



OIL & GAS

April 2010

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Advantage India

Established reserves

- Coal reserves in India are the fourth-largest in the world, amounting to 58.6 billion tonnes (2008).
- Crude oil accounted for 775 million metric tonnes (MMT) in 2009.
- Natural gas accounted for 1,074 billion cubic metres (BCM) (2009).

Favourable government policies

- Policies such as the New Exploration Licensing Policy (NELP) and the Coal Bed Methane (CBM) Policy have helped attract investments from both the public and private sectors.

Advantage India

Skilled workforce

- Approximately 139,000 people are currently employed in the petroleum industry (2009).
- The University of Petroleum and Energy Studies in Dehradun, Uttarakhand, is Asia's first and only energy university.

High demand

- India is the third-highest consumer of coal (7 per cent of the total world consumption).
- It is the fourth-highest consumer of crude oil (3.4 per cent of the total world consumption).

Sources: "Basic statistics on Indian petroleum & natural gas 2008–09", Ministry of Petroleum & Natural Gas, "BP Statistical Review of World Energy June 2008," BP.

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Market overview

- Petroleum products and natural gas together contributed 2.36 per cent, or US\$ 21.25 billion, to the country's total GDP (US\$ 900.19 billion) in 2007–08.

Key segments — upstream and downstream

- The upstream segment comprises exploration and production (E&P) activities.
- The downstream segment comprises the refining and production of petroleum products, processing, storage, marketing and the transportation of commodities such as crude oil and natural gas.

Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.

Upstream segment - exploratory and development drilling

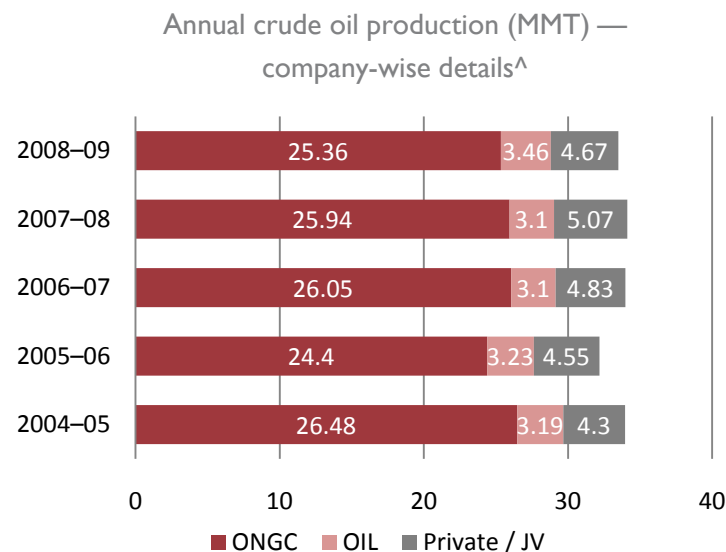
- The total number and metreage of exploratory and development wells drilled in onshore and offshore areas in 2008–09 was 381 and 888,000 metres, respectively.
- In 2008–09, the maximum number of wells (onshore) have been drilled in Gujarat (167).

Area	2008–09	
	Wells	Metreage
Exploratory		
Onshore	90	243,000
Offshore	32	97,000
Development		
Onshore	210	393,000
Offshore	49	155,000

Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.

Upstream segment - annual crude oil production ... (1/2)

- The total production of crude oil in 2008–09 was 33.51 MMT.
- In 2009–2010, the production is estimated at about 38 MMT, 13.4 per cent higher than the previous year.
- The contribution of private/joint venture (JV) fields during the year was 4.67 MMT of crude oil, which accounted for 13.93 per cent of the total national crude oil production.

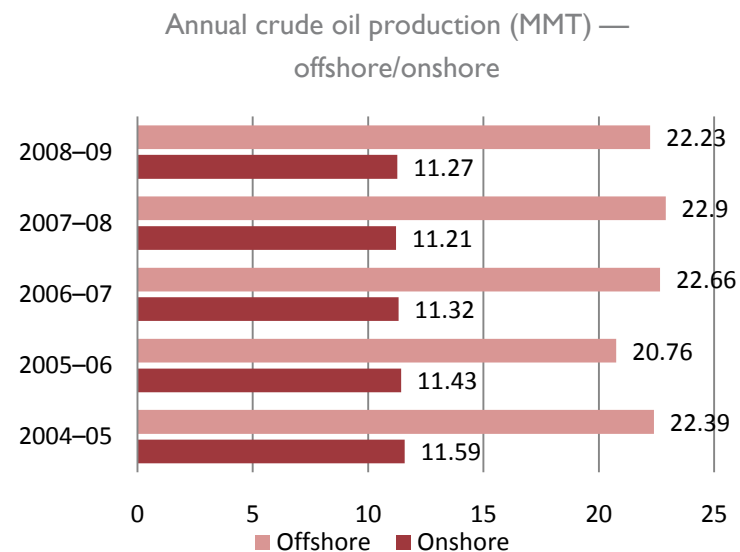


[^]Oil & Natural Gas Corporation (ONGC), Oil India Ltd (OIL)

Sources: Relevant company annual reports 2007–08 and 2008–09, Ministry of Petroleum & Natural Gas.

