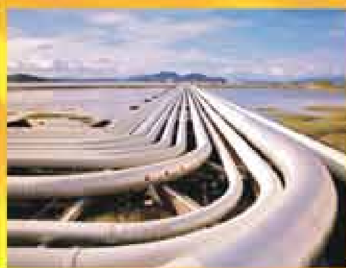
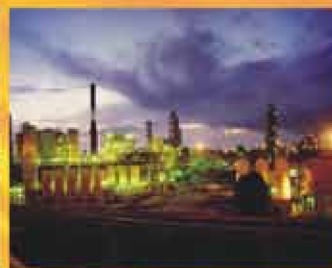
November 2016

READY RECKONER

Oil Industry Information at a Glance





Petroleum Planning & Analysis Cell

(Ministry of Petroleum & Natural Gas)

PPAC

Analysis • Knowledge • Information

Suggestions & Feedback

Readers are invited to send their suggestions & feedback for improvement of the Ready Reckoner to:

Rohit Dawar, Additional Director (D&ES)

Petroleum Planning & Analysis Cell (PPAC)

(Ministry of Petroleum & Natural Gas, Govt. of India)

SCOPE Complex, 2nd Floor, Core 8,

Lodhi Road, New Delhi-110003

Email: rdawar@ppac.gov.in

Acknowledgments

The cooperation of the following persons from PPAC is acknowledged in preparation of Reckoner:

Ms. Anju Jai Misra / Ms. Dev Priya Kaushal / Sh. Niranjan Singh Budiyal (D&ES Division), Sh. Ashish Saxena (Gas Division), Sh. Gaurav Tiwari (Finance Division), Sh. Daleep Kanojia / Sh. Jaideep Kumar (Supply Division), Sh. Sandeep (Mktg. Division) & Sh. Deepak Trivedi (Admn. Division).

PPAC also thanks various organizations from the Oil & Gas sector for providing useful inputs for inclusion in the Ready Reckoner.

Preface

Petroleum Planning & Analysis Cell (PPAC), an attached office of the Ministry of Petroleum & Natural Gas (MoP&NG), publishes the Ready Reckoner bi-annually which serves as a one- stop place for key oil and gas related data of the country. Data and information contained in the Ready Reckoner serve as inputs for decision makers in the Government and industry and also for research agencies and academia.

The present edition of the Ready Reckoner contains the latest data/information for the half yearly period of the financial year 2016-17.

All divisions of PPAC have contributed in bringing out this edition. Timely inputs from various organizations, companies and sources in providing data/information for this Ready Reckoner is acknowledged.

Comments and suggestions for enriching the contents of future editions of the Ready Reckoner are welcome.

Atreyee Das

Atreyee Das
Director General
Petroleum Planning & Analysis Cell (PPAC)
(Ministry of Petroleum & Natural Gas)

New Delhi
November 16, 2016

Petroleum Planning & Analysis Cell

(Ministry of Petroleum & Natural Gas)

Vision & Mission

Vision

To be the most authentic official source for data and policy analysis on the hydrocarbon sector in the country.

Mission

1. To strengthen the existing data system in PPAC by adopting the latest techniques and best practices.
2. To render effective assistance to the Ministry of Petroleum & Natural Gas in the discharge of its responsibilities, particularly pricing of petroleum products and administration of subsidy schemes.
3. To monitor and analyze developments in the domestic oil and gas sector.
4. To undertake analysis of domestic and international energy markets.
5. To develop a cooperative framework for exchange of information and conduct of studies with other countries and international organizations in the energy sector.

Objectives

1. To ensure effective administration of the subsidy schemes notified by the Government
2. To monitor and analyze trends in prices of crude oil, petroleum products and natural gas and their impact on the oil companies and consumers, and prepare appropriate technical inputs for policy making.
3. To monitor developments in the domestic market and analyze options for policy changes in pricing, transportation and distribution of petroleum products.
4. To collect, compile and disseminate data on the domestic oil and gas sector in a continuous manner and maintain the data bank.
5. To ensure quality of data in terms of prescribed parameters such as accuracy, completeness and timeliness.
6. To prepare periodic reports on various aspects of oil and gas sector.

CONTENTS

PPAC

Analysis • Knowledge • Information

Chapter-1

General

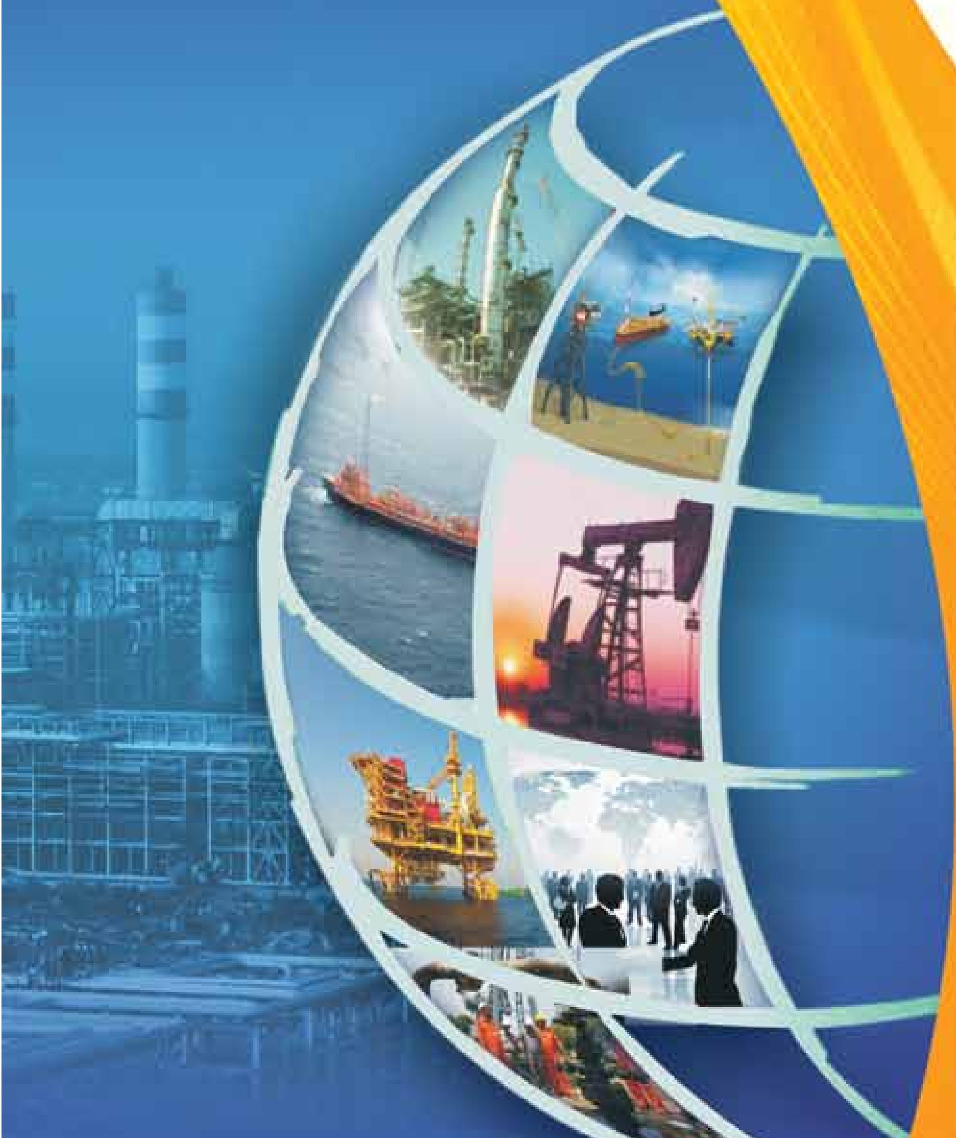


Table 1.1 : Selected indicators of the Indian economy

General

Sl. no.	Particulars	Source	Unit/ Base	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
1	Population (as on 1st March 2011)	Census of India	Billion	1.2	-	-	-	-	-
2	GDP at factor cost (constant prices)	MOC&I	(GR.%)	5.6 (2nd RE) (NS)	6.6 (2nd RE) (NS)	7.2 (1st RE) (NS)	7.6 (PE)	7.5 (Q1)	7.1 Q1(E)
3	Agricultural production (foodgrains)	MoA	Million tonne	257.1	265.0	252.0	252.2 (4th AE)	124.1 (1st AE)	135.0 (1st AE)
			(GR.%)	-0.8	3.1	-4.9	0.1		8.9
4	Index of Industrial Production	MOC&I	(GR.%)	1.1	-0.1	2.8	2.4	4.0	-0.1
5	Imports	MOC&I	$ Billion	490.7	450.2	448.0	381.0	202.3	174.4
6	Exports	MOC&I	$ Billion	300.4	314.4	310.3	262.3	133.7	131.4
7	Trade balance	MOC&I	$ Billion	-190.3	-135.8	-137.7	-118.7	-68.5	-43.0
8	Wholesale Price Index (all commodities) (average)	MOC&I	2004-05=100	167.6	177.6	181.2	176.7	177.4	181.8
9	All India Consumer Price Index (average):								
	i) Industrial workers	Labour Bureau, Govt. of India	2001=100	215.2	236.0	250.8	265.0	261.3	276.3
	ii) Agricultural labourers		1986-87=100	671.9	749.8	799.5	834.9	821.5	867.2
	iii) Rural labourers		1986-87=100	673.3	750.5	802.2	839.4	825.8	872.2
10	Foreign exchange reserves- Total (as of March 29, 2013, March 28, 2014, March 27, 2015, March 25, 2016, Sept. 25, 2015 and Sept. 30, 2016)	RBI	$ Billion	292.6	303.7	341.4	355.6	350.0	372.0
11	Outstanding external liabilities (as of end of financial year)	MOF	₹ Crore	1,72,302 (RE)	1,82,729 (RE)	1,94,286 (RE)	2,08,998 (RE)	-	2,28,093 (BE)
12	Outstanding internal debt (as of end of financial year)	MOF	₹ Crore	48,66,829	54,04,420	60,84,268 (RE)	66,82,915 (RE)	-	72,10,089 (BE)
13	Central plan outlay	MOF	₹ Crore	4,98,476 (Actual)	6,03,573 (Actual)	4,20,882 (Actual)	5,82,707 (RE)	-	7,06,248 (BE)
14	Gross fiscal deficit	MOF	%	-4.9	-4.5	-4.1	-3.9 (RE)	-	-3.5 (BE)

Notes : (P):Provisional; RBI: Reserve Bank of India, MoF: Ministry of Finance, MOC&I: Ministry of Commerce & Industry, MoA: Ministry of Agriculture, PE: Provisional Estimates, BE: Budget Estimate; AE: Advance Estimates, RE: Revised Estimates, NS: New Series

Petroleum

Sl. no.	Particulars	Source	Unit/ Base	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
1	Crude oil production in India	OMCs/PPAC	MMT	37.9	37.8	37.5	36.9	18.7	18.1
2	Consumption of petroleum products in India	OMCs/PPAC	MMT	157.1	158.4	165.5	184.7	88.5	96.7
3	Petroleum products production in India	Oil Cos	MMT	217.8	220.3	220.7	231.2	111.7	119.8
4	Imports & exports								
	Crude oil imports	Oil Cos	$ Billion	144.3	143.0	112.7	64.0	38.6	32.2
	Petroleum products imports	Oil Cos & DGCIS	$ Billion	12.6	12.5	12.1	10.0	5.6	4.8
	Total petroleum imports (crude oil + petroleum products)	Oil Cos & DGCIS	$ Billion	156.9	155.4	124.9	73.9	44.2	37.0
	Petroleum products exports	Oil Cos	$ Billion	58.8	60.7	47.3	27.1	15.2	13.5
5	Gross petroleum imports as % of India's gross imports in value terms	MOC&I/PPAC	%	32.0	34.5	27.9	19.4	21.9	21.2
6	Gross petroleum exports as % of India's gross exports in value terms	MOC&I/PPAC	%	19.6	19.3	15.2	10.3	11.4	10.3
7	Import dependency (based on consumption)	PPAC	%	77.1	77.6	78.5	80.9	80.0	81.9

Notes : OMCs: Oil Marketing Companies, PPAC: Petroleum Planning & Analysis Cell

Natural Gas

Sl. no.	Particulars	Source	Unit/ Base	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
1	Gross Production	ONGC/OIL/DGH	MMSCMD	111.45	97.01	92.21	88.11	89.88	85.92
2	Net Production (net of flare and loss)	ONGC/OIL/DGH	MMSCMD	108.91	94.72	89.57	85.08	86.59	83.01
3	*LNG Import	LNG importing Cos	MMSCMD	39.57	48.57	50.78	58.22	54.76	69.14
4	Total Consumption including internal use (Net Production+ LNG import)		MMSCMD	148.48	143.29	140.35	143.30	141.35	152.15
5	Import dependency (based on consumption)	PPAC	%	26.65	33.90	36.18	40.63	38.74	45.44

Notes : *LNG imports include both term and spot cargo, *RIL LNG import data is not included in the year 2012-13, MMSCMD : Million Standard Cubic Meter per day

Table 1.2 : Global energy consumption, 2015

Sl.no.	Country	Oil (Mtoe)	Natural Gas (Mtoe)	Coal (Mtoe)	Nuclear Energy (Mtoe)	Hydro Electricity (Mtoe)	Renewables (Mtoe)	Total Energy (Mtoe)
	World	4331.3	3135.2	3839.9	583.1	892.9	364.9	13147.3
	% Share	32.9	23.8	29.2	4.4	6.8	2.8	100.0
	Per Capita Consumption (Toe)	0.60	0.43	0.53	0.08	0.12	0.05	1.81
1	**China**	559.7	177.6	1920.4	38.6	254.9	62.7	3014.0
	% Share	18.6	5.9	63.7	1.3	8.5	2.1	100.0
	Per Capita Consumption (Toe)	0.41	0.13	1.41	0.03	0.19	0.05	2.21
2	**USA**	851.6	713.6	396.3	189.9	57.4	71.7	2280.6
	% Share	37.3	31.3	17.4	8.3	2.5	3.1	100.0
	Per Capita Consumption (Toe)	2.67	2.24	1.24	0.60	0.18	0.22	7.15
3	**India**	195.5	45.5	407.2	8.6	28.1	15.5	700.5
	% Share	27.9	6.5	58.1	1.2	4.0	2.2	100.0
	Per Capita Consumption (Toe)	0.15	0.04	0.31	0.01	0.02	0.01	0.54
4	**Russian Federation**	143.0	352.3	88.7	44.2	38.5	0.1	666.8
	% Share	21.4	52.8	13.3	6.6	5.8	^	100.0
	Per Capita Consumption (Toe)	0.99	2.45	0.62	0.31	0.27	^	4.64
5	**Japan**	189.6	102.1	119.4	1.0	21.9	14.5	448.5
	% Share	42.3	22.8	26.6	0.2	4.9	3.2	100.0
	Per Capita Consumption (Toe)	1.49	0.80	0.94	0.01	0.17	0.11	3.53
6	**Canada**	100.3	92.2	19.8	23.6	86.7	7.3	329.9
	% Share	30.4	27.9	6.0	7.1	26.3	2.2	100.0
	Per Capita Consumption (Toe)	2.82	2.59	0.56	0.66	2.44	0.21	9.28
7	**Germany**	110.2	67.2	78.3	20.7	4.4	40.0	320.6
	% Share	34.4	20.9	24.4	6.5	1.4	12.5	100.0
	Per Capita Consumption (Toe)	1.36	0.83	0.97	0.26	0.05	0.49	3.96
8	**Brazil**	137.3	36.8	17.4	3.3	81.7	16.3	292.8
	% Share	46.9	12.6	5.9	1.1	27.9	5.6	100.0
	Per Capita Consumption (Toe)	0.67	0.18	0.08	0.02	0.40	0.08	1.42
9	**South Korea**	113.7	39.2	84.5	37.3	0.7	1.6	276.9
	% Share	41.0	14.2	30.5	13.5	0.2	0.6	100.0
	Per Capita Consumption (Toe)	2.25	0.78	1.67	0.74	0.01	0.03	5.49
10	**Iran**	88.9	172.1	1.2	0.8	4.1	0.1	267.2
	% Share	33.3	64.4	0.5	0.3	1.5	^	100.0
	Per Capita Consumption (Toe)	1.14	2.20	^	^	0.05	^	3.42
11	**Saudi Arabia**	168.1	95.8	0.1	-	-	^	264.0
	% Share	63.7	36.3	^	-	-	^	100.0
	Per Capita Consumption (Toe)	5.44	3.10	^	-	-	^	8.55
12	**France**	76.1	35.1	8.7	99.0	12.2	7.9	239.0
	% Share	31.8	14.7	3.6	41.4	5.1	3.3	100.0
	Per Capita Consumption (Toe)	1.15	0.53	0.13	1.49	0.18	0.12	3.61
13	**Indonesia**	73.5	35.8	80.3	-	3.6	2.4	195.6
	% Share	37.6	18.3	41.1	-	1.9	1.2	100.0
	Per Capita Consumption (Toe)	0.29	0.14	0.32	-	^	^	0.77
14	**United Kingdom**	71.6	61.4	23.4	15.9	1.4	17.4	191.2
	% Share	37.4	32.1	12.2	8.3	0.7	9.1	100.0
	Per Capita Consumption (Toe)	1.11	0.95	0.36	0.25	0.02	0.27	2.96
15	**Mexico**	84.3	74.9	12.8	2.6	6.8	3.5	185.0
	% Share	45.6	40.5	6.9	1.4	3.7	1.9	100.0
	Per Capita Consumption (Toe)	0.67	0.60	0.10	^	0.05	^	1.48

Source: BP Statistical Review of World Energy, June 2016
Note: Oil consumption is measured in million tonnes; other fuels in million tonnes of oil equivalent. For calculation of per capita consumption population figures have been taken from World Bank International Data Base for 2014 **Mtoe:** Million tonnes oil equavalent, **Toe:** Tonne oil equivalent; ^ Less than 0.05.

Chapter-2

Exploration & Crude Production

ONGC Platform

Table 2.1 : Crude oil proved reserves

Sl. no.	Country	At the end 2015		
		Thousand million tonnes	Thousand million barrels	Reserves /Production ratio
1	Venezuela	47.0	300.9	313.9
2	Saudi Arabia	36.6	266.6	60.8
3	Canada	27.8	172.2	107.6
4	Iran	21.7	157.8	110.3
5	Iraq	19.3	143.1	97.2
6	Russian Federation	14.0	102.4	25.5
7	Kuwait	14.0	101.5	89.8
8	United Arab Emirates	13.0	97.8	68.7
9	US	6.6	55.0	11.9
10	Libya	6.3	48.4	306.8
11	Nigeria	5.0	37.1	43.2
12	Kazakhstan	3.9	30.0	49.3
13	Qatar	2.7	25.7	37.1
14	China	2.5	18.5	11.7
15	Brazil	1.9	13.0	14.1
16	Angola	1.7	12.7	19.0
17	Algeria	1.5	12.2	21.1
18	Mexico	1.5	10.8	11.5
19	Ecuador	1.2	8.0	40.4
20	Norway	1.0	8.0	11.3
21	Azerbaijan	1.0	7.0	22.8
22	**India**	**0.8**	**5.7**	**18.0**
23	Oman	0.7	5.3	15.3
24	Vietnam	0.6	4.4	33.3
25	Indonesia	0.5	3.6	12.0
26	South Sudan	0.5	3.5	64.9
27	Malaysia	0.5	3.6	14.2
28	Egypt	0.5	3.5	13.2
29	Australia	0.4	4.0	28.3
30	Yemen	0.4	3.0	176.5
	Sub total	**234.9**	**1665.1**	
	Others	4.4	32.5	
	Total World	**239.4**	**1697.6**	**50.7**
	of which: OECD	38.0	255.3	29.7
	Non-OECD	201.3	1442.3	58.0
	OPEC	169.9	1211.6	86.8
	Non-OPEC	69.4	486.0	24.9
	European Union	0.7	5.6	10.1
	Commonwealth of Independent States (CIS)	19.1	141.1	27.8
	Canadian oil sands: Total	27.0	166.2	
	of which: under active development	4.0	24.4	
	Venezuela: Orinoco Belt	35.7	222.3	

Source: BP Statistical Review of World Energy, June 2016 which includes data from ICIS.

Notes: Total proved reserves of oil - Generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions. The data series for total proved oil does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at company level, for instance as published by the US Securities and Exchange Commission, nor does it necessarily represent BP's view of proved reserves by country.

Reserves-to-production (R/P) ratio - If the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.

Source of data - The estimates in this table have been compiled using a combination of primary official sources, third-party data from the OPEC Secretariat, World Oil, Oil & Gas Journal and independent estimates of Russian reserves based on official data and Chinese reserves based on information in the public domain. Canadian oil sands 'under active development' are an official estimate. Venezuelan Orinoco Belt reserves are based on the OPEC Secretariat and government announcements.

Reserves include gas condensate and natural gas liquids (NGLs) as well as crude oil. Shares of total and R/P ratios are calculated using thousand million barrels figures.

Table 2.2 : Crude oil production, 2015

Sl.no.	Country	Production*	
		Million tonnes	Million barrels daily
1	Saudi Arabia	568.5	12.0
2	US	567.2	12.7
3	Russian Federation	540.7	11.0
4	Canada	215.5	4.4
5	China	214.6	4.3
6	Iraq	197.0	4.0
7	Iran	182.6	3.9
8	United Arab Emirates	175.5	3.9
9	Kuwait	149.1	3.1
10	Venezuela	135.2	2.6
11	Brazil	131.8	2.5
12	Mexico	127.6	2.6
13	Nigeria	113.0	2.4
14	Angola	88.7	1.8
15	Norway	88.0	1.9
16	Kazakhstan	79.3	1.7
17	Qatar	79.3	1.9
18	Algeria	68.5	1.6
19	Colombia	53.1	1.0
20	Oman	46.6	1.0
21	United Kingdom	45.3	1.0
22	Azerbaijan	41.7	0.8
23	**India**	**41.2**	**0.9**
24	Indonesia	40.0	0.8
25	Egypt	35.6	0.7
26	Malaysia	31.9	0.7
27	Argentina	29.7	0.6
28	Ecuador	29.1	0.5
29	Libya	20.2	0.4
30	Vietnam	17.4	0.4
	Sub total	**4153.8**	**87.2**
	Others	208.1	4.5
	Total World	**4361.9**	**91.7**
	of which: OECD	1087.9	23.5
	Non-OECD	3274.0	68.1
	OPEC	1806.6	38.2
	Non-OPEC	2555.3	53.4
	European Union	71.7	1.5
	Commonwealth of Independent States (CIS)	682.0	13.9

Source: BP Statistical Review of World Energy, June 2016 which includes data from ICIS.

Note: * Includes crude oil, shale oil, oil sands and NGLs (natural gas liquids-the liquid content of natural gas where this is recovered separately). Excludes liquid fuels from other sources such as biomass and derivatives of coal and natural gas.

Table 2.3 : Crude oil consumption, 2015

Sl. no.	Country	Consumption *	
		Million tonnes	Thousand barrels daily
1	US	851.6	19396
2	China	559.7	11968
3	**India**	**195.5**	**4159**
4	Japan	189.6	4150
5	Saudi Arabia	168.1	3895
6	Russian Federation	143.0	3113
7	Brazil	137.3	3157
8	South Korea	113.7	2575
9	Germany	110.2	2338
10	Canada	100.3	2322
11	Iran	88.9	1947
12	Mexico	84.3	1926
13	France	76.1	1606
14	Indonesia	73.5	1628
15	United Kingdom	71.6	1559
16	Singapore	69.5	1339
17	Spain	60.5	1226
18	Italy	59.3	1262
19	Thailand	56.6	1344
20	Australia	46.2	1006
21	Taiwan	46.0	1031
22	United Arab Emirates	40.0	901
23	Egypt	39.2	824
24	Turkey	38.8	835
25	Netherlands	38.7	835
26	Malaysia	36.2	831
27	Venezuela	32.0	678
28	Argentina	31.6	679
29	South Africa	31.1	661
30	Belgium	30.5	649
	Sub total	**3619.7**	**79839**
	Others	712	15169
	Total World	**4331.3**	**95008**
	of which: OECD	2056.4	45643
	Non-OECD	2274.9	49365
	European Union	600.2	12712
	CIS countries	188.5	4091

Source: BP Statistical Review of World Energy, June 2016

Note: Differences between these world consumption figures and world production statistics are accounted for by stock changes, consumption of non-petroleum additives and substitute fuels, and unavoidable disparities in the definition, measurement or conversion of oil supply and demand data.

* Inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of biogasoline (such as ethanol), biodiesel and derivatives of coal and natural gas are also included.

Table 2.4 : Crude Oil: Refinery capacities*

(Thousand barrels daily)

Sl.no.	Country	2005	2015	Addition	% Change
1	US	17339	18315	976	5.6
2	China	7752	14262	6510	84.0
3	Russian Federation	5408	6428	1020	18.9
4	**India**	**2558**	**4307**	**1749**	**68.4**
5	Japan	4531	3721	-810	-17.9
6	South Korea	2598	3110	512	19.7
7	Saudi Arabia	2107	2899	792	37.6
8	Brazil	1942	2278	336	17.3
9	Germany	2322	2032	-290	-12.5
10	Iran	1692	1985	293	17.3
11	Canada	1896	1966	70	3.7
12	Italy	2515	1915	-600	-23.9
13	Mexico	1463	1602	139	9.5
14	Spain	1377	1546	169	12.3
15	Singapore	1420	1514	94	6.6
16	France	1978	1375	-603	-30.5
17	United Kingdom	1819	1337	-482	-26.5
18	Venezuela	1291	1303	12	0.9
19	Netherlands	1274	1293	19	1.5
20	Thailand	1078	1252	174	16.1
21	United Arab Emirates	620	1143	523	84.4
22	Indonesia	1057	1116	59	5.6
23	Taiwan	1159	988	-171	-14.8
24	Kuwait	936	936	0	0.0
25	Egypt	810	840	30	3.7
26	Belgium	756	776	20	2.6
27	Argentina	615	657	42	6.8
28	Algeria	443	651	208	46.9
29	Turkey	613	613	0	0.0
30	Malaysia	522	612	90	17.2
	Sub total	**71892**	**82773**	**10881**	**15.1**
	Others	14671	14454	-217	-1.5
	Total World	**86562**	**97227**	**10665**	**12.3**
	of which: OECD	45139	44120	-1020	-2.3
	Non-OECD	41423	53107	11684	28.2
	European Union	15922	14124	-1798	-11.3
	Commonwealth of independent states (CIS)	7410	8260	850	11.5

Source: BP Statistical Review of World Energy, June 2016 which includes data from ICIS.
Note: * Atmospheric distillation capacity at year end on a calender-day basis.

Table 2.5 : Indigenous crude oil production

(Million metric tonne)

	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
PSU companies						
ONGC	19.5	19.2	18.6	18.5	9.3	9.1
OIL	3.7	3.5	3.4	3.2	1.6	1.6
PSU total	**23.2**	**22.7**	**22.1**	**21.8**	**11.0**	**10.7**
PSU total (crore barrels)	**17.0**	**16.6**	**16.2**	**16.0**	**8.1**	**7.9**
Under PSC contracts						
PSC total	**11.6**	**12.0**	**11.7**	**11.3**	**5.8**	**5.4**
PSC total (crore barrels)	**8.5**	**8.8**	**8.6**	**8.3**	**4.2**	**4.0**
Total crude oil	**34.7**	**34.7**	**33.8**	**33.1**	**16.8**	**16.2**
Condensate	3.2	3.1	3.7	3.8	1.9	1.9
Total (crude oil + condensate)	**37.9**	**37.8**	**37.5**	**36.9**	**18.7**	**18.1**
Total (crude oil + condensate) (crore barrels)	**27.8**	**27.7**	**27.5**	**27.1**	**13.7**	**13.2**

Source: Oil Companies and DGH

Table 2.6 : Self sufficiency in petroleum products

(Million metric tonne)

	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
i) Indigenous crude oil processing	**34.2**	**33.9**	**34.2**	**34.1**	**17.2**	**16.7**
a) Products from indigeneous crude	31.9	31.6	32.0	31.8	16.1	15.5
b) Products from fractionators (including LPG and Gas)	4.1	3.9	3.7	3.4	1.7	1.7
ii) Total production from indigenous crude, condensate & gas (a+b)	**36.0**	**35.5**	**35.6**	**35.2**	**17.7**	**17.3**
iii) Total domestic consumption	**157.1**	**158.4**	**165.5**	**184.7**	**88.5**	**95.6**
% Self sufficiency (ii/iii)	**22.9**	**22.4**	**21.5**	**19.1**	**20.0**	**18.1**

Source: Oil companies

Notes:

1. Production of petroleum products from indigenous crude considered at 93.3% of indigenous crude oil processing.
2. The balance demand of petroleum products is met through import of crude oil and POL products.

