

EIGHTH REPORT
STANDING COMMITTEE ON ENERGY
(1994-95)

(TENTH LOK SABHA)

MINISTRY OF NON-CONVENTIONAL
ENERGY SOURCES

— DEMANDS FOR GRANTS (1994-95)

Presented to Lok Sabha on 19th April, 1994

Laid in Rajya Sabha on 19th April, 1994



LOK SABHA SECRETARIAT
NEW DELHI

April, 1994/Chaitra, 1916 (Saka)

C.E. No. 0012

Price : Rs. 5.00

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Published under Rule 382 of the Rules of Procedure and Conduct of Business in Lok Sabha (Seventh Edition) and Printed by the Akashdeep Printers, 20 Ansari Road, New Delhi-110 002.

CONTENTS

PAGE

COMPOSITION OF THE COMMITTEE	(iii)
INTRODUCTION	(v)
CHAPTER I Introductory	1
CHAPTER II Analysis of Demands for Grants (1994-95) of the Ministry of Non-Conventional Energy Sources	2

APPENDICES

I. Demands for Grants of the Ministry of Non-Conventional Energy Sources	8
II. Replies to the points contained in the Committee's Report furnished by the Ministry of Non-Conventional Energy Sources	14
III. Replies to the points raised by the Committee during the discussion held with the representatives of Ministry of Non-Conventional Energy Sources on 4.4.1994	21
IV. Composition of the Standing Committee on Energy of 1993-94	29
V. Minutes of the Ninth Sitting of the Standing Committee on Energy held on 4th April, 1994	31

COMPOSITION OF THE STANDING COMMITTEE ON ENERGY
(1994-95)

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Shri Jaswant Singh

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SECRETARIAT

1. Shri G.L. Batra — *Additional Secretary*
2. Shri G.R. Juneja — *Deputy Secretary*
3. Shri A.L. Martin — *Assistant Director*

INTRODUCTION

1. The Chairman of the Standing Committee on Energy (1994-95) having been authorised by the Committee to present the Report on their behalf, present this Eighth Report on the Demands for Grants (1994-95) relating to the Ministry of Non-Conventional Energy Sources.

2. The Standing Committee on Energy 1993-94 had considered and adopted the Report at their sitting held on 4th April, 1994 and also held discussion with the officials of the Ministry of Non-Conventional Energy Sources on the same day. This Committee's term having ended on 7 April, 1994, it was reappointed on 8th April, 1994.

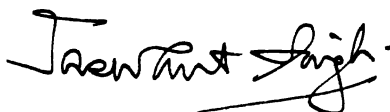
3. The Committee 1994-95 at their first sitting held on 18th April, 1994 authorised the Chairman to finalise the report adopted by the previous committee and present them to Parliament.

4. The replies furnished by the Ministry of Non-Conventional Energy Sources on the points contained in this Report and also on the points raised by the Committee during their discussion with the representatives of the Ministry of Non-Conventional Energy Sources on 4th April, 1994 have been appended to the Report.

5. A copy of verbatim proceedings of the discussion held by the Committee with the officials of the Ministry of Non-Conventional Energy Sources on 4th April, 1994 is also laid in the House along with the Report.

6. The Committee wish to thank the representatives of the Ministry of Non-Conventional Energy Sources who appeared before the Committee and placed their considered views. They also wish to thank the Ministry for furnishing the replies on the points raised by the Committee.

7. The Committee would also like to place on record their appreciation of the work done by the retiring members of the Committee 1993-94. The composition of the Committee of 1993-94 is given in Appendix IV.



JASWANT SINGH,

Chairman,

Standing Committee on Energy.

(1994-95)

NEW DELHI ;

April 18, 1994

Chaitra 28, 1916 (Saka)

CHAPTER I

INTRODUCTORY

1. The Ministry of Non-Conventional Energy Sources has been restructured in July, 1993 on the basis of end-use application of technologies. In this rearrangement there is now a horizontal integration of various technologies to serve different energy needs thereby attempting to better achieve the objectives of the Ministry. The major programmes of the Ministry have now been brought under five groups as under:-

- 1. Rural Energy Group I**
- 2. Rural Energy Group II**
- 3. Power Group**
- 4. Urban & Industrial Group**
- 5. New Technology Group**

2. The Ministry has now focussed its attention towards market orientation and commercialisation of New and Renewable Sources of energy technologies.

3. The observations of the Committee on the basis of scrutiny of the Demands for Grants of the Ministry for the year 1994-95 are brought out in succeeding chapters.

CHAPTER II

ANALYSIS OF DEMANDS FOR GRANTS OF THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES (1994-95)

4. The Ministry of Non-Conventional Energy Sources have presented Demands for Grants of Rs. 226.38 crores for the year 1994-95 as against Rs. 126.56 crores (actual) in 1992-93 and Rs. 204.27 crores (R.E.) in 1993-94. The details regarding the Demands for Grants are shown in Appendix-I.

5. The Plan outlay of the Ministry for 1994-95 is Rs. 225 crores. The major portion of this outlay is for Biogas programme. According to the Expenditure Budget 1994-95 of Govt. of India (Vol. I—P. 32), during 1994-95, it is proposed to instal 2.00 lakh biogas plants and 26.00 lakh Improved Choolahs, 55000 Meter collector area of solar thermal energy systems, 50,000 solar cookers, 1000 solar photovoltaic pumping systems for irrigation, water pumping systems and other NRSE systems & devices. It is proposed to take up 200 MW of power generation through renewable energy sources.

Biogas Plants

6. The targets and achievements in regard to setting up of biogas plants during 1992-93, 1993-94 and 1994-95 are given below:

	Target (lakh plants)	Achievement	Budgetary outlay (Rs. in crores)
1992-93 (Actual)	1.35	1.88	56.87
1993-94 (Target)	1.75	0.89 (upto Dec. 93)	65.20
1994-95 (Target)	1.75	—	63.70

7. It has been claimed in the Ministry's performance budget that the upward revision in target for 1993-94 has been brought about without any increase in the financial outlay by reducing/rationalising subsidies being paid for installations of biogas plants and other provisions of the programme.

