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# STANDING COMMITTEE ON ENERGY
(2007-2008)

FOURTEENTH LOK SABHA

## MINISTRY OF NEW AND RENEWABLE ENERGY

## DEMANDS FOR GRANTS
## (2008-09)

## TWENTY-SIXTH REPORT


**LOK SABHA SECRETARIAT**
**NEW DELHI**

***APRIL, 2008/CHAITRA 1930 (Saka)***

**STANDING COMMITTEE ON ENERGY**
**(2007-2008)**

**(FOURTEENTH LOK SABHA)**

**MINISTRY OF NEW AND RENEWABLE ENERGY**

# DEMANDS FOR GRANTS
(2008-09)

***Presented to Lok Sabha on 22.04.2008***

***Laid in Rajya Sabha on 22.04.2008***


**LOK SABHA SECRETARIAT**
**NEW DELHI**

***APRIL, 2008/CHAITRA 1930 (Saka)***

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# INTRODUCTION

I, the Chairman, Standing Committee on Energy having been authorized by the Committee to present the Report on their behalf, present this Twenty-Sixth Report (Fourteenth Lok Sabha) on Demands for Grants of the Ministry of New and Renewable Energy for the year 2008-09.

2. The Committee considered the Demands for Grants pertaining to the Ministry of New and Renewable Energy for the current year *i.e.,* 2008-09, which were laid on the Table of the House on 17th March, 2008. The Committee took evidence of the representatives of the Ministry of New and Renewable Energy on 19th March, 2008.

3. The Report was considered and adopted by the Committee at their sitting held on 16th April, 2008.

4. The Committee wish to express their thanks to the officers of the Ministry of New and Renewable Energy for appearing before the Committee and furnishing the information, that the Committee desired in connection with the examination of the subject.

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, 2008
Chaitra 27, 1930 (Saka)

GURUDAS KAMAT,
Chairman,
Standing Committee on Energy.

# COMPOSITION OF THE STANDING COMMITTEE ON ENERGY (2007-08)

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3. Shri Kailash Baitha
4. Shri Gaurishanker Chaturbhuj Bisen
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28. Shri Sudarshan Akarapu *
29. Dr. K. Kasturirangan
30. Dr. Bimal Jalan
31. Shri Syed Azeez Pasha

**SECRETARIAT**

| | | | |
|---|---|---|---|
| 1. | Shri R.C. Ahuja | - | Joint Secretary |
| 2. | Shri J.M. Baisakh | - | Deputy Secretary |
| 3. | Shri Arvind Sharma | - | Under Secretary |
| 4. | Shri Amarathiagan N. | - | Senior Executive Assistant |
| 5. | Shri Manoj Pahuja | - | Executive Assistant |

* Ceased to be Members of the Committee consequent upon their retirement from Rajya Sabha w.e.f. 09.04.2008.

# REPORT
# PART-I

## I. Introductory

1. The role of new and renewable energy has been assuming increasing significance in recent times with the growing concern for the country's energy security. Energy 'Self-sufficiency' was identified as the major driver for new and renewable energy in the country. In India, the importance of the role of renewable energy in the transition to a sustainable energy base was recognized as early as the 1970s. At the government level, political commitment to renewable energy manifested itself in the establishment of the Department of Non-Conventional Energy sources in 1982, which was subsequently upgraded in 1992 to a full-fledged Ministry of Non-conventional Energy Sources, now re-christened as Ministry of New and Renewable Energy (MNRE), since October 2006. The MNRE is a Nodal Ministry of the Government of India for all the 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.

2. During the past 25 years, the renewable energy programme in India has evolved in three distinctive stages. In the first stage, from about the late 1970s to the early 1980s, the thrust of the national effot in this field was directed towards capacity building and Research & Development (R&D), largely in national laboratories and educational institutions. The second stage, from early 1980s to the end of the decade, witnessed a major expansion with accent on large-scale demonstration and subsidy driven extension activities. The extension programmes, generated a vast network of institutions and non-government organizations, right down to the level of self-employed workers and organizations

at the grassroots levels. In the third and current stage, extending from the beginning of the last decade, the emphasis has been more on application of matured technologies of power generation, based on wind, small hydro, biogas cogeneration and other biomass systems, as well as for industrial applications of solar and other forms of energy. There has also been a gradual shift from the subsidy driven mode to commercially driven activity in the area. Since 2006-07, new impetus has been given to research and development of cutting edge in new and renewable energy technologies such as next generation solar technologies, hydrogen and fuel cells, biofuels, etc.

3. The Committee have been apprised that India has been pursuing a three-fold strategy for promotion of renewables; a) providing budgetary support for research, development and demonstration of technologies; b) facilitating institutional finance through various financial institutions; and c) promoting private investment through fiscal incentives, tax holidays, depreciation allowance and remunerative returns for power fed into the gird. Indian renewable energy programme is primarily private sector driven. It offers significant investment and business opportunities. A large domestic manufacturing base has been established in the country for renewable energy systems and products. Further, the Government is encouraging foreign investors to set up renewable power projects on Build Own and Operate (BOO) basis and in the renewable energy sector with 100 per cent foreign direct investment.

## II IMPLEMENTATION STATUS OF THE OBSERVATIONS/ RECOMMENDATIONS OF THE COMMITTEE CONTAINED IN THE NINETEENTH REPORT (FOURTEENTH LOK SABHA) ON DEMANDS FOR GRANTS (2007-08) OF THE MINISTRY OF NEW AND RENEWABLE ENERGY.

4. The Standing Committee on Energy presented their 19th Report (Fourteenth Lok Sabha) on Demands for Grants of the Ministry of New and Renewable Energy for the year 2007-08, on 27.04.2007. Out of 18 observations/ recommendations contained in the Report, 9 observations/recommendations were accepted by the Government. The Committee did not desire to pursue 3 recommendations as the replies given by the Government were considered satisfactory. The replies of the Government in respect of 6 recommendations were not accepted by the Committee and they reiterated these recommendations in their 24th Report (Fourteenth Lok Sabha). The Action Taken Report of the Committee was presented on 01.12.2007. As per the Statement of the Minister under Direction 73A, all the recommendations contained in the 19th Report on Demands for Grants of the Ministry of New and Renewable Energy for the year 2007-08 have been accepted by the Government and are under different stages of implementation.

5. In this Report, the Committee have reviewed the financial and physical performance of various programmes of MNRE, namely, Solar Energy Programme, Wind Energy Programme, Bio-mass Power and Co-generation Programme, Energy Recovery from Urban and Agricultural Wastes, Small Hydro Power Development Programme, Remote Village Electrification Programme etc., during the financial year 2007-08 as well as the entire 10th Plan period.

## III DEMANDS FOR GRANTS OF MNRE FOR 2008-09

6. The MNRE have presented to Parliament Demand No. 67 for the financial year 2008-09 on 17th March, 2008. The Plan and Non-Plan provisions made in the Revenue and the Capital Sections of the Budget are as under:-

**Demand No. 67**

**(Rs. in crore)**

| | **Plan** | **Non-Plan** | **Total** |
|---|---|---|---|
| Revenue Section | 586.80 | 7.09 | 593.89 |
| Capital | 30.20 | - | 30.20 |
| **Grand Total (Revenue + Capital)** | **617.00** | **7.09** | **624.09** |

7. A Statement showing the details of the Budget Estimates for the year 2008-09 vis-à-vis that of Budget Estimates/Revised Estimates (BE/RE) of 2007-08 is given at Annexure – I.

8. The total outlay of the Ministry for the financial year 2008-09 is Rs.1267 crore. Out of this, the Internal and External Budgetary Resources (IEBR) constitutes Rs.647 crore and Gross Budgetary Support (GBS) accounts for Rs.620 crore. The Committee have been informed that GBS to the tune of Rs.719 crore was proposed by the Ministry. The GBS approved by the Planning Commission and sanctioned by the Ministry of Finance is Rs.620.00 crore

9. The Budget Estimates, Revised Estimates and Actual Expenditure of the Ministry for the past three years are shown in the following table:

(Rs. in crore)

| **2005-06** | | | **2006-07** | | | **2007-08** | | |
|---|---|---|---|---|---|---|---|---|
| **BE** | **RE** | **Actual** | **BE** | **RE** | **Actual** | **BE** | **RE** | **Actual** |
| 599.75 | 350.00 | 298.37 | 597.00 | 380.00 | 379.27 | 626.00 | 483.00 | 357.12 (upto February 2008) |

10. A Statement showing the quarter-wise utilization of planned budgetary allocation during the period 2004-05 to 2007-08 is given in the following Table:

**(Rs. In crore)**

| Year | BE | RE | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter | Total |
|---|---|---|---|---|---|---|---|
| 2004-05 | 599.80 | 400.00 | 12.29 | 31.38 | 40.79 | 150.66 | 235.12 |
| 2005-06 | 599.75 | 350.00 | 12.31 | 35.05 | 93.62 | 157.39 | 298.37 |
| 2006-07 | 597.00 | 380.00 | 36.72 | 64.92 | 49.65 | 227.98 | 379.27 |
| 2007-08 | 626.00 | 483.00 | 63.45 | 47.90 | 174.24 | 71.53* | 357.12* |

*** up to 29 February 2008**

Regarding utilization of the Revised Estimates during 2007-08, the Committee were informed that the Ministry have been permitted to fully utilize the funds upto RE level of Rs.483 crore as certain sanctioned and approved projects required re-appropriation of funds which could only be obtained in March, 2008.

11. The Committee were informed that various steps were taken by the Ministry to ensure full utilization of budget allocation during the year 2007-08. These were as follows:

- Ambiguity hitherto encountered in obtaining approval of schemes has been removed by adopting the laid down procedure as per Cabinet directions on the same. The Commission for Additional Sources of Energy (CASE), which up-till now was the appraisal and approval authority for all schemes of this Ministry, stands disbanded. The Public Investment Board (PIB)/Expenditure Finance Committee (EFC)/Standing Finance Committee (SFC) procedure, which is considered more streamlined, is being adopted for appraisal of all schemes w.e.f. 2007-08;
- Programmes / schemes from 11th Plan, i.e., commencing 2007-08 have been rationalized and simplified for ease of implementation;
- Zonal meetings with State-level Implementing Agencies chaired by Secretary, MNRE, introduced in 2006-07 have been made periodic;
- Frequent in-house review meetings are being taken by the Secretary to closely monitor the pace of expenditure.

12. As regards, the reasons for reduction of Rs.143.08 crore at the RE stage during 2007-08, the Committee have been informed that the downward revision

of BE 2007-08 was mainly on account of a general cut imposed by the Ministry of Finance at RE stage and to some extent due to a somewhat lower level of expenditure incurred during the first two quarters of 2007-08. The reasons for lower level of expenditure were attributed to the following:

> "(i) General delays in receipt of Utilization Certificates and audited SOEs by the implementing state agencies in respect of funds released;
>
> (ii) BE for the Grid interactive Solar PV power projects was reduced at RE stage as the new demonstration programme on generation based incentive for grid interactive solar power projects could be launched only recently in January, 2008;
>
> (iii) There was a general slow down of lending by banks under interest subsidy schemes on solar water heating systems consequent to the hike in interest rate regime by RBI. While the scheme was modified in mid 2007 raising the interest subsidy to maintain, the effective rates for different categories of users within 2% to 5%, it took time for necessary instructions to percolate to the branch level. The utilization of funds on account of interest subsidy during the year was, therefore, affected. Increased purchase by the users without availing interest subsidy also led to reduced requirements of funds;
>
> (iv) As per the subsidy scheme for grid-interactive power covering small hydro, biomass, bagasse cogeneration etc, subsidy is to be released only after successful commissioning of a project. Accordingly, although projects have been initiated, subsidy, as in the past, could not be released due to delay in completion of projects that are mostly with the private sector or State Governments; and
>
> (v) There was a delay in submission of lists of remote villages/ hamlets for coverage with renewable energy systems, by REC, the implementing agency for RGGVY. Further, these lists have been contested by States which claim otherwise. Accordingly, subsidy releases under Rural Village Electrification Progroamme suffered."

13. In response to a related query during evidence, the Secretary of MNRE stated that the expenditure of the Ministry in 2007-08 would be at the highest level of expenditure during the last six years. As regards reduction of allocation at RE stage, he further stated:

"Normally, what happens at the stage of Revised Estimates is that this is calculated by the Ministry of Finance sometimes in late October, early November when just six months of the financial year are over. At that time, they take a call on the amount of money spent and amount of money likely to be spent in the future. So, in the current year, they have reduced it to Rs.483 crore though, we thought that we should be able to spend about Rs.525 crore. Rs.483 crore is what is fixed and we are confident of meeting it fully. Now, that we have got the schemes going on all those various initiatives we have taken, next year Budget we should be able to meet in full and spend it in full."

## IV. Tenth Plan Performance – A Comparative Study

14. The total approved Gross Budgetary Support for the 10th Plan period (2002-03 to 2006-07) was Rs.4,000.00 crore. The consolidated Budget Estimates for the entire plan period were Rs.3046.25 crore and the Revised Estimates for the same period were Rs.1988.44 crore. Against this, the actual expenditure during the entire plan period was Rs.1717.51 crore. The Committee have been informed that 11,449 MW grid-interactive and 208.13 MW off-grid/distributed power generation was added through renewable energy by January, 2008, amounting to about 8% of total capacity. 6795 MW was added during 10th Plan Period, which was stated to be about 25% of the capacity addition from conventional sources during the same period, against a target of 10%. According to the Ministry, the other major achievements during the period included electrification of 4,198 (3368 villages + 830 hamlets), 1 million solar lighting systems, 1.9 million square meter solar collector area for water heating, 4 million family-size biogas plants and 1284 wind pumps.

