# NON CONVENTIONAL ENERGY SOURCES

**(Item No. 15)**

Energy is the key input to the economic development of the state with the increasing industrial and agricultural activities, energy demand rises. Pressure on the conventional energy sources (coal and petroleum) getting increased need for non conventional energy sources and energy conservation becomes more relevant. In Tamil Nadu, power requirement by 2002 (end of IX plan) is expected to be 9223 MW and generation/availability will be 6213 MW, leaving power defict of about 3010 MW. However some of the demand for energy is of a nature which can be met by small, decentralised renewable energy sources of supply. In this context, renewable energy sources such as sun, wind, biomass, ocean etc which are perennial, dependable and abundantly available, have acquired increasingly important at the hands of policy and are being developed and aided systematically.

02. The Tamil Nadu Energy Development Authority (TEDA) is the state nodal agency for implementing the renewable energy/non-conventional energy programmes.

03. In Tamil Nadu special emphasis to the growth of renewable energy sector is being assigned specifically in the fields of wind energy (wind power generation and water pumping); Bio energy (biogas, Biomass gasifier for mechanical, electrical and thermal applications, Energy plantation and co-generation in sugarmills); solar energy (solar photovoltaic system, Solar cookers, and Solar Air Heating system) and ocean energy (ocean Thermal Energy Power Plants). Government of India and Government of Tamil Nadu provide various incentives and subsidies for the non-conventional energy sources. The Government of India provides a subsidy of (i) Rs.1500/- for solar photovoltaic lanterns, (ii)Rs.125/- per watt of solar pumps upto a maximum of Rs.1.50 lakhs and soft loan upto Rs.1.00 lakh (high rate of interest), (iii) Rs.800/- per sq.mt. area of solar area system,(iv) subsidy of 40 to 50% on the bigger size bio-gas plants upto Rs.75,000/- per co-operative sugar mill and (v) 20% of the co-generation power plants upto a maximum of Rs.3.5 lakhs, and (vi) similar incentives for the wind power generation is being granted. State Government supports similar efforts by stepping in to provide appropriate matching subsidies.

04. Directorate of Rural Development through the district agencies has been implementing National Project on Bio-gas Develpment(NPBD). Under this project, establishment of bio-gas plants, toilet-linked house hold bio-gas plants and similar bio-gas plants for schools and bio-gas plants for hostels, in order to save powers for farmers dual fuel plants are being implemented under the project. Financial support from the Government of India is available for all these schemes. Besides, support and services like training of the users and NGOs, communication and publicity and establishment of bio-gas development and training centres in the State have also been included in the project. Tamil Nadu has a total estimated potential of establishing 6.15 lakhs bio-gas plants out of which 1.81 lakh plants have already been installed. There is a gap of about 70% of the potential to be covered.

05. National Programme on Improved Chullahs (NPIC) scheme is being implemented with Central Government assistance from 1983-84. In 1994-95, Rs.2.53 lakhs Chullahs have been completed with the Central Assistance. This helps rural women not only from drudgery but also saves lot of firewood consumption.

06. Financial assistance has been received for these schemes by TEDA and Directorate of Rural Development. TEDA has used funds in last three years as follows.

| *Sl.No.* | *Development Programmes* | *1993-94* | *1994-95* | *1995-96* |
|---|---|---|---|---|
| | | | *(Rs. in lakhs)* | |
| 01. | Wind energy | - | 10.00 | 162.14 |
| 02. | Bio energy | 3.00 | 3.00 | 10.50 |
| 03. | Solar Thermal | 69.76 | 43.50 | 27.78 |
| 04. | Energy conservation | 25.00 | 30.00 | 35.00 |
| 05. | Integrated Rural Energy Planning | 17.00 | 36.00 | 80.00 |
| 06. | Integrated Rural Energy Planning Centrally Sponsored. | 17.40 | 15.24 | 20.58 |
| | | **132.16** | **137.74** | **336.50** |