Table 2.7 : Status of blocks under NELP (2015-16)

Round	Offered	Awarded				Relinquished				Operational			
		Deep water	Shallow water	Onland	Total	Deep water	Shallow water	Onland	Total	Deep water	Shallow water	Onland	Total
NELP-I	48	7	16	1	24	4	15	1	20	3	1	0	4
NELP-II	25	8	8	7	23	8	6	5	19	0	2	2	4
NELP-III	27	9	6	8	23	8	5	5	18	1	1	3	5
NELP-IV	24	10	0	10	20	10	0	6	16	0	0	4	4
NELP-V	20	6	2	12	20	5	1	8	14	1	1	4	6
NELP-VI	55	21	6	25	52	21	2	17	40	0	4	8	12
NELP-VII	57	11	7	23	41	11	4	12	27	0	3	11	14
NELP-VIII	70	8	11	13	32	7	5	2	14	1	6	11	18
NELP-IX	34	1	3	15	19	1	0	1	2	0	3	14	17
Total	**360**	**81**	**59**	**114**	**254**	**75**	**38**	**57**	**170**	**6**	**21**	**57**	**84**

Source: Directorate General of Hydrocarbons (DGH)

Table 2.8 : Hydrocarbon reserves in India

(Million metric tonne)

Details of reserves in India as of 01.04.2016	Initial in place			Ultimate reserves		
	Oil	Gas	O+OEG	Oil	Gas	O+OEG
ONGC	5286	2474	7760	1507	1314	2821
OIL	799	357	1155	83	44	127
Pvt./JV	995	1362	2357	225	786	1011
Total	**7080**	**4192**	**11272**	**1816**	**2144**	**3960**
	Accretion of initial in place			**Accretion ultimate reserves**		
ONGC	57	58	115	14	17	31
OIL	-3	13	10	1	8	9
Pvt./JV	20	-98	-78	10	19	28
Total	**74**	**-27**	**47**	**25**	**43**	**68**

Source: DGH
Note: O+OEG: Oil and Oil Equivalent of Gas

Table 2.9 : Domestic oil & gas production vis a vis overseas production

Year	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
Total domestic production (MTOE)	78.5	73.2	71.1	69.2	35.1	33.8
Overseas production (MTOE)	7.3	8.8	9.6	9.7	4.8	5.9
Overseas production as % of domestic production	9.3%	12.0%	13.5%	14.0%	13.7%	17.5%

Source: ONGC Videsh Ltd., OIL, GAIL, IOCL and HPCL
Note : MTOE-Million Tonnes of Oil Equivalent.

Table 2.10 : Coal Bed Methane (CBM) Gas development in India

Prognosticated CBM resources	92	TCF
Established CBM resources	9.9	TCF
Total available coal bearing area	26000	Sq.KM
Blocks awarded*	33	Nos.
Commercial production of CBM Gas (Apr-Sep 2016)	1.46	MMSCMD

Source : DGH
*CBM blocks have been awarded in the states of Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu and West Bengal.

Table 2.11 : Status of Shale Gas and oil development in India

a) Policy Guidelines for Exploration and exploitation of Shale gas and oil	Shale gas and oil exploration policy was announced on 14th October, 2013 by the Govt. of India for National Oil Companies to explore and exploit shale oil and gas resources in nomination areas. As per policy guidelines, OIL and ONGC are required to carry out exploration in 6 and 50 blocks respectively.
b) OIL : Activities during 2015-16	OIL is presently carrying out shale gas and oil exploration in two onland basins namely Assam & Arakan and Jaisalmer basin. OIL has initially identified five blocks viz. Dibrugarh, Chabua, Dumduma, Jaisalmer and Jairampur from its nomination acreages and later on identified one more block (Deomali PEL) and started Geological and Geophysical (G&G) evaluation. OIL has completed G&G evaluation of four Blocks i.e, Dibrugarh PML, Chabua PML, Dumduma PML and Jaisalmer PML. Jairampur Extension PEL and Deomali PEL are situated in thrust belt area of Upper Assam basin which have paucity of G&G data. In this regard, OIL has planned to drill three core holes up to a maximum depth of 2000 m in these two areas to acquire additional G&G information.
c) ONGC: Activities during 2015-16	ONGC is presently carrying out shale gas and oil exploration in four onland basins namely, Cambay, KG, Cauvery and Assam & Arakan. As on date, a total of twelve exploratory locations for shale gas and oil are available for drilling in 2016-17 and subsequent year. In addition, coring and other data collection are planned in suitable exploratory wells in identified blocks. ONGC has drilled 18 wells so far and one well is under drilling. So far 69 cores have been collected in 17 wells. During the current year 2015-16, ONGC has completed coring and other data collection programme in six wells (four in Cambay and one each in KG and Cauvery basins) in different blocks. Three of these wells were drilled in Cambay basin exclusively for shale gas and oil. Besides the drilling of above mentioned shale gas and oil wells, ONGC has also carried out hydro-fracturing in one well in 2013-14.

Source: DGH

Chapter-3

Natural Gas

LNG Petronet Plant

Table 3.1 : World top 30 natural gas reserve countries

(Billion cubic metre)

Sl. no.	Country	2014	2015
1	Iran	34020.0	34020.0
2	Russian Federation	32355.6	32271.0
3	Qatar	24528.1	24528.1
4	Turkmenistan	17479.0	17479.0
5	US	10440.5	10440.5
6	Saudi Arabia	8325.2	8325.2
7	United Arab Emirates	6091.0	6091.0
8	Venezuela	5617.2	5617.2
9	Nigeria	5111.0	5111.0
10	Algeria	4504.0	4504.0
11	China	3666.2	3841.3
12	Iraq	3694.0	3694.0
13	Australia	3471.4	3471.4
14	Indonesia	2839.0	2839.0
15	Canada	1987.1	1987.1
16	Norway	1922.0	1856.9
17	Egypt	1846.3	1846.3
18	Kuwait	1784.0	1784.0
19	Libya	1504.9	1504.9
20	**India**	**1427.1**	**1488.5**
21	Malaysia	1169.3	1169.3
22	Azerbaijan	1166.2	1148.3
23	Uzbekistan	1085.9	1085.9
24	Kazakhstan	936.0	936.0
25	Oman	688.1	688.1
26	Netherlands	674.7	674.7
27	Vietnam	617.1	617.1
28	Ukraine	616.2	604.1
29	Pakistan	542.6	542.6
30	Myanmar	528.4	528.4
	Sub total	**180638.1**	**180694.7**
	Others	6330.4	6180.0
	Total World	**186968.5**	**186874.7**
	of which: OECD	19650.7	19561.8
	Non-OECD	167317.9	167312.9
	European Union	1315.7	1302.0
	CIS	53672.3	53556.6

Source: BP Statistical Review of World Energy, June 2016

Table 3.2 : World top 30 natural gas producing countries

(Billion cubic metre)

SL. no.	Country	2014	2015
1	US	728.5	767.3
2	Russian Federation	581.7	573.3
3	Iran	182.0	192.5
4	Qatar	174.1	181.4
5	Canada	162.0	163.5
6	China	131.6	138.0
7	Norway	108.8	117.2
8	Saudi Arabia	102.4	106.4
9	Algeria	83.3	83.0
10	Indonesia	75.3	75.0
11	Turkmenistan	69.3	72.4
12	Malaysia	66.7	68.2
13	Australia	61.3	67.1
14	Uzbekistan	57.3	57.7
15	United Arab Emirates	54.2	55.8
16	Mexico	57.1	53.2
17	Nigeria	45.0	50.1
18	Egypt	48.8	45.6
19	Netherlands	55.7	43.0
20	Pakistan	41.9	41.9
21	Thailand	42.1	39.8
22	United Kingdom	36.8	39.7
23	Trinidad & Tobago	42.1	39.6
24	Argentina	35.5	36.5
25	Oman	33.3	34.9
26	Venezuela	28.6	32.4
27	**India**	**30.4**	**29.2**
28	Bangladesh	23.9	26.8
29	Brazil	22.6	22.9
30	Bolivia	21.0	20.9
	Sub total	**3203.4**	**3275.3**
	Others	259.7	263.4
	Total World	**3463.2**	**3538.6**
	of which: OECD	1253.6	1293.2
	Non-OECD	2209.6	2245.5
	European Union	130.5	120.1
	CIS	756.2	751.6

Source: BP Statistical Review of World Energy, June 2016

Table 3.3 : World top 30 natural gas consuming countries

(Billion cubic metre)

Sl. no.	Country	2014	2015
1	US	756.0	778.0
2	Russian Federation	411.9	391.5
3	China	188.4	197.3
4	Iran	180.0	191.2
5	Japan	118.0	113.4
6	Saudi Arabia	102.4	106.4
7	Canada	104.2	102.5
8	Mexico	86.8	83.2
9	Germany	71.1	74.6
10	United Arab Emirates	66.3	69.1
11	United Kingdom	66.7	68.3
12	Italy	56.3	61.4
13	Thailand	52.7	52.9
14	**India**	**50.6**	**50.6**
15	Uzbekistan	48.8	50.3
16	Egypt	48.0	47.8
17	Argentina	47.1	47.5
18	Qatar	39.7	45.2
19	South Korea	47.8	43.6
20	Turkey	44.7	43.6
21	Pakistan	41.9	43.4
22	Brazil	39.4	40.9
23	Malaysia	40.8	39.8
24	Indonesia	40.9	39.7
25	France	36.2	39.1
26	Algeria	37.5	39.0
27	Venezuela	30.7	34.5
28	Australia	36.0	34.3
29	Turkmenistan	27.7	34.3
30	Netherlands	32.0	31.8
	Sub total	**2950.6**	**2995.3**
	Others	459.6	473.4
	Total World	**3410.2**	**3468.6**
	of which: OECD	1582.8	1606.1
	Non-OECD	1827.4	1862.6
	European Union	384.5	402.1
	Former Soviet Union	565.5	545.4

Source: BP Statistical Review of World Energy, June 2016

Table 3.4 : Natural gas at a glance

(MMSCMD)

	2012-2013	2013-2014	2014-2015	2015-2016	Apr-Sep 2015	Apr-Sep 2016 (P)
Gross Production	111.45	97.01	92.21	88.11	89.88	85.92
Net Production (net of flare and loss)	108.91	94.72	89.57	85.08	86.59	83.01
LNG import*	39.57	48.57	50.78	58.22	54.76	69.14
Total consumption including internal use (net production + LNG import)	148.48	143.29	140.35	143.30	141.35	152.15
Total consumption (in BCM)	54.2	52.3	51.2	52.4	25.9	27.8
Total consumption (in MMSCM)	54197	52302	51229	52448	25867	27844

Source : ONGC / OIL / DGH / PLL/ HLPL/ GSPCL / GAIL/ RIL /IOCL / TPL
Notes :
*LNG imports include both term and spot cargo
*RIL LNG import data is not included in the year 2012-13.
LNG import data in Million Metric Tonne (MMT), converted to MMSCM, 1MMT=1325 MMSCM
BCM= Billion Cubic Meter
MMSCMD= Million Standard Cubic Meter per Day
MMT= Million Metric Tonne

Table 3.5 : PNG data as on 30.09.2016

State	Geographical area covered	Entity	PNG connections		
			Domestic	Industrial	Commercial
Haryana	Sonipat, Faridabad, Gurgaon	Gail Gas Limited, Adani Gas Limited *, Haryana City Gas Distribution Limited*	35744	221	138
Andhra Pradesh/ Telangana	Kakinada, Vijayawada, Hyderabad	Bhagyanagar Gas Limited	5385	5	46
Assam	Tinsukia, Dibrugarh, Sivasagar, Jorhat, Golaghat	Assam Gas Company Limited	29363	392	967
Gujarat	Gandhinagar, Mehsana, Sabarkantha, Nadiad, Halol, Hazira, Rajkot, Khambhat, Palej, Valsad, Navsari, Surendernagar, Surat, Ankleshwar, Bhavnagar, Vadodara, Ahmedabad, Anand	Sabarmati Gas Limited, Gujarat Gas Limited (JV of GSPC Gas Company Limited & Gujarat Gas Company Limited), Adani Gas Limited, Vadodara Gas Limited (JV Company of GAIL India Llimited & Vadodara Mahanagar Seva Sadan (VMSS), Hindustan Petroleum Corpn. Limited, Charotar Gas Sahakari Mandali Limited	1571878	4100	15372
Madhya Pradesh	Gwalior, Dewas, Vijaipur, Indore (including Ujjain), Pithampura	Aavantika Gas Limited, Gail Gas Limited	8683	82	44
Maharashtra	Pune city including Pimpri Chinchwad along with adjoining contiguous areas of Hinjewadi, Chakan & Talegaon GA, Mumbai, Greater Mumbai, Thane city and adjoining contiguous areas including Mira Bhayender, Navi Mumbai, Thane, Ambernath, Bhiwandi, Kalyan, Dombivli, Badlapur, Ulhasnagar, Panvel, Kharghar & Taloja	Maharashtra Natural Gas Limited, Mahanagar Gas Limited, Gujarat Gas Limited (JV of GSPC Gas Company Limited & Gujarat Gas Company Ltimited)	933098	178	3176
Delhi/NCR	National Capital Territory of Delhi (including Noida & Ghaziabad)	Indraprastha Gas Limited	675480	864	1858
Rajasthan	Kota	Gail Gas Limited	187	16	1
Tripura	Agartala	Tripura Natural Gas Company Limited	25111	48	340
Karnataka	Bengaluru	Gail Gas Limited	1066	3	13
Uttar Pradesh	Meerut, Mathura, Agra, Kanpur, Bareilly, Lucknow, Moradabad, Agra, Firozabad, Khurja	Gail Gas Limited, Sanwariya Gas Limited, Green Gas Limited, Central U.P. Gas Limited, Siti Energy Limited, Adani Gas Limited	38171	478	244
		Grand total	3324166	6387	22199

Source : CGD companies
* Provisionally authorized

Table 3.6: CNG activities in India as on 30.09.2016

CNG Sales

(Sales in TMT)

State	Company name	No. of companies	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
Gujarat	Adani Energy Ltd., Gujarat Gas Ltd., (An amalgamated entity of Gujarat State Petroleum Corporation Gas Company Ltd. and Gujarat Gas Company Ltd.), Sabarmati Gas Ltd. (SGL), Hindustan Petroleum Corporation Ltd. (HPCL), Vadodara Gas Ltd. (JV of GAIL Gas Ltd. and Vadodara Mahanagar Seva Sadan), Charotar Gas Sahkari Mandali Ltd.	6	463.50	475.90	503.05	246.54	268.42
Delhi	Indraprastha Gas Ltd. (IGL), New Delhi	1	697.60	717.10	738.30	367.45	400.34
Rajasthan (Kota)	GAIL Gas Ltd.	1	1.60	2.60	3.68	1.77	2.10
Maharashtra	Mahanagar Gas Ltd. (MGL), Mumbai and Maharashtra Natural Gas Ltd. (MNGL), Pune	2	476.00	531.40	565.01	280.61	295.93
Andhra Pradesh / Telangana	Bhagyanagar Gas Ltd.(BGL) and Hyderabad Godavari Gas Pvt. Ltd., Hyderabad	2	24.60	25.80	27.45	13.41	14.07
Uttar Pradesh	Green Gas Ltd., Lucknow, Central UP Gas Ltd., Kanpur, Siti Energy Ltd., GAIL Gas Ltd., Sanwaria Gas Ltd., Indraprastha Gas Ltd., Adani Gas Ltd.	7	162.60	184.80	211.61	103.92	119.58
Tripura	Tripura Natural Gas Co. Ltd.(TNGCL), Agartala.	1	6.80	9.50	11.19	5.24	6.07
Madhya Pradesh	Aavantika Gas Ltd. (Indore) and GAIL Gas Ltd.	2	15.90	16.60	19.19	9.38	10.69
Haryana	Haryana City Gas Ltd., GAIL Gas Ltd. and Adani Gas Ltd.	3	78.20	72.30	74.59	36.81	51.87
West Bengal	Great Eastern Energy Corporation Ltd.	1	1.15	1.24	1.36	0.67	0.74
Karnataka	GAIL Gas Ltd.	1	0.00	0.00	0.00	0.00	0.00
Total		**20***	**1927.95**	**2037.24**	**2155.44**	**1065.78**	**1169.80**

Source : CGD companies
Notes : *GAIL Gas Ltd. is operating in five states, Adani Gas Ltd. in three states, Bhagyanagar Gas Ltd. and Indraprastha Gas Ltd. are operating in two states. Hence, their number is taken once only.

Table 3.7: CNG stations and vehicles as on 30.09.2016

State	Company name	No. of CNG stations	No. of CNG vehicles
Gujarat	Adani Energy Ltd., Gujarat Gas Ltd., (An amalgamated entity of Gujarat State Petroleum Corporation Gas Company Ltd. and Gujarat Gas Company Ltd.), Sabarmati Gas Ltd., Hindustan Petroleum Corporation Ltd., Vadodara Gas Ltd. (JV of GAIL Gas Ltd. and Vadodara Mahanagar Seva Sadan), Charotar Gas Sahkari Mandali Ltd.	371	984684
Delhi / NCR	Indraprastha Gas Ltd. (IGL), New Delhi	418	923276
Maharashtra	Mahanagar Gas Ltd. (MGL), Mumbai, Maharashtra Natural Gas Ltd.(MNGL), Pune	230	618718
Andhra Pradesh / Telangana	Bhagyanagar Gas Ltd. (BGL), Hyderabad, Godavari Gas Pvt. Ltd., Hyderabad	34	39054
Rajasthan	GAIL Gas Ltd.	3	4872
Uttar Pradesh	Green Gas Ltd., Lucknow, Central UP Gas Ltd., Kanpur, Siti Energy Ltd., Adani Energy Ltd., GAIL Gas Ltd., Sanwaria Gas Ltd.	47	111981
Tripura	Tripura Natural Gas Co. Ltd., Agartala.	5	8590
Madhya Pradesh	Aavantika Gas Ltd. Indore, GAIL Gas Ltd.	22	22352
Haryana	Haryana City Gas Ltd, GAIL Gas Ltd., Adani Gas Ltd.	28	128197
West Bengal	Great Eastern Energy Corporation Ltd.	7	2882
Karnataka	GAIL Gas Ltd.	2	10
All India		**1167**	**2844616**

Source : CGD Companies
Note: The no. of CNG vehicles for Gujarat Gas Limited (GGL) and Vadodara Gas Limited are based on average no. of vehicles filled at company's CNG stations per day.

Table 3.8 : LNG terminals (Operational)

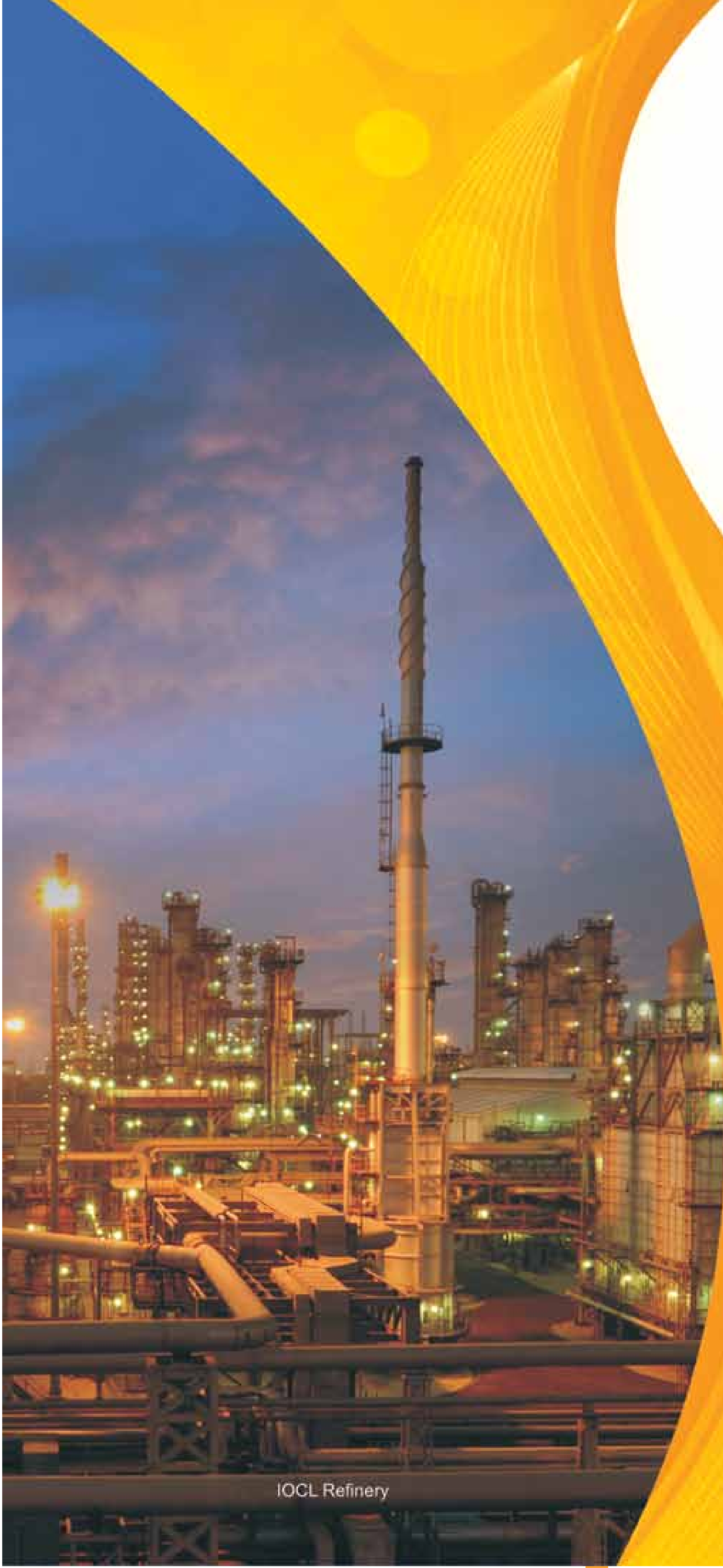
Sl. no.	Name of terminal	Promoters	Capacity (MMTPA)	Capacity utilization (%) Apr-Sep 2016
1	Dahej (Gujarat)	Petronet LNG Ltd. (PLL)	10 MMTPA up to July, 2016 increased to 15 MMTPA from August, 2016	Apr-July, 2016 - 125.00 Aug-Sep, 2016 - 98.00
2	Hazira (Gujarat)	Hazira LNG Pvt Ltd. (HLPL)	5 MMTPA	83.60
3	Dabhol (Maharashtra)	Ratnagiri Gas and Power Pvt. Ltd. (RGPPL- JV of GAIL & NTPC)	1.692 MMTPA presently without breakwater to be increased to 5 MMTPA	40.40
4	Kochi (Kerala)	Petronet LNG Ltd. (PLL)	5 MMTPA	5.00

Sources: LNG operating companies

Analysis • Knowledge • Information

Chapter-4

Refining & Production



IOCL Refinery

Map of Refineries in India

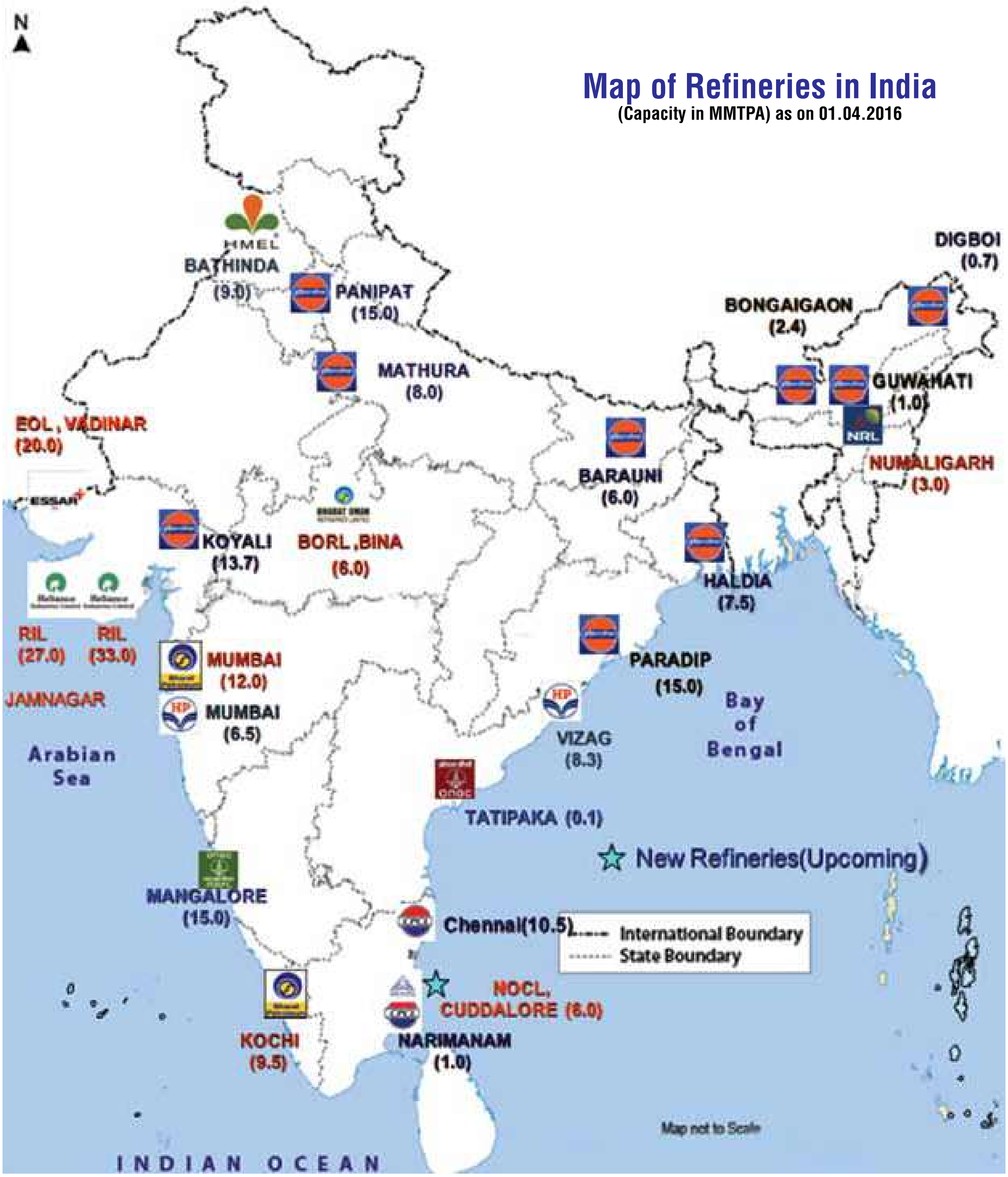


Table 4.1 : Refineries: Installed capacity and crude oil processing

(Million metric tonnes per annum / Million metric tonnes)

Sl. No.	Refinery	Installed capacity					Crude oil processing					
		01.04.2012	01.04.2013	01.04.2014	01.04.2015	01.04.2016	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
1	Barauni	6.0	6.0	6.0	6.0	6.0	6.3	6.5	5.9	6.5	3.2	3.3
2	Koyali	13.7	13.7	13.7	13.7	13.7	13.2	13.0	13.3	13.8	6.5	7.3
3	Haldia	7.5	7.5	7.5	7.5	7.5	7.5	8.0	7.7	7.8	3.8	4.0
4	Mathura	8.0	8.0	8.0	8.0	8.0	8.6	6.6	8.5	8.9	4.3	4.6
5	Panipat	15.0	15.0	15.0	15.0	15.0	15.1	15.1	14.2	15.3	7.4	7.7
6	Guwahati	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.5	0.4
7	Digboi	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.3	0.3
8	Bongaigaon	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	1.3	1.2
9	Paradip	-	-	-	-	15.0	-	-	-	1.8	-	2.8
	IOCL total	**54.2**	**54.2**	**54.2**	**54.2**	**69.2**	**54.6**	**53.1**	**53.6**	**58.0**	**27.3**	**31.7**
10	Mumbai	6.5	6.5	6.5	6.5	6.5	7.7	7.7	7.4	8.0	3.7	4.1
11	Visakh	8.3	8.3	8.3	8.3	8.3	8.0	7.8	8.8	9.2	4.3	4.4
12	HMEL-Bathinda	9.0	9.0	9.0	9.0	9.0	4.9	9.3	7.3	10.7	5.5	5.5
	HPCL total	**23.8**	**23.8**	**23.8**	**23.8**	**23.8**	**20.7**	**24.8**	**23.5**	**27.9**	**13.5**	**14.0**
13	Mumbai	12.0	12.0	12.0	12.0	12.0	12.7	12.7	12.8	13.4	6.5	7.1
14	Kochi	9.5	9.5	9.5	9.5	9.5	10.1	10.3	10.4	10.7	5.5	5.5
15	BORL-Bina	6.0	6.0	6.0	6.0	6.0	5.7	5.4	6.2	6.4	3.0	3.3
	BPCL total	**27.5**	**27.5**	**27.5**	**27.5**	**27.5**	**28.6**	**28.4**	**29.4**	**30.5**	**15.1**	**15.9**
16	Manali	10.5	10.5	10.5	10.5	10.5	9.1	10.1	10.2	9.1	4.6	5.3
17	CBR	1.0	1.0	1.0	1.0	1.0	0.6	0.6	0.5	0.5	0.3	0.3
	CPCL total	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**9.7**	**10.6**	**10.8**	**9.6**	**4.9**	**5.6**
18	Numaligarh	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**2.5**	**2.6**	**2.8**	**2.5**	**1.2**	**1.2**
19	Tatipaka	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.03	0.04
20	MRPL-Mangalore	15.0	15.0	15.0	15.0	15.0	14.4	14.6	14.6	15.5	7.3	7.7
	ONGC total	**15.1**	**15.1**	**15.1**	**15.1**	**15.1**	**14.5**	**14.7**	**14.7**	**15.6**	**7.4**	**7.7**
21	RIL-Jamnagar (DTA)	33.0	33.0	33.0	33.0	33.0	32.6	30.3	30.9	32.4	15.8	16.6
22	RIL-Jamnagar (SEZ)	27.0	27.0	27.0	27.0	27.0	35.9	37.7	37.2	37.1	17.9	18.3
23	EOL-Vadinar	18.0	20.0	20.0	20.0	20.0	19.8	20.2	20.5	19.1	9.6	10.5
	All India	**213.1**	**215.1**	**215.1**	**215.1**	**230.1**	**218.8**	**222.5**	**223.3**	**232.9**	**112.6**	**121.5**