15. The year-wise details of targets achievements during the 10th Plan period under various renewable energy programmes are given in the **Annexure II**. The Committee also enquired about the percentage share of renewables out of total

energy sector outlays from the 8th Five Year Plan onwards. The details furnished by the Ministry are shown in the following Table:

**Percentage share of Renewables**

*(Rs. in Crore)*

| Plan Period | Total Plan Outlay | Total Energy Sector Outlay | Energy Sector Outlay | | | |
|---|---|---|---|---|---|---|
| | | | Power | Oil/Gas | Coal | Renewable |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8th Plan (1992-97) | 434100 | 115579 | 80222 | 23876 | 10418 | 1064 |
| **Share%** | | **100** | **69.41** | **20.66** | **9.01** | **0.92** |
| Ninth (1997-02) | 547557 | 135947 | 44692 | 70338 | 17056 | 3861 |
| **Share (%)** | | **100** | **32.87** | **51.74** | **12.55** | **2.84** |
| Tenth (2002-07) | 893183 | 285813 | 143399 | 103656 | 31591 | 7167 |
| **Share (%)** | | **100** | **50.17** | **36.27** | **11.05** | **2.51** |

## V. 11th Plan Programmes

16. The Committee have been informed that the programmes which were in operation during 10th Plan were rationalized or clubbed together for implementation during 11th Plan for effective targeting and operational ease into 5 programmes viz. Grid-Interactive and Distributed Renewable Power; Renewable Energy for Rural Applications; Renewable Energy for Urban, Industrial & Commercial Applications; Research, Design & Development for New and Renewable Energy; and Supporting Programmes. As per the approach outlined in the Ministry's 11th Plan proposals, deployment activity is to be carried out through 3 Programmes, namely, Grid-Interactive and Distributed Renewable Power; Renewable Energy for Rural Application; and Renewable Energy for Urban, Industrial & Commercial Applications, whereas all Research Design and Development activity is under a single umbrella programme.

17. According to the Ministry, the aim for grid-interactive renewable power capacity addition for the 11th Plan is 14,050 MW. Out of this, the proposed target

of 50 MW power generation from Solar Power is stated to be dependent on future developments to make solar technology cost-competitive for grid-interactive power generation. A target of 1,000 MW capacity addition is fixed from Distributed Renewable Power System. By the end of the 11th Plan, renewable power capacity is likely to be 24,000 MW in the then total capacity estimated at 2,00,000 MW, corresponding to 12 per cent and contributing around 5 per cent to the then electricity-mix. It was stated that upto 10,000 villages/hamlets not to be covered under Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) are to be provided basic electricity facility for lighting and/or other uses through SPV and other RE systems, including Distributed Renewable Power Systems.

18. Details of physical targets set from Grid-Interactive Renewable Power Plants during the 11th plan are shown in the following table:

**Proposed major physical targets: Grid –interactive renewable power plants**

| | |
|---|---|
| Wind Power | 10,500 |
| SHP | 1400 |
| Bio-power<br>-Biomass Power<br>-Bagasse Cogeneration<br>-Waste-to-Energy | 2100 |
| Solar Power | 50* |
| Total | 14050 |

* Dependent on future developments to make solar technology cost-competitive for grid-interactive power generation

19. The Committee have been further informed that the Integrated Energy Policy Report has projected capacity addition of 30,000 MW from wind, 50,000 MW from biomass and 10,000 MW from solar by 2032. Small Hydro Power contribution covered under entire Hydro Power potential (1,50,000 MW) will be extra.

20. Details of budget provision for various renewable energy programmes/ activities are indicated in the following Table:

**Proposed Budget Provision**

(Rs. in crore)

| Programmes | Provision |
|---|---|
| Grid-Interactive & Distributed Renewable Power | 3,925 |
| Renewable Energy For Rural Applications | 2,250 |
| Renewable Energy For Urban, Industrial Commercial Applications | 685 |
| Research, Design & Development | 1,500 |
| Supporting Programmes & Spill-Over Liabilities | 2,100 |
| **Total** | **10,460** |

21. Regarding the total outlay of the Ministry for the 11th Plan, the Secretary during evidence deposed:

> "For the 11th Plan as a whole, the Ministry proposed an outlay of Rs.10,550 crore and a budgetary support of about Rs.8,500 crore. While keeping our overall outlay intact, the Planning Commission has approved only Rs.4.000 crore as budgetary support. But Rs.4,000 crore is too low. But I have got a commitment from them that this Rs.4,000 crore is not absolute. Based on the progress of expenditure during the first two years of the Plan period, they would consider suitable increase of the allocation for the 11th Plan."

22. According to the Ministry, they have represented to Planning Commission to enhance the GBS component, as that approved GBS was considered inadequate for achieving the 11th Plan goals/targets. It was advised that the issue could be revisited at the time of annual plan discussions. The Planning Commission have approved a total outlay of Rs.10,246 crore with a GBS component of only Rs.4000 crore and IEBR component of Rs.6,246 crore.

23. During evidence, the Committee have desired to know the steps taken by the Ministry to make the renewable energy as a parallel source instead of a

substitute Both in Rural and Urban Sectors, the Secretary, Ministry of New and Renewable Energy replied:

> "The Electricity Act left it to the State Regulatory Commissions to fix what should be renewable energy that should be purchased by the utilities within the State. Only about 12 State Regulatory Commissions have notified renewable energy portfolio standards. It varies from two per cent in one case to 10 per cent; in some cases, it is a very gradual increase. The renewable portfolio standard relates to the amount of consumption of power and not necessarily to capacity."

24. The Witness further added:

> "Germany has a renewable energy law by which they are able to mandate use of renewable energy, whereas in our country the only option we have is to work through the Electricity Act, which again has caste the responsibility on the Regulatory Commissions and not exactly on governments. In fact, it is high time the Government talked tough about having a separate renewable energy law which goes beyond electricity."

## VI MAJOR PROJECTS/PROGRAMMES

### A. Wind Energy Programme

25. According to the Ministry, the potential for wind power generation for both grid and off-grid application has been estimated to be about 45,000 MW taking sites having wind power density greater than 200W/sq.m at 50 m hub-height with 1% land availability in potential areas for setting up wind farms. More than half of this potential lies in areas having modest wind regimes with wind power density of 200 to 250 watts per square meter. A wind power capacity of 7844 MW has been installed up to 31.12.2007. Out of this, the achievement during the 10$^{th}$ Plan period was 5456 MW. According to the Ministry, a target of 10,500 MW is proposed for wind power for the 11$^{th}$ Five Year Plan. A target of 2000 MW grid-interactive power capacity addition from wind has been fixed for the year 2008-09.

26. The Budget Estimates, Revised Estimates, expenditure incurred and target achievements under the Wind Energy Programme during last three financial years are given below:

| Sl. No. | Year | BE (Rs.in cr.) | RE (Rs.in Cr.) | Expenditure (Rs.in cr.) | Target (MW) | Achievement (MW) |
|---|---|---|---|---|---|---|
| 1. | 2005-06 | 16.00 | 6.01 | 5.68 | 450 | 1746 |
| 2. | 2006-07 | 12.00 | 5.10 | 3.42 | 1000 | 1742 |
| 3. | 2007-08 | 21.00 | 15.50 | 5.40* | 1500* | 845* |

(* till 31-01-2008)

27. On being asked about the reasons for variation between BE/RE in respect of these financial years, the Ministry have stated that the reduction in allocation were on account of non-implementation of envisaged new components and non submission of requisite documents by the state nodal agency for taking up wind demonstration projects. Further, the provision of demonstration wind power projects was limited to those states only where commercial development has not been initiated. Therefore, new proposals under demonstration wind power projects received from States like M.P., Maharashtra and Andhra Pradesh could not be supported. The budgetary provision for Centre for Wind Energy Technology was also reduced at the RE stage.

28. The Committee were informed that all the 10 States, having wind power potential, have declared tariff for purchase of electricity from wind power projects. These States are Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, West Bengal and Orissa. In addition, the States of Haryana and Punjab have announced policy for wind power. According to the Ministry, the response of the private developers in the potential States, is very encouraging, as evident from the growth of annual installation during the

past three years, when the capacity addition of 3472 MW was achieved as compared to only 1627 MW at the end of the 9th Plan period.

29. The Committee desired to know the measures taken by Government to encourage private developers in the setting up of wind Power Projects. The Ministry in a note stated:

> "Grid-interactive wind power has exceeded the 10th Plan target by over 250 per cent as a result of a host of fiscal concessions such as 80 per cent accelerated depreciation, concessional duties and tax holiday for 10 years on profits earned through sale of generated power, tariffs in most potential States for electricity generated from wind power projects, technical support from C-WET for wind resource assessment, micro survey report preparation, testing and certification. No further concessions at this juncture are required for this sector, but for Generation based incentives in lieu of accelerated depreciation for Independent Power Producers (IPPs) who might not be in a position to avail the existing benefit."

30. Asked about the level of indigenisation of imported equipment required for the development of wind energy, the Ministry in a note stated:

> **"**Since the manufacture of WEGs in the country is in market mode comprising, among others, subsidiaries of foreign companies and the current policy allowing imports, relative advantages of higher levels of indigenisation would be dependent upon several factors, including economies of scale of manufacturing components within the country. In the past BHEL had taken initiative to design WEGs but discontinued with their efforts in the wake of growing liberalization of imports of technology and capital equipment, since the early 1990s. Current production of WEGs in the country is largely based on licensed technology. Both private sector and Government have specific R&D Projects to address particular problems of the wind turbines. Private sector R&D generally is centered around development of low cost, high quality replacements for imports and vendor development. This has resulted in the availability of higher capacity machines in the country with larger rotor diameter, higher hub height, improved blade alignment, better power electronics etc. which enable extraction of more energy from wind as compared to machines available in the past. Government R&D attempts at development of critical components such as Controller, Wind Turbine Blades and development of design methodology. C-WET has sponsored a project to National Aerospace Laboratory (NAL) Bangalore to develop design methodologies for wind turbine blades. CSIR has sponsored a project to NAL under its NIMITLI programme to design and fabricate a 500 KW Wind Turbine."

31. The Committee have been informed that an amount of about Rs. 240 lakh was spent for carrying out R&D activities in wind energy by C-WET during the 10th Plan on areas mainly relating to design methodology for wind turbine blades, grid related studies, wind profile studies, development of stimulation and analytical tools and gear box maintenance aspects. According to the Ministry an allocation of Rs.190 crore has been proposed for R&D on wind energy during 11th Plan Period. An allocation of Rs.1 crore has been proposed for R&D during 2008-09. Asked to explain such a low investment during 2008-09, the Ministry in a note submitted as follows:

> "R&D activities in wind energy sector is carried out by private sector wind turbine manufacturers and Government. The private sector focused its R&D on modification of their machines to extract more energy from wind and the Government R&D focuses on areas mainly relating to design methodologies for wind turbine blades, grid related studies, wind resource assessments, maintenance aspects of major components of wind turbine etc. A stakeholders' meeting has been planned to finalize the R&D strategy during 11th Plan period involving manufacturers, R&D institutions, etc. Based on the outcome of meeting, adequate funds would be sought during the remaining period of the 11th Plan."

32. The Committee desired to know the status of preparation of a Wind Atlas for the country. In a note furnished to the Committee, the Ministry stated:

> **"**A Wind Atlas with fine resolution is essential for a country for the identification of windy locations and the development of wind energy. The Ministry had sanctioned a project on Preparation of Indian Wind Atlas to CWET, Chennai in association with RISO National Laboratory, Denmark in November 2006. The project involves extensive use of micro and meso-scale models like WAsP and KAMM in conjunction with super computers. Meso–scale modeling by using KAMM is to be taken up by RISO National Laboratory, Denmark and will generate a generalized wind climate for large domain sizes about 600 km x 600 km with a resolution of 5 km. Micro-scale modeling is to be carried out by C-WET using WAsP and real-time wind measurements and topographical features as inputs. The domain size will be 20 km x 20 km with 1 km resolution. The results for various domains will be used for fine-tuning the meso-scale model to produce the wind atlas for the country. The wind atlas maps would be with a resolution of 5 km.

An agreement between RISO and C-WET was executed in November 2006 on these aspects. The estimated cost of the project was Rs.2.00 crore. The major project components are Training, Modeling, Validation and Wind Atlas preparation. RISO has conducted WAsP training for C-WET scientists and engineers. Project team has got trained in Denmark in the understanding of KAMM/WAsP methodology, data collection, quality control, disseminating wind atlas data etc. As per the schedule, the pilot area modeling/validation has been completed in January 2008 and the result is found to be in comfortable level for further proceeding of the project. The pilot areas were selected covering different topography and climate types. The wind monitoring data collected from the pilot areas were used in validation exercise .To get an idea of off-shore wind resource, parts of sea surrounding of the country is also included in the study.

The progress of the project is reviewed by a Committee chaired by Dr. G .B Pant, former Executive Director, IITM, Pune. It was last reviewed in February 2008 and found satisfactory and as per schedule. It is expected that the Indian Wind Atlas would be ready by the end of 2008-09."

## B. SOLAR ENERGY PROGRAMME

33. According to the Ministry, India receives solar energy equivalent to over 5,000 trillion kWh per year, which is far more than the total energy consumption of the country. The daily average solar energy incident varies from 4-7 kWh per sq.m. depending upon the location. This energy incident on 1% of our land area at 2% conversion efficiency can produce about 6,00,000 MW of power. Typically a 20 to 35 MW capacity solar power plant can be set up on 1 sq.km of land area. There are two routes and technologies for utilization of solar energy:

i) **Photovoltaic route:** which converts the light into electricity which can then be used for variety of purposes.;

ii) **Thermal route:** using the heat for heating, cooling, drying, water purification and power generation.

34. The main objective of the Solar Energy Programmes of the Ministry during the 10th Plan period was to (i) encourage R&D on systems, components and materials to improve their performance and bring down the cost, (ii) support deployment of solar energy systems as replacement of fossil fuels, and (iii)

support solar energy industry in the country, etc. The broad spectrum of programmes of the Ministry include provision for the Solar Energy Centre, Solar Thermal Energy Programme including Urban Industrial and Commercial Applications (UICA), Solar Energy Research & Development and Extension of Solar thermal, SPV and other Renewable Energy systems/devices. These programmes are being implemented through the State Nodal Agencies, Indian Renewable Energy Development Authority(IREDA), R&D and industrial organizations. The BE, RE for 2007-08 and BE for the year 2008-09 for Solar Energy Programme are as under:

(Rs. in Crore)

| Solar Energy Programme | BE 2007-08 | **RE** 2007-08 | Exp. Upto 31.01.08 | BE 2008-09 |
|---|---|---|---|---|
| | 136.00 | **86.75** | 46.45 | 115.75 |

35. On being asked the reasons for which the budgetary allocation was drastically reduced at the RE stage, the Ministry in a note stated:

> "An amount of Rs.18 crore was allocated as BE for the Grid interactive Solar PV power projects, which was reduced to Rs.4.5 crore at RE stage as the new demonstration programme on generation based incentive for grid interactive solar power projects could be launched only in January, 2008.
> There was a general slow down of lending by banks under interest subsidy schemes on solar water heating systems consequent to the hike in interest rate regime by RBI. While the scheme was modified in mid 2007 raising the interest subsidy to maintain, the effective rates for different categories of users within 2% to 5%, it took time for necessary instructions to percolate to the branch level. The utilization of funds on account of interest subsidy during the year was, therefore, affected. Increasing purchases by the users without availing interest subsidy also led to reduced requirements of funds."