8. Contrary to the Ministry's claim, the Committee find that the number of biogas plants sought to be installed in 1993-94 and 1994-95 is significant-

ly less and the budgetary outlay considerably higher as compared to the year 1992-93. During 1992-93, 1.88 lakh plants were installed with an outlay of Rs. 56.87 crores. During 1993-94 and 1994-95, the number of plants proposed to be set up is only 1.75 lakh in each year and outlay involved is Rs. 65.2 crores and Rs. 63.7 crores respectively. The Committee will await a clarification from the Ministry in this regard.

9. The Committee also note that with regard to setting up of biogas plants during the year 1994-95 while the Expenditure Budget of the Govt. indicates a target of 2 lakh, the performance budget of the Ministry shows a lesser figure of 1.75 lakh. The Committee would like the Ministry to indicate the exact target envisaged for the year 1994-95.

Community, Institutional and Night soil based biogas plants (CBP/IBP/NBP)

10. The details regarding the number of CBP/IBP/NBP Plants set up/proposed to be set up and the budgetary outlay involved are as under:

	No. of Plants set up/proposed	(Rs. in lakhs) Expenditure outlay
1992-93 (Actual)	189	88
1993-94 (Target)	50	50
1994-95 (Target)	200	300

11. It can be observed from the above, that the average cost of CBP/IBP/NBP plants proposed to be set up in 1994-95 has registered an increase of over 200% as compared to the cost in 1992-93. The average cost of a plant in 1992-93 works out to just Rs. 0.46 lakh whereas in 1994-95 the cost would be Rs. 1.5 lakh. Even granting allowances for price inflation and plant size variations the Committee feel that the cost increase of these plants sought to be installed at the expense of the Govt. in unaccountably higher. The Committee expect that the Ministry will look into this aspect and explain satisfactorily the price differential.

Biomass gasifiers

12. The Committee are concerned to note that the Ministry is demanding grant of two different amounts under two different sub-heads for the

same item of expenditure. This may be observed from the following which is a reproduction of sub-heads of the Demands for Grants of the Ministry appearing at page 4:—

(In thousands of rupees)

B.1(4)(3)(1)(1)—Biomass Gasifiers for Stand-alone applications	1,30,00
B.(1)(4)(3)(2)(1)—Biomass Gasifiers for stand-alone applications	1,78,00

13. The same position is reflected in the Ministry's performance Budget as well. The Committee will await an explanation from the Ministry in this regard.

Biomass

14. It has been stated in the Performance Budget of the Ministry (page 32) that to undertake R&D programme as Biomass production, Conversion and utilisation the budget allocation of Rs. 2.75 crores has been made for the year 1994-95. Demands for Grants of the Ministry, however, do not show this figure. The Committee hope that the Ministry will clarify the position.

Solar Photovoltaic (SPV) Programme

15. The budgetary provisions for some of the items of SPV programme during 1993-94 and 1994-95 are as under:

(Rs. in lakh)

S.P.V. programme	1993-94	1994-95
	B.E.	B.E.
Research & Development	150	100
P.V. Test facility	50	35
Training, Repair and Maintenance	100	40

16. It can be observed from above that there is steep reduction in budgetary provisions of 1994-95 for R&D, P.V. Test facility, Research Centre, Training, Repair and Maintenance under SPV programme. The Committee would like to know the reasons for lower budgetary allocations for these items of expenditure particularly for R&D.

SPV Demonstration & Technology Utilisation

17. It is observed that in July, 1993, the SPV programme was given a market orientation and separate scheme i.e. market oriented scheme and socially oriented scheme were introduced. The socially oriented scheme envisages financial support to the state implementing agencies for 50% of the ex-works costs of SPV systems.

18. The targets and achievements in regard to SPV programmes in respect of the years 1992-93, 1993-94 and 1994-95 are given below:

	1992-93	1993-94		1994-95
	Actual	Target	Actual as on 31.12.93	Target*
Street lighting systems Nos.	788	400	1240	—
Domestic lighting	3043	1000	4376	500
Solar lantern (Nos.)	—	10,000	7624	10,000
SPV Power plant (KWp)	143.8	200	122	100
Other PV systems (Nos.)	—	300	—	**

* The targets are only with respect to socially oriented scheme.

** 1000 SPV water pumping systems are proposed to be deployed.

19. The Committee find though the budgetary provision under SPV programme for demonstration and technology utilisation for rural energy applications have been increased from Rs. 1000 lakh in 1993-94 to Rs. 1065 lakhs in 1994-95, the physical targets for the year 1994-95 have been halved as compared to the previous year in the case of domestic lighting system and SPV power plants also no target appears to have been set with respect to street lighting systems. The Committee expect that the Ministry will explain the position in this regard.

Small Hydro Power

20. The 8th Five Year Plan goal for the small hydro power programme is to produce 200 MW of power including private sector efforts. The targets and actuals during the first three years of the 8th plan are shown below:

	Target	Achievement (Mega Watt)
1992-93	4	1.665
1993-94	35	18
1994-95	25	(upto December 93)

21. The Committee is of the view that progress with regard to small hydro power is unsatisfactory. The capacity envisaged for 1994-95 is lower than the target of 35 MW fixed for the preceding year. If this trend continues, the Committee is not reassured that the target of 200 MW set for the 8th plan period would be achieved. The Committee expects that vigorous efforts will be made to accelerate the implementation of this programme.

Energy from Municipal Urban and Industrial Wastes

22. The result of research and development efforts initiated and supported by MNES upto now have shown promise to utilise Urban/Municipal and Industrial Waste for energy recovery through variety of technological/conversion routes. Some of the wastes viz. distillery effluents, paper industry wastes, textile industry waste and leather industry waste etc. have successfully come to pilot demonstration stage. With a view to exploiting the potential of these sources a separate division namely Urban/Municipal and Industrial waste has been created in the Ministry.

23. The Committee are, however, surprised to note that no budgetary allocation has been made for this programme during the year 1994-95. The Committee would like to know how it is proposed to implement this programme in the absence of any budgetary allocation.

Magneto Hydro Dynamics Programme

24. This programme is being implemented by BHEL jointly with MNES & BHEL funding, A number of test runs have been carried out in the MHD plant. According to the Ministry performance Budget (1993-94), the MHD Centre has done appreciable work on the use of high temperature Air Preheaters for Steel industries, development of combustion plasma furnaces.

