

NON-CONVENTIONAL SOURCES OF ENERGY

The Pondicherry Experimental Solar Pond power project is a joint venture of Pondicherry Engineering College and Electricity Department of Government of Puducherry, funded by Government of India, under National solar pond development Programme. The aim of the project is to install a power station to generate electric power of the order of 360 KW per day using organic Rankine cycle coupled with salt Gradient solar pond.

Ever since the establishment of the Project in the year 1986 and consequent to the establishment of the pond in the year 1996, the grant in aid is being obtained from Government of Puducherry. As per the Memorandum of Understanding, signed with N.A.L. the project was proposed to be executed in three Phases. After the successful completion of the phase I, the O.R.C. engine was designed successfully and installed in 2002 under Phase II Programme. The system was then operated with a gross output of 12.5 KW at first in February 2003. The requirement for extraction of designed thermal output of 500 kWh of energy was established and communicated to N.A.L. The N.A.L. team had planned a number of special tests to find out the performance envelope of the system to enable further fine-tuning.

From the output of the system, it was inferred that the performance of the system was generally as per the design expectations. After this, a multiplexer unit and a thermocouple tree were designed and installed to measure instantaneous temperature at various vertical level of the pilot pond. During August 2006, the PESPPPS has taken up studies for possible improvement in the output and successfully achieved a higher level of 13.17 KW power generation and found further improvement in the output could be obtained. Accordingly, a detailed technical analysis was sent to N.A.L. for their study.

Prof. Dr. C.L. Gupta, Solar Agni International, Sri Aurobindo Ashram, Puducherry, has made number of visits to the site and has concluded that the level loss was probably due to a micro leak either at the junction of the bottom and the slope wall or at the bottom itself. The pond was therefore emptied in September 2006, under the advice of Dr.C.L. Gupta. During the inspection of the bed floor of the pond, a minor hairline crack was noticed. It was decided that the repair work of the pond be carried out using modern technique viz. Ferro Cement concrete technology which offers better chemical, thermal and mechanical properties and durability than conventional reinforced cement concrete technology.

Meanwhile, 'Revised Project Report' of the Project, with inclusion of Phase III Programme was prepared and submitted to Planning Commission. The Planning Commission has conveyed its approval in principle for the Revised Project Report and also recommended for continuance of experimental works by constructing 3 x 2000sqm ponds, vide their letter No.P-11072/08/2006-RE/P&E, Power & Energy Division, New Delhi, dt. 26.10.2006 and recommended for the inclusion in the XI Plan.

ACHIEVEMENTS DURING 2007-08

Due to minor leakage detection in 500sqm pilot pond the floor area was repaired viz unique and innovative method called Ferro cement technology by M/s Auroville Building Centre, Auroville, which is pioneer recognized organization by the Ministry of Science and Technology, Government of India.

LIKELY ACHIEVEMENTS DURING 2008-09

It is proposed to repair the 500 sq mtr solar pond for rectification of side slopes, conducting tests and coupling with ORC engine, preliminary works for 2000 sq mtr solar pond and procurement and establishment of salt gradient solar pond and filling up of 500 sq mtr solar pond.

PROPOSED TARGET FOR 2009-10

Apart from the maintenance works of 500 sq mtr pilot pond, erection of control panel and instrumentation have to be carried out and advance payment has to be made to NAL, Bangalore.

STRATEGY AND POLICY PROPOSED FOR 2009-10

To promote the use of new and renewable sources of energy and to conduct research and development on renewable sources of energy. Setting up of solar pond for production of thermal and electrical energy.

OUTLAY AT A GLANCE

Sector : NON-CONVENTIONAL SOURCES OF ENERGY

No. of Scheme : 1

Department : ELECTRICITY

(Rs. in lakh)

Eleventh Five Year Plan 2007-12 Approved Outlay	:	850.02
Annual Plan 2007-08 Actual Expenditure	:	34.98
Annual Plan 2008-09 Approved Outlay	:	35.00
Annual Plan 2008-09 Revised Outlay	:	35.00
Annual Plan 2009-10 Proposed Outlay	:	70.00

(Rs. in lakh)

Sl. No.	Name of the Scheme	Eleventh Five Year Plan 2007-12	Annual Plan 2007-08	Annual Plan 2008-09		Annual Plan 2009-10
		Approved Outlay	Actual Expdr.	Approved Outlay	Revised Outlay	Proposed Outlay
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Development of Non-Conventional Sources of Energy	850.02	34.98	35.00	35.00	70.00