Upstream segment - annual crude oil production ... (2/2)

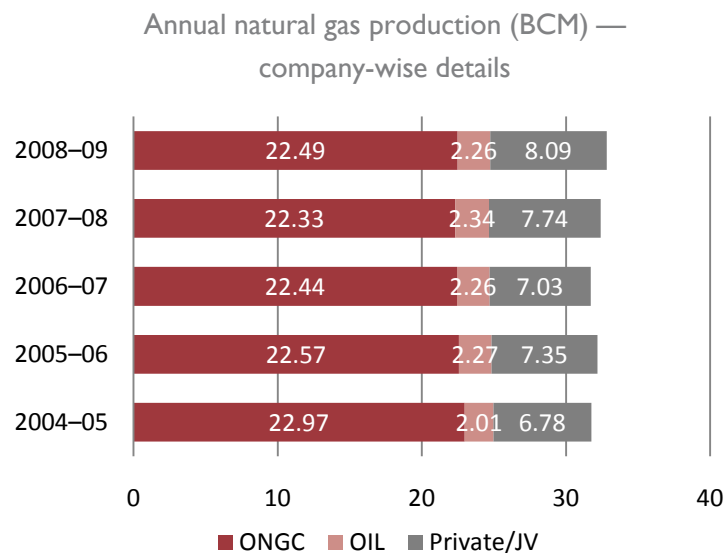
- During the Eleventh Five Year Plan period (2007–2012), the production of crude oil is expected to increase by 24 per cent over the actual oil production during the Tenth Five Year Plan period (2002–07).



Sources: Relevant company annual reports 2007–08 and 2008–09, Ministry of Petroleum & Natural Gas.

Upstream segment - annual natural gas production ... (1/2)

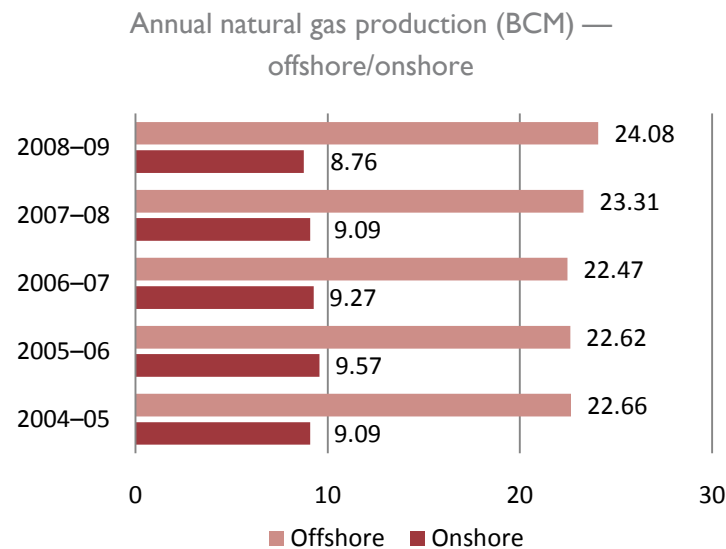
- The total production of natural gas in 2008–09 was 32.85 BCM.
- In 2009–2010, natural gas production is estimated at 52.17 BCM, a significant increase of 59 per cent over the previous year.
- The contribution of private/JV fields during the year was 8.09 BCM of gas, which accounted for about 24.63 per cent of the total natural gas production.



Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.

Upstream segment - annual natural gas production ... (2/2)

- The total production of natural gas is expected to reach 255.27 BCM by the end of the Eleventh Plan period.



Source: "Basic statistics on Indian petroleum & natural gas 2008-09," Ministry of Petroleum & Natural Gas.

Downstream segment – refining ... (1/2)

- India has 20 refineries — 17 in the public sector and three in the private sector.
- The country’s refining capacity increased to 177.97 million tonnes per annum (MTPA) in April 2009 from 148.96 MTPA in the previous year.
- Total refinery crude throughput in 2008–09 was 160.77 MMT, increasing by 2.99 per cent over the volume in 2007–08 (156.10 MMT).

Annual refinery crude throughput

Year	Refinery crude throughput (MMT)
2008–09	160.77
2007–08	156.10
2006–07	146.55
2005–06	130.10
2004–05	127.41

Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.05

Downstream segment – refining ... (2/2)

Refining capacity details

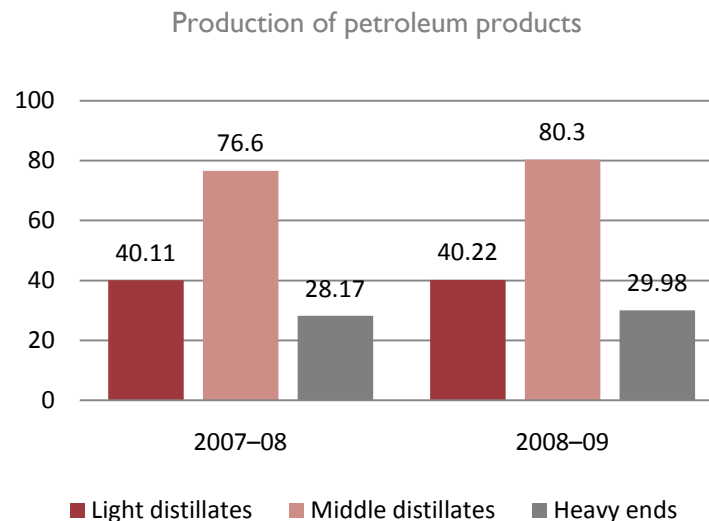
- The Government of India (GoI) has opened the refining industry to private sector investment to achieve faster growth.
- Reliance Industries Limited (RIL) is the largest player in the private sector.

Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.

Public sector	Installed capacity (MTPA)	Pro-rata capacity utilisation (per cent)
Indian Oil Corporation Limited (IOC)	47.35	103.92
Bharat Petroleum Corporation Limited (BPCL)	12	102.18
Hindustan Petroleum Corporation Limited (HPCL)	13	121.59
Kochi Refineries Limited (KRL)	7.5	103.19
Chennai Petroleum Corporation Limited (CPCL)	10.5	96.53
Numaligarh Refinery Limited (NRL)	3	75.03
ONGC	0.078	107.69
Mangalore Refinery and Petrochemicals Limited (MRPL)	9.690	129.79
Bongaigaon Refinery and Petrochemicals Limited (BRPL)	2.350	92.04
Private sector	Installed capacity (MTPA)	Pro-rata capacity utilisation (per cent)
RIL	33	107.99
Essar	10.5	122.98

Downstream segment - production of petroleum products

- The production of petroleum products was 152.68 MMT (including 2.16 MMT of LPG production from natural gas) in 2008–09, an increase of 3.87 per cent over the previous year.
- Petroleum products derived from crude oil include:
 - Light distillates — LPG, Mogas, Naphtha, Natural Gas Liquids (NGL)
 - Middle distillates — Kerosene
 - Heavy ends — Furnace oil, lube oils, bitumen, petroleum coke, paraffin wax
- The production of petroleum products is expected to reach 904.8 MMT by the end of the Eleventh Plan period.



Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.

Downstream segment - marketing, retail and distribution

- Total sales of petroleum products by companies was 133.4 MMT in 2008–09, 3.45 per cent higher than in the previous year (128.95 MMT).
- Indian Oil Corporation (IOC) had the maximum share of total sales (46 per cent), followed by BPCL, HPCL and private players.
- The total number of retail outlets of public sector oil marketing companies (OMCs) increased to 35,066 in April 2009 from 34,101 in 2008.
- The number of LPG distributors in India totaled 9,366 in 2009.

Existing pipeline network in India

Pipeline	Capacity (MMTPA) (as on April 1, 2009)	Length (km) (as on April 1, 2009)	Throughput (MMT) (2008–09)
Product	63.66	9893	49.73
LPG	4.53	2124	2.8
Crude	45.88	5559	44.46
Total	114.07	17576	96.99

Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas.

Consumption pattern - energy consumption mix

- India is largely dependent upon coal and oil for its energy needs, and this dependency has been increasing over the years.
- The consumption of coal in 2008 increased by 8.7 per cent over the previous year (212.9 million tonnes of oil equivalent [MTOE]), underscoring the importance of coal as a primary source.

Projected energy consumption mix in India (2030)

Product	Unit	World	India
Oil	MTOE	5775	435
Gas	MTOE	4125	224
Coal	MTOE	3597	816

Source: "Draft report of the expert committee on Integrated Energy Policy," Planning Commission 2005.

Energy consumption mix in India (2008)

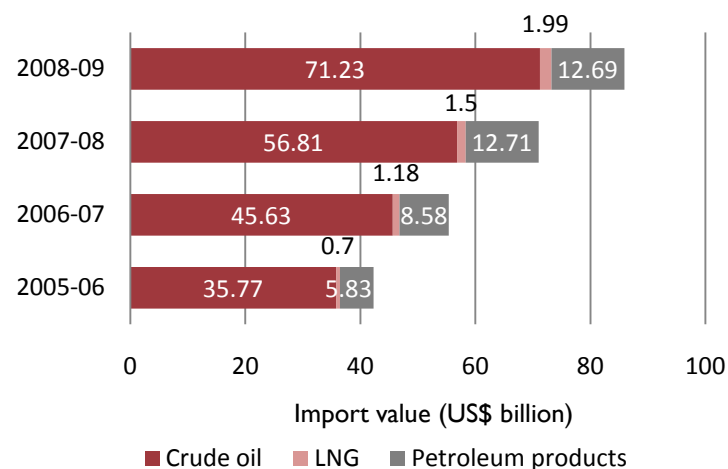
Energy source	Unit	Consumption
Coal	MTOE	231.4
Oil	MMT	135
Natural gas	BCM	41.4
Hydroelectricity	MTOE	26.2
Nuclear energy	MTOE	3.5

Source: "BP Statistical Review of World Energy June 2009," BP.

EXIM scenario

- The total value of imports in 2008–09 was estimated at US\$ 85.9 billion (INR 4,123.29 billion).
- The following are the volumes of imports in 2008–09
 - Crude oil — 128.15 MMT
 - LNG — 8.06 MMT
 - Petroleum products — 7.95 MMT
- India’s export items in this sector primarily include petroleum products.
- The total value of the export of petroleum products (36.93 MMT) was estimated at US\$ 24.47 billion (INR 1,174.58 billion) in 2008–09.

