

## CHAPTER – V

### ENERGY

#### 5.1. POWER

**5.1.1.** The power position in the State is reeling under tremendous pressure from all aspects due to an acute shortage of power. Presently, the State power utility is having a tough challenge ahead, in terms of capacity addition to bridge this gap. As on date, the unrestricted peak demand of the State is 610 MW. The installed capacity till the end of the 10<sup>th</sup> Plan was 186.70 MW. The existing generating capacity is 272.70 MW with the addition of 84 MW from the Myntdu Leshka HEP (3x42MW) and 2MW from RM & U of Umiam Stage II Power Station (2x10 MW) during the 11<sup>th</sup> Plan. The existing power availability is 482.70 MW including 210 MW power from the Central Share. Therefore, the power deficit in the State is of the order of 200 MW. The Transmission network at the end of the 10<sup>th</sup> Plan period cover a span of 717.44 Ckm with a sub station capacity of 365 MVA. With the construction of 364.01 Ckm of Transmission Lines and 400 MVA Sub- Station capacity during the 11<sup>th</sup> Plan period, the present total Transmission network is 1081.45 Ckm of Transmission Lines and 765 MVA of Sub-Station capacity. Keeping in view the stated power scenario of the State, scheme proposal in terms of capacity addition is being prepared to meet the power deficit of the State. Further, in line with the national objective of meeting the targeted capacity addition, the State is also gearing up tapping the available power potential in the State through Survey & Investigation Schemes.

**5.1.2.** The present power scenario in the State and the approach for the 12<sup>th</sup> Five Year Plan are as highlighted below:-

**a) Generation :-** During the 11<sup>th</sup> Five Year Plan Period, not much headway has been made to achieve the targeted capacity addition through the on-going projects which are under implementation. These projects with a total capacity of the order of 192 MW are being carried over to the 12<sup>th</sup> Plan proposal, out of which 129.5 MW is expected to be completed by the end of the financial year 2012 – 13. Another way of increasing the generating capacity in the State is being taken up in the form of Renovation, Modernisation and Upgradation of the old existing Hydro power stations where the life span of most of the machines have outlived. 2 MW have been achieved by Renovation, Modernisation and Upgradation (RM&U) of Umiam Stage II Power Station from 18 MW to 20 MW. RM&U of Umiam Stage III Power Station (2x30 MW) is proposed to be taken up during the 12<sup>th</sup> Plan period.

**b) Transmission :-** With the increasing power demand and generating capacity in the State from both State utility and IPP, transmission system in the State needs to be strengthened at the top most priority. This will enable drawal of power not only from the State Central Share and the Grid but also for evacuation of power from the up coming new projects which will be coming up from time to time. With the open access regime it is a tough challenge to bring power stability not only to the State but also to the Region and the Nation as a whole. The State has made good progress in the transmission area during the 11<sup>th</sup> Plan period by completion of a few critical projects connecting with other NER States and weak intra – State links. Completion of a 220 kV D/C line from Misa to Byrnihat (Killing) during the 11<sup>th</sup> plan period is a boon to the State which has substantially relieved power shortage by enabling drawal of power from the NER/ER Grid.

**c) Distribution :-** The feasibility of power sector depends entirely on the distribution system since it is from this sector that the entire revenue for generation and transmission is dependent upon. The present situation is quite distressing due to the fact that the losses are too high. The implementation of APDRP was aimed at reducing the losses to 15% by the end of the 11<sup>th</sup> Plan but this target is yet to be achieved. In order to reduce the AT & C loss and achieve the overall consumers' satisfaction in line with the Electricity Act, 2003, implementation of Restructured Accelerated Power Development and Reforms Program (R-APDRP) is being taken up.

In line with the Central Government Policy of electricity to all by the year 2012, Meghalaya is also gearing up to achieve 100% Village Electrification and Rural Household Electrification. The scheme was targeted to be completed during the 11<sup>th</sup> Plan period. However, 100% physical achievement is spilling over to the 12<sup>th</sup> plan period. This is being pursued by the Meghalaya Energy Corporation Limited under the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY). The Scheme is being implemented in all the 7(Seven) Districts of Meghalaya. Out of a total of 5782 villages in the State (2001 Census), 4425 villages (76.53%) have been electrified as on 31<sup>st</sup> January, 2012. The balance 1357 villages will be spilled over to the 12<sup>th</sup> Plan Period.

