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STANDING COMMITTEE ON ENERGY (2004–05)

FOURTEENTH LOK SABHA

MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES

DEMANDS FOR GRANTS (2004–2005)

SECOND REPORT

LOK SABHA SECRETARIAT
NEW DELHI
August, 2004/Sravana, 1926 (Saka)

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(FOURTEENTH LOK SABHA)

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DEMANDS FOR GRANTS
(2004–2005)

Presented to Lok Sabha on 19.08.2004
Laid in Rajya Sabha on 19.08.2004

LOK SABHA SECRETARIAT
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COMPOSITION OF THE STANDING COMMITTEE ON ENERGY
(2004–05)

1. Shri Gurudas Kamat—*Chairman*

MEMBERS

Lok Sabha

2. Shri Gauri Shankar Chaturbhuj Bisen
3. Shri Ajay Chakraborty
4. Shri Nandkumar Singh Chauhan
5. Shri A.B.A. Ghani Khan Choudhary
6. Shri B. Vinod Kumar
7. Shri Chander Kumar
8. Shri Subodh Mohite
9. Shri Dharmendra Pradhan
10. Shri Prashanta Pradhan
11. Dr. Rabindra Kumar Rana
12. Shri J.M. Aaron Rashid
13. Shri Khiren Rijiju
14. Shri Nandkumar Sai
15. Shri M. Shivanna
16. Shri Vijayendra Pal Singh
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18. Shri E.G. Sugavanam
19. Shri Tarit Baran Topdar
20. Shri G. Venkataswamy
21. Shri Chandrapal Singh Yadav

Rajya Sabha

22. Shri Kamal Akhtar
23. Shri Sudarshan Akarapu
24. Shri Vedprakash P. Goyal
25. Dr. (Smt.) Najma A. Heptullah
26. Shri Bimal Jalan
27. Dr. K. Kasturirangan
28. Shri V. Hanumantha Rao
29. Shri Matilal Sarkar
30. Shri Motilal Vora
31. Vacant

SECRETARIAT

1. Shri John Joseph — *Additional Secretary*
2. Shri Anand B. Kulkarni — *Joint Secretary*
3. Shri P.K. Bhandari — *Director*
4. Shri R.K. Bajaj — *Under Secretary*
5. Shri N.K. Jha — *Committee Officer*

INTRODUCTION

I, the Chairman, Standing Committee on Energy having been authorised by the Committee to present the Report on their behalf, present this Second Report (Fourteenth Lok Sabha) on Demands for Grants (2004–2005) relating to the Ministry of Non-Conventional Energy Sources.

2. The Committee took evidence of the representatives of the Ministry of Non-Conventional Energy Sources on 13th August, 2004.

3. 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 of Non-Conventional Energy Sources for furnishing the replies on the points raised by the Committee.

4. The Report was considered and adopted by the Committee at their sitting held on 18th August, 2002.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

NEW DELHI;
18 *August*, 2004
27 *Sravana*, 1926 *(Saka)*

GURUDAS KAMAT,
Chairman,
Standing Committee on Energy.

REPORT

PART I

CHAPTER I

INTRODUCTORY

Energy security has come to be viewed as a factor of immense strategic importance in ensuring all-round economic development of a nation. The reasons are not far to seek. Energy is a basic input for almost all the economic activities. In fact one of the indicators of economic growth has all along been the per capita consumption of energy. Fossil fuels such as coal and petroleum, and biofuels like wood, have been the energy sources of the world for centuries. However, as the 20th century drew to a close, ushering in the third millennium, there has been a growing recognition, for more than one reasons, of the dangers inherent in continuing with the model of economic development based on excessive consumption of fossil fuels. Of late, world opinion has been growing in favour of looking for alternatives to fossil fuels that would ensure eco-friendly and sustainable development on the one hand and energy security on the other. There was a surge of interest, commitment and funding for developing and disseminating renewable energy technologies and strategies in the aftermath of the first oil crisis during the seventies. Subsequently, this interest declined due to the fall in oil prices during the nineties. However, local and regional environmental concerns such as air pollution, water pollution, land degradation, waste generation and global environmental concerns such as the growth in atmospheric concentration of the Green House Gases (GHGs) leading to climate change have again brought renewable energy to the Centre state. The broad goals of the Government of India under "Energy for All" concept assumes an increasing role for renewables, particularly for meeting the energy needs of rural areas and for environmental conservation. Under the influence of programmes of the UN Framework Convention on Climate Change (FCCC) and the Kyoto Protocol and the need for promoting sustainable development, renewable energy technology development and transfer and large scale funding are projected for the future.

1.2 India is a large country with a population of around one billion. Its population is expected to grow at a rate of about 1.6 per cent annually and GDP growth rate is estimated to grow at over 6 per cent, requiring an energy growth rate

of 9 per cent. At present, there is estimated peaking shortage of 13% and energy shortage is about 7.8%. The electricity demand is growing @ 8% annually in the country. The shortage is much greater in rural areas. The present per capita electricity consumption in India is little over 400 kwh, which is already on a lower side and most of the consumption is in the urban areas. Consumption of coal and petroleum fuels is projected to nearly double by 2010. India is also projected to become an imported petroleum fuel dependent economy. Conditions are thus compelling for India to attempt to meet its growing energy needs in a self-reliant manner, through renewable energy.

1.3 Recognising the relevance of renewable energy sources, the Government of India set up in 1981 a Commission for Additional Sources of Energy (CASE), on the lines of the Space Commission and the Atomic Energy Commission in the Department of Science and Technology. A year later, a separate Department of Non-Conventional Energy Sources was created in the Ministry of Energy. Ten years later, this was upgraded to the level of an independent Ministry. India has thus earned the distinction of possibly being the only country in the world to have an exclusive Ministry for Non-Conventional Energy Sources (MNES) which has been implementing one of the world's largest programmes on renewable energy, like biogas, small hydro projects, wind, geothermal energy, solar photovoltaics, etc. spanning the entire spectrum of technologies targeted towards all sections of the society. The two-fold objectives of the Ministry are (i) to increase the role of renewables in the energy sector and (ii) to reduce and mitigate the pollution caused by conventional fossil fuels. To subserve these objectives the Ministry functions as a catalyst, bringing into fruition the project proposals in the renewable energy sector through a range of policies and programmes.

1.4 MNES is a Scientific Ministry which is required to carry out the following activities:–

- Research and development of biogas and programmes relating to biogas units;
- Commission for Additional Sources of Energy (CASE);
- Solar energy including Solar Photovoltaic (SPV) devices and their development, production and applications;
- All matters relating to small/mini/micro hydel projects of and below 25 MW capacity;
- Programme relating to improved chulhas and research and development

thereof;

- Indian Renewable Energy Development Agency (IREDA);
- Research and development of other non-conventional/renewable sources of energy and programmes relating thereto;
- Tidal Energy;
- Integrated Rural Energy Programme (IREP);
- Geothermal Energy.

1.5 The power generation from renewable sources has been increasing. Renewable energy presently contribute about 4800 MW which represents about 4.5% of the total installed capacity from all sources but there is still a long way to go to achieve the full potential of around 80,000 MW from the renewable sources. The estimated potential and the extent of exploitation so far is given below:–

1.6 As a part of special initiative to develop the North-Eastern Region,

NRSE Potential and Achievement

	Potential	**Achievement as on 31.03.2004**
Biogas Plants	120 lakh	36.50 lakh
Improved Chulhas	1,200 lakh	339 lakh
Wind	45,000 MW	2483 MW
Small Hydro	15,000 MW	1603 MW
Biomass Power/Co-generation	19,500 MW	613 MW
Biomass Gasifiers	–	60.2 MW
Waste-to-Energy	1700 MW	41.50 MWe
Solar Water Heating	1400 lakh sq. m. collector area	8 lakh sq. m. collector area
Solar PV	20 MW/sq. km	151 MWp*

*of this 75 MWp SPV products have been exported.

the Ministry has earmarked 10% of its Domestic Budgetary Support for the North-Eastern States, including Sikkim, in its major programmes. Special emphasis has been made to take up the electrification of remote villages in this region.

1.7 Since renewable energy can be produced in a decentralized manner, it

can help to overcome the problems of distribution associated with conventional sources of energy, especially in remote rural areas. The significance of this is to be seen in the light of the fact that as many as 93,347 villages in the country are un-electrified and 25,000 of these villages are considered economically non-viable for grid connected power. Moreover, de-electrified villages which had lost their faith in conventional grid power could find a ray of hope through non-conventional grid quality power. It has been proposed to electrify all of these 25,000 remote villages and hamlets through locally available renewable energy options like solar photovoltaics (SPV), small hydro, biomass and hybrid systems within the next two Plan periods i.e. by the year 2012. During the 10th Plan period about 5000 unelectrified census villages are proposed to be electrified through the Non-Conventional Energy Sources.

1.8 The detailed Demands for Grants of the Ministry of Non-Conventional Energy Sources were laid on the Table of Lok Sabha on 20.7.2004 'Demand No. 65 of the Ministry under which provision has been made for Plan and Non-Plan expenditure, consists of two parts', viz. Revenue Section and Capital Section for the year 2004–2005. It contains the following figures:–

1.9 A detailed statement showing the Actual Revenue and Capital

(Rs in crore)

	Plan	**Non-Plan**	**Total**
Revenue Section	503.76	5.47	509.23
Capital Section	96.04	–	96.04
Total	**599.80**	**5.47**	**605.27**

expenditure for the year 2002–2003, Budget Estimates, Revised Estimates for 2003–2004 and Budget Estimates for 2004–2005 are given at Appendix I.

1.10 The Committee place on record their appreciation where the Ministry have been able to utilise its Grants to a large extent during 2003–04. The Committee have scrutinized the detailed Demands for Grants of the Ministry of Non-Conventional Energy Sources for the year 2004–2005 and approve the same, subject to their observations and recommendations which are contained in the succeeding Chapter.

CHAPTER II

A. BUDGETARY ALLOCATION

The details of Central Plan Outlay indicating Budget Estimates, Revised Estimates and Actual Expenditure incurred during 2001–02, 2002–03 and 2003–04 are given below:–

(Rs in crore)

	2001–02			2002–03			2003–04		
	Budget Estimate	**Revised Estimate**	**Actual Exp.**	**Budget Estimate**	**Revised Estimate**	**Actual Exp.**	**Budget Estimate**	**Revised Estimate**	**Actual Exp.**
Domestic Budgetary Support (DBS)	338.6	339.35	322.4	475.25	370.29	326.52	449.5	347.92	341.91
Gross Budgetary Support (GBS)	610.65	519.4	498.27	624.25	468.25	423.74	625	390.42	384.41
Plant Outlay	**1067.36**	**976.11**	**1000.27**	**1100.72**	**944.77**	**890.46**	**1079.14**	**827.94**	**699.94**

2.2 Quarter-wise BE/RE and actual expenditure of the Ministry during the year 2003–04 are as under:–

Items	**Amount (Rs. in crore)**
Budget Estimate (GBS)	625
Revised Estimate (GBS)	390.42
First Quarter	14.4
Second Quarter	56.74
Third Quarter	37.45
Fourth Quarter	275.82
Total	**384.41**

Internal and Extra Budgetary Resources (IEBR)

2.3 The sector-wise details of IEBR of IREDA for the last three years *i.e.* 2001–02 to 2003–04 and proposed for 2004–05 are as below:–

(Rs. in crore)

Particulars	**2001–02**			**2002–03**			**2003–04**			**2004–05**
	BE	RE	Actual	BE	RE	Actual	BE	RE	Actual*	BE
External Aid received Direct	**173.30**	**145.00**	**151.03**	**225.00**	**285.00**	**269.19**	**155.00**	**161.37**	**127.98**	**75.00**
(i) ADB Loan	116.00	107.50	44.49	141.00	209.00	197.41	0.00	0	0	0
(ii) GEF Grant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
(iii) KfW loan	47.50	34.00	102.88	66.00	52.00	71.88	90.00	97.63	121.71	0
(iv) IBRD loan	9.80	3.50	3.66	18.00	24.00	-0.10	65.00	63.74	6.27	75.00
Other IEBR	**364.12**	**302.09**	**368.86**	**330.49**	**424.90**	**351.05**	**445.50**	**814.99**	**700.49**	**550.13**
(i) Internal Accruals	29.83	25.90	42.13	47.40	41.13	43.01	39.78	42.07	73.23	54.40
(ii) Tax Free Bonds	100.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
(iii) OB Cash in Hand (carry forward surplus)	115.41	31.88	32.78	54.69	13.30	13.30	34.18	14.92	14.92	10.73
(iv) Repayment of IREDA loan	118.88	144.31	133.15	128.40	181.27	201.54	161.54	262.00	430.84	135.00
(v) Bank loan	0	50.00	110.80	50.00	139.20	43.20	110.00	446.00	131.50	300.00
(vi) Infrastructure Bonds	0	0.00	0.00	0.00	0.00	0.00	50.00	0.00		0.00
Gross IEBR	**537.42**	**447.09**	**519.89**	**555.49**	**709.90**	**620.24**	**600.50**	**976.36**	**828.47**	**625.13**
Less: Repayment of	**80.71**	**84.72**	**84.72**	**79.01**	**289.92**	**155.24**	**146.36**	**538.84**	**496.16**	**137.68**
Tax Free bound-Normal	50.00	50.00	50.00	30.00	30.00	30.00	90.99	90.99	90.99	100.00
Tax Free bond-Call & Put	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.00	47.50	0.00
IDA-I	30.71	30.71	30.71	40.10	40.10	40.10	49.73	49.73	49.73	0.00
IDA-I prepayment						76.50	0.00	223.44	223.44	0.00
ADB	0.00	4.01	4.1	8.91	8.68	8.64	5.64	9.21	9.03	10.84
ADB prepayment	0.00	0.00	0.00	0.00	211.14	0.00	0.00	0.47	0.47	0.00
KfW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	12.55
Bank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	14.29
SBI-Prepayment							0.00	75.00	75.00	0.00
Net IEBR	**456.71**	**362.37**	**435.17**	**476.48**	**419.98**	**465.00**	**454.15**	**437.52**	**332.31**	**487.45**
*Subject to Audit										

2.4 When asked about the reasons for huge saving of total plan outlay to the tune of Rs. 128 crore [Rs. 827.94 crore (RE)– Rs. 699.94 crore (Actuals)], during the year 2003–04 the Ministry in a note stated:–

> "The saving of Rs. 128 crore in plan outlay during 2003–04 is mainly on account of variation of Rs. 105 crore between RE and actual IEBR of IREDA.
>
> The reasons for variations of IEBR and Actuals, are as under:–
>
> "Reasons for variation in Internal and Extra Budgetary Resource (IEBR) of IREDA is because of several components of it are projected on the basis of estimates of internal resources and mobilization of extra budgetary resources to ensure availability of funds to meet disbursement requirements, debt servicing, including pre-payment/swapping of high cost loan, etc. Continuous efforts are made to make realistic projection of IEBR. The requirement of resources undergoes many changes depending upon the actual disbursement under the projects, actual repayment received from the borrowers and the loans pre-closed by IREDA. The following are main reasons for variations:–
>
> - Utilization of international lines of credit is contingent upon drawal of funds by its borrowers.
> - Non-payment of interest and repayment by some borrowers.
>
> "Despite the fact that IREDA has been making sustained and vigorous efforts to ensure projections of a realistic IEBR, the matter is not fully within control and as such there would always be some variation between estimated and actual IEBR".

