

A DISSERTATION REPORT
ON
A COMPARATIVE STUDY OF CRUDE OIL
TRADING IN PUBLIC AND PRIVATE
COMPANY

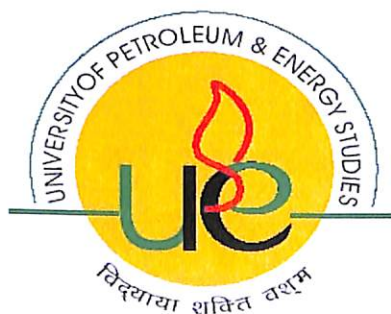
PROJECT DISSERTATION SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR
MASTER OF SCIENCE (OIL TRADING)

By

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Under the guidance of

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COLLEGE OF MANAGEMENT AND ECONOMIC STUDIES

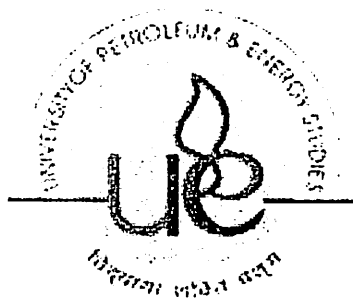
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Certificate

This is to certify that the dissertation report on “ A Comparative Study of Crude Oil Trading in Public and Private Company ” submitted to the University of Petroleum and Energy Studies, Gurgaon by Arti Srivastava (R130105008) in partial fulfillment of the requirement for the award of the degree of MS (Oil Trading), is a bonafide work carried out by him under my supervision and guidance.

Place: Gurgaon
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DECLARATION

I, **Arti Srivastava**, student of **MS (Oil Trading)** at University of Petroleum & Energy Studies, declare that the work done on the project entitled, “**A Comparative Study on Crude Oil Trading in Public and Private Company**” is original. Any references made in this project have been duly acknowledged.

The analysis of the past, present & future as documented in this project are thereby the copyright of the author. This report should not be reproduced without prior permission of the author.

To the best of my knowledge & belief the subject matter represented here is original & has not been submitted to any University till date.

Arti Srivastava
5th May 107

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ABSTRACT

This paper examines the difference between the trading techniques which are followed by the Public and the Private companies in context with the crude oil. In particular, we examine what is the volume of trading done in both Public and Private Sector units in India, as volume of trading is very low in India in comparison to the other nations. Also the analysis has been done to determine the efficiency of the public and the private companies.

EXECUTIVE SUMMARY

In the petroleum industry, there exists a measure of a company's effectiveness in a particular market. It is measured in terms of marketing effectiveness. Reliance has already emerged as a force to be reckoned with and may even stake a claim to the Number 1 slot in the coming years. It may be the last kid off the block but it is this fact that has given it several advantages over PSUs.

There are many advantages of private in comparison to public company like, employing the best and laying emphasis on training, Reliance petroleum's downstream business is stewarded by the very best in business. Reliance realised early enough that the key to success would lie in recruiting the best talent from the oil industry. Since the industry was the sole domain of the public sector companies, Reliance had to dangle the carrot of an extremely attractive remuneration package to the best talent available in BPCL, IOC and HPCL and there are many but a rose had a thorn too means the other side of the private company their dominance had also been explained .



OBJECTIVES

1. To study the measure of effectiveness in between public and private sector
2. To study the volume of trading done in the Private and Public sector units in India.
3. To study about the Oil Markets in India
4. To understand the mode of trading of Crude Oil in public and private sector
5. Motive of Trading
6. Exposure of the Capital provided by the authority (Public, Private) sector by the concerned authority
7. To derive which sector is more efficient
8. To study the Upstream, Midstream and the Downstream segments of the India

RESEARCH METHODOLOGY

TYPE OF RESEARCH:

The research is in depth descriptive study aimed to identify the Crude oil trading in public and the private sector of the India.

METHOD OF DATA COLLECTION:

PRIMARY DATA

No primary data is collected

SECONDARY DATA

Secondary data was collected through web sites, books and marketing reference material.

RESEARCH DESIGN

The formidable problem that follows the task of defining the research problems the preparation of the design of the research project, popularly known as research design.

Different research designs can be conveniently described if we categorize them as:



Research design in case of exploratory research studies.

Research design in case of descriptive and diagnostic research studies.

Research design in case of hypothesis testing research studies.

Exploratory research studies are also termed as formulate research studies. The major emphasis in such studies is on the discovery of ideas and insights.

Descriptive research studies that are use to describe the characteristics of a particular individual or group, where as diagnostic research studies determine the frequency with which something occurs.

Hypothesis testing research studies (generally known as experimental studies) are those where the researcher tests the hypothesis of casual relationships between variables.

In our case the research has been designed keeping in mind the exploratory or formulate research studies.

SAMPLING PLAN:

Sampling is not required for this study.

COLLECTION OF INFORMATION:

Since the study is a qualitative study and based on secondary source of information, so data has been collected from secondary source such as newspaper, magazine, Internet websites and books.

ANALYZING THE DATA:

After the completion of data collection, the data was then assimilated into a word documents. Inferences were drawn thereafter.

PRESENTING THE FINDING:

The inferences were then summarized along with the insights during data collection. Recommendations have been given on the basis of above steps.



DECISION-MAKING:

The recommendations drawn after the findings could be best worked out by way of analysis.

STRATEGY PLAN:

STEPS INVOLVED:

1. Data collection
2. Analysis
3. Conclusion
4. Findings

REVIEW OF LITERATURE

Dées Stephane Modelling the world oil market: Assessment of a quarterly econometric model ,Pages 178-191, (1997)

This paper describes a structural econometric model of the world oil market that can be used to analyse oil market developments and risks. Oil demand depends on domestic economic activity and the real price of oil. Oil supply for non-OPEC producers, based on competitive behaviours, is constrained by geological and institutional conditions. Oil prices are determined by a "price rule" that includes market conditions and OPEC behaviour. Policy simulations indicate that oil demand and non-OPEC supply are rather inelastic to changes in price, while OPEC decisions about quota and capacity utilisation have a significant, immediate impact on oil prices.

Fusaro .C. Peter, Energy Risk Management, (1998)

This book explains how the various entities are engaged in hedging their risk by applying technical tools in context of crude oil.

James Tom, Energy and Emissions Markets, (17h Feb. 2006),

In this book how the technical and fundamental analysis is done to identify the future prices and accordingly how the companies trade and hedge their risk.

Long David, Oil Trading Manual, (2000-01)

In this book the author provides the guidelines, rather the rules to be followed by the oil trader. This book includes the pricing, delivery, settlement procedure etc. the trade mechanics to be followed by the facilitator that is the exchange etc.

INTRODUCTION

The Indian hydrocarbon industry stands fifth in the world in terms of energy consumption. The world energy demand is around 80 million barrels of oil per day of which, India guzzles approximately 5 percent of the world energy. India's per capita consumption of energy is 479 kgoe and if the burgeoning economy is any indication, this is expected to grow exponentially.

Upstream

The estimated resources of the country stood at 32 billion tonnes (O +OEG) as on April, 2004 . India, not being self sufficient imports over 70 percent of crude petroleum. The countries domestic oil production for 2004-05 was 33.98 million metric tonnes a third of which was produced from onshore and the rest of it from offshore fields.

The natural gas production for the year 2004-05 was 31.7 billion cubic meters of 28 percent was produced from the onshore fields and the rest was produced from the offshore fields.

The increasing dependence on imported crude causes a huge foreign exchange outflow, which as led to a focused attention on energy security. With increasing exploration efforts through New Exploration Licensing Policy(NELP) , the Government has signed 90 Production Sharing Contracts (PSCs) and currently offered 20 blocks under fifth round of NELP. Till date, 19 discoveries have been made in the PSCs signed and the rest are yet being explored. One of the landmark discoveries has been the Krishna-Godavari deepwater discovery by Reliance, which changed the energy map of the country.

Refining

As of March 2005, there are 18 refineries in the country (one in the private sector). The downstream refining throughput capacity of the country stood at 127.4 million metric tonnes. The refinery throughput for the year 2004-05 stood at 127.1 million metric tonnes. The public sector refineries production for the same period stood at 92.8 million



metric tonnes with capacity utilization 98.3 percent, while the private refineries production for the same period stood at 34.3 million metric tonnes, 104 percent capacity utilization.

With the increasing demand for oil products existing refineries are expanding their capacities rapidly. New refineries are slated to come up in the near future. According to the Hydrocarbon Vision – 2025, the demand for oil products is estimated at 148 million tonnes for 2006-07, 195 million tonnes for 2011-12 and 368 million tonnes for 2024-25

With the increasing environmental concerns, Indian refineries recently upgraded themselves to meet the Euro III norms.

With increasing demand for oil products, existing refineries are expanding their capacities rapidly. New refineries are slated to come up in the near future with MoP&NG contemplating to ramp up the country's refining capacity with emphasis on exports so as to compete with refineries in Singapore and west Asian countries. This additional refining capacity for exports will help India offset its huge crude oil import bill.

Liquefied Natural Gas (LNG)

With the widening demand-supply gap and the technical and economic inefficiency of natural gas pipelines to transmit gas, it pulled India into the international LNG business.

Petronet LNG, a consortium, is the first company that set up the LNG receiving terminal at Dahej in Gujarat. It was designed to handle 5MMTPA (20mmscmd) of LNG and is doubling its capacity to 10MMTPA (40mmscmd). To this date, there are 2 LNG terminals operational in India and 4 LNG receiving terminals have been proposed to be set up in the country.

Downstream Retailing

The downstream retailing business till recently was dominated by the public sector oil companies. With the deregulation of the sector, and anticipated surge in demand of



petroleum products, the country is witnessing the advent of private domestic and multinational players in this segment.

The retail outlet network of PSUs across the country stood at 26,606 as on March 2005. Private participation has also been on an aggressive footing. Reliance has acquired the license to set up 5,849 retail outlets. Till date it has set up over 400 retail outlets having an average throughput of 28,000 litres per outlet for petrol and 3, 52000 litres for diesel. The industry average per outlet for petrol and diesel is 37,000 and 1, 23,000 litres respectively.

Other private companies, who have set up retail outlets, are Essar and Shell. Private participation in this segment is changing the way fuel was ever sold giving a new face to in line with the international standards.

INFRASTRUCTURE OVERVIEW

Infrastructure is the backbone of every economy. Quality infrastructure covering services of transportation, electricity, and communications among others are the most important necessities for unleashing high and sustained growth of the country.

India in its second generation reforms has laid a greater thrust on infrastructure through the federal Governments commitments made in the National Common Minimum Program.

In 2004-05, the infrastructure sector experienced mixed outcomes. The growth rate in many key sectors accelerated. Strong growth rates were witnessed in electricity, telecom, railway, ports, civil aviation, etc



GENERAL INFORMATION

WHAT IS TRADING?

In General:-

1. Buying or selling of goods and services among companies, states, or countries, called *commerce*. The amount of goods and services imported minus the amount exported makes up a country's Balance of Trade. *See also* Tariff; Trade Deficit.
2. Those in the business of selling products are called *members of the trade*. As such, they receive Discounts from the price the public has to pay.
3. Group of manufacturers who compete in the same market. These companies form trade associations and publish trade journals.
4. Commercial companies that do business with each other. For example, Accounts Payable to suppliers are called *trade accounts payable*; the term Trade Credit is used to describe accounts payable as a source of Working Capital financing. Companies paying their bills promptly receive *trade discounts* when available.
5. Synonymous with Barter, the exchange of goods and services without the use of money.

Securities: to carry out a transaction of buying or selling a stock, a bond, or a commodity future contract. A trade is consummated when a buyer and seller agree on a price at which the trade will be executed. A Trader frequently buys and sells for his or her own account securities for short-term profits, as contrasted with an investor who holds his positions in hopes of long-term gains.

Trading in wider sense includes all kinds of activities which includes production, supply, distribution, warehousing, insurance, logistics e.t.c. This is all what is included in this research as a meaning of trading of crude oil.

NEED FOR CRUDE OIL

For decades, commodity trading in petroleum products was a club for only the big guns. At 42 gallons per barrel, and a minimum contract size of 1,000 barrels, the prospect of delivering oil was only for professionals. But several changes have occurred in the last few years to alter the scene.

Oil prices remained stable for decades until the explosion of the mid-70s. Political and technological changes resulted in shortages, uncertainty and rising prices. Since then prices have risen to over \$70 per barrel and are expected to rise from mid-2006 to mid-2007 and then decline slightly for the following two years.

No one can predict oil prices with certainty, but there are several large scale factors that make reasonable projection possible.

Demand is rising, and is likely to continue for at least the next few years and probably longer. India and China are both experiencing substantial technological and cultural changes. India in particular is embracing more elements of a free-market economy than it ever has and the trend shows no signs of being reversed, or reversible.

Western technology and business methods are bringing India into the 21st century very rapidly. Along with that comes an increase in demand for energy, primarily oil-based, in order to build new homes, office buildings, manufacturing plants and more. Large segments of what was once a largely rural economy are seeing the effects. That leads to even more demand.

Demand isn't enough, of course. An individual can want anything. But India's ability to buy those goods is increasing. With an inexpensive, highly educated work force India is becoming the central focus for outsourcing for Information Technology, electronics manufacturing, communications and more. Those 21st century businesses are expected to continue to expand for at least the next decade. Just as one indication, broadband adoption is growing rapidly in India.



China now has the largest mobile phone use in the world, and the second largest Internet population. Demand for energy is increasing there and is expected to continue for the next decade at least. Though ostensibly ruled by the Communist Party, social forces are eroding its effectiveness. No one can know whether repression will ease or increase, but the flow of information is difficult to block even for a dictatorship.

As social changes continue, business is increasing in China. Energy demand is up. New buildings, manufacturing plants and infrastructure is constantly being built. All those require energy, primarily oil-based.

At the same time demand is rising, supply rates have becoming static or declined. Temporary refinery loss, such as that due to hurricanes, can be recovered in a few months to a year. But North Sea oil production peaked in 2000 and has been tapering off slowly. Until or unless political changes occur that release the large known reserves in Alaska, substantial new sources are unlikely to come into play. No new sources are expected to come online anywhere in the world.