Import trend in the oil and gas sector



Source: “Basic statistics on Indian petroleum & natural gas 2008–09,” Ministry of Petroleum & Natural Gas

Key players – Indian ... (1/2)

Company	Sector	Turnover in 2008–09 US\$ billion (INR billion)	Operations	Remarks
IOC	Public	59.45 (2,853.37)	E&P, refining, distribution and marketing through pipelines, downstream petroleum, natural gas marketing, bio-fuel, wind power projects	<ul style="list-style-type: none"> IOC accounts for nearly 48% market share in petroleum products, 34% of the national refining capacity and 71% of downstream sector pipeline capacity.
ONGC	Public	13.55 (650.49)	E&P	<ul style="list-style-type: none"> ONGC has the largest share of hydrocarbon acreages in India. It contributes more than 80% to India's oil and gas production. ONGC also has the maximum number of exploration licenses.
HPCL	Public	24.26 (1,164.28)	Refining, aviation fuelling, marketing of petroleum products	<ul style="list-style-type: none"> HPCL owns and operates the largest lube refinery in India, accounting for more than 40% of India's total lube base oil production.
BPCL	Public	30.7 (1473.36)	Refining, marketing, exploration	<ul style="list-style-type: none"> BPCL is the first public sector oil company to implement enterprise resource planning (ERP) solutions. The company has set up one of the biggest centres of excellence in Asia to provide online support to end-users.
OIL	Public	1.51(72.41)	E&P, distribution, pipeline construction	<ul style="list-style-type: none"> OIL is a pioneer in crude oil transportation in Southeast Asia.

Key players – Indian ... (2/2)

Company	Sector	Turnover in 2008–09 US\$ billion (INR billion)	Operations	Remarks
GAIL (India) Limited	Public	4.95 (237.76)	E&P, processing, transmission, distribution and marketing	<ul style="list-style-type: none"> GAIL is North India's only gas-based integrated petrochemical complex .
RIL	Private	28.8	E&P, petroleum refining and marketing	<ul style="list-style-type: none"> RIL is credited with the first gas discovery in the Krishna-Godavari (KG) Basin in 2008. The company made its second discovery in May 2008 and third one in December 2009. The production of natural gas from the KG Basin commenced in June 2009. RIL has 14 blocks in its international E&P portfolio. RIL's refinery in Jamnagar (Gujarat) is the largest grassroots refinery in the Asia-Pacific region.
Essar Oil Limited	Private	0.12 (5.76) (2007–08)	E&P, refining and marketing	<ul style="list-style-type: none"> Essar's refinery in Vadinar (Jamnagar) is ideally located, as 70% of India's crude imports arrive in and around this region.
Adani Gas	Private	5.46 (262)	Natural gas distribution	<ul style="list-style-type: none"> Adani set up a gas distribution network in Gujarat (Ahmedabad, Vadodara) and Haryana (Faridabad).
Petronet LNG	Private	1.77 (85.05)	LNG re-gasification terminal	<ul style="list-style-type: none"> Petronet set up India's first LNG receiving and re-gasification terminal, in Dahej (Gujarat).

Sources: "Basic statistics on Indian petroleum & natural gas 2008-09." Ministry of Petroleum & Natural Gas; relevant company annual reports.

Key players - international

Company	Sector	Turnover (2008–09) US\$ billion	Operations	Remarks
Cairn Energy India Pty Ltd	Private	0.321	E&P, marketing	<ul style="list-style-type: none"> Cairn operates the largest producing oil field in the Indian private sector. Currently, Cairn's market capitalisation is in excess of US\$ 6 billion, which ranks it as the fourth-largest oil and gas company in India.
Shell	Private	458.36	Fuel retail, crude, chemicals and technology supply, LNG	<ul style="list-style-type: none"> Shell is the only global company to hold a fuel retail licence in India.
BG Group	Private	21.05	E&P, transmission and distribution	<ul style="list-style-type: none"> BG Group has a 65.12% stake in Gujarat Gas Company Limited, India's largest private sector natural gas distribution company in terms of sales volume.
BP	Private	35.23	Retail operations, automotive lubricants, E&P	<ul style="list-style-type: none"> Castrol India, part of BP Group, is the second-largest player in the Indian lubricant industry and the market leader in the retail automotive lubricant segment.

Sources: Relevant company annual reports.

Key trends - alternative fuels ... (1/3)

Coal bed methane (CBM)

- CBM is an eco-friendly natural gas (methane) adsorbed in coal and lignite seams. Coal is the main source for CBM production, which is conducted by simple depressurisation and dewatering processes.
- CBM exploration and production activities help reduce the greenhouse effect and earn carbon credit.
- The Govt approved the CBM Policy in July 1997.
- The first commercial production of CBM was initiated in July 2007 at about 72,000 cubic metres per day. Currently, four rounds of bidding have been completed:
 - CBM i (2001) — 7 blocks offered
 - CBM ii (2003) — 9 blocks offered
 - CBM iii (2006) — 10 blocks offered
 - CBM iv (2009) — 10 blocks offered

Key trends - alternative fuels ... (2/3)

Underground coal gasification (UCG)

- The technique of underground coal gasification converts unminable underground coal or lignite into combustible gases by gasifying the coal in situ. The technology was first widely used in the US during the 1800s and in India, in Kolkata and Mumbai, in early 1900. UCG is presently the only feasible technology available to harness energy from deep unminable coal seams both economically and in an environmentally clean manner. This process reduces capital investment and operating costs as well as the cost of output gases by 25 to 50 per cent as compared to surface gasification.

Key trends - alternative fuels ... (3/3)

Gas hydrates

- The GoI has initiated the National Gas Hydrate Program (NGHP) to map gas hydrates for use as an alternate source of energy by extracting methane from solids below the seabed in deep oceans and the permafrost regions of the world.
- NGHP is a consortium of national E&P companies and national research institutions.