Source: Oil companies

Table 4.2 : High Sulphur (HS) & Low Sulphur (LS) crude oil processing

(Million metric tonne)

Sl. no.	Type of crude	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
1	HS crude	153.0	160.2	161.4	166.1	80.8	87.6
2	LS crude	65.8	62.2	61.9	66.7	31.8	33.9
	Total crude	**218.8**	**222.5**	**223.3**	**232.9**	**112.6**	**121.5**
	Share of HS crude in total crude processing	69.9%	72.0%	72.3%	71.3%	71.8%	72.1%

Source: Oil companies

Table 4.3 : Imported crude & indigenous crude oil processing

(Million metric tonne)

Sl. no.	Indigenous/ Imported crude	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
1	Imported crude	184.7	188.6	189.0	198.8	95.4	104.8
2	Indigenous crude	34.2	33.9	34.2	34.1	17.2	16.7
	Total crude	**218.8**	**222.5**	**223.3**	**232.9**	**112.6**	**121.5**
	Share of imported crude in total crude processing	84.4%	84.8%	84.7%	85.4%	84.7%	86.3%

Source: Oil companies

Table 4.4 : Production of petroleum products

(Million metric tonne)

	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
A) From crude oil/refineries						
Light ends	**63.0**	**62.6**	**64.6**	**70.6**	**33.4**	**36.5**
of which: LPG	7.7	7.9	7.7	8.6	4.0	4.3
MS	30.1	30.3	32.2	35.3	16.8	17.9
Naphtha	17.2	17.0	16.2	16.8	8.1	9.0
Others	8.0	7.4	8.5	9.9	4.5	5.3
Middle distillates	**112.5**	**117.3**	**117.5**	**122.9**	**59.3**	**63.4**
of which: SKO	8.0	7.4	7.6	7.4	3.7	3.3
ATF	10.1	11.2	11.1	11.8	5.4	6.7
HSD	91.1	93.8	94.3	98.6	47.8	50.2
LDO	0.4	0.4	0.4	0.4	0.2	0.2
Others	3.0	4.6	4.2	4.7	2.1	2.9
Heavy ends	**38.2**	**36.6**	**34.9**	**34.4**	**17.3**	**18.2**
of which: Furnace Oil	14.5	13.0	11.5	10.3	5.3	6.0
LSHS	1.3	0.5	0.7	0.4	0.3	0.1
Lube Oil	0.9	0.9	0.9	1.0	0.5	0.5
Bitumen	4.7	4.8	4.7	5.2	2.2	2.4
Others	16.8	17.4	17.1	17.5	9.0	9.1
Total production	**213.7**	**216.4**	**217.1**	**227.9**	**110.1**	**118.1**
B) From natural gas/fractionators						
Total production	**4.1**	**3.9**	**3.7**	**3.4**	**1.7**	**1.7**
of which: LPG	2.1	2.1	2.2	2.0	1.0	1.0
Naphtha	1.7	1.5	1.2	1.1	0.6	0.6
SKO	0.1	0.1	0.1	0.1	0.04	0.02
HSD	0.02	0.02	0.01	0.01	0.01	0.004
Others	0.2	0.2	0.2	0.2	0.1	0.1
Total indigenous production	**217.8**	**220.3**	**220.7**	**231.2**	**111.7**	**119.8**

Source: Oil companies

Table 4.5 : Production of petroleum products : All sources

(Million metric tonne)

Major products	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
HSD	91.1	93.8	94.3	98.6	47.8	50.2
MS	30.1	30.3	32.2	35.3	16.8	17.9
Naphtha	18.9	18.5	17.5	17.9	8.6	9.5
FO	14.5	13.0	11.5	10.3	5.3	6.0
ATF	10.1	11.2	11.1	11.8	5.4	6.7
LPG	9.8	10.0	9.8	10.6	5.0	5.3
SKO	8.1	7.4	7.6	7.5	3.7	3.4
Bitumen	4.7	4.8	4.7	5.2	2.2	2.4
LSHS	1.3	0.5	0.7	0.4	0.3	0.1
Lubes	0.9	0.9	0.9	1.0	0.5	0.5
LDO	0.4	0.4	0.4	0.4	0.2	0.2
Others#	28.0	29.5	30.0	32.2	15.8	17.4
Total	**217.8**	**220.3**	**220.7**	**231.2**	**111.7**	**119.8**

Source: Oil companies
Notes : # Others include products like Propylene, Solvents (Hexane, Benzene, Toluene, Xylene and Specialty solvents), Reformate, Mineral Turpentine Oil, Carbon Black Feed Stock, Raw and Calcined Petroleum Coke, Waxes, Sulphur etc.

Table 4.6 : Production vs consumption of petroleum products

(Million metric tonne)

Year	Consumption $	Production from refineries & other sources*	Surplus (+) / Deficit (-)
	(A)	(B)	(B)-(A)
1997-98	84.3	64.7	-19.6
1998-99	90.6	68.4	-22.1
1999-00	97.1	82.9	-14.2
2000-01	100.1	99.6	-0.5
2001-02	100.4	104.3	3.9
2002-03	104.1	108.7	4.5
2003-04	107.8	117.6	9.9
2004-05	111.6	122.7	11.1
2005-06	113.2	124.1	10.9
2006-07	120.7	140.1	19.3
2007-08	128.9	149.9	20.9
2008-09	133.6	157.4	23.8
2009-10	137.8	185.0	47.2
2010-11	141.0	195.8	54.8
2011-12	148.1	204.0	55.9
2012-13	157.1	217.8	60.7
2013-14	158.4	220.3	61.9
2014-15	165.5	220.7	55.2
2015-16	184.7	231.2	46.6
2015-16 (Apr-Sep)	88.5	111.7	23.2
2016-17 (Apr-Sep) (P)	95.6	119.8	24.2

Notes:
$ includes direct imports by private parties
*Fractionators and gas processing plants

Table 4.7 : Gross Refining Margins (GRM) of Refineries

($/bbl)

Company	Refinery	2012-13	2013-14	2014-15	2015-16	H1, 2015-16	H1, 2016-17
PSU refineries							
IOCL	Barauni	2.40	6.68	(1.20)	2.93	4.79	6.17
	Koyali	4.61	4.52	4.79	6.80	6.38	7.22
	Haldia	0.85	2.84	(1.51)	3.96	4.65	6.94
	Mathura	0.55	2.10	(2.19)	3.30	4.54	6.11
	Panipat	3.34	3.62	(1.97)	4.15	4.88	7.33
	Guwahati	9.52	6.38	8.68	15.88	14.31	22.44
	Digboi	20.81	15.41	13.73	16.17	15.59	22.74
	Bongaigaon	5.26	6.71	(0.26)	11.09	11.64	18.12
	Paradip	NA	NA	NA	(0.65)	NA	1.43
	Average	**3.16**	**4.24**	**0.27**	**5.06**	**5.76**	**7.19**
BPCL	Kochi	5.36	4.80	3.17	6.87	7.18	4.50
	Mumbai	4.67	3.95	3.97	6.37	5.39	4.61
	Average	**4.97**	**4.33**	**3.62**	**6.59**	**6.20**	**4.56**
HPCL	Mumbai	2.08	5.38	4.88	8.09	6.08	5.89
	Visakh	2.08	1.50	1.12	5.46	4.91	4.40
	Average	**2.08**	**3.43**	**2.84**	**6.68**	**5.45**	**5.12**
CPCL	Chennai	0.99	4.08	1.97	5.27	5.99	5.59
MRPL	Mangalore	2.45	2.67	(0.64)	5.20	3.56	7.26
NRL	Numaligarh	10.52	12.09	16.67	23.68	22.09	28.24
JV refineries							
BORL	Bina	7.00	7.70	6.10	11.70	12.80	11.50
Private refineries							
RIL	Jamnagar	9.20	8.10	8.60	10.80	10.50	10.80
Essar	Vadinar	7.96	7.98	8.37	*	10.25	*
Singapore		7.74	5.62	6.36	7.52	7.16	5.06

Source: Indian refineries - published results/ information provided by oil companies
Singapore - Reuters
Notes : *Not available
NA - Not applicable as refinery operation not commenced.

Table 4.8 : GRM of North East refineries excluding excise duty benefit

($/bbl)

Company	Refinery	2012-13	2013-14	2014-15	2015-16	H1, 2015-16	H1, 2016-17
IOCL	Guwahati	3.43	0.88	0.96	1.26	0.41	1.15
	Digboi	13.25	8.50	5.42	4.16	4.57	6.84
	Bongaigaon	0.25	2.34	(6.51)	0.08	2.20	5.17
NRL	Numaligarh	4.86	6.98	9.46	8.06	9.00	8.40

Source: Information provided by oil companies

Table 4.9 : Distillate yield of PSU refineries

(Distillate %)

Company	Refinery	2012-13	2013-14	2014-15	2015-16	Apr-Sep 2015	Apr-Sep 2016 (P)
IOCL	Barauni	86.2	87.9	87.2	88.7	87.8	86.3
	Koyali	78.0	78.4	80.1	83.1	82.6	80.6
	Haldia	66.9	67.3	69.0	69.6	67.8	68.0
	Mathura	73.3	68.9	71.9	74.7	74.2	74.1
	Panipat	82.7	82.0	82.4	83.7	83.1	80.3
	Guwahati	79.7	83.1	81.1	80.8	84.2	85.8
	Digboi	73.7	73.5	74.8	69.7	71.0	71.7
	Bongaigaon	82.3	85.4	84.0	84.5	82.5	79.8
CPCL	Manali	66.4	70.6	71.5	71.4	71.6	71.1
	CBR	87.5	85.1	71.6	79.3	78.7	76.8
HPCL	Mumbai	74.6	72.7	75.9	76.0	72.5	77.0
	Visakh	72.1	75.8	78.8	75.7	74.2	73.8
BPCL	Mumbai	80.5	80.9	81.8	84.3	84.6	85.6
	Kochi	78.9	82.0	84.7	85.7	85.9	85.1
NRL	Numaligarh	91.1	92.2	90.7	89.9	90.2	90.8
MRPL	Mangalore	76.6	74.6	72.3	77.7	77.0	77.0
PSU oil cos. average		**78.1**	**78.8**	**78.6**	**79.7**	**79.3**	**79.0**

Source: Oil companies

Table 4.10 : Fuel & Loss

Sl. no.	Company	Refinery	2013-14			2014-15			2015-16			Apr-Sep 2015			Apr-Sep 2016		
			Throughput (Million tonne)	Fuel & Loss		Throughput (Million tonne)	Fuel & Loss		Throughput (Million tonne)	Fuel & Loss		Throughput (Million tonne)	Fuel & Loss		Throughput (Million tonne)	Fuel & Loss	
				Qty (Million tonne)	%		Qty (Million tonne)	%		Qty (Million tonne)	%		Qty (Million tonne)	%		Qty (Million tonne)	%
1	IOCL	Barauni	6.5	0.6	9.0	5.9	0.5	9.2	6.5	0.6	8.8	3.2	0.3	8.7	3.3	0.3	9.1
2		Koyali	13.0	1.3	9.7	13.3	1.3	9.6	13.8	1.3	9.2	6.5	0.6	9.2	7.3	0.7	9.3
3		Haldia	8.0	0.7	9.2	7.7	0.7	8.7	7.8	0.7	8.7	3.8	0.3	8.7	4.0	0.4	8.9
4		Mathura	6.6	0.6	8.9	8.5	0.7	8.2	8.9	0.7	8.1	4.3	0.3	8.2	4.6	0.4	8.1
5		Panipat	15.1	1.5	10.0	14.2	1.4	10.2	15.3	1.5	9.7	7.4	0.7	9.8	7.7	0.7	9.3
6		Guwahati	1.0	0.1	11.6	1.0	0.1	12.1	0.9	0.1	12.9	0.5	0.1	12.2	0.4	0.1	12.8
7		Digboi	0.7	0.1	10.0	0.6	0.1	10.3	0.6	0.1	11.3	0.3	0.03	11.1	0.3	0.03	13.4
8		Bongaigaon	2.3	0.2	9.7	2.4	0.2	9.2	2.4	0.2	8.5	1.3	0.1	8.5	1.2	0.1	8.2
9		Paradip	-	-	-	-	-	-	1.8	0.5	25.1	-	-	-	2.8	0.5	19.4
		IOCL Total	**53.1**	**5.1**	**9.6**	**53.6**	**5.0**	**9.4**	**58.0**	**5.6**	**9.6**	**27.3**	**2.5**	**9.1**	**31.7**	**3.2**	**9.9**
10	HPCL	Mumbai	7.7	0.5	6.9	7.4	0.6	7.6	8.0	0.6	7.8	3.7	0.3	7.9	4.1	0.3	7.3
11		Visakh	7.8	0.6	7.6	8.8	0.7	7.4	9.2	0.7	7.7	4.3	0.4	8.3	4.4	0.3	7.4
12		HMEL-Bathinda	9.3	0.6	6.4	7.3	0.5	6.5	10.7	0.7	6.4	5.5	0.3	6.4	5.5	0.3	6.2
		HPCL Total	**24.8**	**1.7**	**6.9**	**23.5**	**1.7**	**7.2**	**27.9**	**2.0**	**7.2**	**13.5**	**1.0**	**7.4**	**14.0**	**1.0**	**6.9**
13	BPCL	Mumbai	12.7	0.7	5.2	12.8	0.6	4.8	13.4	0.6	4.4	6.5	0.3	4.4	7.1	0.3	4.3
14		Kochi	10.3	0.6	6.3	10.4	0.7	6.3	10.7	0.6	5.9	5.5	0.3	6.0	5.5	0.3	6.0
15		BORL-Bina	5.4	0.5	8.6	6.2	0.5	7.7	6.4	0.5	7.0	3.0	0.2	7.2	3.3	0.3	8.5
16		NRL	2.6	0.3	10.3	2.8	0.3	10.3	2.5	0.3	10.2	1.2	0.1	9.6	1.2	0.1	10.4
		BPCL Total	**31.0**	**2.0**	**6.6**	**32.2**	**2.0**	**6.3**	**33.0**	**1.9**	**5.9**	**16.3**	**1.0**	**5.8**	**17.1**	**1.0**	**6.1**
17	CPCL	Manali	10.1	0.9	9.0	10.2	0.9	8.9	9.1	0.9	9.6	4.6	0.4	9.3	5.3	0.5	9.2
18		CBR	0.6	0.03	4.8	0.5	0.02	4.3	0.5	0.03	4.6	0.3	0.01	4.5	0.3	0.01	4.7
		CPCL Total	**10.6**	**0.9**	**8.8**	**10.8**	**0.9**	**8.7**	**9.6**	**0.9**	**9.4**	**4.9**	**0.4**	**9.0**	**5.6**	**0.5**	**9.0**
19	ONGC	Tatipaka	0.1	0.001	1.3	0.1	0.001	1.4	0.1	0.001	1.7	0.03	0.001	2.1	0.04	0.002	4.0
20		MRPL-Mangalore	14.6	1.1	7.9	14.6	1.5	10.1	15.5	1.5	9.8	7.3	0.7	9.7	7.7	0.8	10.3
		ONGC Total	**14.7**	**1.2**	**7.9**	**14.7**	**1.5**	**10.1**	**15.6**	**1.5**	**9.8**	**7.4**	**0.7**	**9.7**	**7.7**	**0.8**	**10.3**
21	RIL	Jamnagar (DTA)	30.3	2.6	8.5	30.9	2.3	7.5	32.4	2.6	8.0	15.8	1.2	7.8	16.6	1.2	7.5
22		Jamnagar (SEZ)	37.7	3.3	8.8	37.2	3.2	8.7	37.1	3.4	9.2	17.9	1.7	9.4	18.3	1.7	9.3
23	EOL	Vadinar	20.2	1.0	5.1	20.5	1.1	5.3	19.1	1.1	5.8	9.6	0.5	5.7	10.5	0.6	5.6
		Total	**222.5**	**17.9**	**8.0**	**223.3**	**17.8**	**8.0**	**232.9**	**19.1**	**8.2**	**112.6**	**9.0**	**8.0**	**121.5**	**10.0**	**8.2**

Source: Oil companies

Table 4.11 : Specific energy consumption (MBN number) of PSU refineries

(MBTU/Bbl/NRGF)

Company	Refinery	2012-13	2013-14	2014-15	2015-16	"2016-17 (Apr-Sep) (P)"
IOCL	Barauni	58.3	60.6	61.5	60.1	81.6
	Koyali	57.4	58.1	55.7	55.4	74.5
	Haldia	54.3	52.3	51.2	50.7	81.8
	Mathura	58.8	60.5	56.2	55.5	73.8
	Panipat	51.0	49.9	48.7	47.9	65.7
	Guwahati	64.6	58.1	61.8	64.7	112.2
	Digboi	64.8	61.5	61.1	71.7	119.9
	Bongaigaon	74.7	68.6	67.5	63.5	92.6
CPCL	Manali	65.8	62.5	62.3	67.3	90.3
	CBR	103.9	123.3	118.6	112.6	119.1
HPCL	Mumbai	82.6	76.1	94.6	90.5	88.4
	Visakh	84.0	83.9	83.5	82.8	79.2
BPCL	Mumbai	76.9	78.1	77.3	74.8	69.7
	Kochi	84.6	79.6	78.5	77.8	79.6
NRL	Numaligarh	53.2	53.6	51.6	50.4	74.1
MRPL	Mangalore	61.0	60.9	67.5	76.7	81.9
PSU oil cos. average		**68.5**	**68.0**	**68.6**	**68.9**	**86.5**

Source: Oil companies

Table 4.12 : Import / export of crude oil and petroleum products

Import / export	Crude oil & petroleum products	2013-14			2014-15			2015-16			Apr-Sep 2015			Apr-Sep 2016 (P)		
		Quantity	Value		Quantity	Value		Quantity	Value		Quantity	Value		Quantity	Value	
		Million tonne	US$ (Billion)	Rs. (Crores)	Million tonne	US$ (Billion)	Rs. (Crores)	Million tonne	US$ (Billion)	Rs. (Crores)	Million tonne	US$ (Billion)	Rs. (Crores)	Million tonne	US$ (Billion)	Rs. (Crores)
IMPORT*	**Crude oil**	189.2	143.0	864875	189.4	112.7	687416	202.9	64.0	416579	99.4	38.6	247466	106.8	32.2	215299
	Products															
	LPG	6.6	6.1	37213	8.3	6.0	36571	9.0	3.9	25778	4.5	2.1	13509	4.8	1.7	11495
	Petrol	0.2	0.2	1481	0.4	0.4	2301	1.0	0.6	4207	0.7	0.5	3003	0.4	0.2	1499
	Naphtha	1.0	1.0	6044	1.0	0.7	4592	2.9	1.5	9581	1.7	0.9	6031	1.4	0.7	3989
	ATF	0.0	0.0	0.0	0.1	0.1	706	0.3	0.1	889	0.15	0.1	486	0.2	0.1	501
	Kerosene	0.0	0.0	0	0.03	0.03	172	0.04	0.02	158	0.04	0.02	158	0.0	0.0	0.0
	Diesel	0.1	0.1	452	0.1	0.1	670	0.2	0.1	605	0.02	0.0	171	0.7	0.3	2003
	Lubes	2.1	2.1	12985	2.1	2.1	12702	2.3	1.4	9478	1.1	0.8	5099	1.2	0.7	4326
	Fuel Oil/ LSHS	1.3	0.9	5759	0.9	0.6	3659	1.2	0.4	2380	0.6	0.2	1410	0.5	0.2	805
	Bitumen	0.2	0.1	801	0.5	0.3	1623	0.9	0.3	1832	0.4	0.1	927	0.5	0.1	824
	Others**	5.1	1.8	11162	7.7	1.9	11649	11.7	1.6	10454	5.3	0.9	5622	8.1	0.9	5770
	Total product import	**16.7**	**12.5**	**75896**	**21.3**	**12.1**	**74644**	**29.5**	**10.0**	**65361**	**14.4**	**5.6**	**36417**	**17.8**	**4.8**	**31212**
	Total import (crude oil + product)	**205.9**	**155.4**	**940771**	**210.7**	**124.9**	**762060**	**232.3**	**73.9**	**481940**	**113.8**	**44.2**	**283883**	**124.5**	**37.0**	**246511**
EXPORT	**Products**															
	LPG	0.2	0.3	1589	0.3	0.2	1455	0.2	0.1	785	0.1	0.1	489	0.2	0.1	523
	Petrol	15.2	15.4	92977	16.0	13.5	81971	16.8	9.1	59575	7.8	5.0	31943	8.2	3.9	26232
	Naphtha	8.3	7.6	46059	7.0	5.2	31619	7.1	3.1	20057	3.6	1.8	11233	4.2	1.6	10624
	ATF	5.7	5.5	33246	5.5	4.2	25413	5.7	2.4	16007	2.5	1.3	8309	3.6	1.5	10297
	Kerosene	0.02	0.02	98	0.02	0.01	81	0.01	0.01	35	0.01	0.003	22	0.01	0.004	26
	Diesel	26.5	24.3	148138	25.6	18.9	115149	24.0	10.2	66492	11.4	5.7	36847	13.8	5.6	37547
	LDO	0.03	0.02	135	0.01	0.005	28	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0
	Lubes	0.02	0.03	138	0.01	0.02	100	0.02	0.02	127	0.01	0.01	67	0.01	0.01	58
	Fuel Oil/ LSHS	6.2	3.7	22407	4.8	2.3	14251	2.8	0.7	4471	1.7	0.5	3260	1.1	0.3	1745
	Bitumen	0.1	0.1	321	0.09	0.04	245	0.1	0.03	176	0.1	0.0	105	0.03	0.003	21
	Others***	5.5	3.8	23169	4.7	3.0	18267	3.8	1.4	9054	2.0	0.8	5449	1.3	0.5	3267
	Total product export	**67.9**	**60.7**	**368279**	**63.9**	**47.3**	**288580**	**60.5**	**27.1**	**176780**	**29.2**	**15.2**	**97724**	**32.4**	**13.5**	**90341**
Net import		**138.1**	**94.8**	**572492**	**146.8**	**77.6**	**473481**	**171.8**	**46.9**	**305160**	**84.6**	**29.0**	**186158**	**92.2**	**23.5**	**156170**
Net product export		**51.2**	**48.2**	**292383**	**42.6**	**35.1**	**213936**	**31.1**	**17.1**	**111419**	**14.8**	**9.6**	**61308**	**14.6**	**8.7**	**59129**

Source: Oil companies & DGCIS

Note:

1. *Import does not include LNG imports
2. **Other imports include Pet coke, Paraffin Wax, Petroleum Jelly, LSWR, Aviation Gas, MTBE & Reformate etc.
3. ***Other exports include VGO, Benzene, Hexane, MTO, Pet coke, CBFS & Sulphur etc.

Table 4.13 : Exchange rates of Indian Rupee (₹)

Year	US dollar ($)	British pound (£)	Euro (€)	Japanese yen (¥)
	Indian rupee (₹) / foreign currency			
2002-03	48.41	74.84	48.07	0.40
2003-04	45.92	77.74	54.01	0.41
2004-05	44.95	82.95	56.55	0.42
2005-06	44.28	79.02	53.88	0.39
2006-07	45.29	85.72	58.11	0.39
2007-08	40.24	80.80	56.99	0.35
2008-09	45.91	78.45	65.14	0.46
2009-10	47.42	75.88	67.08	0.51
2010-11	45.58	70.88	60.21	0.53
2011-12	47.95	76.40	65.90	0.61
2012-13	54.45	86.02	70.06	0.66
2013-14	60.50	96.23	81.14	0.60
2014-15	61.15	98.56	77.47	0.56
2015-16	65.46	98.76	72.31	0.55
2016-17 (up to 31.10.2016)	66.92	90.79	74.95	0.64
2016 : Month wise				
Jan-16	67.25	97.11	73.08	0.57
Feb-16	68.24	97.66	75.77	0.59
Mar-16	67.02	95.37	74.49	0.59
Apr-16	66.47	95.27	75.41	0.61
May-16	66.91	97.25	75.69	0.61
Jun-16	67.30	95.55	75.57	0.64
Jul-16	67.21	88.52	74.36	0.64
Aug-16	66.94	87.80	75.00	0.66
Sep-16	66.74	87.72	74.83	0.65
Oct-16	66.75	82.52	73.61	0.64

Source: Reserve Bank of India (RBI) website.
Note : The rates are average for the period.

PPAC

Analysis • Knowledge • Information

Chapter-5

Major Pipelines in India

Dahej Petronet IOCL

Map of Pipeline Network in India

Table 5.1 : Gas pipeline network as on 30.09.2016

Network/Region	Entity	Length (Kms)	Design capacity (mmscmd)	Pipeline size	Average flow 2016-17 (Apr-Sep) (mmscmd)	% Capacity utilisation 2016-17 (Apr-Sep)
Hazira-Vijaipur-Jagdishpur Pipeline/ Gas rehabilitation and expansion project Pipeline/Dahej-Vijaipur Pipeline & Spur/ Vijaipur Dadri Pipeline	GAIL	4658.00	53.00	36"	33.68	63.55
DVPL-GREP upgradation (DVPL-2 & VDPL)	GAIL	1119.00	54.00	48"	26.46	49.00
*Chhainsa-Jhajjar-Hissar Pipeline (CJPL) (including Spur lines) commisioned up to Sultanpur, Jhajjar-Hissar under hold (111 Km)	GAIL	265.00	5.00	36" /16"	1.03	20.60
Dahej-Uran-Panvel Pipeline (DUPL/ DPPL) including Spur lines	GAIL	875.00	19.90	30"/18"	12.43	62.46
*Dadri-Bawana-Nangal Pipeline (DBPL), Dadri-Bawana : 106Km, Bawana - Nangal : 501 KM, Spur line of BNPL : 196 Km.	GAIL	834.80	31.00	36"/30"/ 24"/18"	4.66	15.03
Dabhol-Bengaluru Pipeline (Including Spur)	GAIL	1097.00	16.00	36"-4"	1.21	7.56
Kochi-Koottanad-Bengaluru-Mangalore (Phase-1)	GAIL	48.00	6.00	16"-4"	1.07	17.83
Assam (Lakwa)	GAIL	8.00	2.50	24"	0.40	16.00
Tripura (Agartala)	GAIL	61.00	2.26	12"	1.41	62.39
Ahmedabad	GAIL	133.00	2.91	12"	0.27	9.28
Rajasthan (Focus Energy)	GAIL	152.00	2.35	12"	1.49	63.40
Bharuch, Vadodara (Undera) including RLNG+RIL	GAIL	538.00	15.42	24"/16"	1.74	11.28
Mumbai	GAIL	129.00	7.04	26"	6.39	90.82
KG Basin (including RLNG+ RIL)	GAIL	881.00	16.00	18"	5.31	33.19
Cauvery Basin	GAIL	278.00	8.66	18"	2.50	28.86
East-West Pipeline (RGTIL)	Reliance	1469.00	80.00	48"	20.00	25.00
GSPL Network including Spur lines	GSPL	2600.00	43.00	Assorted	24.49	56.95
Assam Regional Network	AGCL, DNPL	811.00	3.26	16" and others	2.58	79.14
Dadri-Panipat	IOCL	140.41	9.50	30"/10"	3.88	40.84
Uran-Trombay	ONGC	24.00	6.00	20"	3.80	63.33
Total		**16121.21**	**383.80**		**154.80**	

Source : Pipeline operating companies
Notes :
*CJPL and DBPL Pipelines are the extension of DVPL-2 / VDPL
GSPL Network average flow is as on 31.03.2016

Table 5.2 : Gas pipeline under execution / construction (as on 30.09.2016)

Sl. no.	Network/Region	Entity	Length in Kms	Design capacity (mmscmd)	Pipeline size	Status of pipeline laid (Km)
1	Kochi - Koottanad - Bengaluru - Mangalore	GAIL(India) Ltd.	1063	16.00	24"/18"/12"	40.35
2	Dabhol - Bengaluru (DBPL)	GAIL(India) Ltd.	315	16.00	36"/30"/24"/18"	70.47
3	Surat - Paradip*	GAIL(India) Ltd.	2112	74.81	36"/24"/18"	0
4	Jagdishpur - Haldia - Bokaro - Dhamra (JHBDPL) (Phase-I, 755 Km, 7.44 MMSCMD Capacity)	GAIL(India) Ltd.	2539	16.00	30"/24"/18"/ 12"/8"/4"	15.88
5	Mallavaram - Bhilwada*	GSPC India Transco Ltd	2042	78.25	42"/36"/30"/ 24"/18"/12"	0
6	Mehsana - Bathinda *	GSPC India Gasnet Ltd	2052	77.11	36"/24"/ 18"/12"	0
7	Bathinda - Jammu - Srinagar*	GSPC India Gasnet Ltd	725	42.42	24"/18"/16"/ 12"/8"/6"	0
8	Kakinada - Vizag - Srikakulam *	AP Gas Distribution Corporation.	391	90.00	24"/18"	0
9	Shadol - Phulpur *	Reliance Gas Pipelines Ltd	312	3.50	16"	312.00
10	Ennore - Nellore*	Gas Transmission India Pvt. Ltd	250	36.00	24"/18"	0
11	Ennore - Thiruvallur - Bengaluru - Puducherry - Nagapattinam - Madurai - Tuticorin*	Indian Oil Corporation Ltd.	1385	84.67	28"/24"/16"/ 12"/10"	0
12	Jaigarh - Mangalore*	H-Energy Pvt..Ltd.	635	17.00	24"	0
	Total		**13821**			

Source : PNGRB, GAIL (India) Ltd, Pipeline authorized companies
*Competitive Bidding.