**5.1.3. The approved outlay for the Eleventh Plan is `105788.00 lakh. The anticipated expenditure during the 11<sup>th</sup> Plan is `199845.33 lakh. The approved outlay for 2011-2012 is ` 56142.00 lakh which is expected to be utilised in full. The Projected outlay for the 12<sup>th</sup> Plan (2012 -17) is `363500.00 lakh and the Proposed Outlay for the Annual Plan 2012-13 is `57400.00 lakh.**

**5.1.4.** The broad break - up of the actual expenditure during the first four years of the 11<sup>th</sup> Plan, approved outlay & anticipated expenditure for 2011-12, Projected Outlay for the 12<sup>th</sup> Plan and the Proposed Outlay for the Annual Plan 2012-13 is as indicated below:-

(.in lakh)

Sl. No	Schemes/Projects	11 <sup>th</sup> Plan 2007-12 Projected Outlay	Actual Expdr. 2007-08 to 2010-11	Annual Plan 2011-12		12 <sup>th</sup> Plan 2012-17 Projected Outlay	Annual Plan 2012-13 Proposed Outlay
				Outlay	Anticipated Expdr.		
1.	<b>Generation Scheme:</b> Myntdu Leshka HEP under SPA New Umtru HEP	31886.00	73220.68 369.00	6465.00	6465.00	5833.00	3200.00
2.	Renovation & Modernisation Works (EAP)	21968.00	3392.80	5738.00	5738.00	37668.00	100.00
3.	Wind Energy (SCA)	-	-	700.00	700.00	-	-
	<b>Total : Generation Scheme</b>	<b>53854.00</b>	<b>76982.48</b>	<b>12903.00</b>	<b>12903.00</b>	<b>43501.00</b>	<b>3300.00</b>
4.	Survey & Investigation	1792.00	31.65	519.00	519.00	2144.00	822.00
5.	Re-Engineering Works		300.00	-		12585.00	840.00
6.	<b>(a) Transmission Schemes:</b> i) 132KV D/C line to S/S Khliehriat ii) S/S at Umiam with LILO iii) D/C line from EPIP to S/S at Killing	1000.00	1743.00	-	-	-	-

Sl. No	Schemes/Projects	11 <sup>th</sup> Plan 2007-12 Projected Outlay	Actual Expdr. 2007-08 to 2010-11	Annual Plan 2011-12		12 <sup>th</sup> Plan 2012-17 Projected Outlay	Annual Plan 2012-13 Proposed Outlay
				Outlay	Anticipated Expdr.		
	iv) Equity Participation in Palatana Power Project						
	<b>(b) New Transmission Schemes</b>	-	-	-	-	94470.00	7760.00
7.	<b>(a) Distribution Scheme:</b>						
	i) APDRP	22688.00	11572.20	-	-	-	-
	ii) R-APDRP Part A & B	-	-	-	-	-	1728.00
	iii) Green city project (SCA)	-	-	500.00	500.00	-	-
	iv) Consumer Metering (SCA)	-	-	700.00	700.00	-	-
	<b>(b) New Distribution Schemes</b>						
	i) Garo Hills Thermal Plant(SCA)	-	-	-	-	10800.00	1500.00
	ii) Other Distribution schemes	-	-	-	-	-	1450.00
	<b>Total: T&amp;D</b>	<b>23688.00</b>	<b>13315.20</b>	<b>1200.00</b>	<b>1200.00</b>	<b>105220.00</b>	<b>12438.00</b>
8.	<b>Rural Household Electrification (RGGVY)</b>	26454.00	0.00	-	-	-	-
9.	<b>SPA/ SCA</b>						
	i) Misa-Byrnihat Trans.Line						
	ii) Umiam- Mawngap Trans.Line						
	iii) Killing –Byrnihat Trans. Line	-	14146.00	1520.00	1520.00	-	0.00
	iv) Modification of Mawngap S/S						
	v) 400 KV D/C line for evacuation of power from Palatana Power Project.						
10.	<b>Loans from REC /PFC and others as MeCL's own resources</b>	-	38928.00	40000.00	40000.00	200000.00	40000.00
	<b>GRAND TOTAL :</b>	<b>105788.00</b>	<b>143703.33</b>	<b>56142.00</b>	<b>56142.00</b>	<b>363500.00</b>	<b>57400.00</b>

#### 5.1.4. Generation Schemes

##### (a) On- going Schemes:-

(i) **Myntdu Leshka Stage I HEP (2 x 42 + 42) MW** : This Project is located in the Jaintia Hills District of Meghalaya. The revised cost of the for the 3(Three) Units, as per the 2010 Price Level, is `1173.13 Crore The financing pattern for the Project is 70% Loan and 30% Equity. The amount received as Equity till February, 2012 is ` 320.01 Crore. The work is in full progress. The 1st Unit was synchronized on the 23rd November, 2011 and formal commissioning was done on the 29<sup>th</sup> February, 2012. The 2nd and 3rd Units are expected to be completed by June, 2012 respectively. The proposed outlay for the year 2012-13 under SCA funding is ` 32.00 Crore and the cumulative expenditure as on 30th September, 2011 is ` 1034.804 Crore.

