

advantage over the large hydel power, as they can be used in harnessing power from canal falls, irrigation dams and natural falls scattered all over the State, especially in remote & hilly areas. The gross potential of hydros (less than 25MW) is estimated at 350MW and more than 118 sites have so far been identified in the State. OREDA had installed its first Micro Hydel Project at Badaghagara during 1986, which pumps power to the grid. OREDA has also revived of its 110KW Mini Hydel Power Project at Sunei and the second unit of 20KW at Badaghagara. Further, OREDA has plans to take up some new project at suitable sites.

OFF GRID AND DECENTRALIZED SOLAR APPLICATIONS

The Government has recently launched the Jawaharlal Nehru National Solar Mission, which aims to promote ecologically sustainable growth, while addressing India's energy security challenge. The immediate aim of the mission is to focus on promoting the use of renewable source of energy and setting up an environment, which will facilitate increased penetration of solar technology in the country. In order to achieve this objective, the mission envisages providing capital and interest rate subsidies with an objective to make the solar off-grid projects commercially viable and workable on a sustainable basis.

Biomass Power Projects

The state has a potential of about 350MW from Biomass resources mainly comprising of Agro and Agro industrial residues. The power can be harnessed either through direct combustion or gasification of the Biomass. At present, 11 Biomass based power projects are coming up in the state with a cumulative capacity of 138 MW.

Solar Power Projects

The potential of solar power is almost unlimited. Orissa by virtue of its geographical location receives solar insolation of about 5 kmh/sqm/day. This insolation can be used to harness power either photovoltaic or thermal routes. At present, 8 power

projects for a cumulative capacity of 8 MW are being installed in different parts of the state by private developers by availing government incentives.

Upcoming Projects:

- 1) 29 MW Biomas Project in Dhenkanal.
- 2) 8 MW Solar Power Projects under implementation.

National Biogas & Manure Management Programme (NBMP)

- Provide clean fuel for cooking, lighting and thereby reduce use of LPG and other fuels.
- Provide bio-fertilizer and reduce user of chemical fertilizer.
- Mitigate climate change issue

Energy Plantation and Bio-diesel Production

Energy Plantation and Bio-diesel Production was adopted by the State during 2007-08 with a view to make effective use of wastelands for cultivation of Jatropha and other suitable non-edible oilseeds as well as to generate employment opportunities in rural areas. So far 7524 acres of jatropha plantations have been raised on farmers own waste lands through back ended - subsidy linked scheme. Currently plantation activity is continuing through NREGS.

Benefit of Bio-diesel Production

- Total expected (potential) production: 14000/-Kl. per annum.
- Utilization of wasteland: 0.6 million hectare.
- Employment generation: 100 million man days.
- Additional organic manure : 42,000 tonnes.

RENEWABLE ENERGY AWARENESS PARK

Renewable Energy Awareness Parks are intended to generate awareness in different cross sections of the Society about the use of renewable energy. This is done through establishment of Renewable Energy Parks in different institutes as well as State Centres, where different renewable energy systems are displayed and information on renewable energy is provided.

RENEWABLE ENERGY TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT



Orissa Renewable Energy Development Agency

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The Orissa Renewable Energy Development Agency was constituted as a State Nodal Agency in 1984 under the aegis of Dept. of Science and Technology. Govt. of Orissa with a view to popularize the exploitation and use of renewable energy resources in the State.

Mission : Promote Research, Development and Popularization of Non-conventional and Renewable Sources of Energy.

Vision :

- Provision of minimum illumination to all Remote Un-electrified Villages by 2012
- Increase the share of Renewable Energy to 10% of the total power mix by 2012
- Accelerated use of RE Technology in all sectors of economy.

RENEWABLE ENERGY POTENTIALS OF ORISSA

RESOURCE	POTENTIALS
Biogas Plants	6,05,500 (Nos.)
Improved Chullah	54,85,000 (Nos)
Solar PV Power	14,000.00 MW
Small Hydro	156.76 MW
Wind Energy	1,700.00 MW
Biomass Power	350.00 MW
Municipal Solid Wastes	12.00 MW
Municipal Liquid Waste	8.00 MW
Chilika Lake Weeds	8.5 MW

RENEWABLE ENERGY POLICY

The main objective of the policy is to reduce dependence on Conventional sources of Power Generation.

OPERATIVE PERIOD: The schemes of promotional and fiscal incentives will remain in force for a period of ten years.

ELIGIBILITY: Any willing Public Sector or Private Entrepreneur, Registered NGOs, Cooperatives, Consortia etc who satisfy the following:

- Technical soundness of the pre-feasibility Survey & Investigation

- Financial solvency of the party
- Experience of the party in the relevant field

INCENTIVES: The following incentives as per IPR 2001 as amended from time to time would apply :

- A power plant Generating Power from Non-conventional Sources setup after the effective date shall be deemed to be a new Industrial Unit. These plants will not be liable to pay Electricity duty.
- Govt. land earmarked for industry under the "Land Bank" scheme and other Govt. land where ever applicable will be allotted for units generating power from Non-conventional Sources.

No transmission charges shall be levied for CPP or NRSE maintenance for a period of 5 years from the date of commissioning.

MAJOR PROGRAMMES

- Remote Village Electrification
- Decentralized Distributed Generation
- Renewable Energy Power Projects
- Off-grid Solar Power Projects
- Bio-mass Power Projects
- Solar Power projects
- National Biogas and Manure Management Program
- Energy plantation and Bio-diesel production

Remote Village Electrification Program (RVEP)

RVEP is a central sector program under which minimum illumination need both in domestic and community sectors is met by using locally relevant renewable energy sources like solar, biomass, bio-fuels etc. All those villages where grid extension is not technically feasible or economically viable are covered under the program. The villages for coverage under the RVEP are selected by the State Energy Department and then certified by the Rural Electrification Corporation. After such certification OREDA undertakes surveys of the villages and prepares Detailed Project Reports for each village. The DPRs are then sent to MNRE through State Energy Department. Upon receiving sanction from MNRE the projects are implemented.

Decentralized Distributed Generation (DDG):

DDG is a program similar to RVEP but implemented through an entrepreneurial mode. Under this the village is selected from the list of un-electrified remote villages certified by REC and a more detailed DPR is prepared through MoP approved consultants. The DPRs are then sent to MOP/REC for acceptance. Upon acceptance of the DPRs MOP would select developers for setting up the projects through a process of bidding. The developer would invest 10% of the project cost and the balance would be provided by MNRE. The developer would set up the project and operate and maintain the same for a period of 5 years. The State Agency i.e OREDA receives service charges from MOP for facilitating the entire process as well as for paying differential tariff, if any, for period of 5 years.

Renewable Energy Power Projects:

Orissa has an potential of about 2000 MW from renewable excepting solar which is almost unlimited. As per the recent orders of the State Regulatory Commission the Distribution utilities have an obligation of about 100 MW of solar power and 600 MW of non solar renewable power till 2015-16. Besides the above obligation there can be a number of other projects for selling renewable energy certificates to obligatory entities other then the distribution utilities.

● WIND POWER PROJECT

Wind can be economically used for the generation of electrical power. This can be utilized in windmills, which in turn drives a generator to produce electricity. Wind can also be used to provide mechanical power such as for water pumping etc. The gross wind power potential of Orissa is estimated to be 1700MW. Wind resource assessment data for six sites is available. Further assessment is being carried out in 15 new sites.

● HYDEL POWER PROJECT

Producing power from flowing water is one of the oldest technologies. Small Hydel Systems have an