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**STANDING COMMITTEE ON
PETROLEUM & NATURAL GAS
(2007-08)**

FOURTEENTH LOK SABHA

**MINISTRY OF PETROLEUM &
NATURAL GAS**

**STRATEGY FOR DEVELOPMENT OF ALTERNATIVE
SOURCES OF OIL AND GAS**

SEVENTEENTH REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

September, 2007/Bhadrapada, 1929 (Saka)

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SOURCES OF OIL AND GAS**

Presented to Lok Sabha on 19.11.2007

Laid in Rajya Sabha on 19.11.2007



**LOK SABHA SECRETARIAT
NEW DELHI**

September, 2007/Bhadrapada, 1929 (Saka)

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**COMPOSITION OF THE STANDING COMMITTEE ON
PETROLEUM & NATURAL GAS (2006-07)**

Shri N. Janardhana Reddy - Chairman

Members

Lok Sabha

- 2 Shri M.Appadurai
- 3 Shri R. Dhanuskodi Athithan
- 4 Shri Ramesh Bais
- 5 Shri Kirip Chaliha
- 6 Dr. Tushar A. Chaudhary
- 7 Shri Lal Muni Choubey
- 8 Shri Ravinder Naik Dharavath
- 9 Dr. M. Jagannath
- 10 Shri Jai Prakash (Hissar)
- 11 Adv. Suresh Kurup
- 12 Shri Sudam Marandi
- 13 Shri P. Mohan
- 14 Shri Sukdeo Paswan
- 15 Shri Nakul Das Rai
- 16 Shri Lakshman Singh
- 17 Shri Rajiv Ranjan 'Lalan' Singh
- 18 Shri Ramjilal Suman
- 19 Shri Ratilal Kalidas Varma
- 20 Shri A.K.S. Vijayan
- 21 Shri Ram Kripal Yadav

Rajya Sabha

- 22 Shri Ahmed Patel
- 23 Ms. Mabel Rebello
- 24 Shri Rajeev Shukla
- 25 Shri Suresh Bhardwaj
- 26 Shri Ramdas Agarwal
- 27 Shri Amir Alam Khan
- 28 Shri Tapan Kumar Sen
- 29 Shri C. Perumal
- 30 Shri Subhash Prasad Yadav
- 31 Shri Satish Chandra Misra

Secretariat

1. Shri S.K.Sharma - *Additional Secretary*
2. Shri P.K.Misra - *Joint Secretary*
3. Smt. Anita Jain - *Director*
4. Shri P.C.Tripathy - *Deputy Secretary*
5. Smt. Reena Gopalakrishnan - *Committee Officer*

**COMPOSITION OF THE STANDING COMMITTEE ON
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3. Smt. Anita Jain - *Director*
4. Shri P.C.Tripathy - *Deputy Secretary*
5. Smt. Prabita Khoyumthem - *Committee Assistant*

INTRODUCTION

I, the Chairman, Standing Committee on Petroleum & Natural Gas (2007-08) having been authorised by the Committee to submit the Report on their behalf, present this Seventeenth Report on 'Strategy for Development of Alternative Sources of Oil and Gas' of the Standing Committee on Petroleum & Natural Gas.

2. The Committee invited memoranda containing suggestions/views from individuals/experts/ professionals/ organisations/ associations, etc. on the subject especially on ethanol, bio-diesel production/jatropha plantation and matters relating thereto through a Press communiqué. They received a number of memoranda on the subject. A list containing the details of major organisations/individuals, etc. which submitted memoranda to the Committee is given in Annexure VII. The Committee wish to express their gratitude to the individuals/experts/professionals/ organisations/ associations, etc. who have sent the memoranda to them.

3. The Committee took evidence of the representatives of the Ministry of Petroleum and Natural Gas and the concerned Public Sector Undertakings/Organisations at their sitting held on 11.6.2007. Besides, the Committee also took oral evidence/held discussions with a number of non-official witnesses/experts, viz. Shri V.N.Nandapurkar of Garware Chemicals, Shri Anil Kumar Reddy of Roshini Bio-tech and Shri N. Raghuvveera Reddy, Minister for Agriculture, Andhra Pradesh on 20.11.2006, Prof. K.V.Rao, Co-Chief Project Coordinator, Institute of Development and Planning Studies, Visakhapatnam and Bio-diesel Association of India on 12.12.2006 and Dr. J.M.Sehgal, Former Managing Director, Indian Drugs and Pharmaceuticals Limited and Federation of All India Petroleum Traders and Delhi Petrol Dealers Association on 4.6.2007.

4. The Committee considered and adopted the Report at their sitting held on 10. 9. 2007.

5. The Committee wish to express their thanks to the representatives of the Ministry of Petroleum and Natural Gas and the concerned Public Sector Undertakings/Organisations for placing their views before them and furnishing the information desired in connection with examination of the subject.

6. The Committee further wish to thank the Ministries/Departments of Rural Development, New and Renewable Energy, Agricultural Research & Education, Agriculture & Cooperation and National Oilseeds and Vegetable Oils Development (NOVOD) Board for furnishing brief notes on the subject.

7. The Committee also place on record their appreciation for the invaluable assistance rendered to them by the officers of the Lok Sabha Secretariat attached to the Committee.

New Delhi;
11 September, 2007
20 Bhadrapada, 1929 (Saka)

N. JANARDHANA REDDY,
Chairman,
Standing Committee on
Petroleum & Natural Gas

REPORT

CHAPTER I

INTRODUCTORY

India is a fast growing economy and the energy requirement of the country is also increasing considerably. Hydrocarbons with a share of about 45% of the primary energy consumption basket is an important provider of energy. In the X Plan Period (2002-07), the growth in consumption of petroleum products is expected to be around 2.6% per annum. The indigenous production of crude oil, however, has not been increasing in tandem with the consumption and demand for petroleum products and India has to depend on crude oil imports to meet a major share of its needs.

1.2 Besides, the international prices of oil have been ruling quite high during the past more than a year and are projected to remain so or even increase in near future, given the geopolitical situation especially in the Middle East region. Our net oil import bill which increased from \$22.6 billion (Rs.101963 crore) in 2004-05 to \$34.1 billion (Rs.1,50,557 crore) in 2005-06, is likely to go up substantially during the current year considering the prevalent international oil prices.

1.3 Considering our oil import dependence of over 76% and sustained increase in international oil prices, there is a need to seriously look for alternative fuels. Using the non-conventional energy sources and bio-fuels would also minimise the hazard of environmental pollution and protect the environment besides reducing dependence on imports of oil and gas.

1.4 The main alternative sources of oil and gas which are being developed in this country and the prospects of developing them are as follows:

1.5 **Ethanol:** Ethyl alcohol (Ethanol, commonly termed as alcohol) is close to a perfect fuel because of low molecular weight, high oxygen content, high combustion efficiency, non-toxicity and non-polluting in nature. It can be

produced from a wide range of bio-crops, viz. sugarcane, sugarbeet, sweet sorgham, cassava, maize etc.

The Ministry of Petroleum and Natural Gas introduced the scheme of mandatorily supplying 5% ethanol blended petrol (EBP) in 9 major sugar producing States and 4 contiguous Union Territories w.e.f 1.1.2003. Subject to commercial viability, the 5% EBP programme has been notified in September, 2006 applicable throughout the country except far flung areas where ethanol supplies cannot be made available. The percentage of blending of ethanol in gasoline could be enhanced from 5% to 10% in the next phase when the existing Ethanol Blended Petrol programme gets stabilised.

1.6 **Bio-diesel:** Bio-diesel is an environment friendly fuel, which has almost no sulphur and has about 10% built-in oxygen. Bio-diesel is produced from virgin or used vegetable oils (both edible and non-edible) and animal fats. Bio-diesel works in compression ignition engines like petro-diesel and can be blended in any ratio with petro-diesel. In India, there is large potential for replacing about 20% of diesel with bio-diesel by the year 2012 subject to availability of adequate quantities of bio-diesel.

1.7 **Coal Bed Methane (CBM):** Coal Bed Methane is a natural gas (Methane) adsorbed in coal and lignite seams and is an eco-friendly source of energy. Coal is both the source and reservoir rock for CBM. CBM has a good prospect in India. As the price of oil continues to remain high in the international market, CBM can be a good source of energy for India in future. Some States of India contain good reserve of coal. The country's CBM resource base is estimated to be in the range of 2600-3300 BCM.

1.8 **Underground Coal Gasification(UCG):** UCG is a potential economic means for extracting gas from deep seated and/or isolated coal deposits/lignite resources, which may not be amenable to conventional physical extraction economically. As per the estimates of ONGC, the recoverable energy from Mehsana-Ahmedabad block with coal reserves of 63 billion tonne in the form of gas is estimated to be equivalent to 15,000 Billion Cubic Metre (BCM) of

natural gas (which is many times the conventional gas resources of the country at present).

1.9 **Gas Hydrates:** Gas Hydrates are naturally occurring solids comprising water molecules that form a rigid lattice of cages around the methane gas molecules of low molecular weight. The gas hydrates occur below the seabed in deep oceans as well as in the permafrost regions of the world. Based on available scientific data the rough estimate for gas hydrates in India is about 1900 TCM.

1.10 **Biomass:** Biomass is a renewable, sustainable and environment friendly energy source. The potential for improved use of biomass energy exists and the emerging commercial technologies demonstrate on this aspect.

1.11 **Hydrogen:** Hydrogen is receiving worldwide attention as a clean fuel and efficient energy storage medium for automobiles. It can replace or supplement oil used in road transportation. In the long run, hydrogen could substitute oil and gas, subject to development of technology and its viability.

1.12 Explaining the advantages of bio-fuel over hydrocarbon based fuel, the Ministry stated: -

'The most important advantage of biofuels over hydrocarbon fuels is that they are renewable fuels and can be replenished back again. Production of biofuels generates employment and livelihood opportunities in rural sector. Wasteland can be developed by cultivation of plants for production of biofuels. The use of biofuels reduces emissions and also greenhouse gas. Use of biofuels enables energy security and economic development of country leading to less dependency on oil imports'.

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1.13 Keeping in view the significance of the subject, the Committee invited memoranda containing suggestions/views from individuals/experts/professionals/organisations/associations etc. on the subject, especially on ethanol, bio-diesel production/Jatropha plantation and matters relating thereto through a Press Communique. Several memoranda from individuals/organisations etc were received. Details of the individuals/organisations which have submitted memoranda are given in

Annexure VII. The Committee also took oral evidence/held discussion with the following non-official witnesses/experts/Associations :

- (i) Shri V.N.Nandapurkar of Garware Chemicals,
- (ii) Shri Anil Kumar Reddy of Roshini Bio-tech,
- (iii) Shri N. Raghuvveera Reddy, Minister for Agriculture , Andhra Pradesh,
- (iv) Prof. K.V.Rao, Co-Chief Project Coordinator, Institute of Development and Planning Studies, Visakhapatnam,
- (v) Dr. J.M.Sehgal, Former Managing Director, Indian Drugs and Pharmaceuticals Limited,
- (vi) Bio-diesel Association of India and
- (vii) Federation of All India Petroleum Traders and Delhi Petrol Dealers Association.

CHAPTER II

ALTERNATIVE SOURCES OF OIL AND GAS

The major issues involved in different alternative sources such as ethanol, bio-diesel, etc. are dealt with in the succeeding paragraphs.

(A) Ethanol

(i) Availability/pricing of ethanol

2.2 Details of steps taken, experience/issues and future plans, regarding ethanol, as furnished by the Ministry of Petroleum & Natural Gas are as follows:

“With a view to reducing dependence on imported oil, the Ministry introduced the scheme of mandatorily supplying 5% Ethanol Blended Petrol (EBP) in 9 major sugar producing States and 4 contiguous Union territories w.e.f. 1.1.2003.

Earlier efforts to promote EBP were not successful because ethanol was not available in a consistent manner and at reasonable price and also on account of court cases and other administrative problems. Review meetings were held on 24th March, 2006 and 9th August, 2006 with Indian Sugar Mills Association (ISMA) and other Ethanol Manufacturers during which they assured adequate supplies of ethanol to OMCs at a fixed price on a long term basis in view of bumper sugarcane crop and inventories of ethanol with Sugar Industry in the years 2005 and 2006. EBP programme has been extended to the whole of the country except North East States, J&K, Andaman & Nicobar Islands, and Lakshadweep w.e.f. 1.11.2006, subject to commercial viability in procurement of ethanol by OMCs. OMCs are now procuring ethanol from indigenous producers through open tenders with validity for three years extendable by two more years. The tenders have been finalised in respect of Uttar Pradesh, Uttaranchal, Haryana, Punjab, Rajasthan, Delhi, Bihar, Jharkhand, Goa, Karnataka, Maharashtra (partially), Andhra Pradesh (partially) and Tamil Nadu covering about 73% of the country. The ethanol blended petrol supplies have already commenced in the States of Uttar Pradesh, Delhi, Uttaranchal, Goa, Maharashtra (partially), Bihar (partially) and Andhra Pradesh (partially) by OMCs.

Availability of ethanol

The implementation of 5% EBP in the existing notified areas requires about 0.560 million KL of ethanol per annum. The indigenous availability of ethanol on a sustained basis to meet the requirement of this programme has been an issue ever since the programme was launched in January 2003. Various industrial associations dealing with alcohol/ethanol, viz., Indian Sugar Mills Association (ISMA), All India Distillers' Association (AIDA), Indian Chemicals Manufacturers Association (ICMA), etc., have

been making varying projections about the availability of ethanol in the country.

