

Estimated Resources of Crude oil & Natural Gas

Conventional Hydrocarbon Resources

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

Table : Estimated Hydrocarbon Resources in India

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

As on 1.4.2013, In-place hydrocarbon volume of 11,146 million tonnes of oil and oil equivalent gas could be established through exploration by ONGC, OIL and Private/JV companies. So, about 60% of resources are under “yet to find category”. Out of 11,146 MMT of oil and oil equivalent gas of In-place volumes, the ultimate reserves which can be produced are about 4070 MMT of oil and oil equivalent gas since inception. The balance recoverable reserves are of the order of 2110 MMT of oil and oil equivalent gas. The break-up of hydrocarbon reserves explored by ONGC, OIL and private/JV companies in the country as on 01.04.2013 are as under:

Table : Crude Oil and Natural Gas Reserve Position as on 1.4.2013

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

O+OEG: Oil and Oil Equivalent of Gas

Unconventional Hydrocarbon Resources

CBM Resources

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

Table : Coal Bed Methane Resources in India

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

Recoverable CBM Reserves

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

Table 2.5: Recoverable Coal Bed Methane Reserves as on 1.1.2014

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

Shale Gas / Oil Resource

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

- I. M/s Schlumberger : 300 to 2100 TCF of shale gas resource for the country.
- II. Energy Information Administration (EIA), USA in 2011: 290 TCF of shale gas in 4 basins (Cambay Onland, Damodar, Krishna Godavari Onland & Cauvery Onland)
- III. Energy Information Administration (EIA), USA in 2013: 584 TCF of shale gas and 87 billion Barrels of shale oil in 4 basins (Cambay Onland, Damodar, Krishna Godavari Onland& Cauvery Onland)

- IV. ONGC: 187.5 TCF of shale gas in 5 basins (Cambay Onland, Ganga Valley, Assam & Assam Arakan , Krishna Godavari Onland & Cauvery Onland)
- V. Central Mine Planning and Design Institute (CMPDI): 45 TCF of shale gas in 6 sub basins (Jharia, Bokaro, North Karanpura, South Karanpura, Raniganj & Sohagpur)
- VI. United States Geological Survey (USGS) has also estimated technically recoverable shale gas resources of 6.1 TCF in 3 basins (Cambay Onland , Krishna Godavari Onland & Cauvery Onland) Further, USGS has indicated that these basins have also potential for shale oil.

Re-assessment of in Hydrocarbon Resources

The last Hydrocarbon resources assessment exercise was carried out approximately two decades ago. During the course of implementation of pre-NELP (New Exploration Licensing Policy) and NELP rounds and other exploration and production activities, substantial geoscientific data have been generated. New oil and gas fields have also been discovered by utilizing improved geological understanding and new technology. With the increase in exploration spread and quantum jump in availability of geo-scientific data generated under NELP, there is a need to revisit the hydrocarbon resource assessment of all sedimentary basins of India. A Multi Organization Team (MOT) is carrying out estimation of hydrocarbon resource potential in the country. The exercise will cover re-assessment of hydrocarbon resources for all the sedimentary basins in the country.