2.5 Explaining the reasons for uneven expenditure in each quarter, the Ministry stated:–

> "The uneven spreading of expenditure in each quarter has been a recurring phenomenon for the past several years. Several schemes are initiated in the States after the monsoon season, thereby leading to heavy expenditure during the last two quarters, especially the last quarter. To some extent, the matter has been further compounded by the States asking for frequent changes in schemes that leads to its own delays".

2.6 When asked about the steps taken to ensure full utilization of budgeted allocations at a uniform rate, the Ministry in a written note stated:–

"The Ministry has taken up following corrective steps to ensure full utilization of budget allocations at a uniform rate during 2004–05:–

A Meeting of Renewable Energy & Power Ministers and Secretaries of all States/UTs has been organized to discuss measures required to be taken for the timely formulation and implementation of renewable energy programmes. (ii) In order to oversee the implementation of renewable energy programmes at district level a District Advisory Committee is being set up in all districts. The Committee would be headed by the District Collector with Project Director, DRDA as Member-Secretary and comprise of district level functionaries from the department of industries, power, forest, renewable energy, agriculture, horticulture, NIC, NGOs, social workers, doctors, lawyers, engineers, scientists, Lions Rotarions, two representatives of the concerned MPs etc. The Committee would have at least 6 woman members. The Ministry will provide support to this programme @ around Rs. 1.5 lakh per district. (iii) More effective implementation at field level is being aimed at through involvement of concerned departmental field level functionaries from forests, power, etc. (iv) In order to increase the pace of expenditure, Senior Scientists of the Ministry have been nominated to the various States/UTs for maintaining close liaison with the respective State for review, monitoring, implementation and coordination of all programmes/projects supported by the Ministry. The liaison officers will also have periodic follow-up reviews of ongoing projects as also assist in acceleration of formulation of suitable project proposals by the concerned State. (v) States are being remained to submit financial documents *i.e.* Utilisation Certificates etc. in time so that further financial releases can take place. (vi) Steps are being taken to rationalize the components under various programmes/schemes with a view to simplifying procedures. (vii) In order to provide matching balance funds by States for the implementation of renewable energy programmes all State Nodal Agencies have been advised to tap MPLAD/MLALAD funds".

Appraisal of Tenth Plan

2.7 Details of physical and financial targets and achievements of various programmes/schemes during the 9th Plan and the first two years of the 10th Plan, year-wise are given as under:–

STATEMENT–I

Programme-wise Physical Targets and Achievements made during 9th Plan (1997–2002) and 10th Plan (2002–04) periods

Programmes	**Units**	**9th Plan Target**	**9th Plan Achs.**	**% Ach. *vis-à-vis* 9th Plan Target**	**10th Plan Target**	**2002–03**		**2003–04**		**10th Plan Achiev. (2002–04)**
						Targets	**Achs.**	**Targets**	**Achs.**	
1	2	3	4	5	6	7	8	9	10	11
Power from Renewables										
Wind power	MW	1000	727.4	73	1500	200	241.3	250.00	615.25	856.55
Small Hydro (upto 25 MW)	MW	130	268.2	206	600	80	80.68	80.00	84.04	153.13
Biomass Power	MW	314	295.3	94	700	100	102.63	125.00	129.5	232.13
Biomass/Gasifier	MW	40	29.68	74	50	10	2.07	5.00	4.85	6.92
SPV Power	MW	1.5	1.55	103	145	0.75	0.5	0.75	0.05	0.55
Waste to Energy Programme	MW	42	18.2	43	80	10	3.75	10.00	15.65	19.4
Sub Total (Power from Renewables)	**MW**	**1527.5**	**1340.33**	**88**	**3075**	**400.75**	**430.93**	**470.75**	**849.34**	**1268.68**
Village Electrification Programme			430		5000	500	520	1000	613	1133
Biogas Plants	Nos. in lakhs	10	8.3	83	10	1.53	1.53	1.49	1.41	2.94

1	2	3	4	5	6	7	8	9	10	11
Solar Photovoltaic Programme (SPV)										
SPV Home Light	Nos.	200000	155119	78	250000	50000	28430	53000	11870	55484
SPV Lanterns	Nos.	300000	296684	99	600000	40000	13797	0.00	0	13794
SPV Street Lighting Systems	Nos.		13228			3000	1780	0	620	1778
SPV Power Plants	KWp	1600	417	26	4000	275	154	450.00	0	218.2
SPV Pumps	Nos.	4000	2438	61	8000	1200	1073	1600	841	1901
Solar Thermal Energy Programme										
Solar Water Heating Systems	m^2 collector area	150000	122531	82	505000	50000	45000	55000	0	45000
Solar Cooker	Nos.	150000	85000	57	205200	35000	10000	35000	5000	15000
Wind Pumps and Hybrid Systems	Nos.	1000	493	49	800	200	95	150	80	152
	Kw	250	106.8	43	800	125	97.76	150	122.6	101.51

STATEMENT–II

Programme-wise BE, RE and Actual Expenditure incurred during 9th Plan and 2002–03 and 2003–04 and BE 2004–05 of 10th Plan period

(Rs. in crore)

Sl. No.	Name of the Programmes/ Schemes	9th Plan				10th Plan		2002–03			2003–04			Total
		Allocation	Budget Estimate	Revised Estimate	Actual Exp.	Approved Outlay	Allocation for NE	Budget Estimate	Revised Estimate	Actual Exp.	Budget Estimate	Revised Estimate	Actual Exp.	Exp. 2002–04
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Wind Power	63.00	36.27	31.55	33.13	110.00		14.56	5.60	5.35	14.00	10.30	6.92	12.27
2.	Small Hydro Power	187.00	132.50	99.50	95.92	375.00	75.00	28.00	23.00	21.31	30.00	21.50	21.45	42.76
3.	Biomass Power/ Cogeneration	226.00	82.30	63.75	74.50	125.00		19.28	16.78	16.78	18.00	16.50	11.95	28.73
4.	Biomass Gasification	25.00	18.50	14.50	14.61	35.00	5.00	5.00	3.25	3.69	4.00	2.20	2.29	5.98
5.	Solar Power	63.00	45.15	20.90	20.23									
	Solar Thermal Power					50.00		10.00	0.10	0.03	5.00	0.00	0.00	0.03
	Solar Photovoltaic Power					75.00		8.00	8.00	2.60	6.00	2.10	1.10	3.70
6.	Energy from U&I Wastes	62.00	61.00	36.60	32.89	125.00		20.00	11.00	11.00	14.00	6.00	4.35	15.34
7.	Village Electrification Programme		18.00	18.00	15.93	735.00	150.00	61.50	46.50	22.92	75.00	60.00	71.67	94.59
8.	Biogas Plants (NBMMP) and National Project on Clean Energy Services for rural areas	286.00	289.69	247.24	269.03	385.00 30.00	35.00 3.00	54.00 1.29	39.00 0.29	38.95 0.00	49.00	33.50	35.71	74.66

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
9.	SPV Demonstration and Utilization Programme	219.00	192.70	150.84	157.40	290.00	80.00	53.00	41.00	41.24	37.00	27.00	28.65	69.89
	SPV Home Lighting Systems													
	SPV Lanterns													
	SPV Generators													
	Power Plants													
10.	SPV Water Pumps	46.50	49.00	44.90	37.20	187.00	10.00	24.00	24.00	24.00	28.00	34.00	27.23	51.23
11.	SPV support to industry, interest subsidy on manf. Loan					30.00					2.00	1.00	0.42	0.42
12.	SPV R&D	25.00	13.00	8.00	10.15	30.00		2.00	2.00	0.96				
13.	Small Wind Energy Systems	8.00	6.00	4.90	13.65	16.00		2.50	2.50	2.45	2.00	1.50	1.00	3.45
	Hybrid Systems													
14.	Solar Thermal Programme	34.00	19.00	15.13	3.61	110.00	10.00	11.00	10.00	9.73	12.00	10.00	9.90	19.63
	Solar Water Heating Systems													
	Solar Air Heating Systems													
	Solar Cookers													

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Steam Cooking Systems													
	Aditya Solar Shops													
15.	New Technology	25.00	30.75	20.14	16.23	150.00		20	15	9.88	18	6	3.13	13.01
16.	R&D													
17.	Rural Energy Entrepre-neurship/Institutional Development	5.00	2.00	0.75	0.63	10.00		1.00	0.35	0.24	0.05	0.04	0.02	0.26
18.	International Cooperation	9.00	4.80	4.80	2.39	8.00		1.35	0.75	0.43	1.70	0.65	0.33	0.76
	Project Preparation Assistance	2.00	0.45	0.45	0.02									
19.	TIFAC	6.00	5.00	5.35	5.43	15.00		2.50	0.50	0.50	1.00	0.50	5.00	5.50
20.	Market Development & Export Promotion	5.00	1.30	1.30	0.01	12.00		1.50	0.50	0.01	0.25	0.01	0.00	0.01
21.	HRD & Training	6.00	5.20	3.75	2.81	15.00		2.50	1.50	1.45	1.50	1.00	1.00	2.45
22.	Regional Office	4.00	21.83	21.62	18.38	9.00	2.00	1.75	1.75	1.15	2.00	2.00	1.40	2.55
23.	State Nodal Agencies	15.00	8.00	6.30	4.43	6.00		1.00	0.75	0.67	0.50	0.25	0.14	0.81
24.	Technology Commercial Funds	10.00	8.00	4.50	4.00	10.00		3.00	0.00	0.14	0.25	0.10	0.00	0.14
25.	Women & Renewable Energy Development	1.00	1.00	0.75	0.75	6.00		0.50	0.50	0.38	0.05	0.05	0.06	0.44

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
26.	Integrated Rural Energy Programme (IREP)	54.00	51.25	32.12	29.53	145.00	20.00	4.62	4.62	3.50	4.50	11.50	11.49	14.99
27.	Information and Publicity	15.00	19.25	14.90	15.35	30.00		6.00	4.00	4.22	4.00	3.00	3.00	7.22
28.	Special Area Demonstration Programme	8.00	6.40	9.80	8.16	60.00	10.00	11.30	8.00	6.00	4.00	4.00	1.91	7.92
29.	Seminars/Symposium	2.50	1.25	1.22	0.85	5.00		0.25	0.25	0.00	0.50	0.30	0.19	0.19
30.	Solar Energy Centre	24.00	11.32	7.70	5.47	40.00		3.40	1.05	0.65	4.00	1.00	0.48	1.13
31.	NIRE	20.00	17.50	8.85	8.70	25.00		10.00	2.00	2.00	3.00	3.00	3.00	5.00
32.	Centre for Wind Energy Technology					15.00		4.00	4.00	4.40	3.70	3.70	3.70	8.10
33.	Equity IREDA	250.00	184.50	176.50	160.00	250.00		35.00	35.00	35.00	40.00	40.00	40.00	75.00
34.	Improved Chulha	84.00	90.80	76.70	80.42	10.00		0.10	3.00	2.62	1.00	0.40	0.39	3.00
35.	CBP/IBP	30.00	36.65	32.10	32.99	5.00		0.10	3.50	3.40	1.00	1.00	0.90	4.30
	Animal Energy Programme	2.14	0.40	0.15	0.03									
36.	North East Programmes		34.00	34.00	58.81		400.00	47.00	46.00	45.52	62.50	39.00	39.00	84.52
37.	Plan Secretariat							4.25	4.25	3.36		4.40	4.15	7.50
	Total (DBS)	**1822.14**	**1504.76**	**1219.56**	**1233.64**	**3534.00**		**475.25**	**370.29**	**326.52**	**449.50**	**347.50**	**341.91**	**668.43**
38.	Externally Aided Projects (EAP)	300												

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	IDA-II		430.19	362.39	362.36	260.00		95.00	95.00	95.00	85.00	42.00	42.00	137.00
	UNDP-REG		8	8	7.57	6.00		4.00	3.00	2.22	0.50	0.50	0.50	2.72
	GEF Grant for Mathania Project		92	0	0.00	200.00		50.00	0.00	0.00	90.00	0.00	0.00	0.00
	IDA Loans-II		53.70	53.70	53.70									
	SDC Grants		4.35	19.07	11.00									
	Dutch		15.96	14.50	1.71									
	Total (GBS)	**2122.14**	**2148.96**	**1677.22**	**1669.98**	**4000.00**		**624.25**	**468.29**	**423.74**	**625.00**	**390.00**	**384.41**	**808.15**
	IEBR	1678	1993.76	2030.37	2066.72	3167.00		476.48	476.48	466.72	454.10	437.52	315.53	782.25
39.	**Total outlay**	**3800.14**	**4142.72**	**3707.59**	**3736.70**	**7167.00**		**1100.73**	**944.77**	**890.46**	**1079.14**	**827.52**	**699.94**	**1590.40**

Programme-wise Budget Estimates and Physical Target for 2004–05

Sl. No.	Programmes/Schemes	BE Excl. NE 2004–05 (Rs. in crore)	Allocation for NE 2004–05 (Rs. in crore)	BE Total 2004–05 (Rs. in crore)	Physical Targets 2004–05
1	2	3	4	5	6
A.	**Renewable Energy Promotion Programmes Renewable Power**				
1.	Wind power	11.00		11.00	300 MW
2.	Small Hydro Power	24.00	11.00	35.00	100 MW
3.	Biomass Power/Cogeneration	15.00		15.00	125 MW
4.	Biomass Gasification	9.00	1.00	10.00	10 MW
5.	Energy from U&I Wastes	15.00		15.00	10 MW
6.	Solar Photovoltaic Power	2.00		2.00	100 KW
7.	Solar Thermal Power	1.00		1.00	
	Renewable Power (Total)				**545.10 MW**
B.	**Renewable Energy Stand alone Systems**				
8.	SPV Demonstration Programme	15.00	5.00	20.00	
	Solar Home Lighting				50,000 Nos.
	Solar Street Lighting				2,000 Nos.
	Solar Generators				100 Nos.
	Solar Power Packs				200 KW
9.	SPV Water Pumps including training	12.00	3.00	15.00	3500 Nos.