Biodiesel

- Biodiesel is a fuel produced as an alternate source of energy from domestic renewable resources.
- Biodiesel is better for the environment because it has lower emissions as compared to petroleum or diesel.
- In India, biodiesel is produced from plants (renewable resources) such as jatropha and has the potential to reduce the country's dependence on oil imports.

Sources: Directorate General of Hydrocarbons 2007–08 annual report, website, www.dghindia.org/CBMRounds.aspx?tab=0, accessed 11 January 2010, "Status report on underground coal gasification," August 2007, Government of India.

Sources: Directorate General of Hydrocarbons 2007–08 annual report; Ministry of Petroleum & Natural Gas 2007–08 annual report

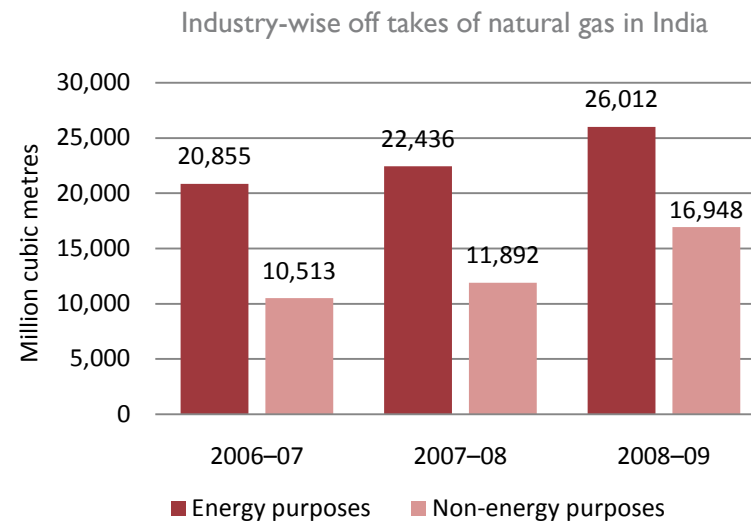
Growth drivers ... (1/2)

Abundant raw material

- India has large reserves of coal, crude oil and natural gas.

Growing demand for natural gas

- The utilisation of natural gas in different industries has increased over the years.



Source: "Basic statistics on Indian petroleum & natural gas 2008-09," Ministry of Petroleum & Natural Gas.

Growth drivers ... (2/2)

- Natural gas is an important input in various industries for the following
 - Energy purposes
 - Power generation
 - Industrial and domestic fuel
 - Tea plantation
 - Captive use or LPG shrinkage
 - Non-energy purposes
 - Fertiliser industry
 - Petrochemicals
 - CNG

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Industry infrastructure

Name of SEZ and status	State	Area (hectares)	Sector	Developer/Promoter	Details
Mangalore SEZ Ltd (Notified)	Karnataka	588	1. Petrochemicals and petroleum 2. Multi-product (proposed)	ONGC, KIADB, IL&FS, KCCI	<ul style="list-style-type: none"> Dedicated pipeline-cum-road corridor (proposed) Water and power available Non-processing zone to have housing, offices, educational and health facilities Proposed units — OMPL, ISPRL, MRPL refinery
Gujarat Hydrocarbons and Power SEZ Ltd (Formal approval)	Gujarat	140	Oil and gas	Gujarat Hydrocarbons and Power SEZ Ltd	<ul style="list-style-type: none"> Target companies from upstream and downstream businesses Proposed residential accommodation, educational, healthcare and recreational facilities
Nagarjuna Oil Corporation Ltd (Formal approval)	Tamil Nadu	104.01	Petrochemicals and petroleum	Nagarjuna Oil Corporation Ltd, Nagarjuna Fertilisers & Chemicals Ltd	<ul style="list-style-type: none"> Establishment of a 6-MMTPA petroleum refinery at an estimated cost of about US\$ 1 billion. Project expected to be commissioned by mid-2011

Sources: Relevant SEZ official websites

Karnataka Industrial Development Board (KIADB), Karnataka Chamber of Commerce and Industry (KCCI), ONGC Mangalore Petrochemicals Ltd (OMPL), Indian Strategic Petroleum Reserves Limited (ISPRL)

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Investments - FDI

- The petroleum and natural gas sectors attracted FDI equity worth US\$ 222 million between April 2009 and January 2010.
- Cumulative FDI in the petroleum and natural gas sectors between April 2000 and January 2010 has been estimated at US\$ 2.61 billion.

Country-wise FDI (2004–09)			
Country	FDI (total value) (US\$ million)	FDI projects (number)	Focus area(s)
Singapore	1,288.72	13	Oil refinery and transportation
Mauritius	360.55	21	Oil refinery and fuel
UK	97.52	21	Oil refinery, oil exploration and fuel
Cyprus	91.88	17	Oil refinery, oil exploration and fuel
US	82.57	26	Oil refinery and fuel

Source: “Basic statistics on Indian petroleum & natural gas 2008–09.” Ministry of Petroleum & Natural Gas

Cumulative FDI	
Period: April 2000 to January 2010	
Sector	Amount of FDI (US\$ million)
Petroleum and natural gas	2,615.87
Coal production	15.64
Total	2631.51

Source: “Factsheet on FDI,” Department of Industrial Policy and Promotion (DIPP) website, www.dipp.nic.in, accessed January 8, 2010.