25. The Committee note that as against the 8th plan outlay of Rs. 3 crores for Magneto Hydro Dynamics programme the allocation made during the first two years of the plan period adds up to only Rs. 1 crore and no budgetary provision has been made for this programme during the year 1994-95. The Committee would like to know whether the programme has yielded the desired results, if it has then why no provision has been made for this programme in the budget? Alternatively, it has not yielded any results then why is it being retained at all. Either way this is not a satisfactory situation.

Ocean Energy

26. The Committee observe that under the major head 2810 (4)(3)(6) Ocean Energy has been allocated a sum of Rs. 10 lakhs only. Against this

sum are mentioned the appraisal of the tidal project in the Kutch and undertaking of survey and investigation in the Sunderbans of the East and the Gulf of Cambay in the West. The Committee, however, observe that leave alone in the budgetary allocation, the Ministry have not even considered Ocean Thermal Power. The Committee would await an explanation of this omission from the Government. Simultaneously, the Committee would urge the government to undertake this aspect of Non-Conventional Energy as a potentially major contributor in the total energy resources available.

NEW DELHI ;
April 18, 1994

Chaitra 28, 1916 (Saka)



JASWANT SINGH,
Chairman,
Standing Committee on Energy.
(1994-95)

APPENDIX I

STATEMENT SHOWING THE DEMANDS FOR GRANTS OF THE MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES — 1994-95

(Rs. in crores)

Sl. No.	Major Head	Pro-grammes/ Schemes	1992-93		1993-94				1994-95		Remarks	
			Actuals		B.E.		R.E.		B.E.			
			Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan		
1	2	3	4	5	6	7	8	9	10	11	12	
1.	2810	(i) Bio-energy	58.81	—	65.86	—	65.86	—	66.83	—	—	The programme include National Projects on Bio-gas. Development construction of CBP & IBP and R & D in Bio-gas.
	BI											
	3601											
		(ii) Bio-mass	3.22	—	6.70	—	6.70	—	17.90	—	—	It includes R & D in Bio-mass, Energy plantation, Demonstration & Technology utilisation of Bio-mass Briquetting, National Animal Energy Programme, R&D, Demonstration and Technology Utilisation Activities, Bio-mass Gasifiers for stand alone applications, Energy

<p>from municipal wastes, Biomass Gasifiers for stand alone applications, National Bio-energy Board activities, Energy from industrial wastes, R & D in Biomass cogeneration, Demonstration & Technology, Utilisation of Biomass mass cogeneration Demonstration & Technology Utilisation of Grid connected Biomass-Gasifiers, other expenditure. Grants-in-aid to State Govt. Grants-in-aid to Union Territory.</p>	<p>11.05</p>	<p>—</p>	<p>16.82</p>	<p>—</p>	<p>16.82</p>	<p>—</p>	<p>15.63</p>	<p>— Grants-in-aid/Central Assistance, other expenditure. Grants-in-aid to State Govt. and Union Territory.</p>
<p>2. 2810 B.4 (i) Improved Chullah</p>	<p>11.05</p>	<p>—</p>	<p>16.82</p>	<p>—</p>	<p>16.82</p>	<p>—</p>	<p>15.63</p>	<p>— Grants-in-aid/Central Assistance, other expenditure. Grants-in-aid to State Govt. and Union Territory.</p>

	1	2	3	4	5	6	7	8	9	10	11	12
3. 2810 Solar Thermal B.2(1) 3601 C.2(3) & 360 2 Programme D.2(3)				5.75	—	14.98	—	14.98	—	15.06	—	R & D, Demonstration & Technology Utilisation of Solar Thermal Systems for Rural Applications, Demonstrations, Demonstration & Technology utilisation of Solar Thermal Systems for urban Applications, Demonstrations, Demonstration and Technology utilisation of Solar Passive Architecture Grants-in-aid to state and UTs. Other expenditure
4. 2810 (ii) Solar photovoltaic programme B.2 (2) 4810 AA.1 (3) & 6810 BB-2 (2)				11.41	—	44.00	—	44.00	—	44.35	—	This programme includes Demonstration & Technology utilisation for Rural Energy Applications, Demon-

sitation & Technology utilisation for Grid connected power, R & D, Amorphous Silicon Programme, P.V. Test Facility, Photovoltaic, other expenditure, Programme of SPV pumps. Training, Repair & Maintenance, Capital & other expenditure.

The Wind Energy Programme includes wind resource assessment R & D for wind power, R & D for wind pumps & other systems, Demonstration, Demonstration & Technology utilisation of wind power projects, Demonstration & Technology utilisation of wind pumps & other systems. Centre other expenditure. Grants-in-aid to

5. 2810 Wind Energy

B.3

3601

C.1 (2)

3602

D.I. (2)

11.05

16.93

16.93

15.68

	1	2	3	4	5	6	7	8	9	10	11	12
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	States and Union Territories.											
6.	2810	Small Hydro	7.17		18.00			18.00		24.00		
	B.4(3)(1)	Power										
	3601											
	C.1(1)	(1)										
7.	2810	Chemical	.38		.22			.22		.50		
	4(3)(2)	Sources of										
		Energy										
8.	2810	Hydrogen	.14		.45			.45		.45		
	4(b)(3)	Energy										
9.	2810	Alternative	.86		1.50			1.50		2.00		
	4(3)(4)	fuel for										
		Surface Transport										
10.	B.4(4)	Urjagram	.44		.25			.25		.25		
	(1)	Project & Surveys										

11. 2810	Ocean Energy	—	.10	—	.10	—	10	—	i) the appraisal of feasibility study for 900 kw Kutch, Tidal Project.
B.4(3)									ii) the taking up of surveys and investigations in the gulf of Cambay & Sunderbans area.
(5)(3)									To promote and develop technologies relating to New & Renewable Sources of Energy (NRSE) through soft term financial assistance.
12. 4810	IREDA	4.00	4.00	—	4.00	—	14.15	—	