(ii) **New Umtru Hydro Electric Project (2 x 20) MW:** This Project is located in the Ri Bhoi District of Meghalaya. The estimated cost for the Project is `226.00 Crore. The project is being implemented under 70% loan and 30% equity (NLCPR funding). The first installment for the project amounting to ` 15.21 Crore was released during 2008 – 09 and the 2nd installment amounting to ` 17.3838 Crore

was released during 2011-12. Overall progress of work is 60%. The target date for completion of the project is June, 2013. The balance amount yet to be sanctioned by the Ministry of DoNER for the project is ` 10.86 Crore.

**(iii) Ganol Hydro Electric Project (3 x 7.50) MW:** This Project is located in the West Garo Hills District of Meghalaya. The estimated cost for the Project is `177.53 Crore. The project is being implemented under 70% loan and 30% equity (NLCPR funding). The first installment for the project amounting to ` 11.56 Crore was released during the year 2008–09. Process for land acquisition and forest clearance has been completed. The project was delayed due to change in scope of work and it would be executed on a turn key basis in a single package. Work Order is expected to be issued shortly and the proposed target date of completion is 36 months from the date of issue of Work Order.

**(iv) Construction of Lakroh Mini HEP (1 x 1.50 MW):** This is an on-going project funded by the NEC at an estimated cost of `5.00 Crore and the balance amount of ` 6.75 Crore has been approved by the Ministry of New & Renewable Energy (MNRE). Till date, the NEC has sanctioned an amount of ` 3.97 Crore. The overall progress of work is 90%.

**(v) Garo Hills Thermal Project (2 x 60 MW) Equity Participation :** The project is proposed to be implemented in Public Private Participation mode (PPP). The equity debt ratio will be 30 and 70 respectively. This project envisages installation of 5 (five) generating units of 60 MW each. However implementation of the project will be in a phase manner. Two generating units of 60 MW each (120 MW) is being considered for implementation in Phase-I. This project, when implemented with other Hydel-based power stations of the state shall meet a part of the total requirement and improve the economic viability of the MeECL For the Equity Participation of this project, an amount of ` 15.00 Crore is proposed during the Annual Plan 2012-13.

**(b) Survey & Investigation Schemes:** All on-going Survey & Investigation works are funded by the NEC, with the exception of Sidugiri MHP (7MW), which is a State Plan scheme, where an amount of ` 30.00 Lakh has been sanctioned by the State Government during 2011-12. Hence, an amount of ` 8.22 Crore has been proposed for the Annual Plan 2012-13 for carrying out Survey & Investigation works of both the on-going works as well as new schemes, the list of which are as given below :

**On-going Survey & Investigation Schemes :**

- i Umngot HEP (3 x 80MW)
- ii Myntdu Leshka Stage II HEP (4 x 60 MW)
- iii. Selim HEP (2 x 85 MW)
- iv. Mawblei HEP (2x70MW)
- v. Ganol HE Project Stage-II (3 x 5 MW)
- vi. Upper Khri Diversion Project Stage I and II (2 x 7.5 + 2 x 5 MW)
- vii. Sidiguri MHP (7 MW)

**New Survey & Investigation Schemes proposed:**

- i. Nongkohlait HEP ( 2 x 60 MW)
- ii. Umngi HEP ( 2 x 27 MW)
- iii. Um Mynrat MHP (2 MW)
- iv. Um Sohra MHP (5 MW)
- v. Um Niangsiang MHP (2 MW)
- vi. Um Rina Stage – 1 MHP (5 MW)

- vii. Um Siang MHP (2 MW)
- viii. Um Sangot MHP (3 MW)
- ix. Rilang MHP (3 MW)
- x. Rongdi MHP (10 MW)
- xi. Um Rilang Stage-I MHP (15 MW)

#### **5.1.5 Renovation, Modernisation & Upgradation Works (EAP)**

**Renovation, Modernisation & Upgradation of Umiam Stage II & Stage III (EAP) :** The Project is proposed for renovation and up gradation from 18MW to 20MW. The project is funded by JBIC. The project cost is ` 90.46 Crore which includes the capacity building work for MeECL along with the consultancy fee for the project. Contract Agreement was signed on the 11th December, 2009. The outlay for 2011 – 12 is ` 57.38 Crore, out of which the local component amounting to ` 13.00 Crore was released by the Government of Meghalaya. The Project was completed in January, 2012, whereby Unit –II was synchronized on 21st December, 2011 and Unit-I on 6th January, 2012.

