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MINISTRY OF NEW AND RENEWABLE ENERGY

DEMANDS FOR GRANTS
2013-14

THIRTY-FOURTH REPORT

LOK SABHA SECRETARIAT
NEW DELHI

April/Chaitra, 1935 (Saka)

THIRTY-FOURTH REPORT

STANDING COMMITTEE ON ENERGY
(2012-13)

(FIFTEENTH LOK SABHA)

MINISTRY OF NEW AND RENEWABLE ENERGY

DEMANDS FOR GRANTS (2013-14)

Presented to Lok Sabha on 23.04.2013

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* expired on 1st March, 2013

Nominated as member of the Committee w.e.f. 28th March, 2013

INTRODUCTION

I, the Chairman, Standing Committee on Energy having been authorized by the Committee to present the Report on their behalf, present this Thirty-Fouth Report on Demands for Grants of the Ministry of New and Renewable Energy for the year 2013-14.

2. The Committee took evidence of the representatives of the Ministry of New and Renewable Energy on 13th March, 2013. The Committee wish to express their thanks to the representatives of the Ministry for appearing before the Committee for evidence and furnishing the information, desired by the Committee in connection with examination of Demands for Grants (2013-14).

3. The Report was considered and adopted by the Committee at their sitting held on 16th April, 2013.

4. The Committee place on record their appreciation for the valuable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

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

NEW DELHI
16th April, 2013
Chaitra 26 , 1935 (Saka)

MULAYAM SINGH YADAV
Chairman,
Standing Committee on Energy

REPORT

PART I

NARRATION ANALYSIS

CHAPTER I

INTRODUCTORY

1.1 The renewable energy sector has emerged as a significant player in the grid connected power generation capacity thereby supporting the government agenda of "sustainable and more inclusive growth", emerging as an integral part of the solution to meet the nation's energy needs and an essential player for energy access. There has been a visible impact of renewable energy in the Indian energy scenario. Apart from contributiong about 12.5% in the national electric installed capacity, renewable energy based decentralized and distributed applications have benefited millions of people in in the rural villages by meeting their cooking, lighting and other energy needs in an environment-friendly manner. The social and economic benefits include reduction in drudgery among rural women and girls engaged in the collection of fuel wood from long distances and cooking in smoky kitchens, minimization of the risks of contracting lung and eye ailments, employement generation at village level and ultimately the improvement in the standard of living and creation of opportunity for economic activities at village level.

1.2 Access to modern energy is one of the major areas of concern. Census of India 2011 indicates that access to electricity stands at only around 55 per cent of the rural households (92.8 million households out of 167.8 million rural households). Firewood, crop residue and dung cake continues to be the most important source of energy used for cooking in India, with around 86 per cent of the rural households dependent upon it. In addition, 23.2 per cent of urban households still rely on traditional fuels to meet their cooking needs. Over the next few years, decentralised distributed renewable energy based initiatives of communities is likely to make a profound impact in some areas of the

country, providing electricity to rural communities, contributing a substantial portion of such capacity.

1.3 The Ministry of New and Renewable Energy (MNRE) is the nodal Ministry of the Government of India for all matters relating to new and renewable energy. The broad aim of the Ministry is to develop and deploy new and renewable energy for supplementing the energy requirements of the country. The Ministry has been facilitating the implementation of broad-spectrum programmes covering more or less the entire range of new and renewable energy. These programmes broadly seek to supplement conventional fossil-fuel –based power through harnessing wind, solar, small hydro and bio power; take renewable energy systems to remote rural areas for lighting, cooking and motive power; use renewable energy in urban, industrial and commercial applications; and develop alternate fuels and applications for stationary, portable and transport uses apart from supporting research, design and development of new and renewable energy technologies, products and services.

1.4 Role of the MNRE includes facilitating research, design, development, manufacture and deployment of new and renewable energy systems/devices for power generation, portable and stationary applications in rural, urban, industrial and commercial sectors and transportation, through:

i) Resource assessment, Technology Mapping, Benchmarking, and related activites;
ii) Identify Research, Design and Development thrust areas and facilitate work on the same;
iii) To develop Standards, specifications and perforrmance parameters at par with international levels, and facilitate industry in attaining the same;
iv) Align costs of new and renewable products and services with international levels, and facilitate industry in attaining the same;
v) appropriate international level quality assurance accreditation, and facilitate industry in obtaining the same;
vi) Provide sustained feed-back to manufacturers on performance parameters of new and renewable energy prodcuts and service with the aim of effecting continuous up-gradation so as to attain State of the art in the shortest possible time span;
vii) Facilitate industry in becoming internationally competitive;
viii) Identify areas in which new and renewable energy products and services need to be deployed in keeping with the goal of national energy security and energy independence; and

ix) Deployment strategy for various indigenously developed and manufactured new and renewable energy products and serivices;

1.5 Functions of the MNRE involves development and deployment (demonstration/extension) of:

i) Grid-interactive/Off-grid renewable power systems to supplement fossil fuel based electricity generation.
ii) Standalone renewable energy systems/devices and services to supplement/provide energy needs of cooking, lighting & motive power in rural areas;
iii) renewable energy products and services for urban, industrial and commercial applications, including energy recovery from urban and industrial wastes and effluents;
iv) Supporting renewable energy related R&D activites/projects taken up by institutions, universities, and industry;
v) Fostering international cooperation in new and renewable energy sector;
vi) HRD development in new and renewable energy sector;
vii) Information, Publicity and Public Awareness creation in the sector.

1.6 The MNRE has been allocated the following subjects/business under the Allocation of Business Rules:

- Research and development of biogas and programmes relating to biogas units;
- Commission for Additional Sources of Energy (CASE) (non-functional since beginning of 11th Plan);
- Solar Energy - including solar photovoltaic (SPV) devices and their development, production and application;
- All matters relating to small/mini/micro hydel projects of and below 25 MW capacity;
- Programmes relating to improved chulhas and research and development thereof (transferred to States at the end of 9th Plan);
- 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) (transferred to States w.e.f.11th Plan);
- Geothermal Energy
- Bio-fuels: (i) National Policy; (ii) Research, development and demonstration on transport, stationary and other applications; (iii) setting up of a National Bio-fuels Development Board and strengthening the existing institutional mechanism; and (iv) overall coordination concerning bio-fuels.

1.7 The MNRE has stated that there has been consistent increase in the pace of renewable energy development and the sector has grown at an annual rate of 20%. At the beginning of the 11th Plan, the total installed capacity from renewable was 10,255 MW. During the 11th Plan, a capacity of 14,660 MW was added taking the total installed capacity to 24,915 MW (upto March, 2012). The capacity reached to 28,000 MW at the end of March, 2013. Wind energy continues to dominate India's renewable energy industry, accounting for 69% of installed capacity (19051 MW), followed by Biomass Power (3695 MW), Small Hydro Power (3632 MW) and Solar power (1686 MW).

CHAPTER II

STATUS OF IMPLEMENTATION OF RECOMMENDATIONS CONTAINED IN THE TWENTY-SEVENTH REPORT OF THE STANDING COMMITTEE ON ENERGY ON DEMANDS FOR GRANTS (2012-13) OF THE MINISTRY OF NEW AND RENEWABLE ENERGY.

1.8 The Twenty-Seventh Report of the Standing Committee on Energy on Demands for Grants (2012-13) pertaining to the Ministry of New & Renewable Energy was presented to Parliament on 3rd May, 2012 and the related Action Taken Report i.e. Thirty-First Report was presented to Parliament on 18th December, 2012.

1.9 The current status of implementation of the recommendations contained in the Twenty-Seventh Report of the Committee on Demands for Grants (2012-13) could not be assessed as the Minister of New & Renewable Energy is yet to lay a statement in Parliament under Direction 73A of Directions by the Speaker.

1.10 The Twenty-Seventh Report contained 14 recommendations out of which the Government accepted 12 recommendations. 1 recommendation relating to Remote Village Electrification Programme was reiterated and final reply in respect of 1 recommendation relating to Renewable Power Evacuation Problem is still awaited. 2 recommendations were commented upon by the Committee. These 2 recommendations relates to 11th Five Year Plan performance and National Solar Mission.

1.11 The MNRE have not furnished their final Action Taken Statement on the recommendations contained in the Thirty-First Report of the Committee.

CHAPTER III

12TH FIVE YEAR PLAN - ALLOCATION AND PLANNING

1.12 According to the Ministry of New and Renewable Energy, the 12th Plan of the Ministry would be aiming towards addressing issues for accelerated exploitation of renewable energy potential. The focus would continue on research, development and deployment of renewable energy generation systems, wherever feasible and viable, for rural, urban and industrial/commercial applications, apart from grid-interactive renewable power. The Twelfth Plan's strategy for growth differs from that of previous Plans is that it adds productivity and reliability as the key drivers of renewable energy growth.

1.13 When asked about the physical targets for 12th Plan, Ministry in their written reply informed as under:

> "The Ministry has proposed a capacity addition of 29,800 MW during the 12th Plan Period. This includes 15,000 MW from Wind, 10,000 MW from Solar, 2,100 MW from Hydro and 2,700 MW from Biomass including Waste to Energy."

1.14 Regarding the financial allocation, the Ministry informed as under:

> "A financial requirement of Rs. 40,000/- crore was projected in the 12th Plan proposal of MNRE. Detailed discussions were held in the Planning Commission on various aspects and activities proposed in the MNRE 12th Plan. The Planning Commission has indicated an allocation of Rs. 19,113 crores towards renewable energy activities. However, a formal approval of the allocation made for MNRE is still awaited."

1.15 Detailing the proposed financial requirements and tentative allocation for 12th Plan, the Ministry furnished as under:

Sl. No.	Resource	Proposed Financial requirements (Rs. in crore)	12th Plan tentative Allocation (Rs. in crore)
1	Grid Interactive Renewable Power	19092	10500
2	Off-grid distributed renewable power	8640	4295
3	Renewable energy for rural applications	3195	1192
4	Renewable energy for urban, industrial and commercial	1724	800

	applications		
5	Research, Design and Development	2300	915
6	Support Programmes including equity for IREDA & SECI	5925	1361
7	Externally aided projects	103	50
8	Gross budgetary support	40979	19113

1.16 When the Committee asked as to whether the approved outlay for the 12th Plan would be sufficient for achieving the target, the Ministry in a written reply stated :

> "The allocations for renewable energy programmes during first two years of the 12th Plan i.e. 2012-13 (Rs. 1385 crore) and 2013-14 (Rs. 1521 crore) have been substantially lower than the requirements projected by the Ministry. This would affect the overall targets of the 12th Plan."

1.17 On being asked the alternative plan of action of the Ministry proposing to meet the requirement of funds to achieve the goal set for 12th Plan, the MNRE in a written reply stated as under:

> "In order to accelerate pace of implementation of renewable energy programmes in the country, the Ministry is now aiming towards engaging other Ministries and Public Sector Undertakings to encourage them to take up renewable energy development projects through their budgets. The Ministry had already started this process with the Ministry of Railways and proposes to it carry it forward. As a result of these efforts, the Ministry of Railways has made certain announcements through their budget concerning renewable energy including setting up of 75MW wind projects and energizing 1000 level crossings with solar power. Ministry of Railways have also proposed to set up a Railway Energy Management Company to harness potential of solar and wind energy. The Ministry is also posing projects to get financial support from the National Clean Energy Fund operated by the Ministry of Finance and also viability gap funding. Once the final budget allocations are known for MNRE during the 12th Plan, a revised strategy would be worked out. The Ministry proposes to maintain its overall targets for the 12th Plan at this stage to be achieved with the best endeavour in association with other Ministries and PSUs who have interest and commitment to renewable energy."

1.18 Emphasizing the strategy and plans of the Ministry for achievement of the targets and also for optimal utilization of renewable energy, the Secretary, MNRE during the evidence stated:

> "…..I just wanted to introduce a new element of thinking in our processes. That is where I need your help. I will just mention Departments, which are major users of fossil fuels. If we can convert even five or ten per cent of them to renewable energy, we will achieve more. There is so much of potential outside. The Ministry of Defence, in the entire area on the borders where there is no electricity that they need for their forward stations, etc. perhaps they are doing it also. These figures are not really coming up. But we can do it in a systematic way. The Ministry of Home Affairs, just one item I can mention. If we can solarise the entire 2,000 kms. of the fencing in the border, on Bangladesh and with Pakistan, where diesel is being flown some times by helicopters to just keep these things lighted for four or five hours, if we could be involved in some way or the other, it will go a long way in actually saving the fuel for the country. In the telecom sector, there are four lakh towers in this country which are providing services for telephones. Most of them are running on diesel. In small villages, only 20 or 30 or 40 litres have to be carried to these distant places to power these towers. I have already initiated discussions with these Ministries as to how can they be brought on board. Actually, renewable energy should become part of their programme. If that is done, we will get a better idea of what we can do and what we can achieve. So, that is my real submission when I used the phrase, "On the best endeavour basis". Railways is another area. It is a Government by itself. If you were just put PV in the roofs of each and every railway station, see the amount of electricity which will be saved for roofs. They are the biggest owners of land. They can do wind. Because of the endeavours of the hon. Minister, his intervention with the Railway Ministry, a paragraph was put into the Railway Budget and they formed this Railway Energy Corporation. The whole idea is to incorporate the use of renewable energy in the railway sector. So, it was with that intention I made this submission. It was not to say that I have Rs. 1,000 crore and I will do what I can. No, I cannot do that. I need the support of all the Members in this because if all the Ministries are put together, it would be good. The last Ministry that I had mentioned was the Petroleum Ministry and the oil companies. Today, Chairman, GAIL came and met me. He said wherever gas is being imported in the west coast, if we combine it by using solar it will be very cheap because imported gas is expensive. Some times power companies do not want that gas as it is not as cheap as the gas which you get from the Bay of Bengal. Suppose we were to hybridise it with the photovoltaic, with the solar energy, possibly, we can make power cheaper and use better quality of fossil fuel. Gas is cleaner than using any other fuel. So, these are the ideas which we have. We will, probably, fine-tune

them further because the demand is only being made. My submission is that if you can also help us to get more funds even now, it will be very much useful to us"

1.19 On being asked the expected installed capacity from renewable power by end of 12th Five Year Plan, the Ministry furnished as under:

Source	Capacity addtion Target for 2012-17	Expected installed capacity in 2017
Wind power	15,000	32,500
Small Hydro	2100	5500
Biomass power	500	1700
Bagasse Cogeneration	1500	3500
Waste to Power	700	800
Solar Power	10000	10900
Total	29800	54900

1.20 The contribution of renewables in the total electricity mix in the country after 12th Plan (2017) projected by the Ministry is as under:

i) The total power generation capacity of the country is expected to be 318,800 MW;

i) Renewables are expected to contribute about 17% in the capacity (55,000 MW) and

ii) over 9%in the electricity mix

CHAPTER IV

ANALYSIS OF DEMANDS FOR GRANTS OF MNRE FOR 2013-14.

