval	On-time submission	Date	04/03/2012	06/03/2013	06/03/2014	--	--

SECTION 3: TREND VALUES OF THE SUCCESS INDICATORS

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
	Timely submission of Results for 2012-13	On-time submission	Date	26/04/2011	03/05/2012	02/05/2013	--	--
* Transparency/Service delivery Ministry/ Department	Independent Audit of implementation of Citizens'/Clients' Charter	% of implementation	%	--	--	95	--	--
	Independent Audit of implementation of Public Grievance Redressal System	% of implementation	%	--	--	95	--	--
* Administrative Reforms	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	--	95	95	--	--
	Implement ISO 9001 as per the approved action plan	% of implementation	%	--	95	95	--	--
	Implement Innovation Action Plan (IAP)	% of milestones achieved	%	--	--	95	--	--
	Identification of core and non- core activities of the Ministry/Department as per 2nd ARC recommendations	Timely submission	Date	--	--	15/10/2013	--	--
* Ensuring compliance to the Financial Accountability Framework	Timely submission of ATNs on Audit paras of C&AG	Percentage of ATNs submitted within due date (4 months) from date of presentation of Report to Parliament by CAG .during the year.	%	--	--	90	--	--
	Timely submission of ATRs to the PAC Sectt. on PAC Reports.	Percentage of ATRS submitted within due date (6 months) from date of presentation of Report to Parliament by PAC .during the year.	%	--	--	90	--	--
	Early disposal of pending ATNs on Audit Paras of C&AG Reports presented to Parliament before 31.3.2012.	Percentage of outstanding ATNs disposed off during the year.	%	--	--	90	--	--
	Early disposal of pending ATRs on PAC Reports presented to Parliament before 31.3.2012	Percentage of outstanding ATRS disposed off during the year.	%	--	--	90	--	--

* Mandatory Objective(s)

SECTION 4: ACRONYM

Sl.No.	Acronym	Description
1	BPCL	Bharat Petroleum Corporation Limited
2	BS-IV	Bharat Stage IV
3	BU	British Units
4	CBM	Coal Bed Methane
5	CCEA	Cabinet Committee on Economic Affairs
6	CMPDIL	Central Mines Planning & Design Institute
7	DGH	Directorate General of Hydrocarbons
8	E and P	Exploration and Production
9	ECS	Empowered Committee of Secretaries
10	EGoM	Empowered Group of Ministers
11	GAIL	Gas Authority of India Limited
12	HLPL	Hazira LNG Private Limited
13	HPCL	Hindustan Petroleum Corporation Limited
14	HSD	High Speed Diesel
15	IE and BR	Internal and External Budgetary Resources
16	IRBIP	Integrated Refinery Business Improvement Programme
17	KM	Kilometre
18	LNG	Liquefied Natural Gas
19	LPG	Liqefied Petroleum Gas
20	MMSCMD	Million Standard Cubic Metre Per Day

SECTION 4: ACRONYM

Sl.No.	Acronym	Description
21	MMT	Million Metric Tonnes
22	MMTPA	Million Tonnes Per Annum
23	MNRE	Ministry of New and Renewable Energy Resources
24	MOPNG	Ministry of Petroleum & Natural Gas
25	MRPL	Mangalore Refinery and Petrochemicals Limited
26	MS	Motor Spirit
27	MW	Mega Watts
28	NOCs	National Oil Companies
29	OIL	Oil India Limited
30	ONGC	Oil & Natural GAs Corporation Limited
31	PDS	Public Distribution System
32	PFI	Project for Implementation
33	PLL	Petroleum LNG Limited
34	PNG Rules	Petroleum & Natural Gas Rules, 1956
35	PPAC	Petroleum Planning and Analysis Cell
36	PSUs	Public Sector Undertakings
37	RGGLVY	Rajiv Gandhi Gramin LPG Vitran Yojana
38	RLNG	Re-gasified Liquefied Natural Gas
39	ROs	Retail Outlets
40	₹	Rupees

SECTION 4: DESCRIPTION AND DEFINITION OF SUCCESS INDICATORS AND PROPOSED MEASUREMENT METHODOLOGY

Sl.No.	Success	Indicator Description	Definition	Measurement	General Comments
1	[1.1.1] Submission of Cabinet Note	To bring uniformity in E&P activities for different modes of Hydrocarbon exploration	To submit a draft policy for consideration of the CCEA to evolve uniform licensing policy for Hydrocarbon exploaration	Date	
2	[1.2.1] Submission of Cabinet Note	To submit a draft policy for consideration of the Cabinet to to evolve suitable policy for E&P activities for CBM	To evolve suitable policy for E&P activities for CBM	Date	
3	[1.3.1] Blocks to be offered	Blocks to be offered for exploration of CBM under coal mining areas	To explore the avaibility of CBM in coal mining areas	Number of blocks	
4	[2.1.1] Patents filed	No. of patents filed by Oil PSUs on R&D activites carried out.	Filling of necessary documentation for obtaining patents	Number of patents to be filed	
5	[2.2.1] Expenditure on R&D to be incurred by Oil PSUs	The amount of expenditure spent by Oil PSUs on R&D activities.	The amount spent by Oil PSUs on R&D activities.	Amount in ₹ crore	