Table 5.3 : Major crude oil pipelines in India

Onshore / offshore oil pipelines

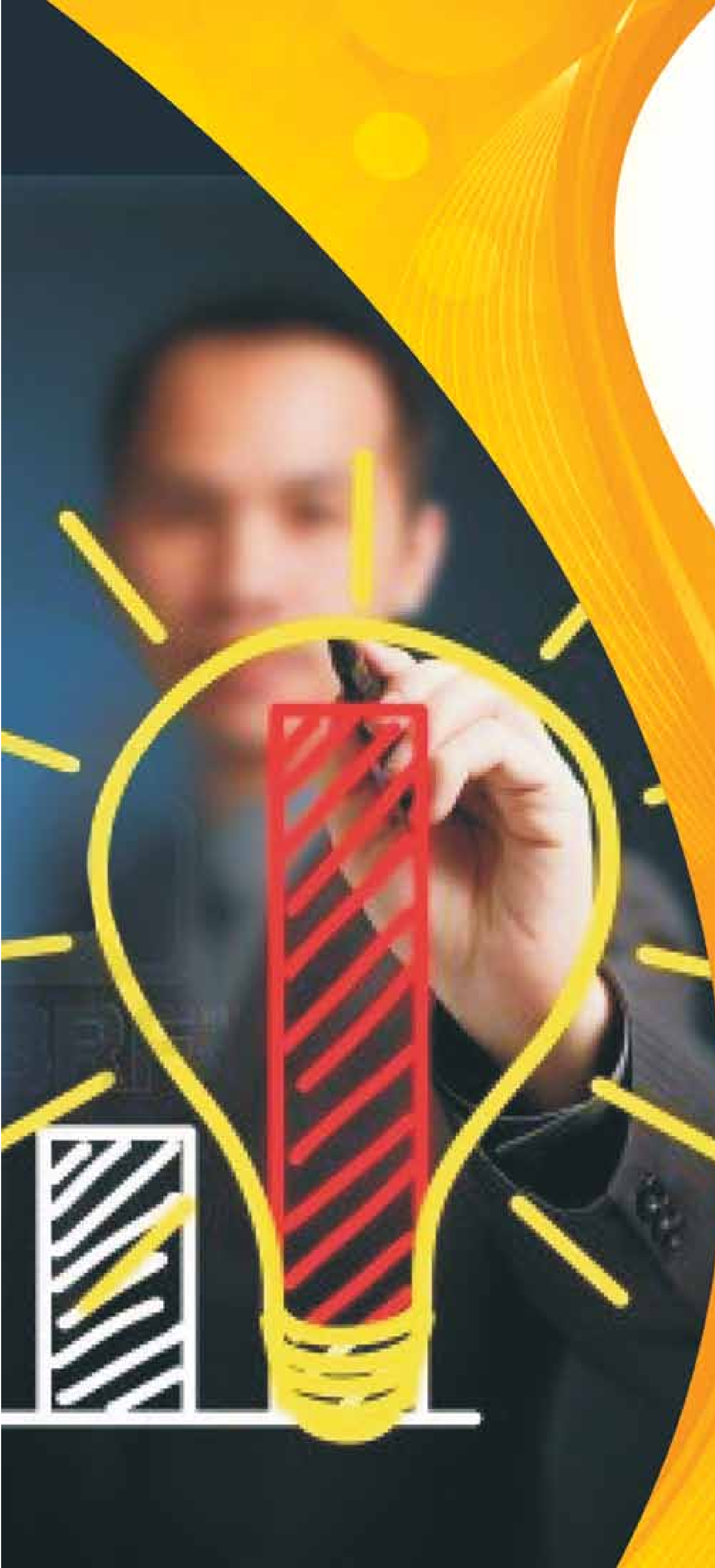
Existing pipelines	Oil company	Length in Kms.	Annual capacity	2015-16 Capacity	2015-16 Act. Qty.	2015-16 Utilisation %	Remarks
			(MMT)	(MMT)	(MMT)		
CTF (Central Tank Farm) Kalol to CTF Nawagam - New (New line commissioned in Aug'2010)	ONGC	62.5	3.1	3.1	1.0	33.0	
Nawagam-Koyali (18" line)	ONGC	78.4	5.4	5.4	2.3	41.8	
Nawagam-Koyali (14" line)	ONGC	78.4	3.3	3.3	1.4	41.8	78 km X 14" Nawagam-Koyali line was given on lease to IOC in 2000 and was handed back to ONGC on 1st Apr.'10. The line was restored and re-commissioned in Oct.'12.
MHN-NGM (Mehsana-Nawagam) trunk line - New (New crude oil trunk line commissioned. Under operation since Dec'2010)	ONGC	77.0	2.3	2.3	2.1	93.0	
CTF (Central Tank Farm), Ankleshwar to Koyali oil pipeline (AKCL- Ankleshwar Koyali Crude Line) *	ONGC	94.8	2.2	2.2	0.7	33.8	
CTF (Central Tank Farm), Ankleshwar to CPF (Central Processing Facility), Gandhar	ONGC	44.3	0.4	0.4	0.0	0.0	Crude oil from CTF Ankleshwar was being dispatched to CPF, Gandhar through 8" X 44.30 km pipeline up to 25.8.2013. Crude oil dispatched includes crude oil of PSC and JV also. After damage / rupture of 8" CTF to CPF line on 25.08.2013, this line is not in use.
CPF (Central Processing Facility), Gandhar to Saraswani 'T' point	ONGC	56.7	1.8	1.8	0.6	32.6	Length and capacity includes length capacity of branch lines from GNAQ (well) and Dabka meeting at Magnad 'T' point and Mobha 'T' point respectively.
Akholjuni- Koyali oil pipe line (commissioned in July 2010). Akholjuni to Laxmipura T' point	ONGC	65.5	0.5	0.5	0.1	25.8	
Lakwa-Moran oil line	ONGC	17.5	1.5	1.5	0.3	20.2	
Geleki-Jorhat oil line	ONGC	48.5	1.5	1.5	0.5	32.9	
Borholla- Jorhat	ONGC	42.8	0.6	0.6	0.1	24.3	
NRM (Narimanam) to CPCL (Chennai Petroleum Corporation Limited)	ONGC	5.3	0.7	0.7	0.0	0.0	
KSP-WGGS to TPK Refinery (Kesnapalli-West-Group Gathering Station to Tatipaka)	ONGC	13.5	0.1	0.1	0.02	24.8	
GMAA EPT (Gopavaram Early Production Terminal) to S.Yanam unloading terminal (1st line - 4", 3.5 Km long)	ONGC	3.5	0.1	0.1	0.1	92.7	
GMAA EPT (Gopavaram Early Production Terminal) to S. Yanam unloading terminal (3.5 Km long and 4"). New line commissioned on 28.07.10	ONGC	3.5	0.1	0.1	0.0	0.0	
Mumbai High - Uran Trunk (MUT) 30'' pipeline	ONGC	204.0	15.6	15.6	8.8	56.5	
Heera - Uran Trunk (HUT) 24'' pipeline	ONGC	81.0	11.5	11.5	4.2	36.9	
Bombay-Uran Trunk (BUT) 30'' pipeline	ONGC	203.0	6.4	6.4	0.0	0.0	
Salaya-Mathura pipeline (SMPL)**	IOCL	2226.0	21.0	21.0	25.1	119.7	
Paradip-Haldia-Barauni pipeline (PHBPL)	IOCL	1447.0	11.0	11.0	16.7	151.6	63 KM added in PHBPL by commissioning of Khana Bolpur loopline on 22.9.15 and Dumri Barauni on 31.3.16.
Mundra-Panipat pipeline	IOCL	1194.0	8.4	8.4	8.7	103.9	
Duliajan-Digboi-Bongaigaon-Barauni pipeline	OIL	1193.0	8.4	8.4	6.4	75.8	
Mangla-Bhogat pipeline	CAIRN	670.0	8.7	8.7	8.6	98.5	
Mundra- Bathinda pipeline	HMPL	1017.0	9.0	9.0	10.7	118.9	
Vadinar-Bina pipeline	BPCL /BORL	937.0	6.0	6.0	6.4	107.0	

Source: Oil companies
Note: ONGC: * CTF Ankleshwar to Makan 'T' point section i.e. HOEC Junction (about 47.51 km) of CTF Ankleshwar-Koyali Refinery trunk pipeline was not in use up to August 2013. After damage / rupture of 8" CTF to CPF line on 25.08.2013, CTF to Koyali Trunk pipeline is in use from 31.08.2013 for dispatch of Ankleshwar crude oil including PSC & JV. CTF Ankleshwar to Koyali Crude Line (AKCL) actual quantity includes Ankleshwar, PSC, JV and Cambay crude oil also.
**356 km added in SMPL by commissioning of SMPL-CP section rerouted to add new Pump station at Rewari on 26.9.15, Chaksu-Manpuria loopline in CM section on 24.12.15, Moda-Gauridad loopline in SV section commissioned on 17.3.16 and Rajola-Chaksu section in VC section on 31.3.16.

Table 5.4 : Major petroleum products pipeline in India

Pipeline	Oil company	Length in KMs	Annual capacity (MMT)	2015-16		
				Capacity (MMT)	Act. Qty. (MMT)	Utilisation %
Petroleum products pipelines						
Barauni - Kanpur pipeline	IOCL	745	3.5	3.5	2.4	**68.6**
Guwahati -Siliguri pipeline		435	1.4	1.4	1.9	**134.1**
Haldia-Barauni pipeline		526	1.3	1.3	1.4	**108.1**
Haldia-Mourigram-Rajbandh pipeline		277	1.4	1.4	1.8	**133.3**
Koyali-Ahmedabad pipeline		116	1.1	1.1	0.8	**68.9**
Koyali-Sanganer pipeline (1)		1288	4.6	4.6	3.3	**71.4**
Koyali-Ratlam pipeline		265	2.0	2.0	1.4	**69.4**
Koyali-Dahej pipeline		197	2.6	2.6	0.6	**22.2**
Mathura-Tundla pipeline		56	1.2	1.2	0.4	**76.8**
Mathura-Bharatpur		21			0.5	
Mathura-Delhi (including Bijwasan-Panipat) pipeline		258	3.7	3.7	2.3	**63.1**
Panipat-Ambala-Jalandhar (Including Kurukshetra-Roorkee-Najibabad branch line)		434	3.5	3.5	2.8	**78.9**
Panipat-Delhi (Including Sonepat-Meerut branch line) pipeline		189	3.0	3.0	1.6	**53.9**
Panipat-Bathinda pipeline		219	1.5	1.5	1.4	**93.3**
Panipat-Rewari pipeline		155	2.1	2.1	1.6	**75.3**
Chennai-Trichy-Madurai pipeline		683	2.3	2.3	2.6	**113.5**
Chennai - Meenambakkam ATF pipeline		95	0.2	0.2	0.2	**91.1**
Chennai-Bengaluru pipeline		290	2.5	2.5	1.2	**50.2**
Digboi - Tinsukia pipeline		75	1.0	1.0	0.4	**44.0**
Devangonthi - Devanhalli pipeline		36	0.7	0.7	0.2	**32.7**
Paradip Raipur Ranchi pipeline(PRRPL) (2)		105	5.0	0.1	0.01	**14.6**
Mumbai-Manmad-Bijwasan pipeline	BPCL	1389	6.0	6.0	6.7	**112.3**
Bina-Kota pipeline		259	4.4	4.4	2.9	**65.5**
ATF pipeline Mumbai Refinery (MR)-Santacruz		15	1.4	1.4	0.8	**52.8**
ATF pipeline Kochi Refinery (KR)-Kochi Airport		34	0.6	0.6	0.2	**35.0**
Kota - Jobner pipeline(1)		210	1.7	1.7	0.1	**8.5**
Cochin-Coimbatore-Karur (CCK) pipeline	Petronet CCK	293	3.3	3.3	2.7	**82.1**
Mumbai-Pune-Solapur pipeline	HPCL	508	4.3	4.3	4.4	**103.4**
Vizag-Vijaywada-Secunderabad pipeline		572	5.4	5.4	4.4	**82.2**
Mundra-Delhi pipeline		1054	5.0	5.0	2.9	**58.2**
Ramanmandi-Bahadurgarh pipeline		243	4.7	4.7	4.5	**94.6**
Ramanmandi-Bathinda pipeline		30	1.1	1.1	0.8	**74.2**
Awa-Salawas pipeline		93	2.3	2.3	0.7	**29.7**
Bahadurgarh-Tikrikalan pipeline		14	0.8	0.8	0.5	**70.8**
Rewari- Kanpur pipeline(1)		443	8.0	8.0	0.2	**2.4**
Mangalore-Hassan-Bengaluru (MHB) pipeline	Petronet MHB	362	2.1	2.1	3.3	**155.0**
Numaligarh-Siliguri pipeline	OIL	654	1.7	1.7	1.7	**101.2**
LPG Pipelines						
Panipat-Jalandhar pipeline	IOCL	274	0.7	0.7	0.6	**79.7**
Mumbai-Uran pipeline	BPCL	28	0.8	0.8	0.3	**36.3**
Jamnagar-Loni pipeline	GAIL	1414	2.5	2.5	2.1	**82.5**
Vizag-Secunderabad pipeline		618	1.3	1.3	1.7	**124.9**

Source: Oil companies
Note:
IOCL
1) Mohanpura mainline commissioned on 14.9.15.
2) Paradip -Jatni section of PRRPL commissioned on 25.3.16.
BPCL
1) Kota-Jobner pipeline is a branch pipeline of Mumbai Manmad Bijwasan pipeline with annual capacity of 1.7 MMTPA.
HPCL
1) Rewari Kanpur pipeline was commissioned on 08.10.2015.



Chapter-6

Sales

Table 6.1 : Consumption of petroleum products

(Million metric tonnes)

Products	11th Plan					12th Plan				
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (Apr-Sep) (P)
LPG	12.0	12.2	13.1	14.3	15.3	15.6	16.3	18.0	19.6	10.2
MS	10.3	11.3	12.8	14.2	15.0	15.7	17.1	19.1	21.8	11.9
Naphtha	13.3	13.9	10.1	10.7	11.2	12.3	11.3	11.1	13.3	6.6
ATF	4.5	4.4	4.6	5.1	5.5	5.3	5.5	5.7	6.3	3.3
SKO	9.4	9.3	9.3	8.9	8.2	7.5	7.2	7.1	6.8	3.1
HSD	47.7	51.7	56.2	60.1	64.8	69.1	68.4	69.4	74.6	37.3
LDO	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.2
Lubes	2.3	2.0	2.5	2.4	2.6	3.2	3.3	3.3	3.6	1.8
FO/LSHS	12.7	12.6	11.6	10.8	9.3	7.7	6.2	6.0	6.6	3.7
Bitumen	4.5	4.7	4.9	4.5	4.6	4.7	5.0	5.1	5.9	2.7
Others	11.6	10.9	12.0	9.6	11.1	15.6	17.7	20.4	25.6	14.8
All India	**128.9**	**133.6**	**137.8**	**141.0**	**148.1**	**157.1**	**158.4**	**165.5**	**184.7**	**95.6**
Growth (%)	**6.8**	**3.6**	**3.2**	**2.3**	**5.0**	**6.0**	**0.9**	**4.5**	**11.6**	**8.0**

Source: Oil companies and Directorate General of Commercial Intelligence and Statistics (DGCIS)
(Oil company sales + private imports = consumption)

Table 6.2 : Petroleum products demand & Gross Domestic Product (GDP) during Plan periods

Plan period	7th Plan (1985-90)	8th Plan (1992-97)	9th Plan (1997-02)	10th Plan (2002-07)	11th Plan (2007-12)
POL demand CAGR (%)	6.9	6.8	4.9	3.8	4.2
GDP growth CAGR (%)	6.0	6.8	5.5	7.7	7.9

End-use analysis of HSD sales (as of 2012-13)

Sl. no.	End-use sectors	% of Total sales *
(I)	(II)	(III)
1	**Transport, of which**	**70.00**
a	Commercial vehicles	8.94
b	Private vehicles	13.15
c	3 - Wheelers	6.39
d	Truck	28.25
e	Buses/STU	9.55
f	Railways	3.24
g	Others (Shipping & Aviation)	0.48
2	**Agriculture**	**13.00**
3	**Industrial application**	**4.96**
4	**Power generation**	**4.06**
5	**Mobile towers**	**1.54**
6	**Others (Including private imports)**	**6.45**
	Total	**100.0**

* Figures include consumption through retail & direct imports. End use sector wise break up as per PPAC survey and direct sales as reported by oil companies for the year 2012-13.

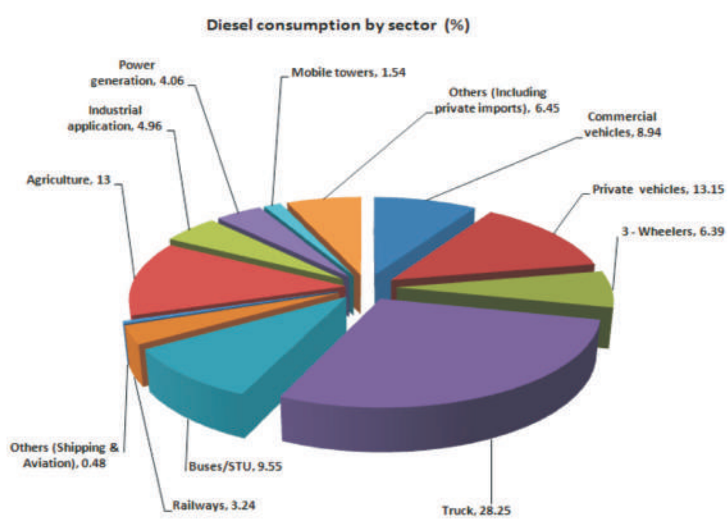


Table 6.3 : State-wise sales of selected petroleum products : Apr-Sep 2016 (P)

(Sales figures in thousand metric tonnes)

State/UT	LPG		MS		SKO		HSD		Total (All products)*	
	Sales	Per capita sales (Kg)	Sales	Per capita sales (Kg)	Sales	Per capita sales (Kg)	Sales	Per capita sales (Kg)	Total sales	Per capita sales (Kg)
Chandigarh	24.0	45.5	49.8	94.5	0.0	0.0	52.6	99.8	183.8	348.6
Delhi	368.4	44.0	468.4	55.9	0.5	0.1	666.3	79.5	2433.6	290.5
Haryana	306.2	24.2	444.9	35.1	19.5	1.5	2530.1	199.6	5375.3	424.0
Himachal Pradesh	69.2	20.2	92.6	27.0	9.6	2.8	305.9	89.2	886.8	258.7
Jammu and Kashmir	81.1	12.9	104.3	16.6	65.9	10.5	309.4	49.3	648.0	103.3
Punjab	373.1	26.9	408.5	29.5	31.4	2.3	1706.5	123.2	3193.1	230.5
Rajasthan	523.9	15.3	659.0	19.2	173.8	5.1	2532.2	73.8	5493.1	160.1
Uttar Pradesh	1274.4	12.8	1232.9	12.4	564.4	5.7	3677.1	36.8	7777.4	77.9
Uttarakhand	119.5	23.6	134.3	26.5	13.8	2.7	362.2	71.6	749.9	148.2
SUB TOTAL NORTH	**3139.9**	**17.0**	**3594.8**	**19.5**	**878.8**	**4.8**	**12142.3**	**65.9**	**26741.1**	**145.1**
Andaman & Nicobar Islands	4.4	23.3	7.2	37.6	2.0	10.5	64.5	339.4	91.0	478.9
Bihar	439.1	8.5	308.0	5.9	284.6	5.5	1079.0	20.8	2333.4	45.0
Jharkhand	117.8	7.1	187.2	11.4	94.4	5.7	798.6	48.4	1394.3	84.6
Odisha	218.1	10.4	298.5	14.2	133.8	6.4	1119.1	53.4	2396.2	114.2
West Bengal	678.4	14.9	355.1	7.8	341.2	7.5	1483.0	32.5	3658.1	80.1
SUB TOTAL EAST	**1457.8**	**10.8**	**1155.9**	**8.5**	**856.0**	**6.3**	**4544.1**	**33.6**	**9872.9**	**73.0**
Arunachal Pradesh	8.7	12.5	18.0	26.0	6.3	9.0	58.9	85.2	104.5	151.1
Assam	158.1	10.1	149.4	9.6	116.3	7.5	406.8	26.1	1079.6	69.3
Manipur	13.5	9.9	23.4	17.2	8.6	6.3	42.1	31.0	89.6	65.9
Meghalaya	9.3	6.2	35.3	23.8	9.2	6.2	128.4	86.6	186.7	126.0
Mizoram	10.0	18.4	12.1	22.1	2.4	4.4	26.7	49.0	53.1	97.4
Nagaland	9.8	9.9	15.8	15.9	4.1	4.2	28.9	29.2	60.8	61.4
Sikkim	6.3	20.8	8.3	27.4	5.0	16.4	29.3	96.3	50.6	166.5
Tripura	16.8	9.1	20.3	11.0	13.8	7.5	39.3	21.4	98.9	53.9
SUB TOTAL NORTH EAST	**232.4**	**10.2**	**282.4**	**12.4**	**165.7**	**7.3**	**760.5**	**33.4**	**1723.8**	**75.6**
Chhattisgarh	104.2	8.2	224.1	17.5	56.3	4.4	710.0	55.6	1332.2	104.3
Dadra & Nagar Haveli	8.2	47.5	9.6	55.8	0.7	3.9	100.7	587.5	213.6	1246.2
Daman & Diu	4.9	40.4	10.3	84.8	0.3	2.7	45.7	375.9	99.8	821.3
Goa	29.7	40.8	76.1	104.4	1.6	2.1	154.9	212.6	351.5	482.3
Gujarat	450.6	14.9	824.5	27.3	238.7	7.9	2425.0	80.3	9687.0	320.8
Madhya Pradesh	394.1	10.9	549.6	15.1	206.3	5.7	1516.2	41.8	3421.8	94.3
Maharashtra	1251.7	22.3	1495.8	26.6	210.9	3.8	3898.8	69.4	9254.8	164.7
SUB TOTAL WEST	**2243.4**	**16.4**	**3189.9**	**23.4**	**714.7**	**5.2**	**8851.2**	**64.9**	**24360.8**	**178.5**
Andhra Pradesh	489.0	19.8	460.0	18.6	80.3	3.3	1734.9	70.3	3252.3	131.7
Karnataka	701.5	23.0	890.8	29.1	137.6	4.5	2884.9	94.4	5530.4	180.9
Kerala	424.5	25.4	619.2	37.1	46.8	2.8	1266.4	75.9	2836.8	169.9
Lakshadweep	0.1	4.0	0.0	0.0	0.2	7.5	6.9	213.6	7.3	227.2
Puducherry	20.0	32.2	59.6	95.8	1.5	2.4	170.4	273.8	270.7	435.1
Tamil Nadu	922.5	25.6	1127.9	31.3	143.9	4.0	3282.8	91.0	6711.9	186.1
Telangana	400.5	22.7	480.5	27.2	53.2	3.0	1613.6	91.5	2998.1	169.9
SUB TOTAL SOUTH	**2958.1**	**23.4**	**3638.1**	**28.8**	**463.6**	**3.7**	**10959.8**	**86.8**	**21607.5**	**171.1**
All India	**10031.6**	**16.6**	**11861.2**	**19.6**	**3078.8**	**5.1**	**37257.8**	**61.6**	**84306.0**	**139.3**

Source: Oil companies
Notes:
1. * Total (all product) sales include other petroleum products such as Naphtha, FO, ATF, Lubricants, Bitumen, etc.
2. Per capita sales figures are based on provisional sales figures for the period Apr-Sep 2016
3. Population figures have been taken from Census of India, 2011

Highest per capita

Table 6.4 : PDS SKO allocation / LPG coverage & per capita PDS SKO availability by State/ UT

State/UT	PDS SKO allocation (TMT) Apr-Sep 2016	Per capita allocation (Litres per annum per person)	Per capita SKO allocation (Litres per annum per person) without LPG
Chandigarh	0.0	0.0	0.0
Delhi	0.0	0.0	0.0
Haryana	31.9	3.2	32.3
Himachal Pradesh	8.7	3.3	32.6
Jammu and Kashmir	25.5	5.2	52.2
Punjab	30.8	2.9	28.5
Rajasthan	178.5	6.7	61.2
Uttar Pradesh	561.4	7.2	51.2
Uttarakhand	12.7	3.2	32.2
SUB TOTAL NORTH	**849.4**	**5.9**	**47.7**
Andaman & Nicobar Islands	2.1	14.1	141.5
Bihar	287.1	7.1	13.3
Jharkhand	94.7	7.4	12.1
Odisha	140.5	8.6	15.6
West Bengal	340.0	9.6	27.8
SUB TOTAL EAST	**864.3**	**8.2**	**17.1**
Arunachal Pradesh	3.7	6.9	69.1
Assam	115.8	9.6	27.4
Manipur	8.5	8.0	42.7
Meghalaya	9.2	7.9	12.7
Mizoram	2.4	5.7	56.5
Nagaland	6.0	7.8	20.7
Sikkim	2.1	8.7	86.9
Tripura	13.8	9.7	25.9
SUB TOTAL NORTH EAST	**161.5**	**9.1**	**26.5**
Chhattisgarh	62.1	6.2	11.5
Dadra & Nagar Haveli	0.7	5.0	50.4
Daman & Diu	0.3	3.3	32.6
Goa	1.9	3.3	32.8
Gujarat	236.9	10.1	39.0
Madhya Pradesh	212.6	7.5	20.9
Maharashtra	225.7	5.2	51.6
SUB TOTAL WEST	**740.1**	**7.0**	**28.3**
Andhra Pradesh	96.1	5.0	50.0
Karnataka	158.9	6.7	66.8
Kerala	42.4	3.3	32.7
Lakshadweep	0.7	29.1	50.7
Puducherry	1.5	3.2	31.6
Tamil Nadu	123.2	4.4	43.9
Telangana	62.9	4.6	45.8
SUB TOTAL SOUTH	**485.8**	**4.9**	**49.4**
All India	**3101.1**	**6.6**	**28.1**

Notes:

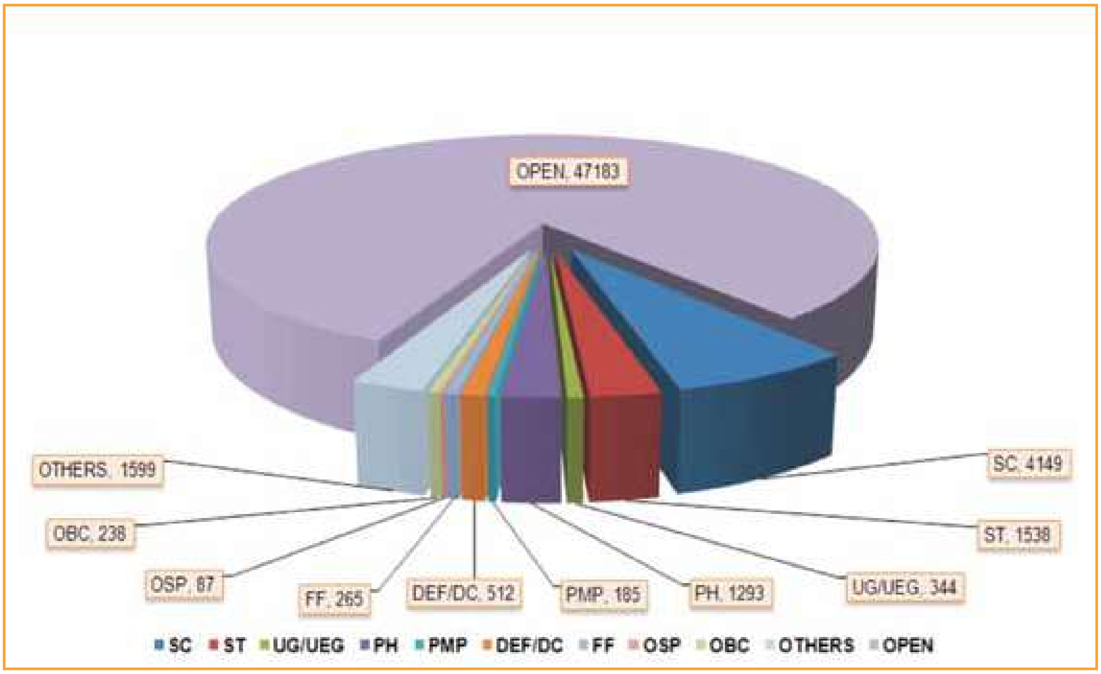
(1) In case LPG coverage of population is more than 100%, it is presumed that at least 10% of the population is consuming kerosene & excess coverage by LPG is due to multiple connections.
(2) Population and household data is as per Census of India 2011
(3) SKO PDS allocation is taken for the period Apr-Sep 2016 (P)
(4) Domestic LPG customer (registered) data taken as on 01.10.2016

Table 6.5 : Oil industry Retail Outlets & SKO / LDO dealers as on 01.10.2016

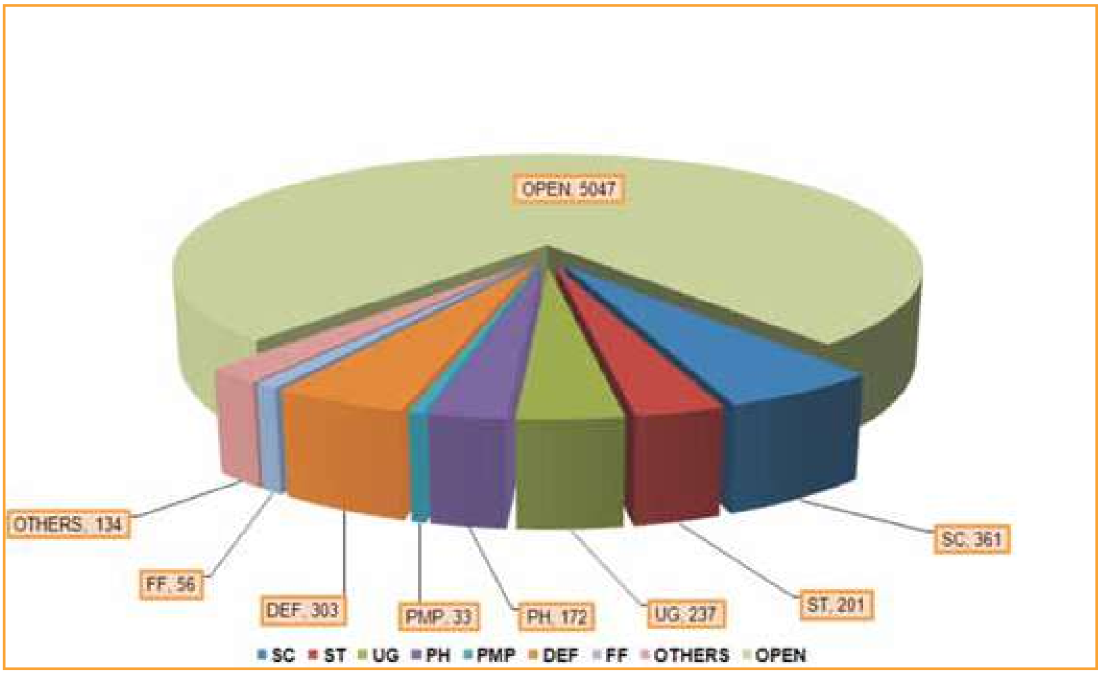
State/UT	No. of Retail Outlets					No. of SKO / LDO dealers				
	As on 01.04.2013	As on 01.04.2014	As on 01.04.2015	As on 01.04.2016	As on 30.09.2016 (P)	As on 01.04.2013	As on 01.04.2014	As on 01.04.2015	As on 01.04.2016	As on 01.10.2016 (P)
Chandigarh	41	41	41	41	41	12	12	12	12	12
Delhi	408	403	394	393	393	116	116	117	116	116
Haryana	2151	2333	2419	2536	2606	143	142	141	141	141
Himachal Pradesh	359	361	382	396	401	26	26	26	26	26
Jammu and Kashmir	453	469	475	485	486	47	47	47	47	47
Punjab	3193	3229	3248	3316	3335	242	241	241	239	237
Rajasthan	3135	3327	3465	3736	3885	251	250	252	250	250
Uttar Pradesh	5680	6013	6247	6616	6811	695	695	696	696	696
Uttarakhand	483	505	514	551	559	72	72	73	73	73
SUB TOTAL NORTH	**15903**	**16681**	**17185**	**18070**	**18517**	**1604**	**1601**	**1605**	**1600**	**1598**
Andaman & Nicobar Islands	9	9	9	10	10	2	2	2	2	2
Bihar	2167	2316	2385	2511	2552	373	372	372	372	372
Jharkhand	1027	1062	1082	1151	1163	86	86	87	87	87
Odisha	1369	1438	1464	1560	1595	177	177	177	177	177
West Bengal	2120	2183	2178	2244	2264	469	469	458	458	458
SUB TOTAL EAST	**6692**	**7008**	**7118**	**7476**	**7584**	**1107**	**1106**	**1096**	**1096**	**1096**
Arunachal Pradesh	70	71	71	71	73	33	33	33	33	33
Assam	720	753	759	788	797	359	359	359	359	359
Manipur	73	80	83	85	85	36	36	36	36	36
Meghalaya	170	175	179	190	193	35	35	35	35	35
Mizoram	30	32	33	36	37	19	19	19	19	19
Nagaland	68	68	68	69	70	19	19	19	19	19
Sikkim	43	44	46	47	48	12	12	12	12	12
Tripura	56	63	64	67	67	40	40	40	40	40
SUB TOTAL NORTH EAST	**1230**	**1286**	**1303**	**1353**	**1370**	**553**	**553**	**553**	**553**	**553**
Chhattisgarh	886	998	1040	1108	1123	109	109	108	108	108
Dadra & Nagar Haveli	21	27	31	31	31	2	2	2	2	2
Daman & Diu	25	31	31	31	31	5	5	5	5	5
Goa	104	109	111	114	114	21	21	22	22	22
Gujarat	2770	2910	3050	3384	3540	493	493	480	480	479
Madhya Pradesh	2630	2873	3005	3269	3352	279	279	285	284	284
Maharashtra	4644	5025	5207	5419	5500	775	774	769	767	767
SUB TOTAL WEST	**11080**	**11973**	**12475**	**13356**	**13691**	**1684**	**1683**	**1671**	**1668**	**1667**
Andhra Pradesh	4502	4710	2811	3004	3076	603	603	394	394	394
Karnataka	3306	3621	3737	3836	3886	325	322	325	324	323
Kerala	1880	1900	1932	2009	2029	242	242	237	237	237
Lakshadweep	0	0	0	0	0	0	0	0	0	0
Puducherry	144	150	153	156	157	8	8	8	8	8
Tamil Nadu	4340	4541	4616	4702	4808	465	465	468	466	466
Telangana	0	0	2088	2228	2275	0	0	202	202	202
SUB TOTAL SOUTH	**14172**	**14922**	**15337**	**15935**	**16231**	**1643**	**1640**	**1634**	**1631**	**1630**
All India	**49077**	**51870**	**53418**	**56190**	**57393**	**6591**	**6583**	**6559**	**6548**	**6544**

Source: Oil companies (Includes dealers of private oil companies)

Category wise retail outlets as on 01.10.2016: Total nos. 57393



Category wise SKO/LDO dealers as on 01.10.2016 : Total nos. 6544



Source: Oil companies

Note:

(1) SC: Scheduled Caste; ST: Scheduled Tribe; UG: Unemployed Graduate; UEG: Unemployed Engineering Graduate.; PH: Physically Handicapped; DEF: Defence Category; FF: Freedom Fighter; OSP: Outstanding Sports Persons, OBC: Other Backward Classes ; PMP: Para Military/Police/Govt. Personnel, Others: Includes Social Worker Category, Dealerships given on compassionate grounds/ under discretionary quota, 2/3 wheeler outlets and Company Owned and Operated outlets, Operation Vijay.

(2) Open category also includes private Retail Outlets for which category-wise breakup is not available.

Analysis • Knowledge • Information

Chapter-7

LPG

IOCL LPG Filling Plant

Table 7.1 : LPG marketing at a glance

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (Apr-Sep) (P)
						(Thousand metric tonne)
LPG Production	**9554**	**9830**	**10032**	**9840**	**10600**	**5301**
LPG Consumption	**15350**	**15601**	**16294**	**18000**	**19623**	**10229**
PSU Sales	**14929**	**15202**	**15925**	**17571**	**19134**	**10032**
Domestic	13296	13569	14412	16040	17182	8941
Non-Domestic	1069	1166	1074	1051	1464	831
Bulk	342	253	246	316	317	178
Auto LPG	223	214	194	164	171	82
Imports						
PSU Imports	5369	5902	6199	7884	8470	4593
Private Imports	421	398	369	429	489	197
						(Lakh)
	2011-12	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17 (Apr-Sep) (P)**
Enrolment (domestic)	**122.7**	**131.6**	**159.1**	**163.4**	**204.5**	**140.2**
As on 1st of April	2012	2013	2014	2015	2016	As on 1st Oct 2016
LPG Customers (registered)	1387.3	1522.8	1682.6	1840.1	2041.1	2180.7
of which						
Domestic customers	1371.2	1503.9	1662.6	1819.0	2017.9	2156.4
Non-domestic customers	16.2	18.9	20.1	21.1	23.3	24.2
DBC Customers (registered)	**688.8**	**748.7**	**827.4**	**917.0**	**1019.0**	**1056.4**
						(Nos.)
LPG Distributors	**11489**	**12610**	**13896**	**15930**	**17916**	**18214**
of which						
Urban	7041	7095	7172	7334	7492	7558
Urban/Rural	1665	1731	1885	2263	2852	2948
Rural	1612	1729	1803	1891	2086	2128
RGGLVY*	1171	2055	3036	4442	5486	5580
Auto LPG dispensing stations (ALDS)	**652**	**667**	**678**	**681**	**676**	**677**
LPG Markets (excluding RGGLVY)	**4990**	**5105**	**5245**	**5485**	**5805**	**5880**
						(Thousand metric tonne per annum)
Bottling capacity (rated)	**-**	**-**	**13515**	**14044**	**15172**	**15502**
						(Thousand metric tonne)
Gross tankage	**711**	**771**	**777**	**781**	**869**	**874**

Source: Oil companies & Directorate General of Commercial Intelligence and Statistics (DGCIS)

Note:

1. Data in respect of customers, distributors, ALDS and rated bottling capacity pertains to PSU OMCs only.
2. Gross tankage includes LPG tankage at all refineries and fractionators, PSU OMCs bottling plants and LPG tankage available to PSU OMCs at import locations.
3. *RGGLVY: Distributors commissioned under “Rajiv Gandhi Gramin LPG Vitaran Yojana”

Table 7.2 : Number of LPG distributors of PSUs as on 01.10.2016 (P)

(Nos.)

State/UT	Urban	Urban/Rural	Rural	RGGLVY*	Total
Chandigarh	27	0	0	0	27
Delhi	321	0	0	0	321
Haryana	227	75	31	105	438
Himachal Pradesh	69	10	56	27	162
Jammu & Kashmir	128	32	22	56	238
Punjab	331	166	96	144	737
Rajasthan	411	150	73	412	1046
Uttar Pradesh	951	576	236	1100	2863
Uttarakhand	108	94	18	30	250
SUB TOTAL NORTH	**2573**	**1103**	**532**	**1874**	**6082**
Arunachal Pradesh	5	5	24	24	58
Assam	125	106	86	119	436
Manipur	15	13	15	36	79
Meghalaya	21	9	9	10	49
Mizoram	11	6	12	25	54
Nagaland	15	11	11	22	59
Sikkim	8	1	3	3	15
Tripura	16	9	13	21	59
SUB TOTAL NORTH EAST	**216**	**160**	**173**	**260**	**809**
Andaman & Nicobar Islands	0	2	3	0	5
Bihar	237	222	83	517	1059
Jharkhand	159	37	13	181	390
Odisha	168	83	37	279	567
West Bengal	388	121	117	326	952
SUB TOTAL EAST	**952**	**465**	**253**	**1303**	**2973**
Chhattisgarh	101	73	17	174	365
Dadra & Nagar Haveli	2	0	0	0	2
Daman & Diu	3	0	0	0	3
Goa	44	2	5	0	51
Gujarat	414	101	100	137	752
Madhya Pradesh	457	211	37	513	1218
Maharashtra	951	148	192	428	1719
SUB TOTAL WEST	**1972**	**535**	**351**	**1252**	**4110**
Andhra Pradesh	311	157	223	164	855
Karnataka	487	113	86	266	952
Kerala	223	112	195	54	584
Lakshadweep	1	0	0	0	1
Puducherry	15	5	2	1	23
Tamilnadu	538	220	134	255	1147
Telangana	270	78	179	151	678
SUB TOTAL SOUTH	**1845**	**685**	**819**	**891**	**4240**
All India	**7558**	**2948**	**2128**	**5580**	**18214**

Source: PSU OMCs (IOCL,BPCL and HPCL)
***RGGLVY:** Distributors commissioned under "Rajiv Gandhi Gramin LPG Vitaran Yojana"

Table 7.3 : LPG domestic customer population (registered) of PSUs as on 01.10.2016 (P)

(Lakh)

State/UT	Total	Double bottle connection (DBC)
Chandigarh	4.23	2.76
Delhi	63.97	41.97
Haryana	60.93	35.86
Himachal Pradesh	20.49	11.32
Jammu & Kashmir	23.70	14.86
Punjab	83.86	45.55
Rajasthan	113.19	64.22
Uttar Pradesh	285.67	110.44
Uttarakhand	27.30	12.87
SUB TOTAL NORTH	**683.34**	**339.84**
Arunachal Pradesh	2.71	1.97
Assam	41.44	17.01
Manipur	4.34	3.04
Meghalaya	2.05	1.25
Mizoram	3.11	2.16
Nagaland	2.51	2.04
Sikkim	1.73	0.89
Tripura	5.34	2.54
SUB TOTAL NORTH EAST	**63.22**	**30.91**
Andaman & Nicobar Islands	0.97	0.89
Bihar	87.88	37.29
Jharkhand	24.37	13.39
Odisha	43.80	17.46
West Bengal	133.20	57.14
SUB TOTAL EAST	**290.22**	**126.17**
Chhattisgarh	25.91	14.22
Dadra & Nagar Haveli	0.78	0.52
Daman & Diu	0.74	0.41
Goa	5.81	4.44
Gujarat	91.37	61.92
Madhya Pradesh	96.69	43.09
Maharashtra	242.90	123.40
SUB TOTAL WEST	**464.19**	**248.00**
Andhra Pradesh	139.42	42.18
Karnataka	125.52	73.57
Kerala	89.77	62.95
Lakshadweep	0.05	0.04
Puducherry	3.93	2.17
Tamilnadu	188.83	95.74
Telangana	107.92	34.83
SUB TOTAL SOUTH	**655.44**	**311.49**
All India	**2156.42**	**1056.41**

Source: PSU OMCs (IOCL,BPCL and HPCL)

Chapter-8

Projections for 12th & 13th Plan

Table 8.1 : Projected crude oil production for 12th Five Year Plan

(Million tonnes)

Particulars	2011-12 (11th Plan)*	2012-13	2013-14	2014-15	2015-16	2016-17
Onshore	**17.5**	**20.1**	**20.2**	**19.7**	**19.2**	**18.6**
Gujarat	5.8	5.6	5.6	5.5	5.4	5.3
Assam + Arunachal Pradesh	5.0	5.2	5.4	5.5	5.7	5.8
Tamil Nadu	0.2	0.2	0.2	0.2	0.2	0.2
Andhra Pradesh	0.3	0.3	0.3	0.2	0.1	0.1
Tripura	0.0	0.0	0.0	0.0	0.0	0.0
Rajasthan	6.2	8.8	8.8	8.2	7.8	7.3
Offshore	**19.2**	**19.7**	**22.8**	**22.4**	**20.4**	**19.8**
DGH offshore	4.1	4.3	4.3	4.2	4.1	4.0
ONGC offshore	15.1	15.4	18.5	18.2	16.3	15.8
Total (onshore + offshore)	**36.7**	**39.8**	**42.9**	**42.1**	**39.7**	**38.4**
Condensate (ONGC)	2.1	2.5	2.6	2.6	2.8	2.7
Total (crude oil + condensate) (onshore + offshore)	**38.8**	**42.3**	**45.5**	**44.7**	**42.5**	**41.1**

Source: Report of the working group on petroleum & natural gas sector for 12th Five Year Plan (2012-17)
* 11th plan projections by oil companies

Table 8.2 : Projected refining capacity in 12th Five Year Plan

(MMTPA)

Particulars	2011-12 (11th Plan)	12th Five Year Plan				
		2012-13	2013-14	2014-15	2015-16	2016-17
Public sector (PSU/JV)						
IOCL	69.2	69.2	69.2	69.2	69.7	74.0
BPCL (Mumbai)	12.0	12.0	12.0	12.0	13.5	13.5
Kochi	9.5	9.5	9.5	9.5	15.5	15.5
BORL - Bina	6.0	6.0	6.0	6.0	7.5	9.0
HPCL (MR +VR)	14.8	16.5	18.2	18.5	18.5	23.5
Maharashtra refinery	0.0	0.0	0.0	0.0	0.0	9.0
HMEL (GGSRL)	9.0	9.0	9.0	9.0	9.0	9.0
MRPL	11.8	14.5	15.5	16.0	16.5	18.0
ONGC (Tatipaka)	0.1	0.1	0.1	0.1	0.1	0.1
CPCL	11.5	11.5	12.1	12.1	12.1	18.3
NRL	3.0	3.0	3.0	3.0	3.0	8.0
Sub total PSU/JV	**146.9**	**151.3**	**154.6**	**155.4**	**165.4**	**197.9**
Private sector						
RIL-DTA & SEZ, Jamnagar	60.0	60.0	60.0	60.0	60.0	60.0
EOL, Jamnagar	19.0	19.0	20.0	20.0	30.8	38.0
NOCL, Cuddalore	0	2.0	6.0	6.0	6.1	15.0
Sub total Private	**79.0**	**81.0**	**86.0**	**86.0**	**96.9**	**113.0**
Total	**225.9**	**232.3**	**240.6**	**241.4**	**262.3**	**310.9**

Source: Report of the working group on petroleum & natural gas sector for 12th Five Year Plan (2012-17)

Table 8.3 : Projected refining capacity in 13th Five Year Plan

(MMTPA)

Particulars	13th Five Year Plan				
	2017-18	2018-19	2019-20	2020-21	2021-22
Public sector (PSU/JV)					
IOCL	77.0	80.0	85.0	105.0	105.0
BPCL (Mumbai)	13.5	13.5	13.5	13.5	13.5
Kochi	15.5	15.5	15.5	15.5	15.5
BORL - Bina	9.0	9.0	9.0	9.0	9.0
HPCL (MR +VR)	23.5	23.5	23.5	23.5	23.5
Maharashtra Refinery	9.0	9.0	9.0	9.0	9.0
HMEL (GGSRL)	9.0	9.0	9.0	9.0	9.0
MRPL	18.0	18.0	18.0	21.8	26.8
ONGC (Tatipaka)	0.1	0.1	0.1	0.1	0.1
CPCL	18.3	18.3	33.3	33.3	33.3
NRL	8.0	8.0	8.0	8.0	8.0
Sub total (PSU/JV)	**200.9**	**203.9**	**223.9**	**247.6**	**252.6**
Private sector					
RIL-DTA & SEZ, Jamnagar	60.0	60.0	60.0	60.0	60.0
EOL, Jamnagar	38.0	38.0	38.0	38.0	38.0
NOCL, Cuddalore	15.0	15.0	15.0	15.0	15.0
Sub total (Private)	**113.0**	**113.0**	**113.0**	**113.0**	**113.0**
Total	**313.9**	**316.9**	**336.9**	**360.6**	**365.6**

Source: Report of the working group on petroleum & natural gas sector for 12th Five Year Plan (2012-17)

Table 8.4 : Demand projections of petroleum products for 12th Five Year Plan

(Million metric tonne)

Product	2012-13	2013-14	2014-15	2015-16	2016-17	CAGR (%)
LPG	17.0	18.4	19.7	20.9	21.8	6.9
MS	16.1	17.5	19.1	20.8	22.6	8.5
Naphtha	12.4	11.4	11.4	11.0	11.0	-0.2
ATF	6.0	6.6	7.2	7.8	8.5	9.6
SKO	7.9	7.6	7.3	7.0	6.8	-4
HSD	65.0	68.7	72.6	76.9	81.6	5.2
LDO	0.4	0.4	0.4	0.4	0.4	-0.2
Lubes	2.7	2.8	2.9	2.9	3.0	3.7
FO/LSHS	8.0	7.9	7.9	7.9	7.9	-3.5
Bitumen	5.3	5.5	5.7	6.0	6.1	5.1
Pet coke	6.8	7.5	8.3	9.3	10.3	11.7
Others	5.4	6.1	6.1	6.1	6.2	2.4
Total POL	**152.9**	**160.4**	**168.6**	**177.0**	**186.2**	**4.8**

Source: Report of sub-group on demand estimates for petroleum products - 12th & 13th Plan

Table 8.5 : Demand projections of petroleum products for 13th Five Year Plan

(Million metric tonne)

Product	2017-18	2018-19	2019-20	2020-21	2021-22	CAGR (%)
LPG	22.6	23.3	23.9	24.3	24.8	2.6
MS	24.5	26.6	28.8	31.1	33.7	8.3
Naphtha	12.5	14.2	14.9	15.4	15.4	6.9
ATF	9.3	10.0	10.8	11.7	12.5	7.9
SKO	6.5	6.4	6.2	6.0	5.8	-3
HSD	86.8	92.1	97.9	104.1	110.8	6.3
LDO	0.4	0.4	0.4	0.4	0.4	0
Lubes	3.1	3.2	3.3	3.4	3.5	2.8
FO/LSHS	7.8	7.8	7.8	7.8	7.8	-0.1
Bitumen	6.3	6.5	6.7	6.9	7.2	3.2
Pet coke	11.4	12.7	14.0	15.5	17.1	10.7
Others	6.1	6.1	6.1	6.1	6.1	-0.3
Total POL	**197.4**	**209.2**	**220.7**	**232.6**	**245.0**	**5.6**

Source: Report of sub-group on demand estimates for petroleum products - 12th & 13th Plan

Table 8.6 : Demand of natural gas during 12th Plan (At present level of prices including present supplies)

(Figures in MMSCMD)

Particulars	2012-13	2013-14	2014-15	2015-16	2016-17
Power	135	153	171	189	207
Fertilizer	62	110	113	113	113
City Gas	15	19	24	39	46
Industrial	20	20	22	25	27
Petrochemicals / Refineries / Internal Consumption	54	61	67	72	72
Sponge Iron / Steel	7	8	8	8	8
Grand Total Demand	**293**	**371**	**405**	**446**	**473**

Total projected natural gas availability during 12th Five Year Plan

(Figures in MMSCMD)

Particulars	2012-13	2013-14	2014-15	2015-16	2016-17
Domestic Availability	124	149	170	177	209
Imports - LNG	63	87	87	129	150
Total Availability	**187**	**236**	**257**	**306**	**359**

Table 8.7: Demand of natural gas during 13th Plan (At present level of prices including present supplies)

(Figures in MMSCMD)

Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
Power	225	243	261	289	307
Fertilizer	113	113	113	113	113
City Gas	47	50	53	55	57
Industrial	28	32	35	37	37
Petrochemicals / Refineries / Internal Consumption	72	76	80	82	82
Sponge Iron / Steel	9	9	10	10	10
Grand Total Demand	**494**	**523**	**552**	**586**	**606**

Total projected natural gas availability during 13th Five Year Plan

(Figures in MMSCMD)

Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
Domestic Availability	216	222	229	236	243
Imports (LNG)	172	193	215	236	258
Import (Trans Border Pipelines)	30	30	30	30	30
Total Availability	**418**	**445**	**474**	**502**	**531**

Source: Report of the Working Group on Petroleum & Natural Gas Sector for the 12th Five Year Plan (2012-17)

Chapter-9

Prices and Taxes

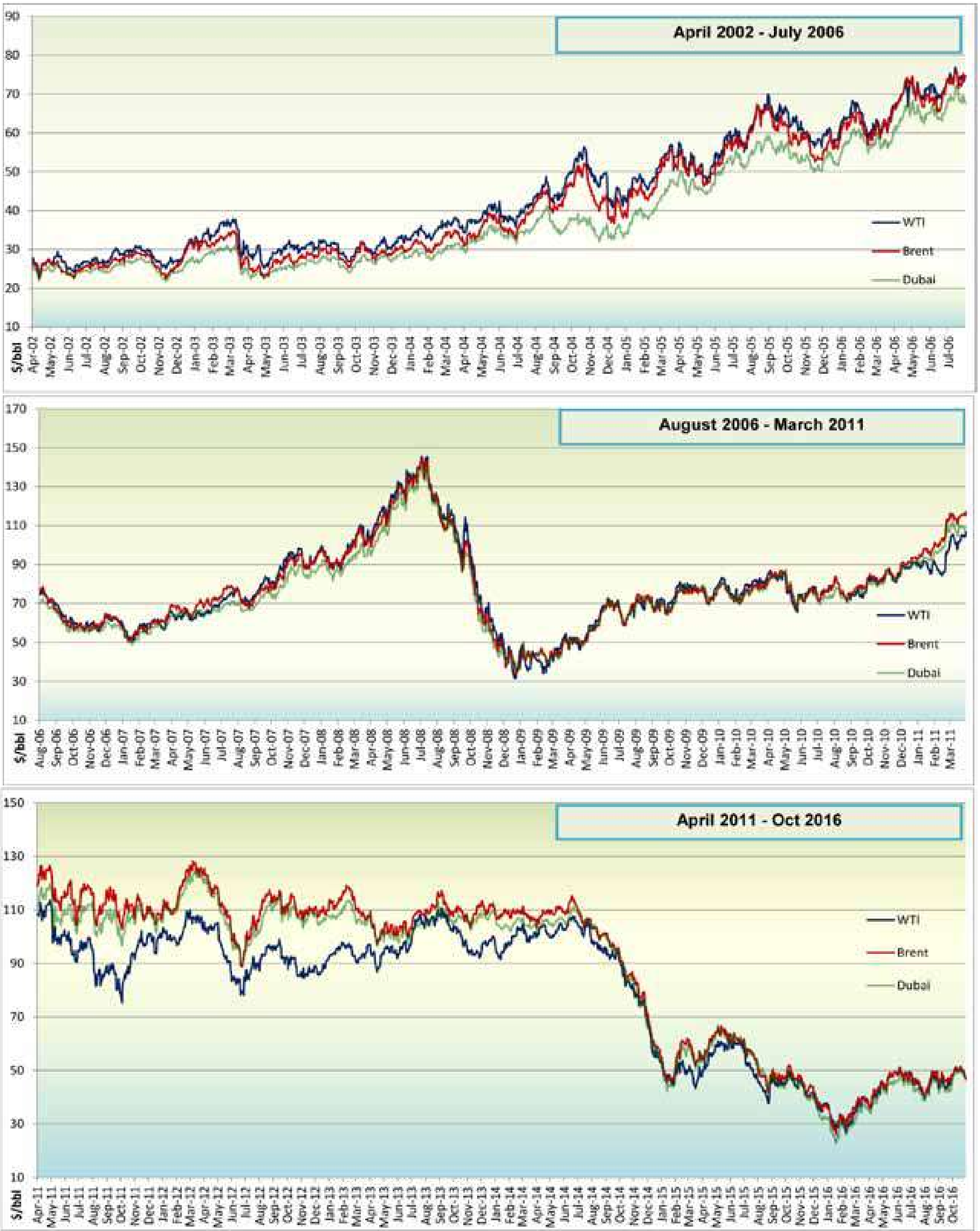
Table 9.1 : Price of crude oil in India

Year	Indian basket crude oil ($/bbl)
2002-03	26.60
2003-04	27.98
2004-05	39.21
2005-06	55.72
2006-07	62.46
2007-08	79.25
2008-09	83.57
2009-10	69.76
2010-11	85.09
2011-12	111.89
2012-13	107.97
2013-14	105.52
2014-15	84.16
2015-16	46.17
2016-17 (up to 31.10.2016)	44.81
2016 : Month wise	
Jan-16	28.08
Feb-16	30.53
Mar-16	36.42
Apr-16	39.88
May-16	45.01
Jun-16	46.96
Jul-16	43.52
Aug-16	44.38
Sep-16	44.48
Oct-16	49.25

Notes : The Indian basket of Crude Oil (for 2016-17) represents a derived basket comprising of Sour grade (Oman & Dubai average) and Sweet grade (Brent Dated) of Crude oil processed in Indian refineries in the ratio of 71.03:28.97 during 2015-16.