1.21 The MNRE presented Demand No. 69 to Parliament for the financial year 2013-14 on 8th March, 2013. The Plan and Non-plan provisions made in the Revenue and the Capital Sections of the Budget are as under:

Demand No. 69

(Rs. in crore)

	Plan	Non-Plan	Total
Revenue Section	1419.50	14.55	1434.05
Capital	99.50	--.--	99.50
Grand Total (Revenue + Capital)	1519.00	14.55	1533.55

1.22 A statement showing the details of the Budget Estimates for the year 2013-14 vis-à-vis that of Budget Estimates/Revised Estimates (BE/RE) of 2012- 13 is given as under:

							(in crores of Rupees)		
Description	**2012-2013 Budget**			**2012-2013 Revised**			2013-2014 Budget		
	Plan	**Non-Plan**	**Total**	**Plan**	**Non-Plan**	**Total**	**Plan**	**Non-Plan**	**Total**
REVENUE	1291.00	14.79	1305.79	1068.80	13.47	1082.27	1419.50	14.55	1434.05
CAPITAL	92.00	0.00	92.00	81.20	0.00	81.20	99.50	0	99.50
TOTAL	**1383.00**	**14.79**	**1397.79**	**1150.00**	**13.47**	**1163.47**	**1519.00**	**14.55**	**1533.55**
Description as shown	2012-2013 Budget			2012-2013 Revised			2013-2014 Budget		
in the Exp. Budget	Plan	N-Plan	Total	Plan	Non-Plan	Total	Plan	N-Plan	Total
1	2	3	4	5	6	7	8	9	10
Secretariat	17.00	14.29	31.29	17.00	12.97	29.97	19.00	13.90	32.90
Economic									
Services -N&RE									
Grid Interactive and	750.88	0.00	750.88	805.14	0.00	805.14	910.00	0.00	910.00
Distributed Renewable									
Power									
Less Amount met	-35.88	0.00	-35.88	-146.14	0.00	-146.14	0.00	0.00	0.00
from National Clean	715.00	0.00	715.00	659.00	0.00	659.00	910.00	0.00	910.00
Energy Fund									
Renewable Energy for	146.50	0.00	146.50	109.00	0.00	109.00	117.90	0.00	117.90
Rural Applications									
Renewable Energy for	22.00	0.00	22.00	15.50	0.00	15.50	21.00	0.00	21.00
Urban, Industrial and									
Commercial									

Applications									
Research, Design &	196.55	0.00	196.55	130.55	0.00	130.55	158.00	0.00	158.00
Development in									
Renewable Energy									
Less Amount met	-4.55	0.00	-4.55	-4.55	0.00	-4.55	0.00	0.00	0.00
from National Clean	192.00	0.00	192.00	126.00	0.00	126.00	158.00	0.00	158.00
Energy Fund									
Supporting Prog.									
6.01 External Support	20.00	0.00	20.00	1.00	0.00	1.00	10.00	0.00	10.00
6.02 Domestic Support	36.00	0.50	36.50	26.05	0.50	26.55	41.00	0.65	41.65
	56.00	0.50	56.50	27.05	0.50	27.55	51.00	0.65	51.65
Other Expenditure	20.00	0.00	20.00	5.45	0.00	5.45	9.00	0.00	9.00
Investment in Public	76.00	0.00	76.00	76.00	0.00	76.00	81.00	0.00	81.00
Enterprises									
Lumpsum provision	138.50	0.00	138.50	115.00	0.00	115.00	152.10	0.00	152.10
for N.E.R. & Sikkim									
Actual Recoveries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total	**1383.00**	**14.79**	**1397.79**	**1150.00**	**13.47**	**1163.47**	**1519.00**	**14.55**	**1533.55**
Investment in Public	Budget	IEBR	Total	Budget	IEBR	Total	Budget	IEBR	Total
enterprises	Support						Support		
8.1 Indian Renewable	60.00	1970.00	2030.00	60.00	3080.36	3140.36	60.00	2394.00	2454.00
Energy Dev. Agency									
8.2 Solar Energy	16.00	0.00	16.00	16.00	0.00	16.00	21.00	0.00	21.00
Corporation of India									
Total	**76.00**	**1970.00**	**2046.00**	**76.00**	**3080.36**	**3156.36**	**81.00**	**2394.00**	**2475.00**
Plan Outlay*									
New & Renw. Energy	1246.50	1970.00	3216.50	1037.00	3080.36	4117.36	1368.90	2394.00	3762.90
North Eastern Areas	138.50	0.00	138.50	115.00	0.00	115.00	152.10	0.00	152.10
Total	**1385.00**	**1970.00**	**3355.00**	**1152.00**	**3080.36**	**4232.36**	**1521.00**	**2394.00**	**3915.00**
Inclusive work outlays in the Ministry of Urban Development	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00

1.23 The Central Plan Outlay of the MNRE during the year 2012-13 and for the year 2013-14 are given below.

(Rs. in crore)

	2012-13		2013-14
	BE	RE	BE
Budgetary Support	1385.00	1150.00	1521.00
IEBR	1970.00	3080.36	2394.00
Total	**3355.00**	**4230.36**	**3915.00**

1.24 The MNRE sought an allocation of Rs.6236 crore in its Annual Plan for the year 2013-14. However, an amount of Rs.1521 crore has been allocated in BE by Planning Commission and Ministry of Finance. Detailed Statement of the proposed and approved outlay is given at *Annexure- I*

1.25 The Committee desired to know if the Central Plan Outlay for the year 2013-14 would be sufficient to meet the budget requirements during the year. The Ministry in a written note stated:

> "The Plan allocation to this Ministry for the year 2013-14 is Rs. 1521 crore. The allocation for 2012-13 was Rs. 1385 crore. There is a nominal increase of 10% over the last year's allocation and is considered quite inadequate even to meet committed liabilities under various programmes of the Ministry."

1.26 Regarding the achievement of targets with the insufficient allocated fund, the Secretary, MNRE during the evidence before the Committee deposed as follows:

> "…. Reducing targets is the easiest thing for a Ministry to do in the sense I can always go and say that I have not been given funds and so, I will do only this much work. We will achieve what has to be achieved out of the allocations made. We will also make all efforts to get funds Internal and External Budgetary Resources. A lot of money flows through external funding through the National Clean Energy Fund."

1.27 The Annual Plan outlay including Budgetary Support and Internal and Extra Budgetary Resources (IEBR) for the last three years with BE/RE and actual break-up are shown below:

(Rs. in Crore)

	2010-11			2011-12			2012-13		
	BE	RE	Actual	BE	RE	Actual	BE	RE	Actual (upto 28-2-13)
GBS	1000	995.00	982.05	1200	1360.80	1348.83	1385	1150	979.67
IEBR	950	1496.65	1400.85	950	1755.64	2366.60	1970	3080.36	1779.73
Total Outlay	1950	2491.65	2382.90	2150	3116.44	3715.43	3355	4230.36	2759.40

1.28 Regarding the variation in the BE/RE and the net IEBR, the Ministry has stated that it is due to sanctioning of more loans by IREDA to renewable energy projects based on market demand leading to higher mobilization of funds from external sources.

1.29 On being asked about the heads which could not get the required funds leading to less or non-achievement of the targets, the Ministry in a written reply stated:

> "The targets of some of the major programmes such as Wind power, Solar PV (off-grid) and Biogas are affected due to shortage of funds. Further pending liabilities are also created for future."

1.30 The Committee further asked about quarter-wise expenditure made during last four years, The Ministry furnished the following information:

(Rs. in crore)

Year	BE	RE	1st Quarter	2nd quarter	3rd quarter	4th Quarter	Total
2009-10	620	560	108.60	143.58	129.45	169.05	550.68
2010-11	1000	995	260.12	276.29	234.77	210.87	982.05
2011-12	1200	1360.80	271.49	403.07	180.85	493.42	1348.83
2012-13	1385	1150.00	153.52	501.15	172.35	152.65 (Jan-Feb 2013)	979.67

1.31 When enquired whether the expenditure during the last four years was as per the plan and norms, the Ministry replied:

> "The quarterly expenditure of the Ministry during last three year and the current year has been quite as per plan and the norms. It may be seen from the expenditure table given above that it has been fairly distributed in each quarter with high peak coming in the second quarter, as envisaged."

CHAPTER V

RENEWABLE POWER - GRID INTERACTIVE AND OFF-GRID PROGRAMMES

1.32 The physical targets and financial outlays for the year 2013-14 for Grid-interactive and off-Grids/Distributed Renewable Power Systems as furnished by the Ministry is given below:

S. No	Programme Component	Physical target (MW)	Outlay *(Rs. in crore)*
(A).	**Grid-interactive**		
1	Wind Power	2500	230
2	Small Hydro Power	300	135
3	Solar power	1100	150
4	Biomass Power (Combustion)	100	5
	Biomass Power (Gasification)	300	55
	Bagasse Cogeneration		
	Urban / Industrial Waste to Energy	30	25
	Sub-total (A)	**4330MW**	**600**
(B).	**Off-Grid/DRPS**		
1	Solar applications (SPV)	40	400
2	Energy from Urban/ Industrial Wastes		8
3	Non Bagasse Cogeneration in Industry	80	5
4	Biomass Gasifer in rural areas and industry	17	3
5	Biogas based energy		2
6	Micro hydel and water wills		7
7	Aero-generators /Hybrid systems	1	5
	Sub-Total (B)	**138**	**430**

1.33 The physical targets vis-à-vis achivements along-with the financial allocation and actual expenditure during the year, 2012-13, under Grid-interactive and Off-Grid Renewable Power as furnished by the Ministry are shown below:

S. No	Programme Component	Physical target (MW)	Achievement (as on Feb, 2013)	Outlay *(Rs. in crore)*	Expenditure as on Feb, 2013 (Rs. in crores)
(A).	**Grid-interactive**				
1	Wind Power	2500	1282.20	45	44.71
2	Small Hydro Power	350	156.98	150	124.77
3	Solar power	800	505.48	80	79.82
4	Biomass Power (Combustion)	100	113.50	10	56.44
	Biomass Power (Gasification)	5	-	5	
	Bagasse Cogeneration	350	315.70	65	
	Urban / Industrial Waste to Energy	20	6.40	20	
	Sub-total (A)	**4125 MW**	**2380.26**	**375**	**305.73**
(B).	**Off-Grid/DRPS**				
1	Solar applications (SPV)	30	17.59	405	340.90
2	Energy from Urban/ Industrial Wastes	20	13.82	6	17.83
3	Non Bagasse Cogeneration in Industry	60	60.59	7	
4	Biomass Gasifer in rural areas and industry	11.5	6.69	7	
5	Biogas based energy	2	0.65	9	
6	Micro hydel and water wills	2MW (500 nos)	270 Nos.	14	9.06
7	Aero-generators /Hybrid systems	0.50	0.44	2	1.58
	Sub-Total (B)	**126MW**	**99.78**	**450**	**369.37**

A. Wind Energy

1.34 The MNRE has stated that wind energy has been used successfully in India and is the fastest growing renewable energy technology for generating grid connected power amongst various renewable energy sources. The Ministry's wind power programme covers survey and assessment of wind resources, facilitation of implementation of demonstration and private sector projects through various fiscal and promotional policies. A total capacity of 18,634 MW has been established up to Februrary, 2013 in the country. India is now the fifth largest wind power producer in the world, after China, USA, Germany, and Spain.

1.35 Regarding the potential of wind power as per the Indian Wind Atlas, the on shore wind power potential has been estimated as 49,130 MW at 50 m height. On a conservative consideration, a fraction of 2% land availability for all states except Himalayan states, Northeastern states and Andaman Nicobar Islands has been assumed for potential estimation. In Himalayan states, Northeastern states and Andaman & Nicobar Islands, it is assumed as 0.5%. However, the potential would change as per the real land availability in each state. The wind potential has also been extrapolated at 80 m height and has been found to be 1,00,000 MW. However, this needs to be validated with field measurements.

1.36 As regard the Wind Resource Assessment (WRA) Programme, the Ministry have stated that it is an ongoing activity, which is being implemented by the Centre for Wind Energy Technology (C-WET), Chennai in association with State Nodal Agencies. WRA has so far covered 31 States and Union Territories involving establishment of about 696

automated wind monitoring stations. 92 wind monitoring stations were under operation as on 31.12.2012. 35 new wind monitoring stations have been commissioned in various States under Ministry's Wind Resource Assessment programme during the year 2012-13.

1.37 According to the Ministry Indian wind atlas has two parts.

(a) Numerical wind Atlas. i.e. Wind atlas in digital form. (This Atlas represents wind climatology) for every 5 km of the country for five different heights.

These details give wind characteristics for different geography and at 5 different height levels for every 5 km x 5 km in the country.

(b) Indian Wind Atlas in a book form

1.38 It was also informed that the aim of the Indian Wind Atlas is to establish the meteorological basis for the assessment of wind energy resources all over India. The main objective is to provide appropriate wind data for evaluating the potential of wind power output from large electricity-producing wind turbine installations. In addition, the Wind Atlas gives some guidelines for the application of the data.