**Solar Photovoltaic Programmes**

36. The SPV Programme of the Ministry consists of the following three major components on deployment of solar photovoltaic systems:

(i) Solar Photovoltaic Technology & Demonstration,
(ii) Solar Photovoltaic Water Pumping and
(iii) Urban applications of Solar Photovoltaic

37. Asked about the achievements in SPV programmes during 10th Plan period, the Ministry in a note stated that against an allocation of 2,02,000 solar home lighting systems, 1,29,822 systems were installed. Against a target of 1,85,000 solar lanterns, 97,503 lanterns were distributed. 1475 kWp capacity PV systems mainly for street lighting systems and some stand alone power plants were sanctioned to various States against which 1461 kWp capacity systems were installed. A total of 2571 solar PV water pumping systems were installed against 3600 systems sanctioned. The Ministry sanctioned 1.5 MWp grid interactive power projects and 0.9 MW capacity power projects were installed.

38. About the year-wise details of the physical and financial targets and achievements during the 10th Plan period, the details furnished by the Ministry are as follows:

Physical:

| Item / Year | 2002-03 | | 2003-04 | | 2004-05* | | 2005-06 | | 2006-07 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T | A | T | A | T | A | T | A | T | A | T | A |
| Solar Home Lighting (No) | 50000 | 28430 | 50000 | 12427 | 0 | 34844 | 42000 | 20746 | 60000 | 33275 | 202000 | 129822 |
| Solar Lantern (No) | 40000 | 13797 | 0 | 0 | 15000 | 21577 | 100000 | 885 | 30000 | 61246 | 185000 | 97503 |
| Power plants & street lights (kWp) | 275 | 286 | 450 | 445 | 0 | 142.7 | 350 | 27.52 | 400 | 475.25 | 1475 | 1460.47 |
| Solar Pumps (No) | 1200 | 1073 | 1600 | 841 | 0 | 366 | 500 | 222 | 300 | 69 | 3600 | 2571 |
| | | | | | | | | | | | 0 | 0 |
| Grid power plant (kWp) | 750 | 500 | 750 | 50 | 0 | 325 | 0 | 25 | 0 | 0 | 1500 | 900 |

* No targets were allocated to the implementing agencies in 2004-05 and the 2003-04 programme was allowed to be continued in 2004-05.

Financial: (Rs. in Crore)

| Budget/Expenditure | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 |
|---|---|---|---|---|---|---|
| Budget Estimate | 92.00 | 78.00 | 39.00 | 38.50 | 39.70 | 25.00 |
| Revised Estimate | 80.00 | 69.10 | 66.00 | 34.65 | 62.80 | 49.75 |
| Actual Expenditure | 74.30 | 63.92 | 21.45 | 34.44 | 62.30 | 24.86* |

(*upto 31.01.2008)

39. The target achievements in the year 2007-08 in respect of Solar Photovoltaic Programme are as follows:

| **Name of the Scheme** | **2007-08** | |
|---|---|---|
| | **Targets** | **Achievements** |
| **Solar Photovoltaic Programme (SPV)** | | |
| SPV Home Light | 63250 | 42438 |
| SPV Lanterns | 94000 | 46958 |
| SPV Street Lighting System | 7000 | 3551 |

40. On being enquired about the reasons for shortfall in achieving the 10th Plan targets with regard to installation of Solar Homelighting Systems, Solar Lanterns and Solar PV Water Systems, the Ministry informed that Photovoltaic programmes of the Ministry are implemented through the State nodal agencies and IREDA. Review of the programmes, reduction in subsidies, no new allocations of targets in 2004-05, spill of installations of Photovoltaic systems from one financial year to another financial year and poor implementation by some of the States are stated to be the main reasons for lower achievements. In specific case of solar lanterns, subsidy was reintroduced only in 2005-06 and that too for implementation in the un-electrified villages/hamlets of the special category States, where the pace of implementation was generally slow.

41. The Committee were informed that for the 11th plan period, a target of 50 MWp of solar PV power plants and distributed stand-alone systems have been proposed. An amount of Rs.450 crore is proposed for these activities. The Ministry have informed the Committee that an allocation of Rs.220 crore are

proposed for research, development and demonstration activities in solar photovoltaic technology. The total outlay for 2008-09 for the entire SPV programme (excluding Rs.3 Crore for solar energy/testing/machinery and equipment at Solar Energy Centre at (SEC) is Rs.88.25 crore. An amount of Rs.10 lakh has been allocated in BE for 2008-09 for the centrally sponsored solar photovoltaic power programmes. An amount of Rs.14 Crore has been allocated as BE for 2008-09 to achieve a physical target of installation of Solar Power generation capacity of 14 MW of 50 MW.

42. The cumulative installed capacity of grid interactive solar power generation up to 31.01.2008 was stated to be 2.12 MW. Achievement in the off-grid sector (SPV Power plants) upto 31.01.2008 was 2.22MWp. In January, 2008, the Ministry, with a view to encourage technology improvements and cost reduction, have launched a new demonstration programme to provide initiative for generation of solar power from MW capacity grid connected solar power plants. As per the scheme, the Registered companies, as project developers, would be eligible to set up solar power projects on build own and operate basis. Proposal from each project developer with a maximum aggregate capacity of 5 MW, either through a single project or multiple projects of a minimum capacity of 1 MW each, would be considered. In a State, a maximum of 10 MW capacity solar photovoltaic power generation projects would be considered. Preference would be given to the projects from the States where the State Electricity Regulatory Commissions (SERCs) have announced or are in the process of announcing tariff for solar power. In absence of tariff for solar power, the utility

should provide the highest tariff offered for medium term power purchase or the maximum tariff fixed for power from any other renewable energy source, till the SERC announces a tariff for solar, failing which project in that State would not be considered under the demonstration programme.

43. About providing generation based incentive, the Ministry has informed the Committee that incentive up to Rs.12 per kWh for solar photovoltaic power and Rs.10 per kwh for solar thermal power fed to the grid by the solar power project developers, after taking into account the tariff provided by the SERC or the utility, would be provided. The concerned utility and the State Nodal Agency will be involved in implementation and monitoring of the projects. The Indian Renewable Energy Development Agency (IREDA) will assist the Ministry in over all implementation of the programme.

44. During a study-visit of the Standing Committee on Energy to Jaipur in January, the Committee were given to understand that Rajasthan has the best solar insolation in the country and has abundant land availability at cheaply affordable price. Thus, the State is likely to emerge as the power house of the country with possibilities of setting up solar plant with installed capacity exceeding 1,00,000 MW by using Concentrated Solar Power (CSP) technology in an area of 60x60 sq. kms in the deserts of Rajasthan. In this context, the State Government, had urged the Committee that the limitation of 10 MW cap for a State subject to a maximum of 5 MW per developer set by the Ministry be relaxed so as to increase the cap for Rajasthan upto 100 MW and the cap per

developer may also be raised beyond 10MW. Asked to offer their comments in this regard, the Ministry in a note stated:

> "Concentrated solar power technology at MW capacity has not yet been tried in the country and experience on these technologies is so far limited to a few kW capacity plants. Further, the Ministry has fixed only a modest overall target to begin with as it is for the first time in the country that such an initiative to demonstrate the technology at MW scale has been taken and as the overall budget requirement will be dependent on the tariffs to be fixed by different State Electricity Regulatory Commissions. The targets fixed for a project developer a State have, in turn, been limited by the overall target fixed under the programme. The future policy/programme provisions would depend on the success of the demonstration programme."

45. According to the Ministry, various solar photovoltaic devices/systems have been developed for urban applications. These are as follows:

i) Streetlights/ garden lights for out-lying areas/ unlit roads.
ii) Streetlight solar control systems for automatic switching off/ on of the streetlights during evenings and mornings.
iii) Illuminated hoardings.
iv) Traffic signals to avoid frequent breakdowns in power supply leading to failure of conventional traffic lights and consequent chaos in the flow of traffic.
v) Road studs for uninterrupted functioning from dusk-to-dawn.
vi) Blinkers for installation at blind intersections, ahead of road humps, sharp bends/ U-turns, pedestrian crossings, etc.
vii) Building integrated PV systems for the purpose of load shaving in peak hours.
(viii) Solar power packs to replace small generators based on kerosene and petrol.

The Committee have been informed that about 10,000 systems and devices have been sanctioned for 93 cities/town in 8 States so far.

**Solar Thermal Energy Programme**

46. The Committee have been informed that the thermal energy collected from the sun can be utilized for a variety of purposes, which include water

heating, cooking, air-heating and drying, water-distillation and power generation. These technologies are being promoted through different schemes. The Ministry are implementing the following schemes for the deployment and demonstration of solar thermal technologies:

i) Accelerated development and deployment of solar water heating systems in domestic, industrial and commercial sectors.
ii) Promotion of solar thermal systems for air heating/steam generating applications, solar buildings and Akshay Urja Shops.
iii) Solar Thermal Energy Demonstration Programme
iv) Technology Evaluation Projects on Large Area Solar Dish Concentrator (ARUN-160) for Industrial Process Heat Systems.

47. The physical and financial targets and achievements during 2005-06 to 2007-08 under the programme are stated to be as under:-

**Physical**

| Item/Year | 2005-06 | | 2006-07 | | 2007-08 | |
|---|---|---|---|---|---|---|
| | T | A | T | A | T | A |
| Solar Collector area for water heating systems | 4.0 lakh sq.m. | 4.0 lakh sq.m. | 4.0 lakh sq.m. | 4.0 lakh sq.m. | 6.00 lakh sq. m. | 2.50 lakh sq. m. |
| Solar Cookers (nos.) | 20,000 | 20,105 | 22,000 | 16209 | 20,000 | 213 |

**Financial** **(Rs. in Crore)**

| **Budget/Expenditure** | **2005-06** | **2006-07** | **2007-08** |
|---|---|---|---|
| **Budget Estimate** | 51.00 | 46.75 | 7750 |
| Revised Estimate | 25.55 | 13.67 | 23.00 |
| Actual Expenditure | 25.36 | 13.51 | 15.30 |

48. The Committee desired to know the achievements made under the Solar Thermal Programme in terms of promoting the use of solar water heaters and solar cookers in the hotels, restaurants and households. The Ministry in a note stated that a total of 2.15 million sq. m. of collector area has so far been installed for solar water heating in the country. About 30 solar steam generating systems

and 50 solar air heating systems have also been installed in various institutions and industries for cooking/ drying/ sterilization/laundry/process heat applications. To promote the use of solar water heaters at large scale, an interest subsidy scheme is under implementation under which loans at 2% to domestic users, 3% to institutions and 5% to commercial establishments are being made available through various banks and financial institutions. Capital subsidy equivalent to upfront interest subsidy is also available to registered institutions and commercial establishments including hotels, hospitals etc., that do not avail soft loans under the scheme. An awareness campaign through print media has also been launched to increase the demand for solar water heaters. Efforts are being made to get the buildings byelaws amended through Municipal Corporations/Municipalities for making the use of solar water heaters mandatory in certain categories of buildings. Municipal Corporations and State Electricity Regulatory Commissions/Utilities are also being persuaded for announcing rebates in property tax and electricity tariff on use of solar water heaters.

49. As regards solar cookers, the Ministry added that a scheme on solar steam generating systems is under implementation, which provides support up to 50% of the cost of systems installed in community kitchens of institutions and upto 35% of the cost of systems in commercial establishments. Further, solar cookers of different types have been promoted under solar thermal demonstration programme of the Ministry.

50. Issues relating to the cost of Solar Power and for maintenance after installation came up for detailed discussion during evidence. In this regard, the Secretary, Ministry of New and Renewable Energy stated as under:

> "We will build it into our schemes, the question of maintenance and prompt attendance. About the point of releasing the subsidy once the systems are installed, we will try to re-design all the schemes…."

51. Regarding putting the proper maintenance mechanism in place for all the renewable installations, the Secretary *inter-alia*, stated as under:

> "Almost all the Government financed system installations-be it photovoltaic, be it water mills, be it other systems, we also try to build into the contract, the cost of maintenance and the maintenance arrangements…… We have already taken up a manpower planning by which we are running short-term courses of 3-6 months in ITIs and polytechnics."

**Research, Design & Development for Solar Power Programme**

52. Enquired about the funds that had been allocated and utilized on R&D in Solar Energy Programme during the last three years and the allocation proposed for the year 2008-09, the Committee have been informed as under:

> "An allocation of Rs.17.5 crore was made for R&D for solar energy during last three years. The actual expenditure was Rs.1.44 crore. The Ministry announced new R&D policy in December 2006. As per new policy, the Ministry would also support R&D in public / private sector industry. An allocation of Rs.5.00 crore is has been made for 2008-09, which may be sufficient to meet the requirements. A further provision of Rs.3.00 crore has been made towards testing /machinery & equipment at the Solar Energy Centre. If needed, proposal for increase in the outlay would be submitted at revised budget stage."

53. Asked to explain reasons for utilization of only Rs.1.44 Crore for various R&D activities for solar energy against an allocation of Rs.17.5 Crore during the

last three years, it was stated that the R&D policy of the Ministry was under review prior to the year 2006-07, when a new policy was announced by the Ministry. During 2006-07 only one new project in solar photovoltaic and three in solar thermal projects were sanctioned. The expenditure was incurred on these projects and the other on-going R&D projects.