Investments - M&A

- Inbound deals
 - Malaysian firm PETRONAS bought a 2.3 per cent stake in Cairn India for US\$ 240 million in 2009.
 - ONGC and Arrow Energy (Australia) signed a memorandum of understanding (MoU) in 2009 for cooperation in CBM.

- Domestic deals
 - The largest deal, valued at US\$ 1.75 billion, was Reliance Petroleum Limited (RPL)'s merger with RIL.
 - IOC has bought a 5 per cent stake in OIL for US\$ 232.6 million.
 - Alphageo (India) Limited has bagged a contract from Hindustan Oil Exploration Company Limited (HOEC) for the acquisition of seismic data in Assam.

M&A scenario — details		
Period : January 1, 2009 to November 30, 2009		
Deal type	No of deals	Deal value (US\$ million)
Inbound	4	240.5
Domestic	9	2483.7

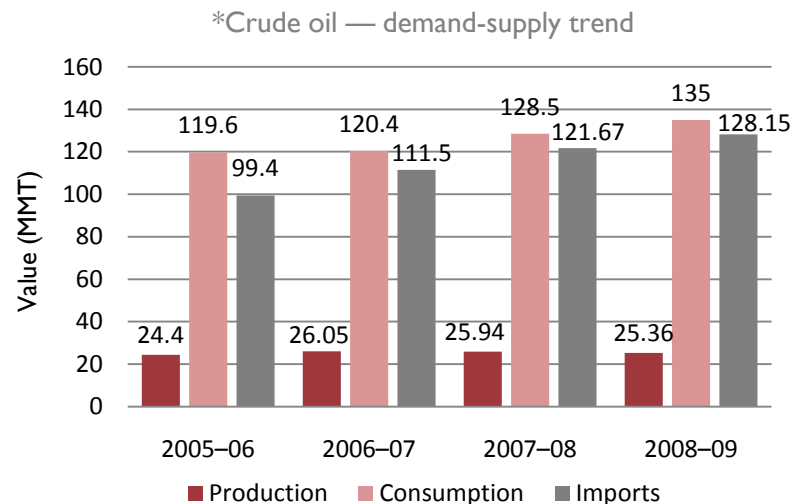
Sources: Bloomberg, accessed 4 December 2009; "Fact Sheet On Foreign Direct Investment (FDI)," DIPP website, www.dipp.nic.in, accessed January 8, 2010.

Increasing demand

- Between 2005 and 2009, the consumption and import of crude oil increased steadily, while production remained largely stagnant due to a lower oil discovery rate.
- Imports are currently meeting the high demand for crude oil as a source of energy in India.

*Demand projections

Product	Unit	2009–2010	2014–15	2019–20	2024–25
Petroleum products	MMT	175	226	288	368
Natural gas	MMS CMD	277	329	358	391



*Sources: “Basic statistics on Indian petroleum & natural gas 2008-09,” Ministry of Petroleum & Natural Gas; “BP Statistical Review of World Energy, June 2009,” BP; “India Hydrocarbon Vision 2025,” Government of India

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Policy and regulatory framework ... (1/4)

FDI policy

Sector/Activity	FDI Cap/Equity	Entry route	Other conditions
All activities other than refining, including market study and formulation, investment/financing, setting up infrastructure for marketing in the petroleum and natural gas sector	100%	Automatic	Subject to the sectoral regulations of Ministry of Petroleum & Natural Gas
Refining	49% for public sector undertakings (PSUs) without involving any divestment or dilution of domestic equity in existing PSUs, 100% for private companies	Foreign Investment Promotion Board (FIPB) for PSUs and automatic for private companies	Subject to sectoral policy

Source: "Petroleum and natural gas sector FDI," Ministry of Petroleum & Natural Gas, March 2008.

Policy and regulatory framework ... (2/4)

- **Oil Field (Regulation and Development) Act, 1948**
- **Oil and Natural Gas Commission Act, 1959**
- **The Petroleum and Minerals Pipelines Act, 1962** — acquisition of user's rights by the government, on land demarcated for laying pipelines for transport of petroleum and other minerals from one locality to another
- **The Oil Industry (Development) Act, 1974**
- **Coal Bed Methane Policy, 1997** — to encourage the exploration and production of CBM gas as a new eco-friendly source of energy

Policy and regulatory framework ... (3/4)

- **Freight Subsidy (for far-flung areas) Scheme, 2002** — to compensate public sector OMCs on the freight incurred to distribute subsidised products in far-flung areas
- **Auto Fuel Policy 2003** — to provide a roadmap to achieve various vehicular emission norms over a period of time and corresponding fuel quality upgrading requirements
- **Bio-diesel Purchase Policy, 2005** — to encourage the production of biodiesel in the country
- **Petroleum and Natural Gas Regulatory Board (PNGRB) Act, 2006** — to regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas
- **New Exploration Licensing Policy (NELP), 1999** — to provide a contract framework for the E&P of hydrocarbons; licences for exploration awarded only through a competitive bidding system; eight rounds of bidding completed so far

Source: Ministry of Petroleum & Natural Gas 2007–08 annual report.