1.39 On being asked about the targets and achievements under wind power programme during the last three years, the following information was provided:

Period	Physical		Financial	
	Target (MW)	Achievement (MW)	Allocation (RE) (Rs. in Crore)	Expenditure (Rs. in Crore)
2009-10	2500	1565	11.00	10.90
2010-11	2000	2349	34.90	34.90
2011-12	2400	3196	28.00	27.51

1.40 In regard to physical achievement, the Ministry has stated that a wind power capacity of 1492 MW has been added during 2012-13 up to December, 2012 taking the cumulative installed capacity to 18420 MW mainly in Tamil Nadu, Gujarat, Maharashtra, Madhya Pradesh, Kerala, Karnataka and Rajasthan. Wind energy generating capacity in

the country decline significantly in 2012-13 due to absence of GBI and Accelerated Depreciation. The State-wise gross potential and installed capacity as on 31.12.2012 is given below:

(MW upto 31.12.2012)

STATE	POTENTIAL CAPACITY	INSTALLED CAPACITY
Andhra Pradesh	5394	435
Gujarat	10609	3093
Karnataka	8591	2113
Kerala	790	35
Madhya Pradesh	920	386
Maharashtra	5439	2976
Rajasthan	5005	2355
Tamil Nadu	5374	7153
Others		4
Total	**42122**	**18550**

1.41 During the evidence of the Ministry, the Committee were informed that against the target of 2500 MW wind power for the year, 2012-13, the achievement has been 1492 MW (as on 10.03.2013). For the year 2013-14, the physical target is 2500 MW with a budgetory allocation of Rs.230 crore.

1.42 When the Committee asked about the major activities/projects proposed to be undertaken during 2013-14, in their written reply the Ministry stated as under:

> "The Wind Power Projects in the country are undertaken with private sector investment. In absence of Accelerated Depreciation (AD) and Generation Based Incentive (GBI), there was substantial reduction in investment from private sector during 2012-13 which has resulted in sharp decline of installed capacity (around 50% reduction). Therefore, efforts will be made to reinstate the AD and GBI benefits in wind sector."

1.43 On the query by the Committee regarding the slippage in the wind sector during 2012-13, the Secretary, MNRE, during the evidence submitted before the Committee as follows:

> "….While the prevention was made, we are going to make up for it. The fact was that last year, what they called the accelerated depreciation benefit and the GBI benefit were withdrawn and therefore, that actually affected the entire programme. But again we are happy to inform that the Finance Minister himself in his speech this time has mentioned that nearly Rs. 800 crore will be provided under Generation Based Insentive (GBI) for this sector. We have also moved a note asking for restoration by Accelerated Depreciation through the Cabinet. So, I am very hopeful that the wind sector issues will get resolved because it is one of the largest parts of our programme. If this benefit comes to us, that shortfall which was there for these reasons will get covered."

1.44 When the Committee desired to know about the policy of the Government for private sector participation in the field of wind energy and the details of fiscal and financial incentives provided, the Ministry in their reply stated as under:

> "The Government has been promoting wind power development through private sector investment by providing fiscal and promotional incentives such as Accelerated Depreciation (AD), concessional import duty on certain components of wind electric generators, excise duty exemption to manufacturers. 10 years tax holiday on income generated from wind power projects is also available. Loans for installing windmills are available from Indian Renewable Energy Development Agency (IREDA) and other Financial Institutions. Technical support including wind resource assessment is provided by the Centre for Wind Energy Technology (C-WET), Chennai.

1.45 The Ministry has further stated that, preferential tariff is being provided in potential states. Government had also announced a Generation Based Incentives (GBI) under which Rs. 0.50/unit generated from wind power projects was being provided to the projects which do not avail accelerated depreciation benefit. The GBI and AD benefits were discontinued w.e.f. 01.04.2012. The Ministry is in process to reinstate these benefits in wind sector."

B. Solar Energy

1.46 Our country is endowed with vast solar energy potential. To harness the potential, structured efforts are being made. More than 1,00,000 MW potential has been estimated from solar, against which a total installed capacity of 1447 MW has been reported as on February 2013.

1.47 During 2012-13, a capacity addition of 505 MW under grid interactive solar power has been achieved against the target of 800 MW.

1.48 Capacity addition target for 12th Plan is 10,000 MW. The proposed and approved physical target and financial allocation for the year 2013-14 under grid and off-grid solar power is as given below:

Sl. No.	Programme	Annual Plan proposal		Approved outlay	Revised Targets
		Physical (MW)	Financial (Rs. in crore)	Financial (Rs. in crore)	Physical (MW)
1.	Solar Power (Grid interactive)	1100	1148	150	1100
2	Solar application, including ST systems (off-grid)	40	2250	400	40

1.49 The Jawaharlal Nehru National Solar Mission was launched in January, 2010. The Mission targets include (i) deployment of 20,000 MW of grid connected solar power by 2022 (ii) 2,000 MW of off-grid solar applications including 20 million solar lights by 2022 (iii) 20 million sq.m. solar thermal collector area, (iv) creation of favourable conditions for developing solar manufacturing capability in the country; and (v) supporting R&D and capacity building activities to achieve grid parity by 2022. The Mission is being implemented in three phases, first phase is upto March, 2013.

1.50 When asked about the physical achievement vis-a-vis target of first phase of JNNSM, the Ministry in a written reply stated:

> "The Phase-I of Jawaharlal Nehru National Solar Mission (JNNSM) has a target of 1100 MW grid connected solar power projects and 200 MW capacity equivalent off-grid solar photovoltaic systems. Against this target, 680 MW capacity projects have been commission. Apart from this, SPV power project have also been set up in states. In all 1466 MW capacity of grid connected solar power projects under various schemes have been commissioned so far in the country. Against a target of 200 MWp capacity equivalent off-grid solar photovoltaic systems, SPV systems aggregating to 207 MW have been sanctioned. Systems of about 50 MW have already been installed. A Budget of about Rs.1450 crores has been provided in the last three years for various activities under the solar mission. This amount has been fully utilized."

1.51 On being enquired about the physical target and financial allocation for the Second Phase of the Mission, the Committee are informed:

> " The Second Phase of National Solar Mission envisages a capacity of 3000 MW of grid connected solar power projects and 800 MWp off-grid and decentralised SPV systems and power projects. This depends on the availability of the Funds for the Scheme."

1.52 When the Committee asked about the arrangements done for evacuation of Grid connected solar power generation, the Ministry in a note stated:

> "Power generated from solar power projects is currently evacuated through existing grid system in the respective States. Development of transmission infrastructure falls within the purview of Ministry of Power. Power Grid Corporation has conducted a study on requirement of transmission infrastructure for renewable energy projects during 12th five year plan. The report prepared by Power Grid Corp. envisage funds requirement of over Rs. 40,000 crore for development of transmission infrastructure. The possibilities are being explored to get financing for development of transmission infrastructure for renewable energy projects through National Clean Energy Fund (NCEF) and Viability Gap Funding (VGF) etc."

C. Small Hydro Power (SHP)

1.53 MNRE has been vested with the responsibility of developing Small Hydro Power projects (upto 25 MW). The estimated potential for power generation in the country from small / mini hydel projects is 19,749 MW from 6474 identified sites. Out of this potential, about 50% lies in the States of Himachal Pradesh, Uttarakhand, Jammu & Kashmir and Arunachal Pradesh. In the plain region Maharashtra, Chhattisgarh, Karnataka and Kerala have sizeable potential.

1.54 Regarding the growth of SHP sector, the Ministry have stated that a continuous and steady growth can be seen in the SHP sector. During the 9th Plan a capacity of 269 MW was added. This has increased to 536 MW during the 10th Plan and 1400 MW during the 11th Plan. The average capacity addition of 55 MW per year during the 9th Plan has increased to 280 MW per year during the 11th Plan. A capacity addition target of 350 MW per year has been fixed for the 12th Plan.

1.55 It has also been informed that in cumulative terms, 939 small hydropower projects aggregating to 3,496 MW have been set up in various parts of the country, of which 320 private sector SHP projects with an aggregate capacity of 1662 MW have been set up. In addition, 327 projects of about 1250 MW are in various stages of implementation. The Ministry has supported 148 SHP Projects in the Government sector aggregating to 356 MW capacity in 23 States/ UTs. So far, a total of 88 projects aggregating to a capacity of 187 MW have been commissioned and the other projects are at various stages of execution. This apart, the Ministry has supported 38 old projects in the Government sector for Renovation and Modernization.

1.56 Small hydel projects normally do not encounter the problems associated with large hydel projects of deforestation and resetlement. The projects have potential to meet power requirements of remote and isolated areas. These factors make small hydel Projects as one of the most attractive renewable source of grid quality power generation.

24 States of the country have policies in place towards private sector participation to set up SHP projects. The Ministry has taken a series of steps to promote development of SHP in a planned manner and improve reliability & quality of the projects. The Ministry is giving special emphasis to promote use of new and efficient designs of water mills for mechanical as well as electricity generation and setting up of micro hydel projects upto a capacity of 100kW for remote village electrification. These projects are taken up with the involvement of local organizations such as the Water Mills Associations, cooperative societies, registered NGOs, village energy cooperative, and State Nodal Agencies.

1.57 The Ministry is also implementing a project entitled 'Ladakh Renewable Energy Initiative' to minimize dependence on diesel in the Ladakh region and meet power requirement through local renewable sources. The approach is to meet power requirements through small / micro hydel and solar photovoltaic power projects /systems and use solar thermal systems for water heating / space heating / cooking requirements. The project is being implemented in a time bound mode of three and a half years with a total cost of Rs. 473 crore. The project envisages setting up of 30 small/ mini hydel projects with an aggregate capacity of 23.8 MW at a total cost of Rs. 266 crore. The work of survey and DPR preparation on all the sites have been completed and implementation of 14 projects started.

1.58 On being asked the achievements vis-à-vis targets of last three years (both physical and financial) the Ministry in their written reply furnished the following:

Period	**Physical**		**Financial**	
	Target (MW)	**Achievement (MW)**	**Allocation (RE) (Rs. in Crore)**	**Expenditure (Rs. in Crore)**
2009-10	300	305.27	107.00	106.94
2010-11	300	307.21	152.00	151.99
2011-12	350	352.37	155.10	154.71

1.59 The Committee were also informed that total installed capacity of small hydro projects (as on February, 2013), was 3552 MW which contribution was around 13% of the total renewable energy installed capacity.

1.60 The Committee were further apprised that the 12th Plan target for small / mini hydro is 2100 MW. The physical target for the year 2012-13 was 350 MW of which the achievement is stated to be 176 MW (upto March, 2013) and the expenditure as on February, 2013 is Rs. 125 against the outlay of Rs.150 crore.

1.61 When the Committee asked about the details of the budgetary allocation and the physical targets for 2013-14, the Ministry in their written reply stated as under:

> "An allocation of Rs 152 crore has been proposed for the SHP programme for the year 2013-14 with physical target of 300 MW."

1.62 With regard to thrust area of SHP programme during 2013-14, the Committee were informed as under:

> "The thrust of SHP programme during 2013-14 would be to facilitate setting up of small hydro project both in Government and private sector. Among the major activities would be review meetings with project developers, State agencies implementing SHP projects, announcement of new scheme of SHP for the 12th Plan and support to R&D activities. Apart from support for new SHP projects old projects would also be supported for their renovation and modernization. Ministry would continue its support for Identification of new potential sites and preparation of State SHP Plans. Strengthening of testing facilities and the activity of development of Standards would be completed."

1.63 On being asked about the progress made with regard to assessment of SHP in the country, the Ministry stated as under:

> " As recommended by the Standing Committee on Energy in its 16th report, the Ministry has set up a working group on reassessment of small hydro potential under the Chairmanship of Adviser (SHP), MNRE and drawing members from the Central Electricity Authority, Ministry of Power, Central Water Commission and States like Karnataka, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Meghalaya. A series of meetings of the working group was held in the last year. Revised potential of small hydro in the country has been assessed at about 20,000 MW in place of 15,000 MW. This is based on the State wise reassessed potential and the sites allotted by the States for SHP development by the private sector. The working group is of the opinion that regular interaction and involvement of State Government and the agency responsible for small hydro development in the State would be extremely critical and necessary in identifying new potential sites."

1.64 When asked by the Committee about the policy to attract private sector participation by fiscal and financial incentives, it has been stated by the Ministry as under:

> " Our country has a Hydro Policy, which was announced by the Ministry of Power in 1998 and subsequently revised in November, 2008. Small hydro projects are also governed by this policy. Further, electricity generation from renewable including small hydro are governed by Electricity Act 2003, National Electricity policy 2005 and Tariff policy 2006. As per current Hydro Policy hydro projects below 100 MW can be allotted through MOU route and only projects costing more than Rs. 2500 crore require CEA concurrence. This apart, CERC has issued guidelines for SERCs regarding tariff for power generated from renewable including small hydro. Keeping these provisions in view, 24 States have announced their policies to invite Private Sector to set up small hydro projects in their respective States.

1.65 The Committee were informed that focused attention is given towards potential States through close interaction, monitoring of projects and reviewing policy environment to attract private sector investments. The Ministry has been providing Central Financial Assistance to State Governments and private sector to set up small / mini hydro projects. The Ministry is also giving support towards survey and investigation, preparation of DPRs, project monitoring and training through Alternate Hydro Energy Center (AHEC), IIT, Roorkee etc.