Pricing of ethanol

As per the existing practice, OMCs mix ethanol with petrol at their marketing depots for marketing the blend. The blending process is not considered as 'manufacturing'. The all-taxes-and-duties-paid ethanol is mixed with the excise – duty -paid petrol, with the final blend carrying no excise duty. As the final selling price of EBP has been kept as same as that of petrol, while procuring ethanol, OMCs see that the delivered price of ethanol at mixing depots is not more than that of petrol so that they do not suffer any under recoveries on account of selling EBP. With this broad principle in mind, OMCs have been procuring ethanol through public tenders. At present, OMCs are pricing ethanol through tender system at the basic rate of Rs. 21.50/litre excluding all taxes and duties.

State taxation issues

Despite very clear court rulings distinguishing the role of State Governments relating to potable and industrial alcohol, and limiting their role vis-à-vis the latter, the State Governments have been imposing a lot of licensing and procedural requirements on industrial units producing industrial alcohol, besides levying a plethora of taxes and restricting inter-state movement of the product”.

(ii) Taxes/duties on ethanol

2.3 The Ministry furnished details of taxes imposed by some of the notified State Governments as under:

“State /UTs	Taxes	Applicable Rate
Punjab	Sales Tax	20% + 2% Surcharge on Sales Tax
	Import Fee	Rs. 1000/- per KL
	Licence Fee	Rs.50000/- one time security deposit for the State. Rs.1000/- per annum for first location and Rs.100/- per annum for subsequent location.
Haryana & Chandigarh	Sales Tax	20%
	Import Fee	Rs. 2000/- per KL
	Permit Fee	Rs. 3000/- per KL
	Licence Fee	Rs. 1 Lac one time security deposit per location.
Uttar Pradesh	Purchase Tax	Rs.800/- per KL
	Export Fee	Rs. 1000/- per KL
	Import Fee	Rs. 1500/- per KL
	Licence Fee	Rs. 150/- per KL
	Denaturation Fee	Rs. 150/- per KL
Uttaranchal	Licence Fee	Rs. 150/- per KL
	Import Fee	Rs. 1100/- per KL
Gujarat, Daman-Diu & Dadra-Nagar-Haveli	Sales Tax	4%

	Import Pass	Rs. 50/- per Tank Truck
	Import Fee	Rs. 3000/- per KL
	Licence Fee	Rs. 25000/- per annum per location for 100 KL Ethanol per month, Rs. 1.5 Lakh per annum per location for 500 KL Ethanol per month, Rs. 3 Lakhs per annum per location for above 500 KL ethanol per month.
Maharashtra	Sales Tax	4%
	Export Fee	Rs. 1500/- per KL
	Import Fee	Rs. 1500/- per KL
	State Excise Admn. Fee	Rs. 300/- per KL
	Licence Fee	Rs. 25000/- per annum per location.
Goa	Sales Tax	19%
	Licence Fee	Rs. 12000/- one time Processing Fee per location. Renewal Fee @ Rs. 4000/- per annum per location.
	Import Permit	Rs. 190/- per Tank Truck
Karnataka	Privilege Fee	Rs. 2000/- per KL
Andhra Pradesh	Sales Tax (VAT)	12.5%
Tamil Nadu	Sales Tax	8% + 5% Surcharge on Sales Tax
	Import Fee	Rs. 1000/- per KL
	Export Fee	Rs. 3000/- per KL
	State Excise Admn. Fee	Rs. 1000/- per KL
	Licence Fee	Rs. 25000/- per annum per location.

State Governments levy Sales Tax/VAT on ethanol at different rates. However, in case of VAT payable on ethanol, Oil Companies are able to claim set off against the VAT payable on Ethanol Blended Petrol provided the Ethanol is purchased locally. Set off for Sales Tax / VAT paid on Ethanol purchased locally is not available in some States as MS / EBP is outside the purview of VAT Act in these States. In case of inter-state sales of ethanol by ethanol Manufacturers to Oil Companies, the CST payable by Oil Companies increases the procurement cost. In addition, certain State Governments have also imposed other local levies on ethanol which increases the procurement cost of Ethanol. Details of such levies imposed by some of the State Governments are as follows:

1. Haryana - Rs.2 per litre as Import Fee on Ethanol
- Rs.3 per litre as Permit Fee on Ethanol
2. Punjab - Rs.1 per litre as Import Permit Fee on Ethanol
3. Uttaranchal - Rs.1.10 per litre as Import Duty on Ethanol".

(iii) Procurement of ethanol

2.4 Regarding the present position of procurement of ethanol, the Ministry stated in a written note as follows:

“OMCs have finalised the tenders for procurement of ethanol for 16 out of 20 States and 4 Union Territories. Tenders in the remaining States, *viz.* Madhya Pradesh, Chhattisgarh & Orissa could not be finalised due to high rates of taxes levied by the concerned State Governments. The State Government of West Bengal has not issued the notification on applicable taxes/duties on ethanol meant for doping with petrol.

EBP supplies have commenced in Maharashtra, Goa, Uttar Pradesh, Uttrakhand, Delhi, Bihar(partly), Andhra Pradesh(partly) and Karnataka. EBP Programme in Tamil Nadu has been kept in abeyance till date as Commissioner (Prohibition & Excise), *vide* letter dated 13.12.2006 informed that ethanol could not be spared for EBP Programme due to shortage of spirit. In the remaining States & Union Territories ethanol supply is expected shortly, where tenders have been finalised.

If free movement of ethanol is allowed with lowering of duties/taxes by State Government, there will be no need for import of ethanol”.

2.5 When the Committee desired to know the reasons for excluding the NE States. J&K, A&N islands and Lakshwadeep from the EBP programme, the Ministry furnished the following reply:

“Ethanol is produced mainly in the States of Uttar Pradesh and Maharashtra. Since these States and islands referred to in question are geographically far off and procurement & transportation of ethanol to these places is not cost effective hence due to logistic constraints EBP has been excluded”.

2.6 Regarding increase in blend ratio to 10%, the Ministry stated in the note as follows:

“There has been a consistent demand from Indian Sugar Mills association (ISMA) to increase the blend of ethanol from the existing 5% to 10% throughout the country in view of bumper sugarcane crop this year. In this regard, limited field trials on select vehicles with 10% ethanol blended petrol were carried out by IOC(R&D) in the past and it was found that blending of 10% ethanol with gasoline was feasible. However, some of the vehicles manufacturers have been seeking more time to carry out further trials at their end. Moreover, as per the reports received from OMCs, sufficient quantities of ethanol are not available in the notified states where the existing 5% EBP programme is ongoing, due to levy of high rates of duties/taxes on ethanol meant for doping with petrol. Hence,

it is felt that any extension of the EBP programme upto 10% blend will only be considered, in consultation with all the stake holders, when the existing programme is stabilized and tax structure rationalised by the State Governments”.

2.7 In this connection, the Department of Agricultural Research & Education (Ministry of Agriculture) furnished the following, in a written note:

“It will be desirable for the country to switch over to 10% blending of ethanol with gasoline at the earliest. It will require around 1,400 million litres of ethanol for which alternate substrate (other than molasses) shall be needed. The existing distilleries may adapt easily to the substances like sugarcane juice and sweet sorghum stalk juice for which technology is available in the country and industries can adopt, if encouraged”.

2.8 Regarding feedstock used in various countries, the Department of Agriculture and Cooperation (Ministry of Agriculture) furnished the following details:

“The raw material used for ethanol production varies from sugar in Brazil to cereals in USA, sugar beet in Europe and molasses in India. Brazil uses ethanol as 100% fuel in about 20% of vehicles and 25% blend in gasoline in the rest of the vehicles. USA uses 10% ethanol gasoline blends, whereas 5% blend is used in Sweden. Australia uses 10% ethanol gasoline blend and EU uses 15% ethanol blended gasoline. Bio-ethanol (ethanol) can be produced from a wide range of bio-crops, viz. Sugarcane, Sugarbeet, Sweet sorghum, Cassava(Tapioca), Maize, etc”.

2.9 The Committee have been further informed that various institutes are involved in development of enzymes for production of ethanol from various waste materials.

2.10 The Committee wanted to know whether India had entered into a consultancy agreement with Brazil in regard to use of ethanol as a fuel. The Ministry, in a written reply, stated as under:

“Government have signed an MOU with Brazil on 8.4.2002 under which Brazil would share the technology for blending ethanol with petrol and provide consultancy on various related aspects of technology.

BPCL/Industry have visited Brazil to finalise a consultant and also various related issues and modalities for study of feasibility of ethanol as fuel. The Report of the Consultant has been received and the findings are under examination.

BPCL is in the process of obtaining Board’s approval for ethanol investment in Brazil”.

2.11 To know the response of customers to the EBP programme in States, the Committee took evidence of non-official witnesses including representatives of the Federation of Petroleum Traders and UP Petroleum Traders Association. The representatives enumerated various problems in the usage of EBP like ignition problems, excessive moisture in the tanks, etc.

2.12 During the course of evidence of the representatives of Ministry of Petroleum and Natural Gas, some Members of the Committee expressed their concern over the problems posed in the usage of 5% EBP such as corrosion of pipes, water content in ethanol, etc. Responding to the concerns of the Members, Secretary, Ministry of Petroleum & Natural Gas stated as follows:

“There are just two or three points. Let me mention this. One is the corrosion of particularly rubber components. The second thing was moisture in the ethanol. They are supposed to supply anhydrous ethanol, dehydrated ethanol. But in this country, even today, we are getting hydrous ethanol in our tanks. We make it anhydrous at our site. There have been some issues and problems. We have been taking it up with the sugar mills also. This corrosion problem, by and large, has been overcome. This was overcome more than four or five years ago. But this on-site blending, we are trying to mechanize the whole thing. In fact, we have asked the oil companies to examine the online injection process. They should do it very quickly and overcome this problem”.

2.13 The Committee wanted to know whether any complaint has been received regarding problems faced in the usage of EBP. In this regard, the Ministry, in a written note, stated as follows:

“Representations were received by IOC from few Dealers Association like Gujarat Petrol and Diesel Dealers Association, Punjab Petroleum Dealers Association, Haryana Petroleum Dealers Association & FAIPT (Federation of all India Petroleum Traders). The complaints were restricted to few pockets only and were on malfunctioning of their vehicles (mainly 2-wheelers) regarding quality issues. The findings indicated that the problem was connected to carburetor float pin in certain markets in 2-wheelers, which was due to incompatible rubber parts used in the vehicles. Industry had advised the automobile manufacturers that parts coming in contact with fuel must be compatible with EBP”.

2.14 Regarding private companies engaged in marketing of petroleum products, the Committee have been informed that Private marketing companies

are not marketing EBP as the same is not made obligatory on their part as per notification dated 20.9.2006.

(B) Biodiesel

2.15 Bio-diesel is another bio-fuel which is gaining worldwide acceptance for addressing the problems of environmental degradation, and huge oil imports.

(i) National Mission on Bio-diesel

2.16 The Committee have been informed that bio-diesel has been receiving the attention of the Government. The Ministry of Petroleum and Natural Gas has furnished the following details in regard to launching of National Mission of Bio-diesel:

“The Planning Commission had set up a Committee on Development of Bio-fuel under the Chairmanship of Dr. D.N.Tewari, the then Member, Planning commission. The Committee submitted its Report to the Planning Commission in April, 2003. The main recommendations in the Report include launching of a National Mission on Bio-diesel with special focus on plantation of *Jatropha Curcas*.

The Demonstration Phase under the National Mission on Bio-diesel will be taken up in a “Mission Mode” and will be a Centrally Sponsored Scheme to be implemented by State Governments. After detailed discussions with the States and considering the preference shown by the southern States for pongamia plantation also, the scheme, as now proposed, envisages promotion of *jatropha* (Ratanjot) and *Pongamia* (Karanj) plantations on 5 lakh hectares in forest and non-forest areas over a period of 5 years. The plantations would be taken up essentially on degraded forest lands and wastelands belonging to the village communities / panchayats / government as well as on unutilized marginal lands belonging to the marginal and small farmers

As far as launching the Demonstration Phase of the National Mission on Bio-Diesel is concerned, the proposal has since been processed through the Expenditure Finance Committee (EFC) at its meeting held on 9th October 2006. Further action to obtain clearance from the CCEA is being taken up”.

2.17 The Committee have been further informed that as per the work allocation, different Ministries have been mandated to look after the different aspects of the Bio-Diesel programme as per the following details:

- (i) Ministry of Agriculture and Cooperation
Production of plant material, development of nurseries and plantations for bio—fuels including coordination with other Ministries or Departments in this regard.
Department of Agricultural Research and Education
Research and Development on production and improvement of bio-fuels plants.
- (ii) Ministry of New and Renewable Energy
National Policy on Bio-fuels;
 - (i) Research, development and demonstration on transport, stationary and other applications of bio-fuels;
 - (ii) Setting up of a National Bio-fuel Development Board and strengthening the existing institutional mechanism; and
 - (iii) Overall coordination concerning bio-fuels.
- (iii) Ministry of Petroleum and Natural Gas
 - (i) Blending and blending prescriptions for bio-fuels including laying down the standards for such blending; and
 - (ii) Marketing, distribution and retailing of bio-fuels and its blended products.
- (iv) Ministry of Rural Development
National Mission on Bio-fuels;
 - (i) Bio-fuel plant production, propagation and commercial plantation of bio-fuel plants under various schemes of the Ministry of Rural Development in consultation with the Ministry of Agriculture and the Ministry of Panchayati Raj; and
 - (ii) Identification of non-forest land wastelands in consultation with the State Governments, the Ministry of Agriculture and the Ministry of Panchayati Raj for bio-fuel plant production.