Technology is leaning more toward developing other forms of energy, though they are not expected to be on the market for more than ten years. Fuel-cell powered cars, which would account for only 7% of gasoline use anyway, won't be in everyone's driveway for some years to come.

Political pressures to forbid nuclear power, at least in the U.S., are not expected to change. The waste disposal problem is still a political football with no solution in sight.

Finally, new forms of oil trading mechanisms are evolving to allow the average investor to participate in this once-exclusive club.

E-mini futures on the Chicago Mercantile Exchange, for example, allow for trading contracts half the traditional size, 500 barrels. Futures and options on NYMEX (New York Mercantile Exchange), though still at the 1,000 barrel size require less than 5% investment, putting them within reach of all. Commodities pools and funds (such as those



from Pimco and Oppenheimer), which allow investing fractional amounts, are becoming more popular.

The risk/reward balance was never more favorable for the average investor to investigate oil commodity trading.

CRUDE OIL TRADING IN INDIA

TABLE-4. INTERNATIONAL PETROLEUM STATISTICS

Item	Unit	1990	2000	2001	2002	2003	2004	2005
1	2	3	4	5	6	7	8	9
1. World Reserves :								
Oil & Gas at year end								
(i) Crude Oil	Bn. Tonne	136.5	142.7	143.0	156.7	161.8	163.6	164.5
of which OPEC	"	105.1	111.1	111.8	120.4	121.6	123.2	123.9
(ii) Natural Gas	Tr. Cu. ft.	4209	5302	5476.7	6205	6226	6348	6378
of which OPEC	"	1735	2343	2484	3106	3154	3127	3160
2. World Prodn. of Oil & Gas								
(i) Crude Oil	Mn. Tonne	3180	3595	3581	3562	3703	3865	3895
of which OPEC	"	1199	1500	1458	1376	1475	1591	1626
(ii) Natural Gas Net	Bn. Cu. Mtr.	1991	2436	2554	2532	2617	2704	2763
of which OPEC	"	211	384	399	415	433	460	483
3. World Oil Refinery								
(i) Refinery capacity at year end	Mn. Tonne/Year	3728	4079	4126	4137	4167	4232	4255
(ii) Crude throughput	Mn. Tonne	3099	3430	3467	3446	3539	3636	3674
4. World Oil Consumption								
(i) World Total	Mn. Tonne	3135	3519	3517	3563	3642	3799	3837
(ii) Main consuming areas ¹	"	1886	2101	2096	2119	2160	2252	2251
(iii) Consumption in main areas as % of world	%	60.2	59.7	59.6	59.5	59.3	59.3	58.7
5. World Imports/Exports								
(i) Crude Oil	Mn. Tonne	1188	1661	1684	1667	1770	1855	1885
(ii) Pol. Products	"	363	451	475	486	491	526	576
Total	"	1551	2112	2159	2153	2261	2381	2461
6. Export of Crude Oil/ Pol. from OPEC								
(i) Crude Oil	"	797	1020	974	881	950	1075	N.A.
(ii) Pol. Products	"	176	221	215	199	201	211	N.A.
Total	"	973	1241	1189	1080	1151	1286	N.A.
7. World Primary Energy Consumption								
	Mn. Tonne							
(i) Oil	Oil Eqv.	3135	3519	3517	3563	3642	3799	3837
(ii) Natural Gas	"	1771	2158	2220	2286	2343	2425	2475
(iii) Coal	"	2245	2217	2243	2412	2614	2799	2930
(iv) Hydro-Electric	"	189	617	585	593	604	643	669
(v) Nuclear Energy	"	517	585	601	611	598	625	627
Total	"	7857	9096	9166	9465	9801	10291	10538

¹: Includes USA, Germany, France, Italy, U.K., Japan, China, Russia, India and South Korea.

N.A.: Not Available.

Source : (i) BP Statistical Review of World Energy (ii) OPEC Annual Statistical Bulletin



TABLE-5. PRIMARY COMMERCIAL ENERGY CONSUMPTION IN INDIA

Source	Unit	1990-91	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
1	2	3	4	5	6	7	8	9
1. Pol.Products (incl. RBF)	MMT	57.75	106.97	107.71	111.78	115.99	120.17	121.05
2. Natural Gas (net)	BCM	12.77	27.86	28.04	29.96	30.91	30.78	31.33
3. Coal	MMT	211.73	309.63	327.79	341.29	361.25	382.61	405.20
4. Lignite	MMT	13.77	22.95	24.81	26.02	27.96	30.34	32.53
5. Electricity (incl.Non-utilities)	Bn.KWH	289.40	554.50	579.10	596.50	633.30	680.00	730.32

* : Provisional.

MMT: Million Metric Tonnes

BCM: Billion Cubic Metres

N.B.: Data reflects despatches of Coal/Lignite (incl. stock differential).

Source: Ministry of Finance / Economic Survey.

TABLE-6. OIL AND GAS RESERVES

AREA	1990	2000	2001	2002	2003	2004	2005	2006
1	2	3	4	5	6	7	8	9
CRUDE OIL (Million Metric Tonnes)								
Onshore	307	317	326	332	339	357	376	387
Offshore	432	386	406	409	422	382	410	369
Total	739	703	732	741	761	739	786	756
NATURAL GAS (Billion Cubic Metres)								
Onshore	229	299	301	315	327	339	340	330
Offshore	457	461	462	436	527	584	761	745
Total	686	760	763	751	854	923	1101	1075

Note: The oil and natural gas reserves (proved and indicated) data relate to 1st January for the year 1990 and thereafter 1st April of each year.

Source: ONGC, OIL and DGH.



TABLE-3. GROWTH OF INDIAN PETROLEUM INDUSTRY AT A GLANCE

Item	Unit	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
1	2	3	4	5	6	7	8
1. Reserves !							
(Balance Recoverable)							
(i) Crude Oil	Mn.Tonne	703	732	741	733	739	786
(ii) Natural Gas	Bn.Cub.Mtr.	760	763	751	854	923	1101
2. Consumption							
(i) Crude Oil	Mn.Tonne	103.44	107.27	112.56	121.84	127.42	130.11
(in terms of refinery crude throughput)							
(ii) Petroleum Products (excl. RBF)	"	100.07	100.43	104.13	107.75	111.63	111.92
3. Production :							
(i) Crude Oil	"	32.43	32.03	33.04	33.37	33.98	32.19
(ii) Petroleum Products	"	95.61	100.00	104.14	113.46	118.58	119.75
4. Imports & Exports							
(i) Gross Imports :							
(a) Qty : Crude Oil	Mn.Tonne	74.10	78.71	81.99	90.43	95.86	99.41
Pol. Products	"	9.27	7.01	6.74	7.90	8.83	11.68
Total (a)	"	83.37	85.72	88.73	98.33	104.69	111.09
(b) Value:Crude Oil	Rs.Billion	659.32	603.97	761.95	835.28	1170.03	1717.02
Pol.Products	"	120.93	72.49	82.06	96.77	148.88	255.75
Total (b)	"	780.25	676.46	844.01	932.05	1318.91	1972.77
Pol. Imports as per DGCI&S	"	714.97	667.70	853.67	945.20	1340.94	1946.40
(ii) Exports :							
(a) Qty :							
Pol. Products	Mn.Tonne	8.37	10.07	10.29	14.62	18.21	21.51
(b) Value:							
Pol.Products	Rs.Billion	76.72	82.19	108.68	167.81	299.28	247.85
(iii) Net Imports :							
(a) Qty : Crude Oil	Mn.Tonne	74.10	78.71	81.99	90.43	95.86	99.41
Pol. Products	"	0.90	-3.06	-3.55	-6.72	-9.38	-9.83
Total (a)	"	75.00	75.65	78.44	83.71	86.48	89.58
(b) Value:Crude Oil	Rs.Billion	659.32	603.97	761.95	835.28	1170.03	1717.02
Pol.Products	"	44.21	-9.70	-26.62	-71.04	-150.40	7.90
Total (b)	"	703.53	594.27	735.33	764.24	1019.63	1724.92
(iv) Unit Value of Crude oil imports(gross)	Rs./MT	8898	7673	9293	9237	12206	17272
5. India's Total Exports							
	Rs.Billion	2035.71	2090.18	2551.37	2933.67	3618.79	4548.00
6. Pol. imports as percentage of India's total exports							
(i) Gross Imports	%	38.3	32.4	33.1	31.8	36.4	43.4
(ii) Net Imports	%	34.6	28.4	28.8	26.1	28.2	37.9
7. Contribution of Oil Sector to Centre/State Resources							
(i) Royalty from crude oil	Rs.Billion	22.72	24.86	30.67	31.74	42.71	50.60
(ii) Royalty from gas	"	6.08	6.59	7.78	8.54	8.29	9.81
(iii) Oil Development Cess	"	27.28	28.78	50.91	51.43	55.37	51.96
(iv) Excise & Custom duties	"	359.12	361.04	451.27	507.33	563.95	N.A.
(v) Sales Tax	"	233.75	200.90	297.41	328.49	390.00	N.A.
(vi) Dividend	"	34.82	32.87	67.94	63.10	94.36	N.A.
8. Natural Gas :							
(i) Gross Production	Bn.Cub.Mtr.	29.477	29.714	31.389	31.962	31.763	32.202
(ii) Utilisation	"	27.860	28.037	29.963	30.906	30.775	31.325

* : Provisional.

! : As on 1st April of initial year.

N.A.: Not Available.

Source: Public Sector Undertakings / DGCI&S, Kolkata / Ministry of Finance



MEANING OF PUBLIC AND PRIVATE

A **public company** often refers to a company which either has or does offer its securities (i.e., stock, options, bonds, etc.) for sale to the general public, provided such shares have not later been redeemed (or bought back) by the company. Typically, the securities of a public company are owned by a large number of investors while the shares of a private company are owned by relatively few shareholders. However, a company with a large number of shareholders is not necessarily a public company.

A public company has several advantages. It is able to raise funds and capital through the sale of its securities. This is the reason why public corporations are so important, historically; prior to their existence, it was very difficult to obtain large amounts of capital for private enterprises. In addition to the ease of raising capital, public companies may use issue their securities as compensation for those that provide services to the company, such as their directors, officers and employees. While private companies may also issue their securities as compensation for services, the recipient of those securities often have difficulty selling those securities on the open market. Securities from a public company, typically have an established fair market value at any given time as determined by the price the security is sold for on the stock exchange where the security is traded.

The primary disadvantages of being a public company includes increased government regulations that the company must comply with such as reporting and disclosure requirements, which can be costly to comply with and may also provide competitors with information about the company's activities



COMPANIES INTO THE BUSINESS

Companies in Upstream

Public Companies:-

1. Oil and Natural Gas Corporation Limited (ONGC)
2. Oil India Limited (OIL)

Private Companies:-

1. Reliance Industries Limited
2. Hindustan Oil Exploration Company Limited
3. Essar Oil Limited
4. TATA
5. Enpro

Foreign Companies into India:-

1. British Gas
2. Cairne Energy
3. Canoro Resources Ltd. (Canada)
4. Geoglobal Resouces (Canada)
5. Geopetrol (France)
6. Hardy Exploration (U.K)
7. Niko (Canada)
8. Gazprom (Russia)
9. Okland (U.S)
10. Marubeni (Japan)
11. Tullow (Ireland)
12. Premier (U.K)
13. Polish Oil and Gas Company



Companies in Midstream & Downstream

Public companies:-

- 1. Indian Oil Corporation Limited**
- 2. Bharat Petroleum**
- 3. Hindustan Petroleum**
- 4. IBP**
- 5. Oil and Natural Gas Corporation Limited**
- 6. Gas Authority of India Limited**
- 7. Petronet LNG Limited**

Private Companies:-

- 1. Reliance Industries Limited**
- 2. Essar Oil Company Limited**
- 3. Petronet India Limited**
- 4. Shell**

Indian Companies in Overseas

- 1. ONGC Vidhesh Limited**
- 2. Oil India Limited**
- 3. Indian Oil Corporation Limited**
- 4. Hindustan Petroleum Corporation Limited**
- 5. Gas Authority of India Limited**
- 6. Engineers India Limited**
- 7. Reliance Industries Limited**
- 8. Balmer-Lawrie**



BRIEF DESCRIPTION ABOUT THE COMPANIES

Public Companies in Upstream:-

- 1. Oil and Natural Gas Corporation Limited**
- 2. Oil India Limited**

Oil and Natural Gas Corporation Limited

Oil and Natural Gas Corporation Limited (ONGC) (incorporated on June 23, 1993) is a public sector petroleum company based in Dehradun, India. It is a Fortune Global 500 company, and contributes 77% of India's crude oil production and 81 % of India's natural gas production. It is the highest profit making corporation in India. It was set up as a commission on August 14, 1956. Indian government holds 74.14% equity stake in this company.

- Is Asia's best Oil & Gas company, as per a recent survey conducted by US-based magazine 'Global Finance'.
- Ranks as the 2nd biggest E&P company (and 1st in terms of profits), as per the Platts Energy Business Technology (EBT) Survey 2004
- Ranks 24th among Global Energy Companies by Market Capitalization in PFC Energy 50 (December 2004). [ONGC was ranked 17th till March 2004, before the shares prices dropped marginally for external reasons.
- Is placed at the top of all Indian Corporates listed in Forbes 400 Global Corporates (rank 133rd) and Financial Times Global 500 (rank 326th), by Market Capitalization.
- Is recognized as the Most Valuable Indian Corporate, by Market Capitalization, Net Worth and Net Profits, in current listings of Economic Times 500 (4th time in a row), Business Today 500, Business Baron 500 and Business Week.