SECTION 4: DESCRIPTION AND DEFINITION OF SUCCESS INDICATORS AND PROPOSED MEASUREMENT METHODOLOGY

Sl.No.	Success	Indicator Description	Definition	Measurement	General Comments
6	[3.1.1] Award of NDR contract	The seismic survey data of entire sedimentary basin carried out by the Government as well as private organisations to be assimilated for awarding of exploration and production contracts.	To award the contract to the organizations who will initiate the process for creation of NDR	Date	
7	[3.2.1] Number of blocks to be surveyed	Undertaking speculative surveys in identified blocks	Number of blocks for carrying out speculative survey	Number of blocks	
8	[3.3.1] Offering of exploration blocks including Shale Gas	To put the surveyed blocks for offering to the prospective bidders for carrying out E&P activities.	To launch the Xth round of the process for awarding E&P contracts in various blocks to be offered under NELP.	Number of blocks to be offered.	
9	[4.1.1] Adding more reserves	To add more reserve by exploring new fields in terms of reserve replacement ratio (RRR) which is ratio of hydrocarbon reserve accretion in a year to the oil and gas production made in that year	To add more reserve by way of exploring newer fields	Number	
10	[4.1.2] Accretion to proven reserves	To replenish the used reserves of oil and gas by new discoveries	Replacing the exploited reserves with new reserves in volume terms	MMTOE	
11	[4.2.1] Production of domestic crude oil by public sector	Production from these fields which were allotted to Oil PSUs	Optimum production of crud oil and natural gas from maturing fields	MMTOE	
12	[4.2.2] Production of domestic natural gas by public sector	Production of domestic natural gas by public sector oil and gas companies	The quantity of natural gas produced by PSUs	BCM	
13	[4.2.3] Production of domestic crude oil by private sector	Production of crude oil by private sector companies from domestic fields	Quantity of crude oil produced by private sector companies in India	MMTOE	
14	[4.2.4] Production of domestic natural gas by private sector	Production of natural gas by private sector companies from domestic fields	Quantity of natural gas produced by private sector companies in India	BCM	
15	[5.1.1] Overseas production of crude oil	Production from the assets acquired by the Oil PSUs abroad	Optimum production of crude oil and natural gas from overseas Oil Fields	MMTOE	
16	[5.2.1] Overseas production of gas	Production of natural gas/ Shale gas by Indian companies operating in foreign companies	Quantity of gas produced from Overseas oil and gas fields by Indian companies	BCM	
17	[5.3.1] New assets to be added	Acquiring new fields for exploration and production by Indian companies	Investment in acquiring new fields Overseas	US$ billion	
18	[6.1.1] % IE&BR outlay utilised	Plan investment through internal & external resouces by PSUs	Utilization of budgetary outlay by individual Oil PSUs	%	
19	[7.1.1] Submission of a note to CCPA on international crude price situation and pricing of sensitive petroleum products.	To modulate the retail sales prices of these products by submitting a note for consideration of CCPA	To fix the prices of controlled fuel products like HSD, LPG and SKO	Date	
20	[7.2.1] Launch of scheme	Launching of the Aadhar based Direct Cash Subsidy Transfer Scheme for domestic LPG supply.	Date of launching of the scheme in select district	Date	The success of the scheme would mainly depend on the number of Aadhar card issued, support from State Govts. and banking infrastructure available.

SECTION 4: DESCRIPTION AND DEFINITION OF SUCCESS INDICATORS AND PROPOSED MEASUREMENT METHODOLOGY

Sl.No.	Success	Indicator Description	Definition	Measurement	General Comments
21	[8.1.1] Increase in domestic refining capacity by 15 MMTPA	To enhance the domestic refining capacity to meet the growing demand of auto fuels.	To add refining capacity by 15 MMTPA to the existing capacity	Date	
22	[9.1.1] Implementation of Phase II of IRBIP with the following milestone: Number of Projects for implementation (PFI)	Number of Projects to be implemented under this programme.	To implement the phase II of Integrated Refinery Business Improvement Programme for three Refineries.	Number	
23	[9.2.1] Crude throughput of PSU Refineries	Crude throughput of PSU Refineries	Quantity of crude oil processed by the PSU Refineries	MMT	
24	[9.2.2] Average Distillate yield of PSU Refineries	Quantity of light and middle level distillates produced	Quantity of light and middle level distillates produced in percentage of total crude quantity processed	%	
25	[9.2.3] Average specific energy consumption for PSU refineries	The quantity of energy consumed by the refineries to process per barrel of crude oil	The quantity of energy consumed by the refineries to process per barrel of crude oil	MBTU/BBL/NRGF	
26	[10.1.1] Quantity of Petrol made available	Sufficient quantity of petrol to be made available during the year	Quantity of Auto & Domestic cooking fuels to be made available for consumption	MMT	
27	[10.1.2] Quantity of Diesel made available	Sufficient quantity of Diesel to be made available during the year	Quantity of Auto & Domestic cooking fuels to be made available for consumption	MMT	
28	[10.1.3] Quantity of LPG made available	Sufficient quantity of LPG to be made available during the year	Quantity of Auto & Domestic cooking fuels to be made available for consumption	MMT	
29	[10.2.1] Prepare a paper on rationalising PDS Kerosene allocation to States/UTs	To rationalize PDS kerosene allocation to different States & UTs in view of network expansion of LPG.	Ensure adequate availability of PDS Kerosene	Date	
30	[10.3.1] Issuance of Letter of Intent for Rajiv Gandhi Gramin LPG Vitarak Agencies	To expand the network of LPG distributors in Rural and uncovered areas	Issuance of number of Letter of Intents (LOI) under RGGLVY	Number	
31	[11.1.1] Availability of BS-IV MS & HSD in 10 more identified cities	To introduce BS-IV Auto Fuels in 10 more cities	To improve the coverage of BS-IV Auto fuel in more cities	Number	
32	[12.1.1] Expansion and upgradation of the existing pipelines and laying of new pipelines	To increase the cumulative gas carrying capacity of gas pipelines in the country	Expansion and upgradation of the existing pipelines and laying of new pipelines	MMSCMD	
33	[12.2.1] Laying of new trunk pipelines and expansion of existing trunk pipeline network	to increase cumulative gas transport network in the country	Laying of new trunk pipelines and expansion of existing trunk pipeline network	KM	
34	[13.1.1] Take up with Bureau of Energy Efficiency and Ministry of Power for notification of labeling norms	Take up with Bureau of Energy Efficiency and Ministry of Power for notification of labelling norms	Date by which the proposal would be submitted	Date	
35	[13.2.1] Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per proposal submitted by Technical Committee	Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per the proposal submitted by technical committee	The date by which the proposal would be submitted	Date	