1.66 The MNRE have further stated that they have been providing financial support / subsidy for following activities to develop the SHP sector:

- Research & Development, Capacity building
- Resource Assessment, Detailed Survey & Investigation, DPR preparation and perspective plan for States
- Capital Subsidy to State Sector Projects
- Subsidy for Commercial Projects
- Renovation & Modernization of old SHP projects (State Sector)
- Water Mills / Micro hydel projects

1.67 Subsidies given by MNRE for SHP projects are as follows:

Support to new SHP projects in State sector:

Category	Above 100 KW and up to 1000 KW	Above 1 MW – 25 MW
Special category and NE States	Rs.50,000 / KW	Rs. 5.00 crore for first MW + Rs.50 lakh / MW for each additional MW
Other States	Rs.25,000 / KW	Rs. 2.50 crore for first MW + Rs.40 lakh / MW for each additional MW

Support to new SHP project in private / co-operative / joint sector:

Category	Up to 1000 KW	Above 1 MW – 25 MW
Special category and NE States	Rs. 20,000 / KW	Rs. 2.00 crore for first MW + Rs.30 lakh / MW for each additional MW
Other States		Rs. 1.20 crore for first

	Rs. 12,000 / KW	MW + Rs.20 lakh / MW for each additional MW

Watermills:

S. No.	Category of Watermill	Amount of CFA
1.	Mechanical output only	Rs. 35,000/- per Watermill
2.	a) Electrical output (up to 5 kW) or, b) Both mechanical and electrical output (up to 5 kW)	Rs. 1,10,000/- per Watermill

Micro Hydel Projects up to 100 kW Capacity:

S. No.	Areas	Amount of CFA
1	International Border Districts	Rs.1,00,000/- per KW
2	North Eastern and Special category States	Rs. 80,000/- per KW
3	Other States	Rs. 40,000/- per KW

D. Biomass Power

1.68 According to the Ministry of New and Renewable Energy Biomass Power Programme is implemented with the objective of harnessing the potential for grid quality power from biomass resources through various conversion technologies. Biomass materials used for power generation include bagasse, rice husk, straw, cotton stalk, coconut shells, soya husk, de-oiled cakes, coffee waste, jute wastes, groundnut shells, saw dust etc. The potential of biomass power could be increased substantially if linked with dedicated plantations on forest and non-forest degraded lands. The benefits from biomass includes widely available resources all over the country, generate direct and indirect income for the rural communities, generate employment in rural areas and net positive environmental benefits due to reduction of local pollution from field burning and methane emission from decay of surplus biomass.

1.69 In regard to achievements in the Biomass Sector, it was stated by the Ministry as under:

> This year (2012-13) twenty five projects in the States of Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh and Uttar Pradesh has been installed and commissioned. About 20 plants are under implementation in the states of Karnataka, Tamil Nadu, Maharashtra and Uttar Pradesh. Investment in high efficiency co-generation technology has significantly improved viability of the sugar mills. The capacity addition during 2012-13 upto December, 2012 is 255 MW in the States of Maharashtra, Punjab, Bihar, Karnataka, Tamil Nadu, taking the cumulative cogeneration capacity in the country to 2240 MW."

1.70 The Committee were informed by the Ministry that Biomass resources are abundantly available in the entire country. Studies sponsored by the Ministry has estimated that about 18000 MW of power can be generated from agro-residues covering agricultural and forestry residues excluding energy plantation in waste land and bagasse available in sugar mills. The potential of power generation from biomass can be enhanced by improving the harvesting efficiency of agro-residues, introduction of improved models of cooking stoves and developing policy framework for energy plantations. It is possible to generate about 5000 MW power from raising dedicated plantations on about 2 million hectares forest and non-forest degraded lands.

1.71 In regard to leading States in the field of Biomass Power Programme it was stated that the States of Gujarat, Punjab, Maharashtra and U. P. has taken a lead for installation of biomass power projects. In Punjab, two biomass power projects based on cotton stalks, juliflora have been commissioned. Eleven biomass based power projects of various capacities have been commissioned in the country during 2012-13.

1.72 The development of biomass based power generation projects is dependent on the availability of resources (biomass) and development status of biomass logistics and conversion. It was stated by the Ministry that Market for some biomass like rice husk has

matured and presently almost the entire quantity is consumed in industry and power plants. On the other hand, technology for straw and stalks is at the initial stage of development. Hence states like Punjab, Haryana, Bihar where straw is the major resource are yet to see any major development.

1.73 In regard to constraints in development of Biomass Sector it was stated that the constraints are competitive uses of biomass as cattle feed and partly used by process and power industries leading to unavailability or rise in the cost of fuel for biomass power plant.

1.74 When asked about the policies and fiscal incentives provided for the biomass sector, it was stated by the MInistry as under:

> "The promotion of biomass based power generation in the country is encouraged through conducive policy at the State and Central levels. Based on the information available 17 states have policies for development of biomass power while one state i.e. Rajasthan has an exclusive policy for promotion of biomass power announced in 2010 and continued till date. A package of fiscal concessions such as accelerated depreciation, concessional custom duty, excise duty exemption, income tax exemption on projects for power generation for 10 years and electricity duty exemption etc. are available to biomass power projects."

1.75 In regard to new policy initiatives of the Ministry for the promotion of Biomass Sector, it was stated that the major policy initiatives proposed includes support to biomass power producers on revision of current tariff, introduction of variable tariff component through weighted average of the cost of biomass resource used in the State, removal of control period, formulation of exclusive state biomass policy to promote the viability and growth of this sector. In the medium term such a policy could pave the way for promotion of dedicated energy plantations through appropriate waste land development programme in each district/ taluk based on a suitable public-private partnership model or contract farming. Emphasis will also be laid on development of fuel value chain business model through fuel management companies and biomass depot system for harvesting, transportation, storage and supply of fuel to power plant, introduction of generation based incentive scheme for incentivizing efficiency in biomass power projects and

encouragement be given for increasing the operating period of bagasse cogeneration project from 180-220 days to 300 plus days."

E. Bagasse Cogeneration

1.76 According to the Ministry bagasse based cogeneration in the sugar mills is one of the success stories of modern India. A Task Force appointed by the Ministry in 1993, estimated that if all the sugar mills were to adopt technically and economically optimum levels of cogeneration for extracting power from the bagasse produced by them, an additional around 3500 MW could be generated. Based on present capacity of sugar mills, higher pressure/ temperature configuration (87 kg./cm^2 and 515^{0}C and 105 kg./cm^2 and 520^{0}C), the potential has been revalidated to 5000 MW of surplus power.

1.77 It was further stated that the initial bagasse cogeneration with 45 kg/sq.cm./44^{0}C steam pressure were increased to 65kg/sq.cm/485^{0}C based on a demonstration programme initiated by the Ministry during 1994. The industry has improvised these plant designs to increase the cycle parameters to 87 kg./cm^2 and 515^{0}C by 2004. Adopting these higher steam parameters resulted in additional power generation of about 5% over the 65 kg/sq.cm and 485C cycle for the same quantum of fuel. After the commissioning of almost 35 such projects located in the States of Uttar Pradesh, Karnataka, Andhra Pradesh and Tamil Nadu, higher parameters of 105 kg./cm^2 and 520^{0}C were adopted which gave additional power generation of about 6%.

1.78 In regard to challenges of Bagasse Cogeneration in co-operative sector sugar mills and the remedial measures being taken by the Ministry, the Committee were inform as under:

> "Due to barriers such as inability to raise equity and debt, delays in decision making and high risk/ high investment proposals, co-operative sugar mills are unable to implement high efficiency cogeneration power plants for optimum power export. The Ministry has made focused efforts in this difficult sector. These include provision of higher quantum of capital grants for Co-operative sector, capacity building initiatives, promotion of BOOT model and continuous follow up with Co-operative / Public sector sugar mills and stakeholders. These efforts have provided excellent results. During the year, seven co-operative sugar mills in Maharashtra with aggregate surplus power

generating capacity of about 80 MW with pressure configuration varying from 45 to 110 kg/sq.cm have been provided financial assistance by the Ministry. Bagasse cogeneration project in six co-operative sugar mills of Maharashtra aggregating to surplus power generating capacity of about 60 MW supported by the Ministry last year have been successfully commissioned.

1.79 It was further stated that the Ministry has initiated in 2011-12, a new scheme on Build, Own, Operate, Transfer (BOOT) model cogeneration project in co-operative/ public sector sugar mills. Two BOOT model cogeneration projects in co-operative sugar mills of Maharashtra with project configuration of 110 kg/sq. cm. pressure and 540 deg. C temperature with aggregate capacity 80 MW (45 MW export during season) have been provided financial assistance. Out of this, one BOOT model cogeneration project has been commissioned during the year and is exporting 22 MW power to the grid. The sugar factory modernization carried out by the BOOT developer has resulted in energy saving and better efficiency with steam to cane ratio of 36%. The second BOOT model cogeneration project is under advanced stages of implementation and expected to be commissioned by February/ March, 2013. The Ministry has also supported BOOT model cogeneration projects in 12 Co-operative/ Public sector sugar mills in Tamil Nadu along with sugar factory modernizations having project configuration of 110 kg/sq.cm and 87 kg/sq. cm. The total installed capacity of all these projects cumulates to 183 MW (123 MW export during season). All these projects are under advanced stages of implementation.

1.80 The Ministry have also initiated a new scheme for providing Central Financial Assistance for boiler up-gradation of cogeneration project in co-operative sugar mills. These co-operative sugar mills in Maharashtra with aggregate capacity of 36 MW (20 MW export during season) were provided financial assistance. These projects are expected to be commissioned by March, 2013.

CHAPTER VI

RENEWABLE ENERGY FOR RURAL APPLICATIONS

1.81 The Ministry has been supporting Programmes for the deployment of renewable energy systems and devices such as biogas plants, photovoltoic systems, biomass, gasifiers, solar cookers and other solar thermal systems, etc in rural areas of the country. The Ministry has also been implementing Remote Village Electrification Programme and village energy security test projects.

1.82 The Physical targets & financial outlays proposed and approved for 2013-14 under Renewable Energy for Rual Applications as furnished by the Ministry is given below:

Sl.No.	Programme	Annual Plan proposal (2013-14)		Approved outlay	Revised targets
		Physical	Financial (Rs. in crore)	Financial Rs. in crore)	physical
1	RVE Programme/ Energy Access	250	500	15	250
2	Family type biogas plants	1.1lakh	200	123	1.1 lakh
3	Other Biogas applications	-	30	4	-
4	Cook Stove	3 lakh	90	5	0.50 lakh
5	Solar cookers*	0.3 lakh	20	3	
	Total		**840**	**150**	

1.83 The Ministry had proposed an allocation of Rs.840 crore for this sector for the year 2013-14. However, the approved outlay has been only Rs.150 crore. Details of the scheme-wise physical target and financial allocation as furnished by the Ministry are as under:

S. No	Programme Component	Physical target	Outlay *(Rs. in crore)*
1.	Biogas programme	1.10 lakh	127
2.	Cookstove programme	0.50 lakhs	5
3.	Solar Cooking		3
4.	Energy Access/RVE programme	250 villages	15
	Total		**150**

1.84 When the Committee desired to know the physical and financial performance during the year 2012-13 under the sector, the Ministry in a written reply furnished as under:

S. No.	**Programme Component**	**Physical Target**	**Physical Achievements** ***(As on 28-2-13)***	**BE/RE 2012-13** ***(Rs. in crore)***	**Financial Achivements** ***(As on 28-2-2013)*** **(Rs. in crores)**
1.	Remote Village Electrification Programme	Nil	746 villages/ hamlets completed		-
2.	Biogas Programme	1.25 lakh plants	0.771 lakh plants	154/120	91

A. Remote Village Electrification Programme (RVEP)

1.85 The Ministry is implementing Remote Village Electrification Programme (RVEP) for providing financial support for lighting/basic electricity using renewable energy sources in those remote unelectrified census villages and unelectrified hamlets of electrified census villages where grid extension is either not found feasible or not cost effective and are not covered under the Rajiv Gandhi Gramin Vidyutikaran Yojana.

1.86 The physical targets vis-à-vis achievements for RVEP during each year of the 11th Plan and for the year 2012-13 as furnished by the Ministry is as under:

Sl. No.	Year	Target	Achievement	
			No. of villages + hamlets sanctioned	No. of villages + hamlets completed
1.	2007-08	2000	1992	1279
2.	2008-09	1500	1694	326
3.	2009-10	1500	1431	1536
4.	2010-11	1500	1454	1740
5.	2011-12	500	520	1066
Total		**7000**	**7091**	**5947**
6	2012-13 *(till 31/01/2013)*			746

1.87 The Committee desired to know the reasons of non-achievement of target. In reply, the Ministry in a note stated as under:

> "The overall target of 10,000 villages and hamlets for the 11th Plan was laid on the basis of approximate projection for the number of villages which would in all likely remains uncovered through grid. Tentative indications received by that time from States, for such villages, were utilized for these projections. This was also explained in the 11th Plan document of the Ministry. The targets set for sanction of financial support become at the best notional in light of the initial indications received from the States for the number of villages they may be required to cover. State wise targets were not set under the RVE programme of the Ministry and projects were sanctioned case to case basis after proposals are submitted by the implementing Agencies as per the guidelines of the scheme. The Ministry could reach the target only if the States actually demarcated the villages and hamlets, surveyed these villages, prepared proposals for support, mobilized matching state share and took other necessary action for timely implementations. The Ministry on its part made all out efforts to persuade the State Governments though continuous review meetings at various levels for identification of villages & hamlets and their timely completion"

1.88 On being asked the action plan of the Ministry under Rural Village Electrification Programme for the 12th Five Year Plan, the Ministry in a note stated as under:

> "The Ministry has been implementing RVE programme for providing financial support for lighting/basic electrification in those remote unelectrified census villages and unelectrified hamlets of electrified census villages where grid extension is not found feasible by the State Governments and hence are not covered under the Rajiv Gandhi Gramin Vidyutikaran Yojana. Such villages are provided basic facilities for lighting/electricity through various renewable energy sources depending upon the availability of resources. The programme is implemented in States by State implementing Agencies. The Ministry is in the process of formulating a new scheme “Rural Area Energy Access Programme” where after it will be approved by competent authority. The Rural Area Energy Access Programme for providing basic lighting facility to unelectrified villages / hamlets will be continuing in the 12th plan, modifying the existing RVE programme as per feedback from different stakeholders. Further, if approval of Rural Area Energy Access Programme (modified RVE programme) takes certain time, RVE programme may be continued in 2013-14."