1	2	3	4	5	6
10.	Small Wind Energy Systems	2.00		2.00	
	Wind Pumps				100 Nos.
	Wind Aerogenerators				150 KW
11.	Solar Thermal Programme	11.00	1.00	12.00	
	Solar Water Heating Systems (sq. m. collector area)				60,000 (with subsidy) 40,000 (without subsidy)
12.	Biogas Programme	37.00	4.00	41.00	40,000 Nos.
	Remote Village & Remote Hamlets Electrification	167.00	33.00	200.00	4,000 villages
C.	**R&D Extension, Publicity, International Relations etc.**				
1.	R&D for New Technology	15.00		15.00	
2.	R&D for Renewable Energy Technologies	10.00		10.00	
3.	Solar Energy Centre	4.25		4.25	
4.	NIRE	6.00		6.00	
5.	Centre for Wind Energy Technology	8.00		8.00	
6.	Information and Publicity	5.00		5.00	
7.	International Cooperation	1.10		1.10	
8.	TIFAD	1.00		1.00	
9.	HRD & Training	1.50		1.50	

1	2	3	4	5	6
10.	Regional Office	2.15		2.15	
11.	State Nodal Agencies	0.25	0.75	1.00	
12.	NETCOF	0.05		0.05	
13.	Business Development and Export Promotion	0.05		0.05	
14.	Special Area Demonstration Programme	4.25	0.75	5.00	
15.	Seminars/Symposium	0.30		0.30	
D.	**Integrated Rural Energy Programme (IREP)**	9.50	0.50	10.00	
E.	**IREDA**				
	Equity IREDA	50.00		50.00	
F.	**Spillover Liabilities**				
1.	CBP/IBP/NBP Biogas Plants	0.22		0.22	
2.	Improved Chulha Programme	0.30		0.30	
3.	Rural Energy Entrepreneurship and Institutional Development	0.05		0.05	
4.	Women and Renewable Energy Development	0.03		0.03	
G.	**10% Lumpsum Provision for NE**	60.00			
	Total (DBS)	**500.00**		**500.00**	

1	2	3	4	5	6
H.	**Externally Aided Projects (EAP)**				
1.	IDA-II	46.00		46.00	
2.	UNDP-REG	2.00		2.00	
3.	GEF Grant for Mathania Project	52.00		52.00	
	Total EAP	**100.00**		**100.00**	
	Total (GBS)	**600.00**	**60.00**	**600.00**	
I.	IEBR	487.45		487.45	
	Total outlay	**1087.45**		**1087.45**	

2.8 The major physical and financial achievements made during the first two years of the 10th Plan (2002–03 to 2003–04) *vis-à-vis* the 9th Plan are indicated below:

- "Capacity addition of 1268 MW grid interactive renewable power has been achieved during first two years of the 10th Plan in comparison to a capacity addition of 1340 MW during the 9th Plan period.
- 1133 remote unelectrified villages have been electrified through renewable energy sources during the first two years of the 10th Plan against a target of 5000 villages.
- 2.94 lakhs biogas plants have been set up during the first two years of the 10th Plan in comparison to 8.3 lakhs biogas plants set up during the 9th Plan period.
- Rs.808 crore (GBS) has been utilized during first two years of the 10th Plan in comparison to Rs. 1670 crores (GBS) utilized during the 9th Plan period."

2.9 The Ministry of Non-Conventional Energy Sources have presented Demands for Grants of Rs. 605.27 crore for the year 2004–05 against the Budget Estimate (B.E.) of Rs. 630.15 crore and Revised Estimate (R.E.) of Rs. 395.73 crore during the year 2003–04. During the first two years of the 10th Five Year Plan i.e. over the years 2002–03 and 2003–04, Rs. 808.15 crore has been spent out of the total plan outlay of Rs. 4000 crore at the level of Gross Budgetary Support (GBS) corresponding to the achievement of 1268.68 MW out of the total 10th Five Year Plan target of 3075 MW of power from renewables. Against a target of 5000 villages, 1133 remote unelectrified villages have been electrified through renewable energy sources during the first two years of the 10th Five Year Plan. For the year 2004–05, Rs. 21.00 crores, Rs. 15.00 crore and Rs. 36.00 crore have been allocated to add corresponding aggregate capacity of 350 MW through wind, 125 MW through Biomass/ cogeneration and 100 MW through small hydro power projects respectively. The target for completion of electrification projects in 3000 remote villages/ hamlets at the cost of Rs. 200.00 crore has been fixed for the year 2004–05. But the Committee are not sure whether the physical and financial targets would be achieved by the Ministry during the year 2004–05 taking into consideration of their past track record. For instance, Rs. 423.74 crore were spent during the year 2002–03 out of the B.E. of Rs. 624.25 crore at the level of GBS. Similarly, Rs. 384.41 crore only could be spent out of the B.E. of Rs. 625 crore at the level of GBS during the year 2003–04. Furthermore, Rs. 14.40 crore only was utilized during the 1st quarter of the year 2003–04.

During 2nd and 3rd quarters Rs. 56.74 crore and Rs. 37.45 crore respectively were spent. Thus, Rs. 108.59 crore only out of Rs. 384.41 crore were spent during the first three quarters of the year 2003–04. It is against the directions of the Ministry of Finance which entails the need to ensure that expenditure is evenly spread over all the four quarters of the financial year. The Committee are of the considered opinion that such variations in expenditure is due to inherent lacunas in the budgetary mechanism of the Ministry which require urgent attention and intensive discussions with the Ministry of Finance and the Planning Commission to ensure the full utilisation of allocated budget in a uniform manner spreading over all the four quarters of the financial year.

2.10 The Committee have observed that over-optimistic targets, which are seldom achieved, have been proposed for mobilization of internal and Extra Budgetary Resources (IEBR). The Ministry in their reply have stated that continuous efforts are made to make realistic projection for IEBR. But the Committee find that the efforts of the Ministry do not bear any fruit. The Committee do not approve of the Ministry's failure to spend their full 9th Plan allocations of Rs. 2122.14 crore and could spend only Rs. 1669.98 crore. The Ministry of Non-Conventional Energy Sources/IREDA failed not only on the front of direct external aid received from IBRD but also in mobilising internal resources from internal accruals, Opening Balance Cash in hand, repayment of IREDA loan and bank loan, etc. resulting in erratic variations in BE, RE and actuals at the level of gross IEBR increasing from Rs. 600.50 crore (BE) to Rs. 976.36 crore (RE) and then decreasing to Rs. 828.47 crore during 2003–04. Furthermore, net IEBR decreased from Rs. 454.15 crore (BE) to Rs. 437.52 crore (RE) which further went down to Rs. 332.31 crore, on account of sharp variations among BE, RE and actuals in the free bonds (Call & Put) during the year 2003–04. The reasons adduced by the Ministry/ IREDA for such variations are very general and are not as such, which could not be visualized in advance. The Committee note that such variations are to some extent due to the inability of the projects promoters to furnish the requisite documents before the end of financial years. The Committee, therefore, recommend that the MNES/IREDA should take effective steps to review their procedures etc. and simplify requirement of documents so that the targeted utilisation of funds can be achieved.

2.11 The Committee note that the Ministry have resolved to achieve the targets of additional installed capacity of 10 percent i.e. 10,000 MW by the year 2012. In addition, it has also been decided to electrify all the 24,685 remote villages/hamlets through non-conventional energy sources, which have

now increased from the earlier number of 18,000 villages due to revision of the definition of electrified villages. The Committee note that during 9th Plan, only Rs. 15.13 crore were spent for Village Electrification Programme when the target was to electrify 18,000 villages. Now that the number of villages have increased, the Government have proposed an outlay of Rs. 735 crore for 10th Plan. But, the utilisation of this amount during the first two years of 10th plan is much below the expectation. Against the average utilization of Rs. 294 crore during the two years period, only Rs. 94.59 crore have been utilised. Physically also against an average target of 2000 villages, only 1133 villages have been electrified in these 2 years. The Committee, therefore, feel that the Ministry should make all out efforts to achieve the financial and physical targets set for various programmes of energy from renewable sources of energy. As far as possible only realistic targets be set. The Committee also note that no allocations have been made for R&D sector by the Ministry. The Committee feel that without R&D efforts, no sector can withstand competition in today's liberalised economy. During the discussions, the Committee were of the view that the outlay for Research & Development will have to be increased so as to bring down the cost of most of these sources e.g. Wind, Solar, Small Hydro etc. The Committee are also disturbed to note that the Outlay has been decreasing over the last couple of years and that the Ministry has not been able to make any provision for R&D and new innovations. The Committee, therefore, strongly recommend that the Ministry should seek budgetary support for this crucial area and also chalk out the programme to utilise the amount fully. The Committee may be informed of the action taken in the matter.

2.12 The Committee note that during the 9th Plan, the Ministry could be able to achieve 43% of the total Plan target of 42 MW and during the first two years of the 10th five year plan it could be able to achieve only 25% of the overall plan target of 80 MW under the waste to energy programme. The Committee further note during the course of deliberations that huge volumes of garbage generated in metropolitan cities are a perennial environmental hazard. Not only their disposal constitutes a problem as there are very few open spaces left in the metros, garbage seepage also contaminates ground water sources. The Committee were informed that successful experiments were carried out by the Mumbai Municipal Corporation in converting this garbage into energy pellets. The Committee, recommend, that the Ministry should conduct a detailed study into this issue and formulate a viable scheme of energy from metropolitan waste.

B. SMALL HYDRO POWER PROGRAMME

Identification of potential sites

India is geographically fortunate to have a significant potential of water resources for power generation, a very little proportion of which have so far been utilised. Small hydro potential upto 25 MW is estimated at about 15000 MW. So far from 495 SHP projects an aggregate installed capacity of 1603 MW has been achieved. During 9th Plan period, projects with an aggregate capacity of about 269 MW were installed. Out of the proposed target of 600 MW, 153 MW were achieved during the first two years i.e. 2002–03 and 2003–04 of the 10th five year plan.

2.14 When asked about the small hydel potential available and the extent to which it has been harnessed, the Ministry informed the Committee as under:

> "The potential available from Small Hydro Power (SHP) projects up to 25 MW station capacity has been assessed at around 15,000 MW. Of this, 4233 sites with an aggregate capacity of 10,324 MW have been identified. So far 495 SHP projects with an aggregate capacity of 1603 MW have been commissioned and 170 SHP projects with an aggregate capacity of 569 MW are under implementation. The Ministry's aim is that 2% or 2000 MW additional capacity in power generation in the country would come from SHP during the 10th and 11th Plan periods. The sites aggregating to 8721 MW are available at present in the country".

2.15 When asked about the details of the budget allocated (BE, RE) and the actual expenditure alongwith the corresponding physical and financial targets and achievements, during the last three years and budgetary allocation for the year 2004–05, the Ministry informed as under:–

> "The Details of budget allocation (BE & RE) and the actual expenditure (including NE allocation) for the last three years and during the year 2004–05 are given as under:–

(Rs. in crore)

Year	BE	RE	Actual expenditure
2001–02	39.00	39.00	43.41
2002–03	47.00	42.00	39.52
2003–04	49.50	30.50	31.72
2004–05	35.00	–	–

2.16 Explaining the reasons for variation between BE, RE and the spent amount, the Ministry further stated:–

> "During 2002–03, some projects which were targeted for financial release could not make the desired physical progress and therefore released had to be accordingly reduced. During 2003–04, the subsidy pattern and timing of releases under the SHP programme were modified and the new scheme envisaged release of a one time capital subsidy only after the completion of a project. Hence, BE had to be reduced from Rs. 49.50 crores to Rs. 30.50 crores and the actual expenditure was Rs. 31.72 crores".

2.17 As regards physical targets and achievements of SHP programme, the Ministry reply in a written note as under:–

> "Physical targets and achievements under the SHP programme, for the last three years and during the year 2004–05 are as follows:

Year	Target	Achievement
2001–02	50 MW	75.74 MW
2002–03	80 MW	80.39 MW
2003–04	80 MW	84.04 MW
2004–05	100 MW	–

Activities for 10th Plan

2.18 When asked about the main objectives/activities planned and the overall physical and financial targets fixed for the Tenth Five Year Plan to accelerate the exploitation of small hydro potential and promote its commercialization, the Ministry informed:–

> "The main objectives/activities planned for the 10th plan are as follows:
>
> - Strengthen the resource assessment programme and create on SHP database on a GIS platform for the country, to be placed on a website.
> - To facilitate private sector participation in the SHP sector through incentives.
> - Provide suitable support to State Governments for completing languishing SHP projects.