SECTION 4: DESCRIPTION AND DEFINITION OF SUCCESS INDICATORS AND PROPOSED MEASUREMENT METHODOLOGY

Sl.No.	Success	Indicator Description	Definition	Measurement	General Comments
36	[13.3.1] Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per proposal submitted by Technical Committee	Take up with Bureau of Energy Efficiency for Adoption of norms by Steering Committee as per porposal submitted by Technical Committee	The date by which the proposal would be submitted	Date	
37	[14.1.1] % of target achievement	Achievements of set targets by individual Oil PSUs in terms of percentage	Achievements of set targets by individual Oil PSUs in terms of percentage	%	
38	[14.2.1] % of target achievement	Achievements of set targets by individual Oil PSUs in terms of percentage	Achievements of set targets by individual Oil PSUs in terms of percentage	%	
39	[15.1.1] Additional capacity installed	Additional capacity installed during the year.	The quantity of gas supplied to power plants to achieve this objective.	MW	It is a team target involving other Ministries as well.
40	[15.1.2] Total power generated	The total power generated by the additional capacity installed during the year.	The total power generated by the additional capacity installed during the year.	BU	It is a team target involving other Ministries as well

SECTION 5: SPECIFIC PERFORMANCE REQUIREMENTS FROM OTHER DEPARTMENTS

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirement from this organisation	Justification for this requirement	Please quantify your requirement from this Organisation	What happens if your requirement is not met
Central Government		Responsibility Centre / Attached office	Oil and Natural Gas Corporation	[4.1.1] Adding more reserves	Increase in oil exploration	Increase in requirement of energy for economic development of the country and acheiving self sufficiency in petroleum products	-	More imports of crude oil will happen
				[4.2.1] Production of domestic crude oil by public sector	Increase in oil and gas exploration			Increase in imports of oil and gas
		Ministry	Ministry of New and Renewable Energy	[14.1.1] % of target achievement	Necessary statutory clearances	Being nodal ministry		Delay in achieving the objective
			Ministry of Coal	[1.2.1] Submission of Cabinet Note	Comments on draft Cabinet Note	Being nodal Ministry, clearance is required	100%	Objective may not be achieved
			Ministry of Environment and Forests	[1.2.1] Submission of Cabinet Note	Comments on Draft Cabinet Note	Being nodal Ministry, comments are necessary		

SECTION 6: OUTCOME/IMPACT OF DEPARTMENT/MINISTRY

Outcome/Impact of Department/ Ministry	Jointly responsible for influencing this outcome / impact with the following department (s) / ministry(ies)	Success Indicator	Unit	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
1 Enhancing domestic reserve & production	ONGC, OIL & GAIL	Adding more reserves	Number	1	1.1	1	1	1
		Gas production (Public Sector)	BCM	25.94	26.10	25	27.6	29
2 Overseas crude and Oil production	OVL	Overseas production of crude oil	MMTOE	6.21	4.3	4.5	6.48	7.02
		Overseas production of natural gas	BCM	2.53	2.7	2.5	2.61	2.79
3 Increasing Refinery Capacity	Oil Refineries	Additoinal Capacity created	MMTPA	26.9	8	15	15	-
4 Increase in cumulative gas trunk transportation network in the country	Petroleum & Natural Gas Regulatory Board (PNGRB)	Extension of existing pipeline	Km	-	182	200	200	200
		Laying of new Trunk pipelines	Km	-	265	200	200	200
5 Plan investment through internal and external budgetary resources (IE&BR) of PSUs	Oil PSUs	% of budget outlay utilized	%	86	96	90	-	-
6 Monitoring physical progress in work programme for developing energy from renewable and unconventional sources by Oil & Gas PSUs	Oil & Gas PSUs, MNRE	% of targets achieved	%	-	-	95	-	-
7 Area with proven reserves for oil and gas		PML Area accretion	Sq. M	37011	37291	37288	TBD	TBD
8 Enhanced oil and gas security		% of crude oil demand met from domestic sources	%	25.2	24.2	24.9	26.5	24.7
		Domestic crude oil production	MMT	37.6	38	41.3	45.57	43.76
		Percentage of Natural Gas demand met from domestic sources	%	48.48	41.03	TBD	TBD	TBD
		Domestic Natural Gas production	BCM	52.22	51.67	43.18	43.77	47.17
		Domestic Production of oil (Private Sector)	MMT	9.68	10.69	12.12	11.51	12.70
		Domestic Production of Gas (Private Sector)	BCM	26.77	25.58	15.38	14.50	16.50
		The Extent of Diversification achieved in our import basket (TBD) %age of low Sulphur crude processed by Refineries	%LS	34.8	31.8	-	-	-
		The entent of diversification achieved in our import basket (TBD)-High Sulphur crude processed by refineries	%HS	65.2	68.2	-	-	-


MOV 300
MOV 500
MOV 100



CHAPTER 14

Appendices

Appendices



R&D Facility at a Refinery

APPENDIX - I

Work allocated to Ministry of Petroleum and Natural Gas

1. Exploration for and exploitation of petroleum resources, including Natural Gas and Coal Bed Methane.
2. Production, supply, distribution, marketing and pricing of petroleum, including Natural Gas, Coal Bed Methane and petroleum products.
3. Oil refineries including Lube Plants.
4. Additives for petroleum and petroleum products.
5. Lube blending and greases.
6. Planning, development, control and assistance to all industries dealt with by the Ministry.
7. All attached or subordinate offices or other organizations concerned with any of the subjects specified in the list.
8. Planning, development and regulation of oilfield services.
9. Public sector projects falling under the subjects included in this list. Engineers India Limited and IBP Company, together with its subsidiaries, except such projects as are specifically allotted to any other Ministry/Department.
10. The Oil Fields (Regulations and Development) Act, 1948 (53 of 1948).
11. The Oil and Natural Gas Commission Act, 1959 (43 of 1959).