APPENDIX II

REPLIES TO THE POINTS CONTAINED IN THE COMMITTEE'S REPORT FURNISHED BY THE MINISTRY OF NON- CONVENTIONAL ENERGY SOURCES

- Para. 8** Contrary to the Ministry's claim, the Committee find that the number of biogas plants sought to be installed in 1993-94 and 1994-95 is significantly less and the budgetary outlay considerably higher as compared to the year 1992-93. During 1992-93, 1.88 lakh plants were installed with an outlay of Rs. 56.87 crores. During 1993-94 and 1994-95, the number of plants proposed to be set up is only 1.75 lakh in each year and outlay involved is Rs. 65.2 crores and Rs. 63.7 crores respectively. The Committee will await a clarification from the Ministry in this regard.
- Ans. 8** During the year 1992-93 for an outlay of Rs. 57.20 crores, a target of only 1.35 biogas plants was fixed. This corresponds to per plant central financial assistance of about Rs. 4,200. The achievement for the year, however, has been 1.88 lakh plants which has resulted in accrual of liabilities to be settled during the subsequent years. During the year 1993-94, a target of 1.75 lakh biogas plants was fixed with a budgetary outlay of Rs. 65.2 crores. Physical target during 1993-94 was internally raised to 2.00 lakh by reducing and rationalising subsidies. Target for 1994-95 also has been fixed at 2.00 lakh. Thus, the central financial assistance on per plant basis for the years 1993-94 and 1994-95 works out to about Rs. 3,200.00 only.
- Para. 9** The Committee also note that with regard to setting up of biogas plants during the year 1994-95. While the Expenditure Budget of the Government indicates a target of 2 lakh, the performance budget of the Ministry shows a lesser figure of Rs. 1.75 lakh. The Committee would like the Ministry to indicate the exact target envisaged for the year 1994-95.
- Ans. 9** Since the budget allocation for National Project on Biogas Development for the year 1994-95 has remained at the same level as that of year 1993-94 and it has been decided to maintain the same level of central financial assistance during the year 1994-95, the target of 2 lakh biogas plants for the year 1994-95 has been fixed.
- Para. 11** It can be observed from the above, that the average cost of CBP/IBP/NBP plant proposed to be set up in 1994-95 has registered an increase of over 200% as compared to the cost in 1992-93. The

average cost of a plant in 1992-93 works out to just Rs. 0.46 lakh whereas in 1994-95 the cost would be Rs. 1.5 lakh. Even granting allowance for price inflation and plant size variations the Committee feel that the expenses of the Govt. is unaccountably higher. The Committee expect that the Ministry will look into this aspect and explain satisfactorily the price differential.

Ans. 11 The average central financial assistance under Community/Institutional/Night Soil Biogas Plants programme has to be calculated on the basis of annual plan allocation and the annual target. The variation mentioned are based on the figure of achievement reported during a particular year. The plan allocations and targets for the years 1992-93, 1993-94 and 1994-95 are as follows:—

			(Rs. in lakh)
Sl. No.	Year	Target	Allocation
1.	1992-93	50	50.00
2.	1993-94	50	50.00
3.	1994-95	200	300.00

It may be seen that average central financial assistance works out to Rs. 1.00 lakh in 1992-93 and 1993-94 whereas it is Rs. 1.50 lakh in 1994-95. The increase in 1994-95 is due to implementation of the new components of night soil based plants where we are meeting the full cost of gas generating system.

Para. 12 The Committee are concerned to note that the Ministry is demanding grant of two different amounts under two different sub-heads for the same item of expenditure. This may be observed from the following which is a reproduction of sub-heads of the Demands for Grants of the Ministry appearing at page 4:—

		(In thousands of rupees)
B.1(4)(3)(1)(1)—Biomass Gasifiers for stand alone applications		1,30,00
B.1(4)(3)(1)(1)—Biomass Gasifiers for stand alone applications		1,78,00

Para. 13 The same position is reflected in Ministry's Performance Budget as well. The Committee will await an explanation from the Ministry in this regard.

Ans. 12 & 13 The Demands for Grants for Biomass Gasifier Programme is under two Budget sub-heads as indicated below:—

(In thousands of rupees)

B.1(4)(3)(1)(1)—Biomass Gasifiers for stand alone applications	1,30,00
B.1(4)(3)(1)(1)—Biomass Gasifiers for stand alone applications	1,78,00

The first Budget sub-head *i.e.* B.1(4)(3)(1)(1) is for the ongoing/new R & D activities in the area of Biomass Gasifier whereas Budget sub-head B.1(4)(3)(2)(1) is for taking up the demonstration programme on commercially proven Biomass Gasifier technologies.

Para. 14 It has been stated in the Performance Budget of the Ministry (Page 32) that to undertake R & D programme as Biomass production, conversion and utilisation the budget allocation of Rs. 2.75 crores has been made for the year 1994-95. Demands for Grants of the Ministry however does not show this figure. The Committee hope that Ministry will clarify the position.

Ans. 14 The budget allocation of Rs. 2.75 crores for the R & D Programme of Biomass production, conversion and utilisation is shown in following budget sub-heads of the Demands for Grants:—

At Page No. 4 of Demands for Grants

(In thousands of Rupees)

B.1(4)	Bio-Energy—Biomass	
B.1(4)(1)	R & D	Rs. 1,75,00
B.1(4)(2)	Energy Plantation	Rs. 75,00
B.1(4)(2)(1)	Demonstration and Technology utilisation of Biomass utilisation	Rs. 20,00
At page No. 6 of Demands for Grants		
B.1(5)	Other Expenditure	Rs. 5,00
	Total	Rs. 2,75,00

Para. 16 It can be observed from above that there is steep reduction in budgetary provisions of 1994-95 for R&D, P.V. Test facility, Training, Repair and Maintenance under SPV Programme. The Commit-

tee would like to know the reasons for lower budgetary allocations for these items of expenditure particularly for R & D.

Ans. 16

a. The Ministry is giving a new orientation to its R & D efforts, by ensuring goal oriented developmental efforts, preferably with industrial linkages. New initiatives have to be taken during 1994-95, for which the proposed funds should be adequate.

b. The PV Test Facility is an on-going activity at the Solar Energy Centre. As the bulk of the infrastructural requirements have already been established at this facility, the proposed budgetary allocation should, therefore, be adequate for the year 1994-95.

c. Since under the new policy of the Socially Oriented Scheme, emphasis is on the supply of complete SPV system to individual beneficiaries/users, it is expected that the beneficiaries/State agencies will be themselves responsible for the maintenance of the SPV systems, supplied to them under this scheme, after the suppliers warranty periods are over.

Para. 19.

The Committee find though the budgetary provision under SPV programme for demonstration and technology utilisation for rural energy applications have been increased from Rs. 1000 lakh in 1993-94 to Rs. 1065 lakh in 1994-95, the physical targets for the year 1994-95 have been halved as compared to the previous year in the case of domestic lighting system and SPV power plants, also no target appears to have been set with respect to street lighting systems. The Committee expect that the Ministry will explain the position in this regard.