(ii) Bio-diesel Purchase Policy

2.18 Regarding the Bio-diesel Purchase Policy, the Ministry has submitted the following:

“MOP&NG has formulated a Bio-diesel Purchase Policy in October, 2005, effective 1.1.2006 which is a statement of intent of purchase of bio-diesel by the oil marketing companies. This policy inter-alia identifies 20 purchase centers of the public sector oil marketing companies (OMCs) all over the country where these companies would purchase bio-diesel which meets the standards prescribed by the Bureau of Indian Standards (BIS), from those bio-diesel manufacturers who register with them after satisfying the technical specifications, at a specified delivered price fixed for a period of six months at a time by the OMCs.”

2.19 The Committee wanted to know the locations and other details of the purchase centres of bio-diesel. The following details have been given by the Ministry:

“S.N.	STATE	PURCHASE CENTRE	OIL CO.
1.	Andhra Pradesh	Ghatkesar	HPC
2.	Chattisgarh	Mandirhasaud	HPC
3.	Delhi	Bijwasan	IOC
4.	Gujarat	Kandla	BPC
5.	Haryana	Rewari	IOC
6.	Karnataka	Devangunthi	IOC
7.		Mangalore	IOC
8.	Madhya Pradesh	Mangliagaon	IOC
9.	Maharashtra	Manmad	BPC
10.		Borkhedi	BPC
11.		Loni	HPC
12.		Vashi	HPC
13.	Punjab	Bhatinda	IOC
14.	Rajasthan	Sanganer	BPC
15.		Salawas	HPC
16.	Tamil Nadu	Korukkupet	IOC
17.		Narimanam	IBP
18.		Karur	BPC
19.	Uttar Pradesh	Panki	IOC
20.		Amousi	IBP”

2.20 In this regard, the Committee have further been informed that so far, no party has been registered. Parties who have given expression of interest were

either found not ready with production or were not willing to supply at the notified price.

2.21 As per the estimate of National Oil Seeds and Vegetable Oils Development Board (NOVOD Board), Ministry of Agriculture, area under jatropha plantation in India is as given below:

(Area in ha)				
Sl.No.	State	Plantation upto 2005-06	Plantation upto 2006-07	Plantation upto 2008-09
1	Andhra Pradesh	17500	35000	200000
2	Chattisgarh	47000	80000	500000
3	Gujarat	8000	50000	400000
4	Karnataka	2000	10000	50000
5	Madhya Pradesh	1700	50000	100000
6	Maharashtra	5000	25000	500000
7	Mizoram	2000	25000	100000
8	Tamil Nadu	5000	25000	500000
9	Uttaranchal	9220	50000	200000
10	MoEF	-	40000	160000
11	Railways	3000	25000	47000
12	Other Ministries	10000	50000	200000
	Total	127420	560000	3117000

(iii) Efforts of oil PSUs for Jatropha plantation

2.22 The Committee wanted to know about the efforts being made by the Oil Sector PSUs for plantation of Jatropha and other oil bearing seeds. In a written reply, the Ministry submitted the following:

“IOC (R&D) has planted 1,55,000 Jatropha plants on 62 hectares of Railways land in Surendernagar district of Gujarat as a model project with the railways in 2004. The plants are expected to bear seeds in 2007 which are expected to give about 18 MT of Jatropha Oil. Subsequently about 50 MT of Jatropha oil is expected every year, which will be trans-esterified to produce 50 MT of bio-diesel.

HPCL signed MOU/Agreement with G B Pant University of Agriculture & Technology, (GBPUA&T), Pantnagar for the cultivation of Jatropha & other related work. Discussions of HPCL are in progress with State Government of Chhattisgarh and Rajasthan for the cultivation of Jatropha on mass scale (35,000 hectares).

BPCL has plans to undertake plantation of Jatropha and other oil bearing seeds in the vacant land of our Depots, Installations and LPG Bottling Plants”.

2.23 Regarding efforts of Indian Oil Corporation in regard to promoting Jatropha cultivation, the Committee have been informed as follows:

“IOC has approached Chhattisgarh and MP Governments for allotment of revenue wasteland for large-scale Jatropha plantation. IOC has applied for allotment of 30,000 hectares of revenue wasteland in Jhabua and Dhar districts in the State of Madhya Pradesh for undertaking Jatropha plantation. In case of Chhattisgarh, discussions are in advanced stage for entering into an MOU between IOC and State Government, which may pave the way for further activity in the State”.

2.24 For enabling the public private partnership in promoting bio-diesel in India, IOC, R&D organised the Bio-diesel Conclave on 8th November, 2005 in New Delhi. The Committee wanted to know the main points which emerged from the Conclave. In reply, the Ministry furnished the following:

“The main points which emerged in the Bio-diesel Conclave are as follows:

- (i) To involve various Panchayati Raj Institutions in the Jatropha plantation
- (ii) To continue research on bio-diesel for blending at higher concentrations”.

2.25 In connection with initiatives taken by private players, the Committee have been informed that few private companies have approached HPCL for the supplies of bio-diesel and Jatropha cultivation and that these proposals are under scrutiny.

2.26 The Ministry furnished the following details regarding R&D activities of IOC:

“IOC (R&D) had undertaken detailed R&D studies using ethanol gasoline blends on a fleet of vehicles and OMCs launched 3 pilot projects marketing 5% ethanol gasoline blends. Indian Oil Corporation Limited have created special cell for carrying out research on various facets of alternate sources of energy. IOC is taking lead role in addressing the complete value chain of bio-diesel right from plantation to end-use. IOC (R&D) has been nominated as nodal agency for undertaking research on hydrogen energy on behalf of oil & gas sector”.

2.27 The Committee have been informed that HPCL & BPCL are also undertaking R&D studies on alternative sources of energy, which are given below:

- “(i) The quality and specifications aspects of bio-diesel, characterisation and evaluation of seeds & raw oils for bio-diesel production, process technology, extensive field trials of B5, B10 & B20 blends & Mass emission measurement etc have been undertaken through R&D efforts.
- (ii) Necessary links with MOP&NG, MORD, NOVOD, Oil PSUs, Original Equipment Manufacturers (OEMs), bio-diesel suppliers & users etc. have been established and the information shared.

BPCL:

- (i) BPCL has recently initiated research work for the production of ethanol from bio-mass.
- (ii) In respect of Coal to Liquid Technology (CLT) , the Scientific Advisory Committee, MOPNG, identified Coal to Liquid Technology as an important area. BPCL and EIL were identified to work on this technology and develop a programme. Accordingly, BPCL and EIL prepared an approach paper and made presentation to Scientific Advisory Committee in May 27, 2007. BPCL and EIL initiated research programmes and trying to pool with other partners.
- (iii) A hydrogen fuel cell has already been established under this programme (COCO at Hyderabad).
- (iv) To gain first hand experience of hydrogen storage and vehicle performance, trials were conducted on a 3-wheeler run with hydrogen supplied from a metal hydride storage conister.
- (v) A collaborative research programme has been undertaken with Indian Institute of Science, Bangalore for developing gas storage technology using nano-porous materials.
- (vi) A research programme has been initiated on hydrogen production by auto thermal reforming.”

2.28 Giving the present status of bio-diesel production in the country, the Ministry submitted the following:

“ OMCs have not been able to purchase any bio-diesel at any of the identified locations till now. It has been reported that the production of cost effective non-edible oil seeds (like Jatropah, Karanj, Pongamia, etc.) in India as of now is significantly low and therefore production of bio-diesel in India based on indigenously grown non-edible oil seeds is insignificant. The processors who are coming out with production facilities with small/ medium/ large scale are seeking higher price only because their inputs (vegetable oil) are of a higher cost for obvious reasons. Since plantations

of non-edible oil seeds trees like Jatropha, etc., have been taken up only in recent years on a significant scale, the situation may improve after 2-3 years when these start yielding oil seeds and at that time bio-diesel is likely to be cost effective with reference to petro-diesel”.

2.29 When the Committee desired to know whether the Government is considering tax incentives to promote the use of Bio Diesel, the Ministry, in a reply, submitted that fiscal and financial incentive, including tax incentives for Bio-fuels are being examined by MNRE in consultation with MoF.

(iv) National Bio-fuel Policy

2.30 When the Committee desired to know the progress made in regard to the formulation of National Bio-fuel Policy, the Ministry, in a post evidence reply, submitted as under:

“The Cabinet Note on National Policy on Bio-fuels and its implementation and setting up of National Bio-fuel Development Board prepared by the Ministry of New & Renewable Energy was placed in the meeting of the Cabinet held on 8th March, 2007 for the approval. The Cabinet decided that the note of the Ministry of New & Renewable Energy, in the first instance, be considered by a Group of Ministers. The First Meeting of the Group of Ministers, constituted by the Cabinet Secretariat and approved by the PM was held on 16th May, 2007 under the Chairmanship of Union Minister of Agriculture and Minister of Consumer Affairs, Food & Public Distribution, to discuss the National Policy on Bio-fuels and Establishment of National Mission of Bio-diesel. The next meeting of the Group of Ministers is scheduled to be held on 23rd July, 2007”.

(v) National/State Bio-diesel Development Board(s)

2.31 When the Committee wanted to know about the mechanism put in place to coordinate agencies concerned with cultivation, manufacturing and marketing of bio-diesel, the Ministry furnished the following in a post-evidence reply:

“The setting up of a National Bio-fuel Development Board (NBDB), which is proposed to undertake various activities such as coordination and monitoring, R&D and demonstration project, training etc. and effective end to end implementation of the National Bio-fuel programme, is a part of the Cabinet Note on National Policy of Bio-fuels. The NBDB would coordinate all issues relating to bio-fuel production, conversion and utilisation with the Central Ministries, State Government and all other stakeholders”.

2.32 The Committee have been informed that various state Governments have set-up committees like Chhattisgarh biofuel development board, Uttaranchal biofuel board, Rajasthan biofuel authority etc. for the development of biofuels.

2.33 On a specific query regarding training imparted on *Jatropha* cultivation and bio-diesel extraction, the Ministry informed that the Ministry of Rural Development, which is the nodal Ministry to implement the National Mission on Bio-diesel has not assigned the job of imparting training on *Jatropha* cultivation and bio-diesel extraction to any agency.

2.34 The Committee wanted to know about the environmental consequences, if any, of *Jatropha curcas*. The Secretary, Ministry of Petroleum and Natural Gas, during evidence, stated in this regard, as follows: -

“Extensive cultivation of biodiesel may lead to the danger of monocropping which cannot be overlooked. They have serious environment implications apart from the ramifications of soil fertility, etc. All these factors are also being studied very carefully by our agricultural scientists”.

2.35 Regarding research carried out/being carried out to identify the *Jatropha* varieties which are disease resistant, drought resistant, and also high yielding, the Committee have been informed, during evidence, as follows:

“There are more than 20 varieties of *jatropha* itself. The Department of Bio-technology has been intensively doing a lot of research on the whole issue for more than five years.

Now, they have short-listed two particular varieties of *jatropha*, which is a combination of disease resistant, drought resistant and also high-yield variety seeds meaning higher oil content. These two varieties have been identified, and they are now in the process of tissue culture and cloning in different parts of the country. Once the States identify the land, then they would be ready to start distributing the correct saplings and correct seedlings”.

2.36 On being asked whether the Government proposes to set up an information centre containing data regarding Bio-fuel technologies, oil production, usage etc. so that the same can be available to others at a glance and free of cost, the Ministry furnished the following reply:

“There is no proposal to set up an Information Centre for Bio-fuels in the Ministry of New & Renewable Energy. However, detailed information about Bio-fuels technologies, oil production, usages etc, would be prepared by the National Bio-fuel Development Board once it is approved by the Competent Authority and set up”.

(vi) Bio-diesel Project in Andhra Pradesh

2.37 In the State of Andhra Pradesh, the State Government chose Pongamia for large scale cultivation which has the advantages of being native to the State, evergreen, less water demanding and nitrogen fixing.

2.38 The bio-diesel programme in the State has been integrated into the National Rural Employment Guarantee Programme (NREGP). 12 districts in the State are covered under the programme, with plantations in 1,58,690 hectares.

2.39 The Government of Andhra Pradesh is implementing the bio-diesel programme through Public – Private Partnership (PPP) Model with the involvement of Entrepreneurs. The role of Entrepreneurs is to identify farmers and motivate them for the programme, assist and work in close association with farmers, arrange/facilitate financial assistance, provide technical support and facilitate the disposal of the produce. The role/responsibility of the Government is to facilitate identification and allotment of areas, provide assistance for raising plantations and post-harvest activities, make a buy back arrangement for Entrepreneur and provide incentive/assistance to farmers and entrepreneurs.

2.40 As regards monitoring of the project, field level functionaries at Gram Panchayat and Mandal level have been positioned to monitor the programme and provide technical support. The District Water Management Agency is the implementing agency at the district level. Regular review meetings are held by the Project Directors with the representatives of the entrepreneurs and field level functionaries. Review meetings are also held with the farmers at the mandal level once in a month.

2.41 The State Government has sanctioned a comprehensive R&D plan for three years to provide systematic research and development support. The proposed R&D activities include collection of germplasm both from within the

State and outside, multiplication of elite plant through tissue culture, evaluation and standardisation of agro-techniques, study of physiochemical properties and process development for preparation of bio-diesel, etc. An allocation of Rs. 38.82 lakh has been made for the year 2006-07 in respect of R&D out of which an amount of Rs. 35.72 lakh has already been spent.

2.42 The Forest Department has taken up 30,000 hectares of Pongamia plantation with financial assistance from NABARD. Vana Samrakshana Samithis (VSS) are the implementing agency for the programme who are trained in nursery raising, planting, grafting and pruning.

2.43 As regards the compensation to farmers during the non-yielding three years, plantations are mostly taken up in marginal and degraded land where agriculture production is very minimum. Small and marginal farmers are encouraged to work in their fields, earn wages and take up inter-crops wherever feasible. For small and marginal farmers, the entire unit cost is supported by the Government including maintenance for three years.