- Has created the highest-ever Market Value-Added (MVA) of Rs. 24,258 Crore and the fourth-highest Economic Value-Added (EVA) of Rs. 596 Crore, as assessed in the 5th Business Today-Stern Stewart study (April 2003), ahead of private sector leaders like Reliance and Infosys. ONGC is the only Public Sector Enterprise to achieve a positive MV A as well as EVA.
- Is targeting to have all its installations (offshore and onshore) accredited (certified) by March 2005. This will make ONGC the only company in the world in this regard.
- Owns and operates more than 11000 kilometers of pipelines in India, including nearly 3200 kilometers of sub-sea pipelines. No other company in India operates even 50 per cent of this route length.
- Crossed the landmark of earning Net Profit exceeding Rs.10,000 Crore, the first to do so among all Indian Corporates, and a remarkable Net Profit to Revenue ratio of 29.8 per cent. The growth in ONGC's profits is not solely due to deregulation in crude prices in India, as deregulation has affected all the oil companies, upstream as well as downstream, but it is only ONGC which has exhibited such a performance (of doubling turnover and profits).
- Has paid the highest-ever dividend in the Indian corporate history.
- Its 10 per cent equity sale (India's highest-ever equity offer) received unprecedented Global Investor recognition. This was a landmark in Indian equity market, establishing beyond doubt, the respect ONGC's professional management commands among the global investor community. According to a report published in 'The Asian Wall Street Journal (Hongkong)', ONGC's Public Issue brought in 20 Foreign Institutional Investors (FIIs) to India, as (it was reported), 'they could not ignore the company representing India's energy security'.
- The Market Capitalization of the ONGC Group (ONGC & MRPL) constitutes 10 per cent of the total market capitalization on the Bombay Stock Exchange (BSE).



ONGC has an equity weightage of 5 per cent in Sensex; 15 per cent in the Nifty (the only Indian corporate with a two-digit presence there); ONGC commands a 7 per cent weightage in the Morgan Stanley Capital International (MSCI) Index.

- The growth in ONGC's Market Capitalization (from Rs. 18,500 Crore before May 2001 to Rs. 1,25,000 Crore in January 2004) is unprecedented and except Wipro (who had a higher market capitalization temporarily), no other Indian company (either in public or private sector) has seen such a phenomenal growth.
- ONGC has come a long way from the day (a few years back) when India and ONGC did not figure on the global oil and gas map. Today, ONGC Group has 14 properties in 10 foreign countries. Going by the investments (Committed: USD 2.708 billion, and Actual: USD 1.919 billion), ONGC is the biggest Indian Multinational Corporation (MNC).
- ONGC ended the sectoral regime in the Indian hydrocarbon industry and benchmarked the globally- established integrated business model; it took up 71.6 per cent equity in the Mangalore Refinery & Petrochemicals Limited (MRPL), and also took up a 23 per cent stake in the 364-km-long Mangalore-Hasan-Bangalore product Pipeline, connecting the refinery to the Karnataka hinterland. By turning around MRPL in 368 days, ONGC has set standards of public sector companies reviving joint (or private) sector companies, proving that in business, professionalism matters, not ownership.

ONGC is engaged in exploration and production activities. It is involved in exploring and exploiting hydrocarbons in 26 sedimentary basins of India. It produces about 30% of India's crude oil. It owns and operates more than 11,000 kilometers of pipelines in India. Until recently (March 2007) it was the largest company in terms of market cap in india



ONGC IN OVERSEAS

ONGC's overseas arm ONGC Videsh Limited (OVL), has laid strong foothold in a number of lucrative acreages, some of them against stiff competition from international oil majors.

OVL has so far, acquired 15 properties in 14 foreign countries, and striving to reach out further

OVL's projects are spread out in Vietnam, Russia, Sudan, Iraq, Iran, Lybia, Syria, Myanmar, Australia, and Ivory Coast. It is further pursuing Oil and gas exploration blocks in Algeria, Australia, Indonesia, Nepal, Iran, Russia, UAE and Venezuela.

- Production Sharing Contract in Vietnam for gas field having reserves of 2.04 TCF, with 45 per cent stake in partnership with BP and Petro Vietnam. Gas production has commenced from January 2003.
- 20 per cent holding in the Sakhalin-1 Production Sharing Agreement. The US \$ 1.77 billion investment in Sakhalin offshore field is the single largest foreign investment by India in any overseas venture and the single largest foreign investment in Russia. It is scheduled to go on production during 2005-06
- Acquired 25 per cent of equity in the Greater Nile Oil Project in Sudan, the first producing oil property. ONGC Nile Ganga BV, a wholly-owned subsidiary, has been set up in the Netherlands to manage this property. Around 3 Million Tonnes of crude oil is coming to India annually from this project. This is the first time that equity crude of a group of companies in India is being imported into India for refining by the group



- Discovered a world-class giant gas field 'Shwe' in Block A-1 (where OVL has 20 per cent share) in Myanmar, with estimated recoverable reserve of 4 to 6 trillion cubic feet of gas.
- Besides taking equity in oil & gas blocks and looking for stakes in E&P companies, OVL is also bagging prospective contracts (like the refinery upgradation and pipeline contracts in Sudan, awarded to OVL on nomination basis due to its performance in that country), which will increase ONGC's equity oil basket. ONGC's strategic objective of sourcing 20 million tones of equity oil abroad per year is likely to be fulfilled much before 2020. In fact, OVL is now eyeing a long-term target of 60 MMT of Oil equivalent per year by 2025.
- Going by the investments (Committed: US \$ 4.3 billion, and Actual: US \$ 2.75 billion), ONGC is the biggest Indian Multinational Corporation (MNC).

OIL INDIA LIMITED

Oil India Limited (OIL) is a premier Indian National oil company under the administrative control of Ministry of Petroleum and Natural Gas, Govt. of India. OIL is engaged in the business of Exploration, Development and Production of Crude Oil and Natural Gas, Transportation of Crude Oil and Production of LPG. The Company has over 1 lakh sq. km. of license areas. Oil India Limited is the pioneer in exploration and production of hydrocarbon in India, has been serving the nation for over four decades. Oil India is an integrated upstream petroleum company performing the following main activities:

- Exploration for hydrocarbons.
- Production of crude oil and natural gas.
- Transportation of crude oil to refineries.
- Supply of gas to consumers.
- Extraction and bottling of LPG.



Oil India owns and operates a wide array of facilities and equipment to carry out seismic and geodetic work, 2D and 3D data acquisition, processing and analysis, onshore and offshore drilling, oil and gas field development and production, LPG production and other ancillary services to make it a fully integrated E&P company.

2. The Company has been steadily improving its performance year after year in the areas of production, sales, accretion to reserves, etc. The physical and financial performances in the last three years are as follows:

	2002-03	2003-04	2004-05
<u>Production</u>	2.950	3.002	3.196
• Crude Oil (MMT)	1743.311	1887	2009.895
• Natural Gas (MMSCUM)			
• LPG (MT)	54,320	51,500	49,500
<u>Sale</u>	3.20	3.35	3.104
• Crude Oil (MMT)	1237.300	1378	1471.958
• Natural Gas (MMSCUM)			
• LPG (MT)	53,894	51,115	50,086
<u>Financial Performance</u>	<u>Audited</u>	<u>Audited</u>	<u>Un-Audited</u>
• Net Worth (Rs./Crore)	3456.90	4028.66	4670.28
• Sales / Operating Income (Rs./Crore)	2896.83	3145.03	4638.03
• PAT (Rs./Crore)			946.36
• Dividend (%age)	916.73	949.70	
• EPS (Rs. Share)	130%	140%	Interim
• Book Value / Share (Rs./Share)			60%*



	42.84	44.38%	44.22
	161.53	188.25	217.94



* An interim dividend @60% was paid for the year 2004-05. Final dividend has not yet been declared. However, as per the past practice, total dividend in any case will not be less than 30% of PAT.

3. Oil India, which has traditionally been producing around 3 MMTPA of crude and 5 MMSCMD of natural gas, has recently embarked on an overall performance-improvement exercise. It has been successful in arresting the declining trend in production of crude oil from its ageing fields in the North-East region by application of latest technology and equipment. It has, in fact, recorded a growth of 20 per cent in the last 18 months. It is worth mentioning that over the years the Reserve Accretion Ratio for Oil India has consistently been over 1. The company is optimistic of continuing with its growth plan and expects to achieve 4.00 MMTPA of crude oil and 7 MMSCM of natural gas in the next financial year, i.e.2006-07.
4. Asia's first cross-country Pipeline is owned and operated by Oil India. This 1157 KM long pipeline traverses through three states, viz. Assam, West Bengal and Bihar, is the lifeline of the North-East as it carries the crude oil, which is very vital for the survival of the four Refineries in the region.
5. The Company is currently in the process of constructing a 660 KM long Product Pipeline from Numaligarh to Siliguri. The Pipeline, when commissioned in early 2006, is expected to solve the product evacuation problem of the modern and state-of-the-art Numaligarh Refinery which has been set up under the Assam Accord with the objective of creating all-round socio-economic development in the State.
6. The Company's operational areas are spread in the states of Assam, Arunachal Pradesh, Orissa, Rajasthan, Uttar Pradesh and Uttaranchal. Active participation in the NELP bids has helped the Company to acquire interests in 13 Blocks and with Operatorship in five of them. Out of the balance eight Blocks, five Blocks are in deep sea, wherein ONGCL is the operator with participating interest in the range of 15-20%. The Company is determined to aggressively bid for Blocks offered in the NELP-V Rounds which is due for closure on 31.5.2005.



7. Oil India has identified acquisition of overseas exploration and production ventures as an essential requirement for fast growth. The Company already has participating interests in various overseas projects, such as, in Iran, Cote d'Ivoire, and Sudan. It has recently formed a 50:50 strategic alliance with Indian Oil Corporation Limited (IOC) to jointly pursue exploration and production opportunities abroad and to achieve synergy in the downstream sector. This consortium has achieved a major breakthrough in its maiden attempt by winning a Block in the highly prospective Sirte Basin in Libya with the Operatorship for Oil India, against competitive bidding.

As a corporate citizen, Oil India has always been and is conscious of its responsibility towards Socio-Economic Development. The Organization's deep commitment towards this objective is obvious from the fact that it has adopted a separate Vision Statement for this purpose. The Company earmarks a substantial amount annually for carrying out socio-economic initiatives, which also include health care and education, in all the areas where it has operations.

Private Companies in Upstream:-

1. **Reliance Petroleum Limited**
2. **Hindustan Oil Exploration Company Limited**
3. **Essar Oil Limited**
4. **TATA**
5. **Enpro**



RELIANCE PETROLEUM LIMITED

Reliance Industries (NSE: RELIANCE) is India's largest private sector company with a turnover of US \$19.976 billion and profit of US \$2.033 billion for the fiscal year ending in March 2006 making it India's first and only private sector Fortune 500 company. [3] It was founded by the late Dhirubhai Ambani in the 1970s. After severe differences between the two sons of the founder Dhirubhai Ambani, the group was divided between the two sons Mukesh and Anil Ambani in 2006

India imports about two-thirds of its crude oil requirement. Exploration and production of oil and gas is critical for India's energy security and economic growth. Reliance's oil and gas exploration and production business is therefore inexorably linked with the national imperative. Exploration and production, the initial link in the energy and materials value chain, remains a major growth area and Reliance envisions evolving as a global energy major.

Over the years the E&P industry has registered significant growth, primarily due to spiraling crude oil and gas prices. With growing competition and ever growing demand for energy, especially from developing countries, the focus is on energy security. India's share is a meagre 0.5 % of global oil reserves of 1,189 billion bbl, while it consumes 3.2 % of global oil consumption every year.

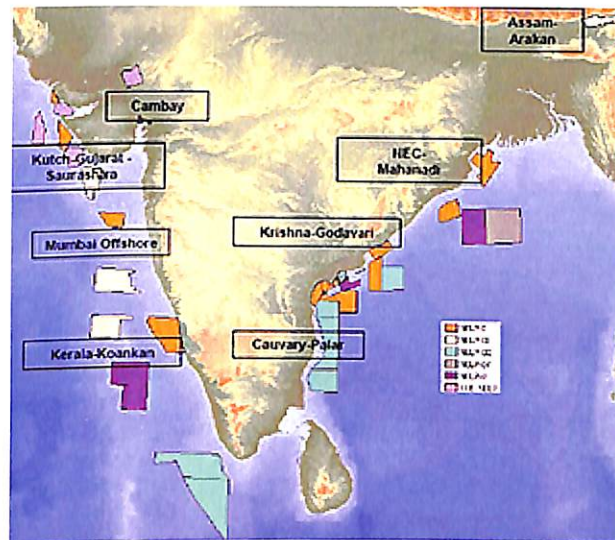
The growing demand for crude oil and gas in the country and policy initiative of Government of India towards increased E&P activity, have given a great impetus to the Indian E&P industry raising hopes of increased exploration.

Under the New Exploration Licensing Policy (NELP) of Government of India, blocks have been acquired by various E&P companies for exploration. The efforts have resulted in a number of oil and gas discoveries in India and have changed the perception and prospects of the Indian sedimentary basins and the focus on Indian E&P Industry.

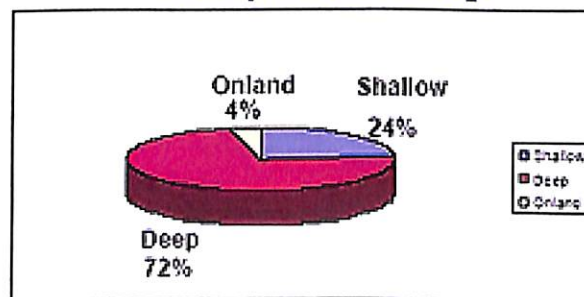


RIL is the largest Oil & Gas acreage holder among the Private sector companies in India with 34 domestic exploration blocks covering an area of about 331,000 sq. km. This is in addition to its interest in one exploration block each in Yemen and Oman RIL also has 5 coal bed methane (CBM) blocks covering an area of about 4,000 sq. km.

RIL is India's first private sector company in the Exploration and Production (E&P) sector to have discovered large gas reserves. The E&P strategy of RIL is aimed at further enhancing the level of vertical integration in its energy business, and realising value across the entire energy chain, while fulfilling important national priorities



RIL Exploration Acreage





In the years to come, RIL is well positioned to be amongst the largest value creators in the upstream oil and gas sector. RIL's portfolio of E&P assets, gives it the potential to create value across entire value chain from wellhead to burner tip. Accretion of new reserves through exploration, development of existing oil and gas reserves and development of related downstream infrastructure facilities would result in significant value creation for RIL in future. RIL has achieved a high success rate of 74 % in terms of discoveries made from the wells drilled thus far, excluding wells under evaluation.