- Provide suitable support for renovation and modernization of existing SHP stations.
- Establishment of testing facilities and settling developing small hydro simulator for providing training facilities.

It is proposed to achieve 600 MW at the cost of Rs. 375 crore for the SHP during the 10th Plan period".

2.19 When the Committee inquired about the assessed potential in relatively untouched and untapped areas of Tail-end flow of water of mega/major Thermal/ Hydro project, dam-toe sites of the major/small dams and several tea-estates existing in the country the Ministry stated:–

"Potential of tail-end mega/major thermal/hydro projects, dam-toe sites has been assessed at around 100 MW. However, the commercial viability of this potential varies considerably. A number of potential sites have been identified in tea gardens, remote and isolated areas of the Himalayan region, Ladakh, Leh etc."

2.20 As regards, the estimated potential of canal based small hydro projects and the extent to which it has been harnessed, the Ministry stated:–

"There is an estimated potential of about 1600 MW for canal based SHP projects. So far, such projects with an aggregate capacity of 282 MW have been commissioned and 118 MW are under implementation".

2.21 The Committee have been informed that as there is still an unidentified potential of about 5000 MW in the country, a new scheme for providing financial support to States for the identification of new potential sites and the preparation of a perspective plan for SHP development has been introduced. Financial support upto Rs. 30 lakhs will be provided for the estimation of the SHP potential in a State, identification of new potential SHP sites and for the preparation of a perspective plan. Provision of incentives for Detailed Survey and Investigation (DSI) & Detailed Project Report (DPR) preparation was continued under a merged and rationalised scheme. Financial support is being provided up to Rs. 5 lakhs for DPR preparation including survey. The State Government have been advised to undertake these items of work in order to prepare a shelf of SHP projects. So far survey & investigation and preparation of DPRs of 363 potential sites under this scheme has been supported.

2.22 When asked about the details of the financial support for identification of new sites and preparation of a perspective plan for each State for small hydro power development, the Ministry stated:-

> "This Ministry has launched a new scheme from 2003–04 to provide financial support for identification of new sites and preparation of a perspective plan in each State. Following are the incentives provided to the States under the scheme:

States/UTs	Assessment of total potential in the State, Preparation of Perspective Plan and	
Year	Identification of upto 50 new sites	Identification of more than 50 new sites
	50% of proposed cost limited to:	
NE Region, Sikkim, J&K, HP & Uttranchal (Special Category States)	Rs 22.50 lakhs	Rs 30.00 lakhs
Other States/UTs	Rs 15.00 lakhs	Rs 22.50 lakhs

Chattisgarh has completed the task with the help of the Alternate Hydro Energy Centre (AHEC), Roorkee and over 100 new sites have been identified in the State. Work in J&K and Uttranchal is in progress, whereas Punjab is likely to initiate action soon. Jharkhand, Karnataka, Maharashtra, UP, Kerala and Andhra Pradesh have expressed interest and are preparing proposals under the scheme. In addition, a modelling exercise has been initiated for the first time for a part of Nagaland to identify potential SHP sites. After the model is validated it is proposed to extend its coverage".

Private Sector Participation

2.23 It was informed that the Ministry is encouraging the setting up of commercial Small Hydro Power ((SHP) projects in the private sector, joint sector, cooperative sector etc. As a result of the policy initiatives taken by the Ministry, fifteen States which have large potential for small hydro, have announced policies on wheeling, banking and buy back of energy generation to attract private sector entrepreneurs. These States for commercial projects have offered sites with a total potential of over 2200 MW so far. A number of financial institutions (Fis) are now coming forward to extend term loans to the developers of SHP projects. With an objective to improve the economic viability of SHP projects, MNES has been providing subsidy for the commercial SHP projects. The earlier interest subsidy

scheme was modified during the year to one time subsidy support to the commercial projects. The subsidy is for making repayment of the term loan provided to the developer of an SHP project by the financial institution. The subsidy will be released, after successful commissioning and commencement of commercial generation from the project, to the Fl. Under the interest Subsidy Scheme, the Ministry has supported 45 projects aggregating 140.43 MW of which 31 projects of 58.65 MW have been commissioned.

2.24 Asked about the schemes available with IREDA for private sector participation in Small Hydel Power Projects to boost the small hydro power programme, the MNES stated:-

"IREDA has the following schemes for private sector participation in small hydel projects:

Sl. No.	Sector	Interest Rate	Repayment period incl. moratorium	Moratorium period (max) years	Minimum promoters contribution (%)
1.	SHP projects upto 1.0 MW capacity	11.25%	12	3	25
2.	SHP projects above 1.0 MW and upto 5.0 MW capacity	11.50%	12	3	30
3.	SHP projects above 5.0 MW and upto 15.0 MW capacity	11.75%	12	3	30
4.	SHP projects above 15.0 MW and upto 25 MW capacity	12.00%	12	3	30

IREDA regularly reviews its financing policy to make it more customer friendly thereby giving a boost to private sectors participation."

2.25 When asked about the reasons for changing higher rate of interest by IREDA in comparison to other financial institutions, the Committee was informed:–

"The interest rate charged by IREDA for SHP projects is 11.25%–12%, against RECs, rate of 9.5%. However, interest rates alone cannot be used for comparison purposes as the overall package, including loan component, loan repayment period and other terms have to be taken into account for determining the actual cost of finance. The main reason for the higher interest

rate being charged by IREDA is its higher cost of funds since it also has to borrow funds in the domestic market at commercial rate of interest".

2.26 As regards the monitoring and evaluation programme of IREDA and steps proposed to reduce time and cost overrun of SHP project, the Ministry stated:–

"IREDA has a monitoring and evaluation system covering various phases of the project such as pre-sanction phase, implementation phase and post-commissioning phase. The projects are monitored periodically through site visits by technical officers of IREDA, the Nominee Directors appointed by IREDA and Concurrent Engineers specifically appointed for long gestation projects. IREDA, in general, does not fund any cost overrun. Even then, in order to ensure that projects are implemented in time and to avoid cost overruns, IREDA lays considerable emphasis on assessing capability of the promoter to bring in their contribution to ensure timely disbursements. Further, wherever required, IREDA also requires promoters to bring in as much as 50% of their contribution prior to commencement of disbursement. With the aforesaid steps, time and cost overruns are minimized except in cases where delays take place that are beyond the control of the promoters, such as, force-majeure conditions".

Bottlenecks for implementing SHP and Water Mills Schemes

2.27 About the bottlenecks identified while implementing the schemes (SHP & Water Mills) and the steps taken to overcome them, the Ministry stated:–

"As a result of continuous efforts, 15 States have announced policies for private sector participation in the SHP sector. Now, SERCs are fixing preferential tariffs for renewable power in the States. Good progress has been achieved in setting up SHP projects with private investment. The watermill scheme has picked up and Uttranchal has launched a new scheme to promote watermills. Alternate Hydro Energy Centre (AHEC) is helping manufacturers to make available watermill equipment as per new scientific standard designs. The targets set for the SHP programme are being met. There are no major bottlenecks in implementing the SHP schemes".

Renovation and modernisation (R&M) of old SHP project and support for Languishing Projects

2.28 The Ministry has been implementing a scheme of providing financial support for Renovation/Modernisation and capacity up rating of small hydro power stations. The main aim of the scheme is to renovate the plants, to extend their life

with improved performance and reliability. Ministry has so far supported 12 old SHP projects for their renovation and modernization in the States of the Himachal Pradesh, J&K, Sikkim, West Bengal, Assam and Nagaland. The R&M scheme has been rationalized and extended to cover projects upto 25 MW. In order to ensure expeditiously complete languishing SHP projects taken up in the Government Sector, a new scheme has been introduced from the current year. The SHP project taken up for R&M works and supported under languishing projects scheme would be provided 75% of the R&M/balance work cost with a support limit of Rs 30 lakhs for 100 KW project, Rs 2.25 crore for 1 MW project and Rs. 11.25 crore for a 25 MW project. During the year, "in principle" approval was given for undertaking R&M works of Chinani (23.3 MW), Sumbal Stage I (22.6 MW), Sumoor, Hunder and Bazgo in Jammu & Kashmir. The Ministry has also supported Haftal, Sanak, Marpachoo, Igo-Marcellong and Bhaderwah projects in J&K under the languishing projects scheme.

2.29 Following budget provision and actual expenditure has been made for R&M of SHP projects during the last three years.

(Rs. in crore)

Year	BE	RE	Actual expenditure
2001–02	4.50	4.50	4.05
2002–03	3.50	3.50	3.47
2003–04	4.50	3.50	3.50

The funds available for R&M activity under the SHP programme were almost fully utilized.

2.30 When asked about the criteria for selection of small hydro projects for R&M/uprating, the Ministry stated:–

The criteria for selection of SHP projects for R&M/uprating are as follows:

- The SHP projects should be upto 25 MW station capacity
- The projects should have been commissioned at least seven years prior to the date of the proposal.
- Past performance and factors that led to lower generation/non-functioning of the station.

- Costs involved in renovation, modernization or capacity up rating and the benefits thereof. The costs should be optimized with expected generation from the project. This forms the basis for determining the quantum of R&M works and financial support under the scheme.

- Improved and effective institutional support for the project is an essential criteria in supporting projects".

2.31 Asked about the total number of proposals received and cleared for R&M/ up rating of old SHP/water mills during the last three years, the Ministry stated:–

	Number of Proposals during last 3 years				
	Received	Sanctioned	In-principle approval given	Additional information sought	Rejected
SHP	34	16	5	8	5
Watermills	340	314	–	–	26

The main reason for rejecting 5 R&M proposals was the relatively high cost involved in the R&M works. 26 watermill proposals were returned for want of requisite information. As per the R&M scheme, a time period of 2 years is given to the State agency to complete R&M works after sanction of MNES support. A new watermill normally takes about 3–4 months for installation".

2.32 Regarding the role of private sector in R&M/uprating of SHP programme and water mills, the Ministry stated:–

> "Since most of the old SHP projects are in the Government sector, MNES, R&M scheme is restricted only to Government sector projects. Respective State Government/Agency/SEB may involve the private sector in the execution of R&M works. Two old SHP projects in Maharashtra have been given to the private sector for renovation and subsequent operation. Individuals are capable of developing/upgrading water mills. The watermill scheme of MNES supports private individuals through the State nodal agency for incentives".

2.33 The Committee find that out of the total estimated potential of 15,000 MW for the small hydro projects (upto 25 MW), 10,324 MW have

already been identified and 1603 MW have been exploited out of the sites aggregating to 8721 MW available for exploitation. It is also learnt that 2% or 2000 MW additional capacity in power generation would come from SHP during the 10th and 11th Plan periods. In tune with this ambitious target, the Government have planned to achieve 100 MW at the cost of Rs. 35 crore during 2004–05 and 600 MW at the cost of Rs. 375 crore during the 10th Plan Period. Keeping in view the past performance of the Ministry, the Committee feel that extra efforts would be required to achieve these targets. During the first two years of the 10th Five Year Plan i.e. during 2002–03 and 2003–04, only 164.43 MW (80.34 MW & 84.09 MW) could be achieved and the remaining 435.57 MW (600 MW–164.43 MW) will have to be achieved during the remaining three years period of the 10th five year plan. It will require a matching fund to the tune of Rs. 1742.28 crore by taking an average requirement of Rs. 4.00 crore per MW. The Committee, therefore, urge upon the Ministry of Finance and Planning Commission to provide matching fund to the Ministry to achieve the targets of 2000 MW by the end of 11th Five Year Plan. The Ministry should also make their own plan of action to achieve the physical and financial target set for each financial year so that the long term target of 2000 MW could be achieved by the year 2012. The Committee feel that there is a lot of scope for private participation in small hydel sector. Though IREDA has taken a number of steps to encourage the private sector participation, but a lot needs to be done to remove the difficulties faced by them in the execution of the projects. The Committee recommend that these should be identified with the help of entrepreneurs and corrective steps be taken.

2.34 The Committee find that there exist a potential of 15,000 MW for the Small Hydro Projects up to 25 MW. The Committee have noted the efforts of the Ministry in the form of providing financial support ranging between Rs. 15.00 lakhs to Rs. 30.00 lakhs from 2003–04 onwards to identify new potential sites in special category States containing North-Eastern region, Sikkim, Jammu & Kashmir, Himachal Pradesh, Uttaranchal as well as in other States/UTs. The Committee are happy to learn that 100 new sites have been identified by the Chhattisgarh with the help of Alternate Hydro Energy Centre, Roorkee. J&K, Jharkhand, Karnataka, Maharashtra, Punjab, U.P., Uttaranchal, Kerala and Andhra Pradesh are also taking interest and are preparing proposals under the scheme. The Committee recommend that the Government should encourage all these States to take up the scheme at the earliest as has been done by Chhattisgarh. The Committee feel that the Government should also examine whether the amount provided as a financial

support for the projects to identify new sites is sufficient or needs any enhancement.

2.35 The Committee feel that there is also a need to assess and identify the small hydro potential in relatively untouched and untapped areas of tail-end flow of water of mega/major, thermal/hydro project, dam-toes sites of the major/small dams and several tea-estates existing in the country. The Committee find that the potential of tail-end projects, dam-toe sites Small Hydro projects stand at 100 MW and it is 1600 MW for Canal based projects. The Committee observe that despite the incentives offered for assessment of potential in the tail-end flow sites of mega/major projects and the dam-toes sites and also for canal based projects, the identification and assessment of potentials are not picking up. The Committee, therefore, desire that appropriate steps should be taken to attract the investors to assess and identify the potential sites.