(vii) Suggestions/views of public and experts/organisations etc.

2.44 Some of the important suggestions/views expressed by public in general and experts / professionals / organisations /associations,etc. on bio-diesel production/Jatropha plantation and matters relating thereto are given below:-

- (i) The role of entrepreneurs should be to conduct training and capacity building classes for the farmers and other stakeholders and to facilitate sanction of bank loans for all eligible farmers, including farmers of Government assigned land identified under bio-diesel plantation programme as per the prescribed unit cost, etc.
- (ii) The main concern with the Private Investor is getting land. It becomes unviable if cultivation is done on land purchased at market price. State Governments should, therefore, formulate policy and Boards with power to allot the wastelands.

- (iii) Economic analysis of jatropha and biodiesel production provide evidence that better crop management and modern processing techniques significantly reduce unit cost of production of bio-diesel.
- (iv) Jatropha and oil seed bearing trees should be planted in mined out and reclaimed coal mining areas. Large areas of degraded land in Jharia, Raniganj and other coalfields can be utilised.
- (v) Jatropha plantations should be taken up on the land belonging to the Railways all along the track length throughout India.
- (vi) Bio-diesel plants(both Jatropha curcas, and Pongamia pinnata, with high productivity/yield per HA) should be promoted on a massive scale with self-help groups, and with tripartite agreement among the stakeholders-cultivators, contract promoter and the State Agriculture and Cooperative Dept. as the facilitator, with adequately empowered system to coordinate all efforts, involving seed cultivation, storage & distribution, oil extraction & processing and marketing.
- (vii) There is a need to look at other potential candidate crops for bio-diesel such as Pongamia, Mahua, Sal, simarouba, etc.
- (viii) Encourage NGOs to take up projects at the grass root level and promote this concept. They can be involved for providing implementation support awareness, training, setting village level institutions to serve as technology disseminating centres. SHGs can collect, dry and sell seeds to traders.
- (ix) Research needs to be carried out to enhance yield and shorten the gestation period, by tree breeding, vegetative propagation, grafting, tissue culture, etc.
- (x) An authority such as a 'Bio-fuel Development Board' should be established. Funding should be done through this Board.

- (xi) Establish an Information and Resource Centre for bio-fuels, where all information about bio-fuels from technologies, oil production, usage should be available in a free and quick manner.
- (xii) Campaign should be carried out to popularise the concept through an extensive awareness and education programme. The opportunities and potential to the various beneficiaries like farmers, trade and industry and the consumer have to be articulated.
- (xiii) Along with the development of plantations of oil seed species, establishment of market linkages is a very crucial activity in bio-diesel production process.
- (xiv) The lead time to get Jatropha to start giving fuel seeds is about two and a half years and therefore, the programme should be supported by the Government.
- (xv) The success of the bio-fuel programme purely depends on the full involvement/ co-operation of farmers and bio-fuel producers. As such, attractive incentive for encouragement should be announced so as to induce the farmers and producers to take up the programme without any hesitation.

(C) Coal Bed Methane (CBM)

2.45 The Committee have been informed that to give impetus to exploration and production of CBM in the country, the Government has formulated the CBM policy in the 1997. Giving details about the steps taken, the Ministry furnished the following:

“Directorate General of Hydrocarbons carved some prospective blocks for exploration and exploitation of CBM in the country. In May 2001, for the first time in country, 7 CBM blocks were offered in the first round of CBM bidding, out of which 5 blocks have been awarded. Contract for these block have been signed in July 2002. State Governments have granted PELs for these blocks and the exploration work in these blocks have started. The exploration work in these blocks is to be carried out as per the terms of the contracts signed between the Government and the

companies for each block. The contracts specify the time frame and the minimum work Programme for each phase of the exploration.

Apart from the above 5 blocks awarded through global bidding, one CBM block i.e. Raniganj South in the State of West Bengal was earlier awarded to M/s Great Eastern Energy Corporation Limited (GEECL) through FIPB route and later awarded under CBM policy for which contract was signed in May, 2001. In addition to this, two more CBM blocks, viz. Jharia in the State of Jharkhand and Raniganj North in West Bengal were awarded to ONGC-CIL consortium on nomination. The contract for these two blocks was signed in February 2003.

In the second round of CBM bidding, which was announced in May, 2003, 9 blocks were offered with bid closing date in October, 2003. A total of 14 bids were received for 8 blocks out of 9 blocks offered. No bid was received for the block in Andhra Pradesh. Contracts for these 8 awarded blocks were signed on 6th February 2004. Thus, a total of 16 blocks have been awarded so far in the country for exploration and exploitation of CBM.

Normally, it takes 5-6 years time to commence CBM production from the blocks after the process of award is finalized and PEL is granted by the State Governments. The exploration of CBM involves several phases (viz. Phase-I to Phase-III). Phase-I work involves drilling of few Coreholes to determine the gas content of coal seams and also drilling of few Test Wells to assess the CBM gas & water production rates. This phase generally takes 2 to 3 years. The next phase, i.e. Phase-II involves drilling of some Pilot wells in a cluster pattern to determine the permeability of coal seams, establishing the production rate of CBM gas and water and other reservoir parameter. The phase-II also involves market survey for CBM gas. This phase generally takes 2-4 years. The phase-III involves drilling of development wells for commercial production of CBM gas, which is of 5 years duration. The phase-IV is the production phase, which is generally of 25 years.

DGH has carved out additional prospective CBM blocks from different coal & lignite fields of the country for future round of bidding in consultation with CPMD I.

The CBM resources in the 16 awarded blocks covering an area of around 7,800 Sq. Km. are estimated to be 820 BCM and expected total production from these blocks is estimated at 23 MMSCMD at their peak production level.

In order to increase the pace of development / exploration of CBM, the Government has offered ten more blocks in different coalfields of the

country for offering under third round of bidding. Total 54 bids have been received for all the above ten blocks from various Indian as well as Foreign Companies. The bids are under evaluation.

As of now, 23 CBM Blocks were awarded through competitive international bidding under first three rounds of CBM policy, under which blocks are being operated by technically competent companies. 2 blocks were awarded on nomination basis and one block through FIPB route. 16 CBM exploration blocks are under operation and contracts for 10 Blocks under CBM-III have been signed recently in November, 2006 (against which 54 bids had been received). Thus, Government has signed contracts for 26 blocks covering an area of 13,600 Sq. Km. The total committed investment in these blocks is of the order of Rs. 675 crore. In just 4 blocks, over 6 TCF of gas reserves have been established.

As regards the fourth round of CBM, carving out of CBM blocks is in initial stage in consultation with Ministry of Coal”.

2.46 When the Committee wanted to know when commercial production of CBM is likely to take place, the Ministry, in a post evidence reply, furnished as under:

“Government of India awarded 26 CBM blocks under three rounds of CBM held so far in the different coal fields of India. The CBM estimated reserves in the awarded blocks are about 1400 BCM with production potential about around 38 MMSCMD. The exploration activities have already established encouraging CBM resources in some of these blocks. A total 176 BCM (6.24 TCF) CBM reserves have been established in four CBM blocks. The first commercial production of CBM is likely to commence by the end of 2007-08 in few of the CBM blocks with initial production about 1.5 MMSCMD. Other blocks are in various stages of exploration/development”.

2.47 Regarding CBM blocks awarded under 1st , 2nd and 3rd rounds, the Ministry has furnished the following data:

“Sl. No.	Coal Field/Block Name	State	Company
A. CBM Blocks Awarded Under 1 st Round of Bidding (CBM-I)			
1	Bokaro [BK-CBM-2001/1]	Jharkhand	ONGC-IOC
2	North Karanpura [NK-CBM-2001/1]	Jharkhand	ONGC-IOC
3	Sohagpur East [SP(East)-CBM-2001/1]	Madhya Pradesh	RIL
4	Sohagpur West	Madhya Pradesh	RIL

	[SP(West)-CBM-2001/1]		
5	Raniganj East [RG(East)-CBM-2001/1]	W.Bengal	EOL
B. CBM Blocks Awarded on Nomination Basis			
6	Raniganj North	W.Bengal	ONGC-OIL
7	Jharia	Jharkhand	ONGC-OIL
8	Raniganj South	W.Bengal	GEECL
C. CBM blocks awarded under second round of bidding (CBM-II)			
9	South Karanpura [SK-CBM-2003/II]	Jharkhand	ONGC
10	North Karanpura [NK(West)-CBM-2003/II]	Jharkhand	ONGC
11	Satpura [ST-CBM-2003/II]	Madhya Pradesh	ONGC
12	Wardha [WD-CBM-2003/II]	Maharashtra	ONGC
13	Sonhat [SH(North)-CBM-2003/II]	Chhatisgarh	RIL
14	Barmer (1) [BS(1)-CBM-2003/II]	Rajasthan	RIL
15	Barmer (2) [BS(2)-CBM-2003/II]	Rajasthan	RIL
16	Barmer-Sanchor [BS(3)-CBM-2003/II]	Gujarat	ONGC-GSPCL”

D. DETAILS OF BLOCKS AWARDED UNDER CBM-III

Sl. No.	Block Name	Coal / Lignite Field	State	Company / Consortium
1.	RM-CBM-2005/III	Rajmahal	Jharkhand	ARROW-GAIL-EIG-TATA
2.	BB-CBM-2005/III	Birbhum	West Bengal	BP Exploration (Alpha) Ltd.
3.	TR-CBM-2005/III	Tatapani-Ramkola	Chhattisgarh	ARROW-GAIL-EIG-TATA
4.	MR-CBM-2005/III	Mand-Raigarh	Chhattisgarh	ARROW-GAIL-EIG
5.	SP(N)-CBM-2005/III	Sohagpur	Madhya Pradesh	REL-RNRL-Geopetrol

6.	SR-CBM-2005/III	Singrauli	Madhya Pradesh	COALGAS-Deep Industries
7.	KG(E)-CBM-2005/III	Kothagudem	Andhra Pradesh	REL-RNRL-Geopetrol
8.	BS(4)-CBM-2005/III	Barmer	Rajasthan	REL-RNRL-Geopetrol
9.	BS(5)-CBM-2005/III	Barmer	Rajasthan	REL-RNRL-Geopetrol
10.	GV(N)-CBM-2005/III	Godavari North	Andhra Pradesh	COALGAS-Deep Industries-Adinath

2.48 When the Committee specifically desired to know the number of blocks where gas has been found, out of the total blocks awarded, the Ministry of Petroleum & Natural Gas, in its written replies, submitted the following details:

“In 5 blocks exploration phase-I activities have been completed. These are (i) SP (E)-CBM-2001/1 & (ii) SP (W)-CBM-2001/1 in Sohagpur Coal field, Madhya Pradesh (iii) Jharia & (iv) Bokaro in Jharkhand & (v) Raniganj in West Bengal.”

(D) Coal Gasification

2.49 Underground Coal Gasification(UCG) can go a long way in meeting our energy needs because of its tremendous potential and high rewards.

(i) ONGC’S UGC Projects

2.50 Giving the present status of ONGC’s Underground Coal Gasification Projects, the Ministry of Petroleum & Natural Gas, in a written reply, furnished as under:

“ONGC has signed an agreement of collaboration (A.O.C) with Skochinsky Institute of Mining, Russia for implementation of UCG in shallow coal/lignite seams in India on 25.11.2004. As a follow up 1st stage was signed on 13.12.2004. As stipulated in the MoU (A.O.C.), there are six phases as mentioned in the table below:

Sl. No.	Steps	Duration (Months)
1.	Site selection	7
2.	Detailed evaluation of the Geological and Hydrological Condition of coal seams in the	6

	selected site of pilot Project.	
3.	Obtaining permission for use of land.	6
4.	Project design (initial data for techno-economic feasibility Preparation of techno-economic, preparation of technical reports and project designing with working drawing).	17
5.	Construction of Enterprise UCG.	24
6	Start of Enterprises U.C.G, putting into operations, duration analysis of results and recommendations for preparations. Is to be defined separately	
	Total	60

The first phase of the contract suggests examination of the data/information of the coal deposits leading to site selection.

ONGC has signed MoUs with Gujarat Mineral Development Corporation Limited (GMDC), Neyvell Lignite Corporation Limited (NLC), Gujarat Industries Power Company Limited (SCCL) for cooperation in area of UCG.

The relevant coal data from fifteen different probable sites in India in the States of Maharashtra, West Bengal, Jharkhand, Andhra Pradesh, Gujarat, Rajasthan and Tamil Nadu had been sent to SIM Russia for analysis.

Out of fifteen sites, only eleven sites were studied. Out of eleven sites studied, five were found for UCG, five sites require additional data generation for further analysis and one site namely Vastan Mine block belonging to GIPCL in Surat district, Gujarat has been found most suitable for UCG.

The studies in respect of five sites Kasta (West Bengal), Lapanga and part of Lapanga extension block (Jharkhand), Manuguru (Andhra Pradesh), G-19 block extension (Gujarat) and Barkabothia (Rajasthan) are inconclusive due to requirement of additional data. For these sites follow up action with the companies for generation of additional data are underway.

In the Vastan site further data generation for the design and execution of UCG pilot experimentation is in progress”.

(ii) **GAIL's Surface Coal Gasification and Underground Coal/ Lignite Gasification projects**

2.51 Regarding Surface Coal Gasification and Underground Coal/ Lignite Gasification projects of GAIL, the Ministry furnished the following details:

“GAIL (India) Limited Commissioned M/s Uhde India Ltd. to carry out a detailed feasibility report of Coal Gasification Project in Eastern India based on Shell Coal Gasification process. The DFR has been completed.

The plant will generate 7.76 MMSCMD of synthesis gas. Coal consumption for production of above quantity of Syn-gas is around 5,200 Tonnes/day.