To increase the generating capacity in the State, 2MW has been achieved from the above Scheme during the 11<sup>th</sup> Plan Period and another Scheme viz, Renovation, Modernisation and Upgradation of Umiam Stage – III at an estimated cost of ` 37668.00 lakh is proposed to be taken up during the 12<sup>th</sup> Plan Period with a proposed outlay of ` 100.00 lakh during the Annual Plan 2012-13.

**5.1.6. Re-Engineering Works:** The following re-engineering works are proposed under SCA funding in the Annual Plan 2012-13 :

**(a) Re-engineering Works of Umiam Stage-I Power Station, Sumer:** This work involves replacement of Inlet Valve (MIV) of Unit 3 & 4 and accessories as well as providing Bypass Isolators for 132 kV feeders, KPS-1, KPS-2 and Umiam. An amount of ` 3.40 Crore has been proposed for the Annual Plan 2012-13.

**(b) Re-engineering Works of Stage-IV Power Station, Nongkhylllem :** This work involves overhauling of Turbine and Generator, setting up of dedicated telecommunication network including Internet facilities and replacement of existing obsolete AVR by DAVR. For this, an amount of ` 5.00 Crore has been proposed for the Annual Plan 2012-13.

**(c) Renovation, Modernisation & Upgradation of Umtru Power Station (2.8MW x 4) :** The initial work involved in the above project is preparation of a Feasibility Report.

#### **5.1.7. Transmission Schemes:**

**(i) 220 KV Double Circuit Transmission Line from Misa to Byrnihat, along with the construction of the 220 KV/ 132 KV, 2 x 160 MVA Sub Station at Byrnihat & the 220 KV bay extensions at Misa :** The total cost for the Project is ` 160.65 Crore and is being funded under NLCPR and SPA. The transmission line and sub-station was commissioned & charged on the 25th January, 2011.

**(ii) 132 KV 3 circuits on 4 circuit tower from 220/132 KV Killing S/S to EPIP I & 132 KV D/C line from Killing S/S to EPIP II:** This scheme is in fact a continuation of the Misa – Byrnihat project. This project is for evacuation of power from the 220/132KV sub-station at Killing. The total cost for the project is ` 21.74 Crore and is being funded under SPA. The D/C Line from Killing to

EPIP-II Sub-station was completed and commissioned on the 29th January, 2011. The multi-circuit Line from Killing to EPIP-I Sub-station is targeted to be completed by December, 2012.

**(iii) 132 KV D/C Mawngap-Sumer line:** The approved cost of the scheme under SPA funding is ` 22.44 Crore. One circuit of the line has been charged on the 21<sup>st</sup> December, 2011 and the second circuit on the 25<sup>th</sup> January, 2012.

**(iv) 132 KV S/C on D/C tower from Nangalbibra (Meghalaya) to Agia (Assam):** The scheme is under NEC funding. The approved cost of the scheme is ` 43.32 Crore, out of which an amount of ` 38.68 Crore has been sanctioned till date. The target for completion of the scheme is March, 2012. Due to non-payment of compensation to the beneficiaries in Assam portion, the stringing works in the remaining 2.80 CKM could not be completed till date.

**(v) 132/33 KV, 2 x 20 MVA S/S at Mendipathar:** The scheme is under NEC funding and is approved at a cost of ` 4.71 Crore, out of which an amount of ` 3.471 Crore has been sanctioned till date. Procurement of land for the sub - station is completed. Procurement of materials is in progress. The target for completion of the scheme is December, 2012.

**(vi) LILO of Agia – Nangalbibra line at Mendipathar S/S:** The scheme is under NEC funding and the approved cost of the project is ` 4.99 Crore, out of which an amount of ` 2.00 Crore has been sanctioned till date. Detail Survey & Check Survey of the Line is completed. Procurement of materials is in progress. The target for completion of the scheme is June, 2012.

**(vii) 132KV/33KV, 2x20 MVA Sub-station at Umiam:** The approved cost of the schemes under NEC funding is ` 4.797 Crore, out of which an amount of ` 3.80 Crore has been sanctioned till date. The work is completed whereby the Substation has been commissioned on the 16<sup>th</sup> June, 2008 for 1 (one) No. 20 MVA Transformer and the 2<sup>nd</sup> transformer (20 MVA) has been commissioned on the 16<sup>th</sup> February, 2012.