1.89 Regarding the progress on electrification of border villages of Arunachal Pradesh, the Ministry have stated that to electrify/ illuminate border villages of Arunachal Pradesh, a plan has been made to electrify / illuminate 1483 un-electrified villages of all border districts of Arunachal Pradesh with a financial provision of Rs.550 crore. While 425 villages are being electrified by completing 46 small hydro power projects, balance 1058 villages are being electrified / illuminated from small / micro hydel projects and solar photovoltaic systems. The project is now in the final stages of implementation. Out of 1058 villages, 841 villages have been illuminated / electrified. These include, 523 villages, where all house holds have been provided with solar home lighting systems.

B. Biogas Programme

1.90 As per the Annual Report of the Ministry, the programme involve installation of family typs biogas plants, medium to large capacity biogas plants for generation of electricity as a decentralized biogas based power generation option and integrated technology demonstration programme for generation, purification/enrichment, bottling and piped distribution of biogas, based on technology package in entrepreneurial mode for medium size mix-feed biogas plants under RDD&D policy of the Ministry. The objectives of the integrated technology demonstration programme is to demonstrate the biogas fuel applications to meet stationary, motive power, electricity needs including cooking and heating requirements.

1.91 National Biogas and Manure Management Programme (NBMMP) is being implemented by the Ministry with the objectives to provide clean bio-gasesous fuel for cooking and lighting energy requirement of chemical fertilzers by organically enriched nutrients of bio-manure. The programme also aims to reduce use of LPG and pressure on forests and other conventional fuels like coal and kerosene. Use of biogas as a cooking fuel mitigates drudgery of rural women and children as well combats climate change. Based on the availability of cattle dung and as per the 18th Livestock Census (2007) Report released in December, 2010 and other related studies carried out in the past, indicate that there is an estimated potential of more than 12 million family size biogas

plants in the country. This potential on an average can generate about 30 million cubic meter of biogas per day.

1.92 Regarding the utility of biogas, the Ministry has stated that the use of biogas as a cooking fuel mitigates drudgery of rural women and children as well as combats climate change. In addition, biogas plants also provide enriched organic bio-manure in the form of digested slurry with high quantity and quality of Nitrogen, Phasphorus and Potassium nutrients.

1.93 On being asked the physical and financial achievement vis-à-vis the targets for the year 2012-13, the Ministry furnished as under:

Physical targets	Physical achievements (as on 28.02.2013)	BE/RE 2012-13 (Rs. in crore)	Financial achievements (as on 28.02.2013)
1.25 lakh Plants	0.771 lakh Plants	154/120	91

1.94 The physical target for the year 2013-14 as informed by the Ministry is 1.10 lakh plants and the financial allocation is Rs.127 crore.

1.95 Regarding the provision of Financial Assistance, the Ministry stated as under:

> "Central Financial Assistance (CFA) which includes subsidy @ ₹4000/- to ₹8000/- per plant as per the size of a biogas plant and location based on plain and hilly states/regions of the country and for North Eastern Region States; additional subsidy @ ₹1000/- per plant for linking cattle dung based biogas plants with sanitary toilets. Turn key job fee for setting up of biogas plants with five years free manintenance warranty; incentives for saving diesel by using biogas in engines/generators; admininstrative charges to State Programme Implementing Departments/Agencies and DVIC; Training Cources for training of users, manons, Staffs of concerned SNDs/SNAS, DVIC and other organizations and Turn Key Workers and Management course for TKWs/RETs; financial support for communication and publicity and extension."

CHAPTER VII

RENEWABLE ENERGY FOR URBAN, INDUSTRIAL AND COMMERICIAL APPLICATIONS.

1.96 The Ministry has been promoting the use of technologies for energy recovery and solar energy from municipal, industrial and commercial waste, formating certain niche energy demands of urban, industral and commercial sectors in the country. The programmes being implemented during the year include i) Energy Efficient Solar/Green Building Programme; ii) Energy Recovery from Urban, Industrial and Commercial Wastes; and iii) Bioenergy and Cogeneration in industry.

1.97 On being asked about the physical achievement during the last two years under this sector, the Committee were informed as under:

Sl. No.	Programme Component	Physical Achievements 2011-12	Physical Achievements 2012-13 (till Feb 2013)
1.	Solar Thermal Systems	1.1 million sqm	0.91 sq.m
2.	Alternate Fuel vehicles	13011 Nos.	35,000 Nos.

1.98 When the Committee desire to know the achievement vis-à-vis the targets (physical and financial) since 2007, the Ministry in reply furnished as under:

Year	Physical (in MW)		Financial Progress (in Rs. crore)	
	Target	Achievement	BE/RE	Expenditure
2007-08	20	18.72	9.0/9.0	6.74
2008-09	25	11.02	25.50/13.55	10.80
2009-10	25	20.06	22.0/14.95	9.27
2010-11	30	31.20	32.0/23.84	23.84
2011-12	40	48.41	25.0/15.69	15.67

1.99 As regard the physical targets and financial allocation for the year 2013-14, the Committee were informed as under:

S. No	Programme Component	Physical target	Outlay *(Rs. in crore)*
1.	Solar Thermal Systems	0.60 million sq.m	2*
2.	Green Buildings	Targets not fixed	2
3.	Solar Cities/other related activities	-do-	8
4.	Alternate Fuel vehicles	-do-	7
	Total		19

* activities under Solar Mission

1.100 On being asked the steps taken by the Ministry to achieve the targets set for the year 2013-14, the Ministry in a written reply stated:

> "For promotion of Solar Thermal systems, main thrust will be on sectoral approach; sectors envisaged to be covered include Pharmaceutical/Dairy/Food processing/Automobile/Textiles etc. In case of the other programmes of Solar Cities/Green Buildings, focus will be on awareness creation/promotional activities, National level Workshops/Regional Seminars, Training and capacity building activities, etc. The outlay in case of BOVs programme is mainly to meet past liabilities of about Rs. 25 crore."

A. Energy Efficient Solar/Green Buildings Programme

1.101 Buildings are major consumers of energy in their construction, operation and maintenanc. Globally, about 40% of energy consumption is estimated to be in building sector. At present, the country is experiencing increasing construction activities in all sectors of the economy, thereby the energy demand is increasing rapidly. This is also due to rapidly growing urbanization and the increasing affordability of the people.

1.102 A green building minimizes the demand on fossil fuel based energy, maximizes the recycle, reuse, and promotes the use of renewable energy and energy efficient devices & appliances. The need to reduce energy consumption and increase use of renewable energy in buildings has been promoted which includes the use of solar passive design concept, use of eco-friendly and less energy intensive building materals, integration of

renewable energy and energy efficiency, water conservation, waste recycling etc. This was the origin of the green building concept.

1.103 Regarding the achievements and progress, the Ministry has stated that this programme has been implemented since February 2009 which aims to promote the widespread construction of energy efficient solar/green buildings in the country through a combination of financial and promotional incentives mainly for capacity building, awareness, seminar and workshops and other promotional activities etc.

1.104 The "Development of Solar Cities" Programme of the Ministry assists Municipal Corporations and Urban Local Bodies in Preparation of a Master Plan for increasing energy efficiency and renewable energy supply in the city, setting-up institutional arrangements for the implementation of the Master Plan and awareness generation and capacity building activities. During 11th Plan, the Ministry had a target to support 60 cities/towns for Development as "Solar/Green Cities". This programme aims at minimum 10% reduction in projected demand of conventional energy at the end of five years, which can be achieved through a combination of energy efficiency measures and enhancing supply from renewable energy sources.

1.105 With regard to the achievement and progress the Ministry has informed that sanctions have been issued for 3 cities during the year 2012-13 making a total of 42 Cities namely Agra, Moradabad, Rajkot, Gandhinagar, Surat, Nagpur, Kalyan, Dombiwali, Thane, Aurangabad, Nanded, Gwalior, Rewa, Imphal, Kohima, Dimapur, Dehradun, haridwar-Rishikesh, Chamoli,-Gopeshwar, Chandigarh, Gurgaon, FAridabad, Coimpatore, Vijayawada, Bilaspur, Raipur, Agartala, Guwahati, Jorhat, Hubli-Dharwad, Mysore, Amritsar, Ludhiana, Jodhpur, Ajmer, Bhuaneswar, Aizawl, Panaji City & Environs, Itanagar, Hamirpur, Shimla, Howrah and Shirdi.

B. Energy Recovery From Urban And Industrial Waste

1.106 Management and safe disposal of waste generated by rapidly increasing urbanization, industrialization and the developments taking place in the country is getting unprecedented importance for reducing adverse impact on our environment. Technologies are now available for generating substantial quantity of decentralized energy while treating wastes besides reducing their quantity for safe disposal.

1.107 The Ministry have stated that according to a recent estimate, there exists a potential for generation of about 4000 MW of power from urban and industrial wastes in the country.

1.108 The Committee were informed that during 2012-13 the Ministry has continued the implementation of the Programme of Energy Recovery from Wates through three schems aimed at a variety of wastes such as municipal solid wastes, vegetable market and slaughterhouse wastes,cattle dung, agricultural residues and industrial wastes. Financial assistance being provided for projects of various types is as follows:

- "Setting up five pilot projects on energy recovery from Municipal Solid Wastes. ₹ 2 crore per MW, subject to ceiling of 20% of project cost and ₹ 10.00 crore per project, whichever is less, is provided for five pilot projects.
- Power generation from biogas generated Sewage Treatment Plants: 40% of the project cost subject to a maximum of ₹ 2.0 crore/MW towards projects for generation of power from biogas being produced at Sewage Treatment Plants.
- Power generation from other Urban Wastes and mix of Urban and Agricultural/Agro-insdustrial Wastes: 50% of project cost subjet to a limit of ` 3 crore per MW for projects based on biomethanation technology for power generation from cattle dung, vegetable market waste, slaughterhouse wastes, night soil and any other urban wates. Financial assistance of 30% of project cost subject to upper limit of ₹ 3.0 crore/MW is provided for projects based on biomethanation technology for power generation from a mix of cattle dung, vegetable market and slaughterhouse wastes along-with agricultural residues. In case of projects for generation of only biogas for thermal application, the financial assistance is limited to ₹ 1.0 crore/MWeq (i.e. biogas production of 12000 cu.m/day)
- Energy recovery from industrial wastes: Financial assistance of ₹0.20 to 1.00 crore per MW depending upon the type of wste,

technology deployed and the end use, subject to a ceiling of 20% of the project cost."

1.109 During the evidence of the representatives of the Ministry of New and Renewable Energy, when the Committee raised the issue of the huge untap potential of the waste to energy, the Secretary, MNRE, deposed before the committee as follows:

"….waste to energy which is very important for us because the Finance Minister, in his Budget speech, actually made a very specific point that something has to be done on waste to energy and bio-mass in general. He also mentioned that arrangements will be worked out for providing cheap finance by actually drawing money from the NCEF. Till now, NCEF is being used basically as a viability gap funding or some sort of a capital subsidy. He will be willing to give money to IREDA which also comes under this Ministry as it is an organisation under the Ministry as a cheap financing loan for five years. It may be at zero per cent or one per cent and that project has to be worked out. Through IREDA, a lot of these programmes can be used to fund."

CHAPTER VIII

RESEARCH, DESIGN AND DEVELOPMENT IN NEW AND RENEWABLE ENERGY

1.110 Research & Development activities of the Ministry aim at resource assessment, technology development, demonstration and commercialization. The Ministry supports Research, Design, Development and Demonstration (RDD&D) to development of new and renewable energy technologies, processes, materials, components, sub-systems, products & services, standards and resource assessment so as to indigenously manufacture renewable energy products and systems. A comprehensive policy on RDD&D is in place to support R&D in new and renewable energy sector, including associating and supporting RD&D activities carried out by industry for market development. It provides guidelines for project identification, formulation, monitoring, appraisal, approval and financial support.

1.111 Regarding the budgetary allocation for the year 2013-14, the Committee have been informed that an amount of Rs.160 crore have been allocated for R&D activities which includes Rs. 48 crore for research Institutions under MNRE such as Solar Energy Centre, Centre for Wind Energy Technology and National Institute of Renewable Energy and Rs.112 crore have been allocated for other R &D activities as below:

i. Solar Energy - Rs.60 crores
ii. Bio Energy - Rs. 17 crores
iii. Small Hydro Power – Rs. 10 crores
iv. Hydrogen Energy and fuel cells – Rs. 20 crores
v. Other New Technologies – Rs. 5 crores

1.112 Detailing the proposed and approved outlay under RD&D Sector for 2013-14, the Ministry furnished as follows:

Programme	Annual Plan Proposal (Financial)	Approved Outlay
Bio-fuel	10	5
Biogas	7.5	5
Biomass Gaification	1	1
Waste-to-Energy	4	4
Cookertoves	10	2
Solar Energy*	100	60
Wind Energy	0	
Small Hydro Power	15	10
New Technology		
Hydrogen Energy & HEFC	21	15
Fuel Cells	12	5
Tidal Energy	1	0.5
Geo Thermal	2	0.5
Battery Operated vehicles	10	4
Solar Energy Centre (SEC)	42	30
C-WET	12	10
NIRE	14	8
Total	**261.5**	**160**

1.113 On being asked about the budgetary allocations both at BE/RE stages vis-à-vis actual expenditure made on R&D during the last three years, the Ministry furnished the following information:

(Rs. in Crore)

2010-11			2011-12			2012-13		
BE	RE	Actual	BE	RE	Actual	BE	RE	Actual
148	123	111.46	93	111.53	109.92	192	126	85.09

1.114 On being asked about the major achievement made during the year 2012-13, the Committee were informed as under:

> " Major areas of research which were pursued during 2012-13 were Solar Photovoltaic, Solar Thermal, Biofuels, Hydrogen Energy and fuel cells. The focus of research in these areas have been development of new materials, improvement in efficiencies and new applications.