GAIL is in the process of entering into MoC with Coal India Limited for sourcing of coal. Also GAIL is in dialogue with various fertilizer companies and other consumers for market tie- up synthesis gas.

GAIL is in progress of signing a License Agreement on Insitu Lignite Gasification Technology with M/s Ergo Exergy Technologies Inc., Canada.

The Insitu Lignite gasification project in Barmer, Rajasthan will be jointly evaluated with the Government of Rajasthan with whom GAIL has signed an MoU. The Syn-gas generated will be utilized to run a pilot Integrated Gasification Combined Cycle (IGCC) plant of 5MW power capacity.

The general license Agreement and site selection and Pre-Feasibility of the project with Ergo Exergy are under finalisation”.

2.52 Giving details of Surface Gasification technology adopted in other countries, the Ministry furnished the following data:

Sl. No.	Plant Location	Plant Details (TPD of coal feedstock)	End Product	Plant Status
1	Yueyang Sinopec & Shell	2000	Ammonia	U/T*
2	Liuzhou Chemical Industry Co. Ltd.	1100	Ammonia	U/E*
3	Hubei Shuanghuan Chemical Co. Ltd	1100	Ammonia	U/T*
4	Sinopec Anqing Co. Ltd.	2000	Ammonia	U/E*
5	Sinopec Anqing Co., Anqing	2000	Ammonia	U/E*
6	Yunnan Tianan Chemical Co. Ltd., Kunming	2700	Ammonia	U/E*
7	Dahua Group Ltd, Dalian	1100	Methanol	U/E*
8	Yunnan Zhanhua Co. Ltd., Zhnayi	2700	Ammonia	U/E*
9	Yongcheng Coal & Power	2100	Methanol	U/E*

	group, Yongcheng			
10	China Shenhua Coal Liquefaction Corporation, Inner Mongolia	2*2200	Hydrogen	U/E*
11	Henan Yima Kaixiang Group, Puyang	2100	Methanol	U/E*
12	Henan Yima Kaixiang Group, Yima, Henan	1100	Methanol	U/E*
13	Datang International Power Corporation Co., Inner Mongolia	3*4000	Methanol	U/E*
14	Tianjing Soda, Tianjing	2*2000	Ammonia	U/E*
15	Shenhua Ningxia Coal Industry Co., Ningxia	To produce 80000 bpd	CTL	Feasibility by Shell*
16	Noun Power Plant, Netherlands	2000	Integrated Power Plant	Commissioned in 1994**

U/T= Under Trial Run; U/E = Under Execution

*Original information from M/s Shell updated from M/s L&T

**In-house information

2.53 The Committee wanted to know whether any foreign countries have had discussions with Coal India Limited for setting up a Coal Gasification Plant. The Ministry, in a written reply, submitted as under:

“Coal India Limited have had discussion with ‘SASOL’, South Africa for setting up of a Coal Gasification-Cum-Liquefaction Plant. In the meeting held on 15.3.2006 at the office of Coal India Limited, Kolkata, SASOL team briefed about their plans for setting up a Coal Gasification-Cum-Liquefaction Plant outside South Africa. In this connection SASOL team was undertaking a “Fact Finding Mission” in different countries. India was being considered as a strategic destination because of its abundant coal resources and burgeoning energy market, particularly of oil. CIL welcomed SASOL’s intention for exploring possibilities of their venture in India and agreed to meet further to discuss the way forward in this matter. SASOL agreed to discuss the matter with the principal and revert back on the issue.

It was also discussed that sustainable competitive price would be US\$45 per barrel the cost of production would be US\$35 /bbl (US\$15 for gasification + US \$10 for liquefaction +Capital Cost). Capital cost for a plant 80000 bbl/day i.e. 10MT/annum from ‘E’ grade coal would be US\$4.5 billion and US\$ 300 million is required for feasibility study. SASOL has sought for equal sharing of feasibility cost. Plant commissioning period would be one and half years. CIL is awaiting further response from SASOL”.

(E) Gas Hydrates

2.54 Gas Hydrates is another source of unconventional hydrocarbons.

2.55 The Ministry, *inter-alia*, provided the following details regarding steps taken in the area of promoting this important source of energy:

“The National Gas Hydrate programme was initially started in 1997 by MOP&NG with participating agencies i.e. ONGC, GAIL, DGH, OIL, NGRI, NIO and DOD. This programme was conceived by Govt. for exploring for gas hydrates in the Indian deep waters, being a future source of unconventional hydrocarbons. The programme was reconstituted in year 2000 by MOP&NG to give a greater thrust in this direction, by making DG, DGH as Technical Coordinator of the programme, Secretary P&NG as Chairman of Steering Committee and six technical working sub-groups, constituted by involving scientists / engineers from above mentioned organizations.

As per the road map, detailed geoscientific investigations were carried out in the KG Basin and K.K. basin by NGHP through National Institute of Oceanography (NIO). Based on the results of seismic data studies and geoscientific investigations, ten sites in Mahanadi, KG & KK basins and Andaman sea have been short listed for drilling/ coring of gas hydrates in the deepwaters. With sustained efforts by DGH, with IODP & USA, the drillship JOIDES Resolution along with all the scientific equipment and scientists onboard has carried out drilling/coring in Indian offshore since May 2006, under an agreement between DGH and a “US Consortium” of companies.

The R&D drilling/coring campaign carried out under National Gas Hydrate Programme (NGHP) during May-August, 2006 has established presence of gas hydrates in a few deep water Indian offshore areas i.e. K.G. and Mahanadi basins and Andaman Sea. Presently scientific studies on the data collected is being carried out. The scientific studies are likely to be completed by end of 2007. Based on the results of the scientific studies and after the acquisition of high quality seismic data in the areas where gas hydrates have been found. The reserves estimates for these areas are likely to be available by end 2008”.

(F) Hydrogen and Solar Energy

2.56 Hydrogen and Solar Energy are some of the new forms of renewable energy which are coming to the fore today in the wake of increasing environmental awareness and the need felt by the mankind to bring down the greenhouse gas emissions.

2.57 Regarding the production of hydrogen, the Ministry of Petroleum and Natural Gas furnished the following details, in a written note:

“Hydrogen can be produced through steam reforming of natural gas / naphtha or gasification of coal, fuel oil and biomass or electrolysis of water. The first method at the moment is considered cost-effective.

For hydrogen production on environmentally sustainable basis, new and emerging methods include production from biological, thermo-chemical, photo-catalytic, photo-electro-chemical splitting of water and using renewable energy or nuclear energy for electrolysis, etc.

A suitable process for producing hydrogen could be based on renewable or nuclear energy. Till such processes become cost-effective, hydrogen production would be mainly through steam reforming of natural gas / naphtha or gasification of coal.’

2.58 The Ministry of New and Renewable Energy, through a written note, stated that the Ministry has been supporting a broad based research, development and demonstration programme on different aspects of hydrogen and fuel cell technologies, including production, storage and utilization of hydrogen as a fuel. The Ministry further stated that a National Hydrogen Energy Road Map has been prepared which lays down the pathway for the development of hydrogen energy infrastructure in the country, covering hydrogen production, storage, transport/delivery and applications including introduction of one million hydrogen fueled vehicles by 2020 and the setting up of hydrogen based power generation capacity aggregating 1000MW.

2.59 Regarding the initiatives taken by the Ministry of Petroleum and Natural Gas in the field of hydrogen, the following details have been furnished:

“For development of hydrogen as a fuel, the Ministry of Petroleum and Natural Gas has set up a Hydrogen Corpus Fund with a corpus of Rs. 100 crore with contribution of Oil and Gas companies and Oil Industries Development Board (OIDB) for supporting research and development in various aspects of hydrogen, which could substitute part of natural gas as transport fuel in future. A roadmap has been set up by IOC(R&D), the nodal agency for the hydrogen research project, for hydrogen production, dispensing, storage application and its utilization in scooters, three-wheelers and buses.

At present, in India, Hydrogen is being produced mainly from steam reforming of naphtha and natural gas in fertilizer and petroleum refining industries. Hydrogen as a by-product is also being produced in the

chemical industry. Hydrogen is expensive for energy applications in comparison to the existing hydrocarbon fuels. Further, there is no infrastructure available in the country for regular use of Hydrogen as an energy carrier.

IOC has set up a Hydrogen-CNG dispensing station at its R&D Centre, Faridabad for dispensing H₂-CNG blends for test vehicles. Trials at present are being conducted on a passenger car and three-wheeler using upto 10% H₂ in CNG, without doing any engine modification. IOC, R&D has tied up with vehicle manufacturers to take up the necessary modifications in the engines for using higher percentage of H₂ with ultimate aim of reducing NO_(x) emission and improving energy efficiency.

A project for introduction of Hydrogen-Compressed Natural Gas(CNG) blends on a trial basis in existing CNG vehicles has also been planned by the Ministry on New and Renewable Energy (MNRE) to be undertaken in collaboration with the Society of Indian Automobile Manufacturers (SIAM) and Indian Oil Corporation Ltd. (IOCL). The project aims for introduction of H-CNG blend as a fuel in light duty vehicles, cars and three wheelers, involving five leading Indian Automobile Manufacturers viz, Tata Motors, Ashok Leyland, Eicher Motors, Mahindra and Mahindra Motors and Bajaj Auto by using the existing Hydrogen dispensing facility set up by IOC(R&D) Centre at Faridabad. Another H-CNG dispensing station has been planned to be set up by IOC(R&D) along with the MNRE at Delhi for refueling vehicles running on H₂-CNG blends and on 100% Hydrogen”.

2.60 When the Committee desired to know about the use of hydrogen as transportation fuel in developing as well as developed countries, the Ministry furnished the following details:

“Hydrogen is being tried out as transportation fuel in several countries like USA, UK, Germany, Japan, Norway, Iceland, Australia, China, etc. and several demonstration projects have been taken up in these countries”.

2.61 The Committee wanted to know the outcome of trials conducted on vehicles run on hydrogen. The Ministry furnished the reply as under:

“Initial tests indicate that there is power loss with H₂-CNG blends, which can be compensated by modifications in the engine. No operational problem has been encountered during the trials with upto 10% H₂-CNG blends.

2.62 The Ministry further furnished the following details:

“For the demonstration project, the Original Equipment Manufacturers(OEMs) are ready to undertake modifications in the engines for using higher percentages of H₂ in CNG for which OEMs have indicated

the cost towards modification and optimization of engines. OEMs desired that the cost incurred in modification / optimization should be met through Government funding.”

2.63 In some memoranda received by the Committee, mention has been made of the importance of solar energy as an alternative to the fossil fuel. Some of the suggestions/observations made therein are as follows:

- (i) It is inexhaustible and almost uniformly distributed all over the country.
- (ii) Photovoltaic solar energy is clean and non polluting.
- (iii) Photovoltaic solar energy has no moving parts and therefore negligible maintenance costs.
- (iv) It is amenable to decentralized as well as modular generation, often at the point of consumption, eliminating transmission losses.
- (v) It has low gestation periods with corresponding economic advantages.
- (vi) More research and developmental activities should be conducted in developing new sources of sustainable long-term clean energy like solar energy.

CHAPTER III

OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE

Alternative fuels like ethanol and bio-diesel have a number of advantages over the conventional fuels. Besides being renewable, such fuels significantly reduce emission of greenhouse gases. They can also lessen our dependence on import of crude oil and substantially decrease the net oil import bill. In spite of having so many advantages, the Committee are unhappy to find that the large scale promotion and production of such fuels has not received the desired attention. As a result, we are lagging much behind other countries like Brazil, U.S.A., Australia, Sweden, etc. in the field of development of alternative sources of oil and gas. The Committee desire the Government to take up the issue with all seriousness without further loss of time and make all out efforts to promote the various alternative sources of oil and gas.

3.2 The Government introduced the scheme of mandatory supply of 5% ethanol blended petrol in 9 major sugar producing States and 4 contiguous Union Territories w.e.f. 1.1.2003 which was extended to the whole country w.e.f. 1.11.2006 except in the North-Eastern States, J&K, Andaman & Nicobar Islands and Lakshadweep. The Committee have been informed that the implementation of 5% EBP in the notified areas would require 0.56 million KL of ethanol per annum. They, however, note with displeasure that there is no reliable assessment of the total availability of ethanol in the country. Various industrial associations dealing with alcohol/ethanol, viz. Indian Sugar Mills Association (ISMA), All India Distillers' Association (AIDA), Indian Chemicals Manufacturers Association (ICMA), etc. have been making varying projections about the availability of ethanol in the country. Since proper assessment is essential so as to firm up the future policy and planning on the issue, the Committee recommend that the Government should make its own independent assessment of the indigenous availability of ethanol in the country on a priority basis and complete this exercise in a time bound manner.

3.3 The Committee are unhappy to note that the state taxation issue is proving to be one of the major roadblocks in the successful implementation of the Ethanol Blended Petrol Programme. The State Governments have been imposing a lot of licensing and procedural requirements on the units producing industrial alcohol, besides levying a plethora of taxes and restricting inter-State movement of the product. Besides, there is no uniformity in the nature of licensing requirements and taxes imposed by the States. The Committee find that the procurement cost payable by oil companies increases phenomenally because of imposition of these taxes by the State Governments. Similarly, restriction on inter-State movement of ethanol becomes detrimental to the EBP programme. The Committee, therefore, strongly feel that there is an urgent need to effect a substantial reduction in the number and amount of taxes/duties levied on ethanol. They also desire that the Central Government should seriously take up the matter with the State Governments so that these taxes/duties are rationalised and made uniform throughout the country. The Committee also feel that hassle-free inter-State movement of ethanol should be allowed so that surplus stocks in some States can be fed to the deficient States which would ultimately obviate the need to go in for import of ethanol.