**(viii) LILO on the 132 KV Sumer NEHU line at the 132 KV/ 33 KV, 2 x 20 MVA Sub-Station at Umiam:** The scheme is under NEC funding and approved at a cost of ` 4.94 Crore. The total amount sanctioned by the NEC so far is ` 3.50 Crore. The line is completed and charged.

**(ix) Construction of 132 KV DC LILO on Mawlai-Cherra line at Mawngap Sub-Station:** The scheme is under NEC funding and the approved cost of the project is ` 4.967 Crore. Till date, the total Grant amount sanctioned by NEC is ` 3.5 Crore and the cumulative expenditure as on 31<sup>st</sup> January, 2012 is ` 4.37 Crore.

**(x) Augmentation of 132/33KV Sub-station from 35MVA to 50MVA, at Rongkhon.**

The scheme is under NEC funding and the approved cost of the project is ` 4.69 Crore. Till date, the total Grant amount sanctioned by NEC is ` 3.4 Crore. The scheme is expected to be completed by June, 2012.

**(xi) 132KV D/C line from Rongkhon to Ampati along with 132/33, 2 x 25 MVA S/S at Ampati:** The cost of the project under NLCPR funding is ` 30.79 Crore. The amount sanctioned by the Ministry of DoNER so far is ` 11.08 Crore. Check Survey and Detail Survey for the line has been completed. Stubs and templates already reached the site & work is about to start. The project is expected to be completed by December, 2012.

**(xii) Construction of LILO on 132 KV Single Circuit Mawlai-Nangalbibra line at Mawngap**

**Sub-Station:**The scheme is approved under NEC funding at a cost ` 4.94 Crore. An amount of ` 1.50 Crore was sanctioned on March, 2011. For this project, Check survey is completed and ROW has been cleared. Work will start as soon as materials are received. The project is expected to be completed by December, 2012.

**(xiii) Installation of 220/132kV, 1 x 100 MVA Auto transformer at Agia S/S (Assam) for Meghalaya:**

This is an NEC funded scheme, whereby the work will be carried out by Assam Electricity Grid Corporation Limited (AEGCL) as a deposit work for MeECL. The scheme is approved at an amount of ` 11.43 Crores, out of which an amount of ` 5.00 Crore was sanctioned in March, 2011. The work is in progress and is expected to be completed by December, 2012.

**(xiv) Installation & Commissioning of Communication Network & Remote Terminal Unit at 132kV Sub-station for supervisory control & data acquisition:**

This is an NEC funded scheme approved at an amount of ` 3.954 Crore, out of which an amount of ` 1.6 Crore was sanctioned in December, 2010. Process for implementation of the scheme is in progress.

**(xv) Construction of the LILO of one circuit of 400kV Pallatana - Bongaigaon line along with a 400/220kV, 2x 315 MVA GIS S/S at Killing :**

The cost of the project approved under NLCPR funding is ` 93.48 Crore. The first installment was sanctioned as 90% Grant on the 6<sup>th</sup> July, 2011 for an amount of ` 33.65 Crore. Detailed Survey of the line is completed. LOA for Line Package awarded on the 16<sup>th</sup> December, 2011. ROW clearance is in progress. The work is expected to be completed by December, 2012.

In addition to the on-going Transmission Schemes, the MeECL is proposing new transmission schemes amounting to `944.70 Crore for the 12<sup>th</sup> Plan period which includes proposal for the Annual Plan 2012-13 amounting to ` 77.60 Crore. The schemes proposed for the Annual Plan 2012-13 are as follows:

**(a) Construction of LILO of 132 KV D/C NEHU - Khliehriat line at Jowai (Mustem) along with construction of 2 x 20 MVA, 132/33 KV Substation at Mustem:**The proposed 132kV LILO line at Mustem is presently connected with Khliehriat town and the existing 132kV NEHU – Khliehriat S/C line passes through Mustem area. With the coming of this new substation at Mustem, it will improve the quantum and quality of power supply that would be available at all voltage levels. This envisages that the project on completion would provide quality power supply to the consumers and surrounding areas of Jowai and adjoining areas of Amlarem, Sohkha, etc. It would also relieve the loading of Khliehriat substation, both at 132kV & 33kV level. It may be mentioned that with the commissioning of 132kV Khliehriat – NEHU LILO line, Mustem substation can be fed from Khliehriat substation for better stability of power to Jowai town and adjoining areas. For this scheme, an amount of ` 26.50 Crore is proposed during the Annual Plan 2012-13.