Trend in prices of International benchmark crude oils

Trend in prices of international benchmark crude oils



Trend in price of indian basket crude oil and petroleum products in international markets

Trend in price of Indian basket crude oil and petroleum products in international markets

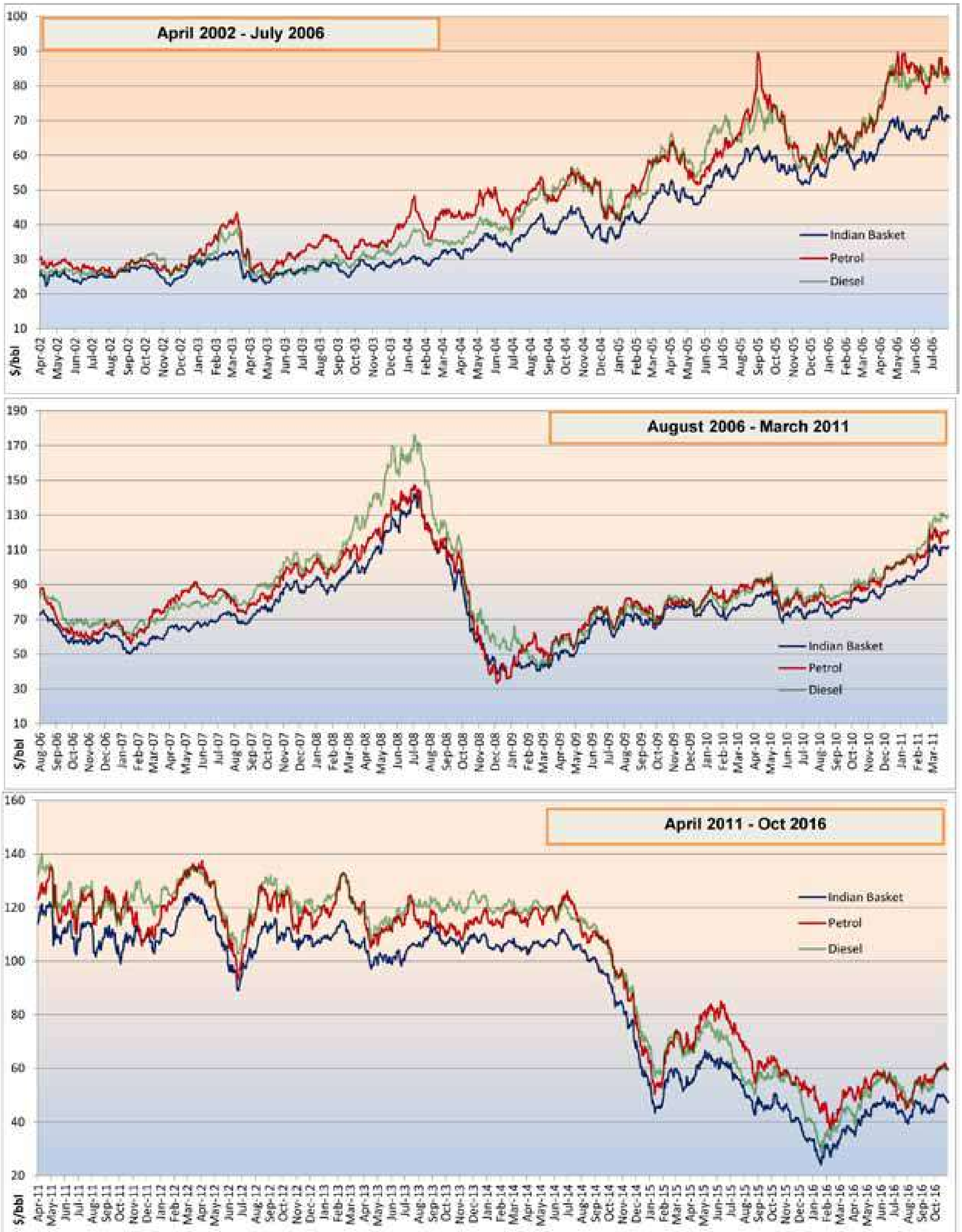


Table 9.2 : Price build-up of PDS kerosene at Mumbai

Sl. no.	Elements	Unit	Effective 01.11.2016
1*	FOB Price at Arab Gulf of jet / kero (kerosene)	$/bbl	59.61
2*	Add: Ocean freight from AG to Indian ports	$/bbl	1.38
3	C&F (cost & freight) price	$/bbl	60.99
	or	₹/litre	25.25
4*	Import charges (insurance/ocean loss/ LC charge/port dues)	₹/litre	0.22
5*	**Customs duty**	**₹/litre**	**NIL**
6*	**Import Parity Price (IPP) (at 29.5º C) (sum of 3 to 5)**	**₹/litre**	**25.46**
7*	**Refinery Transfer Price (RTP) for PDS Kerosene** (price paid by the oil marketing companies to refineries)**	**₹/litre**	**25.46**
8*	Add : Inland freight and delivery charges	₹/litre	0.79
9*	Add : State Specific Costs (SSC)	₹/litre	0.48
10*	Add : Marketing cost of OMCs	₹/litre	0.36
11*	Add : Marketing margin of OMCs	₹/litre	0.22
12	**Total cost price (sum of 7 to 11) (Before excise duty, VAT and wholesale & retailer commission)**	**₹/litre**	**27.31**
13*	Less: Under-recovery to OMCs	₹/litre	12.25
14	**Price charged to dealers (depot price) (12-13) (Excluding excise duty & VAT)**	**₹/litre**	**15.05**
15*	Add : Excise duty	₹/litre	-
16*	Add : Wholesaler & retailer commission and other charges fixed by state Government	₹/litre	1.62
17*	Add : VAT (including VAT on wholesaler & retailer commission) applicable for Mumbai	₹/litre	0.50
18	**Retail Selling Price (RSP) at Mumbai (sum of 14 to 17)**	**₹/litre**	**17.17**

* The explanatory notes are given in the Table 9.3.
**Monthly RTP is weighted average of all Indian pricing ports.

Table 9.3 : Element wise explanation of price build up of PDS kerosene

Sl. no.	Elements	Description
1	FOB price	FOB (free on board) daily quotes of jet/kerosene at Arab Gulf including premium / discount published by Platts and Argus publications are averaged for previous month.
2	Ocean freight	Ocean freight from Arab Gulf to destination Indian ports as per world scale freight rates adjusted for AFRA.
4	Import charges	Import charges comprises of insurance, ocean loss, LC charges & port dues applicable on import of product.
5	Customs duty	Customs duty on PDS kerosene is nil.
6	Import Parity Price (IPP)	IPP represents the price that importers would pay in case of actual import of kerosene at the respective Indian ports. Import parity principle is as per the 'PDS Kerosene and LPG (Domestic) Subsidy Scheme, 2002'.
7	Refinery Transfer Price (RTP)	RTP based on Import Parity Price, the price paid by OMCs to refineries.
8	Inland freight & delivery charges	It comprises of average freight from ports to inland locations and delivery charges.
9	State Specific Costs (SSC)	In order to neutralise the under-recoveries to the oil companies caused by various irrecoverable/ non-recoverable taxes and levies of state/union territories/municipal corporations, a state specific surcharge/cost is considered in the selling prices of petroleum products.
10 & 11	Marketing cost & margin	Marketing cost & margin are as fixed in the 'PDS Kerosene and LPG (Domestic) Subsidy Scheme, 2002'.
13	Under recovery to OMCs	Difference between desired price (based on import parity) and actual selling price (excluding excise duty, VAT , wholesale & retail dealer commission and other charges) represents under-recoveries to OMCs
15	Excise Duty	Excise duty on PDS kerosene is nil.
16	Wholesale & retail dealer commission and other charges fixed by State Government	Commission fixed for wholesale & retail dealer and other charges like delivery charges by district authorities / State Government.
17	VAT (sales Tax)	VAT at applicable rate in respective state. It varies from state to state. Currently in Mumbai, VAT on PDS kerosene is 3.00%.

Table 9.4 : Price build-up of domestic LPG at Delhi

Sl. no.	Elements	Unit	Effective 01.11.2016
1*	FOB Price at Arab Gulf (AG) of LPG	$/MT	355.00
2*	Add: Ocean freight from AG to Jamnagar	$/MT	21.08
3	C&F (Cost & Freight) price	$/MT	376.08
	or	₹/cylinder	356.30
4*	Import charges (insurance/ocean loss/ LC charge/port dues)	₹/cylinder	4.07
5*	Customs Duty	₹/cylinder	Nil
6*	**Import Parity Price (IPP) (sum of 3 to 5)**	**₹/cylinder**	**360.37**
7*	**Refinery Transfer Price (RTP) for domestic LPG** (price paid by the oil marketing companies to refineries)**	**₹/cylinder**	**360.37**
8*	Add: Storage / distribution cost & return on investment	₹/cylinder	9.87
9*	Add: Bottling charges	₹/cylinder	20.58
10*	Add: Charges for cylinder cost	₹/cylinder	18.11
11*	Add: Inland freight	₹/cylinder	33.32
12	**Bottling plant cost before stock loss and working capital (sum of 7 to 11)**	**₹/cylinder**	**442.24**
13*	Add: Cost of working capital	₹/cylinder	1.92
14	**Cost price at LPG bottling plant (sum of 12 to 13)**	**₹/cylinder**	**444.15**
15*	Add: Delivery charges	₹/cylinder	10.00
16*	Add: State Specific Costs (SSC)	₹/cylinder	Nil
17*	Add : Uncompensated Costs (import costs, recovery for non-revision, rounding-off & delivery charges)	₹/cylinder	28.12
18	**Market determined price (sum of 14 to 17)**	**₹/cylinder**	**482.27**
19*	Add : VAT (including VAT on distributor commission) applicable for Delhi	₹/cylinder	-
20*	Add : Distributor commission	₹/cylinder	47.62
21	**Retail Selling Price (RSP) (sum of 18 to 20)**	**₹/cylinder**	**529.89**
22	**RSP at Delhi (Rounded)**	**₹/cylinder**	**529.50**
23*	Less: Cash compensation on LPG by Government to consumers under DBTL	₹/cylinder	70.74
24*	Less: Cash compensation on LPG by OMCs, towards 'Uncompensated Costs' charged in the current RSP, to consumers	₹/cylinder	28.12
25	**Effective cost to consumer after subsidy (22-23-24)**	**₹/cylinder**	**430.64**

* The explanatory notes are given in the Table 9.5.
**Monthly RTP is weighted average of all Indian pricing ports.

Table 9.5 : Element wise explanation of price build up of domestic LPG

Sl. no.	Elements	Description
1	FOB price	FOB (free on board) of LPG is weighted average of Saudi Aramco contract price (CP) for butane (60%) & propane (40%) for previous month and also includes daily quotes of premium / discount (published by Platts Gaswire) averaged for previous month.
2	Ocean freight	Ocean freight from Arab Gulf to destination Indian port (i.e. Jamnagar) based on charter hire rates obtained from Clarkson Shipping Intelligence weekly.
4	Import charges	Import charges comprises of insurance, ocean loss, LC charges & port dues applicable on import of LPG.
5	Customs duty	Custom duty on domestic LPG is nil.
6	Import Parity Price (IPP)	IPP represents the price that importers would pay in case of actual import of product at the respective Indian ports. Import parity principle is as envisaged in the 'PAHAL (DBTL) Scheme, 2014'.
7	Refinery Transfer Price (RTP)	RTP is based on import parity price. This is the price paid by the oil marketing companies to domestic refineries for purchase of finished petroleum products at refinery gate.
8	Storage/distribution cost & return on investment	Storage/distribution cost & return on investment as fixed under notified 'PAHAL (DBTL) Scheme, 2014'.
9	Bottling charges	The cost incurred towards filling LPG in 14.2 Kg. cylinders as per notified 'PAHAL (DBTL) Scheme, 2014'.
10	Charges for cylinder cost	
11	Inland freight	It comprises of freight from port to inland locations i.e. bottling plant.
13	Cost of working capital	Interest on working capital for 18 days stock holding at SBI prime lending rate (PLR) as fixed under notified 'PAHAL (DBTL) Scheme, 2014'.
15	Delivery charges	It comprises of freight from bottling plant to distributor.
16	State Specific Costs (SSC)	In order to neutralise the under-recoveries to the oil companies caused by various irrecoverable/non-recoverable taxes and levies of state/union territories/municipal corporations, a state specific surcharge/cost is considered in the selling prices of petroleum products. In case of Delhi it is nil.
17	Uncompensated costs (import costs, recovery for non-revision, rounding-off & delivery charges)	In the price buildup, oil marketing companies are charging the consumers on account of import costs, recovery for non-revision in prices, rounding-off & differential delivery charges of ₹ 9/cyl. All these costs are not compensated to OMCs as per the PAHAL (DBTL) scheme.
19	VAT (sales Tax)	VAT at applicable rate in respective states. It varies from state to state (up to a maximum of 5% as domestic LPG is 'Declared Goods' under CST Act). Currently VAT at Delhi is nil.
20	Distributor commission	LPG distributor commission ₹47.48/Cylinder is as approved by MoP&NG.
23 & 24	Cash compensation to consumer under DBTL (including impact of uncompensated cost to OMCs)	Under DBTL Scheme, the difference between the price of domestic subsidized & non-subsidized LPG is being transferred to bank account of consumers by OMCs. This also includes the uncompensated amount which is borne by the OMCs.

Table 9.6 : Summarised buildup of Retail Selling Price (RSP) of petrol at Delhi

w.e.f. 01.11.2016

Particulars	₹/Litre*
Refinery Transfer Price (RTP) on landed cost basis for BS IV petrol (price paid by the Oil Marketing Companies (OMCs) to refineries)	26.64
Price charged to dealers (excluding excise duty and VAT)	28.42
Add : Excise duty @ ₹21.48/litre	21.48
Add : Dealer's commission	2.42
Add : VAT (including VAT on dealer's commission) applicable for Delhi @ 27%	14.13
RSP at Delhi (rounded)	**66.45**

*As per IOCL.

Table 9.7 : Summarised buildup of Retail Selling Price (RSP) of diesel at Delhi

w.e.f. 01.11.2016

Particulars	₹/Litre*
Refinery Transfer Price (RTP) on landed cost basis for BS IV diesel (price paid by the Oil Marketing Companies (OMCs) to refineries)	26.51
Price charged to dealers (excluding excise duty and VAT)	28.32
Add : Excise duty @ ₹17.33/litre	17.33
Add : Dealer's commission	1.54
Add : VAT (including VAT on dealer's commission) applicable for Delhi @ 16.75% & Air ambience charges (pollution cess) ₹250/KL	8.20
RSP at Delhi (rounded)	**55.38**

*As per IOCL.

Table 9.8 : Summarised buildup of Retail Selling Price (RSP) of PDS kerosene at Mumbai

	w.e.f. 01.11.2016
Particulars	**₹ / litre**
Refinery Transfer Price (RTP) for PDS kerosene (price paid by the Oil Marketing Companies (OMCs) to refineries)	25.46
Total cost price -before excise duty, VAT and dealer's commission	27.31
Less: Under-recovery to OMCs	12.25
Price charged to dealers (depot price)- excluding VAT and dealer's commission	15.05
Add : Excise duty	-
Add : Wholesaler & retailer commission and other charges fixed by state Government	1.62
Add : VAT (including VAT on wholesaler & retailer commission) applicable for Mumbai	0.50
RSP at Mumbai (rounded)	17.17

Table 9.9 : Summarised buildup of Retail Selling Price (RSP) of domestic LPG at Delhi

	w.e.f. 01.11.2016
Particulars	**₹/14.2 KG Cylinder**
Refinery Transfer Price (RTP) for domestic LPG (price paid by the Oil Marketing Companies (OMCs) to refineries)	360.37
Price charged to distributor (market determined price)	482.27
Add : Distributors' commission	47.62
Add : VAT (including VAT on distributor's commission) applicable for Delhi	-
RSP at Delhi (rounded)	**529.50**
Less: Cash compensation by Government to consumers under DBTL	70.74
Less: Cash compensation by OMCs towards 'Uncompensated Costs' charged in the current RSP, to consumers	28.12
Effective cost to consumer after subsidy	**430.64**

Share of taxes in Retail Selling Price (RSP) of petroleum products

Table 9.10 : Share of taxes in RSP of petrol effective 01.11.2016 at Delhi

Particulars	₹/Litre	Share in RSP
Price excluding taxes and dealers' commission	27.89	42.0%
Customs duty	0.53	
Excise duty	21.48	
Total central taxes	**22.01**	**33.1%**
Price charged to dealers - depot price	49.90	
VAT (Including VAT on dealer's commission)	14.13	
Total state taxes	**14.13**	**21.3%**
Total taxes	**36.14**	**54.4%**
Dealer's commission	2.42	3.6%
RSP per litre (rounded)	**66.45**	**100.0%**

Table 9.11 : Share of taxes in RSP of diesel effective 01.11.2016 at Delhi

Particulars	₹/Litre	Share in RSP
Price excluding taxes and dealer's commission	27.78	50.2%
Customs duty	0.53	
Excise duty	17.33	
Total central taxes	**17.86**	**32.2%**
Price charged to dealers - depot price	45.64	
VAT (Including VAT on dealer's commission)	8.20	
Total state taxes	**8.20**	**14.8%**
Total taxes	**26.06**	**47.1%**
Dealer's commission	1.54	2.8%
RSP per litre (rounded)	**55.38**	**100.0%**

Table 9.12 : Break up of current excise duty on petrol & diesel (effective 31.01.2016)

(₹/Litre)

Particular	Petrol	Diesel
Basic duty	9.48	11.33
Additional excise duty (road cess)	6.00	6.00
Special additional excise duty	6.00	-
Total excise duty	**21.48**	**17.33**

Notes :
1. The prices of petrol and diesel are as per IOCL at Delhi.
2. Customs duty on petrol and diesel as per November 2016, 1st fortnight RTP.

Share of taxes in Retail Selling Price (RSP) of petroleum products

Table 9.13 : Share of taxes in RSP of PDS kerosene effective 01.11.2016 at Mumbai

Particulars	₹/Litre	Share in RSP
Total price before Government levies	27.31	
Less : Under-recovery to OMCs	12.25	
Price excluding taxes and dealers' commission	**15.06**	**87.7%**
Customs duty	-	
Excise duty	-	
Total central taxes	**0.00**	**0.0%**
VAT (Including VAT on wholesaler and retailer commission)	0.49	
Total state taxes	**0.49**	**2.9%**
Total taxes	**0.49**	**2.9%**
Wholesaler and retailer commission	1.62	9.4%
RSP per litre (rounded)	**17.17**	**100.0%**

Table 9.14 : Share of taxes in RSP of domestic LPG effective 01.11.2016 at Delhi

Particulars	₹/Cylinder	Share in RSP
Price excluding taxes and distributors' commission	482.29	91.1%
Customs duty	-	
Excise duty	-	
Total central taxes	**0.00**	**0.0%**
VAT (including VAT on distributors' commission)	-	
Total state taxes	**0.00**	**0.0%**
Total taxes	**0.00**	**0.0%**
Distributor's commission	47.62	8.99%
RSP per cylinder (rounded)	**529.50**	**100.0%**
Less: Cash compensation by Government to consumers under DBTL	70.74	
Less: Cash compensation by OMCs towards 'Uncompensated Costs' charged in the current RSP to consumer	28.12	
Effective cost to consumer after DBTL subsidy	**430.64**	

Table 9.15 : Weightage of petroleum products in Wholesale Price Index (WPI)

Product	Weight in %
High Speed Diesel (HSD)	4.67
Petrol	1.09
LPG	0.91
Naphtha	0.79
Kerosene	0.74
Furnace Oil (FO)	0.47
Aviation Turbine Fuel (ATF)	0.26
Lubricants	0.17
Bitumen	0.16
Light Diesel Oil (LDO)	0.12
Total	**9.36**

Source : Website of Office of the Economic Adviser, Ministry of Commerce & Industry

Table 9.16 : Estimated impact of increase in Retail Selling Price (RSP) of major petroleum products on inflation (WPI index)

Product	Increase in RSP	Increase in inflation (WPI index)
Petrol	₹ 1/ litre	0.02%
Diesel	₹ 1/ litre	0.10%
PDS kerosene	₹ 1/ litre	0.05%
Domestic LPG	₹ 10/ cylinder	0.02%

Note : Based on September 2016 WPI index.

Important terms in pricing of petroleum products

1. **Import Parity Price (IPP) -** IPP represents the price that importers would pay in case of actual import of product at the respective Indian ports. This includes the following elements:
   i. FOB Price
   ii. Ocean freight
   iii. Insurance
   iv. Customs duty
   v. Port dues etc.
2. **Export Parity Price (EPP) -** EPP represents the price which oil companies would realize on export of petroleum products. This includes the following elements:
   i. FOB Price
   ii. Advance License Benefit for duty free import of crude oil pursuant to export of refined products (currently nil)
3. **Trade Parity Price (TPP) -** TPP is weighted average price of IPP and EPP with the weights of 80 and 20 respectively.
4. **Refinery Gate Price / Refinery Transfer Price (RGP/RTP) -** This is the price paid by the Oil Marketing Companies (OMCS) to refineries for purchase of finished petroleum products at refinery gate.
5. **Retail Selling Price (RSP) -** This is the final price, inclusive of all duties and taxes, charged to the consumers.

Dealer's / distributor's commission on petroleum products

Table 9.17 : Dealer's commission on petrol & diesel

(Figures in ₹ /KL)

Effective date	Petrol	Diesel
As on 1-Apr-04	707.00	425.00
21-Jun-05	778.00	467.00
01-Aug-05	848.00	509.00
01-Mar-07	894.00	529.00
16-May-07	1024.00	600.00
23-May-08	1052.00	631.00
27-Oct-09	1125.00	673.00
07-Sep-10	1218.00	757.00
01-Jul-11	1499.00	912.00
27-Oct-12	1794.00	1089.00
21-Dec-13	₹ 1390.15/KL + 0.883% of product billable price	1186.00
23-Oct-14	₹ 1499.37/KL + 0.887% of product billable price	₹ 1116.09/KL + 0.290% of product billable price
01-Aug-15	₹ 1749.86/KL + 0.883% of product billable price	₹ 1301.70/KL + 0.286% of product billable price
16-Nov-15	₹ 1750.08/KL + 0.883% of product billable price	₹ 1301.88/KL + 0.286% of product billable price
01-Jun-16	₹ 1750.29/KL + 0.883% of product billable price	₹ 1302.06/KL + 0.286% of product billable price
05-Oct-16	₹ 1868.14/KL + 0.875% of Product Billable Price*	₹ 1389.35/KL + 0.280% of Product Billable Price*

*The current dealer commission on Petrol is Rs. 2423.35/ KL and on Diesel is Rs. 1539.54/KL as on 1.11.2016 at Delhi (as per HPCL).

Table 9.18 : Wholesale dealer's commission on PDS kerosene

(₹/KL)

Effective date	With Form XV	Other than Form XV
As on 01-April-04	204.00	161.00
01-Mar-07	243.00	200.00
24-May-08	255.00	212.00
07-Jul-09	263.00	220.00
07-Sep-10	275.00	232.00
28-Dec-12	438.24	377.73
21-Oct-14	536.09	475.58
05-Feb-16	714.18	649.16
28-Oct-16	787.82	723.87

Table 9.19: Distributor's commission on domestic LPG

(₹/ Cylinder)

Effective date	14.2 KG cyl.	Additional commission for sale at market determined price (₹/14.2 KG cyl.)	5 KG cyl.
As on 01-April-04	16.71	NA	8.60
01-Mar-07	19.05	NA	9.81
04-Jun-08	20.54	NA	10.58
30-Jun-09	21.94	NA	11.30
01-Jul-11	25.83	NA	13.30
07-Oct-12	37.25	0.75	18.63
11-Dec-13	40.71	0.75	20.36
23-Oct-14	44.06	0.82	22.03
09-Dec-15	45.83	0.26	22.67
01-Jan-16	45.83	0.33	22.67
01-Feb-16	45.83	0.22	22.67
01-Mar-16	45.83	0.13	22.67
01-May-16	45.83	0.15	22.67
01-Jun-16	45.83	0.18	22.67
01-Jul-16	45.83	0.16	22.67
01-Aug-16	45.83	0.09	22.67
01-Sep-16	45.83	0.06	22.67
01-Oct-16	45.83	0.09	22.67
28-Oct-16	47.48	0.09	23.74
01-Nov-16	47.48	0.14	23.74

Source: MoP&NG circulars/ OMCs

Table 9.20 : Revisions in RSP of petroleum products at Delhi since 01.04.2010

Date	Petrol	Diesel	PDS kerosene	Domestic LPG	Reason
	(₹/litre)			(₹/14.2 Kg cyl.)	
01.04.2010	47.93	38.10	9.32	310.35	Prices as on 1.4.2010
26.06.2010	51.43	40.10	12.32	345.35	Increase in prices
01.07.2010	51.45	40.12			Increase in siding - shunting charges
20.07.2010		37.62			VAT reduction in Delhi
08.09.2010	51.56	37.71	12.33		Revision in dealer's commission
21.09.2010	51.83				Increase in price
17.10.2010	52.55				Increase in price
02.11.2010	52.59	37.75	12.37		Increase in siding - shunting charges
09.11.2010	52.91				Increase in price
16.12.2010	55.87				Increase in price
15.01.2011	58.37				Increase in price
18.01.2011			12.73		Increase in transportation charges
15.05.2011	63.37				Increase in price
25.06.2011		41.12	14.83	395.35	Increase in prices
01.07.2011	63.70	41.29		399.00	Increase in siding & shunting charges/ dealer's commission
16.09.2011	66.84				Increase in price
01.10.2011		40.91			Rebate of ₹ 0.375 per litre in VAT on Diesel at Delhi
04.11.2011	68.64				Increase in price
16.11.2011	66.42				Reduction in price
01.12.2011	65.64				Reduction in price
24.05.2012	73.18				Increase in price
03.06.2012	71.16				Reduction in price
18.06.2012	70.24	41.29			Rebate on petrol / Removal of rebate on diesel in Delhi
29.06.2012	67.78				Reduction in price
24.07.2012	68.48				Increase in price
01.08.2012	68.46	41.32			Revision in siding - shunting charges

Table 9.20: Continued

Date	Petrol	Diesel	PDS kerosene	Domestic LPG		Reason
				Subsidized	Non-subsidized	
	(₹/litre)			(₹/14.2 Kg cyl.)		
14.09.2012		46.95				Increase in price
18.09.2012					756.50	Price notified for non-subsidized domestic LPG
01.10.2012					883.50	Increase in price
03.10.2012			14.79			Revision in siding - shunting charges
07.10.2012				410.50	895.50	Increase in domestic LPG distributor's commission
09.10.2012	67.90					Reduction in price
27.10.2012	68.19	47.15				Increase in dealer's commission
01.11.2012					922.50	Increase in price
02.11.2012					895.50	Reduction in price
16.11.2012	67.24					Reduction in price
16.01.2013	67.56					Removal of rebate in VAT at Delhi
18.01.2013	67.26	47.65			942.00	Increase (diesel & non-subsidized domestic LPG)/ reduction (petrol) in prices
28.01.2013			14.96			Increase in dealer's commission
16.02.2013	69.06	48.16				Increase in prices
01.03.2013					904.50	Reduction in price
02.03.2013	70.74					Increase in price
16.03.2013	68.34					Reduction in price
23.03.2013		48.67				Increase in price
01.04.2013	68.31	48.63			901.50	Revision in siding - shunting charges / reduction in price of non-subsidized domestic LPG
02.04.2013	67.29					Reduction in price
16.04.2013	66.09	48.67				Reduction in petrol price/ Increase in delivery charges of diesel
01.05.2013	63.09				847.00	Reduction in prices
11.05.2013		49.69				Increase in price
01.06.2013	63.99	50.25			802.00	Increase (petrol and diesel) / reduction (non-subsidized domestic LPG) in prices
16.06.2013	66.39					Increase in price
29.06.2013	68.58					Increase in price & delivery charges of petrol
01.07.2013		50.26			832.00	Increase in delivery charges of diesel/ increase in price of non-subsidized domestic LPG
02.07.2013		50.84				Increase in price
15.07.2013	70.44					Increase in price
01.08.2013	71.28	51.40			875.00	Increase in prices
01.09.2013	74.10	51.97			932.50	Increase in prices
14.09.2013	76.06					Increase in price
01.10.2013	72.40	52.54			1004.00	Increase (diesel & non-subsidized domestic LPG)/ reduction (petrol) in price