With regard to proposed R&D projects during 2008-09, the Committee were informed that the identified thrust areas for R&D in solar energy, include development/improvement of technologies and applications. The same have been publicized through newspapers and website of the Ministry inviting R&D project proposals from public and private sector institutions in those areas. Some proposals have already been received and the same are expected to be considered by the R&D Advisory Committee during 2008-09 alongwith any others that may be received.

54. As regards the steps taken to bring down the cost of Solar Electricity generation to the level of conventional electricity generation, the Ministry informed the Committee that the R&D efforts during the 10$^{th}$ plan resulted in the improvements in the efficiencies of solar cells to about 16% and improved quality of modules. The Government is supporting research in development and up-gradation of solar energy devices, systems, components and materials used in manufacture of such systems, and encourage volume production in the country by facilitating market development including exports etc. According to the Ministry, the continued R&D efforts in these areas are expected to bring down the cost of generation of electricity to the level of conventional electricity in the

next 10 – 15 years. In the next 4-5 years the research efforts are likely to improve the conversion efficiency of solar cells from the existing 14 - 16 percent to about 18 percent. Further, efforts are being made by the industry to reduce the consumption of main raw material – silicon wafers. These measures are expected to reduce the cost of solar cells and modules by about 33 percent. (from Rs.180 per watt to Rs.120 per watt). During 2007-08 the average cost of solar modules has started declining from about Rs.180 per watt to about Rs.160 per watt. With a view to encourage technology improvements and cost reduction, the Ministry are stated to have launched a new demonstration programme to provide initiative for generation of solar power from MW capacity grid connected solar power plants.

**C. ENERGY RECOVERY FROM URBAN AND AGRICULTURAL WASTES**

55. The Budget allocation for energy from Urban and Agricultural Wastes includes provision for projects on energy Recovery from Urban, Municipal and Industrial Wastes. The scheme provides fiscal and financial incentives for waste to energy projects. The BE and RE for 2007-08 and BE for 2008-09 for the programme are as under:

(Rs. in crore)

| Budget Estimate (2007-08) | Revised Estimate (2007-08) | Budget Estimate (2008-09) |
|---|---|---|
| 13.50 | 13.00 | 25.50 |

The Committee have been informed that Grid-interactive power generation achievement of waste to energy upto 31.01.2008 was 56 MW. During the year

2007-08, against a target of 25 MW (Both Grid/Off Grid), 15.70 MW was achieved.

56. The Committee were informed that during the current year, the implementation of the Programme on Energy Recovery from Urban Wastes continued with following objectives:

i) To accelerate the promotion of setting up of projects for recovery of energy from urban wastes;

ii) To create conducive conditions and environment, with fiscal and financial regime to develop, demonstrate and disseminate utilization of wastes for recovery of energy; and

iii) To realize the available potential of MSW to Energy by the year 2017.

57. On being enquired about any feasibility study carried out for setting up projects of Energy Recovery from Urban and Industrial Waste in major cities of the country – as recommended by the Standing Committee on Energy in their 13th Report (14th Lok Sabha), the Ministry in a written reply furnished to the Committee have stated:

> "An estimation of the potential of energy recovery from urban waste generated in 423 Class-I cities of the country has been included in the 'National Master Plan for development of Waste-to-Energy in India' prepared by the Ministry. It is estimated that the potential for generation of power from solid and liquid wastes being generated in these cities is over 2600 MW and is expected to increase to about 5200 MW by 2017. While the State Nodal Agencies have been urged upon to carry out the studies on quantities of wastes in various cities in their States, it is desirable that such studies are carried out by the project proponent as and when projects are developed for a specific city/town."

58. Enquired about the status of projects on energy recovery from the urban and industrial wastes, the Committee were informed that a total of 46 projects with an aggregate capacity of 78.95 MW on energy recovery from urban and industrial

wastes have so far been taken up in 14 States. The details of projects on Energy Recovery from Urban and Industrial Wastes are given below:

| S. No. | State | Completed | | Waste Type |
|---|---|---|---|---|
| | | Nos. | Capacity (MWeq) | |
| **Projects based on Urban Wastes** | | | | |
| 1. | Andhra Pradesh | 3 | 12.75 | Municipal Solid Waste and vegetable market wastes |
| 2. | Gujarat | 1 | 0.50 | Biogas at Sewage Treatment plants |
| 3. | Punjab | 1 | 1.00 | Cattle dung |
| 4. | Tamil Nadu | 1 | 0.25 | Vegetable Market Waste |
| 5. | Uttar Pradesh | 1 | 5.00 | Municipal solid waste |
| | **Total** | **7** | **19.50** | |
| **Projects based on Industrial Wastes** | | | | |
| 6. | Andhra Pradesh | 12 | 23.95 | Distillery, abattoir, Slaughterhouse, food processing and poultry |
| 7. | Gujarat | 3 | 2.90 | Distillery and food processing |
| 8. | Haryana | -- | -- | Distillery |
| 9. | Karnataka | 2 | 3.00 | Distillery and food processing |
| 10. | Madhya Pradesh | 2 | 2.78 | Distillery and tannery |
| 11. | Maharashtra | 3 | 2.76 | Distillery and food processing |
| 12. | Punjab | 4 | 9.83 | Distillery, food processing and paper |
| 13 | Tamil Nadu | 7 | 6.98 | Tannery, food processing, paper and poultry |
| 14. | Uttar Pradesh | 5 | 5.73 | Distillery and food processing |
| 15. | Uttranchal | 1 | 1.52 | Food processing |
| | **Total** | **39** | **59.45** | |
| | **Grand Total** | **46** | **78.95** | |

59. Asked about the progress of various ongoing projects for energy recovery from Urban and Industrial Wastes, the Ministry have stated that with a view to give a fresh impetus to the programme, two separate programmes were developed in the year 2005-06. The progress under the two programmes is as under:

**i) Energy Recovery from Urban Wastes**

Three projects for energy recovery from Municipal Solid Wastes with an aggregate capacity of 17.6 MW have been set up at Hyderabad, Vijayawada and Lucknow. Other urban waste projects include a 1 MW project based on cattle

dung at Haebowal, Ludhiana; a 0.5 MW project for generation of power from biogas at sewage treatment plant at Surat; and, a 150 kW plant for vegetable market and slaughterhouse wastes at Vijayawada. Another 300 kW project based on vegetable market waste is under commissioning at Chennai. The commissioning of the project at Lucknow is presently suspended due to certain operational problems.

Under public private partnership, a 16 MW projects is being taken up in Delhi whereas work has already started on an 8 MW power generation project for Bangalore. Setting up of power generation projects based on MSW has been cleared for three cities by the Govt. of Andhra Pradesh. Proposals are at advanced stage of development for projects on energy recovery from municipal solid wastes for several cities such as Delhi, Bhubaneswar, Hyderabad, Kanpur, Kota, Mumbai, Nagpur and Pune. Besides, projects on production of fuel pellets from MSW have been taken up in the cities of Ajmer, Chandigarh, Jaipur and Rajkot.

Three projects, each of 1 MW capacity, for power generation from biogas produced at three sewage treatment plants in Surat have been sanctioned and these projects are expected to be completed before the end of 2007-08.

**ii) Energy Recovery From Industrial Wastes:**

A total of 39 projects for energy recovery from a variety of industrial wastes with an aggregate capacity of 59.45 MWeq. have been installed in 9 States. This includes projects based on industrial wastes and effluents from distilleries, food processing, pulp & paper, poultry, etc. Seven projects with aggregate capacity of

14 MW are under installation. Two projects for generation of 3.5 MW and 6 MW power from poultry droppings are under implementation in Andhra Pradesh. Two projects of 1 MW each are under implementation in distilleries in Andhra Pradesh and Haryana and two projects for recovery of energy from starch industry waste with total capacity of about 2.50 MWeq are under installation in Uttrakhand.

60. Elaborating further, the Secretary, Ministry of New and Renewable Energy during oral evidence stated:

> "Regarding industrial waste, the Ministry have a massive programme of utilizing industrial waste for power generation. This is a special group, which is working. The Ministry are not only working with sugar mills, chemical factories and distilleries. In fact, there is separate association for co-generation of power in the industries, which the Ministry is supporting. They go around and take up the role of advocacy for us and the Ministry arrange for loans from IREDA."

## D. SMALL HYDRO POWER DEVELOPMENT PROGRAMME

61. The Committee have been informed that the estimated potential of Small Hydro Power (SHP) projects (upto 25 MW) in the country is 15,000 MW. A total of 5403 potential sites aggregating to 14,294 MW have been identified. The Ministry have furnished details of the state-wise number of identified sites, potential and the installed capacity (as on 31.12.07) which is shown as Annexure-III

62. The Committee desired to know whether the Ministry have drawn up any long-term perspective plan to harness small hydro potential and also the contribution of SHPs to the total Hydel Power generation. The Ministry, in a note, stated that the aim of the Ministry is that 2% of the installed capacity in power generation should come from Small Hydro Power projects. The Committee have

been informed that the total installed capacity of Hydro Power Projects in the country as on 31.01.2008 is 31,742.5 MW excluding projects below 3 MW up to March, 2003 and thereafter upto 25 MW. The Ministry have stated that the installed capacity of small hydro projects (up to 25 MW) as on 31.1.2008 is 2061.61 MW. (1439 MW upto 9th Plan and 537 MW during 10th Plan). Small hydro contributes about 7.5% in the total hydel power capacity in the country. Physical targets and achievement under the SHP programme since 2005-06 are as follows:

| Year | Target | Achievement |
|---|---|---|
| 2005-06 | 130 MW | 120.80 MW |
| 2006-07 | 160 MW | 149.16 MW |
| 2007-08 | 200 MW | 86.00 MW (upto 31.01.08) |

63. On being asked about the 11th Plan target for SHP, the Ministry informed the Committee that a target of capacity addition of 1400 MW has been fixed for the 11th Plan period and the financial outlay proposed for the programme is Rs.700 crore. Physical and Financial Targets for the year 2008-09 are 200 MW capacity addition from SHP and the budget provision is Rs.53 crore. The following are the year-wise targets fixed for SHP Projects for the 11th Plan Period:

| **Year** | **Physical target** |
|---|---|
| 2007-08 | 200 MW |
| 2008-09 | 250 MW |
| 2009-10 | 300 MW |
| 2010-11 | 300 MW |
| 2011-12 | 350 MW |
| Total | 1400 MW |

64. The main activities planned for the 11th Plan are stated to be as follows:

i) Strengthen resource assessment and create an SHP database on GIS platform for the country.
ii) Development of SHP sector through market route.
iii) Support for completing languishing Government SHP projects.
iv) Improving performance of existing Government SHP projects by providing support for renovation and modernization.
v) Establishment of testing facilities and setting up of a small hydro simulator for providing onsite testing and training.
vi) Raising equipment quality thorough introduction of standards.

65. The Committee desired to know the estimated potential of canal based Small Hydro Projects and to what extent has it been harnessed. The Ministry in a note stated that there is an estimated potential of about 1843 MW for canal based SHP projects. So far, such projects with an aggregate capacity of 590 MW have been commissioned and 208 MW are under implementation.

66. The SHP programme of the Ministry is stated to be essentially private investment driven programme. A package of incentives which includes fiscal concessions such as customs duty concessions, income tax exemption on projects of power generation for 10 years etc, are available to SHP projects. Some States are also giving sales tax and electricity tax exemptions. Further, the Indian Renewable Energy Development Agency (IREDA) also sanctions term loans upto 70% of total project cost at the interest rate of 10% per annum and the maximum repayment period for the loan is 10 years. The Ministry are giving capital subsidy for canal-based projects also. As per the revised scheme announced in December 2006, the following incentives are available for SHP projects, including canal-based projects:

| Special category States (NE Region, Sikkim, J&K, HP and Uttaranchal | Other States |
|---|---|
| Rs. 2.25 crore x (C MW)^0.646 | Rs. 1.50 crore x (C MW) ^0.646 |

Where 'C' stands for capacity of the project in MW.

67. The Ministry stated that the subsidy for private sector projects is released after successful commissioning, commencement of commercial generation and testing of the project. For Government projects, the subsidy released is linked to

physical progress. In reply to a specific query regarding problems, if any, faced by the private developers, the Ministry have stated that private developers for small hydro projects are not facing any problem in selling power generated from small hydel projects. Following the setting up of State Electricity Regulatory Commissions (SERCs), which are engaged in such issues the tariff for sale of electricity are being fixed by them. Generally, there is no problem and developers are receiving their payments on monthly basis by the utilities. In some States, developers feel that the purchase price is low. Even the State Electricity Regulatory Commissions in Andhra Pradesh, Himachal Pradesh, Karnataka, Maharashtra, Chattisgarh and Punjab have announced preferential tariff.

68. The Committee desired to know the status of renovation/upgradation of small hydro and watermills during the past three years. According to the Ministry, out of the 27 SHP projects taken up for renovation and modernization, 8 projects have been given in-principle approval. The States are firming up costs through tenders for these projects. Of the balance 19 projects, 14 were sanctioned before 2006-07, of which 11 has been completed, one is likely to be completed by March 2008, one by December,2008 and one project is delayed. 5 projects were sanctioned during 2006-07 and 2007-08 and are likely to be completed during 2008-09.

69. On being enquired about the subsidy released to SHP projects in public and private sectors during last three years, the Ministry have furnished the following details:

(Rs. in crore)

| | 2004-05 | 2005-06 | 2006-07 |
|---|---|---|---|
| Public Sector | 27.41 | 38.05 | 30.25 |
| Private Sector | 7.36 | 3.06 | 17.97 |

## E. BIOMASS POWER & CO-GENERATION PROGRAMME

70. According to the Annual Report of the Ministry, the industrial sector today consumes approximately 35% of total electricity generated in the country. In the absence of good quality, reliable power from the State Electricity Boards, they are increasingly generating their own power, largely through diesel generators, or are meeting their thermal energy requirements through captive means utilizing fossil fuels such as coal, oil or natural gas. As fossil fuels are limited and have adverse environmental impact, use of non-conventional energy sources including biomass resources from energy plantation or crop residue and agro-industrial wastes for generation of energy in industries is being encouraged for meeting their partial/total requirements for both electrical and thermal energy. It has been estimated that there is a potential of about 15,000 MW of power through cogeneration in various core industries including sugar industry.