Ans. 19

Under the Socially Oriented Scheme, MNES releases only 50% of its estimated share to the State agencies while sanctioning the projects. The balance share of MNES is released after the distribution/commissioning of the SPV systems.

During 1993-94, the MNES enhanced the original targets for sanctioning SPV systems under this scheme. The initial and enhanced targets are given below.—

SPV System	Original Target (Nos.)	Enhanced Target (Nos.)
Street Lighting System	400	2,000
Domestic Lighting System	1,000	12,500
Portable Lanterns	10,000	30,000
Power Plants	100 Villages (200 KWp)	200 Villages (600 KWp)
Other Systems	300	500

It was envisaged that additional funds would be provided for sanctioning systems as per the above enhanced targets. However, no additional funds could be mobilised for this purpose. The MNES nevertheless sanctioned/gave clearance for a total of 1,289 street lighting systems; 12,495 domestic lighting systems; 30,450 portable solar lanterns; and 70 small village level, SPV power plants, with an aggregate 223 KWp SPV capacity. Majority of these systems were sanctioned during 3rd and 4th quarters of the year 1993-94 and are currently under implementation. The initial 50% of MNES share has already been released to the State Implementing Agencies for these systems, as per policy of the scheme. Keeping in view, the available budgetary provision of Rs. 1065 lakhs for the Demonstration programme for 1994-95 and the estimated liability of about Rs. 8.50 crores for the systems currently under implementation, the balance funds under the programme are considered adequate to cover initial 50% release of the MNES share for the proposed targets for 1994-95.

It is, therefore, expected that the physical achievements during 1994-95 will be much higher than the targets proposed for the year, on account of the SPV systems which were sanctioned during 1993-94 and are currently under implementation.

Para. 21 The Committee is of the view that progress with regard to small hydro power is unsatisfactory. The capacity envisaged for 1994-95 is lower than the target of 35 MW fixed for the preceding year. If this trend continues, the Committee is not reassured that the target of 200 MW set for the 8th Plan period would be achieved. The Committee expects that vigorous efforts will be made to accelerate the implementation of this programme.

Ans. 21 The 8th Plan target of 200 MW includes 100 MW under MNES subsidy scheme (upto 3 MW) and 100 MW through IREDA supported projects (upto 15 MW). The targets for sanctioning of projects and actual achievements are given below:—

	Target				Achievement		
	Sanctioning		Sanctioning		Commissioning		
	MNES	IREDA	MNES	IREDA	MNES	IREDA	Other
1992-93	—	—	21.75	13.00	—	1.00	11.02
1993-94	20.00	15.00	26.35	20.00	2.15	12.00	3.20
1994-95	25.00	35.00	N.A.	N.A.	N.A.	N.A.	N.A.

It will thus be seen that against the target of 200 MW for the 8th Plan, a total capacity of 81.1 MW has been sanctioned during the first two years of the Plan, and a total capacity of 29.37 MW has been commissioned.

During 1994-95, the sanctioning target of 25 MW is likely to be achieved by MNES, and projects of aggregate capacity of 20 MW under subsidy scheme are likely to be commissioned; in addition, about 20 MW capacity under IREDA/others is expected to be added.

According to reports received from various States, a capacity of about 93 MW had been installed upto March, 1992. This included 23 MW completed during the VII Plan and 6 MW during 1990-91 and 1991-92. Aggregate capacity of 29.37 MW has been added during the last two years, and the total installed capacity at the end of March, 1994 stands at about 122 MW (including a 12 MW project under IREDA).

The total capacity which is under implementation including projects under MNES subsidy, IREDA assistance and State Government projects exceeds 200 MW. The Ministry is making vigorous efforts to have the main bottlenecks and constraints removed by the State Governments to enable accelerated implementation and timely completion of the projects. The problems relate mainly to the institutional arrangements; inadequate State Plan allocations and diversion of funds; delay in land allotment, environment, forestry and statutory clearances. A data bank on the on-going projects as well as identified sites for new projects, is being maintained by the Ministry, and the implementation is being closely monitored. It is expected that the capacity of about 200 MW which was under implementation at the end of March, 1994 will get completed before the end of the 8th Plan period, assuming a gestation period of two to three years, and provided sufficient funds are made available under the Central and State Plans. The completion of projects sanctioned during the remaining three years of the Plan period may spill over to the 9th Plan.

The capacity envisaged to be sanctioned during 1994-95 is 60 MW, which includes 25 MW for MNES and 35 MW for IREDA. This is against a total of 35 MW envisaged for 1993-94.

Para. 22 The result of research and development efforts initiated and supported by MNES until now have shown promise to utilize Urban/Municipal and Industrial Waste for energy recovery through variety of technological/conversion routes. Some of the wastes viz. distillery effluents, paper industry wastes etc. have successfully come to pilot demonstration stage. With a view to exploiting the

potential of these sources a separate division namely Urban/Municipal and Industrial Waste has been created in the Ministry.

The Committee are however surprised to note that no budgetary allocation has been made for this programme during the year 1994-95. The Committee would like to know how it is proposed to implement this programme in the absence of any budgetary allocation.

Ans. 22 The Ministry has made a provision of Rs. 3.50 crores for the year 1994-95. This is reflected in the Demands for Grants as follows:—

	Page	Head	(In thousands of rupees)
Energy from Municipal Waste	4	B.1(4)(3)(1)(2)	125,00
National Bio-Energy Board Activities	5	B.1(4)(3)(2)(2)	92,00
Energy from Industrial Wastes	5	B.1(4)(3)(2)(3)	133,00
	Total		350,00

Para. 25 The Committee note that as against the 8th Plan outlay of Rs. 3 crores for Magneto Hydro Dynamics Programme the allocation made during the first two years of the plan period adds upto only Rs. 1 crore and no budgetary provision has been made for this programme during the year 1994-95. The Committee would like to know whether the programme has yielded the desired results, if it has then why no provision has been made for this programme in the budget? Alternatively, if it has not yielded any results then why is it being retained at all. Either way this is not a satisfactory situation.