12. The Petroleum & Minerals Pipelines (Acquisition of Right of User Inland) Act , 1962 (50 of 1962).
13. The Esso (Acquisition of Undertakings in India) Act, 1974 (4 of 1974).
14. The Oil Industry (Development) Act, 1974 (47 of 1974).
15. The Burmah-Shell (Acquisition of Undertakings in India) Act, 1976 (2 of 1976).
16. The Caltex [Acquisition of Shares of Caltex Oil Refining (India) Limited and of the Undertakings in India of Caltex (India) Limited] Act, 1977.
17. Administration of the Petroleum Act, 1934 (30 of 1934) and the rules made thereunder.
18. Administration of Balmer Lawrie Investments Limited and Balmer Lawrie and Company Limited.
19. Petroleum & Natural Gas Regulatory Board Act, 2006.
20. To promote long term engagement of Indian Oil Companies in the hydrocarbon sector abroad.
21. Strengthening energy security by acquiring oil and gas equity abroad and participation in transnational oil and gas pipeline projects.
22. Creation and administration of strategic petroleum reserve through Indian Strategic Petroleum Reserves Limited (ISPRL).

APPENDIX - II

List of Public Sector Undertakings and other organisations under the administrative control of the Ministry of Petroleum & Natural Gas

I. Oil Companies in which Government of India has a shareholding as on (31.12.2013)

1.	Oil & Natural Gas Corporation Limited	69.23%
2.	Indian Oil Corporation Limited	78.92%
3.	Hindustan Petroleum Corporation Limited	51.11%
4.	Bharat Petroleum Corporation Limited	54.93%
5.	GAIL (India) Limited	57.35%
6.	Engineers India Limited	80.40%
7.	Oil India Limited	68.43%
8.	Biecco Lawrie & Co. Ltd.	99.56%
9.	Balmer Lawrie Investment Ltd.	59.67%

II. Subsidiaries and Other Companies

1.	ONGC Videsh Limited	-	wholly owned by ONGC
2.	Mangalore Refinery & Petrochemicals Limited	-	subsidiary of ONGC
3.	Bharat PetroResources Limited	-	subsidiary of BPCL
4.	Chennai Petroleum Corporation Limited	-	subsidiary of IOC
5.	Numaligarh Refineries Limited	-	subsidiary of BPCL
6.	Certification Engineers International Limited	-	wholly owned by EIL
7.	EIL Asia Pacific Sdn BHD	-	wholly owned by EIL
8.	GAIL Gas Limited	-	wholly owned by GAIL

III. Other Organisations

1. Oil Industry Development Board
2. Petroleum Conservation Research Association
3. Oil Industry Safety Directorate
4. Centre for High Technology
5. Petroleum Planning & Analysis Cell
6. Directorate General of Hydrocarbons
7. Rajiv Gandhi Institute of Petroleum & Technology
8. Petroleum and Natural Gas Regulatory Board

APPENDIX-III

Production of Crude Oil and Natural Gas					
Item	2009-10	2010-11	2011-12	2012-13	2013-14*
1	2	3	4	5	6
1. Crude Oil Production ++ ('000' Tonnes)					
(a) Onshore:					
Gujarat	5960	5905	5780	5331	5061
Assam/Nagaland/Tripura	4740	4721	5025	4863	4710
Arunachal Pradesh	131	116	118	121	111
Tamil Nadu	239	233	247	238	226
Andhra Pradesh	304	305	305	295	297
Rajasthan	447	5149	6553	8593	9180
Total (a)	**11821**	**16429**	**18027**	**19441**	**19585**
of which					
OIL	3572	3582	3847	3661	3466
ONGC	7515	7447	7386	6944	6705
JVC/Private	734	5400	6794	8836	9414
(b) Offshore:					
ONGC	17340	16973	16330	15617	15541
JVC/Private	4529	4282	3733	2804	2663
Total (b)	**21869**	**21255**	**20063**	**18421**	**18203**
Grand Total (a+b)	**33690**	**37684**	**38090**	**37862**	**37788**
2. Natural Gas Production (MMSCM)					
(a) Onshore:					
Gujarat	2444	2262	2173	2032	1657
Assam/Nagaland	2703	2680	2905	2910	2868
Arunachal Pradesh	40	44	40	41	41
Tripura	564	610	644	647	822
Tamil Nadu	1178	1119	1285	1206	1304
Andhra Pradesh	1479	1384	1364	1249	1171
Rajasthan	239	432	590	685	982
West Bengal (CBM) $	38	41	84	107	166
Total (a)	**8685**	**8574**	**9084**	**8877**	**9012**
of which					
OIL	2416	2350	2633	2639	2626
ONGC	5634	5504	5751	5447	5316
JVC/Private	635	720	699	791	1069
(b) Offshore:					
ONGC (Mumbai High)	17462	17591	17565	18102	17968
JVC/Private	21350	26054	20910	13700	8428
Total (b)	**38811**	**43645**	**38475**	**31802**	**26395**
Grand Total (a+b)	**47496**	**52219**	**47559**	**40679**	**35407**

**: Provisional $: Coal Bed Methane Production*

Source: ONGC, OIL and DGH.Source: ONGC, OIL and DGH.

APPENDIX-IV

Installed Capacity and Refinery Crude Throughput (Figures in TMT)