Policy and regulatory framework ... (4/4)

Government initiatives

- The Eleventh Plan outlay for the oil and gas sector has been fixed at US\$ 47.72 billion (INR 2,290.72 billion), about 121 per cent more than the Tenth Plan allocation.
- Thrust areas for E&P in the plan:
 - Increasing domestic production by attracting investments in the upstream sector
 - Increasing production from ONGC's assets, including its maturing fields
 - Providing exploration coverage of 80 per cent during the period
 - Establishing a national knowledge hub during the period
- Improvement of gas availability
 - Intensifying domestic E&P activities
 - Exploiting new sources of energy such as CBM
 - Underground coal gasification
 - Implementing the National Gas Hydrate Programme (NGHP) for the evaluation of hydrate resources
- The GoI has formulated the regulatory framework for the safe usage of LPG as an automotive fuel.

Source: Ministry of Petroleum & Natural Gas 2007–08 annual report.

New Exploration Licensing Policy (NELP)

- The GoI formulated the NELP in 1997–98 to provide an equal platform to both public and private sector companies for the exploration and production of hydrocarbons.
- The NELP was conceptualised for increasing domestic production and for attracting inward investments.
- The introduction of this policy has had a catalytic effect on the liberalisation of the oil and gas sector by opening up the E&P segment for investments.
- Under the NELP, acreages are offered to participating companies through open competitive bidding.

Chronology of events

- 1998 — 48 exploration blocks offered in the first round
- 2000 — second round of the NELP launched and 25 exploration blocks offered
- 2002 — third round of the NELP launched and 27 exploration blocks offered
- 2003 — fourth round of the NELP launched and 24 exploration blocks offered
- 2005 — fifth round of the NELP launched and 20 exploration blocks offered
- 2006 — sixth round of the NELP launched and 55 exploration blocks offered
- 2007 — seventh round of the NELP launched and 57 exploration blocks offered
- 2009 — eighth round of the NELP launched and 70 exploration blocks offered

Sources: “Chronology of E&P events in India,” Directorate General of Hydrocarbons website, www.dghindia.org, accessed 5 January 2010; “Press note on launch of NELP – VIII,” 9 April, 2009, Ministry of Petroleum & Natural Gas.

Highlights of the CBM Policy

- Blocks are awarded through an open international competitive bidding system.
- The GoI has no participating interest.
- No upfront payment is required.
- Exemption from payment of customs duty on imports is required for CBM operation.
- Companies have the freedom to sell gas in the domestic market.
- Fiscal stability is provided.
- Companies are offered a seven-year tax holiday.

Source: Directorate General of Hydrocarbons 2007–08 annual report.

PNGRB - key functions

For petroleum, petroleum products and natural gas

- Ensure the availability of the resources at all times.
- Monitor prices and transportation rates to check restrictive trade practices.
- Secure equitable distribution.
- Enforce retail service obligations for retail outlets and marketing service obligations for entities.
- Maintain an information data bank of activities relating to petroleum, petroleum products and natural gas.
- Lay down the technical standards for related activities in this sector.

Source: PNGRB website, www.pngrb.gov.in, accessed January 11, 2010.

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Opportunities

- New refineries are required to meet the additional refining capacity. Most refineries are generally located on the coasts, while the major centres of petroleum production are in inland locations. Opportunities for setting up refineries in such inland locations exist in abundance.
- Alternative fuels can be produced by utilising CBM and natural gas hydrates.
- An LNG terminal should be established.
- The KG Basin is a potential site for E&P activities.
- World-class institutes and universities for training in this sector need to be established.
- Gas transmission and distribution networks can be developed.
- India's vast reserves of coal make UCG technology a potential segment for investment.

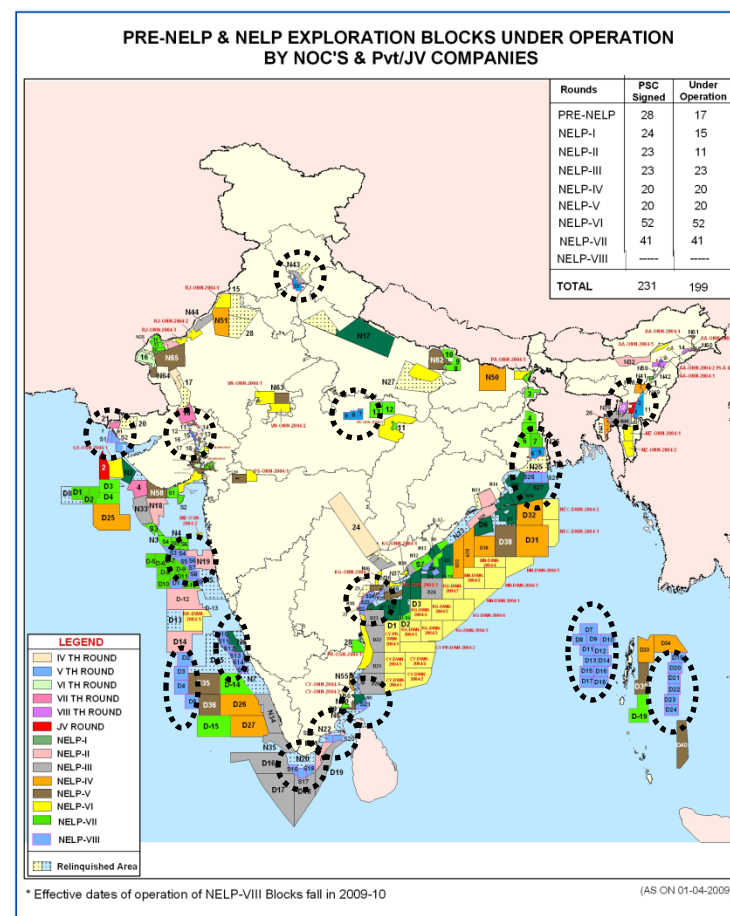
Source: Ministry of Petroleum & Natural Gas.