Ans. 25 This R & D project was a collaborative effort between MNES, BHEL and BARC. The broad objectives of the Magneto Hydro Dynamics Programme to establish a pilot plant and to carry out experimentation have been completed. 17 Test Runs have been carried out on the plant and data have been collected. It is understood that the BHEL is carrying on the work relating to commercialisation of the main technology or the spin offs. BHEL has prepared a feasibility report for retrofitting the MHD plant to an existing thermal power station. The provisions made in the budget were to meet commitments in the project. No budget provision has been made for the year 1994-95 for this activity.

APPENDIX III

REPLIES TO THE POINTS RAISED BY THE COMMITTEE DURING THE DISCUSSION HELD WITH THE REPRESENTATIVES OF MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES ON THE 4TH APRIL 1994

The Ministry, after taking cognizance of the efforts made during the last 15 years in this field, felt that a stage had been reached where opening up the whole sector through a liberalized policy regime and bringing market forces into play would constitute a better strategy than what has been followed in the past by relying somewhat heavily on subsidies. It was also felt that direct cash subsidies needed to be replaced by a package of incentives and financing arrangements that would remove the constraints and deficiencies of the subsidy-based approach. Industry also felt that while subsidy played a useful role in the initial stages, its continuance would not allow markets to expand. Studies undertaken by TERI and the World Bank on opportunities for commercialization of renewable energy technologies revealed that a suitable policy environment and support for market mechanisms would lead to increased participation of private sector in the production and utilization of non-conventional energy devices. In the light of these, the Ministry of Non-conventional Energy Sources started to re-orient its programmes along the lines of marketable applications of renewable energy as against the technology-oriented development, demonstration and extension that characterized the earlier strategy.

A key element of the new strategy for commercialization is that budgetary resources allocated to the Ministry are to be deployed on priority projects to demonstrate the technical and economic viability and to leverage institutional finance through Indian Renewable Energy Development Agency (IREDA) and other financial institutions on a commercial basis. The opening up of the sector to greater competition is expected to improve the quality of equipments supplied by manufacturers and through market orientation, would lead to establishment of marketing outlets, service facilities and repair and maintenance infrastructure, including supply of spare parts.

Furthermore, market development strategy was aimed at accelerated development by inducting renewable energy technologies that are already developed and utilized elsewhere in the world rather than attempting to re-invent them in the country. This strategy is in line with our current approach in terms of economic liberalization and globalization. The opening up of this sector has also led to the mobilization of resources of the order of US \$ 200 million from international sources, such as the World Bank/GEF/UNDP etc.

Certain encouraging trends in favour of market orientation and commercialization have started to manifest themselves in the form of increased involvement of the private sector, direct foreign investment from NRIs and others in large-scale projects such as wind farms, mini-hydro and cogeneration etc. It

may be noted that market orientation is also giving rise to encouraging trends in the solar thermal and solar photovoltaic fields as is evidenced by the number of reputed new entrants into these fields.

II. Note on Financial resources required for non-conventional energy sector:

M.N.E.S. has put forward at the time of the 8th Plan formulation, a strong case for a much higher level of allocation for the non-conventional energy sector. MNES have also presented arguments that in a new and emerging area with enormous potential for long-term energy security, the normal incremental approach would not be appropriate for this sector. Attention of the planners has also been drawn to the fact that allocation for the non-conventional energy sector has been less than 1% of that for the whole energy sector.

Financial resources required for accelerated development of non-conventional energy sources were again assessed in the context of the preparation of the new strategy and action plan submitted by MNES in June, 1993. This strategy clearly lays down the priorities and the strategy for mobilization of resources. The key elements of the strategy are based on enhancement of the target from the originally envisaged target of 600 MW to 2000 MW during the remaining period of the 8th Five Year Plan. This target has been assessed to be achievable if efforts are focussed on the technologies which have already become commercially competitive. These are: wind power, small hydro power, bagasse cogeneration in the field of power generation and commercialization of solar water heating systems and solar photovoltaic lighting and pumping systems in industry and commercial establishments, rural areas as may be appropriate. The strategy also recognizes the need to universalize the applications of biogas and improved chulha and bring them also more and more into the ambit of market mechanisms.

For achieving the above stated plan for 2000 MW of power generation and expansion of other NRSE programmes it was considered expedient to propose a three-pronged strategy, namely to seek enhancement of budgetary resources by about Rs. 1500 crores, to mobilize institutional finance from IREDA and other financial institutions for private sector projects and to attract external assistance from World Bank/GEF and other donor agencies as well as direct foreign investment of the order of Rs. 4000 crores. It is also envisaged to mobilize Rs. 785 crores from State Plan. The total additional requirement of funds for implementing the New Strategy & Action Plan is about Rs. 6275 crores. For the power sector alone the additional requirement of funds comes out to be about Rs. 5200 crores. The details of physical targets/goals and financial requirements for the 8th Plan as envisaged in the New Strategy & Action Plan is given at Table I and II. For the year 1994-95 there is an additional requirement of about Rs. 200 crores over and above the recommended outlay of Rs. 225 crores for making a modest beginning in implementation of the new Action Plan.

TABLE I

STRATEGY AND ACTION PLAN: PHYSICAL TARGETS/GOALS AT A GLANCE

Sl. Programme No.	Physical Targets/Goals for the 8th Plan	
	As originally envisaged during 8th Plan	Revised Goals*
A. Power Generation		
1. Wind Power	100 MW @	500 MW
2. Small Hydro Power	200 MW @	600 MW
3. Solar photovoltaic	3 MW	25 MW
(a) Solar lanterns	4 lakh Nos.	
(b) Solar Photovoltaic Power Packs	400 Nos.	
4. Solar Thermal Power	—	30 MW
5. Biomass/Bioenergy	300 MW @	500-800 MW
(a) Biomass Gasification		50 MW
(b) Combustion & Cogeneration		150-300 MW
(c) Urban and Municipal wastes		100 MW
(d) Recycling of Industrial Wastes		150-300 MW
(e) Biomass Densification (Briquetting)		50 MW
	603 MW	1655-1955 MW (Total Power)
B. Process Heat and Cooking Energy		
6. Solar Thermal Systems	2.75 lakh sq.m.	11.00 lakh sq.m.
7. Biogas	7.50 lakh nos.	10 lakh nos. \$
8. Improved Chulha	100 lakh nos.	180 lakh nos. \$
9. Solar Cookers	3.0 lakh nos.	7.0 lakh nos.

@ Includes private sector.

* Subject to the mobilization of additional financial resources.