Panna Mukta Tapti (PMT) Blocks:

RIL holds a 30 % interest in an unincorporated Joint Venture with British Gas and ONGC, to develop the proven Panna-Mukta and Tapti oil and gas fields. British Gas and ONGC have a 30 % and 40 % share in the fields respectively. The PMT JV commenced direct marketing of gas from April 1, 2005. The JV is supplying gas to consumers like Gujarat State Petroleum Corporation, Indian Petrochemicals Corporation Limited, Gujarat Gas Company Limited, Gas Authority of India Limited etc. The Panna-Mukta fields produced 1.57 Million MT of crude oil and 46.70 billion cubic feet of gas during the year compared to 1.32 Million MT of crude oil and 47.15 billion cubic feet of gas produced during the previous year. The Tapti field produced around 78.99 billion cubic feet of gas during the year compared to 74.79 billion cubic feet of gas produced during the previous year. The PMT JV is in a rapid phase of development and is implementing expanded plan of development (EPOD) of Panna Mukta field and new revised plan of development (NRPOD) for Tapti. EPOD is likely to result in additional recovery of oil and gas of 4.1 Million MT and 237 billion cubic feet from December 2006. The plan for expanded development of Tapti field would result in additional gas of 210 MMSCFD from 2007.

NELP and Pre-NELP Blocks:

12 exploration blocks were awarded under the 1st round of the NELP, 4 exploration blocks in the 2nd round, 9 blocks in the 3rd round and one block in the 4th round of NELP. RIL has been awarded 5 more exploration blocks in the financial year ended March 31, 2006, in the 5th round of NELP. The Production Sharing Contract has been signed and petroleum exploration license for four blocks awarded during the year has already been obtained. RIL and various partners, including ONGC Ltd. and Oil India Ltd., were awarded two exploration blocks prior to NELP. The Company has also acquired the operating rights of four exploration blocks from Tullow Oil plc, a UK Company. During the year 2005-06, RIL struck oil in the shallow waters of KG basin in KG-III-6 Block (KG-OSN-2001/2). Currently, commerciality of this discovery is under evaluation. Building on the major Dhirubhai gas discovery, RIL continued exploratory drilling campaign in the KG-DWN-98/3 block. 3 more exploratory wells and 2 development wells were drilled, confirming upside potential of the block and also helped in reducing the reservoir risk. The Development Plan of Dhirubhai 1 and 3 discoveries have already been approved by Government of India and are on track. Based on the upside potential of the block, options of higher plateau production from the fields is being evaluated.

Coal Bed Methane (CBM) Blocks:

The exploration in the CBM block of RIL is also progressing as per plan. Gas In Place (GIP) estimates of 3.65 TCF has been concurred by the Director General of Hydrocarbons (DGH) for Sohagpur East and West Blocks. Plans are being made to produce commercial CBM for the first time in the country by 2009.

Overseas Blocks:

RIL has interests in exploration of overseas blocks, one each in Yemen and Oman. RIL had oil discoveries in the on shore Malik 9 block in Yemen. The development plan for the block has been approved by the Republic of Yemen and test production commenced



in December 2005. In the Oman offshore block where RIL is the Operator, the existing seismic data has been collected and 2D reprocessing of data is underway. RIL has also signed a Technical Evaluation Agreement with ANH (Columbia's hydrocarbon regulator) and also entered into a co-operation agreement with Ecopetrol (National Oil Company of Columbia) for farm-in opportunities in that country.

COMPANIES IN MIDSTREAM AND DOWNSTREAM

Public Companies in Midstream and Downstream:-

- 1. Indian Oil Corporation Limited**
- 2. Bharat Petroleum Corporation Limited**
- 3. Hindustan Oil Corporation Limited**
- 4. Gas Authority of India Limited**
- 5. Petronet LNG Limited**
- 6. Oil and Natural Gas Corporation Limited**

INDIAN OIL CORPORATION LIMITED



IndianOil

Indian Oil Corporation Ltd. (IOCL) was formed in 1964 through the merger of Indian Oil Company Ltd. (Estd. 1959) and Indian Refineries Ltd. (Estd. 1958). IOCL is India's largest oil company and the largest PSU company in terms of revenue. As the name

suggests its interests are in Petroleum sector. It is involved in the refining and retailing of petroleum products

1. Indian Oil is the highest ranked Indian company in the prestigious Fortune Global 500 listing, having moved up 17 places to the 153rd position (in 2006) based on fiscal 2005 performance.
2. It is also the 18th largest petroleum company in the world and the # 1 petroleum trading company among the National Oil Companies in the Asia-Pacific region.
3. IOCL was featured on the Forbes Global 2000 list for 2005 at position 311

It is currently India's largest company by sales with a turnover of Rs. 1,83,204 crore (US \$ 41 billion) and profits of Rs. 4,915 crore (US \$ 1.10 billion) for fiscal 2005.

IndianOil is also the highest ranked Indian company in the prestigious Fortune 'Global 500' listing, having moved up 17 places to the 153rd position this year based on fiscal 2005 performance. It is also the 21st largest petroleum company in the world and the # 1 petroleum trading company among the National Oil Companies in the Asia-Pacific region.

India's Downstream Major

IndianOil and its subsidiaries account for 47% petroleum products market share among public sector oil companies, 43.5% national refining capacity and 74% petroleum products pipeline capacity.

For the year 2005-06, the IndianOil group sold 54.6 million tonnes of petroleum products, including 2.09 million tonnes through exports.

The IndianOil Group of companies owns and operates 10 of India's 18 refineries with a combined refining capacity of 60.20 million tonnes per annum (1.2 million barrels per day). These include two refineries of subsidiary Chennai Petroleum Corporation Ltd. (CPCL) and one of Bongaigaon Refinery and Petrochemicals Limited (BRPL).



The Company's cross-country crude oil and product pipelines network spanning over 9,000 km meets the vital energy needs of the country.

To maintain its competitive edge and leadership status, IndianOil is investing Rs. 24,400 crore (US \$ 5.5 billion) during the X Plan period (2002-07) in integration and diversification projects, besides refining and pipeline capacity augmentation, product quality upgradation and expansion of marketing infrastructure.

BHARAT PETROLEUM CORPORATION



On 24th January 1976, the Burmah Shell Group of Companies was taken over by the Government of India to form Bharat Refineries Limited. On 1st August 1977, it was renamed Bharat Petroleum Corporation Limited. It was also the first refinery to process newly found indigenous crude (Bombay High), in the country.

An agreement to build a modern refinery at Trombay, Bombay was signed between the Burmah Shell group of companies and the Government of India on 15th December 1951.

Burmah Shell Refineries Limited was incorporated as a private limited company under the Indian Companies Act on 3rd November 1952, and work began on the marshland of Trombay at Bombay. Man and machine worked relentlessly, and soon the swamps gave way to towers and tanks of steel, and miles of pipeline.

The refinery on 454 acres of land at village Mahul went on-stream on 30th January 1955, one year ahead of schedule. Dr. S. Radakrishnan, Vice President of India, declared the 2.2 MMTPA (Million Metric Tonnes Per Annum) Refinery open on 17th March 1955. It was then the largest refinery in India then. With this infrastructure, free India moved one step closer to self-reliance.



HINDUSTANPETROLEUM CORPORATION LIMITED



HPCL a Fortune 500 company, with an annual turnover of over Rs 74,044 crores, 20% refining & marketing share in India and a strong market infrastructure. The Corporation operates 2 major refineries producing a wide variety of petroleum fuels & specialities, one in Mumbai (West Coast) of 5.5 MMTPA capacity and the other in Vishakapatnam (East Coast) with a capacity of 7.5 MMTPA. HPCL holds an equity stake of 16.95% in Mangalore Refinery & Petrochemicals Limited, a state-of-the-art refinery at Mangalore with a capacity of 9 MMTPA. In addition, HPCL is progressing towards setting up of a refinery in the state of Punjab.

HPCL also owns and operates the largest Lube Refinery in the country producing Lube Base Oils of international standards. With a capacity of 335,000 Metric Tones this Lube Refinery accounts for over 40% of the country's total Lube Base Oil production.

The vast marketing network of the Corporation consists of Zonal offices in the 4 metro cities and 85 regional offices facilitated by a supply & distribution infrastructure comprising Terminals, Aviation Service Stations, Bottling Plants, and Inland Relay Depots & Retail Outlets.

The Corporation over the years has moved from strength to strength on all fronts. Our refining capacity steadily increased from 5.5 million tonnes in 1984/85 to 13.82 million tonnes presently. On the financial front, the turnover grew from Rs. 2687 crores in 1984-85 to an impressive Rs 74,044 crores in 2005 - 06.

Without refining, the rich resources of crude petroleum of nature would remain latent. Value-added products from crude petroleum like petrol, diesel, kerosene, liquefied petroleum gas, naphtha and many more products would not be available for growth and development of a nation.



The two coastal refineries at Mumbai and Vishakhapatnam and one joint venture refining facility at Mangalore Refinery & Petrochemicals Limited have been sustaining almost 20% of India's refining requirements. HPCL refineries upgrade the crude petroleum into many value-added products and over 300 grades of lubricants, specialties and greases. The Lubricating Oils Refinery set up at Mumbai is largest refinery in India.

The refinery produces superior quality lube base oils. The offsite product handling facilities of refineries at Mumbai and Vishakhapatnam has been automated. Projects have been implemented and facilities upgraded to produce green fuels like unleaded petrol and low sulphur diesel.

The refineries have been benchmarked by an international agency for various performance parameters. Numerous awards have been bestowed on both the refineries in recognition of the efforts in the field of energy conservation, environment and safety.

Since its introduction in 1955, LPG consumption has increased manifold. It has become the household fuel of choice. At last count, HPCL had nearly 22 million domestic LPG consumers.

HP Gas, the HPCL brand of LPG, is bottled at 40 plants spread across the country with a total capacity of 2000 TMT Per Annum.

Safety is ensured at every stage, from bottling to distribution, by subjecting all related operations to the closest scrutiny and conforming to international safety standards, making HP Gas the safe, convenient fuel our consumers have come to trust.

Exiting developments have taken place in the LPG section. In its endeavour to improve the customer satisfaction, HPCL has launched the 'Ji Haan', services in 2002, aimed at reinforcing a strong positive service orientation of HP Gas.



Basis research finding on customers apprehension on the weight of gas in cylinders, HP Gas has, since last year, provided weighing scales to all its delivery boys across the country, given the customer an option to weigh the cylinders at their doorsteps

The Reticulated system or Piped LPG for domestic use is a value addition to customers, with a view to enhance safety, loyalty and uninterrupted supply of gas to households. In this direction, HPCL has successfully installed reticulated supply in Mumbai, Pune, Jaipur, Cochin, Delhi, Visakh, Hyderabad, Kolkata and Bangalore covering more than 1600 flats.

Rural India is an emerging potential market and no business venture can afford to ignore it. However, the specific barriers to the penetration of LPG in rural India are cost - both one-time and recurring - non-availability of LPG owing to a poor distribution system, easy availability of alternative, cheap fuel and low level of product awareness and its benefits. HP GAS has charted out a detailed strategy to address all these barriers and entered rural markets with the launch of 5 Kg cylinders..

As part of its social commitment as a responsible corporate, HPCL has introduced an innovative scheme, HP GAS Rasoi Ghar or the concept of community kitchen, for the upliftment of the poorest of the poor by providing a common cooking platform for a village, where users have to pay only on the basis of the time utilized for cooking. This eliminates both the barriers of one-time high deposit as well as the recurring cost of refills. The company is already operating nearly 1024 such Rasoi Ghars across the country, benefiting more than 15,000 families. Moreover, stalls have been set up in major rural melas such as Pushkar Mela, Sonpūr Mela and the like to increase awareness of the benefits of LPG.



GAIL AUTHORITY OF INDIA LIMITED

GAIL (India) Limited, is India's flagship Natural Gas company, integrating all aspects of the Natural Gas value chain (including Exploration & Production, Processing, Transmission, Distribution and Marketing) and its related services. In a rapidly changing scenario, we are spearheading the move to a new era of clean fuel industrialisation, creating a quadrilateral of green energy corridors that connect major consumption centres in India with major gas fields, LNG terminals and other cross border gas sourcing points. GAIL is also expanding its business to become a player in the International Market.

Today, GAIL's Business Portfolio includes:

- 5,800 km of Natural Gas high pressure trunk pipeline with a capacity to carry 130 MMSCMD of natural gas across the country
- 7 LPG Gas Processing Units to produce 1.2 MMTPA of LPG and other liquid hydrocarbons
- North India's only gas based integrated Petrochemical complex at Pata with a capacity of producing 3,10,000 TPA of Polymers
- 1,922 km of LPG Transmission pipeline network with a capacity to transport 3.8 MMTPA of LPG
- 30 oil and gas Exploration blocks and 3 Coal Bed Methane Blocks
- 13,000 km of OFC network offering highly dependable bandwidth for telecom service providers
- Joint venture companies in Delhi, Mumbai, Hyderabad, Kanpur, Agra, Lucknow, Bhopal, and Pune, for supplying Piped Natural Gas (PNG) to households and commercial users, and Compressed Natural Gas (CNG) to the transport sector
- Participating stake in the Dahej LNG Terminal and the upcoming Kochi LNG Terminal in Kerala
- GAIL has been entrusted with the responsibility of reviving the LNG terminal at Dabhol as well as sourcing LNG

- Established presence in the CNG and City Gas sectors in Egypt through equity participation in three Egyptian companies: Fayum Gas Company SAE, Shell CNG SAE and National Gas Company SAE.
- Stake in China Gas Holding to explore opportunities in the CNG sector in mainland China
- A wholly-owned subsidiary company GAIL Global (Singapore) Pte Ltd in Singapore

GAIL has a market share of 87% of the gas transmission business and 73% of the gas marketing business in India

GAIL's vast operations and projects include:

- Over 5,840 kms of Natural Gas high-pressure trunk pipelines
- Trunk Pipelines with the capacity to carry 130 MMSCMD of Natural Gas across India
- Supplying nearly 70 million cubic metres of Natural Gas per day as fuel to power plants for generation of about 5200 MW of power, as feedstock for gas-based fertilizer plants to produce about 11 MMTPA of urea and to over 500 other small, medium and large industrial units to meet their energy and process requirements.
- Our 2,800 km long Hazira-Vijaipur-Jagadishpur (HVJ) pipeline and 610 km Dahej-Vijaipur pipeline (DVPL), between them, cater to all the gas based power plants, fertilizer plants, and industries along the entire West-North corridor of India.