71. Regarding physical and financial targets and achievements of the Biomass Power and Co-generation Programme during the period 2004-05 to 2007-08, the Ministry have submitted the following information:

A. PHYSICAL

| Programme | | ( in MW) |
|---|---|---|

| | 2004-05 | | 2005-06 | | 2006-07 | | 2007-08 | |
|---|---|---|---|---|---|---|---|---|
| | T | A | T | A | T | A | T | A |
| Biomass Power/cogeneration Programme | 125 | 136.10 | 160 | 163 | 200 | 228 | 250 | 248* |
| Non-bagasse | - | - | 5 | 2.5 | 7.5 | 22 | 20.00 | 49.20 |

(*Upto 31.01.2008)

B. FINANCIAL

| Programme | (Rs. in crore) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2004-05 | | 2005-06 | | 2006-07 | | 2007-08 | |
| | BE/RE | Ach. | BE/RE | Ach. | BE/RE | Ach. | BE/RE | Ach. |
| Biomass Power/ Cogeneration Programme | 14.54 / 12.54 | 6.22 | 9.00 / 5.10 | 5.10 | 41.50 / 20.00 | 19.64 | 40/29 | 10.85 |

72. Asked to explain the reasons for shortfall in actual expenditure during the preceding three years, the Ministry in a note stated that difference in actual expenditure and BE/RE figures during 2004-05 was due to non-release of interest subsidy to several mature biomass power/cogeneration projects due to cancellation of some Power Purchase Agreements (PPAs) as the matter was referred to the Regulators. Projects could only be approved by the end of 2005-06 after the PPA issue was resolved and the expenditure during the year was upto the RE. Several difficulties were experienced in implementing the interest subsidy scheme, under biomass power/cogeneration programme as it was linked to loan repayment period, and the procedure was becoming more cumbersome. Therefore, one time capital subsidy scheme was developed for 2006-07. The

capital subsidy scheme came into effect in December, 2006. During 2006-07, the expenditure was higher and close to the RE limit.

73. On being asked to furnish the proposed overall physical and financial targets for the 11th Plan as also for the year 2008-09, the Ministry have submitted the following information:

| | Target (11th Plan) (Proposed) | Target 2008-09 (Proposed) | Non-bagasse |
|---|---|---|---|
| **Physical (MW)** | **1700 MW** | **300 MW** | **30 MW** |
| **Financial (Rs./ crore)** | **800** | **17.50** | **7.25** |

74. On being enquired about the incentives that have been made available for the promotion and development of the Biomass Conservation and Utilisation Programme and the results achieved during the last three years, the Ministry in a note *inter-alia* stated that private sector projects based on forestry and crop residues, energy plantations, and forestry/agro industrial residues for generation of 1 MW and higher levels of power projects were provided with interest subsidy upto December 2006. A new capital subsidy scheme for 2006-07 was announced in December 2006, which provides for same level of capital subsidy for projects both in private and government sector, and a higher level of capital subsidy for bagasse cogeneration projects in cooperative sector sugar mills.

75. As regards Biomass power / cogeneration (non-bagasse) projects, the Committee have been informed that Capital subsidy ranging from Rs.20 lakh to Rs.1 crore per MW is provided depending upon end use application and technology-configuration. According to the Ministry, several other fiscal incentives are available to the entrepreneurs for setting up biomass power/cogeneration projects. These include, concessional custom duty and

excise duty exemption on the provision of certification by this Ministry introduced in September, 2005, 80% accelerated depreciation in the first year, tax holidays on income from the power projects, etc., exemption from local sales tax in some States.

76. The Committee have been informed that the initiatives have facilitated in the introduction of high pressure/high temperature steam generation technology in bagasse cogeneration and biomass power projects. A capacity of 759 MW of biomass power and bagasse based cogeneration projects has been set up in the country during the $10^{th}$ Plan against a target of 700 MW. Out of which 527 MW has been set up during the last 3 years of the $10^{th}$ Plan. In case of Biomass power / cogeneration (non-bagasse) projects, 16 biomass co-generation (non-bagasse) projects with a capacity of 73.7 MW and 92 biomass gasifier systems with a total capacity of 26.8 $MW_{eq.}$ have been installed under the programme in the country in various industries for their captive use. In addition, four biomass co-generation projects with a total capacity of 20 MW and 30 gasifier systems with a total capacity of about 12 $MW_{eq.}$ are under installation. The Grid-interactive power generation achievements for Biomass Power and Bagasse cogeneration as on 31.01.2008 is 669 MW and 720 MW respectively. The off-grid system achievement as on 31.01.2008 under the programme is reported to be 95 MW.

77. Enumerating further the impact of guidelines/policies of government in terms of encouraging participation of private sectors, the Ministry in a note stated

that these initiatives have helped in introducing high pressure/high temperature steam generation technology in sugar mills there by producing more power with the same amount of bagasse and biomass combustion based power projects. The projects in private sugar mills now operate at 87 bar system and at 105 bar vis-à-vis 67 bar adopted earlier by the sugar mills. As a result a capacity of 1325 MW, comprising 605 MW biomass power and 720 MW bagasse based cogeneration has been set up in the country as on 31.12.2007 and projects aggregating 1778 MW are under different stages of implementation.

Under the provisions of the scheme for Biomass power / cogeneration (non-bagasse), the projects may be taken up by private and public sector industry, including Energy Service Companies (ESCOs). This policy has been very successful since the inception of the programme as the 73.7 MW capacity of such projects has mainly come in private sector.

78. The thrust areas for R&D support on biomass power/cogeneration and gasification are stated to be as follows:

a) Trouble free firing of different biomass materials, including blending with conventional fuels (co-firing) in industrial boilers;
b) Better operation techniques for obtaining high plant load factors in biomass power plants;
c) More efficient handling and feeding of biomass.
d) Biomass storage techniques to prevent degradation and for fire safety.

79. Regarding utilization of funds on R&D under the Biomass Power/Co-generation Programme during 10$^{th}$ Plan Period, the Ministry furnished the following information:

Utilization of funds during 10$^{th}$ Plan Period.

| Year | Rs. in crore |
|---|---|
| 2002-03 | 2.36 |
| 2003-04 | 2.60 |
| 2004-05 | 1.54 |
| 2005-06 | 0.71 |
| 2006-07 | 0.35 |
| **Total** | **7.56** |

The Ministry have also stated that an amount of Rs.4.00 crore has been allocated for the year 2008-09 towards R&D support under the programme.

## F. REMOTE VILLAGE ELECTRIFICATION PROGRAMME

80. The Remote Village Electrifiction Programme(RVEP) of the Ministry aims at providing basic lighting/electricity facilities through renewable energy sources in those unelectrified remote census villages and remote unelectrified hamlets of electrified census villages where grid connectivity is either not feasible or not cost effective. The RVEP is implemented exclusively out of the funds allocated to the Ministry in its budget. As on 31.01.2008, 3471 remote villages and 830 remote hamlets have been electrified under the programme.

81. The Committee have been informed that following main technological options are available for the electrification of remote villages using New and Renewable Energy Sources: -

i) Small hydro power plants.
ii) Biomass gasification systems in conjunction with 100% producer gas engines or with dual-fuel engines using non-edible vegetable oils.
iii) Non-edible vegetable oil based engines.
iv) Biogas engines
v) Solar photovoltaic power plants.
vi) SPV Homelighting Systems

82. The Committee were informed that with the announcement of the National Electricity Policy 2005, and the Rajiv Gandhi Gramin Vidyutikaran Yojana by the Ministry of Power, a change has been brought about in the electrification programme as electricity is to be supplied not only for lighting but also for productive applications such as water pumping for irrigation, community applications, health care, etc. Moreover, the National Electricity Policy 2005 requires provision of a lifeline availability of 1 kWh of electricity per household per day.

83. According to the Ministry, a majority of remote census villages taken up for electrification under the programme are provided with SPV home lighting systems (about 95%). While, before 2004-05, support was being provided for SPV homelighting systems of upto 4 lights each, after 2005 it has been restricted to systems of 2 lights each. BPL households are provided single light systems with 100% subsidy. The solar home lighting systems for two lights are designed to provide around 0.1 kWh of energy per day and cost Rs.13000-15000 per system per household, varying from State to State.

84. When asked about the achievements vis-à-vis the targets of the Remote Village Electrification Programme during the 10th Five Year Plan, the Ministry in a note stated as follows:

| **Physical target for the 10th Plan** | **Physical Achievement during the 10th Plan** | **Financial target for the 10th Plan** | **Financial Achievement during the 10th Plan** |
|---|---|---|---|
| 5000 villages | Sanctioned –5163<br>Completed - 2860 | Rs.735 crore | Rs.247.33 crore |

85. The Committee enquired about the role of Panchayat Raj Institution, co-operative societies and NGOs in the Biomass, solar energy and other Programmes. The Ministry in a note stated:

> "As per the Rural Electrification Policy of the Government, Panchayati Raj institutions have to play an important role in village electrification projects. Their involvement is expected right from the stage of technology selection, to the grant of electrification certificate. For the Remote Village Electrification Programme also, the Ministry has built in their role in the programme provisions. Accordingly, it has been mandated that a certificate from the Panchayats that the renewable energy technology proposed is acceptable to the village in lieu of grid power, be obtained by the implementing agency before sanction of the project. On completion also, a certificate from the panchayats is required before final settlement. However, the Ministry implements the Programme through state government notified implementing agencies, who in turn, may employ the services of cooperative societies, NGOs, etc. in actual programme implementation. The Ministry has been encouraging the state implementing agencies to employ such bodies for preparation of project reports, village surveys and for monitoring. Lack of training in renewable energy technologies is a handicap in their large-scale involvement. However, the Ministry also provides support to the implementing agencies for training of interested NGOs, cooperative societies, etc., so that their involvement could be made more useful."

86. The Committee specifically desired to know whether some States revised the list of villages, which were finally identified for electrification under the RVEP. In this context, the Ministry in a note stated :

> "The responsibility for identification of remote unelectrified villages and hamlets has been entrusted to Rural Electrification Corporation which is the apex implementing agency for the Rajiv Gandhi Grameen Vidyutikaran Yojana. The initial list of such villages and hamlets is provided by the State Governments to Ministry of New and Renewable Energy (MNRE) who in turn coordinates with the REC for confirmation of their remoteness. The MNRE advises the state implementing agencies to coordinate closely with the Energy/Power Departments of their state so that the identified villages are only those, which are not intended for coverage under RGGVY. In some of the states, however, the state governments

apparently change their plans, subsequent to confirmation of remoteness by REC, and take up for grid electrification even those villages, which are finally confirmed as remote. Two main recent examples of this were the lists of 3113 villages confirmed by REC, which was pruned down to 520 villages in Jharkhand and another list of 797 villages, which has been reduced to less than 20 in Orissa."

87. Asked about the plan of action in such a scenario, the Ministry in its reply stated:

"Since it is a fact that grid extension is the preferred mode of electrification, it would tend to be the first choice of all the state governments and also of the villages. However, all such habitations where grid cannot reach are being provided the basic electricity/lighting through renewable energy sources. The Ministry will continue to implement the Remote Village Electrification Programme in all those villages which are identified by REC as remote and for which proposals are submitted by the state implementing agencies."

88. In this context, the Secretary, MNRE in evidence inter-alia stated:

"After the Rajiv Gandhi Vidyutikaran Yojana was taken up by the Ministry of Power, they said only those villages which are not electrified and which are not likely to be electrified in the near future would be taken up under renewable energy system on which the Rural Electrification Corporation was asked to certify these villages. They are still in the process of sending the list to the Ministry. So far the Ministry have got a list of only about 8,000 villages. Strictly speaking, having worked in the power sector earlier I am aware that the Rural Electrification Corporation does not have the machinery to physically verify whether any village will be electrified or not. They are basically going on the basis of project reports that are being submitted under RGGVY, and for those villages for which they do not receive projects, they had certified them as unelectrified and sent the list to the Ministry. Subsequent to which, the Ministry ask the State Governments to submit the project reports for having renewable energy system in those villages. As it happens, many State Governments have questioned the list furnished by the rural Electrification Corporation. They are saying that these are likely to be electrified and there is no way you can take up the renewable energy application system here. Secondly, even if they agree, they have to make a project report and send it to the Ministry. That takes time. As the financial discipline that is being imposed in the current days, unless we get the utilization certificates and progress reports,

the Ministry are not able to sanction further funds. The major cap in the funding of this is the responsiveness of the State Governments in getting the funds from us."

**District Advisory Committees (DACs)**

89. The Committee have been informed that a major initiative was taken in 2005 to set up District Advisory Committees in every district with the Collector as Chairman and comprising the Chief Executive Officer DRDA/CEO, Zila Parishad as Member-Secretary, District Officials dealing with forests, Industry, Agriculture, Information Technology and Health, Lead Bank Manager, Doctors, Engineers, Lawyers, representatives of Members of Parliament, Lion/Rotary Clubs and NGOs as members, of which at least 6 are to be women. According to the Ministry 560 DACs have been set up in the country for receiving valuable suggestions from DACs.

## VII. Proposed reductions in taxes/duties

90. According to the Ministry, various reduction/concessions in Excise and Customs duties, Direct and Indirect taxes have been proposed by the Ministry of New and Renewable Energy in the current budget to promote the new and renewable energy sources. The concessions proposed are enumerated in the following paragraphs.

**(i) Exemption of 4% Additional Counter Vailing Duty on import of raw-material, component and parts for manufacturing of WEGs:** Presently, Wind Electricity Generators (WEGs) and parts thereof are exempted from Excise Duty and hence the manufacturers cannot avail the benefit of setting off of the ACVD of 4% (imposed in the Budget of 2006-07) by way of Cenvat credit. The same is an additional cost burden on imported WEG equipment. As the Wind Energy Industry still needs support and encouragement for development of wind power in the country,

and as all other Industries are allowed to set off of the 4% ACVD, it was suggested that the Wind Energy industry may be exempted from levy of this 4% ACVD.