**(b) Construction of 132/33 kV, 2 x 20 MVA sub-station with LILO of NEIGHRIM-Khliehriat Line at Lad Nongkrem :**This scheme proposed will facilitate interconnection of the 132kV Grid connectivity within and around Shillong. On completion of this project, a more reliable system and improved voltage will be ensured. For this scheme, an amount of ` 22.60 Crore is proposed during the Annual Plan 2012-13.

**(c) Stringing of second circuit of 132kV Nangalbibra- Agia line with OPGW :**The 2<sup>nd</sup> Circuit Agia – Nangalbibra line, is proposed to cater to the growing industrial load demand in the Garo Hills area as well as for evacuating the power, from the proposed Thermal Power Station. In addition, the

line will also form a vital part, of interconnecting the Meghalaya Grid, with the lower Assam Grid, for power supply, to this part of the North Eastern Region.

For this scheme, an amount of ` 19.50 Crore is proposed during the Annual Plan 2012-13.

**(d) Equity participation of Meghalaya for Palatana - Bongaigaon line:** MeECL has recommended for Equity Participation of the State Government in the M/s North East Transmission Company (NETC). For this, the contribution made by the Government of Meghalaya till date is ` 17.70 Crore. Due to price escalation, the Equity amount has increased to ` 20.57 Crore. The balance amount due against the State Government's share is around ` 3.00 Crore, which is proposed for the Annual Plan 2012-13 under SCA funding.

**(e)** An amount of ` 6.00 crore is also proposed for Construction of 132 Kv S/C Line from New Umtru to EPIP - II from New Umtru HEP to old Umtru HEP during the Annual Plan 2012-13.

#### **5.1.8. Distribution Schemes:**

The improvement scheme with regards to the distribution system for meeting the above objectives, specifically matters related to reduction of AT&C losses has been proposed for an amount of ` 108.04 Crore during the 12<sup>th</sup> plan period. An amount of ` 14.50 Crore has been proposed for the financial year 2012-13, the list of which are as follows :

<b>Sl. No</b>	<b>Name of the Scheme</b>	<b>Amount proposed during 2012-13 ( ` in lakhs)</b>
1.	Construction of new 33KV D/C line on Wolf Conductor from 132/33KV Mawphlang Substation to 33/11KV Airforce Substation via 33/11 kV PHE GSWS Substation, Mawphlang with terminal equipments at PHE Mawphlang and Airforce Substations.	640.00
2.	R&M of 5 Nos. of 33/11 kV Substations in Shillong	300.00
3.	Construction of new 33KV line on Wolf Conductor from Dakopgre to Praharinagar and construction of 33/11KV, 2.5MVA substation at Praharinagar with Control Room.	290.00
4.	Construction of new 33KV line alongwith 33/11KV, 2.5MVA at Bajengdoba Substation No. 2	220.00
	<b>Total</b>	<b>1450.00</b>

**5.1.9. Rural Electrification:** Out of 5782 inhabited villages in the State, 4667 villages (accounting for 81percent) have been electrified. Out of the electrified 4667 villages, 4425 villages are electrified through grid while 242 villages are electrified through renewable energy sources.

**5.1.10. Green City Project:** With a view to transform two major cities in the State viz Shillong & Tura into Green Cities, an amount of ` 5.00 Crore is anticipated to be utilized during 2011-12 under SCA.

## **5.2. NON CONVENTIONAL SOURCES OF ENERGY**



**5.2.1.** The main objectives of the Non-Conventional Sources of Energy sector is to formulate and implement demonstration, experimental promotional and extension project and programme related to new and renewable sources of energy such as solar energy, wind energy, biogas, micro hydel power stations and bio-fuel.

**5.2.2.** The approved outlay for the 11<sup>th</sup> Plan (2007-2012) is `1200.00 lakh. The anticipated expenditure during the 11<sup>th</sup> Plan is `.656.64 lakh. The approved outlay for the Annual Plan 2011 - 2012 is ` 220.00 lakh which is expected to be utilized in full. All the schemes under this sector have different funding pattern between the Centre, State and Beneficiary contribution except the Direction and Administration i.e. Administrative Expenses which has to be borne purely by State.

**5.2.3.** During the 11<sup>th</sup> Plan 2700 Nos. of Biogas Plant (3 cum family size) and 1500 Nos. of LED Home Lighting System were installed in different parts of the State.