3.4 The Committee note with displeasure that tenders in three States, viz. Madhya Pradesh, Chhattisgarh and Orissa could not be finalised due to high rates of taxes levied on ethanol by the concerned State Governments. They also note with concern that the Government of West Bengal has not issued the notification on applicable taxes/duties on ethanol meant for blending with petrol while in the State of Tamil Nadu, the programme has been kept in abeyance as ethanol could not be spared for the EBP programme due to shortage of spirit. The Committee are constrained to observe that the EBP Programme has not received due importance which can be gauged from the fact that even after four years of its introduction, the scheme could not be fully implemented in the whole of the country. They desire the Government to analyse the issues which are proving

roadblocks in the implementation of the programme and sort out the same quickly with the concerned State Governments. The action taken in the matter and the success achieved may be conveyed to the Committee within three months.

3.5 EBP programme has not been extended to the North-East, Jammu & Kashmir, Andaman & Nicobar Islands and Lakshadweep on the ground that these areas are geographically far off and that procurement and transportation of ethanol to these places is not cost-effective. Keeping in view the sensitivity of these areas, geographical or otherwise, the Committee desire that the Government should consider the feasibility of introducing a freight subsidy scheme for these areas and kick-start the programme at these places at the earliest.

3.6 The Committee note that limited field trials on select vehicles carried out by IOC(R&D) have found the use of 10% ethanol blended petrol to be feasible. The Department of Agricultural Research & Education (Ministry of Agriculture) has informed the Committee that 1,400 million litre of ethanol per annum would be required to switch over to 10% blending for which alternate substrate (other than molasses) shall be needed. The Committee have further been informed that the technology for converting such alternate sources to ethanol can be adopted by industries, if encouraged. In view of the above, the Committee desire that the feasibility of extension of 5% to 10% blending of ethanol should be seriously considered by the Government without further delay. They further desire the Government to consult all the stakeholders, prior to taking a decision on extension of the EBP Programme to 10% blend. In order to encourage higher production of ethanol, the Committee view that suitable incentives should be given to ethanol producers, especially during the initial phases. The Committee would also like the Government to encourage R&D activities to find out the feasibility of using sugar beet, sweet sorghum, cassava (tapioca), maize, etc. as raw material for ethanol production in the country. Besides, the Government should develop technologies for ethanol production from alternate feedstock like agriculture, municipal and forestry wastes.

3.7 The Committee are distressed to note that though the Government had signed an MOU with Brazil in 2002 for sharing of the technology for blending ethanol with petrol and provide related aspects of technology, no major headway seems to have been made in this regard in five years except appointment of a Consultant whose findings are stated to be under examination. In the opinion of the Committee, this is indicative of lack of willingness and inaction on the part of the Government in the matter. They desire the Government to pull up its socks and act in the matter with all seriousness without further loss of time. The Committee also desire that Oil PSUs should evaluate the possibility of acquiring sugarcane acreages in Brazil and putting up ethanol manufacturing units for bringing ethanol to India. They further desire that the technology being adopted in the countries where EBP is being successfully used should be studied. Alliance with these countries may also be forged for investment and technology adoption.

3.8 Some of the Petroleum Dealers Associations like the Gujarat Petrol and Diesel Dealers Association, Punjab Petroleum Dealers Association, Haryana Petroleum Dealers Association and Federation of All India Petroleum Traders have expressed their concerns associated with the EBP such as starting trouble, excessive moisture in the tanks, corrosion of pipes, improper mixing of ethanol with petrol, etc. The Ministry admitted before the Committee that there are issues and problems with EBP scheme which are being sorted out. The Committee desire that an in-depth analysis of the problems voiced by dealers should be made and remedial measures taken at the earliest so that EBP gains the confidence and acceptability of customers. The Committee further desire that Customer Satisfaction Surveys should be regularly undertaken by Oil PSUs to obtain the much needed customer feedback/satisfaction on the EBP. The Government should also take steps to give enough publicity to educate people about the benefits of EBP.

3.9 The Committee are concerned to note that private companies, engaged in the sale of petroleum products, are not marketing EBP as the same has not been made obligatory on their part. They are of the opinion that since the EBP Programme has been launched by the Government to reduce dependence on imported oil by encouraging the use of indigenous sources of energy, it should be made mandatory for the private companies also to implement the scheme.

3.10 The Committee note that the Planning Commission had set up a Committee on Development of Biofuel which submitted its Report in April, 2003. The main recommendations in the Report inter alia include launching of a National Mission on Bio-diesel with special focus on plantation of *Jatropha curcas*. They regret to note that even after a lapse of more than four years, clearance from the CCEA for starting the Mission has not yet been obtained. The Committee recommend that the National Mission on Bio-diesel should be launched within a definite time frame so that vast wastelands are utilised for cultivation of *Jatropha curcas* in a systematic and time bound manner. They also desire that the National Biofuel Policy should be formulated at the earliest. The Committee may be apprised of the progress made in this regard at regular intervals.

3.11 The Committee learn that some States like Chhattisgarh, Uttaranchal and Rajasthan have set up boards for development of bio-fuels in their States. They desire the Government to impress upon other States to set up such boards which would give a fillip to the development of bio-fuels in the country. The Committee also desire that the Government should expeditiously set up the National Board for Development of Bio-fuels.

3.12 The Committee note that a number of Ministries/Departments have been assigned different aspects pertaining to bio-diesel production such as development of elite plant material, *Jatropha* cultivation, seed collection, oil extraction, trans-esterification, standardization, marketing, etc. These Ministries/Departments include the Ministry of Rural Development, Department of Agriculture and Cooperation, Department of Agricultural

Research and Education, Ministry of New and Renewable Energy and Ministry of Petroleum and Natural Gas. The Ministry of Rural Development has been made the nodal Ministry. In the opinion of the Committee, the diverse activities involved in the Bio-diesel Programme need proper consideration and monitoring. They, therefore, recommend that an exclusive cell should be set up within the Prime Minister's Office (PMO) to monitor the activities of the concerned Ministries. This cell should be assigned the mandate of ensuring the successful and large scale implementation of the programme, adequate/optimum utilization of allocations for the programme, regular review of progress of R&D, progress of plantations in States, etc.

Further, the Committee feel that work allocation to the Ministries/Departments need to be re-examined. They desire that the Ministry of Petroleum and Natural Gas should be assigned additional responsibility like facilitating cultivation of Jatropha/Pongamia since this Ministry, with several navaratna PSUs under its administrative control, would be better equipped to handle the job.

3.13 The Ministry of Petroleum and Natural Gas had formulated a Bio-diesel Purchase Policy in October 2005, effective 1.1.2006 which is a statement of intent of purchase of bio-diesel by the oil marketing companies. This policy identifies 20 purchase centres of the public sector oil marketing companies (OMCs) all over the country where these companies would purchase bio-diesel which meets the standards prescribed by the Bureau of Indian Standards(BIS), from those bio-diesel manufacturers who register with them after satisfying the technical specifications. The Committee are unhappy to note that no party has registered in any of the 20 purchase centres of bio-diesel so far. As a result, marketing of blended diesel has not yet commenced. The Committee desire the Government to attach utmost importance to the programme and establish a more effective market linkage. They also desire that the bio-diesel industry should be given infrastructure status for the faster growth of this industry. Besides, the Committee further desire

that adequate financial incentives, including tax incentives should be extended to biofuels, especially during the initial phase so as to ensure their optimum growth in the country. The Committee also desire that in addition to other incentives, low interest rate loans from nationalised banks should also be made available to farmers which would encourage them to go in for bio-diesel plantation.

3.14 The Committee have noted that IOCL has planted 1,55,000 Jatropha plants in 62 hectares of Railways land in Surendranagar district of Gujarat in 2004. These plants are expected to bear seeds in 2007 which would initially yield 18 MT and subsequently 50 MT of bio-diesel. The company has also approached Chhattisgarh and Madhya Pradesh Governments for allotment of revenue wasteland for large-scale Jatropha plantation. While appreciating the initiatives taken by IOCL in promoting bio-diesel, the Committee desire that other oil PSUs/organisations under the administrative control of the Ministry should also take initiatives to go in for such plantations and approach State Governments for allotment of wasteland for this purpose. They may be apprised of the factual position regarding steps taken by the oil PSUs.

3.15 The Committee note that IOC(R&D) organised a Bio-diesel conclave for enabling the public-private partnership in promoting Bio-diesel in India. In the conclave, emphasis was laid on involvement of Panchayati Raj Institutions in Jatropha plantation and continuation of research on bio-diesel for blending at higher concentrations. While appreciating the initiative of IOC(R&D), the Committee advise the Government/IOC to take appropriate action on these issues. They further desire that Public-Private Partnership in Jatropha plantation activities should be encouraged by the Government. Besides, a mechanism should be developed to monitor their plantation and related activities.

The Committee have also been informed that some private companies have approached HPCL for supplies of bio-diesel and Jatropha cultivation. These proposals are stated to be under scrutiny. The

Committee desire the Government/HPCL to take early decision on these proposals.

3.16 As per the projection of National Oilseeds and Vegetable Oils Development Board (NOVOD), the total area in the country under Jatropha Plantation upto 2008-09 would go up to 31,17,000 hectare from 5,60,000 hectare in 2006-07. In the opinion of the Committee, to convert the projection into reality, a simplified procedure should be followed for the release of Government land for the purpose of Jatropha/Pongamia plantation. The Committee, therefore, desire the Government to ask State Governments to make the release of land hassle-free for the purpose of Jatropha/Pongamia plantation.

3.17 The Committee have been informed that IOC, HPCL and BPCL are undertaking R&D studies on alternative sources of energy. They desire that certain percentage of their expenditure on R&D should be earmarked to cover the scientific and technical research in the area of alternative fuels. They further recommend that an exclusive cell should also be created in the Ministry to continuously review and monitor the R&D activities of the companies/agencies in the field of alternative fuels.

3.18 The Committee note with concern that no agency/Ministry has been assigned the job of imparting training on Jatropha cultivation and bio-diesel extraction. They feel that training should be given to farmers and other stakeholders in these fields. In this regard, NGOs, Self-Help Groups, village panchayats, etc. may be involved for imparting the training. The Committee also desire that better crop management and modern processing techniques should be introduced in order to reduce the cost of production of bio-diesel.

3.19 The Committee are unhappy to note that studies have not been carried out to find out the environmental impact of large-scale cultivation of Jatropha curcas, Pongamia, etc. The Secretary, Ministry of Petroleum and Natural Gas had stated during evidence that extensive cultivation of bio-

diesel might lead to the danger of mono-cropping which cannot be overlooked. This might have serious environmental implications apart from the ramifications of soil fertility, etc. The Committee recommend that scientific research should be carried out to find out the environmental impact, if any, of large-scale plantation of such trees. Besides, the Government should also endeavour to obtain the environmental feedback from countries where large-scale *Jatropha* cultivation has been done.

3.20 The Committee have been informed that two particular varieties of *Jatropha* have been identified which is a combination of disease resistant, drought resistant and also high yielding. They have been further informed that the Government is in the process of tissue culture and cloning in different parts of the country. The Committee desire that the process of tissue culture and cloning may be expedited and the identified saplings with desired specifications distributed for cultivation in different States. The Committee further desire that State Governments may be consulted in regard to identifying their wastelands for cultivation of the plants.

3.21 The Committee note that the Government of Andhra Pradesh is implementing the bio-diesel programme through Public-Private Partnership (PPP) Model with the involvement of entrepreneurs. Through the said programme, the State Government is facilitating identification and allotment of areas, providing assistance for raising plantations and post-harvest activities, making a buy back arrangement for entrepreneurs and giving certain other incentives/assistance to farmers and entrepreneurs. The Committee appreciate the efforts made by the Government of Andhra Pradesh. They desire that the Government should encourage other State Governments to launch similar projects in their respective States.

The Committee also note that the bio-diesel programme in the State of Andhra Pradesh has been integrated into the National Rural Employment Guarantee Programme(NREGP). They desire the Government to impress upon other State Governments to explore the possibility of integrating the

bio-diesel programme in their States with the NGREP as the same can take care of the constraint of funds required for the programme.

3.22 The Committee feel that the information about Bio-fuel technologies, improved seed varieties, oil production, usages, etc. should be made available to the public. However, they are unhappy to note that there is no proposal to set up an Information Centre for Bio-fuels in the Ministry of New & Renewable Energy. The Committee desire that booklets/brochures containing detailed information about Bio-fuels technologies, improved seed varieties, oil production, usages, etc. should be prepared at the earliest and made available free of cost to the public.

3.23 India has an estimated 2600-3300 BCM of Coal Bed Methane (CBM) resources. The Committee are concerned to note that the total CBM reserves in the awarded blocks are estimated to be 1400 BCM with the production potential of merely 38 MMSCMD which shows that maximum CBM resources still remain to be tapped. The Committee, therefore, desire that the number of blocks awarded under bidding rounds should be substantially increased. They urge the Government to make an earnest effort to award more number of blocks at one go, instead of awarding just 5/10 blocks in a round.

3.24 The Committee find that out of 13 CBM blocks awarded in the first two rounds and 3 blocks on nomination basis, ONGC was awarded 9 blocks, either exclusively or in consortium with other companies. However, in the third round of bidding in which 10 blocks were awarded ONGC could not be awarded a single block. Almost all the blocks have been awarded to private companies. The Committee desire the PSU companies, particularly ONGC, to make an in-depth analysis of the reasons for their failure to obtain CBM block and improve their performance in future.

3.25 The Committee have learnt from Press reports that the plans of ONGC to start production this year from its CBM block in Jharkhand have

suffered a delay of two years because of problems relating to land acquisition. The Committee would like to know the factual position in this regard. The Committee would also like to know the progress made in the production of CBM in the various CBM blocks awarded so far.