2.36 The Committee note that Renovation and Modernization (R&M) of the small hydro power projects is the cost-effective option requiring no clearances and having short gestation period to realize the capacity addition. During the last three years, the Ministry have sanctioned 16 small hydro projects and 314 water mills for R&M. The Committee desire that a comprehensive survey should be carried out to assess the requirement of R&M for all the installed small hydro projects and water mill units which have completed their normal life or are likely to complete within next 2 to 3 years. The Committee note that out of the 34 R&M proposals for SHP, 16 were sanctioned, 5 were given 'in principle' approval, additional information were sought for 8 small hydro projects and 5 were rejected on account of relatively high cost involved in the R&M. Similarly, out of the 340 R&M proposals for water mills, 314 were sanctioned and 26 were rejected for want of requisite information. The Committee desire that before rejecting any proposal a proper cost-benefit analysis should be done. The Committee, therefore, recommend that all the projects which can be renovated and modernized in a cost-effective manner should be encouraged to undertake R&M works in a time-bound manner.

C. WIND ENERGY PROGRAMME

Wind Energy Programme of the Government aim at utilising wind energy for water pumping, battery charging and power generation. The programme involves

survey and assessment of wind resources; implementation of demonstration and private sector projects; development of infrastructure; installation, operation and maintenance of wind electric generations; and policy support. Assuming 1% of land availability for wind power generation of India has a potential of 45,000 MW on share. The technical potential has been estimated at about 13,400 MW, assuming grid penetration of about 20%. Presently, the renewables contribute about 4800 MW to the total installed capacity. Almost 50% of it i.e. 2483 MW comes from wind. A target of commissioning 350 MW capacity through wind power has been proposed for the year 2004–05 against a total budgetary support of Rs. 21.00 crore.

2.38 When asked about the potential harnessed and their broad aims and objectives, the Ministry stated:–

> "The gross potential for Wind Power generation is estimated at 45,000 MW which is limited to about 13,000 MW on account of grid capacity. A capacity of about 2,500 MW has been installed so far through grid interactive wind power projects. The broad aim is to install 5% of the additional total power generation capacity through grid interactive wind power during the 10th and 11th Plan periods, which should be possible to achieve given the present pace of development of the sector."

2.39 About the overall physical and financial targets fixed for the 10th Five Year Plan alongwith that for the year 2004–05; the Ministry further stated:

> "The overall objective of the Wind Power Programme is to catalyse commercialization of wind power generation of grid quality. The programme includes wind power generation, wind resources assessment, demonstration and field-testing of various wind power generating devices. The overall physical and financial targets for the 10th Five Year Plan and for the financial year 2004–05 are given below:

2.40 The Budget Estimate, Revised Estimate and expenditure incurred under

	10th Five Year Plan	2004–05
Physical (MW)	1500	300
Financial (Rs. in crore)	125.00	12.35

the Wind Power Programme during last three financial years, is given below:

During 2001–02, additional allocation was approved at RE stage for taking

Sl. No.	Year	BE (Rs in crore)	RE (Rs in crore)	Expenditure (Rs in crore)	Target (MW)	Achievement (MW)
1.	2001–02	8.73	9.15	9.15	200	288
2.	2002–03	14.56	5.60	5.35	200	242
3.	2003–04	14.00	10.30	6.92	250	615

up new demonstration projects and to meet the past liabilities for ongoing demo-projects. The reason for variation between BE and RE during 2002–03 and 2003–04 was on account of new components that were envisaged but were not approved for implementation.

Private sectors participation in wind energy programme

2.41 A notable feature of the Wind Power Programme is the interest among private investors/developers in setting up of commercial Wind Power Project. A package on suitable fiscal and promotional incentives is available at the Central and State levels to provide a fillip to the deployment of the new technology by private investors and developers. Some of the States have already declared policies for private sector participation, which includes wheeling, banking and buy-back of the power produced from wind power projects.

When asked about the reasons for not issuing policies by some of the States, the Committee was informed as under:–

> "A gross potential of generating 45,000 MW exists in 10 States and 2 UTs, out of which 9 States *viz.* Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and West Bengal have enunciated a policy for Wind Power Development for the private sector for wheeling, banking & buy back. The State of Orissa has not yet declared its policy. Andaman & Nicobar and Lakshdweep Islands presently do not have adequate facilities for power evacuation. Now, the State Electricity Regulatory Commissions are responsible for power purchase policies for renewable energy projects in the States".

2.42 As regards the response of the private developers in those States which

have declared their policies, the MNES stated:–

> "The response of private developers in the potential States is extremely encouraging. Against a target of 250 MW capacity addition set for wind power during 2003–04, 615 MW has been achieved. As such, there are no serious constraints in the development of wind power in the country. The Ministry continues to interact closely with the wind industry, developers and States to resolve difficulties encountered, if any".

Research and Development

2.43 The Government have identified five generic areas for R&D in this sector which are (i) research and development for indigenising design and manufacture of all types of wind turbines by 2012; (ii) technology support to wind power industry to become net foreign exchange earner by 2012; (iii) improvement in the performance of the wind turbine installations so as to raise CUF from 17 percent to 25 percent by 2012; (iv) manpower training and HRD; and (v) research support to wind resource assessment and micro sitting. Two new R&D projects, namely, parameterisation of flow distortion around wind turbine nacelle, and scanning of wind profile in Palghat Gap have been initiated during the year.

2.44 About Rs. 62.25 lakhs have been spent on R&D and its related projects covering wind systems and small aero-generators from 2000-01 onwards.

2.45 When asked about R&D efforts made to develop a suitable indigenised substitute of the imported technology, the Ministry stated:–

> "Wind energy industry in India is import intensive for technology, raw materials, sub-systems and components, especially for wind turbines about 500 KW capacity. To reduce import dependency, the following broad aims have been set:–
>
> - Raise capacity utilization factor of operating wind turbines from an existing average of 17% to 25% by 2012.
> - Reduce the cost of wind power to below Rs.2.5 crore per MW by 2012.
> - Reduce cost of generation of wind power to around Rs.2 per unit by 2012.
> - Indigenise design and manufacture of complete wind turbines by 2012.

- Wind manufacturing industry to become a net foreign exchange earner by 2012".

2.46 The Committee observe that there has been a mis-match between physical and financial targets and achievements of wind power programme since the year 2002–03. For example during 2002–03, it is found that Rs. 14.56 crore was allocated at the Budgetary Estimate (BE) stage which was reduced to Rs. 5.60 crore at Revised Estimate (RE) and the actual amount spent was further reduced to Rs. 5.35 crore. Similarly, during 2003–04, the amount of Rs. 14.00 crore (B.E.) was reduced to Rs. 10.30 crore (RE) and the actual amount spent was further reduced to Rs. 6.92 crore. The reasons attributed for variations in BE and RE during the years 2002–03 and 2003–04 was the introduction of new components that were envisaged earlier but were not approved for implementation. However, the Committee find that the Government were unable to assess the appropriate amount required even at the stage of Revised Estimate particularly in the year 2003–04 when the actual amount spent was further reduced to Rs. 6.92 crore from Rs. 10.30 crore (RE). What is more surprising that the targets were over-achieved during both the years 2002–03 and 2003–04 (242 MW against the target of 200 MW during the year 2002–03 and the whopping 615 MW against the target of 250 WM during the year 2003–04). The variation in the actual expenditure vis-à-vis BE/RE clearly reflects the faulty budgetary estimation of the Ministry which in the opinion of the Committee needs to be rectified. The Ministry should also have close monitoring for such activities.

2.47 The Committee note that the gross potential for wind power generation is estimated at 45000 MW spreading over 10 States and 2 Union Territories namely, Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and West Bengal. Except Orissa all the 9 states have already declared their policy for private sector participation. Andaman & Nicobar islands and Lakshadweep do not have adequate facilities for power evaluation. Near about 2500 MW capacity has so far been achieved through the installation of grid interactive wind power projects. More than 90% of 2500 MW have been achieved through private sector participation. Now, it has been targeted to install 5% of the additional total power generation capacity through grid interactive wind power during the 10th and 11th Plan periods. The Committee feel that the Government would be able to achieve this target particularly because the private sector response is favourable as a result of de-licensing provision for such power generation under the Electricity Act, 2003 and the past performance of the

Government in the wind power sector particularly during the years 2002–03 and 2003–04 is encouraging. However, the MNES should prevail upon the Government of Orissa to declare its policy for private sector participation without any further delay. Moreover, lack of facilities for power evacuation in Andaman & Nicobar and Lakshdweep islands, which have a vast potential for wind power generation, should not come in the way of participation of private sector in the wind energy programme. The Committee, therefore, desire that the Ministry should keep the efforts up to achieve the targets.

2.48 The Committee find that the gross potential for wind power generation is estimated at 45000 MW. However, technical potential has been estimated at about 13,400 MW on account of grid capacity. The Committee are, therefore, of the firm opinion that in order to bridge the gap between the total available potential and technical potential, R&D plays a very significant role in this respect. However, the Committee are pained to know that this very important component has been ignored over the last so many years and only Rs. 62.25 lakh have been spent on R&D and its related projects covering wind systems and small aero-generators since 2000–01. The Committee also note that now the Ministry have decided to raise capacity utilisation factor of operating wind turbines from an existing 17% to 25%, reduce the cost of wind power to below Rs. 2.5 crore per MW, reduce the cost of generation of wind power to around Rs. 2 per unit, indigenise design and manufacture of complete wind turbines and wind manufacturing industry to become a net foreign exchange earner by 2012 through Research and Development (R&D) efforts. The Committee strongly recommend that these efforts should not go waste and sincere efforts should be made to execute the proposed activities/ schemes in right earnest. The Committee, therefore, desire that sufficient funds should be allotted under this head and Government should ensure that the funds available are optimally utilized.

D. REMOTE VILLAGE ELECTRIFICATION PROGRAMME (RVE)

Electrification is one of the main infrastructural requirements for agricultural development, employment generation and improvement in the quality of life of people in rural areas. According to statistics compiled by the Central Electricity Authority, the status of village electrification as on 31st March, 2004 is as follows:

Number of villages (according to 1991 census) : 5,87,258

Number of villages electrified	:	4,93,911
Percentage of electrified villages	:	84.1%
Balance villages to be electrified	:	93,347

2.50 According to 2001 census, only about 43.5% of the rural households have been provided with electricity connections where too transmission load factor is dismal. The vast majority of rural populations, is dependent on kerosene lamps and lanterns for basic requirement such as lighting. It is estimated that there are about 18,000 unelectrified villages in remote and difficult areas such as forests, hills, deserts and islands. Since such remote villages cannot be electrified by conventional grid extension, it is proposed to electrify them by non-conventional energy means.

2.51 The objective of the Remote Village Electrification Programme (RVE) is to electrify all remote census villages and remote hamlets of electrified census villages through non-conventional energy sources such as small hydro power, biomass, solar, wind, hybrid systems, etc. The scope of the Programme covers electrification of all unelectrified remote census villages by 2007, all unelectrified remote hamlets of electrified census villages by 2012 and all households of remote census villages and hamlets by 2012.

2.52 Out of the 24,685 remote census villages identified in 24 States/UTs for electrification through renewable energy sources, only 1695 remote villages and 316 remote hamlets have been electrified as on 30.6.2004. A total of 613 villages out of the target of 1000 villages, has been electrified through various renewable energy systems during the year 2003–04. Rs. 200.00 crore has been allocated for electrifying 4000 remote villages/hamlets and for completion of electrification projects in 3000 remote villages/hamlets.

2.53 An outlay of Rs. 735 crore has been provided for the Remote Village Electrification Programme for the 10th Plan period.

2.54 Furnishing the details of the scope, implementation strategy and financing arrangements of the Remote Village Electrification programme, the Ministry stated:–

> "The scope of the Programme covers electrification of unelectrified remote census villages, unelectrified remote hamlets of electrified census villages, which will not be electrified by conventional means by the end of the Eleventh Plan (2012), as certified by the concerned Power Department/State Electricity Board. The implementation strategy for the Programme is directed at

electrification of remote villages and remote hamlets through State renewable energy development agencies/power departments/electricity boards/corporate entities for power generation, transmission and distribution set up by the Central or State Governments; non-governmental organisations, co-operative societies and similar non-profit bodies; district level bodies, panchayati raj institutions, village councils; and the private sector. To give an initial boost to the programme, Central Financial Assistance (CFA) upto 90% of the cost of the project subject to benchmark costs for different technologies is being provided as grant for electrification of remote unelectrified census villages under the Programme. The balance 10% cost is to be met by the State agencies/beneficiaries".

2.55 When asked how many potential villages have been identified, the Ministry in a written replay stated:–

"The Ministry is in contact with the concerned State agencies regarding compilation of lists of remote census villages proposed to be electrified through renewable energy sources. Tentative lists of over 24,685 remote census villages in 24 States/UTs have already been received, which are being firmed up".

2.56 When asked whether the appropriate non-conventional technologies to electrify them have also been identified, the Ministry informed:–

"So far, remote village electrification has been undertaken mainly through Solar Home Systems or solar power plants based on solar photovoltaic technologies. However, in future biomass gasifier systems with dual fuel or 100% producer gas engines and mini hydel plants, wind energy, biogas, bio-fuels, hybrid systems, etc. could be deployed".

2.57 Furnishing about the details of the proposals received, sanctioned and electrified since the inception of the surveys meant for identification of the potential villages, the Ministry stated:–

"As on 30.06.2004, 1695 remote villages and 316 remote hamlets in 10 States/UTs have been electrified under this Programme. In addition, projects are under implementation in 1385 villages and 721 hamlets in 17 States/ UTs. Proposals for another 2100 remote villages and hamlets in various States are under process".

2.58 Informing about the overall physical and financial targets to electrify the above-mentioned villages through non-conventional systems and the sources of financing the scheme, the Ministry stated:–

"As per the 10th Plan document, a target for electrification of 5000 remote villages has been set with an outlay of Rs.735 crores. There is no change in this position as of now. To give an initial boost to the programme, Central Financial Assistance (CFA) up to 90% of the cost of the project is being provided as grant for electrification of remote unelectrified census villages. The balance 10% cost could be financed through sources such as PMGY, MNP, RIDF, Ministry of Tribal Affairs, MPLAD/MLALAD and the corporate sector. The implementing agencies would be free to raise funds from these and other sources, such as REC, PFC, etc. including users, to meet their share of the project cost. So far no funds have been utilised meeting the state share from Accelerated Power Development Reform Programme (APDRP). Pradhan Mantri Gramodaya Yojana (PMGY) funds have been utilised in certain cases towards meeting the State share".