\$ Coverage of all potential beneficiaries in foreseeable future.

TABLE II

STRATEGY & ACTION PLAN: REQUIREMENT OF FUNDS FOR 8TH PLAN

(Rupees in Crores)

Sl. No.	Programme	Total funds required for envisaged goals	Funds in the 8th Plan @	Additional Requirement of Funds		Total
				IREDA/Requirement Pvt. Sector from External Financing	Budget Support	
A. Power Generation						
1.	Wind Power	1750	90	1400	260**	1660
2.	Small Hydro Power	2700	100	1650	950**	2600
3.	Solar Photovoltaic	600	90	—	510	510
4.	Solar Thermal Power	350	2*	215	133**	348
5.	Biomass Co-generation	600	8	485	107**	592
6.	Solar Thermal System (including Solar Cookers)	518	78*	251	189	440
7.	Biogas	388	320	—	68	68
8.	Improved Chulha	144	80	—	64	64
Total				4001	2281	6282
					785 (-)	
Net Additional requirement from the Central Plan					1496	(Say Rs. 1500 crores)

@ Provision for all the activities of respective programmes.

* Total provision for Solar Thermal Programme - Rs. 80 crores including Rs. 2 crores for Solar Thermal Power Plant.

** Including budget for State Sector.

NOTE ON APPROACH AND STRATEGY FOR R&D

The Ministry recently undertook a comprehensive review of the R&D programmes with a view to assess the effectiveness of the approach followed in the past and to formulate appropriate strategies in the light of the new orientation and reorganisation of the Ministry. The Committee appointed for this purpose has had consultations both within the Ministry and with outside experts and has finalized its report and its recommendations. The main observations of the Committee are that the R&D programmes of the Ministry pursued in the past were rather diffused and spread over a large number of small projects. A majority of them were unsolicited, open-ended projects which although have generated some scientific capability, lacked clearcut technical goals. Nevertheless, a few projects of applied nature have also been undertaken successfully with the involvement of industry and such projects ought to receive higher priority. The Committee has recommended that the Ministry's effort to strengthen R&D should be guided by a strategy which should by and large be industry-driven and goal-oriented. The Committee has also suggested that R&D priorities in each field should be derived from the objectives of respective programmes and should be directed towards specific tasks for achieving improvements in efficiency, cost reduction, enhancement of reliability etc. In order that technology transfer could take place in the most expeditious manner, the involvement of industry should be insisted upon from the very beginning in all applied research projects. The Committee has also stressed the need to increase the outlay on R&D but to focus on few well defined projects both from the short as well as long term point of view.

SUMMARY STATUS OF NATIONAL PROJECT ON BIOGAS DEVELOPMENT

S. No.	State/UTs/Agency	Cumulative Achievement till 31.3.93	% Coverage till 31.3.93 Potential	Annual Target	Achievement Upto Jan '94
1	2	3	4	5	6
1.	Andhra Pradesh	128219	12.0	19,000	13,057
2.	Arunachal Pradesh	89	1.2	20	8
3.	Assam	11744	3.8	1,000	228
4.	Bihar	74303	7.9	3,000	1,009
5.	Goa	2084	26.0	200	94
6.	Gujarat	190352	34.3	38,000	23,005
7.	Haryana	24172	8.0	2,000	1,001*
8.	Himachal Pradesh	31761	25.38	1,800	14,038
9.	Jammu & Kashmir	1016	0.8	100	4*
10.	Karnataka	100767	14.8	12,000	5,607
11.	Kerala	35959	23.8	2,400	801
12.	Madhya Pradesh	54224	3.6	12,500	8,075
13.	Maharashtra	509751	56.8	22,000	10,590*
14.	Manipur	682	1.7	150	86
15.	Meghalaya	329	1.4	100	*
16.	Mizoram	909	41.3	100	56*
17.	Nagaland	174	2.6	100	*
18.	Orissa	82578	13.6	12,000	6,770
19.	Punjab	21686	5.2	2,000	1,939
20.	Rajasthan	45708	5.0	4,000	2,985
21.	Sikkim	1028	14.0	100	157
22.	Tamil Nadu	155747	25.3	10,000	5,568
23.	Tripura	396	1.4	50	4
24.	Uttar Pradesh	224411	11.1	12,000	6,701
25.	West Bengal	63984	9.2	7,000	4,056
26.	Andaman & Nicobar	108	4.9	5	*

1	2	3	4	5	6
27.	Chandigarh	82	5.8	5	*
28.	Dadra & Nagar Haveli	154	7.7	5	2
29.	Daman & Diu	—	—	5	*
30.	Delhi	625	4.8	10	1
31.	Pondicherry	515	12.8	50	2*
Sub Total (1 to 31)		1763557	14.63	1,61,700	93,309
32.	KVIC	—	—	35,000	14,187
33.	NDDB	—	—	1,000	94
34.	Others AIWC, AKRS	—	—	2,300	652
Sub Total (b) (32 to 34)		—	—	38,300	14,933
Grand Total (a) + (b)		1763557	14.63	2,00,000	1,08,242

*Report Awaited.

NOTE ON OCEAN ENERGY CELL IN MNES

Seas and Oceans are the vast sources of renewable energy. The commercially exploitable sources of Ocean Energy includes Tidal energy, Ocean Thermal Energy Conversion and Wave Energy. A Potential of about 50,000 MW OTEC, 20,000 MW Wave Energy and 9,000 MW Tidal Energy has been estimated for power generation in India.

A Memorandum of Understanding for purchase of power from 100 MW OTEC Power Plant off Tamil Nadu coast has been signed between the Government of Tamil Nadu and M/s Sea Solar Power, USA. The entire expenditure on commissioning and operation of the plant will be met by M/s Sea Solar Power, USA. Another project proposal for 1 MW Floating Wave Power Vessel off Andaman & Nicobar coast has been received from M/s Sea Power AB, Sweden. The entire cost for commissioning and operation of the Plant will be met by M/s Sea Power AB, Sweden.

The subject of Tidal energy has been transferred to MNES from the Ministry of Power in December, 1993. MNES has supported the work on OTEC and Wave Energy at IIT, Madras and Calcutta Port Trust. It is also proposed to support the survey and investigation work on Wave Energy, Tidal Energy and OTEC in the Eastern and Western coasts. MNES is providing administrative support for various clearances/approvals from various Central Ministries/Departments for the above mentioned two project proposals under consideration.