**(ii) Exemption of Excise /CVD on Polyster resin for manufacture of rotor blades:** Presently only Epoxy Resins are so exempted. Such exemption was proposed to give a level playing field to all Wind Energy manufacturers**.**

**(iii) Inclusion of "Permanent Magnets" for manufacture of permanent magnet generators above 500 kW for wind electricity generations (WEGs) for concessional rate on basic concessional duty of 5%:** Presently specific parts of wind operated electricity generations attract concessions customs duty of 5%. It was proposed that this list may be widen by inclusion of "Permanent Magnets" for manufacture of permanent magnets synchronous generators of high generation power capacities above 500 kW for use in wind electricity generators. Such magnets are not available in India and need to be imported from selected few placed in Europe. It is considered desirable to promote indigenous production of permanent magnets synchronous generators for use in wind turbines for induction of latest advanced technology in the country.

**(iv) Proposal for Biomass Power sector:** The Government had earlier announced concessions in custom and excise duties for biomass power projects when they are used for selling electricity to grid. Although, this concession was allowed on the basis of a suggestion from MNRE, it has resulted in exclusion of small biomass power projects such as those taken up in distributed generation mode for electrification of villages, which appeared to be unjustified. Many such projects are expected to be put up in the country during the 11$^{th}$ Plan period. It has been suggested that concessions to biomass power projects in distributed generation mode may be allowed at par with those for grid-connected biomass power projects.

**(v) Excise duty exemption on ethanol and to give declared goods tag to ethanol:** Presently alongwith a 16% central excise duty differential sales tax or value added tax (VAT) on ethanol is levied by States varies from 4% to 20%. Besides, States levy surcharges, export fees (from a state to another), import fee, procurement fee, license fee, administration fees and state excise, while the Government had made blending of petrol with 5% ethanol mandatory in October, 2007 across the country except in J&K and NE States. The existing structure of excise duty and state taxes

does not encourage production and use of ethanol, with the domestic ethanol coming to be more expensive compared to imported ethanol. It was proposed that ethanol may be conferred declared goods status by including in the list of declared goods so that it does not attract a levy of more goods at the state level. Further, while the government has already exempted 5% ethanol blending on petrol from excise duty, it was proposed that the existing duty on ethanol of 16% may be brought down to 8% to bring domestically procured ethanol at least on par with the imported ethanol. The same will encourage production and use of ethanol for reducing dependence on import of crude oil for meeting the energy requirement.

**(vi) Proposals for Solar Photovoltaic (SPV) Sector:** At present, Solar Photovoltaic (SPV) Modules are exempt from Customs as well as Excise Duty. However, Additional Customs Duty of 16% is being levied on the following materials/ components required for manufacture of SPV modules: (i) EVA sheet (ii) Multilayered sheet Tedlar base (iii) Crane Glass and (iv) Tinned Copper Interconnect. The same puts an additional cost burden on these imported raw materials/ components required for manufacture of SPV modules, whereas if complete SPV module is imported there is no duty. The manufacturers cannot set off this duty by way of CENVAT credit as there is no excise duty on the finished module. This was reported to be adversely affecting indigenous production of SPV modules and only encouraging import of these modules. It has accordingly been proposed that this anomaly in the duty structure may be removed by waiving off the additional customs duty on the aforementioned raw materials/ components if imported for manufacture of solar photovoltaic modules.

**(vii) Proposal for Income tax rebate on domestic installations of Solar Water Heaters:** It is estimated that 1 sq.m installed solar water heaters collector area can conserve around 600 units of electricity per annum and 4lakh sq.m. collector area expected to be set up during 2008-09 for domestic use can also result in peak load saving of around 200MW. With a view to promote solar water heaters at large scale in the country, it is proposed to attract all categories of domestic hot water users to install solar water heaters in their homes by providing one time rebate in income tax for the year in which the system is installed. For this purpose, investment up to Rs.20,000 (approximate cost of domestic solar hot water system of 2 sq. m. collector area) may be allowed as deduction from income under suitable section as in case of interest paid on

housing loans. For bigger systems, the deduction will be limited to Rs.20,000 only. The same will lead to a tax saving of Rs.2000 to Rs.6000 depending on income slab.

## PART-II

# OBSERVATIONS/RECOMMENDATIONS

## I. Demands for Grants of MNRE for 2008-09

**1. The Committee note that the budget allocation of the Ministry of New and Renewable Energy for the year 2008-09 is Rs. 624.09 crore wherein Revenue Section accounts for Rs. 593.89 crore and Capital Section constitutes Rs. 30.20 crore. Against this, the Budget Estimates (BE) for the year 2007-08 stood at Rs. 632.90 crore, which were subsequently reduced to Rs. 489.82 crore at Revised Estimates (RE) stage i.e. a net reduction of about Rs.143.08 crore. The downward revision of BE was attributed to a general cut imposed by the Ministry of Finance and a lower level of expenditure during the first two quarters of the preceding financial year. What is further disquieting to note is the fact that against planned RE of Rs. 483 crore, actual expenditure upto February, 2008 was only Rs. 357.12 crore. Although the financial prudence for expenditure requires that in the last month of the financial year expenditure should not exceed 15 per cent of BE, the Committee observe that the Ministry have, however, been permitted to utilize the funds upto RE level during the financial year due to required re-appropriation of funds in respect of certain sanctioned and approved projects. A scrutiny of the quarterly utilization of funds during 2007-08 reveals that while the Ministry could spend only Rs.63.45 crore and Rs.47.90 crore respectively in the first two quarters, the bulk of expenditure took place in the 3rd and 4th quarters of the financial year.**

**2. In their earlier Report, the Committee were concerned to observe that over the years, there had been persistent shortfall in utilization of budgeted amount by the Ministry. As a matter of corrective steps taken in this regard, the Committee were subsequently informed that various measures were taken by the Ministry to ensure full utilization of budget allocation during the financial year 2007-08. These broadly included, streamlining of procedural framework, rationalisation and simplification of ongoing Programmes/Schemes for 11th Plan, periodic interaction with State-level Implementating Agencies, frequent in-house review meetings to closely monitor the pace of expenditure, etc. The Committee are, however, constrained to observe that despite the corrective measures claimed to have been taken, the Ministry once again failed to match expenditure upto the desired level of budget allocation, thereby resulting in sizeable cut of provision at RE stage. The Committee are somewhat content to note that total expenditure in 2007-08 would at least be at the highest level during the past six years. While acknowledging the fact that annual plans and projections do keep changing as there is involvement of various agencies at the Central and State level to implement Schemes/Programmes of the Ministry, the Committee desire that the fluctuations should be confined to such an extent that the financial utilization of the approved outlays and physical achievement of targets depict a realistic assessment. The Committee are fully aware of the fact that bulk of allocation goes for rural village electrification, urban applications and village energy security**

**projects and for that matter the Ministry have to work necessarily through the concerned State Governments. This, in turn, calls for institution of a sound mechanism for effective coordination between the Ministry and State Governments to help curb delays that hamper implementation of Plan Projects. In the opinion of the Committee, holding the State Governments entirely responsible for persistent shortfall in utilization of funds will not help the Ministry in fulfilling their mandate. What is, therefore, imperative on the part of the Ministry is to earnestly pursue the corrective measures initiated by them for the effective implementation of projects and obtaining desired results. The Committee are inclined to share the positives in the wake of several additional initiatives launched in 2007-08 by the Ministry and trust that the level of expenditure would improve substantially to match the budget allocation for the current financial year 2008-09.**

**3. Another grey area, which demands reoriented approach on the part of the Ministry relates to undesirable rush of expenditure towards the close of the financial year. The Committee recommend that the trend of expenditure within a given financial year needs to be rationalized in terms of financial jurisprudence and thrust should be for a balanced and reasonably uniform pattern of spending. The Committee would like to be apprised of the prudent measures taken by the Ministry for advance and realistic planning in the above context.**

## II. <u>Tenth Plan Performance – A Comparative Study</u>

**4. The Committee note that the approved Gross Budgetary Support (GBS) for the 10th Plan (2002-03 to 2006-07) was to the tune of Rs.4000 crore including a provision of Rs.400 crore for North-East Region. The consolidated BE for the five plan periods stood at Rs.3046.25 crore and the RE for the same period was of the order of Rs.1988.44 crore. It is a matter of concern that against a downsized RE of Rs.1988.44 crore, the actual expenditure during the period amounted to only Rs.1717.51 crore, which obviously is indicative of sub-optimal utilization of approved allocation. A review of physical performance during the period reveals that while the Ministry have done exceedingly well in sectors like Wind Power, Small Hydro and Biomass Power/Cogeneration, the performance in areas of Solar Photovoltaic and Solar Thermal Energy Programmes woefully lagged behind.**

**5. The Committee are, however, happy to find that during 10th Plan, overall renewable power capacity addition was to the extent of 6795 MW, estimated to be about 25% of the capacity addition from conventional sources during the same period, against a set target of 10%. Taking into account the percentage share of renewables to the total energy sector outlay, which was only 2.51% during 10th Plan, capacity addition of this magnitude, no doubt, is appreciable and provides an encouraging trend. At the same time, what worries the Committee, in particular, relates to financial performance, which was very mediocre and far from inspiring. The Committee, therefore, urge upon the Ministry to draw lessons from the past**

**experience, reorient their approach and take suitable measures for creating a prudent and optimal expenditure regime during 11th Plan.**

**III. 11th Plan Programmes**

**6. The Committee find that the target for grid-interactive renewable power capacity addition for the 11th Plan is estimated to be 14050 MW and target envisaged for distributed Renewable Power System is 1000 MW. Against a Gross Budgetary Support of Rs. 8500 crore proposed by the Ministry for the 11th Plan, a sum of Rs. 4,000 crore has been approved, which is considered to be inadequate for achieving planned objectives. According to the Ministry, Planning Commission, however, has assured that a suitable increase in the allocation could be considered based on the performance of the Ministry in the first two years of the Plan period. While taking note of the average performance in the first year of the plan period where budget allocation got slashed to a major extent, the Committee desire that the approach of the Ministry be focused towards achieving targets set in the current Plan Period with optimum utilization of funds so as to secure the desired increase in allocation from the Planning Commission for the remaining three years of the 11th Plan.**

**7. The Committee observe that the impetus given to the 11th Plan in terms of rationalizing the ongoing programmes during 10th Plan is a welcome step. The Committee hope that this restructuring of the existing activities would give better focus to specific areas and in the process the Ministry should be able to yield better results in the 11th Five Year Plan.**

**8. Regarding future policy of the Government to tap energy from various renewable sources, the Committee take note of the projection made in the Integrated Energy Policy Report which anticipated capacity addition of 30,000 MW from wind, 50,000 MW from biomass and 10,000 MW from solar by 2032. Although renewables are likely to account for only around 5-6 per cent of the primary commercial energy mix by 2032, it is an imperative of the development process that the share of renewable energy in the fuel-mix should substantially increase in the longer term. The Committee, would, therefore, stress that continuation of support to new and renewable energy growth will be in the country's long-term interest. Although the development process may warrant selection of least-cost energy options, strategic and environmental concerns may, on the other hand, demand a greater share for new and renewable energy even though in the medium-term this option might appear somewhat costlier. Thus, the Committee endorse that a balanced approach for new and renewable energy that factors in the need to develop domestic and inexhaustible sources of energy has to be adopted. With this long term perspective in mind, the Committee expect that the Ministry will try its level best to achieve optimal results both in physical and financial terms.**

**9. Taking note of the fact that in our country, use of renewable energy has been mandated through the Electricity Act, 2003 and only 12 State Electricity Regulatory Commissions have so far notified renewable energy portfolio standards which vary from 2 per cent to 10 per cent, the**

**Committee urge the Government to have a separate Renewable Energy Law, as enacted by some of the countries across the globe, mandating the exploitation and use of renewable energy. The Committee would like to be informed about the precise action taken in this regard.**

**10. Taking note of the vision and mandate of the Ministry of New and Renewable Energy, the Committee place on record the fact that an uphill task is on the cards for years to come. In this context, the Committee pondered over a possible conceptional change in regard to the ultimate use of energy drawn from renewable sources. The Committee find that approach so far has been to use renewable energy as a substitute for conventional energy, which sooner or later would face a consumer resistance primarily on economic grounds. There is no denial of the fact that conventional energy is preferred to renewable energy. In this scenario, the Committee opine that there need to be a new approach to consider renewable energy not as a substitute but as an additional, as a parallel, as a stop gap and as a superior energy because it is in the national interest. At this stage, the Committee put it as a poser and certainly would await a response from the Government as to how this can be translated into a policy change.**

## IV. Major Projects/Programmes

### A. Wind Energy Programme

**11. The Committee observe that in spite of mature and proven technology available for wind energy and active involvement of private**

**sector, against an estimated potential of 45,000 MW of wind power in the country, the present installed capacity is only 7,938 MW as of January, 2008. A scrutiny of relevant data reveal that the original allocation of Rs. 21.00 Crore for wind energy programme was revised to Rs. 15.50 Crore at the RE stage during the year 2007-08. Further, against the reduced allocation, the expenditure incurred upto January, 2008 was only Rs. 5.40 Crore. The Committee are dismayed to find that the Ministry also failed to achieve the envisaged target and the shortfall was to the extent of 655 MW. The Committee take strong objection to the reasons adduced by the Ministry in this regard, which are not only of a generalized nature but also repetitive in character. In the aforesaid background, the Ministry certainly need to focus their attention on this grey area and take remedial steps to reverse the undesirable trend. In the opinion of the Committee, lack of initiative and zeal in implementing and monitoring projects and resolving unanticipated problems, lowering of allocation at RE stage coupled with subsequent shortfall in utilization of funds are apparent factors for non-achievement of the planned targets. The Committee recommend that progress on projects and expenditure position need to be improved in the current period to achieve the target of 2,000 MW grid-interactive power capacity addition from Wind Power fixed for 2008-09.**

**12. The Committee emphasize that extensive and active participation of private sector is the key for augmenting wind power generation in the country. It is understood that all the States having potential wind power**

**have announced policy for this sector including declaration of tariff for purchase of electricity from wind power projects. The Committee take note of the host of fiscal concessions extended to the private developers along with introduction of generation based incentives and appreciate the consequential overwhelming achievement in the past. They fully support the Ministry on this count and desire that these concessions and initiatives need to be continued in the long run besides striving for a uniform buy-back tariff regime encouraging Independent Power Producers.**