1.115 The Committee when enquired about the thrust areas identified for R&D support under new and renewable energy sector for the year 2013-14, the Ministry in their written replies informed as under:

> **"**The thrust areas for research in new and renewable energy sector have been identified in consultation with academic and R&D institutions, industry and experts. Sector specific thrust areas that have been identified in consultation with experts/ R&D organizations/ industry are as under:
>
> SPV:
>
> - Development of poly silicon material
> - improvements in efficiency of crystalline silicon solar cells and consumption of less material
> - development of thin film solar cells using silicon thin films, polycrystalline thin films and cells using dyes, organic and plastic materials and using nano technologies
> - improvements in efficiency of electronics, and
> - development of alternate storage techniques.
>
> Solar Thermal:
>
> Solar Thermal power generation Industrial process heat system and other low temperature application including advanced solar collectors and materials.
>
> Second generation biofuels:
>
> - Ligno-cellulosic ethanol / biobutanol production: Development of multi feed and cost effective pre treatment processes, engineered micro-organism capable of high ethanol yields and their evaluation, technology for saccharification and fermentation, besides identification and development of strains/processes for bio-butanol
> - Pyrolysis: Thermo-chemical platform for production of Second Generation Biofuels, such as gasification, Biomass to Liquid, etc.
> - Algal Biofuels: Identification of efficient and engineered strains of algae leading to production of advanced fuels and methods for cultivation and

harvesting of micro algae. This also includes drying of algae and conversion into biofuels. This activity will involve elaborate development and scale up both on open ponds and in low cost photo bioreactors.

- Bio-refinery: Development and demonstration of the concept of bio-refinery

Hydrogen energy/ Fuel Cells:

Hydrogen production, storage and its utilisation for stationery, motive and portable power generation applications using internal combusion engines and fuel cell technologies.
New initiatives proposed to be undertaken during 2012-13 include field evaluation of : hydrogen fuelled vehicles based on IC engine; fuel cell based buses; and fuel cell systems for providing back up power to telecom towers; taking up R&D projects in the area of PEMFC and SOFC; and supporting projects in the area of hydrogen production through renewable resources, hydrogen storage and applications."

1.116 On being enquired by the Committee how the R&D programmes have benefitted the renewable sector, the Ministry in their written reply stated as under:

"RD&D projects taken up during the last three years facilitated to strengthen R&D capacity of the R&D institutions to take up R&D projects for technology development with commercial potential in long term. The projects taken up include higher efficiency solar cells, solar thermal power generation, advance research in biomass energy including development of specifications and standards of biomass energy system, hydrogen energy storage and fuel cells development, etc. In the area of biogas generation, demonstration projects on purification, bottling and utilization for various applications including biogas based refrigeration were taken up.

1.117 Regarding the R&D activities and its financial allocation, the Secretary, MNRE during the evidence stated before the Committee :

"……We are not a research department. It has become an infrastructure department basically. Despite the fund shortages, we have put in Rs. 125 crore and you had also mentioned the break-ups which are given. These can be adjusted in-between also. Here also we go about it very scientifically. There is a high powered committee which looks at the allotting funds. Here we can say very confidently that any ideas which are coming up, etc. will be fully supported with the closest cooperation with the innovators and the scientists who are working in this area"

Part –II

Observations/Recommendations of the Committee

2.1 The Committee note that the detailed Demands for Grants (2013-14) of the Ministry of New and Renewable Energy (MNRE) were laid in Lok Sabha on 8th March, 2013. The Plan Outlay of the MNRE for the year 2013-14 stands at Rs.3915 crore comprising Gross Budgetary Support of Rs.1521 crore and Internal and Extra Budgetary Resources of Rs.2394 crore. The Committee have examined the Demands for Grants of the MNRE for the year 2013-14 in detail. The Committee endorse the Demands for Grants of the Ministry for the year 2013-14. Observations/ Recommendations of the Committee are detailed in succeeding paragraphs.

2.2 The Twenty-Seventh Report of the Standing Committee on Energy on Demands for Grants of the MNRE for the year 2012-13 was presented to Parliament on 3rd May, 2012. The Action Taken Replies of the Government to all the recommendations contained in the Report were received on 25th September, 2012. The Thirty-First Report of the Committee on the Action Taken by the Government on the recommendations contained in the Twenty-Seventh Report was presented to Parliament on 18th December, 2012. In the said Report, the Committee had reiterated their recommendation on 'Remote Village Electrification Programme (RVEP)' and final reply on their recommendation on 'Renewable Power - Evacuation Problem is still awaited. The Committee had also commented on two recommendations viz 11th Five Years Plan performance and National Solar Mission.

Final Action Taken Statements on the recommendations contained in the 31st Report are still awaited. The same may be furnished in the prescribed format immediately. Moreover, the Committee observe that more than six months have passed since the presentation of the Twenty-Seventh Report to the Parliament. The Committee would like to remind the Ministry to observe the provisions of Direction 73A of the 'Directions by the Speaker' and arrange for the Statement by the Minister in the House regarding the status of implementation of the recommendations of the Committee contained in their Twenty-Seventh Report, expeditiously.

(Recommendation Sl. No.1, Para No. 2.2)

12TH FIVE YEAR PLAN

2.3 The Committee note that the Ministry of New and Renewable Energy has proposed a target of capacity addition to the tune of 30,000 MW during the 12th Five Year Plan period for which a financial requirement of Rs. 40,000 crore was projected in the 12th Plan proposal of the Ministry. Against this, the Planning Commission after detailed discussions on various aspects of renewable energy activities proposed during the 12th Plan, has indicated an allocation of Rs. 19,113 crore only, which is less than half of what the Ministry had proposed. When asked about the likely impact of the substantial reduction in budgetary allocation, the Committee have been informed that this would affect the overall targets of the 12th Plan. In this connection the Committee further note that the budgetary allocation for the terminal year of the 11th Plan i.e. 2011-12 was Rs. 1,200 crore and the actual expenditure was Rs. 1,348.83 crore. Whereas, the budgetary allocation for the first two years of the

12th Plan i.e. 2012-13 and 2013-14 is Rs. 1,385 crore and Rs. 1,521 crore respectively, leaving a remaining balance of Rs. 16,207 crore to be utilized during the last three years of the Plan at an average of Rs. 5,400 crore annually. The Committee are astonished to note the business as usual approach of the Government for New and Renewable Energy sector despite the ambitious targets set in this sector during the 12th Plan. The Committee find that fund allocation for the first two years of the 12th Plan reflects a mere incremental budgeting over the previous year's budget. It seems that the Government has not appreciated the fact that the actual expenditure for the terminal year of the 11th Plan was Rs. 1,348.83 crore against the BE of Rs. 1,200 crore. The Committee fail to comprehend the skewed allocation for the sector despite their excellent performance during the 11th Plan and the promising future. Although, the Secretary, MNRE assured the Committee that the Ministry will try to achieve the targets with whatever fund is allocated by encouraging other Ministries like Railways, Home, Defence etc, Public Sector Undertakings to take up renewable energy development projects through their budgets, it cannot be stated with certainty as to how much fund can be mobilized through this and whether that will be sufficient. The Committee also feel that there are several issues and projects which are very vital and need attention for the proper development of this sector *viz*. development of Green Energy Corridor for evacuation and grid connectivity of renewable energy, reintroduction of Generation Based Incentive scheme for wind energy due to decrease in their performance, developing the sector to achieve grid and cost parity with the conventional energy source etc. Given the importance this sector hold in fulfilling the energy need of the Country and the quantum of

investment that would be required for mainstreaming the renewable energy, the budget outlay proposed for the 12th Plan appears to be grossly inadequate. At the time when the Government is supposed to accelerate the growth of the renewable sector, the Committee are inclined to infer that even the current pace is being deaccelerated and the fledgeling sector may be left with insufficient funds and efforts essential for its growth. The Committee believe that the Sector deserves more attention of the Government at this crucial juncture as this has just started making its presence felt. The Committee, therefore, strongly recommend that required funds should be made available for this important sector so that the ambitious targets set for 12th Plan should not be curtailed due to paucity of the funds.

(Recommendation Sl. No.2, Para No. 2.3)

2.4 The Committee take note of the fact that energy generation through conventional sources have limitations on account of limited availability of required fuel and other essentials. The Government proposes to add about 30,000 MW from Renewable sources by end of 12th Plan. The cumulative contribution by renewable sources till that time will be about 55,000 MW which will be approximately 17% of the total intalled capacity of energy from all sources. The Committee appreciate the efforts of the Government to involve other Ministries like Railways, Home, Defence etc. in promoting renewable energy. Nonetheless the Committee are of the view, that this should be done through a legal and statutory mechenism making it compulsory to use certain percentage of this energy failing which it should be followed by the penal provisions. The Committee are aware that as of now CERC

guidelines in the forms of Renewable Purchase Obligations (RPO), exist, yet they are not being followed by the power utilities. These guildelines also lack teeth as they are not backed by penal action in case of failure. Absence of penalty in non-adherence to guidelines over Renewable Purchase Obligations may not benefit the utilities, but its affirmation will also not harm them (utilities) and inturn it will give thrust to the development of renewable sector in the country. The Committee, therefore, are of the view that in addition the existing provision in Policy, Act and CERC guidelines, action should be taken to formalise them into statute with policy and legal framework. For the purpose a Cabinet decision should be taken in consultation with the Planning Commission and other concerned Departments of the Government of India, State Governments and all stakeholders to ensure that it is made mandatory to use atleast 10% of the energy from renewable sources out of the total energy requirements of the utilities. The Committee, therefore, strongly recommend that with a view to keep our energy future secure and affordable, promote clean and green energy to protect environment, to discourage monopolies in energy sector, to ensure energy access in remote and inaccessible areas and also to encourage people participation in energy generation it is high time that a holistic and comprehensive view is taken about the renewable energy vis-à-vis conventional energy for its usefulness and development accordingly. A legislation should also be enacted with the approval of the Cabinet for making 10% usage of renewable energy mandatory by all power utilities with the appropriate penal provisions in case of non-compliance with the statutory provisions.

(Recommendation Sl. No.3, Para No. 2.4)

2.5 The Committee note that the 12th Plan of the Ministry aims at accelerated exploitation of the renewable energy potential. The main focus would be on research, development and deployment of renewable energy generation systems for rural, urban and industrial/ commercial applications in addition to grid interactive renewable energy. Productivity and reliability will be the hallmark for renewable energy growth in the Country. As of now, the contribution from this Sector in the national electricity installed capacity is 12% and the target is to achieve 17% contribution from renewable sector by the end of the 12th Plan period. However, going by the performance in the first year of the 12th Plan and the target set for the year 2013-14, it is inconceivable that the end targets of the 12th Five Year Plan can be achieved. As against the physical target of 4,125 MW in the year 2012-13 under grid-interactive power, only 2,608 MW could be achieved. The performance in wind, small hydro and solar has been far from satisfactory. In the off-grid sector also performance in solar applications, energy from urban and industrial waste, biomass gasifiers in the rural areas has been very poor. Similarly, the target for the year 2013-14 in the grid interactive segment has been fixed as 4,330 MW with an outlay of Rs. 600 crore. In off-grid the target is about 138 MW with an outlay of Rs. 430 crore. The Committee find the mismatch between physical and financial targets for the year 2013-14 when compared to the target achievement and financial expenditure in the year 2012-13 in off-grid segments. In the grid interactive, the target set for 2013-14 is quite high as compared to the performance in the first year of the 12th Five Year Plan. Although, the outlay has been increased as compared to the previous year yet the performance mainly hinges around the efforts made by the

private sector. Even if the target for the year 2013-14 is fully achieved then also the target for the remaining three years of the 12th Plan will have to be 8000 MW per year to attain the 12th Plan targets. The Government has to act as a facilitator creating congenial environment for the private entrepreneurs to perform in the right earnest. The target of the 12th Plan, which is around 30,000 MW, is also not based upon the latest potential in the renewable energy sector which is about 2,50,000 MW. Hence, the targets set for 12th Plan must be achieved by overcoming prevailing constraints. The Committee, therefore, strongly recommend that for registering the presence of renewable energy sector in a significant manner it is high time that the target set under both, grid interactive and off-grid, categories should be vigorously followed for achievement as any laxity in achieving them may demoralize the entire upcoming entrepreneurship which is so vital for the growth of the sector. Needless to emphasise that the MNRE in coordination with Ministry of Power will implement a holistic programme to evacuate the electricity from renewable sources.

(Recommendation Sl. No.4, Para No. 2.5)

DEMANDS FOR GRANTS OF MNRE FOR 2013-14

2.6 The Committee find that the budgetory allocation of Rs.1385 crore during the year 2012-13 was reduced to Rs.1150 crore at RE stage and an amount of only Rs. 979.67 crore could be spent as on 28th Februrary, 2013 which is 85 per cent of the RE. For the year 2013-14, the Ministry has sought an allocation of Rs.6236 crore in their Annual Plan. The Committee are surprised to note that the Planning Commission and Ministry of Finance have subsequently reduced the ammout and

allocated a meagre amount of Rs.1521 crore as Budgetary Support. The Committee do not find any justification by the Ministry in demanding Rs. 6236 crore as the highest annual fund utilization during the last 3 years was Rs.3715.43 crore i.e. in 2011-12 of which the GBS was Rs. 1348.83 crore and IEBR was Rs.2366.60 crore. This is nothing but an improper assessment and estimation of requirement of funds by the Ministry. Moreover, this also reflects about the lack of synergy between the targets set and strategy adopted to achive them. If at all, the proposed amount is required to achieve the proposed targets of the Ministry for 2013-14, the Committee are concerned that the Ministry's projects under various programmes would be adversely affected with the drastic reduction in financial allocation vis-à-vis proposed budget. In view of the importance and significance of renewable energy in the country energy scenerio, it is all the more nessesary that there should be perfect coordination based on scientific formula between the target set and requirement of funds for achieving the set targets. In the present circumstances, the Ministry has no option but to maneouvere within the limitations of funds constraints and to strive to achieve the physical targets with the truncated allocations. Nevertheless, the Committee are aware that the allocated fund is insufficient to achieve the targets and some out of box thinking and caution will have to be taken. The Committee, therefore, recommend that issue of insufficient allocation should be taken up with the Planning Commission and Ministry of Finance emphasizing the importance of the sector for additional allocation of funds at RE stage. The Ministry should also make all efforts to mobilize additional funds from internal and external

budgetary resources and other renewble energy development agencies so that the targets set for the year are achieved fully.