3.26 A number of plants using Shell Gasification Process are under execution in China. It appears that China has taken advantage of its vast coal reserves by taking timely action, while India has not been able to rise to the occasion in spite of having huge coal resources. The Committee have been informed that coal data from various sites in the States of Maharashtra, West Bengal, Jharkhand, Andhra Pradesh, Gujarat, Rajasthan and Tamil Nadu have been studied. On the basis of these studies, one site viz. Vastan Mine block in Surat, Gujarat has been found most suitable for Underground Coal Gasification (UCG) where further data generation for the design and execution of UCG pilot experimentation is in progress. The Committee have been informed that there are 5 other sites in West Bengal, Jharkhand, Andhra Pradesh, Gujarat and Rajasthan which can also have potential for setting up the plant. They desire that additional data from these sites may be gathered and gasification projects installed at different locations simultaneously.

3.27 GAIL had commissioned M/s Uhde India Ltd. to carry out a Detailed Feasibility Report on coal gasification project in Eastern India based on Shell Coal Gasification process. The said DFR has been completed. The Committee have been informed that the plant will generate 7.76 MMSCMD of synthesis gas. The Committee desire the GAIL to prepare a road map for execution of various activities relating to the project. The Committee would also like to know the likely date of commissioning of the project. They further recommend that similar projects in other coal bearing areas may be launched.

3.28 The Committee have been informed that GAIL is in the process of signing a License Agreement on Insitu Lignite Gasification Technology with M/s Exergy Technologies Inc., Canada. They have been further

informed that GAIL has signed an MOU with the Government of Rajasthan for joint evaluation of the Insitu Lignite Gas Project in Barmer, Rajasthan. The salient features of the agreement as well as the subsequent developments that have taken place may be conveyed to the Committee. The Committee further desire that the feasibility of setting up similar projects in other Lignite bearing areas may be considered.

3.29 The Committee note that CIL held a meeting with a South African company M/s Sasol for setting up of a Coal Gasification-cum-Liquefaction Plant in March 2006. The feasibility study for the project would cost 300 million US dollar which would be equally shared between M/s Sasol and CIL. In the opinion of the Committee, it would be a wise move to go in for such projects in our country considering our vast coal resources and ever-increasing energy demands. The Committee desire that oil sector PSUs like ONGC and OIL should take an active interest in the project and hold discussions with the authorities of M/s Sasol on the various issues relating to the project.

3.30 The National Gas Hydrate programme was initially started in 1997 by the Ministry of Petroleum and Natural Gas with participating agencies, viz. ONGC, GAIL, DGH, OIL, NGRI, NIO and DOD. The programme was conceived for exploration of gas hydrates in the Indian deep waters. The Committee have been informed that the R&D drilling/coring campaign carried out under the programme during May-August 2006 has established the presence of gas hydrates in a few deep water Indian offshore areas, i.e. K.G., Mahanadi basins and Andaman Sea and that presently scientific studies on the data collected are being carried out which are likely to be completed by the end of 2007. The Committee desire that the requisite scientific studies are completed within the stipulated time and the outcome of the studies intimated to them. They also desire that other offshore areas in the country should also be explored for gas hydrates. Besides, R&D activities should be intensified in the direction of finding the appropriate

production technology for commercial exploitation of gas from gas hydrates.

3.31 The Ministry of New and Renewable Energy has informed that it has been supporting a broad based research, development and demonstration programme on different aspects of hydrogen and fuel cell technologies, including production, storage and utilisation of hydrogen as a fuel. The Committee have noted that the Ministry of Petroleum and Natural Gas has set up a Hydrogen Corpus Fund with a corpus of Rs. 100 crore for supporting research and development in various aspects of hydrogen. Besides, a roadmap has been set up by IOC(R&D) for the hydrogen research project, for hydrogen production, dispensing, storage application and its utilization in scooters, three-wheelers and buses. The Committee feel that clean fuels like hydrogen would greatly help in reducing carbon emissions. Therefore, they recommend that concerted efforts should be put into such research which would lead to development of path-breaking technologies in the field. The Committee further recommend that sincere efforts should be made to coordinate and bring together the agencies engaged in studying the various aspects of hydrogen which can lead to important breakthroughs. They also desire the Ministry of Petroleum and Natural Gas to be made the nodal Ministry for various aspects of hydrogen including coordination and monitoring of activities of the agencies involved. The Committee further recommend that the Government should keep a track of the developments made in other countries like USA, UK, Germany, Japan, etc. where several demonstration projects on hydrogen have been taken up. Besides, they also desire that as and when international standards and codes for hydrogen systems are developed, the national standards should be synchronised with the same.

3.32 The Committee have been informed that production of hydrogen based on renewable or nuclear energy, though suitable, is not cost-effective. However, its production through steam reforming of natural gas/naphtha is cost-effective. They have also been informed that IOC has set up a hydrogen-CNG dispensing station at its R&D Centre at Faridabad

and that trials are being conducted on a passenger car and three wheelers using upto 10% hydrogen blended in CNG without doing any engine modification. The Committee have also been informed that no operational problem has since been encountered during the trials, though there has been some power loss with hydrogen-CNG blends which can be compensated by modifications in the engine. The Committee desire the Government/IOC to conduct trials on other types of vehicles using 10% hydrogen-CNG blend. The Committee further desire that in the initial years, the Government should give incentives/subsidy on hydrogen for its use for the transportation purpose.

3.33 Solar energy is emerging as one of the new forms of energy. In the opinion of the Committee, large-scale use of solar energy can go a long way in meeting the rapidly increasing demand for energy. They, therefore, desire that the Government should consider setting up of an exclusive agency such as Solar Energy Commission/Authority on the lines of ISRO with a clearly defined mandate so that the programme can get the desired thrust. The Committee also desire that research and developmental activities in this area should be intensified to develop this vital source of sustainable and clean energy. For this purpose, specialized R&D centres in various States with the requisite infrastructure should be set up and adequate funds released to State Governments/educational institutions.

New Delhi;
11 September, 2007
20 Bhadrapada, 1929 (Saka)

N. JANARDHANA REDDY,
Chairman,
Standing Committee on
Petroleum & Natural Gas

MINUTES

**STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2006-07)**

**SECOND SITTING
(06.10.2006)**

The Committee sat on Friday, October 06, 2006 from 1100 hrs. to 1330 hrs. in Committee Room No. 139, Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS

Lok Sabha

- 2 Shri Kirip Chaliha
- 3 Dr. Tushar A. Chaudhary
- 4 Shri Lal Muni Choubey
- 5 Shri Ravinder Naik Dharavath
- 6 Dr. M. Jagannath
- 7 Shri Jai Prakash
- 8 Adv. Suresh Kurup
- 9 Shri Sukdeo Paswan
- 10 Shri Ramjilal Suman
- 11 Shri Ratilal Kalidas Varma
- 12 Shri A.K.S. Vijayan
- 13 Shri Ram Kripal Yadav

Rajya Sabha

- 14 Shri Rajeev Shukla
- 15 Shri Suresh Bhardwaj
- 16 Shri Ramdas Agarwal
- 17 Shri Amir Alam Khan
- 18 Shri Tapan Kumar Sen
- 19 Shri Subhash Prasad Yadav

Secretariat

1. Smt. Anita Jain - Deputy Secretary
2. Shri P.C. Tripathy - Under Secretary

List of Witnesses

Representatives of Ministry of Petroleum & Natural Gas

1. Shri M.S. Srinivasan - Secretary
2. Shri Anil Razdan - Additional Secretary
3. Shri Ajay Tyagi - Joint Secretary

Representatives of PSUs/Organisations

1. Shri V.K. Sibal - Director General, DGH
2. Shri R.K.Dua - Director, PCRA
3. Shri R.S.Sharma - CMD, ONGC
4. Shri S.P.Rao - CMD, GAIL
5. Shri M.B.Lal - CMD, HPCL
6. Shri M.R.Pasricha - MD, OIL
7. Shri S. Radhakrishnan - Director (Marketing), BPCL
8. Shri B.M.Bansal - Director (P&BD), IOCL

2. At the outset, the Hon'ble Chairman welcomed the Secretary of the Ministry of Petroleum & Natural Gas and other accompanying officials of the Ministry as well as PSUs/Organisations to the sitting of the Committee.

3. Thereafter, the Secretary made some introductory remarks on the subject under examination i.e. 'Strategy for Development of Alternative Sources of Oil and Gas' which was followed by a detailed visual presentation before the Committee. During the presentation, several important issues were highlighted which included different types of alternative energy sources and their share in the energy basket, need for alternative fuels, work allocation amongst different

Ministries in connection with development of these energy sources, initiatives taken by Ministry of Petroleum & Natural Gas in promoting alternative energy sources, Ethanol Blended Petrol Programme of the Ministry, Bio-diesel production, Jatropha plantation, exploration and production of Coal Bed Methane, Underground Coal Gasification as a potential means for commercial extraction of gas, Gas Hydrates and Hydrogen as alternative fuels.

4. Thereafter, the Members sought clarifications on a number of issues relating to the subject and the representatives responded to them.

5. The Committee decided to seek public opinion on the subject especially on Ethanol and Bio-diesel production, Jatropha plantation and matters relating thereto through a Press Communique.

6. Hon'ble Chairman also desired the Hon'ble Members of the Committee to give their considered views/suggestions in writing on issues relating to Ethanol Blended Petrol Programme of the Ministry, Bio-diesel/Jatropha plantation and other related matters so as to have a comprehensive picture on the subject.

7. *** *** *** *** *** ***

8. A verbatim record of the proceedings of the sitting has been kept.

The Committee then adjourned.

****Matter not related to this Report.**

MINUTES

**STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2006-07)**

FOURTH SITTING

(20.11.2006)

The Committee sat on Monday, November 20, 2006 from 1500 hrs. to 1730 hrs. in Committee Room 'E', Basement, Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS

Lok Sabha

- 2 Shri M.Appadurai
- 3 Shri Ramesh Bais
- 4 Shri Kirip Chaliha
- 5 Shri Lal Muni Choubey
- 6 Shri Jai Prakash (Hissar)
- 7 Adv. Suresh Kurup
- 8 Shri P. Mohan
- 9 Shri Ratilal Kalidas Varma

Rajya Sabha

- 10 Ms. Mabel Rebello
- 11 Shri Rajeev Shukla
- 12 Shri Amir Alam Khan
- 13 Shri Tapan Kumar Sen
- 14 Shri C. Perumal
- 15 Shri Subhash Prasad Yadav
- 16 Shri Satish Chandra Misra

Secretariat

1. Shri S.K.Sharma - Additional Secretary
2. Smt. Anita Jain - Deputy Secretary
3. Shri P.C. Tripathy - Under Secretary

List of Witnesses/Experts

1. Shri N. Raghuveera Reddy- Minister for Agriculture, Andhra Pradesh (Expert)
2. Shri V.N.Nandapurkar - General Manager, Garware Chemicals (Witness)
3. Shri Anil Kumar Reddy - Managing Director, Roshini Biotech (Witness)

2. At the outset, the Hon'ble Chairman welcomed the witnesses to the sitting of the Committee.

3. Thereafter, the non-official witness (Shri V.N. Nandapurkar, General Manager, Garware Chemicals) gave a power-point presentation on Bio-diesel highlighting various points such as initiatives taken by the company for promotion of Bio-diesel, company's accomplishments in the field, production of Bio-diesel from multiple feedstock, benefits of Bio-diesel promotion like employment potential, reduction of pollution, savings in foreign exchange, productive use of arid/wasteland, etc. The Members sought certain clarifications/information on the subject which were responded to by the witness.

4. Thereafter, Shri Anil Kumar Reddy, Managing Director, Roshini Bio-tech, Hyderabad gave a power-point presentation highlighting the various activities being carried out by the company for the promotion of bio-diesel in Andhra Pradesh. The major points highlighted during the presentation included Pongamia-based Bio-Diesel Programme in Andhra Pradesh, role of SBI as a partner in the programme, action plan of the firm including generation of awareness among farmers in rural targeted areas, identification of

farmers/beneficiaries, training of identified farmers on Pongamia agro-technology, etc.

5. The Committee, then, heard the views of Shri N. Raghuvveera Reddy, Minister for Agriculture, Andhra Pradesh on the various initiatives taken by the Government of Andhra Pradesh to promote bio-diesel in the State. The Members raised some queries relating to the subject which were replied to by him. The Committee also sought a note from Shri N. Raghuvveera Reddy on the scheme launched in Andhra Pradesh for promotion of Bio-diesel.

6. *** *** *** *** *** ***

7. A verbatim record of the proceedings of the sitting has been kept.

The Committee then adjourned.

****Matter not related to this Report.**

MINUTES

**STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2006-07)**

**FIFTH SITTING
(12.12.2006)**

The Committee sat on Tuesday, December 12, 2006 from 1500 hrs. to 1700 hrs. in Committee Room 'C', Ground Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS

Lok Sabha

- 2 Shri M.Appadurai
- 3 Shri Kirip Chaliha
- 4 Dr. Tushar A. Chaudhary
- 5 Dr. M. Jagannath
- 6 Shri Jai Prakash (Hissar)
- 7 Adv. Suresh Kurup
- 8 Shri Nakul Das Rai
- 9 Shri Lakshman Singh
- 10 Shri Ramjilal Suman
- 11 Shri Ratilal Kalidas Varma
- 12 Shri A.K.S. Vijayan
- 13 Shri Ram Kripal Yadav

Rajya Sabha

- 14 Ms. Mabel Rebello
- 15 Shri Satish Chandra Misra

Secretariat

- 1 Smt. Anita Jain - Deputy Secretary
- 2 Shri P.C. Tripathy - Under Secretary

List of Witnesses

1. Prof. K.V.Rao - Co-Chief Project Coordinator, Institute of Development and Planning Studies, Visakhapatnam
- . Shri Rajiv Gulati - Vice President (Northern Region), Biodiesel Association of India
3. Shri V.K.Jain - Treasurer, Biodiesel Association of India

2. At the outset, the Hon'ble Chairman welcomed the Members to the sitting of the Committee.

3. Thereafter, the Hon'ble Chairman invited the non-official witness, Prof. K.V.Rao, Co-Chief Project Coordinator, Institute of Development and Planning Studies, Visakhapatnam, Andhra Pradesh to give his views on the subject 'Strategy for Development of Alternative Sources of Oil and Gas'.