Table 9.20: Continued

Date	Petrol	Diesel	PDS kerosene	Domestic LPG		Reason
				Subsidized	Non-subsidized	
	(₹/litre)			(₹/14.2 Kg cyl.)		
01.11.2013	71.02	53.10			954.50	Increase (diesel)/ reduction (petrol & non-subsidized domestic LPG) in price
01.12.2013		53.67			1017.50	Increase in prices
11.12.2013				414.00	1021.00	Increase in distributor's commission on domestic LPG
21.12.2013	71.52	53.78				Increase in price of petrol & Increase in dealer's commission on petrol and diesel
04.01.2014	72.43	54.34			1241.00	Increase in prices
01.02.2014		54.91			1134.00	Increase (diesel)/ reduction (non-subsidized domestic LPG) in price
01.03.2014	73.16	55.48			1080.50	Increase (petrol & diesel)/ reduction (non-subsidized domestic LPG) in Price
01.04.2014	72.26	55.49			980.50	Reduction in prices (petrol & non-subsidized domestic LPG)/ increase in delivery charges of diesel
16.04.2014	71.41					Reduction in price
01.05.2014					928.50	Reduction in price
16.05.2014		56.71				Increase in price
01.06.2014		57.28			905.00	Increase (diesel)/ reduction (non-subsidized domestic LPG) in price
07.06.2014	71.51					Increase in price
25.06.2014	71.56				906.00	Increase in rail freight
01.07.2014	73.60	57.84			922.50	Increase in prices
01.08.2014	72.51	58.40			920.00	Increase (diesel)/ reduction (petrol & non-subsidized domestic LPG) in price
16.08.2014	70.33					Reduction in price
31.08.2014	68.51	58.97				Increase (diesel)/ reduction (petrol) in price
01.09.2014					901.00	Reduction in price
01.10.2014	67.86				880.00	Reduction in price
15.10.2014	66.65					Reduction in price
19.10.2014		55.60				Reduction in price
23.10.2014				417.00	883.50	Increase in domestic LPG distributor's commission
01.11.2014	64.24	53.35	**15.14***		865.00	Reduction in price/ price of PDS kerosene at Mumbai
01.12.2014	63.33	52.51			752.00	Reduction in prices
16.12.2014	61.33	50.51				Reduction in prices
01.01.2015					708.50	Reduction in price
17.01.2015	58.91	48.26				Reduction in prices
01.02.2015					605.00	Reduction in price
04.02.2015	56.49	46.01				Reduction in prices
16.02.2015	57.31	46.62	**15.24**			Increase in dealer's commission
01.03.2015	60.49	49.71			610.00	Increase in prices

Table 9.20 : Continued

Date	Petrol	Diesel	PDS kerosene	Domestic LPG		Reason
				RSP	Effective cost after DBTL subsidy#	
	(₹/litre)			(₹/14.2 Kg cyl.)		
01.04.2015	60.00	48.50		621.00	417.82	Increase (non-subsidized domestic LPG)/ reduction (petrol and diesel) in prices
16.04.2015	59.20	47.20				Reduction in prices
1.05.2015	63.16	49.57		616.00		Increase (petrol and diesel) / reduction (domestic LPG) in prices
16.05.2015	66.29	52.28				Increase in prices
01.06.2015				626.50		Increase in price
16.06.2015	66.93	50.93				Increase (petrol) / reduction (diesel) in price
01.07.2015	66.62	50.22		608.50		Reduction in prices
16.07.2015	66.90	49.72				Reduction in price & increase in VAT rates at Delhi
01.08.2015	64.47	46.12		585.00		Reduction in prices
15.08.2015	63.20	44.95				Reduction in prices
01.09.2015	61.20	44.45		559.50		Reduction in prices
01.10.2015		44.95		517.50		Increase (diesel)/ reduction (domestic LPG) in price
16.10.2015		45.90				Increase in prices
01.11.2015	60.70	45.93		545.00		Decrease (petrol) / Increase (domestic LPG) in price / Increase in delivery charges of petrol & diesel
16.11.2015	61.06	46.80				Increase in prices
01.12.2015	60.48	46.55		606.50		Increase (domestic LPG)/ reduction (petrol and diesel) in price
09.12.2015				608.00	419.26	Increase in distributor's commission on domestic LPG
16.12.2015	59.98	46.09				Reduction in prices
01.01.2016	59.35	45.03		657.50	419.33	Increase (domestic LPG)/ reduction (petrol and diesel) in price / increase in additional distributor's commission on LPG
02.01.2016	59.35	45.03				Increase in excise duty on petrol and diesel without increase in RSPs
16.01.2016	59.03	44.18				Reduction in price along with increase in excise duty
19.01.2016	59.99	44.71				Increase in VAT rates at Delhi
31.01.2016	59.99	44.71				Increase in excise duty on petrol and diesel without increase in RSP
01.02.2016	59.95	44.68		575.00	419.22	Reduction in delivery charges of petrol and diesel/ reduction in price and additional distributor's commission of domestic LPG
18.02.2016	59.63	44.96				Reduction in price of petrol and increase in price of diesel
01.03.2016	56.61	46.43		513.50	419.13	Reduction in price of petrol/ increase in price of diesel/ reduction in additional distributor's commission of domestic LPG
04.03.2016			15.42			Increase in dealer's commission
17.03.2016	59.68	48.33				Increase in prices
01.04.2016				509.50		Reduction in price
05.04.2016	61.87	49.31				Increase in prices
16.04.2016	61.13	48.01				Reduction in prices
25.04.2016			15.36			Reduction in SSC on PDS kerosene in Mumbai
01.05.2016	62.19	50.95		527.50	419.15	Increase in prices of petrol, diesel & non-subsidized domestic LPG/ increase in additional distributor's commission on domestic LPG

Table 9.20 : Continued

Date	Petrol	Diesel	PDS kerosene	Domestic LPG		Reason
	(₹/litre)			RSP	Effective cost after DBTL subsidy#	
				(₹/14.2 Kg cyl.)		
17.05.2016	63.02	51.67				Increase in prices
01.06.2016	65.60	53.93		548.50	419.18	Increase in prices of petrol, diesel & non-subsidized domestic LPG/ increase in additional distributors' commission on domestic LPG
03.06.2016			15.02			Reduction in SSC on PDS kerosene in Mumbai
16.06.2016	65.65	55.19				Increase in prices
01.07.2016	64.76	54.70		537.50	421.16	Reduction in prices of petrol, diesel & non subsidized domestic LPG/ increase in price of subsidized domestic LPG / reduction in additional distributors' commission of domestic LPG
07.07.2016			15.27			Increase in price of PDS SKO
16.07.2016	62.51	54.28				Reduction in prices
01.08.2016	61.09	52.27	15.53	487.00	423.09	Reduction in prices of petrol, diesel & non sub. domestic LPG/ increase in price of subsidized domestic LPG / reduction in addl. distributor commission of domestic LPG
16.08.2016	60.09	50.27	15.68			Reduction in prices of petrol and diesel/ Increase in SSC on PDS SKO at Mumbai
01.09.2016	63.47	52.94	15.94	466.50	425.06	Increase in prices of petrol, diesel, PDS kerosene & subsidized domestic LPG / Reduction in price of non sub. domestic LPG/ reduction in LPG additional distributor commission
16.09.2016	64.21	52.59	16.19			Increase (petrol & PDS SKO)/ reduction (diesel) in price
21.09.2016			16.40			Increase in SKO retailers' commission at Mumbai
01.10.2016	64.58	52.51	16.66	490.00	427.09	Increase in prices of Petrol, Non Sub. Domestic LPG, Subsidized domestic LPG and PDS Kerosene/ Reduction in price of Diesel/ Increase in LPG Addl. distributor commission
05.10.2016	64.72	52.61				Increase in dealers' commission on petrol and diesel
16.10.2016	66.45	55.38	16.92			Increase in prices of petrol, diesel and PDS kerosene
28.10.2016				492.00	428.59	Increase in distributos' commission
01.11.2016			17.17	529.50	430.64	Increase in prices of non subsidized domestic LPG, subsidized domestic LPG and PDS kerosene/ Increase in LPG additional distributors' commission
	66.45	**55.38**	**17.17***	**529.50**	**430.64#**	**RSP as on 1st November 2016**

Notes :
1. Prices of petrol since 26.6.2010, non subsidized domestic LPG since 13.9.2012 and diesel since 19.10.2014 are as per IOCL.
2. *Since there is 'Nil' allocation of PDS kerosene in Delhi currently, RSP of PDS kerosene from 1.11.2014 onwards is at Mumbai.
3. # effective 1st January 2015, Modified DBTL scheme has been implemented in the entire country. The effective cost to consumer is after DBTL subsidy.

Table 9.21 : Selling price of diesel for bulk consumers in major cities

(₹/Litre)

Date	Delhi	Kolkata	Mumbai	Chennai
18-Jan-13	56.88	61.30	64.11	60.85
01-Feb-13	56.95	61.37	64.19	60.92
16-Feb-13	58.57	63.06	65.98	62.68
01-Mar-13	59.73	64.27	67.25	63.93
16-Mar-13	56.79	61.20	64.01	60.75
01-Apr-13	54.84	59.51	61.95	58.69
16-Apr-13	54.77	59.46	61.88	58.62
01-May-13	51.81	56.37	58.61	55.42
16-May-13	52.76	57.36	59.66	56.44
23-May-13	52.76	57.36	60.79	56.44
01-Jun-13	54.61	59.28	62.83	58.44
16-Jun-13	56.17	60.91	64.55	60.12
01-Jul-13	58.78	63.63	66.62	62.95
02-Jul-13	58.79	63.62	66.61	62.94
16-Jul-13	60.40	65.30	68.39	64.68
01-Aug-13	60.72	65.63	68.75	65.03
16-Aug-13	61.74	66.69	69.86	66.13
01-Sep-13	64.45	69.50	72.85	69.05
16-Sep-13	67.45	72.63	76.17	72.30
01-Oct-13	63.50	68.50	71.78	68.05
16-Oct-13	63.25	68.24	71.50	67.78
01-Nov-13	62.97	67.95	71.19	67.48
16-Nov-13	63.06	68.04	71.29	67.57
01-Dec-13	63.86	68.88	72.18	68.44
01-Jan-14	63.51	68.51	71.79	68.06
05-Jan-14	63.51	68.66	72.97	68.08
01-Feb-14	61.95	67.03	71.25	66.39
16-Feb-14	62.97	68.09	72.37	67.49
01-Mar-14	63.63	68.78	73.10	68.20
16-Mar-14	62.33	67.43	71.67	66.80
01-Apr-14	60.89	65.93	70.08	65.25
16-Apr-14	60.41	65.44	69.56	64.73
01-May-14	61.83	66.91	71.12	66.26
16-May-14	60.38	65.41	69.52	64.70
01-Jun-14	59.18	64.16	68.20	63.40
16-Jun-14	57.87	62.80	66.75	61.99
01-Jul-14	60.41	65.52	69.10	64.70
16-Jul-14	59.32	64.39	67.90	63.53
01-Aug-14	58.60	63.64	67.10	62.75
16-Aug-14	59.12	64.18	67.68	63.31
01-Sep-14	57.80	62.81	66.23	61.89
16-Sep-14	57.37	62.36	65.75	61.42
19-Oct-14	54.00	58.85	62.03	57.78
01-Nov-14	51.94	56.70	59.74	55.56
01-Dec-14	51.10	55.83	58.83	54.66

(₹/Litre)

Date	Delhi	Kolkata	Mumbai	Chennai
16-Dec-14	49.13	53.78	56.65	52.53
17-Jan-15	46.88	51.77	54.17	50.10
04-Feb-15	44.64	49.77	51.69	47.68
16-Feb-15	45.25	50.32	52.37	48.34
01-Mar-15	48.31	53.03	55.73	51.63
02-Apr-15	47.13	52.01	54.44	50.36
16-Apr-15	45.83	50.86	53.01	48.97
01-May-15	48.20	52.94	55.61	51.52
16-May-15	50.90	55.62	58.59	54.43
16-Jun-15	49.55	54.22	57.11	52.98
01-Jul-15	48.84	53.52	56.32	52.21
16-Jul-15	48.29	51.53	53.84	49.78
01-Aug-15	44.50	48.26	49.80	45.82
15-Aug-15	43.33	47.26	48.56	44.61
01-Sep-15	42.83	46.84	48.03	44.09
01-Oct-15	43.33	47.26	50.56	44.61
16-Oct-15	44.27	48.07	51.57	45.59
01-Nov-15	44.30	48.10	51.60	45.62
16-Nov-15	45.17	48.85	52.52	46.53
01-Dec-15	44.92	48.65	52.26	46.29
16-Dec-15	44.46	48.26	51.77	45.82
01-Jan-16	43.41	47.35	50.64	44.72
16-Jan-16	42.56	46.63	49.74	43.83
19-Jan-16	43.07	46.63	49.74	43.83
01-Feb-16	43.04	46.60	49.71	43.80
18-Feb-16	43.32	46.83	50.00	44.09
01-Mar-16	44.78	48.07	51.54	45.59
17-Mar-16	46.68	49.25	53.53	47.54
05-Apr-16	47.65	50.08	54.56	48.55
16-Apr-16	46.36	48.98	51.97	47.21
01-May-16	49.29	51.46	55.05	50.23
07-May-16	48.77	51.46	55.05	50.23
17-May-16	50.02	52.54	55.25	51.54
01-Jun-16	52.28	54.60	57.65	53.88
16-Jun-16	53.53	55.86	58.98	55.19
01-Jul-16	53.04	54.66	58.44	55.36
16-Jul-16	52.62	54.95	58.03	54.23
01-Aug-16	50.62	53.06	55.90	52.15
16-Aug-16	48.63	51.35	54.07	50.08
01-Sep-16	51.29	53.63	56.90	52.85
16-Sep-16	50.94	53.33	56.53	52.48
01-Oct-16	50.86	53.27	56.44	52.40
16-Oct-16	53.62	55.96	59.38	55.27
06-Nov-16	54.65	56.99	60.47	56.34

Source : HPCL

Table 9.22 : Retail Selling Price (RSP) of major products in India & neighbouring countries

Indian rupees (₹)/ litre/ cyl.

Country	Petrol	Diesel	Kerosene	Domestic LPG
India	66.45^	55.38^	17.17#	430.64*
Pakistan	39.39	46.23	27.57	1131.63
Bangladesh	74.65	56.42	56.42	690.28
Sri Lanka	53.91	43.77	22.58	704.55
Nepal	61.60	46.36	46.36	841.39

Sources :
Website of following companies: Pakistan- Pakistan State Oil (www.psopk.com); Bangladesh- Bangladesh Petroleum Corporation (www.bpc.gov.bd); Nepal- Nepal Oil Corporation (www.nepaloil.com.np); Sri Lanka- Petrol; Diesel & Kerosene- Ceylon Petroleum Corporation (www.ceypetco.gov.in); LPG- Litro Gas Lanka (www.litrogas.com); Exchange rate - www.oanda.com
Notes : Prices for neighboring countries as on 1.11.2016.
*Effective cost after DBTL subsidy effective 1.11.2016. # at Mumbai effective 1.11.2016, ^ as per IOCL effective 1.11.2016

Retail Selling Price (RSP) & % of taxes in RSP of petrol and diesel in developed countries vis-a-vis India

Table 9.23 : Price and tax in Indian rupees (₹) / litre

Country	Petrol				Diesel			
	RSP	Ex-tax price	Taxes	% of taxes	RSP	Ex-tax price	Taxes	% of taxes
India	66.45	30.31	36.14	54%	55.38	29.32	26.06	47%
France	96.68	32.10	64.58	67%	83.14	31.05	52.08	63%
Germany	98.55	33.90	64.65	66%	82.31	33.97	48.34	59%
Italy	108.73	34.65	74.08	68%	97.20	33.52	63.68	66%
Spain	86.58	36.97	49.61	57%	77.07	36.14	40.93	53%
UK	97.52	30.43	67.09	69%	99.45	32.01	67.44	68%
Japan	80.44	37.63	42.80	53%	67.09	40.97	26.11	39%
Canada	53.56	33.84	19.72	37%	49.79	34.55	15.24	31%
USA	39.11	31.17	7.94	20%	42.25	33.10	9.14	22%

Table 9.24 : Price and tax in US dollars ($) / litre

Country	Petrol				Diesel			
	RSP	Ex-tax price	taxes	% of taxes	RSP	Ex-tax price	Taxes	% of taxes
India	1.00	0.45	0.54	54%	0.83	0.44	0.39	47%
France	1.45	0.48	0.97	67%	1.25	0.47	0.78	63%
Germany	1.48	0.51	0.97	66%	1.23	0.51	0.72	59%
Italy	1.63	0.52	1.11	68%	1.46	0.50	0.95	66%
Spain	1.30	0.55	0.74	57%	1.15	0.54	0.61	53%
UK	1.46	0.46	1.01	69%	1.49	0.48	1.01	68%
Japan	1.21	0.56	0.64	53%	1.01	0.61	0.39	39%
Canada	0.80	0.51	0.30	37%	0.75	0.52	0.23	31%
USA	0.59	0.47	0.12	20%	0.63	0.50	0.14	22%

Notes :
1. Prices of petrol and diesel in France, Germany, Italy, Spain, UK, Japan, Canada & USA as per the IEA report for September 2016 and average exchange rate of September 2016 considered for conversion: ₹ 66.74/USD. (VAT excluded from prices for automotive diesel for France, Italy, Spain and UK as it is refunded to industry.)
2. Prices in India as of 1.11.2016 as per IOCL. Average exchange rate of October 2016 (up to 31.10.2016) considered for conversion ₹66.75/$.

Table 9.25 : Retail Selling Price (RSP) of petroleum products at state/UT capitals as on 01.11.2016

State/Union Territory	City	Petrol	Diesel	Domestic LPG
		(₹/litre)		(₹/14.2 KG cylinder)
States				
Andhra Pradesh	Vizag*	71.98	61.36	557.00
Arunachal Pradesh	Itanagar	62.47	53.14	617.00
Assam	Guwahati	69.03	58.47	605.00
Bihar	Patna	69.04	58.92	625.00
Chhattisgarh	Raipur	67.42	60.63	596.50
Goa	Panjim	60.50	57.95	539.50
Gujarat	Gandhinagar	68.37	61.66	576.00
Haryana	Ambala	65.96	55.19	551.50
Himachal Pradesh	Shimla	67.50	55.80	589.50
Jammu & Kashmir	Srinagar	71.34	58.83	642.00
Jharkhand	Ranchi	68.25	58.77	605.00
Karnataka	Bengaluru	71.28	59.28	540.00
Kerala	Thiruvananthapuram	70.55	60.58	554.50
Madhya Pradesh	Bhopal	**73.57**	**62.60**	578.50
Maharashtra	Mumbai	72.83	61.05	531.00
Manipur	Imphal	64.57	53.90	695.50
Meghalaya	Shillong	65.35	55.04	594.50
Mizoram	Aizawl	62.07	52.77	674.00
Nagaland	Kohima	64.65	53.93	579.00
Odisha	Bhubaneswar	66.59	60.40	559.00
Punjab	Jullunder	71.63	55.63	581.00
Rajasthan	Jaipur	68.92	59.49	**518.50**
Sikkim	Gangtok	68.68	56.77	**709.00**
Tamil Nadu	Chennai	65.96	56.95	538.50
Telangana	Hyderabad	70.96	60.39	590.50
Tripura	Agartala	61.72	53.22	671.00
Uttarakhand	Dehradun	70.95	57.96	571.00
Uttar Pradesh	Lucknow	69.36	56.78	568.00
West Bengal	Kolkata	69.08	57.64	551.00
Union territory				
Andaman & Nicobar Islands	Port Blair	**57.59**	**52.30**	604.50
Chandigarh	Chandigarh	66.89	56.30	550.50
Daman & Diu	Daman*	64.75	56.09	545.00
Dadra & Nagar Haveli	Silvasa*	64.80	56.13	552.50
Delhi	New Delhi	66.45	55.38	529.50
Puducherry	Puducherry	62.55	55.92	537.50

Source: IOCL (*as per HPCL)

Highest	Lowest

Table 9.26 : Retail Selling Price (RSP) of PDS kerosene at major cities as on 01.11.2016

State	City	(₹/litre)
Maharashtra	Mumbai	17.17
Tamil Nadu	Chennai*	13.60
West Bengal	Kolkata *	18.07

Source : OMCs
Note : The allocation of PDS kerosene in Delhi is nil presently.
*West Bengal (effictive 17.10.2016)

Table 9.27 : Customs and excise duty rates on petroleum products effective 01.03.2016

Particulars		Customs duty			Central excise duty		
		Basic customs duty	Additional customs duty (CVD)	Additional customs duty	Basic cenvat duty	Special additional excise duty	Addition-al excise duty
Crude oil		Nil + ₹ 50/MT as NCCD	Nil	-	Nil+ Cess @20% + ₹ 50/ MT as NCCD	-	-
Petrol		2.5%	₹ 9.48/ltr. + ₹ 6.00/ltr SAD	₹ 6.00/ltr.	₹ 9.48/ltr	₹ 6.00/ltr	₹ 6.00/ltr.
Petrol (branded)		-	-	-	₹ 10.66/ltr	₹ 6.00/ltr	₹ 6.00/ltr.
High speed diesel		2.5%	₹ 11.33/ltr.	₹ 6.00/ltr.	₹ 11.33/ltr.	-	₹ 6.00/ltr.
High speed diesel (branded)		-	-	-	₹ 13.69/Ltr	-	₹ 6.00/ltr.
LPG	Domestic	Nil	Nil	-	Nil	-	-
	Non-domestic	5.0%	8.0%	-	8.0%	-	-
Kerosene	PDS	Nil	Nil	-	Nil	-	-
	Non PDS	5.0%	14.0%	-	14.0%	-	-
Aviation Turbine Fuel (ATF)		Nil	14.0% *	-	14.0% *	-	-
Naphtha	Fertilizer	Nil	Nil	-	Nil	-	-
	Non-fertilizer	5.0%	14.0%	-	14.0%	-	-
Butane / propane	Domestic	Nil	Nil	-	Nil	-	-
	Non-domestic	2.5%	8.0%	-	8.0%	-	-
Bitumen & asphalt		5.0%	14.0%	-	14.0%	-	-
Furnace Oil (FO)	Fertilizer	Nil	Nil	-	Nil	-	-
	Non-fertilizer	5.0%	14.0%	-	14.0%	-	-
Light Diesel Oil (LDO)		5.0%	14% + ₹ 2.50/ Ltr	-	14% + ₹ 2.50/ Ltr	-	-
Liquefied Natural Gas (LNG)		5.0%	Nil	-	Nil	-	-
Low Sulphur Heavy Stock (LSHS)/ HPS & other residuals	Fertilizer	5.0%	Nil	-	Nil	-	-
	Non-fertilizer	5.0%	14.0%	-	14.0%	-	-
Lube oil/greases		5.0%	14.0%	-	14.0%	-	-
Natural gas [gaseous state]		5.0%	Nil	-	Nil	-	-
Natural gas [compressed]		5.0%	14.0%	-	14.0%	-	-
Petroleum coke		2.5%	14.0%	-	14.0%	-	-
Petroleum jelly		5.0%	14.0%	-	14.0%	-	-
Transformer oil		5.0%	14.0%	-	14.0%	-	-
Waxes all types		5.0%	14.0%	-	14.0%	-	-

Notes :

1 Additional Duty of Customs @4% would be levied in lieu of sales tax / VAT except petrol, diesel, SKO(PDS), LPG(domestic), coal, coke and petroleum gases and fuels of Chapter 27 on direct imports for consumption.

2 In addition to above, education cess @2% on aggregate duties is charged w.e.f. 09.07.2004 and additional 1% is charged w.e.f. 01.03.2007. However, education cess has been removed on Excise duty effective 1st March 2015.

3 *8% for supply to Schedule Commuter Airlines (SCA) from the Regional Connectivity Scheme (RCS) airports.

Table 9.28 : Effective rates of sales tax/VAT levied by various states/UTs as on 01.11.2016

State/Union Territory	Petrol	Diesel	PDS kerosene	Domestic LPG
	% of capital city rate before VAT			
States				
Andhra Pradesh	39.00	31.01	5.00	5.00
Arunachal Pradesh	20.00	12.50	4.00	4.00
Assam	29.00	20.00	2.00	4.00
Bihar	26.00	19.00	6.00	1.00
Chhattisgarh	29.95	27.15	4.00	Nil
Goa	15.58	22.61	5.02	0.50
Gujarat	28.96	28.96	Nil	5.00
Haryana	26.25	17.22	Nil	Nil
Himachal Pradesh	27.00	16.00	Nil	4.00
Jammu & Kashmir	29.64	18.06	5.00	Nil
Jharkhand	32.06	24.66	2.00	3.69
Karnataka	36.50	24.95	5.50	1.00
Kerala	34.10	26.94	5.00	4.05
Madhya Pradesh	40.29	31.51	5.00	Basic VAT - / Entry tax - 7.10
Maharashtra – Mumbai, Thane & Navi Mumbai	37.75	28.32	3.00	3.00
Maharashtra (rest of state)	36.90	25.32	3.00	3.00
Manipur	25.00	14.50	Nil	5.00
Meghalaya	22.44	13.77	Nil	Nil
Mizoram	20.00	12.00	Nil	1.79
Nagaland	24.68	14.18	5.25	5.25
Odisha	27.26	27.26	1.00	1.00
Punjab	36.02	17.24	6.05	4.40
Rajasthan	33.00	25.81	Nil	Nil
Sikkim	31.04	17.98	4.50	4.50
Tamil Nadu	27.00	21.43	5.00	Nil
Telangana	35.20	27.00	5.00	5.00
Tripura	20.00	13.50	Nil	1.50
Uttarakhand	33.77	22.31	Nil	5.00
Uttar Pradesh	33.36	20.51	4.04	Nil
West Bengal	26.90	18.50.	Nil	Nil
Union territories				
Andaman & Nicobar Islands	Nil	Nil	Nil	Nil
Chandigarh	24.77	16.43	5.00	Nil
Dadra & Nagar Haveli	20.00	15.00	5.00	5.00
Daman & Diu	20.00	15.00	5.00	5.00
Delhi	27.00	17.39	5.00	Nil
Lakshadweep	Nil	Nil	Nil	Nil
Puducherry	15.00	14.00	Nil	0.50

(As per details provided by HPCL/IOCL)

Notes:

1. Effective rate Includes VAT, cess, entry tax, additional tax & surcharge recoverable in price.
2. In Dadra & Nagar Haveli, Daman & Diu, Chandigarh, Puducherry, Meghalaya and Nagaland (for LPG), there is no depot/plant of OMCs and products are brought in from other states, hence CST @ 2% is also applicable (except for LPG in Puducherry)
3. For petrol & diesel, VAT at applicable rates is also levied on dealer's commission in Delhi, Gujarat, Haryana, Madhya Pradesh, Punjab, Dadra & Nagar Haveli, Daman & Diu, Chandigarh, Puducherry and on petrol in Meghalaya.
4. For domestic LPG, VAT at applicable rates is also levied on distributor's commission by all states and UTs except Assam.
5. Himachal Pradesh has granted rebate on VAT whereby VAT is payable on selling price as reduced by GOI subsidy.
6. As per Kerala state Government notification dated 20.1.2014, "for the sale of domestic LPG by Indian Oil Corporation Limited, Hindustan Petroleum Corporation Limited, Bharat Petroleum Corporation Limited and their agencies, no tax shall be levied on the amount of subsidy granted by the Central Government to such corporations and passed on to the consumers during the sale of the same by the said corporations and their agencies". Thus, rate of LPG domestic for supplies as per DBTL scheme exempted to the extent of subsidy granted by GOI.
7. In Jharkhand, VAT rate of domestic LPG remains same but for charging VAT, sale price of subsidized domestic LPG under DBTL scheme will be same as sale price of subsidized domestic LPG which does not come under DBTL scheme.