(Recommendation Sl. No.5, Para No. 2.6)

WIND ENERGY

2.7 The Committee note that wind energy has substantial contribution which is about 70 per cent of the renewable energy power capacity installed in the country. The Wind power potential in the country has been varying at different heights, but at the height of 80 metre it has been estimated to be more than 1,00,000 MW. Against this, the installed capacity of wind energy as on March, 2013 is 19,051 MW. Despite the facts, that it contributes substantially in the total installed capacity of renewable energy, it is only about 19 per cent of its potential. This situation is not at all satisfactory despite having a leading share in the renewable energy achievement. On a conservative consideration a fraction of 2 per cent land availability for all States except Himalayan States, North-Eastern States and Andaman and Nicobar islands has been assumed for potential estimation. In these States i.e. Himalayan, North-Eastern and Andaman and Nicobar Islands it is assumed as 0.5 per cent. Hence, it would be appropriate to infer that potential would change substantially if land availability in each States is real and certain. This would also necessitate changes in the Wind Resource Assessment Programme because as of now only about 696 automated wind monitoring stations are working under the aegis of C-WET in collaboration with State Nodal Agencies. For assessing of wind energy resources all over India, the establishment of meteorological basis by Indian Wind

Atlas is still a distant reality. Hence the entire scenario of wind energy is yet to crystallize into some formal shape wherein something can be done with certainty and reliability. The Committee, therefore, strongly recommend that for proper exploitation of wind energy potential in the country a scientific and implementable strategy is the need of the hour for which necessary steps should be taken immediately. Without being sure of the potential, no definite strategy can be drawn to harness it with proper and adequate infrastructure support. Therefore, potential identification and steps to harness it should go hand in hand in a stable manner with the involvement of all the stakeholders ensuring their positive contribution.

(Recommendation Sl. No.6, Para No. 2.7)

2.8 The Committee note that there has been incoherence in the physical and financial targets with regard to the wind energy in the country. The targets during the last four years 2009-10, 2010-11, 2011-12 and 2012-13 were restricted to 2500 MW, 2000 MW, 2400 MW and 2500 MW respectively. The achievements during these years are 1565 MW, 2349 MW, 3196 MW and 1492 MW respectively. Despite the targets not being so high, the achievements were very poor in the years 2009-10 and 2012-13, whereas in the remaining two years the achievement exceeded the targets. The Committee feel that there should be correlation in the targets and growth in the successive years of planning and it should be ensured that the target set for the next year is not less than the preceeding year. Otherwise, there is every chance that the cycle of sustainable growth will be hampered impacting the growth of the sector. The target for the year 2013-14 for wind energy has also been fixed as 2500 MW with an outlay of Rs.230 crore. The Committee presume that this outlay also

include incentive components otherwise this kind of variation in financial allocations cannot be justified and it may raises serious questions about the planning and strategy as well as expenditure per MW in target achievements. The year 2012-13 has been extremely disappointing for the wind sector and the Committee have been apprised that the withdrawal of Accelerated Depreciation Benefits and Generation Based Incentive scheme have substantially affected investment from Private Sector resulting in low achievement of the target. But the performance exceeded the target in the year 2010-11 and 2011-12 with the meagre allocation of Rs.34.90 crore and Rs. 28 crore respectively. Hence, the Committee desire that relation between targets, financial allocations and incentives in the achievement of targets may be made more explicit. The Committee are happy to learn that an additional amount of Rs. 800 crore has been earmarked for GBI purposes for wind sector and this should accelerate the performance of the wind energy sector during the current as well as coming years. The Committee, therefore, strongly recommend that every effort should be made to outreach the target for the current year without any excuses and the planning of providing declared financial incentives. The Ministry should also initiate publicity for the incentives available to the industry so that wind energy continue to dominate its share in renewable energy and become an instrument for achieving 30,000 MW target set for the 12th Five Year Plan.

(Recommendation Sl. No.7, Para No. 2.8)

SOLAR ENERGY

2.9 The Committee note that our country is endowed with vast solar energy potential which is estimated to be more than 1,00,000 MW on conservative assessment. Despite, the vast availability of solar radiation, a total capacity of only 1686 MW has been reportedly installed (upto March, 2013) which constitutes 6% of the total renewable energy intalled capacity of 28000 MW and only 1.6% of its potential. During the first phase of Jawaharlal Nehru National Solar Mission (JNNSM) i.e. from January, 2010 to March, 2013, against the physical target of 1100 MW grid connected solar power, 680 MW capacity projects have been commissioned. Against a target of 200 MWp capacity equivalent off-grid solar photovoltaic systems, SPV systems aggregating to 207 MW have been sanctioned and about 50 MW systems have been installed. A budget of Rs.1450 crore provided for first phase of the Mission has been reported fully utilised. Under grid interactive solar power, the achivement during 2012-13 was 505 MW against the target of 800 MW. The physical target for the 12th Plan is 10,000 MW of which 3000 MW of grid connected solar power projects and 800 MWp off-grid SPV systems is the physical target for second phase of JNNSM. The Committee have been informed that these targets are subject to availability of funds for the scheme. Keeping in view, the first phase performance of the Ministry under JNNSM, the Committee have a serious doubt about the accoplishment of second phase targets of the Mission which will subsequently have a cascading affect on 12th Plan target and ultimately on the ambitious target of JNNSM which aims at deployment of 20,000 MW of grid connected solar power by 2022. Even if the 12th Plan target is achieved

miraculously, the total installed capacity of solar power by end of 12th Plan would be around 11,600 MW. In that event, to achieve the target set under JNNSM, a capacity addtion of 8400 MW would be required to achieve during the last five years of the Mission. The Committee find that with this target and half hearted efforts to achieve it, the phase II of the Mission are bound to head the phase I way. The uncertain fund arrangements will further add to the woes resulting in the non-achievement of targets under JNNSM Phase II. From an energy security perspective, the Committee find that Solar is the most secure of all sources of renewable energy since it is abundantly available all over the country. It is felt that if captured effectively, the solar energy can meet the entire country's power requirement. Keeping in view the large proportion of poor and energy deprived population in the country, every effort needs to be made to exploit the relatively abundant sources of solar energy available in the country. The Committee are apprehensive that due to shortage of funds there is possibility of interruption in the implementation of projects under solar energy sector. The Committee, therefore, strongly recommend that the Government should make every effort to ensure uninterrupted implementation of the solar energy projects. For this, the Ministry should pursue the matter with the Planning Commssion and the Ministry of Finance for more allocation of funds at RE stage. They should also seek the assistance from other renewable energy development agencies. Needless to say, the Ministry should also involve larger participation of private sector, renewable energy service providing companies, financing institutions, State Renewable Energy Development Agencies,

reputed NGOs etc. to ensure that targets under 12th Plan as well as JNNSM are met successfully.

(Recommendation Sl. No.8, Para No. 2.9)

SMALL HYDRO POWER

2.10 The Committee find that the estimated potential for power generation in the country from small/mini hydel projects is 19,749 MW from 6474 identified sites. They are also informed that the cumulative installed capacity of small hydro projects is 3632 MW (upto March, 2013) which is 18% of the identified potential. The achievement in the last three years of the 11th Plan under Small Hydro Power has been satisfactory as the set targets have been achieved during each of the year i.e. in 2009-10 achievement was 305 MW and in 2010-11 it was 307 MW against the target of 300 MW in each year, while in the year 2011-12 achievement was 352 MW against the target of 350. However, the Committee are unhappy to note the poor performance in the sector during the year 2012-13 i.e against the target of 350 MW, only 176 MW could be achieved which is about 50 per cent of the target. In the financial front too the performance was not satisfactory as about 17 per cent of the allocated budget remains unutilized. It is also unexplained that a capacity addition of 352 MW was achieved with an expenditure of Rs. 154 crore in the year 2011-12, whereas in the year 2012-13, 176 MW could be achieved with an expenditure of Rs.125 crore. This mismatch in financial and physical figures of the performance is incomprehensible. The Committee, therefore, strongly recommend that a fine balance should be maintained between the expenditure in the target achievements in terms of Megawatt. Variation to a limited extent in expenditure vis-à-vis

achievement can be justified owing to circumstances beyond control but huge difference in expenditure and achievement cannot be justified as the installation of SHP and the technique required in it are similar and local in nature. Therefore, planning for installation of SHP should be done in a careful manner by utilizing funds in an efficient manner.

(Recommendation Sl. No.9, Para No. 2.10)

2.11 The Committee were informed that the target for capacity addition under Small Hydro Power for the 12th Plan period is 2100 MW and the capacity addtion target during each year of the plan period is 350 MW. The Committee observe mis-match of figures of the 12th Plan target vis-a-vis the target set for each year of the Plan period. If the target of 350 MW set for each year of the plan period is achieved, the total capacity addition of 12th plan would be only 1750 MW. Moreover, the performance during the first year of the plan period raises many questions. With an expenditure of about 83 per cent of the financial allocation a physical target of only 50 percent could be achieved and there is no indication of achieving the leftover target in the remaining years as the target for the year 2013-14 has been set as 300 MW with an outlay of Rs.135 crore. With this pace a deficit of 200 MW has existed in the second year of the plan and it is almost impossible to make it up in the leftover target in the remaining years of the plan for target achievement. The poor performance in the sector is unjustifiable. Moreso, a small hydel project usually do not encounter the problems associated with large hydro projects such as acquisition of land, deforestation and resettlement and various other clearances.

The positive sides of these projects are that they have the potential to meet power requirements of remote and isolated areas. The Committee are of the opinion that special emphasis should be given to promote use of new and efficient designs of watermills for mechanical as well as electricity generation for the purpose of setting up of small and micro hydel projects for rural village electrification. The sector is of such a nature that involvement of local people become necessary for its success and hence Associations, Cooperative Societies, NGOs, Village Panchayat/Gram Sabhas should be associated for making the projects a success. The Committee also find that SHP has a great social bearing as it can create a sense of belonging to the modern world among the villagers besides providing them the electricity and earning and ensuring their livelihood. This is also one of the most cost effective options for power generation as it does not rely on conventional fuel for its operation. The Committee, therefore, strongly recommend that option of SHP should be explored and utilized to its full capacity owing to its importance to the rural masses. The Committee also recommend that the Government should critically review its performance for the year 2012-13 and ensure that the factors which hindered the growth of the sector are addressed and are not repeated henceforth.

(Recommendation Sl. No.10, Para No. 2.11)

BIOMASS POWER

2.12 The Committee note that biomass power programme of the Ministry is implemented with the objective of harnessing the potential for grid quality power from biomass resources through various conversion technologies. The biomass materials used for power generation *inter-alia* include bagasse, rice husk, straw, cotton stalk, coconut shells, soya husk, de-oiled cakes, coffee waste, jute wastes, groundnut shells, saw dust etc. The Committee find that biomass resources are abundantly available in the country. They also note that the potential could be increased substantially if linked with dedicated plantations on forest and non-forest degraded lands. It has been reported that Studies sponsored by the Ministry has estimated that about 18000 MW of power can be generated from agro-residues covering agricultural and forestry residue. During the year 2012-13, the capacity addition from biomass is 255 MW taking the cumulative cogeneration capacity in the country to 2240 MW (upto December, 2012). In view of the abundant availability of biomass resources, the Committee find the performance so far under the sector far from satisfactory. Biomass is found to be a clean renewable energy resources derived from the waste of various human and natural activities and the resources are widely available all over the country. The use of biomass energy has the potential to greatly reduce greenhouse gas emissions. The other benefits is that it generate direct and indirect income for the rural communities, generate employment in rural areas and results in net positive environmental benefits due to reduction of local pollution from field burning and methane emission from decay of

surplus biomass. In regard to constraints in development of Biomass Sector it was stated that the constraints are competitive uses of biomass as cattle feed and partly used by process and power industries leading to unavailability or rise in the cost of fuel for biomass power plant. However, they can be overcome by way of promotion of dedicated energy plantations through appropriate waste land development programme in each district/ taluk based on a suitable public-private partnership model or contract farming. The Committee strongly feel that using the resources that are easily available would make the production of energy efficient and reliable and biomass is certainly one of such resources. Therefore, to encourage the use of biomass, the Committee recommend that the supply of biomass material should be improved by improving the technologies. Moreover, provision of financial incentives and subsidies should also be improved to attract more investment from private participants.

(Recommendation Sl. No.11, Para No. 2.12)

RENEWABLE ENERGY FOR RURAL APPLICATIONS

2.13 The Committee find that the Ministry's programmes under Renewable Energy for Rural Applications include deployment of renewable energy systems and devices such as biogas plants, photovoltaic systems, biomass, gasifiers, solar cookers and other solar thermal systems, etc. in rural areas of the country as well as remote village electrification programme and village energy security test projects. The Committee observe that the physical targets and financial outlays

proposed and approved for the year 2013-14 under renewable energy for rural applications are quite confusing. Under RVE Programme, the physical target of 250 villages/hamlets with a financial outlay of Rs. 500 crore were proposed. The approved outlay is Rs. 15 crore which is only about 3 per cent of the proposed outlay with no changes in the physical target. Similarly, the approved outlay under family type biogas plant is Rs. 123 crore against the proposed outlay of Rs.200 crore. However, there is no reduction in the physical target which remains 1.1 lakh. The Committee are apprehensive abot the attainability of the physical targets of the above categories with the reduced approved outlay. They would like to know that if they are attainable, than how the inflated proposed outlay can be justified and if they are unattainable why the physical targets have not been revised. With regard to performance in the year 2012-13, the Committee are astonished to note that 746 villages/hamlets were completed under Remove Village Electrification Programme without any target and without any budget as well. This is a very peculiar situation which requires to be explained as to how 746 villages were electrified without any pre-set financial outlay as well as physical targets. The performance under biogas programme is also far from satisfactory as only 77,000 plants could be set-up against the target of 1.25 lakh plants. Financial performance is also not very encouraging as only Rs.91 crore could be spent against the revised estimate of Rs. 120 crore. The Committee feel that the action plan of the Government under renewable energy for rural applications is extremely sketchy without any definite goal and appropriate and implementable strategy. The areas where this system is meant for are isolated, remote and far-flung for the purpose of accessibility and the

proper working of these devices will bring the people of those areas to the mainstream and hence the importance of these systems cannot be over-emphasized. The Committee, therefore, recommend that the proper survey must be done for devising an effective strategy with regard to the implementation of various systems and devices under renewable energy for rural applications. It should be followed by a clear and defininite strategy to implement it in a result oriented manner so that the benefits reach the intended beneficiaries.

