



MNRE-GEF-UNIDO Project

Promoting Business Models for Increasing Penetration and Scaling up of Solar Energy

Sustainable Development Goal 9:

Industry, Innovation and Infrastructure

Project Targets:

- CST based systems installed with 45,000 m² of collector area
- 83,000 tonnes of direct CO₂ emission reduction

Relevant India Development Goal:

JNNSM target of achieving 20 million square meters of solar collector area by 2022.

Background

Solar heating and cooling applications for industrial processes present a niche market. Analysis of solar sector in India and review of existing barriers to promote solar energy use in industrial sectors carried out during the project preparation phase have shown strong relevance of the GEF-UNIDO project, and complementarity to ongoing and planned national and international programmes to promote and support increased solar energy use for industrial heat in India – the driving solar support initiative in India has been the Jawaharlal Nehru National Solar Mission (JNNSM) of the Ministry of New and Renewable Energy (MNRE), Government of India .

The project has been conceived aiming to contribute to the GEF Climate Change Strategic Objective namely, promoting investment in Renewable Energy (RE) technologies by transforming the market for solar energy for industrial heat applications in India through investment, market demonstration, development of appropriate financial instruments, development of technical specifications, capacity building and contributions to establish a favorable policy and regulatory environment.

The project will therefore assist in the commercialization of solar heat technologies, avoid GHG emissions and help India in its transformation towards low carbon development.

Major Outputs Envisaged from the Project

- 1) Systems based on Concentrating Solar Thermal (CST) technologies are installed with 45,000 m² of solar collector area through demonstration projects resulting in saving of 39,200 tonnes of CO₂ emission.
- 2) Knowledge documents & standardization of performance measurement developed with barriers removed for large scale promotion of CST Technology.

Project Information

Area: Energy

Duration: 2015-2020

Implementing Partners:

- Ministry of New and Renewable Energy (MNRE), Government of India
- Indian Renewable Energy Development Agency
- National Institute of Solar Energy

Location(s):

National-level

Main features of the project

- ❖ Promotion of CST technologies as clean energy solutions for industrial sectors
- ❖ Provide financial support to CST installations in the industrial sector by offering the soft-loan facility with IREDA.
- ❖ Support for improving manufacturing of CST technologies
- ❖ Provide technical support to beneficiaries to enable installation & integration of the most suited CST technology in industries.
- ❖ Developing knowledge documents to facilitate better understanding of the projects.
- ❖ Capacity building to improve the manpower involved in the CST sector.

Objectives

The GEF-UNIDO's project is designed to complement MNRE's support programme by helping to remove barriers associated with CST technology, its awareness, capacity building, market and financial barriers. The duration of the project is from January 2015 to December 2019.

In addition, the initiative aims to provide technology application information packages and standardization of CST performance measurement.

Target technologies for Solar Heating and Solar Cooling

Different concentrating technologies have been developed or are currently under development for various commercial and industrial applications.

For industrial processes where temperatures above 80°C are required, concentrating solar collectors such as parabolic trough or dish collectors, non-imaging concentrators or a Linear Fresnel system are required to be used.

The analysis of various industrial processes shows that solar concentrators could be technically and commercially viable in many industries. The industries showing good potential for implementation of solar concentrators are food processing, paper and pulp, fertilizer, breweries, electroplating, pharmaceutical, textiles, refineries, rubber and desalination sectors.

UNIDO invites industry units to install CST systems for the supply of heat at medium and high temperatures and to avail the financial incentives from the UNIDO project on a first-come-first-serve basis

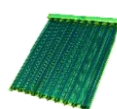
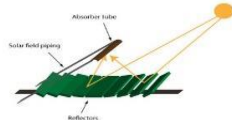
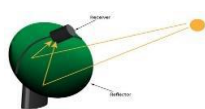
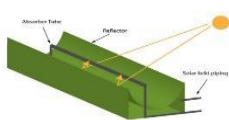
Expected Payback

The project payback usually depends on the cost of the substituted fuel. It ranges from 3–4 years for process heat applications if the substituted fuel is Furnace Oil, Diesel, or PNG. The payback may be slightly longer (5–7 years) to substitute solid fuels such as Coal, Biomass, and Wood. The longer payback period is also seen in cooling applications.

Implementation Arrangement

The project strategy builds on the existing favorable framework for solar thermal in India. Factors in favor of the project include the high commitment by the government to the development of its solar thermal industry, and significant interest by the industrial sector to reduce its reliance on fossil fuels.

Primary target beneficiaries of the project are energy policy-making and implementing institutions, primarily MNRE, MSME, IREDA, industrial unit owners (end beneficiaries), CS manufacturers, designers, installers, training institutes, energy professionals and service providers and the financial sector.



UNIDO-IREDA SOFT-LOAN SCHEME

UNIDO has partnered with IREDA (Indian Renewable Energy Development Agency) to develop and implement an innovative finance/loan scheme to further promote the deployment of CST projects in India for heating and cooling applications in selected industrial sectors to reduce energy consumption and Greenhouse Gas (GHG) emissions. The highlights of the currently available financial incentives are as follows.

- ✓ The beneficiary's or project developer's contribution would be 25%.
- ✓ The financial incentives provided for CST installation include CFA (Central Financial Assistance) from MNRE at 30% of the benchmark solar project cost, and tax benefit from the government (depreciation benefit).
- ✓ Additional support is available from UNIDO project in terms of technical feasibility and soft loan from IREDA.
- ✓ Bridge loan against subsidy and at normal interest rate would be available.
- ✓ Support is available also for improving the manufacturing of CST system/components.

Loan for the CST project would be provided at an interest subvention of 5% from the current rates using funds under the project.

Both the loan and MNRE subsidy would be bundled in form a financial package by IREDA.

Eligibility of an entity willing to apply for financial assistance from IREDA would be checked according to IREDA's guidelines to set up a solar thermal heating/ cooling/ tri-generation project.

The project developers and beneficiaries may contact UNIDO for further information on the loan scheme and the technical support available from UNIDO for CST projects for industry process heat applications.

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