4. The non-official witness presented his views on various issues especially relating to biodiesel such as importance of bio-diesel in the present-day context, wide acceptance of this fuel by diesel vehicle manufacturers, different feedstocks for producing bio-diesel and studies being conducted at Andhra University in this regard, road map for large scale production of bio-diesel in the country, production of bio-diesel and ethanol in other countries, etc. The Members sought certain clarifications/information on the subject which were responded to by the witness.

5. The witness, then, withdrew.

6. Thereafter, the representatives of Biodiesel Association of India (Shri Rajiv Gulati, Vice President and Shri V.K.Jain, Treasurer) were called in whom the Chairman welcomed. The representatives of the Association gave their views/suggestions regarding promotion of bio-diesel in the country.

7. *** *** *** *** *** ***

8. A verbatim record of the proceedings of the sitting has been kept.

The Committee then adjourned.

****Matter not related to this Report.**

MINUTES

**STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2006-07)**

**TENTH SITTING
(04.06.2007)**

The Committee sat on Monday, June 04, 2007 from 1530 hrs. to 1700 hrs.
in Committee Room 'E', Basement, Parliament House Annexe, New Delhi.

PRESENT

Shri Tapan Kumar Sen - In the Chair

MEMBERS

Lok Sabha

- 2 Shri M.Appadurai
- 3 Shri Ramesh Bais
- 4 Shri Kirip Chaliha
- 5 Shri Lal Muni Choubey
- 6 Shri Ravinder Naik Dharavath
- 7 Adv. Suresh Kurup
- 8 Shri Sudam Marandi
- 9 Shri P. Mohan
- 10 Shri Sukdeo Paswan
- 11 Shri Ramjilal Suman
- 12 Shri Ratilal Kalidas Varma
- 13 Shri Ram Kripal Yadav

Rajya Sabha

- 14 Shri C. Perumal
- 15 Shri Subhash Prasad Yadav

Secretariat

- | | | | |
|---|--------------------|---|------------------|
| 1 | Smt. Anita Jain | - | Director |
| 2 | Shri P.C. Tripathy | - | Deputy Secretary |

List of Witnesses

- | | | | |
|---|--------------------------|---|--|
| 1 | Shri Dr. J.M.Sehgal | - | Former Chief of Technical Division, Indian Drugs & Pharmaceuticals Ltd |
| 2 | Shri Ashok
Badhwar | - | President (Federation of All India Petroleum Traders) |
| 3 | Shri Ajay Bansal | - | Secretary (Federation of All India Petroleum Traders) |
| 4 | Shri Pashupathi
Matta | - | Press Secretary (Federation of All India Petroleum Traders) |
| 5 | Shri T.S.Anand | - | General Secretary (Delhi Petrol Dealers Association) |
| 6 | Shri Baldev Sethi | - | Member (Federation of All India Petroleum Traders) |

2. In the absence of the Chairman, the Committee chose Shri Tapan Kumar Sen, M.P. to act as Chairman of the Committee under Rule 258(3) of the Rules of Procedure and Conduct of Business in Lok Sabha. The acting Chairman then welcomed the non-official witness, Dr. J.M.Sehgal, Former Chief of Technical Division, Indian Drugs & Pharmaceuticals Ltd. (IDPL), New Delhi to the sitting of the Committee.

3. Thereafter, the non-official witness presented his views on various issues relating to alternative sources of oil and gas in India viz. blending of ethanol in petrol, promotion of bio-diesel programme, conversion of coal to synthetic oil, large-scale use of ethanol in Brazil, import of ethanol, etc. The Members sought certain clarifications/information on the subject which were responded to by the witness.

4. The witness, then, withdrew.

5. Thereafter, the representatives of Federation of All India Petroleum Traders/ Delhi Petrol Dealers Association were called in and welcomed by the acting Chairman. The representatives of the federation/association gave their views/suggestions on ethanol-blended petrol. The points raised by the Association included improper blending of ethanol in petrol, rapid rusting of pipelines and underground tanks used for storage of Ethanol Blended Petrol, installation of separate dispensing pumps at retail outlets for EBP, making the purchase of EBP optional, differential pricing for EBP and conventional petrol, problems associated with pumping out of water from EBP, use of EBP in new generation/costly cars, production of bio-diesel from plastic wastes, etc. The Members raised some queries relating to the subject, which were replied to by the representatives.

6. A copy of the verbatim proceedings of the sitting has been kept.

The Committee then adjourned to meet again on 11.6.2007.

MINUTES

**STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2006-07)**

ELEVENTH SITTING

(11.06.2007)

The Committee sat on Monday, June 11, 2007 from 1530 hrs. to 1700 hrs. in Committee Room 'D', Ground Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS

Lok Sabha

- 2 Shri M.Appadurai
- 3 Shri Kirip Chaliha
- 4 Shri Lal Muni Choubey
- 5 Dr. M. Jagannath
- 6 Shri Jai Prakash (Hissar)
- 7 Adv. Suresh Kurup
- 8 Shri Nakul Das Rai
- 9 Shri Lakshman Singh
- 10 Shri Ramjilal Suman
- 11 Shri Ratilal Kalidas Varma
- 12 Shri Ram Kripal Yadav

Rajya Sabha

- 13 Ms. Mabel Rebello
- 14 Shri Tapan Kumar Sen
- 15 Shri C. Perumal
- 16 Shri Subhash Prasad Yadav

Secretariat

- | | | | |
|---|--------------------|---|----------------------|
| 1 | Shri S.K.Sharma | - | Additional Secretary |
| 2 | Shri P.K.Misra | - | Joint Secretary |
| 3 | Smt. Anita Jain | - | Director |
| 4 | Shri P.C. Tripathy | - | Deputy Secretary |

Representatives of the Ministry of Petroleum & Natural Gas

- | | | | |
|----|---------------------|---|----------------------|
| 1. | Shri M.S.Srinivasan | - | Secretary |
| 2. | Shri S.Sundareshan | - | Additional Secretary |
| 3. | Shri Prabh Das | - | Joint Secretary |
| 4. | Shri A.K.Jain | - | Joint Secretary |

Representatives of Public Sector Undertakings and other organisations

- | | | | |
|----|-----------------------|---|-----------------------|
| 1. | Dr. U.D.Choubey | - | C&MD, GAIL |
| 2. | Shri M.R.Pasrija | - | C&MD, OIL |
| 3. | Shri R.S.Sharma | - | C&MD, ONGC |
| 4. | Shri V.K.Sibal | - | Director General, DGH |
| 5. | Shri B.Mohanty | - | Director, PPAC |
| 6. | Shri S. Radhakrishnan | - | Director, BPCL |
| 7. | Shri B.M.Bansal | - | Director, IOCL |
| 8. | Shir S.Roy Choudhary | - | Director, HPCL |
| 9. | Shri Ravi Capoor | - | ED, PCRA |

2. At the outset, the Chairman welcomed the Secretary of the Ministry of Petroleum and Natural Gas and accompanying officials to the sitting of the Committee. The representatives of the Ministry, then, gave a power-point presentation highlighting various issues relating to the subject 'Strategy for Development of Alternative Sources of Oil and Gas'.

3. Thereafter, the Committee took oral evidence of the representatives of the Ministry and Public Sector Undertakings on the said subject. During the course of evidence, the main issues which came up for discussion included action taken to enhance hydrocarbons security and initiatives taken to promote alternative fuels like ethanol blended petrol, bio-diesel, coal gasification, coal bed methane, coal liquefaction, hydrogen, etc. The Members sought certain clarifications/information on the subject, which were responded to by the witnesses.

4. The witnesses, then, withdrew.

5. *** *** *** *** *** ***

6. *** *** *** *** *** ***

7. *** *** *** *** *** ***

8. A verbatim record of the proceedings of the sitting has been kept.

The Committee then adjourned.

****Matter not related to this Report.**

MINUTES

**STANDING COMMITTEE ON PETROLEUM & NATURAL GAS
(2007-08)**

**SECOND SITTING
(10.09.2007)**

The Committee sat on Monday, September 10, 2007 from 1530 hrs. to 1600 hrs. in Committee Room 'B', Parliament House Annexe, New Delhi.

PRESENT

Shri N. Janardhana Reddy - Chairman

MEMBERS

Lok Sabha

- 2 Shri M.Appadurai
- 3 Shri Kirip Chaliha
- 4 Dr. Tushar A. Chaudhary
- 5 Shri Lal Muni Choubey
- 6 Dr. M. Jagannath
- 7 Shri Jai Prakash
- 8 Shri P Mohan
- 9 Shri Sukdeo Paswan
- 10 Shri Nakul Das Rai
- 11 Shri Ramjilal Suman
- 12 Shri Ratilal Kalidas Varma
- 13 Shri Ram Kripal Yadav

Rajya Sabha

- 14 Shri Suresh Bhardwaj
- 15 Shri C. Perumal

Secretariat

- 1 Shri N.K.Sapra - Joint Secretary
- 2 Smt. Anita Jain - Director
- 3 Shri P.C. Tripathy - Deputy Secretary

4. Shri Ram Kishan - Under Secretary

2. At the outset, the Chairman welcomed the Members to the sitting of the Committee.

3. The Committee, then, took up the following draft Reports for consideration and adopted the same without any modifications.

(i) *** *** *** *** ***

(ii) Seventeenth Report on 'Strategy for Development of Alternative Sources of Oil and Gas' of the Standing Committee on Petroleum and Natural Gas

4. The Committee authorised the Chairman to finalise the Reports and make consequential changes, if any, arising out of the factual verification of the Reports by the Ministry and present the same to Hon'ble Speaker/both Houses of Parliament.

The Committee then adjourned.

****Matter not related to this Report.**

ANNEXURE VII

DETAILS OF MAJOR ORGANISATIONS/INDIVIDUALS WHICH SUBMITTED MEMORANDA ON THE SUBJECT.

Sl.No.	Name
Associations/Organisations	
1.	Roshini Biotech Pvt. Ltd.
2.	Green Group Bio Organic Society
3.	Dakshin-Durgapur Rural Development Society
4.	Manipuri Women Development Association.
5.	Indian Sugar Mills Association
6.	Indian Chemical Council
7.	Society of Indian Automobile Manufacturers
8.	Biodiesel Association of India
9.	Karnataka State Road Transport Corporation
10.	Applied Environmental Research Foundation
11.	Jai Devi Siksha Prasar Samiti
12.	Karnataka Bio-Diesel Associate Group
13.	Agro & Food Machine (India) Pvt Ltd.
14.	Chhatisgarh Bio Fuel Plantations
15.	Bharat Bio Fuels Growers and Manufacturers Association
16.	Senior Citizen's Welfare Forum
17.	Grammya Yuva Jagrata Samittee
18.	Mits Biodiesel Project:
19.	U.P.Petroleum Traders Association
20.	Vikram Group of Agro Fuels

21. Bharatiya Cattle Resource Development Foundation
22. IKF Technologies Limited
23. Banari Amman Sugars Limited
24. PNG-Social Welfare Society
25. Om Sai Biotech
26. Samagra Vikas

Individuals/Experts

1. Shri P S Chopra
2. Shri C.Selva Raj
3. Km. Amrita Sinha
4. Shri. Pankaj Sharma
5. Shri. Vijay Narayan Parate
6. Shri S P K Gupta
7. Shri. Radha Krishna Rao Barji
8. Dr. Sant S. Garg
9. Shri Pradip Parmar
10. Shri.R K Sachdev
11. Prof. M. Periasamy,
12. Shri.D.V.Venkateswara Dev
13. Shri.Avneet Soni
14. Shri.K.M. Balaji
15. Shri.Dutt A.N.K.
16. Shri.V Krishnan
17. Dr. A.P. Sexena
18. Shri.Tushar Manohar Takzure
19. Prof. KV. Rao

20. Shri.Hirendra Chandra Chakrabarti
21. Shri. S.P. Kundu
22. Shri.S.Jerome Lawrance
23. Shri.Ethanol Sridhar
24. Shri Rakesh Khanna
25. Shri John Babu
26. Shri A Chilamburaj
27. Smt. Ambrapali Pandiya
28. Shri Rameshwar Lal Bhatia
29. Shri Raju Chutani
30. Shri Amrit Deorah
31. Shri Nitish Kumar Pathak
32. Prof. Dr. S. Basu
33. Shri Subhajit Kundan
34. Shri R.Ramanathan
35. Shri Prabhakar Manmohan Ramteke
36. Shri Goma Maruti
37. Dr. N.K. Maladkar
38. Shri Rajiv
39. Shri S.S.Kaimal
40. Shri K.A.Doraisamy,
41. Dr. Dinesh Kumar Sharma
42. Shri Pradip Kushwaha
43. Shri K. Swaminathan,
44. Shri Chudamani Ratnam
45. Smt. Rita Sharma

46. Shri Eshu
47. Shri Ashok Dubey
48. Dr. J.M. Sehgal
49. Shri Yogesh Sharma
50. Shri A. Anandam
51. Shri A. Jhon Vargheese
52. Shri Jai Singh
53. Shri Sushil Sharma
54. Shri S.P. Sharma
55. Shri Ramkrishna Y B