**5.2.4. Programme for the 12<sup>th</sup> Plan (2012-17) and Annual Plan 2012-13 :** The main thrust for the 12<sup>th</sup> Plan is to intensify the programmes and restructuring the schemes on the basis of application of modern technologies and focused mainly in off-grid application and the thermal applications incase of National Solar Mission. The projected outlay for the 12<sup>th</sup> Five Year Plan 2012-2017 is `2400.00 lakhs and the proposed Outlay for the Annual plan 2012-13 is `460.00 lakh which includes `210.00 lakh for Promotion of Renewable Energy & Energy Conservation Measures.

**5.2.5.** The main programmes and activities for the Annual Plan 2012-13 are as follows:

**1. Direction and Administration :** An amount of `140.00 lakh is proposed for Direction and Administration for the year 2012-2013 which includes salary, PPF, traveling, publicity, office expenses, vehicle expenses, training monitoring and other miscellaneous expenses.

**2. National Biogas and Manure Management Programme (NBMMP):** An amount of `10.00 lakhs is proposed for installation of 500 Nos. Biogas Plant (3 cum Family size) during 2012-13. The target fixed during the Twelfth Five Year Plan period is for installation of 2500 Nos. Biogas Plant (3 cum Family size).

**3. Home lighting System :** During 2012-2013, the target is for installation of 1000 Nos. of Home Lighting system in different parts of the State. An amount of `20.00 lakhs is proposed as State's contribution.

**4. Off-Grid SPV Power Plant :** An amount of `50.00 lakhs is proposed for installation of 0.5 Mw capacity of 1.0 Kw to 250 Kw.

**5. Wind Mill Programme:** An amount of `10.00 lakh is proposed during 2012-13 for installation of 200 KW in different parts of the State.

**6. Promotion of Renewable Energy and Energy Conservation Measures :** The programme proposed to be taken up under this Scheme is to sensitize the students community on importance of Renewable Energy through advertisement, awareness campaign, essay and debate competition. In the rural areas and the village level, awareness programme will be conducted through exhibition and workshop. Also steps will be taken to promote Solar Lighting Devices through popularization of low consuming newly developed LED Lighting System. An amount of Rs.210.00 lakh is proposed for the purpose during 2012-13.

**5.2.6.** The broad break - up of the actual expenditure for the first four years of the 11<sup>th</sup> Plan, anticipated expenditure 2011-12 and the Projected Outlay for the 12<sup>th</sup> Plan and Proposed Outlay for the Annual Plan 2012- 13 is indicated in the Table below:-

(.in Lakh)

Sl. No.	Name of Scheme	11 <sup>th</sup> Plan (2007-2012) Projected Outlay	Actual Expenditure 2007 - 11	Approved Outlay 2011-12	Anticipated Expenditure 2011-12	12 <sup>th</sup> Plan (2012-17) Projected Outlay	Annual Plan (2012-13) Proposed Outlay
1.	Direction and Administration	240.00	331.14	130.00	130.00	950.00	140.00
2.	Bio Energy – National Project for Bio-gas Development	220.00	62.00	35.00	35.00	125.00	10.00
3.	Solar Photovoltaic Programme	400.00	18.00	45.00	45.00	825.00	90.00
4.	Micro Hydel Project	240.00	15.50	-	-	-	-
5.	Wind Mill Programme	30.00	-	5.00	5.00	500.00	10.00
6.	Water Mill Programme	40.00	10.00	-	-	-	-
7.	Energy for Commercial Application	-	-	5.00	5.00	-	-
8.	New Technology	30.00	-	-	-	--	
9.	Promotion of Renewable Energy & Energy Conservation Measures	-					210.00
	<b>Total</b>	<b>1200.00</b>	<b>436.64</b>	<b>220.00</b>	<b>220.00</b>	<b>2400.00</b>	<b>460.00</b>

### **5.3. INTEGRATED RURAL ENERGY PROGRAMME.**

**5.3.1.** The scope of Integrated Rural Energy Programme is sought to be enlarged by improving the available commercial sources and usage of non-conventional sources in rural areas. The scope of expansion of Renewable Energy Sources in every nook and corner of the State needs proper propagation, awareness and to popularize the Renewable gadgets and devices in the remote and rural villages of the State.

**5.3.2.** The projected outlay during the 11<sup>th</sup> Plan is `900.00 lakh. The anticipated expenditure during the 11<sup>th</sup> Plan is `669.93 lakh. The approved outlay for the Annual Plan 2011-12 is `220.00 lakh which is expected to be fully utilized. All the schemes under this sector have different funding pattern between the Centre, State and Beneficiary contribution, except the Direction and Administration i.e. Administrative Expenses which has to be borne purely by the State.