**13. The Committee find that an allocation of Rs.1.00 crore has been made for Research & Development (R&D) during 2008-09 as against an overall allocation of Rs.190 crore on wind energy sector during 11$^{th}$ Plan. According to the Ministry, R&D activities in wind energy sector are carried out both by private sector wind turbine manufacturers and Government. The Government R&D reportedly focuses on areas mainly relating to design methodology for wind turbine blades, grid related studies, wind resource assessments, maintenance aspects of major components of wind turbine etc. The Committee have been given to understand that a consolidated R&D strategy is in the process of finalisation before more funds are sought during the remaining plan period. The Committee would like to be apprised of the final R&D strategy proposed to be brought into operation in the wind sector.**

**14. The Committee observe that a Wind Atlas with fine resolution is essential for a country for the identification of windy locations and the**

**development of wind energy. The Ministry had sanctioned a project on preparation of Indian Wind Atlas to Centre for Wind Energy Technology (C-WET), Chennai in association with RISO National Laboratory, Denmark in November, 2006 at an estimated cost of Rs.2 crore. The project is expected to be completed by the end of 2008-09. The Committee may be apprised of the status of this project in due course.**

**B. Solar Energy Programme**

**15. The Committee observe that utilization of solar energy is basically effected through Photovoltaic and thermal technologies. The Programme of the Ministry primarily includes Research and Development, demonstration, commercialization and utilization activities in respect of solar energy technologies. These Programmes are being implemented through the State Nodal Agencies, IREDA, R&D and industrial organizations. In the current financial year, an allocation of Rs. 115.75 crore has been made for the solar energy Programme. Against this, the budget provision for 2007-08 was of the order of Rs. 131.00 crore, which was reduced to Rs. 81.75 crore at RE Stage. The actual expenditure incurred by the Ministry till January, 2008 amounted to only Rs. 46.45 crore.**

**16. The Solar Photovoltaic Programme of the Ministry consists of three major components, namely, (i) Solar Photovoltaic technology & Demonstration, (ii) Solar Photovoltaic Water Pumping and (iii) Urban applications of Solar Photovoltaic. The Committee reviewed the performance of the SPV Programme during 10$^{th}$ Plan at some length and**

**the achievements in terms of physical parameters are found to be far from satisfactory. This is evident from the fact that the achievement was much lower compared to the envisaged targets in respect of major components like Solar Home Lighting systems, Solar lanterns, and Solar Pumps. What is further disturbing to note is the fact that similar trend continued during the subsequent year of 10th Plan i.e. 2007-08 also where achievements lagged far behind stipulated targets. The financial performance depicts rather a gloomy picture where a sum of only Rs 24.84 crore could be spent till January 2008 against an enhanced RE of Rs. 49.75 crore for the year. Expressing displeasure over the sub-optimal performance in this sector, the Committee desire that remedial steps be taken along with promotion of ongoing incentives to ensure fulfillment of stipulated objectives.**

**17. The Thermal energy collected from the sun can be utilized for a variety of purposes, which include water heating, cooking, air-heating and drying, water distillation and power generation. These technologies are being promoted by the Ministry through different schemes. The Committee note that a total of 2.15 million square metre collector area has so far been installed for solar water heating in the country. About 30 solar steam generating systems and 50 solar air heating systems have also been installed in various institutions and industries. The Committee's examination, however, reveals that the performance of the Ministry during the year 2007-08 was very dismal in terms of achievement of targets. It is appalling to note that against a planned target of 20,000 solar cookers, only**

**213 could be provided. Against an installation target of 6.00 lakh square metre collector area for water heating systems, only 2.50 lakh square metre area was covered during the period. Moreover, there was also a substantial shortfall in the actual expenditure against a reduced RE for the year. In the opinion of the Committee, these figures clearly demonstrate the abject failure on the part of the Ministry in harnessing and promoting solar thermal energy Programme.**

**18. The Committee appreciate the new initiative of the Ministry to promote installation of mega-watt scale solar power generation plants of a minimum capacity of 1 MW. The Ministry have earmarked Rs. 14 Crore for 2008-09 for this programme to achieve capacity installation of 14 MW. In this backdrop, the Committee recommend that the cap set for the promotion of grid interactive mega-watt scale solar power generation programme be suitably reviewed to encourage interested States like Rajasthan so that the Budgetary support of Rs 14 Crores (BE) for 2008-09 is fully utilized. The Committee also recommend that the Ministry may alternatively explore possibility of sponsoring one of the mega-watt scale demonstration project in the premises of Solar Energy Centre to get proper feedback/evaluation of the programme.**

**19. The Committee find that an interest subsidy scheme is under implementation to promote the use of solar water heaters at large scale. Capital subsidy equivalent to upfront interest subsidy is also available to registered institutions and commercial establishments including hotels,**

**hospitals etc. that do not avail soft loans under the scheme. Further efforts are being made by the Government to get the building byelaws amended through Municipal Corporations and State Regulatory Commissions/Utilities for announcing rebates in property tax and electricity tariff on use of solar water heaters. As regards solar Cookers, the Committee have been informed that a scheme on solar steam generating systems is under implementation which provides support up to 50% of the cost of the systems installed in Community kitchens of institutions and up to 35% of the cost of systems in commercial establishments. The Committee do appreciate and commend the Ministry for taking all these policy initiatives for promotion of usage of these solar thermal devices. They desire that these measures should be earnestly pursued by the Ministry for effective implementation and the Committee be apprised of the outcome in due course.**

**20. The Committee had expressed deep concern during evidence over the absence of proper follow-up and maintenance mechanism subsequent to installation of various solar devices under the solar Photovoltaic Programmes of the Ministry. The Committee drew the attention of the Ministry to the consequential difficulties faced by the consumers in the event of failure of the devices, in the absence of a reliable and long term service back up. The Committee observe that in such a scenario, the confidence level of users is very low and functional reliability of the various systems is in question. In this context, the Secretary, MNRE assured the**

**Committee that a maintenance support mechanism will be built into the system for redressing the post-installation problems faced by the users. The Committee would like to be informed of the precise action taken in the matter.**

**21. The Committee observe that against an allocation of Rs. 17.5 crore for Research and Development (R&D) during past three years for solar energy sector, only Rs. 1.44 crore could be expended in this direction. Notwithstanding the reasons advanced for meagre spending in this area, the Committee are of the firm view that the Ministry should focus their attention in a big way on R&D investment in solar energy. The Committee emphasize that vision should be beyond the photovoltaic technology to enhance efficiency and for that matter the Ministry need to venture technology collaboration with leading players in the field across the globe. The basic idea is that the Ministry should make intensive efforts to adopt the mature and proven technology globally available for solar energy to make solar power cost-competitive and commercially viable. The Committee believe that breakthrough in this field would support the Ministry in a big way in their pursuit to bring down the cost of solar energy generation compared to that from conventional sources.**

**C. <u>Energy Recovery from Urban and Agricultural Wastes</u>**

**22. The Committee observe that most of the urban and industrial wastes find their way into land and water bodies without proper treatment, leading to problems of environmental pollution with adverse effect on public**

**health. The Committee are happy to note that at last the Ministry have in pursuance of their recommendations in successive reports gone for an estimation of the energy generation potential of urban and industrial wastes. The Committee note that as per the estimates, the potential for power generation from solid and liquid wastes generated in 423 Class-I cities of the country is 2600 MWs and is expected to be 5200 MW by 2017. The Committee are, however, distressed to observe that out of this immense amount of power generation potential, till date a mere 19.5 MW from urban waste and 59.45 MW from project based on industrial waste have been installed which is about 3 per cent of a very important eco-friendly source of energy. The Committee are, therefore, concerned over the lackadaisical attitude shown by the Ministry for exploitation of this renewable energy source in the country. The views of the Committee are further confirmed by the target of 15 MW set in the financial year 2008-09. The Committee feel that in view of the high cost and depleting reserves of fossil fuels, any delay in exploitation of currently available renewable sources of energy like urban and industrial wastes will cause dual damage – one to the environment from the combustion of fossil fuels and second from the pollution caused by discharge of urban wastes in water bodies and soil. The Committee cannot but deplore the way the Ministry continue to work at a snail's pace on this programme of immense national value. They therefore, desire that the Ministry should adopt a multipronged approach to give a boost to the programme with utmost priority so that**

**urban and industrial wastes could be utilized for generation of energy. The Committee also recommend that a National Master Plan with a comprehensive roadmap for generation of 5200 MW from Urban and Industrial Wastes by 2017 should be finalized.**

**D. SHP Development Programme**

**23. The Committee observe that SHP is more reliable of all renewable energy sources and can provide electricity for remote areas and hilly terrains in a cost effective manner. The Committee find that against the estimated potential of SHP projects (upto 25 MW) at 15,000 MW in the country and identified 5,403 technically feasible potential sites with an aggregate capacity of 14,294 MW, the installed capacity of small hydro projects (upto 25 MW) as on 31.01.2008 is only 2061.61 MW. As against estimated potential of about 1843 MW from canal based SHP projects, an aggregate capacity of 590 MW has been commissioned and projects with 208 MW capacity are under implementation. The Committee are dismayed to note that against the installed capacity of 1439 MW of SHP upto 9th Plan, the capacity addition during 10th Plan was only 567 MW. Further, during 2007-08 against the target of 200 MW, the actual achievement is 80 MW upto 31.01.2008. The Committee are perturbed to find that despite providing incentives such as customs duty concessions and income tax exemption on SHP Projects and announcement of preferential capital**

**subsidy in 2006, the State/Private Sector has not been able to tap the desired target during 2007-08. Hence, the Government may look into this aspect to identify problem areas and take corrective steps to achieve the desired objectives. Considering the current rate of increase in the prices of fossil fuels and the rate of depletion of fossil fuel, the Committee are of the opinion that very low physical (1400 MW) and financial targets (Rs. 700 Crore) have been set by the Ministry for the promotion of small hydro projects during 11th Plan. The Committee therefore, recommend that the Ministry may aim at higher targets and increase budgetary support for the promotion of small hydro projects so that the small hydro potential of the country is fully tapped.**

**24. The Committee are concerned to find that in some States only a very small quantum of identified SHP potential has been tapped so far. A scrutiny of relevant data reveals that the ratio of installed capacity of SHP projects to potential availability in the States of Arunachal Pradesh, Chhattisgarh, Himachal Pradesh, Jharkhand, Orissa and Uttrakhand is very dismal. The committee would like to be apprised of the reasons for such abysmal performance in respect of these States and measures taken to improve level of achievement. The Committee are given to understand that the private developers for small hydro projects are not facing any genuine problem in selling power generated from small hydel projects as tariff has been fixed by the State Electricity Regulatory Commissions (SERCs) for sale of electricity. However, the Committee find that in some States,**

**developers feel that the purchase price is very low. The committee therefore, recommend that Ministry, should take up the matter with all States and Union Territory having potential for SHP projects for fixing preferential tariff for hydro power as have been done by SERCs in Andhra Pradesh, Himachal Pradesh, Karnataka, Maharashtra, Chhattisgarh and Punjab for promotion/development of new SHP projects. The Committee, therefore, desire that the Ministry should have better coordination with the States to give a major fillip to this programme.**

**E. <u>Biomass Power/cogeneration</u>**

**25. The Committee observe that due to the difficulties faced by the Ministry in implementing the 'interest subsidy scheme', the utilization of funds suffered from 2004 to 2007. The Committee, however, are dismayed to note that the position has not improved with the introduction of 'capital subsidy scheme', which has replaced the cumbersome 'interest subsidy scheme' in December, 2006. The very fact that BE (2007-08) had to be reduced by more than 25% from Rs.40.00 crore to Rs.29.00 crore and the actual expenditure of a mere Rs.10.85 crore could be made out of the already scaled down RE in the first ten months of the current financial year only confirms the lackadaisical approach of the Government in the matter of giving a fillip to the programme which has an estimated potential of 15,000 MW. In the opinion of the Committee, an element of professionalism**

**needs to be built into the system for effective implementation of the Schemes. In view of the fact that the replacement of the old 'interest subsidy scheme' with a new 'capital subsidy scheme' has done precious little in the direction of optimal utilization of funds, the Committee recommend that the Ministry should conduct a thorough review of the scheme in all its ramifications and rectify all the problems related to releasing of the Capital Subsidy so that the finances allocated for BE 2008-09 are optimally and judiciously utilized and the targets projected for the year are fully achieved. The Committee would like to be apprised of the action taken in this regard.**

**26. The Committee further observe that by the end of 2005-06, interest subsidy could not be released for several matured biomass power/cogeneration projects due to cancellation of Power Purchase Agreement (PPAs) as the matter was referred to the Regulators. In view of the fact that no much headway in harnessing the huge potential of biomass has been achieved in the country and the completed projects were not provided with their eligible subsidy, the Committee are of the view that a wrong signal has been conveyed to the project promoters. While expecting that the Government might have gone into the details of the reasons for cancellation of PPAs signed by the State Government, the Committee recommend that such cancellation of PPAs should not be repeated and elaborate steps be taken in advance by the Government to prevent such eventualities. The Committee further recommend that all potential States**

**should also be requested to issue attractive preferential tariff for wheeling and third party sale from Biomass Power/Cogeneration Projects.**

**27. The Committee observe that the R&D expenditure during the entire 10th Plan period has been a paltry Rs.7.56 crore and during the last three years of the Plan period, the expenditure has gone down drastically. While the first two years of the Plan registered R&D expenditure of 4.96 crore, the last three years resulted in a cumulative expenditure of Rs.2.60 crore only. As the R&D activities hold the key to solving operational and technical problems associated with the programme and ushering in new and better technologies, the Committee are distressed to point out that the expenditure on R&D for the Biomass Power/Cogeneration Programme during the 10th Plan has been rather negligible. The Committee, therefore, desire that utmost importance should be attached to the R&D activities for Biomass Power/Cogeneration Programme and expect that the amount of Rs. 4 crore which has been allocated for the year 2008-09 for R&D support on Biomass Power/Cogeneration and gasification would be fully expended. The Committee further recommend that suitable incentives should be given to the scientists who make significant breakthroughs which would not only motivate the scientists to work more diligently but also give a boost to the R&D Programme.**