Opportunities in NELP VIII ... (1/2)

- Maximum number of blocks have been offered in this round.
- 70 blocks cover 5.2 per cent of the total Indian sedimentary basin area.
- The distribution of 18 onland blocks among states
 - Gujarat — 8
 - Madhya Pradesh — 3
 - Assam — 2
 - Manipur — 2
 - West Bengal — 2
 - Haryana — 1
- The 28 shallow-water and 24 deep-water blocks are in the western, eastern and Andaman offshore regions.

Opportunities in NELP VIII ... (2/2)

Deep water	24
Shallow water	28
Onland	18 (including 10 onland Type S blocks)
Total	70



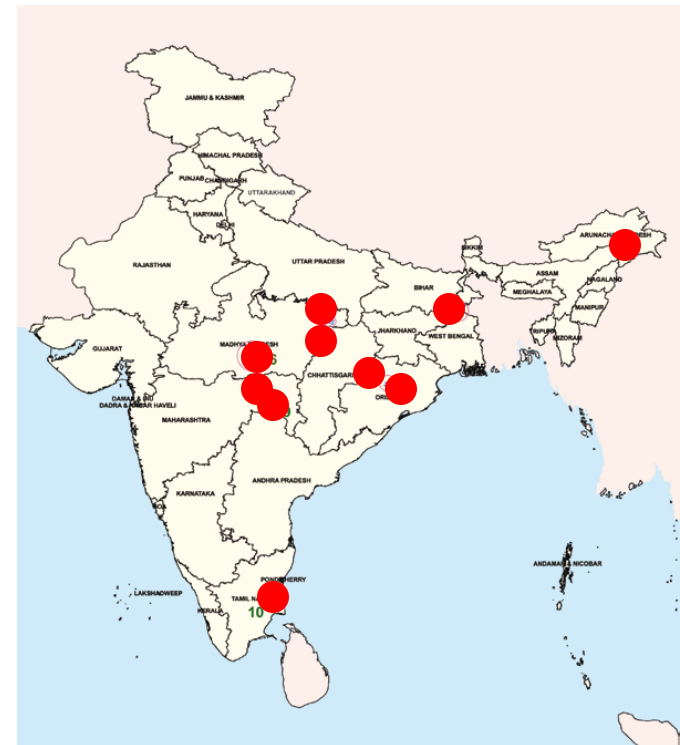
Sources: "Press note on launch of NELP – VIII," April 9, 2009, Ministry of Petroleum & Natural Gas; Directorate General of Hydrocarbons.

Opportunities in CBM IV

- The CBM Policy has been successful in encouraging the use of CBM as an alternative fuel.
- During the first three rounds of bidding, contracts for 23 exploration blocks were signed.
- Over six trillion cubic feet (TCF) reserves have already been established in four CBM blocks.
- The 10 new blocks offered under CBM IV cover an area of 5,000 sq km
- Distribution of blocks
 - Madhya Pradesh — 2
 - Maharashtra — 2
 - Orissa — 2
 - Assam — 1
 - Part Chhattisgarh and part Madhya Pradesh — 1
 - Jharkhand — 1
 - Tamil Nadu — 1

Source: "Press note on launch of CBM – IV," April 9, 2009, Ministry of Petroleum & Natural Gas.

Exploration blocks offered under CBM IV



Source: Directorate General of Hydrocarbons

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Industry associations

Name	Address	Contact person	Telephone	E-mail
Oil Industry Development Board (OIDB)	301, World Trade Centre, Babar Road, New Delhi – 110001	Mr T S Balasubramanian, Financial Adviser and Chief Accounts Officer	91-11-23413298 91-11-23414692	oidb@hotmail.com
Petroleum Conservation Research Association (PCRA)	Sanrakshan Bhavan, 10 Bhikaji Cama Place, New Delhi – 110066	Mr Arun Kumar, ED	91-11-26198799 Ext.301	pcra@pcra.org
Bureau of Energy Efficiency (BEE)	Ministry of Power, 4 th floor, SEWA Bhawan, RK Puram, New Delhi – 110066	Dr Ajay Mathur, Director General	91-11-26178316, 91-11-26179699	dg-bee@nic.in , amathur@beenet.in
Oil Industry Safety Directorate	Ministry of Petroleum & Natural Gas, 7 th floor, “New Delhi House”, 27 Barakhamba Road, New Delhi – 110001	Mr J B Verma, ED	91-11-23316798	verma.jb@gov.in
Petroleum Planning and Analysis Cell (PPAC)	Ministry of Petroleum & Natural Gas, 2 nd floor, Core-8, SCOPE Complex, 7 Institutional Area, Lodhi Road, New Delhi – 110003	Dr Basudev Mohanty, Director	91-11-24362501, 91-11-24361380	-
Directorate General of Hydrocarbons	Ministry of Petroleum & Natural Gas, C-139, Sector 63, Noida – 201301	Mr S K Srivastava, Director General	0120 - 4029401	dg@dghindia.org

Note

Wherever applicable, numbers in the report have been rounded off to the nearest whole number.

Conversion rate used: US\$ 1 = INR 48

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