2.59 When asked whether any Panchayati Raj Institutions, Co-operative Societies, NGOs and other non-profit bodies participate in the Remote Village Electrification Programmes, the Ministry informed:–

"State agencies have been advised to secure the participation of the Panchayati Raj Institutions, Co-operative societies, NGOs etc. in electrification of remote villages. Their participation can contribute to effective long term operation and maintenance arrangements and sustainability aspects with a view to providing dependable electricity supply for various needs in remote villages and hamlets. A few NGOs such as Tata Energy and Resources Institute (TERI), DESI Power, Winrock International India (WII) and Social Work and Research Centre (SWRC) have shown interest in the implementation of the remote village electrification projects".

2.60 The Committee note that the Village Electrification Programme, which is now known as Remote Village Electrification Programme, was initiated by the Ministry of NCES during the year 2001–02 to electrify all the 18000 un-electrified villages situated in remote and difficult areas such as forests, hills deserts and islands by the year 2012 AD. It is further noted that the number of un-electrified villages to be electrified through non-conventional energy sources has now increased from 18000 to 24,685. A tentative list of over 24,685 remote census villages in 24 States/UTs have already been received. As on 30.06.2004, 1695 remote villages and 316 remote hamlets in 10 States/ UTs have been electrified under this programme and 1385 villages and 721

hamlets are under implementations in 17 States/UTs. Proposals for another 2100 remote villages and hamlets in various states are under process. This would take the total number of remote villages/hamlets electrified through non-conventional energy sources to about 5000 by the end of March, 2005. The Committee also note that an outlay, of Rs. 735 crore has been provided to electrify 5000 villages under the Remote Village Electrification Programme for 10th Five Year Plan. Out of this, Rs. 200.00 crore have been earmarked during the year 2004–05 to sanction new projects in 4000 remote villages/ hamlets and to complete electrification project in 3000 remote villages/hamlets. But the Committee are perturbed to note that only a paltry sum of Rs. 4.35 crore was spent out of Rs. 20.00 crore during the year 2001–02. During the year 2002–03, Rs 34.77 crore was spent out of allocated amount of Rs. 75.00 crore to electricity 520 villages out of the target of 500 villages. Similarly, out of the earmarked amount of Rs. 100.00 crore, only Rs. 85.79 crore was spent during the year 2003–04 to electrify 613 villages out of the total target of 1000 villages during the year 2003–04. The Committee, therefore, recommend that the Government should make all out efforts to utilise the allocated amount fully and informed accordingly.

2.61 The Committee note that much work has not been done to secure the association of Panchayati Raj Institutions, Co-operative Societies, NGOs etc. The Committee feel that their participation can contribute to the effective long term-operation and maintenance arrangements and reliable supply of electricity to meet the various needs of the people residing in the remote inaccessible villages/hamlets. The Committee desire that the Ministry should multiply their efforts to ensure their participation on a large scale.

2.62 The Committee note that an outlay of Rs. 735 crore has been provided to electrify 5000 villages under the Remote Village Electrification Programme for 10th Five Year Plan. However, the Committee find that more than 24,685 un-electrified villages have been identified for electrification as on date. The Committee feel that there is a great need to increase the coverage of this programme from 5000 villages to 10000 villages or more during the 10th Plan itself. Therefore, the Committee recommend that the Ministry should approach the Planning Commission/Ministry of Finance for an increase in outlay under this head. The Committee may also be apprised of the initiatives taken in this regard.

2.63 The Committee note that the Government is also running an Integrated Rural Energy Programme (IREP) which aims at integrating different rural energy programme and their convergence at grassroots level for improving the quality of life of the rural people. The Committee feel that Government should review the two programmes and see whether these can be run as a unified programme so that there is no duplications of efforts. The Committee feel that atleast these two programmes, if kept, separate should be supplementary to each other.

E. BIOMASS CONVERSION AND UTILISATION PROGRAMME

2.64 The availability of biomass in India is estimated at about 540 million tonnes per year covering residues from agriculture, forestry and plantations. Principal agricultural residues include rice husk, rice straw, bagasse, sugar cane tops and leaves, trash, groundnut shells, cotton stalks, mustard stalks etc. It has been estimated that about 70–75% of these wastes are used as fodder, as fuel for domestic cooking and for other economic purposes leaving behind 120–150 million tonnes of usable agricultural residues per year which could be made available for power generation. By using these surplus agricultural residues, more than 16,000 MW of grid quality power can be generated with presently available technologies. In addition, around 3,500 MW of power can be produced, if all the 500 sugar mills in the country switch over to modern techniques of co-generation. Thus, the country is considered to have a biomass power potential of about 19,500 MW. The average cost of biomass based power generation projects is estimated at Rs. 3–4 crore per MW. The cost of bagasse based cogeneration projects is estimated at Rs. 2.5–3.5 crore per MW. The cost of biomass gasification based power generation is expected to be between Rs. 3.5–4.5 crore per MW. The expected economic life of biomass power and bagasse cogeneration projects is around 25 years while that of biomass gasifier projects is 10–15 years. A budget of Rs. 15.00 crore has been proposed for Biomass Power Programme for the year 2004–05 for which a Physical target of 125 MW has been proposed. A physical target of 10 MW including 1 MW for NE States and Sikkim is proposed for the Biomass Gasifier Programme for the year 2004–05 for which Rs. 10.00 crore has been located.

2.65 The details of physical and financial targets and achievements for the last 3 years are given below:

2.66 When asked about the reasons for variations in physical and financial

targets and achievements, the Ministry stated as under:–

"The variations in the physical and financial achievements during the last 3 years have occurred due to the following reasons:

A. PHYSICAL

(in MW)

Programme	2001–02		2002–03		2003–04	
	Target	Achievement	Target	Achievement	Target	Achievement
Biomass Power Programme	80	89	100	102.63	125	129.50
Biomass Gasifier Programme	7.0	11.11	10	2.07	5.0	4.85

B. FINANCIAL

(Rs. in crore)

Programme	2001–02		2002–03		2003–04	
	BE/RE	Actual	BE/RE	Actual	BE/RE	Actual
Biomass Power Programme	15.00/ 21.75	21.75	19.28/ 16.78	16.78	18.00/ 16.50	11.95
Biomass Gasifier Programme	3.80/ 4.50	4.50	5.0/ 3.25	3.69	4.0/ 2.20	2.29

The release of funds for projects are sometimes delayed due to delay in clearances from the State Statutory authorities, delay in financial tie-ups or other commercial reasons.

The difference in BE/RE and actual financial figures during 2002–03 was because of mandatory cut imposed by the Ministry of Finance".

2.67 The overall physical and financial targets during the 9th Plan and 10th Plan are as follows:

This component has now been mainly transferred to Remote Village Electrification Programme.

2.68 Asked about the percentage of the total potential that has been harnessed

Programme	9th Plan				10th Plan			
	Physical (MW)		Financial (Rs in crore)		Physical (MW)		Financial (Rs in crore)	
	Target	Achieve-ment	BE	Achieve-ment	Target	Achieve-ment so far	Proposed Outlay	Achieve-ment so far
Biomass Power/ Cogen	314	295.30	82.30	74.50	700	232.13	125.00	28.72
Biomass Gasifier	40	29.68	18.50	14.61	50*	6.92	30.00	5.98

*This excludes the target of 25 MW and an allocation of Rs. 70 crores for village electrification programme including those in North-Eastern States and Sikkim.

up till now, the Ministry stated:–

> "For biomass based power generation, around 1.8% of the total estimated potential of 16,000 MW has been harnessed through 234 MW of biomass grid interactive power and 60 MW from biomass gasification technologies. For bagasse based cogeneration, around 11% of the total estimated potential of 3500 MW has been harnessed so far ".

2.69 When asked about the reasons for such a huge variation in exploiting the potential from biomass based power generation and bagasse based co-generation, the Ministry stated:-

> "The main reasons for higher level of exploitation of bagasse cogeneration include the long experience of sugar industry in operation of cogeneration projects; lower risks due to availability of a captive biomass resource, *i.e.* bagasse; greater willingness of financial institutions to finance projects in existing profit making sugar mills etc. On the other hand, grid-connected biomass power projects have to be set up as a new venture by entrepreneurs. There are greater risks in such projects due to dispersed availability of biomass feedstock, which is largely in the form of agro-residues and is subject to seasonal and market variations".

2.70 Asked about the bottlenecks that have been identified while implementing the programme and the steps that have been undertaken to tide-over the situation, the Ministry informed:–

"Adequate availability of biomass for grid interactive power generation has been a problem in some areas. The Ministry is planning to use biomass for off-grid applications in villages, where availability and collection of biomass is not a problem. Further, the technology of biomass gasification for grid interactive power generation is still to be fully established in commercial mode. However, the Ministry is continuing its efforts to take this technology beyond demonstration phase through technology development. It is expected that through the sustained efforts of the Ministry, a multi-fold expansion of the deployment of these systems in the coming years may become a reality".

2.71 The Committee have observed that about 540 million tonnes of biomass is available in the country. Out of this about 120–150 million tonnes *i.e.* 25 to 30% is available for biomass based power generation projects. The Committee further note that Biomass Conversion Programme did not make much headway during the last two years. In 2002–03 only 2.07 MW could be achieved out of the target of 10 MW and 4.85 MW out of the target 5.0 MW during the year 2003–04. During the 9th Plan period the position was also not better as only 29.68 MW could be achieved out of the total target of 40 MW. The Committee express its concerns at the slow pace of the implementation of this very vital programme. The reasons adduced by the Ministry for not achieving the physical targets are the delayed release of funds for projects due to delay in clearances from State statutory authorities, delay in financial tie-ups or other commercial reasons. The Committee are not convinced with these reasons and desire that 'Single Window Clearance System' should be introduced in each State for dealing with such projects. As regards other bottlenecks while implementing the programme, the Committee has been informed that adequate availability of biomass for grid interactive power generation has been a problem in some areas and the Ministry is planning to use biomass for off-grid applications in villages where availability and collection of biomass is not a problem. Further the technology of biomass gasification for grid interactive power generation is still to be fully established in commercial mode. However, the Ministry are sustaining their efforts to take this technology beyond demonstration phase through technology development. The Committee thrust that Government would make persistent Research and Development in this regard and a multi-fold expansion of the deployment of these systems in the coming years may become a reality. The Committee may be apprised of the efforts made in this direction.

2.72 The Committee also observe that there is a huge variation in exploiting the potential from biomass based power generation and bagasse

based co-generation. The main reasons for higher level of exploitation of bagasse co-generation *inter-alia* include the long experience of sugar industry in operation of co-generation projects, lower risks due to availability of captive biomass resource *i.e.* bagasse, greater willingness of financial institutions to finance projects in existing profit making sugar mills, etc. The Committee also note that if all the 500 sugar mills in the country switch over to modern techniques of co-generation around 3,500 MW of power can be produced. However, at present around 11% of the total estimated potential of 3500 MW has been harnessed through bagasse based co-generation. The Committee, therefore, strongly recommend that the Ministry should draw up an action plan including technology and research support for exploitation of bagasse co-generation and Committee would also like to be apprised of the action taken in this regard. Similarly, the Committee feel that the Ministry should formulate a policy which facilitates single window clearance for such projects in sugarcane producing States, e.g. Maharashtra, U.P., Tamil Nadu etc. The Government could also consider giving financial incentives for such projects.

NEW DELHI;
18 *August*, 2004
27 *Sravana*, 1926 *(Saka)*

GURUDAS KAMAT,
Chairman,
Standing Committee on Energy.

STATEMENT OF CONCLUSIONS/RECOMMENDATIONS OF THE STANDING COMMITTEE OF ENERGY CONTAINED IN THE REPORT

Sl. No.	Reference Para No. of the Report	Conclusions/Recommendations
1	2	3
1.	2.9	The Ministry of Non-Conventional Energy Sources have presented Demands for Grants of Rs. 605.27 crore for the year 2004–05 against the Budget Estimate (B.E.) of Rs. 630.15 crore and Revised Estimate (R.E.) of Rs. 395.73 crore during the year 2003–04. During the first two years of the 10th Five Year Plan *i.e.* over the years 2002–03 and 2003–04, Rs. 808.15 crore has been spent out of the total plan outlay of Rs.4000 crore at the level of Gross Budgetary Support (G.B.S) corresponding to the achievement of 1268.68 MW out of the total 10th Five Year Plan target of 3075 MW of power from renewables. Against a target of 5000 villages, 1133 remote unelectrified villages have been electrified through renewable energy sources during the first two years of the 10th Five Year Plan. For the year 2004–05, Rs. 21.00 crores, Rs. 19.00 crores and Rs. 36.00 crores have been allocated to add corresponding aggregate capacity of 350 MW through wind, 125 MW through Biomass/cogeneration and 100 MW through small hydro power projects respectively. The target for completion of electrification projects in 3000 remote villages/hamlets at the cost of Rs. 200.00 crore has been fixed for the year 2004–05. But the Committee are not sure whether the physical or financial targets would be achieved by the Ministry during the year 2004–05 taking into consideration of their past track record. For instance, Rs. 423.74 crore were spent during the year 2002–03 out of the B.E. of Rs. 624.25 crore at the level of G.B.S. Similarly, Rs. 384.41 crore only could be spent out of the B.E. of Rs. 625 crore at