We also provide access to our pipelines, to third parties, for the transmission of Natural Gas. Currently GAIL transports about 8 MMSCMD of Natural Gas on behalf of various shippers

By 2009-10, the Indian Gas Market is expected to be 66% bigger and its dependence on imported LNG is expected to increase from 22% to 38% of the total gas trade. India has



plans to import about 25-27 MTPA of LNG in the next 5-6 years. As a dominant player in the gas market, GAIL is poised to play a major role in LNG sourcing and creation of pipeline infrastructure to complete the chain of energy security that the Indian Government intends to pursue. Countries like Abu Dhabi, Oman, Yemen, Nigeria, Malaysia, Indonesia and Australia are important prospects that GAIL is currently exploring actively for LNG sourcing.

GAIL has co-promoted Petronet LNG Ltd (PLL), along with oil majors Oil and Natural Gas Corporation (ONGC), Indian Oil Corporation (IOC) and Bharat Petroleum Corporation Limited (BPCL) for the import of LNG into India. PLL imports Natural Gas in the liquefied form (LNG) from Ras Laffan Liquefied Natural Gas Company Ltd, Qatar, regasifies the LNG at its terminals at Dahej (Gujarat) and sells the Reliquified Natural Gas (RLNG) to users. PLL has a capacity of 5 MTPA (million tonnes per annum) RLNG. GAIL's exemplary credentials in gas transmission and marketing have led to its appointment, by the Government of India, as the sole transporter and principal marketer of RLNG produced by PLL. Currently, GAIL markets about 11 MMSCMD of RLNG from the Dahej terminal and transports about 18 MMSCMD

The Government of India has entrusted GAIL with the responsibility of reviving the LNG terminal at Dabhol in Maharashtra, as well as sourcing LNG for the terminal. GAIL has already signed a Sales Purchase Agreement for import of LNG from Iran for 2 MTPA (40% of the LNG being imported by India from Iran).

New-age Fuel

With only one carbon and four hydrogen atoms per molecule, Natural Gas has the lowest carbon to hydrogen ratio, hence it burns completely, making it the cleanest of fossil fuels. Natural Gas satisfies most of the requirements for fuel in a modern day industrial society, being efficient, non-polluting and relatively economical. The periodic uncertainties and volatility in both the price and supply of oil, have also helped Natural Gas emerge as a major fuel in the energy basket across countries.



Natural Gas comes in 4 basic forms:

- Liquefied Natural Gas, LNG - Natural Gas which has been liquefied at -160 Natural Gas is liquefied to facilitate transportation in cryogenic tankers across sea
- Regasified Liquefied Natural Gas, RLNG -
- Compressed Natural gas, CNG - Natural Gas compressed to a pressure of 200-250 kg/cm² used as fuel for transportation, CNG decreases vehicular pollution
- Piped Natural gas, PNG - Natural Gas distributed through a pipeline network that has safety valves to maintain the pressure assuring safe, uninterrupted supply to the domestic sector

Oil and Natural Gas Corporation Limited

The liberalized economic policy, adopted by the Government of India in July 1991, sought to deregulate and de-license the core sectors (including petroleum sector) with partial disinvestments of government equity in Public Sector Undertakings and other measures. As a consequence thereof, ONGC was re-organized as a limited Company under the Company's Act, 1956 in February 1994.

After the conversion of business of the erstwhile Oil & Natural Gas Commission to that of Oil & Natural Gas Corporation Limited in 1993, the Government disinvested 2 per cent of its shares through competitive bidding. Subsequently, ONGC expanded its equity by another 2 per cent by offering shares to its employees.

During March 1999, ONGC, Indian Oil Corporation (IOC) - a downstream giant and Gas Authority of India Limited (GAIL) - the only gas marketing company, agreed to have cross holding in each other's stock. This paved the way for long-term strategic alliances both for the domestic and overseas business opportunities in the energy value chain, amongst themselves. Consequent to this the Government sold off 10 per cent of its share holding in ONGC to IOC and 2.5 per cent to GAIL. With this, the Government holding in ONGC came down to 84.11 per cent.



In the year 2002-03, after taking over MRPL from the A V Birla Group, ONGC diversified into the downstream sector. ONGC will soon be entering into the retailing business. ONGC has also entered the global field through its subsidiary, ONGC Videsh Ltd. (OVL). ONGC has made major investments in Vietnam, Sakhalin and Sudan and earned its first hydrocarbon revenue from its investment in Vietnam.



PRIVATE COMPANIES IN MIDSTREAM AND DOWNSTREAM

RELIANCE INDUSTRIES LIMITED



Petroleum Refining and retailing is the second link in Reliance's drive for growth and global leadership in the core energy and materials value chain. Reliance operates the third largest refinery in the world at any single location, with a capacity of 30 million tons per year or 0.6 million barrels per day of crude throughput, at Jamnagar, Gujarat.

The Reliance petroleum refinery, first in the private sector in India, has now completed five years of successful operations. In January 2005, Reliance processed the 1,000 millionth barrel of crude oil. With the Jamnagar Refinery significantly improving domestic product availability, India has become a net exporter of petroleum products.

Reliance is in the process of doubling the petroleum refinery at Jamnagar, which will make it the largest petroleum refinery in the world. Reliance is also rolling out a state-of-the-art, pan-India petroleum retail network aimed at providing the Indian consumer with world-class retail experience.

We at Reliance are committed to total customer satisfaction in terms of Quality & services for entire range of our products. Our continued commitment to excellence and innovative efforts help us stay ahead as market leaders.



PETRONET LNG LIMITED

Petronet LNG is a company at the forefront of India's all-out national drive to ensure the country's energy security in the years to come. Formed as a Joint Venture by the Government of India to import LNG and set up LNG terminals in the country, it involves India's leading oil and natural gas industry players. Our promoters are GAIL (India) Ltd (GAIL), Oil & Natural Gas Corporation Ltd (ONGC), Indian Oil Corporation Ltd (IOCL) and Bharat Petroleum Corporation Ltd (BPCL). The authorized capital is Rs. 1,200 crore (\$240 million). Petronet LNG is also drawing keen interest from global energy industry stars. While French national gas company GAZ de France (GDF) is our strategic partner, Ras Laffan Liquefied Natural Gas Company Ltd, Qatar, has signed an LNG sale and purchase agreement (SPA) with us for the supply of LNG to India. We have set up our first LNG Terminal at Dahej, Gujarat, with a capacity of 5 MMTPA, and are in the process of setting up another terminal at Kochi, Kerala, with a capacity of 2.5 MMTPA.

Petronet LNG Ltd, one of the fastest growing, world class companies in the Indian energy sector, has set up the country's first LNG receiving and regasification terminal at Dahej, Gujarat, and is in the process of building another terminal at Kochi, Kerala. While the Dahej terminal has a nominal capacity of 5 million metric tonnes per annum (MMTPA) [equivalent to 20 million standard cubic meters per day (MMSCMD) of natural gas], the Kochi terminal will have a capacity of 2.5 MMTPA (equivalent to 10 MMSCMD of natural gas).

Natural Gas

The demand for Natural Gas is increasing at a rate which can't be fulfilled by the domestic production, as there is a large gap between the demand and supply of Natural Gas. In the year 2002, supply of Natural Gas was 72 MMSCMD and demand is 151 MMSCMD, whereas in year 2007, this gap is projected to get widened, as the supply will remain constant and demand is expected to increase further to 231 MMSCMD. Further in



year 2012, the Natural Gas demand is projected at 319 MMSCMD leaving a large gap between demand and supply

Consumption NG in different sector:-

Sector	2002	2007	2012
Power	43	39	29
Fertilizer	20	16	11
Sponge Iron	31	38	54
Others	6	7	6

ESSAR OIL LIMITED

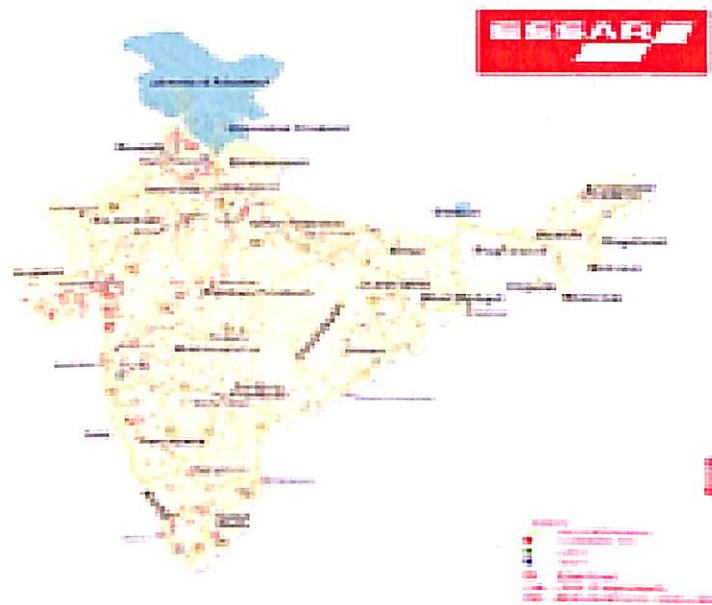
Essar Oil Ltd. (EOL) is emerging as a leading integrated oil and gas company spanning the entire value chain, from deep within the earth all the way to the end-consumer. We have exploration and production (E&P) rights in some of India's most valuable oil and gas blocks. EOL is building a state-of-the-art refinery and a countrywide network of modern retail fuel outlets.

Exploration and production

We were one of the first private companies to bid for exploration blocks in 1993. We won two onshore blocks in Rajasthan and one in the Mumbai offshore region, where we have completed the first phase and are moving into test drilling. We were then awarded a block each in the Cambay basin (Gujarat) and Cachar (Assam). We believe that we have lowered the risks and increased the rewards of exploration by carefully selecting the blocks with maximum potential. We also won the Ratna and R-series oilfields for development and production, in partnership with ONGC and a major international company. The Ratna series, located south of the prolific Bombay High field, holds an estimated 500 million barrels of oil reserves. Independent international engineering firms have certified its high latent value and EOL's share is worth around US\$ 230 million.



Our CBM (Coal Bed Methane) division pioneered a project in Mehsana, Gujarat, using innovative technology to establish the presence of methane gas. Although the US is the lone country to exploit CBM commercially, EOL has already drilled three wells and is producing the gas experimentally, the only Indian company to do so. EOL has also won a CBM block in Raniganj, West Bengal.





Global-scale refinery

We were among the first to enter the refining sector when it was opened to private participation. Our US\$ 2.14 bn (Rs.99billion) refinery at Vadinar, Gujarat, which has achieved full financial closure, is two-thirds complete and will be commissioned in 24 months.. With a capacity of 10.5 MTPA (that can rise to 12 MTPA after de-bottlenecking), this world-class refinery complex will focus on producing middle distillates like aviation turbine fuel, kerosene oil and high-speed diesel, which form over 60% of India's demand. We will also produce LPG and transport fuels including petrol conforming to Euro III and Euro IV product quality standards for the domestic and export markets.

High automation, the latest technology and an ideal location on India's West Coast will give us significant competitive advantages. We have permission to import crude oil freely in VLCCs, which offers considerable cost savings especially since we are one of the closest refineries to the Middle East, the main supply source for crude oil. With an eye on future value building, we have also created the infrastructure to double our refining capacity at a third of the cost and in half the time of a greenfield project.

Marketing



Essar Oil Limited (EOL)is one of the few private companies permitted to market petroleum products in India. To serve retail customers under the brand 'Essar Oil', EOL is building a modern, large countrywide distribution network of Retail Outlets. EOL is designing them as outlets offering value-added amenities and services that customers



look for in individual markets. Looking beyond the saturated larger urban markets, we are reaching out to consumers deep in India's heartland. EOL is also the first private oil company to import high-speed diesel. We are marketing this at competitive rates to bulk industrial consumers. In addition to petrol, diesel and lubricants, we will market a full range of fuels including naphtha, kerosene and fuel oil after the refinery is complete.

Our pipelines division is putting in place the Central India pipeline network. This 2,260 km long pipeline will connect our refinery to demand centres across the northern, western and central parts of India. Thus, with a presence in every rung of the value chain, EOL is all set to take over the future.



Essar Oil Limited is taking rapid marketing strides by setting its retail network all across India. The company had set up its first Retail Outlet on 13th September 2003 and since then it has set up more than 800 Retail Outlets. In addition to this there are another 900 Retail Outlets under various stages of construction and other 1100 franchisees & sites identified. We plan to set up over 5000 retail outlets across the country by 2008.

Currently, the company has 17 Supply Points to ensure timely supplies to all its Retail Outlets. In addition to the above, more such supply points are identified for supplies.

A host of other product and services are planned to compliment with Petrol (MS) and Diesel (HSD). Some of such identified product and services are Restaurants, Dhaba, Truckers stop, Car wash, Service Stations, ATM, Convineo Store, Café, etc...Some of the companies with which we have association for supplies of other product and services are Castrol (for lubricants), Pepsi & Coca Cola and Fritolay.

Effective 1st April 2002 marketing of transportation fuel, including MS & HSD was deregulated and all companies meeting the eligibility criteria laid down by the Government of India, were permitted to market these products as also set up a Retail Network after receiving formal authorization from Government.

EOL by virtue of its investment of over Rs. 10000 Crores already made in its refinery under construction and met the eligibility criteria, accordingly MOP&NG granted their formal Marketing Rights to Essar Oil Limited. Further, effective 1st April 2003, DGFT allowed EOL to import transportation fuels and crude oil directly. EOL, by virtue of grant of Marketing License imported its first parcel of High Speed Diesel (HSD) in July 03.

Essar's Refinery

Essar's oil refinery at Vadinar in Jamnagar, Gujarat is ideally located in India's West Coast in close proximity to the crude rich Gulf States. Vadinar is an all-weather deep-



draft natural port. More than 60% of India's crude imports land in and around this region. Besides, the refinery's location enables access to the fast growing markets in the north and western region of India through product pipelines. The eastern and southern parts of India will be serviced through the coastal route circling the country.