Refinery / Location	Installed Capacity as on			Refinery Crude Throughput				
	1.4.2012	1.4.2013	1.4.2014	2009-10	2010-11	2011-12	2012-13	2013-14*
1	2	3	4	5	6	7	8	9
(a) PUBLIC SECTOR	120066	120066	120066	112117	115311	120895	120303	119547
IOC, Guwahati, Assam	1000	1000	1000	1078	1118	1058	956	1019
IOC, Barauni, Bihar	6000	6000	6000	6184	6207	5730	6344	6478
IOC, Koyali, Gujarat	13700	13700	13700	13206	13561	14253	13155	12960
IOC, Haldia, West Bengal	7500	7500	7500	5686	6878	8072	7490	7952
IOC, Mathura, Uttar Pradesh	8000	8000	8000	8107	8880	8202	8561	6641
IOC, Digboi, Assam	650	650	650	600	651	622	660	651
IOC, Panipat, Haryana	15000	15000	15000	13615	13660	15496	15126	15098
IOC, Bongaigaon, Assam	2350	2350	2350	2220	2008	2188	2356	2328
Total IOC	**54200**	**54200**	**54200**	**50696**	**52964**	**55621**	**54649**	**53126**
BPCL, Mumbai, Maharashtra	12000	12000	12000	12516	13020	13355	13077	12684
BPCL, Kochi, Kerala	9500	9500	9500	7875	8699	9472	10105	10285
Total BPCL	**21500**	**21500**	**21500**	**20391**	**21719**	**22828**	**23183**	22969
HPCL, Mumbai, Maharashtra	6500	6500	6500	6965	6638	7506	7748	7785
HPCL, Visakh, Andhra Pradesh	8300	8300	8300	8796	8200	8682	8028	7776
Total HPCL	**14800**	**14800**	**14800**	**15761**	**14838**	**16189**	**15777**	**15561**
CPCL, Manali, Tamil Nadu	10500	10500	10500	9580	10104	9953	9105	10065
CPCL, Narimanam, Tamil Nadu	1000	1000	1000	517	703	611	640	559
Total CPCL	**11500**	**11500**	**11500**	**10097**	**10807**	**10565**	**9745**	**10624**
NRL, Numaligarh, Assam	3000	3000	3000	2619	2252	2825	2478	2613
ONGC, Tatipaka, Andhra Pradesh	66	66	66	55	69	69	57	65
MRPL, Mangalore, Karnataka	15000	15000	15000	12498	12662	12798	14415	14589
(b) PRIVATE SECTOR	**78000**	**80000**	**80000**	**80651**	**81678**	**81179**	**88273**	**88229**
RPL, Jamnagar, Gujarat	33000	33000	33000	34415	31198	32497	32613	30307
RPL(SEZ), Jamnagar, Gujarat	27000	27000	27000	32735	35607	35186	35892	37720
ESSAR Oil Ltd. Vadinar	18000	20000	20000	13501	14873	13496	19769	20202
(c) JOINT VENTURE	**15000**	**15000**	**15000**	**-**	**-**	**2048**	**10636**	**14721**
BORL,Bina	6000	6000	6000	-	-	2048	5732	5450
HMEL, Bathinda	9000	9000	9000	-	-	-	4904	9271
Total (a+b+c)	**213066**	**215066**	**215066**	**192768**	**196989**	**204121**	**219212**	**222497**

**: Provisional*

Source: Public Sector Undertakings / Private Company.

APPENDIX - V

Production of Petroleum Products (Figures in TMT)

Products	2009-10	2010-11	2011-12	2012-13*	2013-14*
1	2	3	4	5	6
Production of Petroleum Products by Refineries					
LPG	8091	7541	7333	7694	7890
Mogas	22537	26138	27186	30118	30275
Naphtha	17107	17535	17135	17354	17038
Kerosene	8545	7702	7789	7868	7338
ATF/RTF/Jet A-1	9296	9570	10051	10077	11210
HSD	73281	78040	82864	91085	93742
LDO	472	590	502	400	423
Furnace Oil	15828	18659	16732	13690	12920
LSHS/HHS/RFO	2518	1860	1701	1364	485
Fuel Oil	18346	20519	18433	15054	13405
Lube Oils	950	884	1028	896	941
Bitumen	4889	4478	4610	4670	4785
Petroleum Coke	3709	2711	7837	10943	12068
Paraffin Wax	64	61	47	52	55
Others Waxes	3	6	7	5	1
Total Wax	67	67	54	57	56
Others	12478	14542	13740	17003	17284
Total (A)	**179768**	**190316**	**198561**	**213219**	**216456**
Production of Petroleum Products by Fractionators					
LPG	2243	2168	2214	2130	2140
Naphtha	1682	1660	1690	1664	1468
Kerosene	158	107	72	103	80
ATF/RTF/Jet A-1	8	19	14	11	10
HSD	17	17	16	18	16
Others	734	533	635	591	587
Total (B)	**4842**	**4504**	**4640**	**4518**	**4300**
Grand Total (A+B)	**184610**	**194821**	**203202**	**217736**	**220756**

**: Provisional*

Source: Public Sector Undertakings / Private Company.

APPENDIX-VI

Product-wise Consumption of Petroleum Products					(Figures in '000' Tonnes)
Products	2009-10	2010-11	2011-12	2012-13	2013-14*
1	2	3	4	5	6
Light Distillates	**38995**	**41443**	**43870**	**46273**	**47749**
LPG	13135	14331	15350	15601	16336
Motor Spirit	12818	14194	14992	15744	17128
Naphtha+NGL	10134	10676	11222	12289	11454
Others	2908	2242	2306	2639	2831
Middle Distillates	**71120**	**75029**	**79415**	**82700**	**81838**
SKO	9304	8928	8229	7502	7165
ATF	4627	5078	5536	5270	5504
HSDO	56242	60071	64750	69080	68369
LDO	457	455	415	399	386
Others	490	497	485	450	414
Heavy Ends	**27693**	**24568**	**24847**	**28084**	**28610**
Furnace Oil	9145	8807	7548	6291	5745
LSHS	2484	1982	1759	1366	449
Lubes/Greases	2539	2429	2633	3196	2891
Bitumen	4934	4536	4638	4676	4938
Petroleum Coke	6586	4982	6138	10135	11651
Paraffin Wax	211	198	211	194	206
Other Waxes	78	56	58	0	53
Others	1716	1578	1863	2226	2677
Total Consumption	**137808**	**141040**	**148132**	**157057**	**158197**

Notes: 1. Consumption includes sales by oil companies, own consumption & direct private imports.