**F. <u>Remote Village Electrification Programme</u>**

**28. The Committee note with concern the poor achievements vis-à-vis the targets fixed for Remote Village Electrification Programme (RVEP)**

**during the 10th Plan period where against a sanctioned target of 5163 villages, only 2860 villages could be electrified and a sum of Rs. 247.33 crore was utilized against an allocation of Rs. 735 crore. For the 11th Plan, the Ministry have earmarked an outlay of Rs.650 crore to cover 9000 villages. However, the Committee observe that although in the first year of the 11th Plan (2007-08), 2000 villages/hamlets were targeted to be covered under the programme at a cost of Rs.108 crore, the allocation at RE stage was drastically pruned down to Rs.75 crore. Further, upto 31st January, 2008, i.e., ten months of the financial year, only 453 villages have been reported to be electrified at the cost of Rs.45.60 crore. Pertinently, 25% of the targeted villages have been covered while spending 60% of the allocated funds during 2007-08. In view of the poor achievements for the programme during 10th Plan period and during 2007-08, the Committee recommend that the Government should take effective steps so that the targets for the Annual Plan 2008-09 to electrify 1500 villages at the cost of Rs. 80 crore and total target to cover 9,000 villages during the 11th Plan at the cost of Rs. 650 crore would be achieved.**

**29. The Committee observe that the RVEP of the Ministry aims at providing basic lighting/electricity facilities through renewable sources in those unelectrified remote villages and hamlets where grid connectivity is either not feasible or not cost effective. The Ministry are implementing the programme in all those villages which are identified by Rural Electrification Corporation (REC) as remote and for which proposals are submitted by the**

**State implementing agencies. The Committee find that one of the major problem areas for implementation is that States change their plans, even after confirmation regarding remoteness of a village by REC and take up for grid electrification. This is attributed to the fact that normally grid connectivity is preferred over energy from renewable programnmes. While observing that the REC figures of 3113 and 520 remote villages in Jharkhand and Orissa were subsequently slashed down to 520 and 20 villages, the Committee feel that the system of identification of remote villages being followed now has inherent contradictory problems and requires a more practical and realistic approach to succeed. The Committee have been given to understand that REC does not have the requisite machinery to physically verify whether any village can be electrified or not by providing grid connectivity and is solely dependent on the Project Reports being submitted under Rajiv Gandhi Grameen Vidyutikaran Yojana. Since, RVEP is exclusively funded through the MNRE budget, it is the onerous responsibility of the Administrative Ministry to ensure that the programme implementation does not suffer on account of these procedural bottlenecks. It is high time for the Ministry to address the issue and find a lasting solution. One possible course of action could be to obtain list of villages directly from the concerned State Governments without involving REC in the identification process. The Committee recommend the Ministry to consider the issue from all angles and adopt a**

**pragmatic procedure immune from existing drawback. The precise action taken in the matter be intimated to the Committee.**

**30. The Committee observe that the idea of setting up of the District Advisory Committees (DACs) was to strengthen efforts of the Government in creating mass awareness and improve the existing delivery system for deployment of renewable energy systems/devices. In all, 560 DACs have been set up so far with the above objectives in mind. The Committee are, however, constrained to find that the DACs in most of the States are non-functional as regular meetings thereof are not convened. Taking strong exception to this sordid state of affairs, the Committee emphasize that urgent action be initiated by the Ministry to ensure that DACs are made functional and carry out the assigned job to fulfil the desired objectives. The Committee would like to be informed of the steps taken in this regards and the performance status of these DACs.**

**V. <u>Proposed reductions in tax/duties</u>**

**31. The Committee find that the Ministry have put forth several proposals for rationalization/reduction/abolition of taxes/duties being levied on various equipment and materials used in the renewable energy sector. In this regard, the Committee feel that exemption of 4 per cent Additional Counter Vailing Duty (ACVD) on import of raw material, component and parts for manufacturing of wind electricity generators should be allowed as all other industries are allowed to set off the 4 per cent ACVD. Further, to give a level playing field to all wind energy**

**manufacturers, the Committee feel that exemption of Excise Duty/CVD as presently given for epoxy resins should also be given to polyester resin for manufacture of rotor blades.**

**32. The Ministry have proposed inclusion of 'permanent magnets' for manufacture of permanent magnets synchronous generators of high generation power capacities above 500 KW for use in wind electricity generators, in the list of parts of WEGs attracting a concessional customs duty of 5%. The Committee understand that as of now these magnets are not available in India and are imported. The Committee are of the opinion that such a concession will go a long way in promoting indigenous production of permanent magnets synchronous generators for use in wind turbines for induction of latest advanced technology in the country. The Committee, therefore, desire that the Government should give a serious thought to this proposal.**

**33. The Committee also endorse the Ministry of New and Renewable Energy's proposal that small biomass power projects such as those taken up in distributed generation mode for electrification of villages should also be given concessions in Custom and Excise Duties which at present are available to those power projects used for selling electricity to grid. Further, to encourage production and use of ethanol for reducing dependence on import of crude oil for meeting the energy requirements, the Committee feel that existing duty on ethanol of 16% may be reasonably**

**brought down to bring domestically procured ethanol at least on par with the imported ethanol.**

**34. The Committee observe that the anomalies existing in duty structure on solar Photovoltaic (SPV) Sector are even more glaring. The Committee find that the present duty structure is totally loaded against indigenous manufacture of SPV modules. A complete SPV module when imported invites no duty, whereas when components of SPV module are separately imported by indigenous manufacturers, an import duty of 16% is imposed making the locally manufactured SPV module totally incompetitive vis-à-vis the imported ones. The Committee would like the government to consider immediate relief measures in the interest of local industry.**

**35. The Committee also find the proposal of the Ministry for income tax rebate on domestic installation of Solar Water Heaters worth considering. This one time rebate of Rs. 20,000 in computation of Income Tax in the year of purchase of Solar Water Heater will be a very welcome step in promoting solar energy appliances in the country. It is, therefore, but imperative that the Government give a positive consideration to this proposal in the long term perspective of energy conservation and use of cleaner energy. The Committee would like to be apprised of the decision on all these proposals at the earliest.**

**New Delhi;**
**16th April, 2008**
**Chaitra 27, 1930 (Saka)**

**GURUDAS KAMAT,**
***Chairman,***
**Standing Committee on Energy.**

***Annexure-I***

**Statement showing Budget Estimates, Revised Estimates of MNRE during the period 2007-08 and 2008-09.**

**(Rs. in crore)**

| Sl. No. | Particulars | BE (2007-08) | | | RE (2007-08) | | | BE (2008-09) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Plan | Non-Plan | Total | Plan | Non-Plan | Total | Plan | Non-Plan | Total |
| 1. | Secretariat-Economic Services | 10.50 | 6.81 | 17.31 | 7.30 | 6.81 | 14.11 | 10.50 | 7.09 | 17.59 |
| 2. | Solar Energy Programme | 131.00 | - | 131.00 | 81.75 | - | 81.75 | 115.75 | - | 115.75 |
| 3. | Biogas Programme & NBB | 41.50 | - | 41.50 | 58.00 | - | 58.00 | 65.00 | - | 65.00 |
| 4. | Wind Energy Programme | 21.00 | - | 21.00 | 15.50 | - | 15.50 | 22.25 | - | 22.25 |
| 5. | Bio-mass Programme | 51.00 | - | 51.00 | 36.50 | - | 36.50 | 50.00 | - | 50.00 |
| 6. | Integrated Rural Energy Programme | 10.00 | - | 10.00 | 5.00 | - | 5.00 | 4.00 | - | 4.00 |
| 7. | Other Sources of Energy | 62.00 | - | 62.00 | 36.50 | - | 36.50 | 89.50 | - | 89.50 |
| 8. | Energy from Urban and Agricultural Wastes | 13.50 | - | 13.50 | 13.00 | - | 13.00 | 25.50 | - | 25.50 |
| 9. | Investment in Public Enterprises | 64.00 | - | 64.00 | 64.00 | - | 64.00 | 30.00 | - | 30.00 |
| 10. | National Institute of Renewable Energy | 8.00 | - | 8.00 | 4.00 | - | 4.00 | 7.00 | - | 7.00 |
| 11. | Other Items | 150.70 | 0.09 | 150.79 | 98.65 | 0.01 | 98.66 | 135.50 | - | 135.50 |
| 12. | Lumpsum provision for N.E.Region and Sikkim | 62.80 | - | 62.80 | 62.80 | - | 62.80 | 62.00 | - | 62.00 |
| **Grand Total** | | **626.00** | **6.90** | **632.90** | **483.00** | **6.82** | **489.82** | **617.00** | **7.09** | **624.09** |

**Exclusive of works outlay provided in the Demands of Ministry of Urban Development**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Demand No. 100 Ministry of Urban Development** | **2.00** | **-** | **2.00** | **1.00** | **-** | **1.00** | **3.00** | **-** | **3.00** |

**ANNEXURE-II**

Targets Achievements under various renewable energy programmes during 2006-07 and 2007-08

| Sl.. | Name of the | Units | 2006-07 | | 2007-08 | |
|---|---|---|---|---|---|---|
| No | Scheme/Project/Programme | | Targets | Achievement | Targets | Achievement |
| | | | | | | (upto 31.01.2008 |
| | | | | | | |
| | **Power from Renewables Grid-interactive** | | | | | |
| 1 | Wind power | MW | 1000.00 | 1742.10 | 1500.00 | 845.00 |
| 2 | Small Hydro (upto 25 MW) | MW | 160.00 | 149.16 | 200.00 | 86.00 |
| 3 | Biomass/Power/Cogeneration | MW | 200.00 | 228.10 | 250.00 | 248.00 |
| 4 | U&I to Waste | MW | 25* | 8.50 | 25* | 11.75 |
| | **Total** | | **1385.00** | **2127.86** | **1975.00** | **1190.75** |
| | **Off-grid/captive** | | | | | |
| 5 | Biomass Power/Non-bagasse Cogeneration | MWe | 8.00 | 22.00 | 20.00 | 49.20 |
| 6 | Biomass Gasifier (Industrial) | MWe | 7.00 | 9.50 | 10.00 | 10.80 |
| 7 | U&I Waste to Energy | MWe | (refer column 4 above) | 8.90 | (refer column 4 above) | 3.95 |
| 8 | Biomass Gasifier (Rural) | MWe | 1.00 | 1.00 | 1.00 | 1.10 |
| 9 | SPV Power | MW | - | 0.00 | | |
| | **Total** | | **16.00** | **41.40** | | |
| 10 | Village Electrification Programme | Villages | 1000 | 781 village+236 hamlets | 2000 | 453 |
| 11 | Biogas Plants | Nos. in lakhs | 1.00 | 0.97 | 1.00 | 0.58 |
| 12 | **Solar Photovoltaic Programme (SPV)** | | | | | |
| | SPV Home Light | Nos | 60000 | 23033 | 63250 | 42438 |
| | SPV Lanterns | Nos | 30000 | 31000 | 94000 | 46958 |
| | SPV Street Lighting Systems | Nos | 1250 | 4659 | 7000 | 3551 |
| | SPV Pumps | Nos | 300 | 66 | 0 | 0 |
| 13 | **Solar Thermal Energy Programme** | | | | | |
| | Solar water Heating Sys.-collector area | Lakh sq.m | 4.00 | 4.00 | 6.00 | 2.50 |
| | Solar Cooker | Nos | 22000 | 16209 | 20000 | 213 |
| 14 | Wind Pumps | Nos | 100 | 69 | 100 | 50.00 |
| 15 | Hybrid Systems (Wind-Solar) | kWp | 150 | 123.69 | 750.00 | 148.48 |

*Target inclusive of grid and off-grid captive power

***Annexure-III***

**State-wise Small Hydro Power Potential, Number of identified Sites and Installed capacity as on 31.12.2007**

| S. No. (1) | Name of State (2) | Identified Number of sites (3) | Total capacity (in MW) (4) | Installed capacity (As on 31.12.07) (5) |
|---|---|---|---|---|
| 1 | Andhra Pradesh | 489 | 552.29 | 179.100 |
| 2 | Arunachal Pradesh | 566 | 1333.04 | 45.240 |
| 3 | Assam | 60 | 213.84 | 2.110 |
| 4 | Bihar | 94 | 213.75 | 50.400 |
| 5 | Chhatisgarh | 164 | 706.62 | 18.050 |
| 6 | Goa | 9 | 9.10 | 0.050 |
| 7 | Gujarat | 292 | 196.97 | 7.000 |
| 8 | Haryana | 33 | 110.05 | 62.700 |
| 9 | Himachal Pradesh | 547 | 2268.41 | 146.615 |
| 10 | Jammu & Kashmir | 246 | 1411.72 | 111.830 |
| 11 | Jharkhand | 103 | 208.95 | 4.050 |
| 12 | Karnataka | 128 | 643.16 | 464.000 |
| 13 | Kerala | 247 | 708.10 | 98.120 |
| 14 | Madhya Pradesh | 99 | 400.58 | 51.160 |
| 15 | Maharashtra | 253 | 762.58 | 211.325 |
| 16 | Manipur | 113 | 109.10 | 5.450 |
| 17 | Meghalaya | 102 | 229.81 | 31.030 |
| 18 | Mizoram | 75 | 166.94 | 17.470 |
| 19 | Nagaland | 99 | 196.98 | 28.670 |
| 20 | Orissa | 222 | 295.47 | 7.300 |
| 21 | Punjab | 234 | 390.02 | 123.900 |
| 22 | Rajasthan | 67 | 63.17 | 23.850 |
| 23 | Sikkim | 91 | 265.54 | 39.110 |
| 24 | Tamil Nadu | 176 | 499.31 | 89.700 |
| 25 | Tripura | 13 | 46.86 | 16.010 |
| 26 | Uttar Pradesh | 220 | 292.16 | 25.100 |
| 27 | Uttarakhand | 458 | 1609.25 | 82.620 |
| 28 | West Bengal | 203 | 393.79 | 98.400 |
| 29 | A&N Island | 12 | 7.91 | 5.250 |
| | **TOTAL** | **5,403** | **14,294.24** | **2045.610** |