Essar Oil's Refinery has a capacity of 10.5 million tonnes per annum (MTPA) with an investment of close to Rs.10 Billion (USD 2.2 billion). The refinery is being built with the latest, state of the art technology with technical and project assistance from the world's leading consultants and equipment suppliers in the field. It is designed to handle a diverse range of crude mixes. The refinery is configured to produce Euro II and Euro III grades of Petrol and Diesel. With mid-stream up gradation of processes and technologies, the refinery will have the capability to process the most sour, acidic and heavy crude.

The refinery is fully integrated with its own dedicated 120 MW co-generation power plant, port and terminal facilities. It includes a Single Point Mooring (SPM) capable of handling vessels up to 350, 000 DWT with a capacity; marine product dispatch capacity of 14 MTPA; rail -car and truck loading facilities. The refinery has built-in environment friendly technologies for pollution management and has also planted over one million trees to ensure a green corridor around the entire refinery complex.



SHELL



Royal Dutch Shell has made the largest Foreign Direct Investment into India among all integrated oil companies (around USD 1 billion) and is the only global major to have a retail licence in India. Shell currently has interests in natural gas (in the form of liquefied natural gas - "LNG"), Lubricants, LPG (liquefied petroleum gas) and automobile fuel retailing in India. The Shell companies in India also make their own contributions to Sustainable Development, a core Group value. In addition, India has been a focus country for investments from the Global Shell Foundation, which are approximately USD 3.8 million to date.

Shell's presence in India goes back about 75 years as a pioneering oil distribution company by the name of Burmah Shell which was set up in 1928. It returned to India in 1993 and established Bharat Shell Limited.

For Shell, India is a large potentially profitable market with strong growth prospects. Factors for success are clear and consistent strategy; best practices from Shell worldwide; marketing and distribution and adaptation to Indian business environment.

Shell businesses in India today ...

- Lubricants: Bharat Shell Limited and PQS India Limited
- Liquefied Natural Gas (LNG): Shell Hazira Gas Private Limited
- Solar Energy: Shell Solar India Private Limited
- Liquefied Petroleum Gas (LPG): Shell Gas (LPG) India Private Limited



- Retail Fuels: Shell India Marketing Private Limited
- Bitumen: Shell Bitumen India Private Limited
- Global Solutions: Technical, environmental & logistical consultancy
- Technical center: Major expertise centre for Shell's global operations

... total investment of nearly USD 1 Billion !

Bharat Shell Limited

- JV between Shell and Bharat Petroleum.
 - Manufactures & markets Shell-branded lubes in India
- Helix & Rimula
- Lubricants for industrial & automotive sector
- State of the art lube oil blending plant
- Invested Rs 75 crores for the development of the plant
- Considered to be finest amongst the finest plants in Asia
- Customers includes

Tata iron & Steel, TELCO, Maruti Udyog, SAIL, ONGC, Jindal Group,
Mahindra & Mahindra, Ford, etc.

BRIEF DESCRIPTION OF THE REFINERIES

Guwahati Refinery, IOCL (ASSAM)

Guwahati Refinery, the first in public sector, was set up in collaboration with Rumania at a cost of Rs.17.29 crores and commissioned on 1st January, 1962 with a design capacity of 0.75 MMTPA. The present capacity of this Refinery is 1.00 MMTPA. Hydrotreater Unit for improving the Quality of diesel has been installed and was commissioned in 2002. The refinery has also installed in 2003 Indmax Unit, a novel technology developed by its R&D Centre for upgrading heavy ends LPG, motor spirit and diesel oil.

Barauni Refinery, IOCL (BIHAR)

Barauni Refinery in Eastern India was built in collaboration with the Soviet Union at a cost of Rs.49.4 crores and went on stream in July, 1964. By November, 1967, the initial capacity of 2 MMTPA was expanded to 3 MMTPA by 1969. The present capacity of this refineries is 6.00 MMTPA. A Catalytic Reformer Unit (CRU) was also added to the refinery in 1997 for production of unleaded motor spirit. Projects are also planned for meeting future fuel quality requirements.

Koyali Refinery- IOCL (Gujarat)

The Gujarat Refinery was built with Soviet assistance at a cost of Rs.26.00 crores and went on stream in October, 1965. The Refinery had an initial installed capacity of 2 MMTPA and was designed to process crude from Ankleshwar, Kalol and Nawagam oilfields of Oil & Natural Gas Commission in Gujarat. In September, 1967, the capacity of the Refinery was expanded to 3 MMTPA. The capacity of the Refinery was further increased to 4.3 MMTPA through debottlenecking measures and to 7.3 MMTPA in October, 1978 by implementing an expansion project of Rs.56.07 crores. With the



implementation of additional processing facilities the Refinery could achieve capacity of 9.5 MMTPA in 1989. The refining capacity was further expanded to 12.5 MMTPA with commissioning of 3.0 MMTPA CDU in September, 1999. The present refining capacity of this refinery is 13.70 MMTPA. In order to meet future fuel quality requirement, MS quality improvement facilities are planned to be installed by 2006.

Haldia Refinery - IOCL (WEST BENGAL)

The Haldia Refinery for processing 2.5 MMTPA of Middle East crude was commissioned in January, 1975 with two sectors - one for producing fuel products and the other for Lube base stocks. The fuel sector was built with French collaboration and the Lube sector with Romanian collaboration. The refining capacity of the Refinery was increased to 2.75 MMTPA in 1989 through debottlenecking measures. The refining capacity was further expanded to 3.75 MMTPA with the commissioning of new crude distillation unit of 1.0 MMTPA in March, 1997. The present refining capacity of this Refinery is 6.00 MMTPA.

Mathura Refinery – IOCL (UTTAR PRADESH)

The Mathura Refinery with a capacity of 6.00 MMTPA was set up at a cost of Rs.253.92 crores. The Refinery was commissioned in January, 1982 excluding FCCU and Sulphur Recovery Units which were commissioned in Jan, 1983. The refining capacity of this refinery was expanded to 7.5 MMTPA in 1989 by debottlenecking and revamping. A DHDS Unit was commissioned in 1989 for production of HSD with low sulphur content of 0.25% wt. (max.). The present refining capacity of this Refinery is 8.00 MMTPA.



Digboi Refinery (ASSAM)



The Refinery was set up at Digboi in 1901 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 and created a separate division. This division has both Refinery and marketing operations. The Refinery at Digboi had an installed capacity 0.50 MMTPA. The refining capacity of the Refinery was increased to 0.65 MMTPA by modernization of Refinery in July, 1996. A new delayed Coking Unit of 1,70,000 TPA capacity was commissioned in 1999. A new Solvent Dewaxing Unit for maximizing production of micro-crystalline wax was installed and commissioned in 2003. The refinery has also installed Hydrotreater to improve the quality of diesel.

Panipat Refinery – IOCL (HARYANA)

The refinery was set up in 1998 at Baholi Village in Distt. Panipat, Haryana at an cost of Rs.3868 crores. The refining capacity of this refinery is 6.00 MMTPA. The expansion of refining capacity from 6 MMTPA to 12 MMTPA is in under implementation and is expected to completed by end 2005.

Mumbai Refinery (HPCL) (MAHARASHTRA)

The Refinery at Mumbai came into stream in 1954 under the ownership of ESSO. In March, 1974, Govt. of India acquired it. Hindustan Petroleum Corporation Ltd. was formed on 15.7.1974 after the merger of these companies. The capacity of the Mumbai



Refinery of HPCL was 3.5 MMTPA which was increased to 5.5 MMTPA during 1986 after implementation of expansion programme.

Visakh Refinery (HPCL) (ANDHRA PRADESH)

In 1957, Visakh Refinery went on stream under the ownership of M/s Caltex India Ltd. In May, 1978, M/s Caltex Oil Refinery (India) was amalgamated with Hindustan Petroleum Corporation Ltd. The installed capacity of 1.5 MMTPA was increased to 4.5 MMTPA in 1985 and 7.5 MMTPA in 1999, through an expansion programme.

Bharat Petroleum Corporation Ltd. (BPCL) (MAHARASHTRA)

The Refinery at Mumbai came into stream in January, 1955 under the ownership of Burmah-Shell Refineries Ltd. Following the Government's acquisition of the Burmah-Shell, name of the Refinery was changed to Bharat Refineries Limited on 11.2.1976. In August, 1977, the Company was given its permanent name, viz. Bharat Petroleum Corporation Ltd. The installed capacity of 5.25 MMTPA was increased to 6 MMTPA in 1985. The present refining capacity of the refinery is 6.9 MMTPA.

Manali Refinery -Chennai Petroleum Corporation Ltd. (CPCL)-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) having a share holding in the ratio 74%: 13%: 13% respectively. From the grassroots stage CPCL Refinery was set up with an installed capacity of 2.5 Million Tonnes Per Annum (MMTPA) in a record time of 27 months at a cost of Rs. 43 crore without any time or cost over run.

In 1985, AMOCO disinvested in favour of GOI and the shareholding percentage of GOI



and NIOC stood revised at 84.62% and 15.38% respectively. Later GOI disinvested 16.92% of the paid up capital in favor of Unit Trust of India, Mutual Funds, Insurance Companies and Banks on 19th May 1992, thereby reducing its holding to 67.7%. The public issue of CPCL shares at a premium of Rs. 70 (Rs. 90 to FIIs) in 1994 was over subscribed to an extent of 27 times and added a large shareholder base of over 90000. As a part of the restructuring steps taken up by the Government of India, Indian Oil Corporation Limited (IOCL) acquired equity from GOI in 2000-01. Currently IOCL holds 51.88% while NIOC continued its holding at 15.40%. In view of the CPCL become subsidiary of IOCL in 2001. The Manali Refinery has a capacity of 9.5 MMTPA and is one of the most complex refineries in India with Fuel, Lube, Wax and Petrochemical feedstocks production facilities.

Cauvery Basin Refinery-CPCL (Nagapattinam-Tamil Nadu)

CPCL's second refinery is located at Cauvery Basin at Nagapattinam. The initial unit was set up in Nagapattinam with a capacity of 0.5 MMTPA in 1993 and later on its capacity was enhanced to 1.0 MMTPA.

Kochi Refineries Limited (KRL) (KERALA)

The Kochi Refineries Ltd. is a public sector undertaking set up in pursuance of a formation agreement dated 27th April, 1963 between Govt. of India, Phillips Petroleum Co. of USA and Duncan Brothers of Calcutta with an authorised capital of Rs.15 crores. Subsequently, the authorised capital was increased to Rs.75 crores and the paid up capital in March, 1989 stood at Rs.68.47 crores after issue of shares on rights basis. During the year, the Phillips Petroleum Company also completed withdrawal of their equity by disinvesting of shares. With this, in March 1989, Government was holding 61.58 percentage of equity shares of the Company. At present authorized capita of KRL is Rs 1150 crore and paid up capital Rs. 138.47 crore. M/s Bharat Petroleum Corporation Limited (BPCL) holds 54.81% of the total shares, the balance of the shares being held by



Government of Kerala, Financial Institutions and the Public. The installed capacity of 2.5 MMTPA was increased to 3.3 in September, 1973 and to 4.5 MMTPA in November, 1994. The capacity of the Refinery was further increased to 7.5 MMTPA in December, 95.

Bongaigaon Refinery & Petrochemicals Ltd. (BRPL) (ASSAM)

On 20th January, 1974, M/s BRPL was incorporated in Assam under the Companies Act, 1956 with an authorised capital of Rs.50 crores. With the objective of installation of the Refinery having a crude processing capacity of 1 MMTPA and a Petrochemicals Complex consisting of Xylene, Di-Methyl Terephthalate (DMT) and Polyester Staple Fibre (PSF) Units. The complex was built and commissioned in phases. The capacity of Crude Distillation Unit was increased to 1.35 MMTPA from April, 1987 by debottlenecking. Now the authorised capital (equity) of the company is Rs.200 crores. The paid-up capital as on date is Rs.199.82 crores. As a part of the restructuring steps taken up by Govt. of India, Indian Oil Corporation Limited acquired Govt's equity in 2000-01. In view of this BRPL became subsidiary of IOCL in 2001. The capacity of the Refinery has been increased to 2.35 MMTPA in June, 1995 by installing additional unit.

Numaligarh Refinery Limited (ASSAM)

Numaligarh Refinery, Popularly known as " Assam Accord Refinery" has been set up 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 at an approved cost of Rs, 2,724 crore. Numaligarh Refinery Limited (NRL) was incorporated on 22-4-1993. Presently Bharat Petroleum Corporation Limited holds 51% of the company's equity. The other equity holder are Government of Assam, Oil Industry Development Board and Oil India Limited with equity participation of 10% each. The balance 19% equity is earmarked for a Public Issue. The refining capacity of this refinery is 3.0 MMTPA.



Mangalore Refinery and Petrochemicals Ltd. (MRPL) (KARNATAKA)

Government approved on 11.4.1991 the setting up a 3.0 MMTPA Oil Refinery at Mangalore at an estimated cost of Rs.1160 crores, including foreign exchange component of Rs.300 crores. The project has been implemented by a Joint Venture Company with Hindustan Petroleum Corporation Limited, Mumbai and Indian Rayon and Industrial Limited, Gujarat as Co-promoters. The Refinery was commissioned in March, 1996. MRPL which was a Joint Sector Company become a PSU subsequent on acquisition of its majority shares by ONGC. The capacity of the refinery was assessed at 3.69 MMTPA and has been further expanded to 9.69 MMTPA in September, 1999.

Tatipaka Refinery- ONGC (Andhra Pradesh)

A mini refinery of ONGC with capacity of about 0.1 MMTPA with an approved cost of Rs.29.9 crore was commissioned in September, 2001 at Tatipaka in East Godavari District of Andhra Pradesh.

Reliance Petroleum Limited (RPL) Private Sector JAMNAGAR (GUJARAT)

The Private Sector Refinery (RPL) was commissioned on 14th July, 1999 with an installed capacity of 33 MMTPA at Jamnagar. The present capacity of this refinery is 33.00 MMTPA.