APPENDIX - VII

Imports / Exports of Crude Oil and Petroleum Products							(Figures of Qty in TMT & Value in ₹ Crore)			
ITEM	2009-10		2010-11		2011-12		2012-13		2013-14*	
	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value	Qty.	Value
1	2	3	4	5	2	3	4	5	6	7
GROSS IMPORTS										
A. Crude Oil	**159259**	**375277**	**163595**	**455276**	**171729**	**672220**	**184795**	**784652**	**189238**	**864875**
B. LNG	**9110**	**11067**	**9766**	**14648**	**13460**	**32847**	**13580**	**40540**	**12949**	**51518**
C. Petroleum Products										
I. Light Distillates	**4838**	**14535**	**8278**	**29331**	**8534**	**40157**	**8176**	**42378**	**7868**	**44973**
1. LPG	2718	8329	4502	16082	5790	27019	6293	31696	6607	37425
2. MS	385	1264	1702	6427	654	3311	147	891	235	1481
3. Naphtha	1734	4942	2074	6822	2091	9827	1735	9791	1026	6067
II. Middle Distillates	**3516**	**9299**	**3454**	**12105**	**1623**	**7750**	**626**	**3219**	**84**	**503**
1. SKO	985	2909	1381	4939	564	2710	0	0	0	0
2. HSD	2531	6390	2073	7166	1059	5039	626	3219	84	503
III. Heavy Ends	**6312**	**9966**	**5083**	**10670**	**5691**	**20184**	**6972**	**22766**	**8766**	**29129**
1. FO / LSHS	896	1935	925	2240	1203	4392	1068	4546	1283	5537
2. Bitumen	69	138	69	152	78	197	85	235	237	773
3. LOBS/Lubes	1419	3518	1214	3017	1434	8314	1468	9259	1674	10664
4. Others	3928	4375	2875	5261	2976	7282	4351	8727	5572	12155
Total(C)	**14665**	**33800**	**16815**	**52106**	**15848**	**68091**	**15774**	**68363**	**16718**	**74605**
Grand Total(A+B+C)	**183034**	**420144**	**190176**	**522030**	**201037**	**773158**	**214149**	**893555**	**218905**	**990998**
EXPORTS										
Petroleum Products										
I. Light Distillates	**19803**	**61508**	**24387**	**87311**	**24837**	**120549**	**25505**	**140173**	**23796**	**140625**
1. LPG	131	491	154	693	174	947	200	1294	227	1589
2. MS	9762	31170	13578	49480	14524	73982	16657	95346	15247	92977
3. Naphtha	9911	29848	10655	37138	10139	45620	8647	43533	8322	46059
II. Middle Distillates	**23054**	**64318**	**24944**	**85841**	**25085**	**126951**	**27151**	**140916**	**32259**	**181617**
1. SKO	4588	13331	33	141	34	191	23	140	15	98
2. HSD/LDO	46	154	20433	69560	20491	104903	22464	115554	26499	148273
3. ATF	18420	50833	4478	16140	4561	21857	4664	25223	5745	33246
III. Heavy Ends	**8117**	**18211**	**9746**	**23709**	**10915**	**37144**	**10752**	**39001**	**11809**	**46037**
1. FO/LSHS	5173	10501	6734	15098	7895	25576	5922	20415	6159	22407
2. LOBS/Lubes	87	213	29	147	27	181	59	381	20	138
3. Bitumen	31	67	56	124	5	27	87	281	95	321
4. Others	2825	7430	2927	8340	2988	11360	4685	17922	5535	23171
Total	**50974**	**144037**	**59077**	**196861**	**60837**	**284643**	**63408**	**320090**	**67864**	**368279**
NET IMPORTS										
A. Crude Oil	**159259**	**375277**	**163595**	**455276**	**171729**	**672220**	**184795**	**784652**	**189238**	**864875**
B. LNG	**9110**	**11067**	**9766**	**14648**	**13460**	**32847**	**13580**	**40540**	**12949**	**51518**
C. Pol.Products	**-36309**	**-110237**	**-42262**	**-144755**	**-44989**	**-216552**	**-47634**	**-251727**	**-51146**	**-293674**
Grand Total	**132060**	**276107**	**131099**	**325169**	**140200**	**488515**	**150741**	**573465**	**151041**	**622719**

**: Provisional*

Source: Petroleum Planning & Analysis Cell, New Delhi.

APPENDIX-VIII

11th -12th Five Year Plan Outlay & Actual Expenditure for P&NG Sector

Companies	Outlay 11th Plan	Actual Expenditure 11th Plan	% of Actual to BE of 11th Plan	12th Plan Budget Estimates as reported now	2012-13		2013-14		2014-15
					Budget Estimate	Actual Expenditure	Budget Estimate	Actual Expenditure	Budget Estimate
1	2	3	4	5	6	7	8	9	10
EXPLORATION & PRODUCTION									
ONGC-OVL	45334.00	39275.81	86.64	68469.73	7909.90	10891.41	9491.88	35300.46	14792.00
ONGC	75983.78	120552.29	158.66	162842.06	33065.31	29507.91	35049.23	31114.44	36059.07
OIL	13439.02	8191.51	60.95	18986.06	3378.29	2890.03	3580.99	11733.72	3632.00
GAIL*	10326.83	17866.85	173.01	21087.20	5866.77	2965.00	4376.50	1538.65	1486.83
IOCL	2982.00	1340.65	44.96	6256.06	650.00	389.88	689.00	6789.28	764.00
HPCL	2000.00	577.30	28.87	646.00	300.00	55.99	346.00	196.75	38.33
BPCL	868.00	2429.24	279.87	5501.42	1157.00	1873.51	1226.42	1572.00	730.00
Sub Total	**150933.63**	**190233.65**	**126.04**	**283788.52**	**52327.27**	**48573.73**	**54760.01**	**88245.30**	**57502.23**
REFINERY & MARKETING									
HPCL	8714.00	11177.62	128.27	20721.77	3156.93	2827.66	3724.84	2,481.60	3730.00
BPCL	11344.80	7305.60	64.40	28467.32	3322.00	1956.08	3521.32	2,847.00	4520.00
CPCL (IOCL)	3275.00	2640.23	80.62	4351.68	785.68	260.56	299.27	216.63	1102.00
IOCL	30604.18	34253.61	111.92	42376.70	8900.00	8655.72	9434.00	9,463.75	9724.80
NRL (BPCL)	515.00	548.18	106.44	8223.88	249.00	137.80	368.88	359.28	177.65
MRPL (ONGC)	8643.02	9090.51	105.18	7050.47	3813.00	1974.55	2347.47	1,389.69	800.15
Sub Total	**63096.00**	**65015.75**	**103.04**	**111191.82**	**20226.61**	**15812.37**	**19695.78**	**16,757.95**	**20054.60**
PETROCHEMICAL									
HPCL	773.00	30.91	4.00	376.10	10.50	0.00	10.60	0.00	5.00
GAIL	1618.00	1921.68	118.77	7077.53	3580.50	2997.00	3135.00	2,531.39	1617.79
IOCL	11844.10	13060.51	110.27	8544.00	450.00	332.51	1153.76	407.58	886.20
CPCL	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
MRPL	83.00	603.21	726.76	4831.01	3004.00	137.00	177.01	198.72	500.00
NRL	110.00	104.10	94.64	23.00	23.00	22.80	0.00	0.00	0.00
Sub Total	**14728.10**	**15720.41**	**106.74**	**20851.64**	**7068.00**	**3489.31**	**4476.37**	**3,137.69**	**3008.99**
ENGINEERING									
Balmer Lawrie	205.00	155.34	75.78	220.00	55.00	67.28	70.00	107.37	62.00
Biecco Lawrie	31.00	0.00	0.00	31.00	8.00	0.00	7.00	0.00	7.00
Sub Total	**236.00**	**155.34**	**65.82**	**251.00**	**63.00**	**67.28**	**77.00**	**107.37**	**69.00**
Total PNG Sector	**228993.73**	**271125.15**	**118.40**	**416082.98**	**79684.88**	**67942.69**	**79009.16**	**108248.31**	**80634.82**
GROSS BUDGETARY SUPPORT (GBS)									
Rajiv Gandhi Institute of Petroleum Technology	285.00	58.54	20.54	199.00	41.00	19.43	41.00	16.55	42.00
One Time Assistance for LPG Connection **	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.00
ISPRL $	0.00	0.00	0.00	4948.00	1.00	0.00	1.00	0.00	1.00
Total GBS	**285.00**	**58.54**	**20.54**	**5147.00**	**43.00**	**19.43**	**43.00**	**16.55**	**43.00**
GRAND TOTAL	**229278.73**	**271183.69**	**118.28**	**421229.98**	**79727.88**	**67962.12**	**79052.16**	**108264.86**	**80677.82**