Table 9.29 : Actual Rate of Sales Tax/ VAT and Other Taxes Levied by State/UT Governments on Major Petroleum Products as on 01.11.2016

Sl. no.	State/ Union Territory	Petrol	Diesel	PDS kerosene	Domestic LPG
1	Andhra Pradesh	31% VAT + ₹ 4/litre VAT	22.25% VAT + ₹ 4/litre VAT	5% VAT	5% VAT
2	Arunachal Pradesh	20% VAT	12.50% VAT	4% VAT	4% VAT
3	Assam	29% VAT or ₹ 14 per litre, whichever is higher	20% VAT or ₹ 8.75 per litre, whichever is higher	2% VAT	4% VAT
4	Bihar	26% VAT	19% VAT	6% VAT	1% VAT
5	Chhattisgarh	1% entry tax + 25% VAT + ₹ 2/litre VAT	1% entry tax + 25% VAT + ₹ 1/litre VAT	4% VAT	Nil
6	Gujarat	24% VAT+ 4% Cess on Town Rate & VAT	24% VAT + 4 % Cess on Town Rate & VAT	Nil	5% VAT
7	Goa	15% VAT + 0.5% Green cess	22% VAT + 0.5% Green cess	5% VAT + 0.5% Green cess	0.5% Green cess
8	Himachal Pradesh	27% VAT	16% VAT	Nil	4% VAT (refer note 1)
9	Haryana	25% VAT+5% additional tax on VAT	16.40% VAT+5% additional tax on VAT	Nil	Nil
10	Jharkhand	22% or ₹ 15/litre whichever is higher VAT + ₹ 1000/KL cess	22% or ₹ 8.37/litre whichever is higher VAT + ₹ 1000/KL cess	2% VAT	5% VAT (refer note 2)
11	Jammu & Kashmir	24% MST+ ₹ 3000/KL employment cess	16% MST+ ₹ 1000/KL employment cess	5% VAT	Nil
12	Kerala	31.80% sales tax+ ₹ 1/litre additional sales tax + 1% cess	24.52% sales tax+ ₹ 1/litre additional sales tax + 1% cess	5% VAT	5% VAT (refer Note no. 3)
13	Karnataka	5% entry tax+ 30% sales tax	5% entry tax+19% sales tax	5.50% VAT	1% VAT
14	Madhya Pradesh	1% entry tax + 31 % VAT + ₹ 4/litre VAT	1% entry Tax + 27% VAT + ₹ 1.50/litre VAT	5% VAT	2% entry tax+5 % VAT
15	Maharashtra	25% VAT+ ₹ 6/Litre additional tax	21% VAT + ₹ 2/KL additional tax	3% VAT	3% VAT
16	Manipur	25% VAT	14.50% VAT	Nil	5 % VAT
17	Meghalaya	22% VAT + 2% surcharge	13.5% VAT +2% surcharge	Nil	Nil
18	Mizoram	20% VAT	12% VAT	Nil	1.79% VAT
19	Nagaland	23.5% VAT +5% surcharge	13.5% VAT+ 5% surcharge	5% VAT+5% surcharge	5% VAT+5% surcharge
20	Odisha	1% entry Tax + 26% VAT	1% entry Tax+ 26% VAT	1% entry Tax	1% entry Tax
21	Punjab	₹ 2000/KL (cess) +28% VAT+10% additional tax on VAT	₹ 1000/KL (cess) + 13.40% VAT+10% additional tax on VAT	5.5% VAT+10% additional tax on VAT	4% VAT+10% additional tax on VAT
22	Rajasthan	30% VAT+ ₹ 1500/KL road development cess	22% VAT+ ₹ 1750/KL road development cess	Nil	Nil
23	Sikkim	25% VAT+ ₹ 3000/KL cess + ₹ 100/KL sikkim consumer welfare fund	17.5% VAT + ₹ 2500/KL cess + ₹ 100/KL sikkim consumer welfare fund	4.50% VAT	4.50% VAT
24	Tamil Nadu	27% VAT	21.43% VAT	5% VAT	Nil
25	Telangana	35.20% VAT	27% VAT	5% VAT	5% VAT
26	Tripura	20% VAT	13.50% VAT	Nil	1.50% VAT
27	West Bengal	25% or ₹ 13.12/litre whichever is higher as sales tax+ ₹ 1000/KL cess	17% or ₹ 7.70/litre whichever is higher as sales tax + ₹ 1000/KL cess - ₹ 290/KL sales tax rebate	Nil	Nil
28	Uttar Pradesh	26.80% or ₹ 16.74 per litre whichever in higher as VAT	17.48% or ₹ 9.41 per litre whichever in higher as VAT	4% VAT +1% additional tax on VAT	Nil
29	Uttarakhand	25% or ₹ 17/litre whichever is higher as VAT+ ₹ 250/KL cess	21% VAT or ₹ 9/litre whichever is higher as VAT + ₹ 500/KL cess	Nil	5% VAT (refer note 4)
Union territories					
30	Andaman & Nicobar Islands	Nil	Nil	Nil	Nil
31	Chandigarh	₹ 10/KL cess +24.74% VAT	₹ 10/KL cess + 16.40% VAT	5% VAT	Nil
32	Dadra & Nagar Haveli	20% VAT	15% VAT	5% VAT	5% VAT
33	Daman & Diu	20% VAT	15% VAT	5% VAT	5% VAT
34	Delhi	27% VAT	₹ 250/KL air ambience charges + 16.75% VAT	5% VAT	Nil
35	Lakshadweep	Nil	Nil	Nil	Nil
36	Puducherry	15% VAT	14% VAT	Nil	0.50% VAT for DBTL / 1 % VAT for Non-DBTL

Source : OMCs

Notes :

1. Himachal Pradesh has granted rebate on VAT whereby VAT is payable on selling price as reduced by GOI subsidy (DBTL).
2. VAT rate of DOM LPG remains same but for charging VAT, sale price of subsidized DOM LPG under DBTL scheme will be same as sale price of subsidized Dom LPG which does not come under DBTL scheme.
3. Rate of LPG Domestic for supplies as per DBTL scheme exempted to the extent of subsidy granted by GOI.
4. VAT rebate on amount of subsidy granted by GOI, to seller of LPG for Domestic use at every point of sale provided rebate is passed on to purchaser

Table 9.30 : Contribution of petroleum sector to exchequer

(₹ crore)

Particulars		2012-13	2013-14	2014-15	2015-16	Q1, 2015-16	Q1, 2016-17
1. Contribution to Central exchequer							
A.	**Tax/ duties on crude oil & petroleum products**						
	Cess on crude oil	16285	16183	15934	15470	3604	2704
	Royalty on crude oil / gas	4366	4551	3858	4885	1437	1102
	Customs duty	4540	5042	4767	7446	1894	3874
	Excise duty	73310	77982	99184	178591	32973	46825
	Service tax	1591	2092	2181	2837	388	507
	Others	247	241	295	307	76	138
	Sub total (A)	**100339**	**106090**	**126219**	**209536**	**40371**	**55150**
B.	**Dividend to Government/ income tax etc.**						
	Corporate/ income tax	21385	23326	23727	24642	6677	6600
	Dividend income to central Government	9266	9164	9197	10217	0	0
	Dividend distribution tax	2269	2951	3500	4590	598	0
	Profit petroleum on exploration of oil/ gas*	9367	11369	9423	9457	192	418
	Sub total (B)	**42287**	**46810**	**45847**	**48907**	**7467**	**7017**
Total contribution to Central exchequer (A+B)		**142626**	**152900**	**172066**	**258443**	**47838**	**62168**
2. Contribution to State exchequer							
C.	**Tax/ duties on crude oil & petroleum products**						
	Royalty on crude oil / gas	13306	14493	14159	7932	2679	1844
	Sales tax/ VAT	115036	129045	137157	142848	34503	36833
	Octroi/ duties (incl. electricity duty)	3391	4156	3838	2712	683	648
	Entry tax / others	4288	4748	5372	6622	2400	1219
	Sub total (C)	**136021**	**152442**	**160526**	**160114**	**40265**	**40544**
D.	**Dividend to Government/ direct tax etc.**						
	Dividend income to state Government	**14**	**18**	**28**	**95**	**0**	**0**
	Sub total (D)	**14**	**18**	**28**	**95**	**0**	**0**
Total contribution to State exchequer (C+D)		**136035**	**152460**	**160554**	**160209**	**40265**	**40544**
Total contribution of petroleum sector to exchequer (1+2)		**278660**	**305360**	**332620**	**418652**	**88104**	**102711**

Notes :
1. Information as per details provided by oil companies.
2. Profit petroleum on exploration of oil/ gas as provided by MOPNG.

Table 9.31 : Contribution of taxes and duties on petroleum products to Central exchequer vis-a-vis payout by Government

(₹ crore)

Particulars	2012-13	2013-14	2014-15	2015-16	Q1, 2015-16	Q1, 2016-17
Tax/ duties on petroleum products to Central exchequer (a)	100339	106090	126219	209536	40371	55150
Payout by Government						
Cash assistance by Government towards OMCs' under recoveries	100000	70772	27308	10245	2588	1967
Subsidy on PDS kerosene and domestic LPG^	2730	2580	0	0	0	0
Freight subsidy on PDS kerosne and domestic LPG^	23	21	23	0	0	0
Gas subsidy for North East^	627	625	661	660	0	137*
Total DBTL subsidy claims (including permanent advance and project management expenditure)	0	3912	3971	22043	0	2128
Total payout by Government (b)	**103380**	**77910**	**31963**	**32948**	**2588**	**4232**
Net contribution to central exchequer (a-b)	**-3041**	**28180**	**94256**	**176588**	**37783**	**50918**

^ Cash payout under the subsidy schemes is on payment basis.
* Provisional

Table 9.32 : State wise collection of sales tax/ VAT by petroleum sector

(₹ Crore)

Sl. no.	State/Union territory	2012-13	2013-14	2014-15	2015-16	Q1, 2015-16	Q1, 2016-17
States							
1	Andhra Pradesh	11282	12604	8777	7806	2110	2191
2	Arunachal Pradesh	39	54	56	54	15	15
3	Assam	1948	2160	2268	2163	583	567
4	Bihar	2790	2931	2885	3638	600	611
5	Chhattisgarh	1987	2397	2645	2617	507	595
6	Goa	379	388	478	534	138	171
7	Gujarat	13572	14610	15879	14701	4637	3939
8	Haryana	3964	4591	5112	5976	1393	1761
9	Himachal Pradesh	182	204	234	263	61	76
10	Jammu & Kashmir	844	941	951	1004	215	279
11	Jharkhand	1478	1825	2076	2476	363	360
12	Karnataka	7215	7800	8668	8652	2255	2606
13	Kerala	4515	5173	5378	6121	1155	1216
14	Madhya Pradesh	5417	6232	6832	7631	1480	1805
15	Maharashtra	17359	19141	19795	19417	5095	5625
16	Manipur	82	102	116	114	38	25
17	Meghalaya	2	3	2	1	1	0
18	Mizoram	60	44	58	53	14	14
19	Nagaland	60	64	83	80	27	17
20	Odisha	2098	2520	2865	3027	733	533
21	Punjab	3386	3853	4179	4907	1189	1494
22	Rajasthan	6045	7396	8373	9211	2486	2615
23	Sikkim	48	66	74	98	24	29
24	Tamil Nadu	11379	12297	12316	11004	2877	2855
25	Telangana	0	0	4527	6391	1702	1823
26	Tripura	159	160	180	197	57	31
27	Uttar Pradesh	10344	11607	12579	14175	2612	3325
28	Uttarakhand	825	1049	1157	1221	274	331
29	West Bengal	4818	5510	5563	5869	1079	1004
Union territories							
30	Andaman & Nicobar Islands	0	0	0	41	0	0
31	Chandigarh	71	74	84	75	21	12
32/ 33	Dadra and Nagar Haveli/ Daman & Diu	84	115	149	152	40	40
34	Delhi	2575	3108	2798	3158	718	865
35	Lakshadweep	0	0	0	0	0	0
36	Puducherry	27	29	22	18	4	5
	TOTAL	**115036**	**129045**	**137157**	**142848**	**34503**	**36833**

Source : Oil companies

Table 9.33 : Profit After Tax (PAT) of oil companies

(₹ Crore)

Companies	2012-13	2013-14	2014-15	2015-16	H1, 2015-16	H1, 2016-17
PSU upstream companies						
ONGC	20926	22095	17733	16004	10050	9207
OIL	3589	2981	2510	2330	1450	494**
GAIL	4022	4375	3039	2299	719	2260
Total	**28537**	**29451**	**23282**	**20633**	**12219**	**11962**
PSU downstream Oil Marketing Companies (OMCs)						
IOCL	5005	7019	5273	10399	6141	11391
BPCL	2643	4061	5085	3863	1297	2800
HPCL	905	1734	2733	7432	3394	3926
Total	**8553**	**12814**	**13091**	**21694**	**10832**	**18116**
PSU stand alone refineries						
MRPL	(757)	601	(1712)	1148	(511)	1134
CPCL	(1767)	(304)	(39)	771	476	568
NRL	144	371	718	1222	514	868
Total	**(2380)**	**668**	**(1033)**	**3141**	**479**	**2569**
PSU consultancy companies						
EIL	629	480	308	258	131	174
Total	**629**	**480**	**308**	**258**	**131**	**174**
Private sector companies						
RIL	21003	21984	23566	27630	15369	14319
EOL	(1180)	126	1522	*	*	*
Total	**19823**	**22110**	**25088**	**27630**	**15369**	**14319**

Source : Published results/ information provided by oil companies.
*Not available
**OIL figures are up to Q1 2016-17 since results not declared for H1 2016-17.

Table 9.34 : Financial details of oil companies

2015-16

PARTICULARS	IOCL	BPCL	HPCL	ONGC	OIL	GAIL	MRPL	CPCL	NRL
									(₹ Crore)
Net sales / income from operation	349321	189098	179281	77796	9265	51614	39632	25980	10029
Profit Before Interest and Tax (PBIT)	18840	11214	6378	23402	3810	3813	1751	1097	1905
Interest	3000	563	640	11	346	640	578	309	22
Tax	5440	3219	1875	7387	1133	874	25	17	661
Profit After Tax (PAT)	10399	7432	3863	16004	2330	2299	1148	771	1222
Net worth	73657	27159	18356	151023	22302	30314	6420	3297	3958
Borrowings (loan fund)	52469	15976	21337	0	9199	8118	6820	3560	498
Ratios									
PAT as% of turnover (net sales)	3.0%	3.9%	2.2%	20.6%	25.1%	4.5%	2.9%	3.0%	12.2%
Debt (loan fund) to equity ratio	0.71	0.59	1.16	0.00	0.41	0.27	1.06	1.08	0.13
Earning Per Share (EPS)	42.83	102.78	114.08	18.70	38.76	18.12	6.55	48.98	16.62

H1, 2015-16

PARTICULARS	IOCL	BPCL	HPCL	ONGC	OIL	GAIL	MRPL	CPCL	NRL
									(₹ Crore)
Net sales / income from operation	207263	111338	101039	42895	5148	26789	11313	11386	1965
Profit Before Interest and Tax (PBIT)	10471	5212	2288	15648	2415	1645	631	1015	391
Interest	1376	222	293	645	170	495	122	89	13
Tax	2954	1596	698	4954	794	432	103	0	133
Profit After Tax (PAT)	6141	3394	1297	10050	1450	719	406	926	245
Net worth	85661	25563	17079	165075	22604	34055	5739	2566	3972
Borrowings (loan fund)	56772	16986	22094	0	9134	8992	8737	4713	655
Ratios									
PAT as% of turnover (net sales)	3.0%	3.0%	1.3%	23.4%	28.2%	2.7%	3.6%	8.1%	12.5%
Debt (loan fund) to equity ratio	0.66	0.66	1.29	0.00	0.40	0.26	1.52	1.84	0.16
Earning Per Share (EPS)	26.86	23.48	12.77	11.74	24.12	5.66	2.31	62.17	3.32

H1, 2016-17

PARTICULARS	IOCL	BPCL	HPCL	ONGC	OIL*	GAIL	MRPL	CPCL	NRL
									(₹ Crore)
Net sales / income from operation	204062	111834	99350	35957	2133	22726	8426	9775	2722
Profit Before Interest and Tax (PBIT)	17840	5804	4483	14021	874	3359	1280	712	786
Interest	1295	214	256	595	99	297	143	74	9
Tax	5155	1665	1428	4219	280	801	417	168	264
Profit After Tax (PAT)	11391	3926	2800	9207	494	2260	720	470	513
Net worth	99981	30748	20978	177987	25841	37460	7158	2847	4785
Borrowings (loan fund)	41885	16056	18070	0	9347	6159	7776	4676	509
Ratios									
PAT as% of turnover (net sales)	5.6%	3.5%	2.8%	25.6%	23.2%	9.9%	8.5%	4.8%	18.9%
Debt (loan fund) to equity ratio	0.42	0.52	0.86	0.00	0.36	0.16	1.09	1.64	0.11
Earning Per Share (EPS)	41.48	27.15	27.56	10.76	8.22	17.82	4.11	31.55	6.97

Source : Published results/ Information provided by oil companies
* OIL figures are up to Q1 2016-17 since results not declared for H1 2016-17.

Table 9.35 : Total subsidy on petroleum products & natural gas

(₹ crore)

Particulars	2012-13	2013-14	2014-15	2015-16	H1, 2016-17
Petrol	0	0	0	0	0
Diesel	92061	62837	10935	0	0
PDS kerosene	29410	30574	24799	11496	4123
Domestic LPG	39558	46458	36580	18	0
Total under-recoveries (A)	**161029**	**139869**	**72314**	**11514**	**4123**
PDS Kerosene and Domestic LPG Subsidy Scheme, 2002*	2730	2580	0	0	0
Freight Subsidy (For Far-Flung Areas) Scheme, 2002*	23	21	23	0	0
Natural gas subsidy for North East*	627	625	661	660	470
Total Fiscal Subsidies (B)	**3380**	**3226**	**684**	**660**	**470**
Total DBTL subsidy (claims)	0	3869	3971	16056	3704
Permanent Advance (PA) / one time incentive*	0	0	0	5755	853
Project Management Expenditure (PME)*	0	43	0	233	0
Total DBTL related subsidies (C)	**0**	**3912**	**3971**	**22043**	**4557**
Total subsidy/ under-recovery on petroleum products & natural gas (A+B+C)	**164409**	**147007**	**76969**	**34217**	**9150**

*on payment basis.

Table 9.36 : Under-recoveries and burden sharing

(₹ Crore)

Sl. no.	Particulars	2012-13	2013-14	2014-15	2015-16	H1, 2016-17
A	**Under-recovery - product wise**	**161029**	**139869**	**72314**	**11515**	**4123**
	MS	0	0	0	0	0
	HSD	92061	62837	10935	0	0
	Domestic LPG	39558	46458	36580	18	0
	PDS Kerosene	29410	30574	24799	11496	4123
B	**Under-recovery - company wise**	**161029**	**139869**	**72314**	**11515**	**4123**
	IOCL	85793	72938	39758	7757	2785
	BPCL	38990	34463	16141	1798	692
	HPCL	36246	32468	16416	1960	646
C	**Government - cash assistance -company wise**	**100000**	**70772**	**27308**	**10245**	**1967**
	(% of under-recovery)	62.1%	50.6%	37.8%	89.0%	47.7%
	IOCL	53278	37182	14960	6885	1332
	BPCL	21897	18374	7290	1598	328
	HPCL	24825	15215	5058	1761	307
D	**Upstream oil companies - discount on crude oil & product**	**60000**	**67021**	**42822**	**1251**	**0**
	(% of under-recovery)	37.3%	47.9%	59.2%	10.9%	0.0%
	ONGC	(49421)	(56384)	(36300)	(1096)	0
	OIL	(7892)	(8737)	(5523)	(155)	0
	GAIL	(2687)	(1900)	(1000)	0	0
	Total - discount given	**(60000)**	**(67021)**	**(42822)**	**(1251)**	**0**
	IOCL	31967	34674	23597	863	0
	BPCL	16844	15577	8363	198	0
	HPCL	11189	16771	10862	190	0
	Total - discount received	**60000**	**67021**	**42822**	**1251**	**0**
E	**Borne by OMCs**	**1029**	**2076**	**2184**	**18**	**2155***
	(% of under-recovery)	0.6%	1.5%	3.0%	0.2%	52.28%*
	IOCL	548	1083	1201	9	1453*
	BPCL	249	512	487	1	363*
	HPCL	232	482	496	8	339*

* Burden sharing for Q2 2016-17 not yet finalised

Chapter-10

Miscellaneous

Table 10.1 : Average international Calorific Values of different fuels

A.	**Oil products**	**M Cals/tonne or K Cal/Kg**
	NGL	12135
	Kerosene	10638
	Motor Gasoline	11135
	Fuel Oil	10440
B.	**Natural gas production (average) - India**	**8000-9480 K cal/SCM**
C.	**India**	**M Cals/tonne or K Cal/Kg**
	Charcoal	6900
	Hard coal	5000
	Firewood	4750
	Lignite-Brown coal	2310

Source : Indian Petroleum & Natural Gas Statistics, MOP&NG
Conversion factor : 1 K Cal = 4.19 K Joules

Conversion factors

Table 10.2 : Weight to volume conversion

Product	Weight (MT)	Volume (KL)	BBL	To convert volume at 29.5° C to volume at 15°C multiply by
Petrol	1	1.4110	8.88	0.9830
Diesel	1	1.2100	7.61	0.9879
Kerosene	1	1.2850	8.08	0.9864
ATF	1	1.2880	8.10	0.9862
Light Diesel Oil	1	1.1720	7.37	0.9877
Furnace Oil	1	1.0710	6.74	0.9899
Crude Oil	1	1.1700	7.33	

Source : Indian Petroleum & Natural Gas Statistics / Petrol and Diesel are as per BS-IV norms

Table 10.3 : Volume conversion

1 US Bbl.	159 Litres
1 US Gallon	3.78 Litres
1 Kilo Litre (KL)	6.29 Bbl.
1 US Bbl.	42 Gallons
1 MBD (million barrels per day)	50 MMTPA

Table 10.4 : Contents of LPG & Natural Gas

Natural Gas	Contains 60-95 % Methane
LPG	Contains Propane (40%) & Butane (60%)

Table 10.5 : Natural gas conversions

1 SCM (Standard Cubic Meter)	= 1 cubic metre @ 1 atmosphere pressure and 15.56 ^{0}C	
1 Cubic Metre	= 35.31 Cubic feet	
1 BCM(Billion Cubic Metre) / Year of gas (consumption or production)	= 2.74 MMSCMD	365 Days a Year
1 TCF (Trillion Cubic Feet) of Gas Reserve	= 3.88 MMSCMD	100% Recoverable for 20 years @ 365 days / Annum)
1 MMTPA of LNG	=3.60 MMSCMD	Mol. Weight of 18 @ 365 days/Annum)
1 MT of LNG	=1314 SCM	Mol.Weight of 18
Gross Calorific Value (GCV)	10000 Kcal/ SCM	
Net Calorific Value (NCV)	90% of GCV	
1 Million BTU (MMBTU)	= 25.2 SCM	@10000 Kcal/SCM; 1 MMBTU= 252,000 Kcal)
Specific Gravity of Gas	=0.62	Molecular Weight of Dry Air=28.964 gm/mole)
Density of Gas	=0.76 Kg/SCM	Mol. Weight of Gas 18 gm/mol
Gas required for 1 MW of Power generation	=4541 SCM per Day	Station Heat Rate (SHR);~1720 Kcal/Kwh-NCV (50% Thermal Efficiency); N.Gas GCV-@10000Kcal/SCM
Power Generation from 1 MMSC-MD Gas	=220 MWH	Station Heat Rate (SHR);~1720 Kcal/Kwh-NCV (50% Thermal Efficiency); N.Gas GCV-@10000Kcal/SCM

Source : GAIL (India) Ltd.

Table 10.6 : Major end use of petroleum products

Product	Major end use
LPG	Domestic and auto fuel. Also for industrial application where technically essential.
Naphtha	Feedstock/ fuel for fertiliser units, feedstock for petrochemical sector and fuel for power plants.
MS	Fuel for passenger cars, taxies, two & three wheelers.
ATF	Fuel for aircrafts.
SKO	Fuel for cooking & lighting.
HSD	Fuel for transport sector (railways/ road), agriculture (tractors, pumpsets, threshers etc.) and captive power generation.
LDO	Fuel for agricultural pumpsets, small industrial units, start up fuel for power generation.
FO/LSHS	Secondary fuel for thermal power plants, fuel/ feedstock for fertiliser plants, industrial units.
Bitumen	Surfacing of roads.
Lubes	Lubrication for automotive and industrial applications.
Other products (Benzene, Toluene, MTO, LABFS, CBFS, Paraffin wax etc.)	Feedstock for value added products.

Information about key officers of MoP&NG

Department	Name (S/Shri)	Designation	Telephone No.	Fax No.
Secretary	**Kapil Dev Tripathi**	**Secretary**	**23383501**	**23070723**
			23383562	
	K P Muralidharan	Sr. PPS to Secretary	23383501/23383562	
Additional Secretary	**Ajay Prakash Sawhney**	**Additional Secretary**	**23381052**	**23386090**
	Manjit Singh	PPS to Additional Secretary	23381052	
Finance	**Anant Kumar Singh**	**Additional Secretary & FA**	**23381704**	**23074226**
	Ms Prasanna Rajan	PPS to AS & FA	23381704	
	Ms Perin Devi	**Director (IFD)**	**23386965**	**23386965**
Economic & Statistics	**Ms Urvashi Sadhwani**	**Sr. Adviser**	**23385823**	**23383752**
	K S N Rao	PPS to Sr. Adviser	23385823	
	Ms Indrani Kaushal	**Economic Adviser**	**23383753**	**23383752**
Exploration	**Amar Nath**	**Jt. Secretary (E)**	**23381832**	**23070562**
	V.K. Suman	PPS to JS (E)	23381832	
	Nalin Kr. Srivastava	**Director (Exploration - II)**	**23386526**	**23074409**
	Diwakar Nath Misra	**Director (Exploration I/III & Vig.)**	**23388764**	**23388764**
Refinery and Administration	**Sandeep Poundrik**	**Joint Secretary (Refineries) & CVO**	**23386935**	**23382673**
	T Satish Kumar	PS to JS (R)	23386935	
	Ms Anuradha S. Chagti	**Director (Supply & Pricing)**	**23383678**	
	Ajit Kumar	**Dy. Secretary (R)**	**23387936**	
Marketing	**Ashutosh Jindal**	**Joint Secretary (M)**	**23382418**	**23384401**
	Sampooran Singh	PPS to JS(M)	23382418	**23384401**
	Alok Tripathi	**Director (D & MC)**	**23070593**	
	K M Mahesh	**Dy. Secretary (LPG)**	**23387404**	**23383100**
Gas Projects	**Ashish Chatterjee**	**Joint Secretary (GP)**	**23073165**	**23398804**
	Ms Shikha Khurana	PS to JS(GP)	23073165	
	Ms Kiran Vasudeva	**Dy. Secretary (GP)**	**23387467**	
International Cooperation	**Sunjay Sudhir**	**Joint Secretary (IC)**	**23382583**	**23073475**
	Ms Savita Sen	PPS to JS (IC)	23382583	
	Praphullachandra Sharma	**Dy. Secretary (I/C& Admn)**	**23383508**	**23383100**
General	**Ms Sushma Rath**	**Joint Secretary (General)**	**23386407**	**23383100**
	Narender S Negi	PPS to JS (G)	23386407	
	Vijay Gopal Mangal	**Dy. Secretary (Gen & CA)**	**23381029**	

Information about key officers of PPAC

Department	Name (S/Shri)	Designation	Telephone No.	Fax No.
Director General's office	**Ms. Atreyee Das**	**Director General**	**24361616**	**24361253**
	P R Nair	PS to Director General	24361081	
Finance	**Rajiv Bakhshi**	**Director (Finance)**	**24360356**	**24364227**
	Ms. Satbir Hira	PS to Director (F)	24360356	24364227
Demand & Economic Studies	**Rohit Dawar**	**Addl. Director (D&ES)**	**24362486 / 24306181**	**24361253**
Supply	**Ms. B M Sujatha**	**Addl. Director I/C (S)**	**24360352 / 24306141**	**24361253**
Administration	**Sunil Kumar**	**Jt. Director I/C (HR&C)**	**24361717 / 24306111**	**24364225**
IT	**Ms. Shalini Mehra**	**Jt. Director I/C (IT)**	**24306151**	**24361253**
Marketing	**R K Gupta**	**Jt. Director I/C (Mktg.)**	**24360489 / 24306171**	**24361253**
Gas	**R K Jaipuriyar**	**Jt. Director (Gas)**	**24306143**	**24361253**
EPABX NOs. 24306191 / 24306192, Reception - 24361314				

Analysis • Knowledge • Information

Petroleum Planning & Analysis Cell
(Ministry of Petroleum & Natural Gas)
Scope Complex, Core-8, Lodhi Road, New Delhi-110003
Tel.: 011-24306100, Fax : 011-24361105: www.ppac.org.in