COMPARATIVE STUDY OF PRIVATE AND PUBLIC IN UPSTREAM

PRODUCTION OF CRUDE OIL

ITEM	1990-91	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
1	2	3	4	5	6	7	8
1. CRUDE OIL PRODUCTION ++ ('000' Tonnes)							
(a) Onshore:							
Gujarat	6357	5815	6002	6042	6131	6187	6251
Assam/Nagaland	5070	5199	5095	4660	4592	4703	4474
Arunachal Pradesh	41	78	69	74	77	83	104
Tamil Nadu	302	436	440	395	375	391	385
Andhra Pradesh	14	263	283	300	281	226	216
Total (a)	11784	11791	11889	11471	11456	11590	11430
of which							
OIL	2647	3286	3182	2951	3002	3196	3234
ONGC	9137	8428	8636	8445	8380	8320	8095
JVC/Private	0	77	71	75	74	74	101
(b) Offshore:							
ONGC	20376	16629	16074	17560	17677	18165	16309
JVC/Private	Nil	4006	4069	4013	4240	4226	4451
Total (b)	20376	20635	20143	21573	21917	22391	20760
Grand Total (a+b)	32160	32426	32032	33044	33373	33981	32190

Note: Exploration activities were suspended by ONGC in Nagaland w.e.f. 5th May 1994.
Source: ONGC, OIL and DGH.

OIL FIELDS IN INDIA

(Number)

Company / State	Basin	Oil Fields	Gas Fields	Oil and Gas Fields	Total Fields
1	2	3	4	5	6
A. OIL & NATURAL GAS CORPN. LTD.		8	106	216	330
a) ONSHORE					
Gujarat	Cambay	2	7	83	92
Assam	Upper Assam	0	0	29	29
	A&AA	0	4	2	6
Rajasthan	Jodhpur	0	7	0	7
Andhra Pradesh	K.G. Basin	0	32	11	43
Tamil Nadu	Cauvery	0	7	18	25
Tripura	AAFB	0	7	0	7
Nagaland	A&AA	2	0	1	3
b) OFFSHORE					
East Coast	Cauvery Offshore	0	1	3	4
	KG Offshore(Shallow)	0	4	5	9
	KG Offshore(Deep)	0	9	2	11
West Coast	Andaman	0	1	0	1
	Cambay	0	0	2	2
	Mumbai Offshore	4	23	59	86
	Kutch	0	4	1	5
B. OIL INDIA LTD.		16	3	0	19
Assam	Upper Assam	13	0	0	13
Arunachal Pradesh	Upper Assam	2	0	0	2
Rajasthan	Jaisalmer	0	3	0	3
	Bikaner Nagaur	1	0	0	1
C. PRIVATE/JVCs		0	0	31	31
a) ONSHORE					
Gujarat	Cambay	0	0	22	22
Arunachal Pradesh	AAFB	0	0	1	1
Assam	Assam	0	0	1	1
b) OFFSHORE					
East Coast	Cauvery	0	0	2	2
West Coast	KG Basin	0	0	1	1
	Bombay	0	0	3	3
	Cambay	0	0	1	1
Grand Total		24	109	247	380

AAFB : Assam Arakan Fold Belt.

Source: ONGC, OIL and DGH.

A&AA : Assam & Assam Arakan.



STATEWISE GROSS AND NET PRODUCTION

	(Million Cubic Metre)						
STATE / UTILISATION	1990-91	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
	1	2	3	4	5	6	7
A. ONSHORE							
ASSAM@							
Gross Production(GP)	2039	2396	2125	2245	2416	2502	2698
Re-injected	102	0	0	0	0	0	0
Flared	621	219	179	185	203	230	205
Net Production	1316	2177	1946	2060	2213	2272	2493
% Flared to GP	30.46	9.14	8.42	8.24	8.40	9.19	7.60
GUJARAT							
Gross Production	1696	3149	3280	3531	3517	3710	3831
Re-injected	0	0	0	0	0	0	0
Flared	402	436	401	323	128	48	21
Net Production	1294	2713	2879	3208	3389	3662	3810
% Flared to GP	23.70	13.85	12.23	9.15	3.64	1.29	0.55
TAMIL NADU							
Gross Production	64	200	349	466	605	678	906
Re-injected	0	0	0	0	0	0	0
Flared	55	74	98	88	68	50	39
Net Production	9	126	251	378	537	628	867
% Flared to GP	85.94	37.00	28.08	18.88	11.24	7.37	4.30
ANDHRA PRADESH							
Gross Production	47	1604	1797	2038	1927	1707	1663
Re-injected	0	0	0	0	0	0	0
Flared	5	23	18	18	13	10	8
Net Production	42	1581	1779	2020	1914	1697	1655
% Flared to GP	10.64	1.43	1.00	0.88	0.67	0.59	0.48
TRIPURA							
Gross Production	70	376	416	446	508	497	480
Re-injected	0	0	0	0	0	0	0
Flared	0	0	0	0	0	0	0
Net Production	70	376	416	446	508	497	480
% Flared to GP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B. OFFSHORE							
MUMBAI HIGH							
Gross Production	14082	18465	18317	18367	17805	17313	16823
Re-injected	0	0	0	0	0	0	0
Flared	4047	760	878	730	570	544	472
Net Production	10035	17705	17439	17637	17235	16769	16351
% Flared to GP	28.74	4.12	4.79	3.97	3.20	3.14	2.81
PRIVATE/JVCS							
Gross Production	0	3287	3430	4296	5184	5356	5801
Re-injected	0	0	0	0	0	0	0
Flared	0	105	103	82	74	106	132
Net Production	0	3182	3327	4214	5110	5250	5669
% Flared to GP	0.00	3.19	3.00	1.91	1.43	1.98	2.28
TOTAL (A&B)							
Gross Production	17998	29477	29714	31389	31962	31763	32202
Re-injected	102	0	0	0	0	0	0
Flared	5130	1617	1677	1426	1056	988	877
Net Production	12766	27860	28037	29963	30906	30775	31325
% Flared to GP	28.50	5.49	5.64	4.54	3.30	3.11	2.72

* Provisional

@ : Including Nagaland, Arunachal Pradesh and Rajasthan

Note: Exploration activities were suspended by ONGC in Nagaland w.e.f. 5th May 1994

Source: ONGC, OIL and DGH.



COMPARATIVE STUDY OF PRIVATE AND PUBLIC IN MIDSTREAM AND DOWNSTREAM



REFINING CAPACITY

('000' Tonne)

Refinery / Location	Installed Capacity		Refinery Crude Throughput						
	as on		1990-91	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
	1.4.2005	1.4.2006	4	5	6	7	8	9	10
(a) PUBLIC SECTOR	94368	99468	51772	77411	77620	82015	89495	93107	96946
IOC, Guwahati, Assam	1000	1000	783	707	656	458	891	1002	864
IOC, Barauni, Bihar	6000	6000	2416	3122	2876	2994	4304	5082	5553
IOC, Koyali, Gujarat	13700	13700	9334	12006	11697	12434	12758	11698	11543
IOC, Haldia, West Bengal	6000	6000	2835	3873	4026	4513	4518	5418	5502
IOC, Mathura, Uttar Pradesh	8000	8000	7808	7133	8031	8207	8248	6387	7938
IOC, Digboi, Assam	650	650	566	678	653	581	602	651	615
IOC, Panipat, Haryana	6000	6000	0	5707	5822	6101	6338	6390	6507
Total IOC	41350	41350	23742	33226	33761	35288	37659	36628	38522
BPCL, Mumbai, Maharashtra	6900	12000	6957	8683	8744	8711	8757	9138	10298
HPCL, Mumbai, Maharashtra	5500	5500	5766	5575	5641	6078	6108	6118	6249
HPCL, Visakh, Andhra Pradesh	7500	7500	3464	6405	6706	6851	7591	8121	7980
Total HPCL	13000	13000	9230	11980	12347	12929	13699	14239	14229
KRL, Kochi, Kerala	7500	7500	5006	7520	6797	7580	7854	7924	6939
CPCL, Manali, Tamil Nadu	9500	9500	5698	6046	6123	6176	6387	8181	9680
CPCL, Narimanam, Tamil Nadu	1000	1000	0	579	566	643	653	742	682
Total CPCL	10500	10500	5698	6625	6689	6819	7040	8923	10362
BRPL, Bongaigaon, Assam	2350	2350	1139	1488	1475	1463	2126	2311	2356
NRL, Numaligarh, Assam	3000	3000	0	1451	2307	1879	2200	2042	2133
ONGC, Talipaka, Andhra Pradesh	78	78	0	0	13	93	91	93	93
MRPL, Mangalore, Karnataka	9690	9690	0	6438	5487	7253	10069	11809	12014
(b) PRIVATE SECTOR	33000	33000	0	26033	29654	30544	32345	34309	33163
RPL, Jamnagar, Gujarat	33000	33000	0	26033	29654	30544	32345	34309	33163
Total (a+b)	127368	132468	51772	103444	107274	112559	121840	127416	130109

*: Provisional

Source: Public Sector Undertakings / Private Company.

Note:

- 1) CPCL and BRPL are subsidiaries of IOC.
- 2) KRL and NRL are subsidiaries of BPCL.
- 3) MRPL is subsidiary of ONGC.



MARKETING OF PETROLEUM PRODUCTS



Item	Unit	1990-91	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06*
1	2	3	4	5	6	7	8	9
1.Total Sales (excl. RBF)	Mn. Tonne	55.04	100.07	100.43	104.13	107.75	111.63	111.92
2. Percentage Share								
IOC/AOD	%	57.1	47.8	46.9	44.5	43.4	43.0	43.2
BPCL	%	18.9	19.4	19.0	19.1	18.8	18.5	19.2
HPCL	%	19.2	17.9	17.4	17.5	17.2	17.1	17.2
Others (PSUs)	%	4.8	4.8	5.4	5.5	6.1	6.2	6.3
Private Parties	%	Nil	10.1	11.3	13.4	14.5	15.2	14.1
Total	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*: Provisional

RBF : Refinery Boiler Fuel

Source: Petroleum Planning & Analysis Cell.



PROFIT

Public Companies:-

(Rs.Crore)							
Name of Undertaking	Paid-up Capital (PUC) 2005-06	<u>Gross Turnover</u>			<u>Profit after tax</u>		
		2003-04	2004-05	2005-06*	2003-04	2004-05	2005-06*
1	2	3	4	5	6	7	8
ONGC	1425.93	32927	42139	39621	8664	12983	12647
IOC	1168.01	130203	150677	179175	7005	4891	1955
GAIL(India) Ltd.	845.65	12414	14080	16654	1869	1954	1546
HPCL	339.33	54531	65218	70146	1904	1277	-1267
BPCL	300.00	52983	63350	74701	1695	966	2634
IBP Co.	22.15	10334	13514	14300	215	59	-167
OIL	214.00	3145	3888	5266	950	1062	1383
BRPL	199.82	2849	4564	5388	304	478	223
EIL	56.16	1069	913	850	80	112	115
CPCL	149.00	9476	16296	20689	400	597	500
KRL	137.87	10668	14323	15689	555	842	420
NRL	735.63	2892	3842	3185	215	409	224
MRPL	1753.00	11391	18322	24692	459	880	587
Grand Total	7346.55	334882	411126	470356	24315	26510	20800

N.A.: Not Available.

*: Provisional.

Source: Performance Budget.

Private Company:-

Reliance Industries Ltd (RIL), the country's most valued company, announced today a 14 per cent increase in net profit for the fourth quarter of the last financial year, on a 5.5 per cent rise in net sales. The record performance was due to better margins from the refining and petrochemical businesses.



The company posted a net profit of Rs 2,853 crore for the quarter ended March 31, 2007, against Rs 2,502 crore in the year-ago period. Net sales grew to Rs 25,895 crore from Rs 24,542 crore last year. Earnings per share (EPS) stood at Rs 20.5, against the corresponding previous quarter's Rs 18.

During the quarter under review, profit before tax stood at Rs 3,485 crore, 19 per cent higher than the corresponding previous quarter's Rs 2,926 crore.

ROBUST SHOW

(In Rs crore)

	Q4, FY 06	Q4, FY 07	Increase (%)
Net profit	2,502	2,853	14
Net sales	24,542	25,895	5.5
PBT	2,926	3,485	19
EPS (in Rs)	18	20.5	13.88

RIL recorded a gross refining margin of \$13 a barrel, against the corresponding previous quarter's \$10.4 a barrel. The benchmark Singapore Index showed gross refining margin — the money a company earns from processing a barrel of oil into fuel — of \$6.2 a barrel.

The RIL stock ended flat at Rs 1596.75 on the Bombay Stock Exchange. The results were announced after the close of the day's trading.

In the fourth quarter ended March 31, 2006, RIL's net profit growth was 9 per cent over



the corresponding previous quarter.



For the full year ended March 31, 2007, Reliance posted 20 per cent growth in net profit, which went up to Rs 10,908 crore from Rs 9,069 crore in the previous year. Spurred by 11 per cent growth in prices and a 13 per cent rise in volumes, net sales during the period grew 30 per cent from Rs 81,211 crore to Rs 105,363 crore.

Chairman Mukesh Ambani said: "While our petrochemicals and refining business recorded its best-ever performance, we have made substantial investments in our future growth engines such as E&P (exploration and production) and retail businesses."



RETAIL OUTLETS

State / UT	As on 1.4.2006					(Number)	
	IOCL/ AOD	IBP	HPCL	BPCL	TOTAL (Col.2-5)	Total as on 1.4.2005	
	1	2	3	4	5	6	7
STATES							
Andhra Pradesh	889	358	681	628	2556	2305	
Arunachal Pradesh	39	2	0	1	42	40	
Assam	358	26	60	10	454	410	
Bihar	474	223	201	264	1162	1040	
Chhattisgarh	145	29	113	117	404	350	
Delhi	150	45	92	102	389	381	
Goa	18	3	29	37	87	82	
Gujarat	639	231	368	404	1642	1488	
Haryana	567	218	269	210	1264	1147	
Himachal Pradesh	109	25	52	47	233	201	
Jammu & Kashmir	137	9	77	79	302	242	
Jharkhand	213	66	153	140	572	504	
Karnataka	765	174	412	461	1812	1571	
Kerala	466	182	420	351	1419	1249	
Madhya Pradesh	561	79	323	401	1364	1235	
Maharashtra	872	195	801	911	2779	2497	
Manipur	38	5	0	0	43	39	
Meghalaya	70	8	15	4	97	83	
Mizoram	15	0	0	0	15	15	
Nagaland	34	2	1	2	39	36	
Orissa	297	73	153	212	735	597	
Punjab	799	419	513	483	2214	1842	
Rajasthan	792	126	568	453	1939	1729	
Sikkim	11	2	3	9	25	18	
Tamil Nadu	938	227	700	672	2537	2253	
Tripura	36	1	0	0	37	37	
Uttar Pradesh	1580	471	807	860	3718	3326	
Uttaranchal	126	35	83	68	312	292	
West Bengal	538	219	367	367	1491	1376	
UNION TERRITORIES							
Andaman & Nicobar	5	0	0	0	5	5	
Chandigarh	16	4	15	10	45	41	
Dadra & Nagar Haveli	7	0	5	1	13	7	
Daman & Diu	6	1	4	3	14	12	
Lakshadweep	0	0	0	0	0	0	
Pondicherry	29	10	29	14	82	77	
Grand Total	11739	3468	7314	7321	29842	26527	

Source: Public Sector Undertakings.