** Amount in E&P activities includes amount for Pipeline Network under 11th Plan Outlay.*

$ = Schemes yet to be approved by the Cabinet.

*** = It has since been decided that the schemeon LPG Connections to BPL Families would not be taken from the GBS and funds would be provided from CSR funds of PSUs in the P&NG Sector*

APPENDIX- IX

Earning of Oil PSUs

The Profit Before Tax (PBT) and the Profit After Tax (PAT) earned by Public Sector Undertakings in the Oil Sector during 2012-13 were ₹ 58866.88 crore and ₹ 39418.29 crore respectively. The PBT and PAT for 2013-14 are expected to be about ₹ 53231.16 crore and ₹ 35610.38 crore respectively. Oil PSUs-wise details are as under:

(₹ in Crore)

Sl. No.	Name of PSUs	Profit Before Tax (PBT)		Profit After Tax (PAT)		
		2012-13 (Actual)	2013-14 (Expected)	2012-13 (Actual)	2013-14 (Expected)	% of GoI holdings as on 31.03.2013
1.	ONGC	30544.30	33229.00	20925.70	21934.00	69.23
2.	OVL	6632.49	5879.30	3929.14	3594.42	0
3.	IOCL	5647.80	2500.00	5005.17	1933.00	78.92
4.	GAIL	6058.00	4868.00	4022.00	3331.00	57.345
5.	HPCL	1474.56	678.00	904.71	448.00	51.11
6.	OIL	5283.23	4460.21	3589.34	3013.41	68.43
7.	BPCL	4035.69	327.85	2642.90	534.85	54.93
8.	MRPL	- 475.85	318.28	-756.91	210.10	0
9.	CPCL	-1697.69	-198.00	-1766.84	-188.00	0
10.	NRL	262.86	205.00	144.26	137.00	0
11.	EIL	890.00	791.00	628.00	550.00	80.401
12.	BALMER LAWRIE	223.52	190.00	162.77	130.00	0
13.	BIECCO LAWRIE	-12.03	-17.48	-11.95	-17.40	99.56 *
14.	**TOTAL**	**58866.88**	**53231.16**	**39418.29**	**35610.38**	

** This include 67.33 % share of Oil Industry Development Board.*

APPENDIX- X

1. Paras contained in Inspection Reports: A total of 48 Inspection Reports/Paras were outstanding against this Ministry as on 30.09.2013. Efforts were made to settle such outstanding paras by taking up the matter with Audit. The Audit has now dropped 03 paras. Thus, as on 30.4.2014 the total number of outstanding Inspection Reports/ Paras stands at 45.

2. CAG's Report: A summary of important audit observations made available by the office of CAG is enclosed herewith as with the request to include the same in the Annual Report for the year 2013-14. Details are as under:

Highlights of significant paras included in the Report are given below:

Ministry of Petroleum and Natural Gas

1. lndian Oil Corporation Limited (IOCL) and GAIL (India) ltd (GAIL) entered into E&P activities (1999) and started investing in domestic/overseas E&P projects either by way of acquiring Participating Interest (PI) in existing E&P blocks through farm-in or by participating in bidding rounds for E&P blocks. IOCL and GAIL had acquired 77 E&P blocks (GAIL 43 and IOCL 34) involving an expenditure of ₹ 5346.98 crore till 28 February 2013 out of which, the Companies were operator / joint-operator in five blocks and non-operator in the remaining blocks. The Companies had five E&P blocks under development and production, 43 under exploration/appraisal and 29 blocks had either been relinquished or decided to be relinquished on account of non-discovery of hydrocarbon.

   Even after an experience of more than a decade in this business, neither IOCL nor GAIL had defined/ documented policy or prescribed procedure for E&P activities. GAIL and IOCL had acquired E&P assets mainly by relying on technical assessment by other JV partners instead of conducting detailed due diligence or revalidation of reservations/ limitations (expressed by consultants) at their end. Further, these Companies in most cases had not apprised their Board of Directors about the known risks/ limitations before acquiring

the respective block. Inadequate analysis and interpretation of data and non-revalidation of reservations/limitations expressed by advisors had resulted in infructuous expenditure of ₹ 1258.46 crore. Further, despite having adequate provisions in Joint Operating Agreement, 'GAIL and IOCL had not invoked non-operator's audit rights in 13 out of 40 E&P assets and 18 out of 32 E&P assets respectively.