1	2	3
		the level of G.B.S. during the year 2003–04. Furthermore, Rs. 14.40 crore only was utilised during the 1st quarter of the year 2003–04. During 2nd and 3rd quarters Rs. 56.74 crore and Rs. 37.45 crore respectively were spent. Thus, Rs. 108.59 crore only out of Rs. 384.41 crore spent during the first three quarters of the year 2003–04. It is against the directions of the Ministry of Finance which entails the need to ensure that expenditure is evenly spread over all the four quarters of the financial year. The Committee are of the considered opinion that such variations in expenditure is due to inherent lacunas in the budgetary mechanism of the Ministry which require urgent attention and intensive discussions with the Ministry of Finance and the Planning Commission to ensure the full utilization of allocated budget in a uniform manner spreading over all the four quarters of the financial year.
2.	2.10	The Committee have observed that over-optimistic targets, which are seldom achieved, have been proposed for mobilization of Internal and Extra Budgetary Resources (IEBR). The Ministry in their reply have stated that continuous efforts are made to make realistic projection for IEBR. But the Committee find that the efforts of the Ministry do not bear any fruit. The Committee do not approve of the Ministry's failure to spend their full 9th Plan allocations of Rs. 2122.14 crore and could spend only Rs. 1669.98 crore. The Ministry of Non-Conventional Energy Sources/IREDA failed miserably not only on the front of direct external aid received from KFW and IBRD but also in mobilizing internal resources from internal accruals, Opening Balance Cash in hand, repayment of IREDA loan and bank loan etc. resulting in erratic variations in BE, RE and actuals at the level of gross IEBR increasing from Rs. 600.50 crore (BE) to Rs. 976.36 crore (RE) and then decreasing to Rs. 828.47 crore during 2003–04. Furthermore, net IEBR decreased from Rs. 454.15 crore (BE) to Rs. 437.52 crore (RE) which further went down to Rs. 332.31

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		crore, on account of sharp variations among BE, RE and actuals in the free bonds (Call & Put) during the year 2003–04. The reasons adduced by the Ministry/IREDA for such variations are very general and are not as such, which could not be visualized in advance. The Committee note that such variations are to some extent due to the inability of the projects promoters to furnish the requisite documents before the end of financial years. The Committee, therefore, recommend that the MNES/IREDA should take effective steps to review their procedures etc. and simplify requirement of documents so that the targeted utilisation of funds can be achieved.
3.	2.11	The Committee note that the Ministry have resolved to achieve the targets of additional installed capacity of 10 percent *i.e.* 10,000 MW by the year 2012. In addition, it has also been decided to electrify all the 24,685 remote villages/hamlets through non-conventional energy sources, which have now increased from the earlier number of 18,000 villages due to revision of the definition of electrified villages. The Committee note that during 9th Plan, only Rs. 15.13 crore were spent for Village Electrification Programme when the target was to electrify 18,000 villages. Now that the number of villages have increased, the Government have proposed an outlay of Rs. 735 crore for 10th Plan. But, utilisation of this amount during the first two years of 10th Plan is much below the expectation. Against the average utilization of Rs. 294 crore during the two years period, only Rs. 94.59 crore have been utilised. Physically also against an average target of 2000 villages, only 1133 villages have been electrified in these 2 years. The Committee, therefore, feel that the Ministry should make all out efforts to achieve the financial and physical targets set for various programmes of energy from renewable sources of energy. As far as possible only realistic targets be set. The Committee also note that no allocations have been made for R&D sector by the Ministry. The Committee feel that without R&D efforts,

1	2	3
		no sector can withstand competition in today's liberalised economy. During the discussions the Committee were of the view that the outlay for Research & Development will have to be increased so as to bring down the cost of most of these sources e.g. Wind, Solar, Small Hydro etc. The Committee is also disturbed to note that the Outlay has been decreasing over the last couple of years and that the Ministry has not been able to make any provision for R&D and new innovations. The Committee, therefore, strongly recommend that the Ministry should seek budgetary support for this crucial area and also chalk out the programme to utilise the amount fully. The Committee may be informed of the action taken in the matter.
4.	2.12	The Committee note that during the 9th Plan, the Ministry could be able to achieve 43% of the total Plan target of 42 MW and during the first two years of the 10th Five Year Plan it could be able to achieve only 25% of the overall plan target of 80 MW under the waste to energy programme. The Committee further note during the course of deliberations that huge volumes of garbage generated in metropolitan cities are a perennial environmental hazard. Not only their disposal constitutes a problem as there are very few open spaces left in the metros, garbage seepage also contaminates ground water sources. The Committee were informed that successful experiments were carried out by the Mumbai Municipal Corporation in converting this garbage into energy pellets. The Committee recommends that the Ministry should conduct a detailed study into this issue and formulate a viable scheme of energy from metropolitan waste.
5.	2.33	The Committee find that out of the total estimated potential of 15,000 MW for the small hydro projects (upto 25 MW), 10,324 MW have already been identified and 1603 MW have been exploited out of the sites aggregating to 8721 MW available for exploitation. It is also learnt that 2% or 2000 MW additional capacity in power generation

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		would come from SHP during the 10th and 11th Plan periods. In tune with this ambitious target, the Government have planned to achieve 100 MW at the cost of Rs. 35 crore during 2004–05 and 600 MW at the cost of Rs. 375 crore during the 10th Plan period. Keeping in view the past performance of the Ministry, the Committee feel that extra efforts would be required to achieve these targets. During the first two years of the 10th Five Year Plan *i.e.* during 2002–03 and 2003–04, only 164.43 MW (80.34 MW and 84.09 MW) could be achieved and the remaining 435.57 MW (600 MW–164.43 MW) will have to be achieved during the remaining three years period of the 10th Five Year Plan. It will require a matching fund to the tune of Rs. 1742.16 crore by taking an average requirement of Rs. 4.00 crore per MW. The Committee, therefore, urge upon the Ministry of Finance and Planning Commission to provide matching fund to the Ministry to achieve the targets 2000 MW by the end of 11th Five Year Plan. The Ministry should also make their own plan of action to achieve the physical and financial target set for each financial year so that the long term target of 2000 MW could be achieved by the year 2012. The Committee feel that there is a lot of scope for private participation in small hydel sector. Though IREDA has taken a number of steps to encourage the private sector participation, but a lot needs to be done to remove the difficulties faced by them in the execution of the projects. The Committee recommend that these should be identified with the help of entrepreneurs and corrective steps be taken.
6.	2.34	The Committee find that there exist a potential of 15,000 MW for the Small Hydro Projects up to 25 MW. The Committee have noted the efforts of the Ministry in the form of providing financial support ranging between Rs. 15.00 lakhs to Rs. 30.00 lakhs from 2003–04 onwards to identify new potential sites in special category States containing North-Eastern region, Sikkim, Jammu & Kashmir, Himachal Pradesh, Uttaranchal as well

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		as in other States/UTs. The Committee are happy to learn that 100 new sites have been identified by the Chhattisgarh with the help of Alternate Hydro Energy Centre, Roorkee, J&K, Jharkhand, Karnataka, Maharashtra, Punjab, U.P., Uttaranchal, Kerala and Andhra Pradesh are also taking interest and are preparing proposals under the scheme. The Committee recommend that the Government should encourage all these States to take up the scheme at the earliest as has been done by Chhattisgarh. The Committee feel that the Government should also examine whether the amount provided as a financial support for the projects to identify new sites is sufficient or needs any enhancement.
7.	2.35	The Committee feel that there is also a need to assess and identify the small hydro potential in relatively untouched and untapped areas of tail-end flow of water of mega/major, thermal/hydro project, dam-toes sites of the major/small dams and several tea-estates existing in the country. The Committee find that the potential of tail-end projects, dam-toe sites Small Hydro projects stand at 100 MW and it is 1600 MW for Canal based projects. The Committee observe that despite the incentives offered for assessment of potential in the tail-end flow sites of mega/major projects and the dam-toes sites and also for canal based projects, the identification and assessment of potentials are not picking up. The Committeee, therefore, desire that appropriate steps should be taken to attract the investors to assess and identify the potential sites.
8.	2.36	The Committee note that Renovation and Modernization (R&M) of the small hydro power projects is the cost-effective option requiring no clearances and having short gestation period to realize the capacity addition. During the last three years, the Ministry have sanctioned 16 small hydro projects and 314 water mills for R&M. The Committee desire that a comprehensive survey should be carried out to assess the requirement of R&M for all the installed small hydro projects

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		and water mill units which have completed their normal life or are likely to complete within next 2 to 3 years. The Committee note that out of the 34 R&M proposals for SHP, 16 were sanctioned, 5 were given 'in-principle' approval, additional information were sought 8 small hydro projects and 5 were rejected on account of relatively high cost involved in the R&M. Similarly, out of the 340 R&M proposals for water mills, 314 were sanctioned and 26 were rejected for want of requisite information. The Committee desire that before rejecting any proposal a proper cost-benefit analysis should be done. The Committee, therefore, recommend that all the projects which can be renovated and modernized in a cost-effective manner should be encouraged to undertake R&M works in a time-bound manner.
9.	2.46	The Committee observe that there has been a mis-match between physical and financial targets and achievements of wind power programme since the year 2002-03. For example during 2002-03, it is found that Rs. 14.56 crore was allocated at the Budgetary Estimate (BE) stage which was reduced to Rs. 5.60 crore at Revised Estimate (RE) and the actual amount spent was further reduced to Rs. 5.35 crore. Similarly, during 2003-04, the amount of Rs. 14.00 crore (B.E.) was reduced to Rs. 10.30 crore (RE) and the actual amount spent was further reduced to Rs. 6.92 crore. The reasons attributed for variations in BE and RE during the years 2002-03 and 2003-04 was the introduction of new components that were envisaged earlier but were not approved for implementation. However, the Committee find that the Government were unable to assess the appropriate amount required even at the stage of Revised Estimate particularly in the year 2003-04 when the actual amount spent was further reduced to Rs. 6.92 crore from Rs. 10.30 crore (RE). What is more surprising that the targets were over-achieved during both the years 2002-03 and 2003-04 (242 MW against the target of 200 MW during the year

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		2002-03 and the whopping 615 MW against the target of 250 WM during the year 2003-04). The variation in the actual expenditure *vis-à-vis* BE/RE clearly reflects the faulty budgetary estimation of the Ministry which in the opinion of the Committee needs to be rectified. The Ministry should also have close monitoring for such activities.
10.	2.47	The Committee note that the gross potential for wind power generation is estimated at 45000 MW spreading over 10 States and 2 Union Territories namely, Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and West Bengal. Except Orissa, all the 9 States have already declared their policy for private sector participation. Andaman & Nicobar islands and Lakshadweep do not have adequate facilities for power evacuation. Near about 2500 MW capacity has so far been achieved through the installation of grid interactive wind power projects. More than 90% of 2500 MW have been achieved through private sector participation. Now, it has been targeted to install 5% of the additional total power generation capacity through grid interactive wind power during the 10th and 11th Plan periods. The Committee feel that the Government would be able to achieve this target particularly because the private sector response is favourable as a result of de-licensing provision for such power generation under the Electricity Act, 2003 and the past performance of the Government in the wind power sector particularly during the year 2002-03 and 2003-04 is encouraging. However, the MNES should prevail upon the Government of Orissa to declare its policy for private sector participation without any further delay. Moreover, lack of facilities for power evacuation in Andaman & Nicobar and Lakshadweep Islands, which have a vast potential for wind power generation, should not come in the way of participation of private sector in the wind energy programme. The Committee, therefore, desire that the Ministry should keep the efforts made to achieve the targets.

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11.	2.48	The Committee find that the gross potential for wind power generation is estimated at 45000 MW. However, technical potential has been estimated at about 13,400 MW on account of grid capacity. The Committee are, therefore, of the firm opinion that in order to bridge the gap between the total available potential and technical potential, R&D plays a very significant role in this respect. However, the Committee are pained to know that this very important component has been ignored over the last so many years and only Rs. 62.25 lakh have been spent on R&D and its related projects covering wind systems and small aero-generators since 2000–01. The Committee also note that now the Ministry have decided to raise capacity utilisation factor of operating wind turbines from an existing 17% to 25%, reduce the cost of wind power of below Rs. 2.5 crore per MW, reduce the cost of generation of wind power to around Rs. 2 per unit, indigenise design and manufacture of complete wind turbines and wind manufacturing industry to become a net foreign exchange earner by 2012 through Research and Development (R&D) efforts. The Committee strongly recommend that these efforts should not go waste and sincere effort should be made to execute the proposed activities/schemes in right earnest. The Committee, therefore, desire that sufficient funds should be allotted under this head and Government should ensure that the funds available are optimally utilized.
12.	2.60	The Committee note that the Village Electrification Programme, which is now known as Remote Village Electrification Programme, was initiated by the Ministry of NCES during the year 2001–02 to electrify all the 18000 un-electrified villages situated in remote and difficult areas such as forests, hills, deserts and islands by the year 2012 AD. It is further noted that the number of un-electrified villages to be electrified through non-conventional energy sources has now increased from 18000 to 24,685. A tentative list of over 24,685 remote census villages in 24 States/UTs

1	2	3
		have already been received. As on 30.06.2004, 1695 remote villages and 316 remote hamlets in 10 States/UTs have been electrified under this programme and 1385 villages and 721 hamlets are under implementations in 17 States/UTs. Proposals for another 2100 remote villages and hamlets in various States are under process. This would take the total number of remote villages/hamlets electrified through non-conventional energy sources to about 5000 by the end of March 2005. The Committee also note that an outlay, of Rs. 735 crore has been provided to electrify 5000 villages under the Remote Village Electrification Programme for 10th Five Year Plan. Out of this, Rs. 200.00 crore have been earmarked during the year 2004-05 to sanction new projects in 4000 remote villages/hamlets and to complete electrification project in 3000 remote villages/hamlets. But the Committee are perturbed to note that only a paltry sum of Rs. 4.35 crore was spent out of Rs. 20.00 crore during the year 2001-02. During the year 2002-03, Rs. 34.77 crore was spent out of allocated amount of Rs. 75.00 crore electrify 520 villages out of the target of 500 villages. Similarly, out of the earmarked amount of Rs. 100.00 crore, only Rs. 85.79 crore was spent during the year 2003-04 to electrify 613 villages out of the total target of 1000 villages during the year 2003-04. The Committee, therefore, recommend that the Government should make all out efforts to utilise the allocated amount fully and informed accordingly.
13.	2.61	The Committee note that much work has not been done to secure the association of Panchayati Raj Institutions, Co-operative Societies, NGOs etc. The Committee feel that their participation can contribute to the effective long term-operation and maintenance arrangements and reliable supply of electricity to meet the various needs of the people residing in the remote inaccessible villages/hamlets. The Committee desire that the Ministry should multiply their efforts to ensure their participation on a large scale.