Under the New Technology Division of the Ministry the Ocean Energy cell has been strengthened. A token provision of Rs. 10 lakhs has been made for the year 1994-95 for this activity. Additional budget support will be made available for the programme as and when there is a need with the growth of the activities.

APPENDIX IV

COMPOSITION OF THE STANDING COMMITTEE ON ENERGY OF 1993-94

CHAIRMAN

Shri Jaswant Singh

MEMBERS

Lok Sabha

2. Shri Bhawani Lal Verma
3. Shri Murli Deora
4. Shri Motilal Singh
5. Shri Khelsai Singh
6. Shri Khelan Ram Jangde
7. Shri Parasram Bhardwaj
8. Shri S. Thota Subba Rao
9. Shri Shiv Charan Mathur
10. Shri K.P. Reddaiah Yadav
11. Dr. Krupasindhu Bhoi
12. Shri Dalbir Singh
13. Shri Vilas Muttemwar
14. Shri P.C. Chacko
15. Shri Virender Singh
16. Shri Laxminarain Tripathi
17. Prof. Rita Verma
18. Shri Ram Tahal Choudhary
19. Shri Shanker Sinh Veghela
20. Shri Keshri Lal
21. Shri Rajesh Kumar
22. Shri Arjun Singh Yadav
23. Shri Ajit Singh
24. Shri Haradhan Roy

25. Shri Anil Basu
26. Shri Vijay Kumar Yadav
27. Dr. Venkateswara D. Rao
28. Shri Chitta Basu
29. Shri Mohan Singh (Ferozpur)
30. Shrimati Dil Kumari Bhandari

Rajya Sabha

31. Shri Parmeshwar Kumar Aggarwalla
- *32. Shri Sunil Basu Ray
33. Shri M.M. Hashim
- **34. Shri Manmohan Mathur
35. Shrimati Ila Panda
36. Shri J.S. Raju
- **37. Shri Dayanand Sahay
38. Shri Rajni Ranjan Sahu
39. Shri Viren J. Shah
40. Shri Matang Sing
- **41. Smt. Kamla Sinha
- ***42. Shri Yashwant Sinha
43. Dr. Naunihal Singh

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- * Ceased to be a Member of the Committee consequent on his retirement from Rajya Sabha w.e.f. 9.7.1993.
 - ** Ceased to be a member of the Committee consequent on his retirement from Rajya Sabha w.e.f. 2.4.1994.
 - *** Ceased to be a Member of the Committee consequent on his resignation from Rajya Sabha w.e.f. 14.11.1993.

APPENDIX V

MINUTES OF THE NINTH SITTING OF THE STANDING COMMITTEE ON ENERGY HELD ON 4TH APRIL, 1994

The Committee sat from 11.00 hrs. to 13.00 hrs.

PRESENT

Shri Jaswant Singh — *Chairman*

MEMBERS

2. Shri Bhawani Lal Verma
3. Shri Khelsai Singh
4. Shri Khelan Ram Jangde
5. Shri Parasram Bhardwaj
6. Shri S. Thota Subba Rao
7. Shri Shiv Charan Mathur
8. Shri K.P. Reddaiah Yadav
9. Shri P.C. Chacko
10. Shri Laxminarain Tripathi
11. Prof. Rita Verma
12. Shri Ram Tahal Choudhary
13. Shri Shanker Sinh Vaghela
14. Shri Keshari Lal
15. Shri Haradhan Roy
16. Shri Anil Basu
17. Shri Vijay Kumar Yadav
18. Dr. Venkateswara D. Rao
19. Shri Chitta Basu
20. Shri Parmeshwar Kumar Aggarwalla
21. Shri M.M. Hashim
22. Smt. Ila Panda
23. Shri J.S. Raju
24. Shri Rajni Ranjan Sahu

25. Shri Viren J. Shah
26. Shrimati Kamla Sinha
27. Dr. Naunihal Singh

SECRETARIAT

1. Shri G.R. Juneja — *Deputy Secretary*
2. Shri A.L. Martin — *Assistant Director*

2. The Committee took up for consideration the draft report on Demands for Grants (1994-95) of Ministry of Non-Conventional Energy Sources. The Committee, after brief discussion adopted the draft report with the addition of the following as the last paragraph No. 26 of the draft report:

“The Committee observe that under the major head 2810 (4) (3) (6) Ocean Energy has been allocated a sum of Rs. 10 lakhs only. Against this sum are mentioned the appraisal of the tidal project in the Kutch and undertaking of survey and investigation in the Sunderbans of the East and the Gulf of Cambay in the West. The Committee, however, observe that leave alone in the budgetary allocation, the Ministry have not even considered Ocean Thermal Power. The Committee would await an explanation of this omission from the Government. Simultaneously, the Committee would urge the government to undertake this aspect of Non-Conventional Energy as a potentially major contributor in the total energy resources available.”

The Committee also authorised the Chairman to finalise the report on the receipt of replies from the Ministry of Non-Conventional Energy Sources and present the same to Parliament.

3. The Committee thereafter held a detailed discussion with the representatives of the Ministry of Non-Conventional Energy Sources on the draft report on demands for grants (1994-95) of the Ministry. A list of representatives of the MNES who were present during the discussion is given in Annexure. A copy of the verbatim proceedings of the discussion is kept on record.

The Committee then adjourned.

**ANNEXURE TO THE MINUTES OF THE SITTING OF THE
COMMITTEE HELD ON 4TH APRIL 1994**

List of representatives of Ministry of Non-conventional Energy Sources

1. Shri L.M. Menezes	Secretary, MNES
2. Shri J. Gururaja	Adviser
3. Commodore Narinder Singh	Adviser
4. Dr. G.D. Sootha	Adviser
5. Shri E.D.R. Sastry	Adviser
6. Shri U.N. Panjir	Joint Secretary
7. Shri S.W. Oak	J.S. & F.A.
8. Shri Ajit K. Gupta	Director (Power)
9. Dr. A.R. Shukla	Director
10. Dr. T.C. Tripathy	Director
11. Shri M.C. Upreti	Director
12. Dr. Praveen Saxena	Principal Scientific Officer
13. Mr. Ranganathan	Director
14. Shri Ajay Saxena	D.S. (Finance)
15. Shri V. Bhaktavatsalam	M.D. IREDA