**5.3.3.** During the 11<sup>th</sup> Plan 112 Nos. of Solar Water Heating System of 100 LPD capacity, 3 Biomass Gasification Units of capacity 50 Kw to 250 Kw were installed in different parts of the State.

**5.3.4.** The Projected Outlay for the 12<sup>th</sup> Plan (2012-17) is `2000.00 lakh and the proposed outlay during the Annual Plan (2012-13) is `250.00 lakh. The main programmes and activities are follows :-

**1.Direction and Administration :** An amount of `140.00 lakh is proposed for Direction and Administration during 2012-2013 which is for meeting the salary, expenses on rent, travelling, office expenses, vehicle expenses, PPF, publicity, training & monitoring and other miscellaneous expenses.

**2.Solar Thermal :** During 2012-2013, 1500 sq.m. collector area is projected to be covered by Solar Water Heating System. An amount of `60.00 lakh is proposed for this scheme as State's contribution and Rs.6,600 /- per Sq.m of collector area as Central Share is expected. During the 12<sup>th</sup> Plan, the target is for installation of Solar water heating system with 75,00 sq.m collector area of various capacity of 100 LPD to 2000 LPD.

**3.Biomass Gasification :** During 2012-13, an amount of `10.00 lakh is proposed as State's Share for installation of 50 KW capacity of 5 KW to 20 Kw in the State. 1000 KW Biomass Gasification with different capacity is targeted to be implemented during the 12<sup>th</sup> Five Year Plan.

**4.Field Project :**

**i) Wind Solar Hybrid System :** 200 KW Wind Solar Hybrid System is projected to be installed in different parts of the State which are suitable for this project. The target to be achieved for the 12<sup>th</sup> Plan is 1000 KW Wind Solar Hybrid System.

**(ii) Solar Water Pumping System:** Average 50 KW on SPV Water Pumping system is proposed to be installed during 2012-2013. The target to be achieved for the 12<sup>th</sup> Plan is 250 KW Solar Water Pumping System. Under Field Projects an amount of `40.00 lakh is proposed during the Annual Plan 2012-13.

**5.3.5.** The broad break - up of the actual expenditure for the first four years of the 11<sup>th</sup> Plan, anticipated expenditure 2011-12 and the Projected Outlay for the 12<sup>th</sup> Plan and the Proposed Outlay for the Annual Plan 2012 - 13 is indicated in the Table below:-

( in lakh)

Sl. No.	Name of Scheme	11 <sup>th</sup> Plan (2007-12) Projected Outlay	Actual Expenditure (2007-11)	Approved Outlay 2011-12	Anticipated Expenditure 2011-2012	12 <sup>th</sup> Plan (2012-17) Projected Outlay	Annual Plan (2012-2013) Proposed Outlay
1	Regional Institute for Integrated Rural Energy Planning & Development	40.00	25.00	30.00	30.00	-	-
2	Direction and Administration	400.00	389.88	130.00	130.00	850.00	140.00
3	Solar Thermal Programme	100.00	-	15.00	15.00	350.00	60.00
4	Biomass Gassification	100.00	10.31	20.00	20.00	200.00	10.00
5	Field Projects	240.00	24.74	25.00	25.00	600.00	40.00

<b>6</b>	Preparation of DPR for cluster of villages	20.00	-	-	-	-	-
	<b>Total</b>	<b>900.00</b>	<b>449.93</b>	<b>220.00</b>	<b>220.00</b>	<b>2000.00</b>	<b>250.00</b>

#### **5.4. VILLAGE ELECTRIFICATION (MNES SPECIAL SCHEME)**

**5.4.1.** The approved outlay for the 11<sup>th</sup> Plan for this sector is Rs.600.00 lakh and the actual expenditure during the first four years of the Plan period is Rs.120.68 lakh. The approved outlay for 2011-12 is Rs.50.00 lakh which is expected to be utilized in full. The anticipated expenditure for the 11<sup>th</sup> Plan is Rs.170.68 lakh for electrification of 134 Nos. of remote villages.

**5.4.2.** The projected Outlay for the 12<sup>th</sup> Plan is Rs.100.00 lakhs for electrification of 106 Nos. of remote villages by SPV Home Lighting System Model-II with integration of SPV street lighting system. During the Annual Plan 2012-13 an amount of Rs.60.00 lakh is proposed with a target for electrification of 80 Nos of villages.