(Recommendation No.12 Para No.2.13)

REMOTE VILLAGE ELECTRIFICATION PROGRAMME

2.14 The Committee note that the Remote Village Electrification Programme is implemented for providing financial support for lighting/basic electricity using renewable energy sources in those remote unelectrified census villages and unelectrified hamlets of electrified census villages where grid extension is either not found feasible or not cost effective and are not covered under the Rajiv Gandhi Gramin Vidyutikaran Yojana. The Committee observe that against the overall target of 10,000 villages and hamlet for 11th Plan, 7091 villages/hamlets have been sanctioned for electrification, out of which 6693 vilages/hamlets have been completed till 31st January, 2013. The Committee are informed that with a view to modify the existing RVE programme, the Ministry is in the process of formulating a new scheme called "Rural Area Energy Access Programme" for providing basic lighting facility to unelectrified villages / hamlets. It has also been stated that if

approval of Rural Area Energy Access Programme takes time, RVE programme will continue in 2013-14 also. The Committee are surprised to find that though the first year of 12th Plan is completed, the Government is yet to approve their new scheme of Rural Area Energy Access Programme for 12th plan. The Committee would like to know the reasons which necessitated the formulation of new scheme and in what manner it will be better than the existing one. The Committee endorse introduction of new scheme of Rural Area Energy Access Programme (by modifying the RVE Programme) as they believe that the new scheme is being introduced after thorough examination and review of their performance under RVE Programme for larger benefit of the rural population. The Committee, therefore, recommend that the Ministry should expedite the approval of the new scheme of Rural Area Energy Access Programme without delay so that the programme implementation does not suffer. They also recommed that the objective of the RAEA programme should not only be the energy accessibility but also to ensure its availability and affordability to the rural population.

(Recommendation Sl. No.13, Para No. 2.14)

RENEWABLE ENERGY FOR URBAN, INDUSTRIAL AND COMMERCIAL APPLICATIONS

2.15 The Committee note that the Ministry has been promoting the use of technologies for solar energy recovery and energy from municipal, industrial and commercial waste, formating certain niche energy demands of urban, industral and commercial sectors in the country. The programmes being implemented include Energy Efficient Solar/Green Building Programme, Energy Recovery from Urban,

Industrial and Commercial Wastes and Bioenergy and Cogeneration in industry. On scrutiny of the performance under the sector for the last five years, the Committee observe an improvement in the physical achievement during the years 2010-11 and 2011-12, where in the achievements are 31.20 MW and 48.41 MW against the targets of 30 MW and 40 MW respectively. However, the achievement prior to that periods were less than targets. Keeping in view, the available potential, the overall performance under the sector is not satisfactory. The Committee have been informed that the existing potential for generation of power from urban and industrial wastes in the country is about 4000 MW. They, however, feel that with proper survey/assesment, the potential would be much higher than the present estimate. It has been informed that five pilot projects on energy recovery from Municipal Solid Wastes have been working for some years, however the sucesess story has never been reported on any of the pilot projects. The Committee are aware that the Ministry itself is not setting up the projects but is playing the role of a catalyst and accordingly the progress of the projects should be monitored by the Ministry. The Committee, therefore, recommend that the Ministry should play a proactive role in coordinating with the State Governments, Municipal Corporations and other concerned Departments so that more projects for recovery of waste to energy are implemented. Besides, they should also strengthen their monitoring system for timely completion of the on-going projects. They also feel that the concept of Green Building, which aims to increase use of renewable energy in buildings by using solar passive design, use of eco-friendly and less energy intensive building materials, integration of renewable energy and energy efficiency,

needs promotions through financial and promotional incentives and other promotional activities such as awareness campaign, seminar, workshops etc. For this the Ministry should coordinate with the Ministry of Urban Development and State/UT administrations for adequate policy for uniform application across the country.

(Recommendation Sl. No.14, Para No. 2.15)

RESEARCH, DESIGN AND DEVELOPMENT IN NEW AND RENEWABLE ENERGY

2.16 The Committee note that in view of the yawning gap between demand and supply of the electricity due to ever growing demand of energy in the Country and the inability of the conventional electricity generation sector to match the pace due to several reasons including constraints in supply of fuel, the need for developing the renewable sources at a rapid pace has gained significance in the recent times. The Country, at present, has about 27,000 MW renewable energy installed capacity, against the total identified potential of 2,50,000 MW, producing only 55 Billion Units annually. The figures mentioned, in no way justify large geographical dimension of the Country. It is not that there is scarcity of renewable energy potential in the Country but the technological inadequacy has restricted the scope of optimal exhaustion of these sources. The Committee during their study visit to Gujarat in January, 2013 had noted that the installed wind and solar energy plant were having Plant Load Factor (PLF) as low as 15%. The low PLF of the renewable installation due to poor efficiency of the equipment increases the overall cost of the electricity produced therefrom. The Committee find that the indigenous research projects have

failed to achieve any significant technological breakthrough in terms of reducing cost or increasing efficiency of renewable equipment. The Committee believe that it is not possible to become a leader in renewable energy sector unless we become a leading nation in renewable technological innovation and advancement also. Today, most of the renewable equipment are being imported and our country is dependent on the developed nations for technological advancement in renewable sector due to the inadequate indigenous research and support programme. Though, the ambitious programme in Solar Energy i.e. National Solar Mission has completed its first phase, proper assessment of solar energy capabilities of some parts of the Country, especially Eastern India where not a single Solar Radiation Assessment Centre has been established, are yet to be done. This reflects the non-seriousness of the Government on technological advancements of the Sector. Though some attention is being paid to technological advancements of grid connected renewable energy sector, the off-grid sector is still deprived of the due attention. Off-grid renewable energy such as bio-mass holds the key in the states where there is not much scope for grid connected renewable energy. The Committee believe that to become a leading country in the field of Renewable Energy, it is of paramount importance that Research and Development is given highest priority to improve their quality, reliability and costing. If the country remains dependent on other developed nations for technological advancement in the field of renewable energy and import of key components/materials required for the sector, optimum exhaustion of the available potential renewable energy source of the country will remain a distant dream making the speculation of Country's becoming a leader of

the Sector preposterous. The Committee, therefore, strongly recommend that indigenous research and development in the field of renewable energy should be given utmost priority to bring the cost of renewable equipment substantially cheaper and improve their efficiency considerably to attract substantive investment which will provide much needed impetus to this Sector.

(Recommendation Sl. No.15, Para No. 2.16)

2.17 The Committee note that against the proposal of Rs. 261.5 crore in Annual Plan of the MNRE for Research and Development of Renewable Energy, only Rs. 160 crore has been allocated for the year 2013-14. However, the scrutiny of the data by the Committee reveals that the actual spending of the Ministry in Research and Development of Renewable Energy for the year 2010-11 and 2011-12 has been Rs.111.46 crore, Rs.109 crore respectively, whereas, the Ministry could spent only Rs. 85.09 cr. (upto Feb.2013) against the BE of Rs.192 cr. in 2012-13. The figures reflect poorly on the Ministry for attention being paid by them on R&D programmes for renewable energy. The spending pattern of the Ministry for this field has not been impressive enough to justify allocation of whopping Rs. 261.5 cr as proposed. The Committee, believe that due to poor utilization of the allocated fund in the previous years, this sector has not been allocated the fund which it otherwise deserves. As the Committee have discussed the importance of Research and Development for the overall growth of this Sector in the preceeding para, they, therefore recommend that the Ministry instead of being discouraged for getting less allocation for R&D field should focus on full utilization of whatever fund allocated as

soon as possible so that at the time of RE more fund for this head can be insisted. Needless to emphasize it will be ensured by the Government that no R&D activity of this Sector is adversely affected due to paucity of fund.

(Recommendation Sl. No.16, Para No. 2.17)

NEW DELHI

16th April, 2013
Chaitra 26, 1935 (Saka)

MULAYAM SINGH YADAV,
Chairman,
Standing Committee on Energy

Annexure-II

MINUTES OF THE SIXTH SITTING OF THE STANDING COMMITTEE ON ENERGY (2012-13) HELD ON 13TH MARCH, 2013 IN COMMITTEE ROOM 'C' PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee met from 1500 hrs. to 1700 hrs.

PRESENT

LOK SABHA

Shri Mulayam Singh Yadav - Chairman

2. Shri P.C. Chacko
3. Shri Shripad Yesso Naik
4. Shri Jagdambika Pal
5. Shri Ravinder Kumar Pandey
6. Dr. Padamsinha Bajirao Patil
7. Shri Gutha Sukhender Reddy
8. Shri C.L. Ruala
9. Shri Sushil Kumar Singh
10. Shri Radha Mohan Singh
11. Shri Jagada Nand Singh

RAJYA SABHA

12. Shri V.P. Singh Badnore
13. Shri Bhubaneswar Kalita
14. Shri Bhagat Singh Koshyari
15. Dr. Anil Kumar Sahani
16. Shri Motilal Vora

SECRETARIAT

1. Shri Brahm Dutt - Joint Secretary
2. Smt. Abha Singh Yaduvanshi - Director
3. Shri N.K.Pandey - Additional Director

List of witnesses

MINISTRY OF NEW AND RENEWABLE ENERGY

Sr. No.	Name	Designation
1.	Shri Ratan P. Watal	Secretary
2.	Shri Alok Srivastava	Joint Secretary
3.	Shri Tarun Kapoor	Joint Secretary
4.	Shri D. Majumdar	CMD(IREDA)
5.	Shri J.B. Mohapatra	Joint Secretary & FA
6.	Dr. Praveen Saxena	Scientist 'G'
7.	Shri A.K. Dhussa	Scientist 'G'

2. At the outset, the Chairman welcomed the Members of the Committee and the representatives of the Ministry of New and Renewable Energy (MNRE) to the sitting of the Committee and expressed concern over the reduced annual budget allocation to the Ministry against the proposed outlay for the 12th Five Year Plan. The Chairman pointed out the dismal performance under wind, small hydro and solar energy sector during 2012-13 and also asked the Ministry about their planning and initiatives for 12th Five Year Plan.

3. Thereafter, the Secretary, MNRE briefed the Committee on the Demands for Grants (2013-14) and made a power point presentation in this regard.

4. The Committee inter-alia discussed with the representatives of the MNRE the following important points: -

(1) Targets vis-à-vis achievements under various programmes during 2012-13.

(2) Financial requirements and allocation for 2013-14 vis-à-vis physical targets.

(3) Physical targets and financial requirements for 12th Plan.

(4) Strategy to achieve target in view of the truncated financial allocations during the 12th Plan period.

(5) Importance of various renewable energy – wind, solar, small hydro, waste to energy, biomass, geo-thermal, tidal etc.

(6) Research and Development Programmes of renewable energy.

(7) Steps taken to make renewable energy a viable alternative of conventional energy.

5. The Committee then took up for consideration and adoption of the draft Report on Action Taken on the recommendations contained on the 29th Report on 'Availability of Identified Non-Conventional Resources of Energy – Their potential vis-à-vis utilisation' and adopted the same without any changes. The Committee also authorized the Chairman to finalise the aforementioned Report and present the same to both the Houses of Parliament in the current Session.

6. A verbatim record of the proceedings of the sitting of the Committee has been kept.

The Committee then adjourned.

MINUTES OF THE EIGHTH SITTING OF THE STANDING COMMITTEE ON ENERGY (2012-13) HELD ON 16TH APRIL, 2013 IN COMMITTEE ROOM 'D' PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee sat from 1100 hrs. to 1140 hrs.

PRESENT

LOK SABHA

Shri Mulayam Singh Yadav - Chairman

2. Shri P.C. Chacko
3. Shri Nityananda Pradhan
4. Shri Baju Ban Riyan
5. Shri Nripendra Nath Roy
6. Shri C.L. Ruala
7. Shri Jagada Nand Singh

RAJYA SABHA

8. Shri Shyamal Chakraborty
9. Shri Bhagat Singh Koshyari
10. Dr. Anil Kumar Sahani
11. Shri K.C. Tyagi
12. Shri Motilal Vora

SECRETARIAT

1. Shri Brahm Dutt - Joint Secretary
2. Smt. Abha Singh Yaduvanshi - Director
3. Shri N.K. Pandey -Director
4. Smt. L. Nemjalhing Haokip -Under Secretary

2. At the outset, after welcomming the Members, the Chairman congratulated Shri K.C. Tyagi, Member, Rajya Sabha on his nomination to the Committee w.e.f 28th March, 2013. The Chairman briefly apprised the Committee about the Agenda for the sitting. The Committee then took up for consideration of the following draft Reports:

i) Thirty-Fourth Report on Demands for Grants of the Ministry of New and Renewable Energy for the year 2013-14.

ii) Thirty-Fifth Report on Demands for Grants of the Ministry of Power for the year 2013-14.

3. After discussing the contents of the Reports in detail, the Committee adopted the aforementioned draft Reports without any modification.

4. The Committee placed on record their appreciation for the officials of the Secretariat attached to the Committee for providing valuable assistance to the Committee.

5. The Committee also authorized the Chairman to finalise the above-mentioned Reports and present the same to both the Houses of Parliament in the current Session.

The Committee then adjourned