07. The State Planning Commission Group having taken note of the existing position and the potentialities available for exploitation for the benefit of rural people, recommends the following:

## I. VILLAGE PANCHAYAT

| *ACTIVITY* (1) | *ENTRUSTMENT OF POWERS* (2) |
|---|---|
| 1. Assessment of energy requirement. | i) Assist PUC in identification of potential sources of non-conventional sources of energy device like gobar gas, bio-mass, solar energy and wind energy. |
| 2. Promoting non-conventional sources of energy which includes installation of solar panels, wind mills and gobar gas plants and extension education. | i) Identification of beneficiaries for individual bio-gas plants, wind mills and other devices. |
| | ii) Organise training of beneficiaries in appropriate centres. |
| | iii) Assist in monitoring functioning of the devices in the Panchayat Village. |
| | iv) Promote non-conventional energy devices/sources. |
| | v) Promote and popularise energy saving devices. |

## II. PANCHAYAT UNION

| *ACTIVITY* (1) | *ENTRUSTMENT OF POWERS* (2) |
|---|---|
| 1. Assessment of energy requirements | i) To formulate projects for use of non-conventional sources of energy in the Panchayat Union area. |
| 2 Promoting non-conventional sources of of energy which includes installations of solar panels, wind mills and gobar gas plants and extension education. | i) To procure and supply materials, equipments, etc. and implement Bio-gas wind mill and other projects. |
| | ii) Identify suitable locations and select individual beneficiary for installation of community as well as private sources of non-conventional energy. |
| | iii) To promote non-conventional energy devices/sources. |
| | iv) To promote and popularise energy saving devices. |
| | v) To co-ordinate different agencies including NGOs for promotion of alternative sources of energy. |
| | vi) Train users in maintenance of Non-conventional energy devices |
| | vii) Monitor & supervice the operation & functioning of the projects. |

## III. DISTRICT PANCHAYAT

| *ACTIVITY* (1) | *ENTRUSTMENT OF POWERS* (2) |
|---|---|
| 1. Energy Planning and review. | i) Prepare plans on energy savings and exploitation of non-conventional energy sources. |
| | ii) Review & monitoring of the schemes implemented at village panchayat/ panchayat union council. |
| 2. Promoting non-conventional sources energy. | i) Advise Government on the non-convention energy projects feasible and viable for implementation in the district. |
| | ii) Organise district level interface workshop with users and manufacturers of non-conventional energy devices; and take follow up action with the concerned authorities. |

**Administrative Implications**

08. Non-conventional energy sources utilisation involves high cost, high technique and risks. Wind power generation, wind electric generation, solar power generation and water pumping systems belonging to the high technology and high investigation category. Bio-gasifier, improved chullah, solar photovoltaic system, solar air heating systems and even to some extent similar water pumps and wind mill water pumping systems do not belong to the category of high cost and technology involvement. In this category of non-conventional energy sources, Panchayat Raj Institutions will play very active role in identification of beneficiaries, organising training programmes for users and popularisation of energy saving devices. Active involvement and participation of the community will make this programme a national success. Therefore the powers and functions indicated above for village panchayats and panchayat unions need to be given as agency functions of TEDA and Directorate of Rural Development. The District Panchayat will play the role of planner and adviser for promotion of non-conventional sources of energy for the district as a whole. Even the energy audit by industrial groups existing within the district can also be assigned to be monitored by the District Panchayat. This will not involve any transfer of any man power from either DRDA or TEDA or from any other agency to the rural local bodies. On the other hand Extension officers and BDOs at the Panchayat Union level will play significant role in co-ordination and liasion works to be done for successful implementation of Govt. supported schemes.

**Financial Implications:**

09. Since the identification of beneficiaries will be entrusted to the Panchayat Unions, the subsidies and incentives to be released to the beneficiaries should be transferred to the Panchayat Union from Govt. of India/Govt. of Tamil Nadu/ TEDA/IREDA or any other agency competent to release such subsidies. Panchayat Union will be responsible and accountable for utilisation of the subsidies and implementation of schemes.