2. With a view to increasing the availability of ethanol through in-house production, Hindustan Petroleum Corporation Limited (HPCL) decided to bid (18 December 2007) for four of the fifteen closed sugar mills offered (November 2007) for sale by the Government of Bihar and became successful (February 2008) in procuring two such sugar mills at Sugauli and Lauriya located in East Champaran and West Champaran districts, respectively, in Bihar. HPCL decided to establish two integrated sugar, ethanol mills with co-gen power plants at these locations. Despite the fact that ethanol production was a new line of business for HPCL, it showed haste in decision- making and did not carry out proper due diligence. Pre-bid consultant viz. IDBI appointed (10 December 2007) by the Company had cautioned it by stating that a successful bid would only result in acquiring land in interior Bihar as there were serious infrastructure constraints for ethanol production and that it had not carried out an independent verification of the information for bidding for the mills.

   Configuration Study Report (CSR) submitted (October 2008) by HPCL's another consultant viz. M/s MITCON had suggested three options for setting up the mills with alternatives for utilizing sugarcane juice for production of sugar and ethanol. However, CSR was not presented to HPCL Board for approving an appropriate option and prepare Detailed Feasibility Reports (DFRs). Instead, a team of Functional Directors and officials of Ministry of Petroleum and Natural Gas was reported to have chosen (30 October 2008) the third option that envisaged utilisation of 50 per cent sugarcane juice in each mill for production of ethanol and remaining 50 per cent for projected Internal Rate of Return (IRR) - a vital parameter for capital investment decision - for this option was 10.25 per cent.

   DFRs prepared (February 2009) by MIs MITCON for setting up Integrated Sugar-Ethanol-Cogen power plants for the chosen option at each of the locations was based on a set of unlikely optimistic assumptions and projected a rosy picture for establishing the plants and indicated higher IRRs than those projected in CSR. Thus, the projects were made to appear viable though they were not. HPCL did not apprise the Board of the implementation mechanism for setting up integrated sugar, ethanol and cogen power plants though the proposal was approved (June 2009) by the Board. Proposal for formation of the subsidiary was also not submitted to the Board for approval.

   The first year of operations of the mills, demonstrated that the option adopted for production of ethanol was not financially viable. Due to this, HPCL Biofuels Limited - subsidiary of HPCL- through which the projects were implemented - decided (August 2012) to utilize 100 per cent sugarcane juice for production of sugar. This would result in extra expenditure of ₹ 58.71 crore towards enhancement in the boiler capacity of the two sugar mills, idle capacity of ethanol plants at both the mills and consequent unfruitful expenditure of ₹ 28.45 crore. Thus, the main objective of setting up the two sugar mills i.e. to increase availability of ethanol by in-house production was not achieved, despite the fact that investment of ₹ 715.21 crore had been made in the two sugar mills as of 31 March 2012.

3. Oil and Natural Gas Corporation Limited (Company) hired rig Actinia' from Reliance Industries Limited (RIL) for six months on assignment basis in deviation of standard tendering procedure citing requirement to drill at three locations. Actual deployment of the rig indicated that hiring of the rig was not necessary for drilling at any of the three identified locations. The entire expenditure ₹ 146.71 crore on hiring of the rig from February 2009 to July 2009 was, thus, avoidable. The rig idled for want of materials which resulted in unfruitful expenditure of ₹ 4.64 crore during February 2009.

4. Indian Oil Corporation Limited failed to synchronize conversion of Gas Turbines at its Panipat Refinery, to use Re-liquefied Natural Gas, with the commissioning of Dadri Panipat Spur Pipe Line project that resulted in avoidable expenditure of ₹ 135.81 crore on account of usage of costlier fuel for generation of captive power during August 2010 to March 2012.

5. Oil and Natural Gas Corporation Limited (Company) awarded a contract on the basis of forged documents submitted by the bidder. The contract was terminated four years later owing to inability of the contractor to implement the project leading to a loss of ₹ 114.78 crore to the Company.

APPENDIX- XI

Position of ATNs in respect of Audit Observations included in the Annual Report as well as those included in earlier Annual Reports

As on 30.4.2014

Sl. No.	Year	No. of Paras/PA reports on which ATNs have been submitted to PAC/ COPU after vetting by Audit	Details of the Paras/PA reports on which ATNs are pending		
			No. of ATNs not sent by the Ministry even for the first time	No. of ATNs sent but returned with observations and Audit to awaiting their re-submission by the Ministry	No. of ATNs which have been Finally vetted by Audit but have not been submitted by the Ministry to PAC/COPU
1.	2003	03	-	-	-
2.	2004	21	-	-	-
3.	2005	49	-	2	-
4.	2006	31	-	-	-
5.	2007	27	-	1	-
6.	2008	23	-	2	-
7.	2009-10	15	-	3	-
B.	2010-11	04	-	-	-
9.	2011-12	-	-	3	-
10.	2012-13	06	01	-	-
11.	2013	-	04	-	-

Notes


ଇଣ୍ଡିୟନ ଅଏଲ
Indian Oil
ପାରାଦୀପ ରିଫାଇନରୀ ପରିଯୋଜନା
ସାମୁଦାୟିକ ବିକାଶ କାର୍ଯ୍ୟକ୍ରମ ଅନ୍ତର୍ଗତ
ପାନୀୟ ଜଳ ଯୋଗାଣ ପ୍ରକଳ୍ପ
ବ୍ୟୟ ଅଟକଳ :2,40,669 /-
ବର୍ଷ :2011 - 12
ଗ୍ରାମ :ଡାଲିମ୍ବ ପୁର





concept and design at AICL (info@aicl.in)

सत्यमेव जयते

Government of India
Ministry of Petroleum and Natural Gas

Shastri Bhavan,
Dr. Rajendra Prasad Road,
New Delhi-110001
www.petroleum.nic.in
Ph. : 91-011-23383692
Fax : 91-011-23383585
Facilitation Counter : 91-011-23388624