Private Retail Outlets:-

1. Reliance Petroleum Limited----- 1367
2. ESSAR ---- 920
3. Shell ---- 1

EMPLOYEE RATIO

Public Companies:-

1. Oil and Natural Gas Corporation Limited ----- 34000
2. Oil India Limited ----- 8614
3. Indian Oil Corporation Ltd. ----- 36217
4. Bharat Petroleum Corporation Limited ----- 14697
5. Hindustan Petroleum Corporation Limited ----- 10778

Private Companies:-

1. Reliance Petroleum limited ----- 24000



INTERPRETATION AND RECOMMENDATION

In the petroleum industry, there exists a measure of a company's effectiveness in a particular market. It is measured in terms of marketing effectiveness (ME).

An ME of '1' means that if a company's outlet share is X per cent and if its market share is also X per cent, then its $ME = X/X = 1$. For long, IOC, HPCL, BPCL and IBP were content with achieving a ME of 1.

It was only in late the late nineties, BPCL thought about breaking free from the shackles of this myth and started thinking about going beyond the ME of 1. It started with its ambitious programme called, 'Pure For Sure' which paid rich dividends and it is this out-of-box thinking of BPC that led to its per station monthly throughput grow at least 20,000 liters more than the industry average.

Reliance, from day one, challenged the myth of market share being dependent upon the Retail outlet share. It patterned its thought-process on 'Flying J' -- a diesel retailer that with just around 200 stations had become the Number 1 diesel retailer in North America, beating the likes of Exxon Mobil, Shell, BP and Chevron.

Reliance thought that it was possible to have the least number of petrol stations in the country and yet be the leader in terms of volume of petroleum products sold across the nation.

It challenged its managers to look beyond the ME of 1 and try and capture the ME of 3 or even 4. This means that Reliance felt that it was possible to have just 3 per cent of outlet share and yet have more than 12 per cent of market share. This dream was achieved by Reliance during the financial year 2005-2006.

Reliance achieved a market share of 12 per cent with just 3 per cent station share in 2005-2006. On the other hand the public sector companies held a market share of 88 per cent while holding the retail outlet share of 96 per cent. This shows that whereas Reliance achieved a market effectiveness of nearly 4; the combined ME of PSUs was less than 1!

If we look at the employee ratio with the production of the companies, private sector again holds good. With an employee of approximately 22-23000 Reliance has a production capacity of 33 MMTPA of crude through. with a single refinery. If we compare reliance with public sector midstream giant i.e. Indian Oil Corporation Limited with an employee of 36000 approx. produces 40000 MMTPA and one thing is noticeable IOCL has nine refineries means it is .5% more efficient than public companies.

Reliance retail outlets have clocked sales per month of about 410 kilolitres per petrol pump, whereas the corresponding figure for PSU outlets is 140 kilolitres. **Govt feels** state-owned companies may have to review their retail plans. **The four PSUs** - IBP, Indian Oil Corp, Hindustan Petroleum, and Bharat Petroleum - are chalking out ambitious retail plans to counter threat from private sector.

Before **Reliance Industries Ltd** forayed into the business of petroleum retailing, the four public sector companies had reconciled to the above myth that had been guiding the petroleum retail sector for decades.

The entry of Reliance petrol stations not only broke this long standing myth, it created new theories that shocked the staid public sector.

For long everyone had believed that if you had 40 per cent of outlet share, you would get 40 per cent of market share of total volume(s) of product sold. The theory was built around the fact that all stations were built alike, managed alike and, hence, would sell alike.

It is not strange that till the late nineties, if a company had around 19 per cent outlet share, then it also had the market share in the 19-20 per cent range.



5 reasons behind Reliance's success

1. Employing the Best in business and emphasis on Training Employing the best and laying emphasis on training, Reliance petroleum's downstream business is stewarded by the very best in business. Reliance realised early enough that the key to success would lie in recruiting the best talent from the oil industry. Since the industry was the sole domain of the public sector companies, Reliance had to dangle the carrot of an extremely attractive remuneration package to the best talent available in BPCL, IOC and HPCL.

Top managers of PSUs were offered salaries and perks that were almost five times the salaries these managers earned in PSUs. The best brains that existed in PSUs today occupy all top positions in Reliance.

Reliance also decided that middle-level and junior level positions would have to be filled by the managers outside the oil industry. So the RIL headhunters went out to recruit the best junior and middle-level officers of HLL, Shell India, Telco and other similarly successful companies. The officers from non-oil industry were given an information-packed course in petroleum business by the retired 'Dronacharyas' of oil industry.

All nuances of oil business were taught to the newcomers. Reliance spent a fortune on training its people. It is this basic philosophy of Reliance which puts premium on recruiting, training and retaining outstanding talent, that is key to Reliance' success.

The training function is taken so seriously that no petrol station attendant, called the 'driveway salesman,' joins a station without undergoing a formal and extensive training from the master trainers.

2. Meticulous Planning

The think-tank of Reliance knew that high speed diesel was the most dominant fuel accounting for roughly 40 per cent of all petroleum business in India. The company



commissioned an exhaustive study of the sales pattern across all high selling trading areas in India.

It then identified the most attractive trading areas which put together accounted for more than 60 per cent of HSD sales. Having identified the trading area by way of known statistics gathered from PSU and revalidating them by carrying out first hand survey, Reliance identified the markets, it wanted to dominate.

3. Dominating Markets by New Approach

Identifying markets is one thing and putting a plan to dominate the market is quite another. Reliance realised that the biggest obstacle to its success was the high cost of land in the biggest diesel markets.

Reliance's research showed that the truck drivers were the key decision makers in choosing the station for buying diesel. It also realised that if the truck drivers could be won over, then the battle was half over already! Reliance then decided to build what it calls the 'Truck Stops,' which would cater to the needs to the truck drivers and make them loyal to these stations.

Today, Reliance has more than 125 'Truck Stops' spread all over the major national highways of India. These truck stops (spread over 2.5 acre to 7 acres of land) offer the most essential facilities a truck driver craves for- secured parking area and an inexpensive place to rest, eat and recuperate.

Reliance has a 'Truck Stop' at every 200-300 km in all major highways and in between these truck stops it has smaller stations which ensure Reliance's presence all across the major roads and highways of India.

In all Reliance has more than 1,200 stations operating in the country and each station is a part of well laid-out strategy. There is no station without a solid, financially viable game plan. Each station is supposed to have a payback period of not more than 4-5 years.



4. Cutting edge technology

Reliance has invested in multi-product dispensers that dispense fuel and its managers can monitor each transaction. It has invested in auto tank-gauging equipment at all stations so that an alarm goes off at the supply location, thousands of miles away, if the station's stock goes below the minimum desired level.

It has introduced fibre-reinforced-plastic (FRP) tanks to ensure longer life of the storage tanks and also to ensure that there is no leakage that could lead to an environmental hazard.

5. Company owned company operated stations (COCOs)

Reliance wants to be seen as the best fuel retailer in the country and hence it wants to establish a brand identity, which signifies quality that is visible and is consistent.

It realised that unless it had its own people manning the most vital stations, it would not be possible to establish the brand that it wants to build. Today, Reliance has 350-plus COCOs all over the country and at least 60 more are in the pipeline.

COCOs can ensure 100 per cent compliance of company's marketing programmes that Reliance wants to roll out for the truck drivers and the transporters.

Most COCOs are operated by retired army officers who run the station like a tight ship and ensure that discipline and decorum are maintained 24 by 7.

CONCLUSION

Reliance has already emerged as a force to be reckoned with and may even stake a claim to the Number 1 slot in the coming years. It may be the last kid off the block but it is this fact that has given it several advantages over PSUs.

To start with, it is not saddled with the baggage of old dealers, the likes of which exist in PSUs and who have been the bane of their parent companies.



PSUs have to live with their dealers as they are not really free to sack some of the poor performers. In PSUs, the dealerships of even company owned sites are transferable as a matter of right from the dealer to his children.

For Reliance, this is not so. It has started with a clean slate and can choose its dealers with care. No pressure from the ministry to allocate a station to someone!

Another discomfort that PSUs face is that their stations are old and are difficult to remodel unless they are knocked down and rebuilt. The size of the station is also fixed with little scope for expansion. Reliance has chosen its land sites with care and has taken into consideration the future expansion that may be needed to accommodate the business needs of tomorrow.

There, however, are some challenges that Reliance has to surmount speedily in the near future.

Subsidies denied to Reliance

The first challenge is in the form of subsidies that PSUs enjoy and is being denied to Reliance. This off-now, on-now stance of the government on level playing field in the area of subsidies will continue to discomfort Reliance.

Reliance sales had gone down drastically when the price difference between its stations and those of PSUs was considerable. This means that price would continue to play a dominant role in sales of fuels, brand value notwithstanding. The only way forward for Reliance is then to keep the pressure on the government for subsidy as is applicable to IOC, BPCL and HPCL.

Bettering the supply and distribution setup

Another challenge that Reliance must take head-on is its poor supply plan for stations in the North and East. It is generally believed that due to Reliance not having adequate terminals and depots, the stations suffer from frequent dry-outs, partial or total.



It is about time that Reliance came out with either a product-sharing agreement with the PSU depots or it built depots of its own. If Reliance wants the third option of having depots on wheels, then it needs to augment its fleet of trucks on the road so that the stations don't suffer from product outage.

Managing DODOs

Reliance also needs to be careful with its Dealer Owned Dealer Operated stations (DODOs). It has done well by giving them higher margins of petrol and diesel than PSUs. It also needs to ensure that these DODOs are treated at par with the COCOs when it comes to supply of products and maintenance of standard operating procedures.

Minimising operational losses

Reliance also seems to be grappling with high evaporation and handling losses at its COCOs, a fact that could impact its bottom line. High volumes of sales, if accompanied with disproportionately high operational losses can lead to COCOs becoming sick units. COCOs have given so much delight to the customers by way of high level of customer service that they have come to become the key differentiators in the way public perceives Reliance as being different from others.

Reliance has changed the face of retail stations in a matter of three years. With more than 1,200 stations open to public and with sales more than three times the industry average sales per station, it has shown that it is possible to change the way business is conducted, if only there is will to do so.

Whether IOC, BPCL and HPCL can stop Reliance from taking the leadership position will depend upon how fast these companies rearrange their own strategies to stop the Reliance juggernaut.



BIBLIOGRAPHY

WEBSITES REFERRED:-

www.mop&ng.nic.in

www.iocl.com

www.bharatpetroleum.com

www.hindustanpetroleum.com

www.ril.com

www.ongcindia.com

www.oilindia.nic.in

www.essaroil.com

www.petronetlng.com

www.investopedia.com

www.wikipedia.com

www.infraline.com

BOOKS REFERRED:-

Energy News

Oil Asia



ANNEXURE

MAIN CONVERSIONS USED IN PETROLEUM INDUSTRY

<u>ITEM</u>	<u>CONVERSION FACTOR</u>	
<u>CRUDE OIL</u>	1 Metric Tonne	= 7.33 Barrels = 1.165 Cubic Metres (Kilolitres)
	1 Barrel	= 0.136 Tonnes = 0.159 Cubic Metres (Kilolitres)
	1 Cubic Metre	= 0.858 Tonnes = 6.289 Barrels
	1 Million Tonne	= 1.111 Billion Cubic Metres Natural Gas = 39.2 Billion Cubic Feet Natural Gas = 0.805 Million Tonnes LNG = 40.4 Trillion British Thermal Units
<u>NATURAL GAS</u>	1 Billion Cubic Metre	= 35.3 Billion Cubic Feet Natural Gas = 0.90 Million Tonnes Crude Oil = 0.73 Million Tonnes LNG = 36 Trillion British Thermal Units = 6.29 Million Barrels of Oil Equiv.
<u>LNG</u>	1 Million Tonne	= 1.38 Billion Cubic Metres Natural Gas = 48.7 Billion Cubic Feet Natural Gas = 1.23 Million Tonnes Crude Oil = 52 Trillion British thermal Units = 8.68 Million Barrels of Oil Equiv.
<u>CNG</u>	1 Kilogram	= 1.244 Standard Cubic Metres Natural Gas = 1.391 Litres of Petrol = 1.399 Litres of HSDO

Source: 1) BP Amoco Alive Statistical Review of World Energy
2) OPEC Annual Statistical Bulletin



CONVERSIONS USED FOR PETROLEUM PRODUCTS

Products	TOE/Tonne	Barrel/Tonne
Refinery Gas	1.150	8.00
Ethane	1.130	16.85
LPG	1.130	11.60
Aviation Gasoline	1.070	8.90
Motor Gasoline	1.070	8.53
Jet Gasoline	1.070	7.93
Jet Kerosene	1.065	7.93
Other Kerosene	1.045	7.74
Naphtha	1.075	8.50
Gas/Diesel Oil	1.035	7.46
Heavy Fuel Oil	0.960	6.66
Petroleum Coke	0.740	5.50
White Spirit	0.960	7.00
Lubricants	0.960	7.09
Bitumen	0.960	6.08
Paraffin Waxes	0.960	7.00
<u>Non specified products</u>	<u>0.960</u>	<u>7.00</u>

TOE : Tonnes of Oil Equivalent

Source: International Energy Agency Statistics