1	2	3
14.	2.62	The Committee note that an outlay of Rs. 735 crore has been provided to electrify 5000 villages under the Remote Village Electrification Programme for 10th Five Year Plan. However, the Committee find that more than 24685 un-electrified villages have been identified for electrification as on date. The Committee feel that there is a great need to increase the coverage of this programme from 5000 villages to 10000 villages or more during the 10th plan itself. Therefore, the Committee recommend that the Ministry should approach the Planning Commission/Ministry of Finance for an increase in outlay under this head. The Committee may also be apprised of the initiatives taken in this regard.
15.	2.63	The Committee note that the Government is also running an Integrated Rural Energy Programme (IREP) which aims at integrating different rural energy programme and their convergence at grassroots level for improving the quality of life of the rural people. The Committee feel that Government should review the two programmes and see whether these can be run as a unified programme so that there is no duplications of efforts. The Committee feel that atleast these two programmes, if kept separate should be supplementary to each other.
16.	2.71	The Committee observed that about 540 million tonnes of biomass is available in the country. Out of this about 120–150 million tonnes *i.e.* 25 to 30% is available for biomass based power generation projects. The Committee further note that Biomass Conversion Programme did not make much headway during the last two years. In 2002-03 only 2.07 MW could be achieved out of the target of 10 MW and 4.85 MW out of the target 5.0 MW during the year 2003-04. During the 9th Plan period the position was also not better as only 29.68 MW could be achieved out of the total target of 40 MW. The Committee express its concerns at the slow pace of the implementation of this very vital programme. The reasons adduced by the Ministry for

1	2	3
		not achieving the physical targets are the delayed release of funds for projects due to delay in clearances from State statutory authorities, delay in financial tie-ups or other commercial reasons. The Committee are not convinced with these reasons and desire that 'Single Window Clearance System' should be introduced in each State for dealing with such projects. As regards other bottlenecks while implementing the programme, the Committee has been informed that adequate availability of biomass for grid interactive power generation has been a problem in some areas and the Ministry is planning to use biomass for off-grid applications in villages where availability and collection of biomass is not a problem. Further, the technology of biomass gasification for grid interactive power generation is still to be fully established in commercial mode. However, the Ministry is sustaining its efforts to take this technology beyond demonstration phase through technology development. The Committee thrust that Government would make persistent Research and Development in this regard and a multi-fold expansion of the deployment of these systems in the coming years may become a reality. The Committee may be apprised of the efforts made in this direction.
17.	2.72	The Committee also observe that there is a huge variation in exploiting the potential from biomass based power generation and bagasse co-generation. The main reasons for higher level of exploitation of bagasse co-generation *inter-alia* include the long experience of sugar industry in operation of co-generation projects, lower risks due to availability of captive biomass resource *i.e.* bagasse, greater willingness of financial institutions to finance projects in existing profit making sugar mills etc. The Committee also note that if all the 500 sugar mills in the country switch over to modern techniques of co-generation around 3,500 MW of power can be produced. However, at present around 11% of the total estimated potential of 3500 MW

1	2	3
		has been harnessed through bagasse based co-generation. The Committee therefore, strongly recommend that the Ministry should draw up an action plan including technology and research support for exploitation of bagasse co-generation and Committee would also like to be apprised of the action taken in this regard. Similarly, the Committee feel that the Ministry should formulate a policy which facilitate single window clearance for such projects in sugarcane producing States, *e.g.* Maharashtra, U.P., Tamil Nadu etc. The Government could also consider giving financial incentives for such projects.

APPENDIX

Statement showing the Demands for Grants (2004–05) of the Ministry of Non-Conventional Energy Sources
(Demand No. 65)
(*vide* Para 1.10 of the Report)

(Rs. in crore)

			Revenue 509.23			Capital 96.04			Total 605.27		
Sl. No.	Major Heads	Programme Scheme	Revenue Section								Remarks
			2002–2003		2003–2004				2004-2005		
			Actual		BE		RE		BE		
			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.	3451	Secretariat Economic Services	4.50	5.21	6.40	5.35	6.40	5.73	6.91	5.47	This Head comprises wages, O.T.A., Domestic & Foreign Travel Expenses, Office Expenses, Rent, Rates Taxes, Publications, other Administrative Expenses, Advertising & Publicity, Professional Service, Commission for Additional Sources of Energy, Regional Office.
2.	2501	Special Programmes for Rural Development	0.13	–	0.15	–	0.15	–	1.60	–	This Programme includes IRDP Programme, Grants-in-aids for National & Regional Training Centre.

1	2	3	4	5	6	7	8	9	10	11	12
3.	2552	Lumpsum provision for North-Eastern Region and Sikkim	45.52	–	54.00	–	39.00	–	60.00	–	Lumpsum provision for North-Eastern Region and Sikkim.
4.	2810	Non-conventional Sources of Energy	223.65	–	413.4	–	243.81	–	417.13	–	This Head comprises R&D Non-Conventional Energy Sources, Bio-Energy assistance to Biomass Programme, National Programme for Biogas, Energy from Urban Municipal Waste, Energy from Industrial Waste, Small Hydro Power Development, SHP Promotion Programme, UNDP/GEF Hilly Hydro Projects, Chemical Sources of Energy, Alternative Fuel for Surface Transportation, Hydrogen Energy, Ocean Energy, National Institute of Renewable Energy, Special Area Demonstration Project, North-Eastern States/State Nodal Agencies, Dutch/ SDC Grants to IREDA, Lumpsum Provision for North-Eastern States including Sikkim, UNDP Rural Energy Support Programme, Rural Energy Entrepreneurship, Institutional Development, Technology Commercialisation Fund,

1	2	3	4	5	6	7	8	9	10	11	12
											Village Electrification Programme, Women and Renewable Energy Development, National Project on Clean Energy Services for Rural Areas, TIFAC, DEB Management System, Information and Public Programme, International Cooperation.
5.	3601	Grants-in-aid to State Government	14.13	–	20.73	–	16.43	–	15.59	–	This Head includes Grants-in-aids to State Governments for Small Hydro Power Programme, Wind Energy Grants for Central Sponsored Plan Schemes for Bio-Energy, Development, Advertising & Publicity, Community and Institutions, Biogas Development, Biomass Briquetting, Energy Plantation, Biomass Gasifier for Stand Alone Application, National Bio-Energy Board, Biomass Cogeneration and Combustion, Grid Connection Gasifier, Animal Energy Programme, Solar Passive Architecture, Regional Technical Back-up Units Training Programme, Solar Energy Centre, Inter-active Research with other Institutions/ Organisations, Professional Service,

1	2	3	4	5	6	7	8	9	10	11	12
											SPV Pump Programme, Solar Thermal Power Generation Grid connected ASPV Power Projects, GEF Grants for IS Project, Assistance to Wind Power Generation Programme, Assistance to Wind Power Programme, Wind Energy Centre, Wind Resources Assessment, National Programme on Improved Choolah, Women and Renewable Energy Development, Energy from Urban and Agricultural Wastes, National Programme for Biogas Development, Community and Institutional Biogas Development, Solar Thermal Energy Programme, National Programme on Improved Chulhas, Energy from Urban & Agriculture Wastes, Integrated Rural Energy Planning Programme Monitoring, Lumpsum provision for North-Eastern States including Sikkim.
6.	3602	Grants-in-aid to Union Territory Government	5.14	–	5.08	–	2.17	–	2.53	–	This Head includes Grants for Central Plan Schemes for Wind Demonstrations, Grant for Centrally Sponsored Plan Scheme for NPB Community and Institutional Biogas

1	2	3	4	5	6	7	8	9	10	11	12
											Development, Solar Thermal Energy Programme, National Programme on Improved Chulhas, Integrated Rural Energy Programme Monitoring, National Project on Clean Energy Services for Rural Areas.
7.	–	Total Revenue	293.03	5.21	499.76	5.35	307.96	5.73	503.76	5.47	–
8.	4810	Capital Outlay on Non-conventional Sources of Energy	35.02	–	40.04	–	40.04	–	50.04	–	This Head includes capital investment for minor works in the Solar Energy Centre and investment in Indigenous Renewable Energy Development Agencies (IREDA).
9.	6810	Loans for Non-conventional Energy Sources of Energy	95.00	–	85.00	–	42.00	–	46.00	–	This Head includes counterpart loan to IREDA for International Development Association (IDA) and Danish Export Finance Corporation (DEFC) components of grants under Indian Renewable Resources Development Project of the Ministry implemented through IREDA.
10.	–	Total Capital	130.02	–	125.04	–	82.04	–	96.04	–	–
11.	–	Total (Gross)	423.11	5.21	624.80	5.35	390.00	5.73	599.80	5.47	–

ANNEXURE-I

MINUTES OF THE SECOND SITTING OF THE STANDING COMMITTEE ON ENERGY (2004–05) HELD ON 13TH AUGUST, 2004 IN COMMITTEE ROOM 'C', PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee met from 11.30 hrs to 13.30 hrs.

PRESENT

Shri Gurudas Kamat — *Chairman*

MEMBERS

2. Shri Gauri Shankar Chaturbhuj Bisen
3. Shri Nandkumar Singh Chauhan
4. Shri J.M. Aaron Rashid
5. Shri Vijayendra Pal Singh
6. Shri M.K. Subba
7. Shri E.G. Sugavanam
8. Shri Tarit Baran Topdar
9. Shri G. Venkataswamy
10. Shri Chandrapal Singh Yadav
11. Shri Sudarshan Akarapu
12. Shri Vedprakash P. Goyal
13. Dr. (Smt.) Najma A Heptullah
14. Dr. K. Kasturirangan
15. Shri Matilal Sarkar

SECRETARIAT

1. Shri Anand B. Kulkarni — *Joint Secretary*
2. Shri P.K. Bhandari — *Director*
3. Shri R.K. Bajaj — *Under Secretary*

WITNESSES

1.	Shri A.M. Gokhale	— Secretary
2.	Shri Naresh Chaturvedi	— AS & FA
3.	Dr S.K. Chopra	— Sr. Adviser
4.	Shri Sunil Khatri	— Jt. Secretary
5.	Dr. E.V.R. Sastry	— Scientist 'G'
6.	Dr. K.C. Khandelwal	— Scientist 'G'
7.	Shri Ajit K. Gupta	— Scientist 'G'
8.	Dr. T.C. Tripathi	— Scientist 'G'
9.	Shri N.P. Singh	— Scientist 'G'
10.	Shri Sudhir Mohan	— Scientist 'G'
11.	Shri K.P. Sukumaran	— Scientist 'G'
12.	Dr. B. Bandopadhyay	— Scientist 'G'
13.	Shri T. Prabhakaran	— M.D. (IREDA)

2. At the outset, the Chairman, Standing Committee on Energy welcomed the representatives of the Ministry of Non-Conventional Energy Sources to the sitting of the Committee and apprised them of the provision of Direction 58 of the Directions by the Speaker.

3. The following important points were discussed by the Committee:

(i) Budgetary Allocation of Non-Conventional Energy Sources *vis-à-vis* conventional energy sources.

(ii) Research and Development (R&D) Programme of the Ministry to expedite the pace of harnessing the potential of various renewable energy sources.

(iii) Biomass Power Programme—Problems associated with it.

(iv) Solar Power Programme—Steps taken to make it viable

(v) Remote Village Electrification Programme

(vi) Small Hydro Power Programme—Targets and Achievements

4. A copy of the verbatim proceedings of the sitting of the Committee has been kept on record.

The Committee then adjourned.

ANNEXURE-II

MINUTES OF THE THIRD SITTING OF THE STANDING COMMITTEE ON ENERGY (2004–05) HELD ON 18TH AUGUST, 2004 IN COMMITTEE ROOM '139', PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee met from 10.00 hrs to 10.40 hrs.

PRESENT

Shri Gurudas Kamat — *Chairman*

MEMBERS

2. Shri Ajay Chakraborty
3. Shri Chander Kumar
4. Shri Dharmendra Pradhan
5. Shri Prashanta Pradhan
6. Dr. Rabindra Kumar Rana
7. Shri Khiren Rijiju
8. Shri Vijayendra Pal Singh
9. Shri Tarit Baran Topdar
10. Shri G. Venkataswamy
11. Shri Chandrapal Singh Yadav
12. Shri Kamal Akhtar
13. Shri Vedprakash P. Goyal
14. Dr. (Smt.) Najma A Heptullah
15. Shri Matilal Sarkar
16. Shri Motilal Vora

SECRETARIAT

1. Shri Anand B. Kulkarni — *Joint Secretary*
2. Shri P.K. Bhandari — *Director*
3. Shri R.K. Bajaj — *Under Secretary*

At the outset, the Chairman, Standing Committee on Energy welcomed the Members to the sitting of the Standing Committee on Energy.

2. The Committee took up for consideration the following Draft Reports:

(i) Draft Reports on Demands for Grants (2004–05) of the Ministry of Power.

(ii) Draft Report on Demands for Grants (2004–05) of the Ministry of Non-Conventional Energy Sources.

3. The Members suggested certain additions/modifications to the draft Report on Demands for Grants (2004–05) relating to the Ministry of Power and desired that these be suitably incorporated in the Report. The Report was then adopted. The draft Report on Demands for Grants (2004–05) relating to the Ministry of Non-Conventional Energy Sources was adopted by the Committee without any amendment.

4. The Committee authorized the Chairman to finalize the Reports after making consequential changes arising out of factual verification by the concerned Ministries and to present these Reports to both the Houses of Parliament during the current Session.

5. The Committee also decided to hold their next sitting on 26th August 2004 to consider the Memorandum No. 1 regarding Selection of Subjects and to chalk out future programme of the Committee.

The Committee then adjourned.