News for the month of December 2016…

Remarkable achievement by GEF-UNDP project on concentrated solar thermal

The Global Environment Facility – United Nations Development Programme (GEF-UNDP) project on market development of concentrating solar thermal heating (CSH) technologies for industrial process heat applications has achieved remarkable performance as it nears completion period. It is implemented by Ministry of New & Renewable Energy, Government of India.

The project started on 28th March, 2012 having duration of 5 years (ending 31st March, 2017) received US$ 4.40 million support from GEF. The objective is to increase the use of CSH systems for low and medium temperature process heat applications with a target of 45,000 m2 of CST area by organizing market development programmes, developing knowledge documents and removing barriers

Until November 2016 a total of 132 projects close to 40,000 m2 area have been sanctioned so far of which 67 projects with 15,000 m2 have been already commissioned. It also includes 16 projects with 3,750 m2 for repair & renovation. So far about US$ 3.10 million have been already spent on various activities. Of this US$ 0.80 million have been spent during 2016 itself.

During the period major milestones have been achieved

1. First time in Asia, two test set ups (both mobile & immobile) are in place at School of Energy Studies, University of Pune & National Institute of Solar Energy (NISE), Gurgaon.
2. 60 awareness programmes & 20 training programmes have been organized for various stake holders
3. On line performance monitoring made mandatory for all field projects supported under the project. Data has started coming from 20 installations and for another 80 systems it is expected by the end of year
4. 20 knowledge documents developed as per list below (List as below),
    - *59 numbers of monthly e-Newsletter www.insolthermtimes.in*
    - *13 issues of Quarterly magazine SUNFOCUS.*
    - *Operation of National Toll free Helpline 1800 2 33 44 77 (since 2013)*
    - *New website developed www.cshindia.in since 2014 giving details of the concentrated solar thermal achievements in India*
    - *15 numbers of video films & successful case studies*
    - *Information for users on suitability of technology including cost & payback*
    - *Calendar showing showcase CSH systems installations (2014-15 & 2016-17)*
    - *Compendium with photographs on 100 installations each with 2 pages covering all information*
    - *Performance norms for various CSTs in terms of anticipated heat delivery in different regions*
    - *Training Manuals on operation & maintenance (O&M) and troubleshooting of various CSH systems in Hindi & English*
    - *Technology Assessment report on various types of CSH systems in country & internationally*
    - *Report on manufacturing facilities for CSH in India*
    - *Technology brochures, 4 page fold on each of the CSH systems giving details, photographs, schematic diagram, utility, performance, cost, savings etc.*
    - *Information packages for industries providing mapping of their industrial processes & possible intervention of CSH systems*
    - *Ready to use financial instrument for industries to understand economics of CSH*
    - *Bankers Manual for appraisal of CST proposals for loans*
    - *Booklet on Case Studies*

Also material & component specifications booklets of 6 CSH systems are developed to act as reference document for ensuring quality in the field. These booklets are helping developing draft BIS standards that

are under progress on various types of CSH systems. The drafts prepared are currently widely circulated by BIS for comments before finalization and publication.

http://www.cshindia.in
http://www.mnre.gov.in

Frontier Knitters sets up solar steam process heating system

(Photo courtesy: A.T.E. Enterprises)

Frontier Knitters (P) Ltd., Tirupur have recently set up a 44 m2 roof-mounted Compound Parabolic Concentrator (CPC) in Tirupur in Tamil Nadu State. This system will generate 1,500 litres per day of hot water at 95 ^{O}C. This pre-heated water is used as feed water to the boiler. Steam is used at various stages of manufacturing processes of garments. To ensure availability of heat on demand, an insulated hot water storage system is also provided. The system was designed and executed by A.T.E. Enterprises Private Limited, Pune. The solar thermal steam system is established with the objective of reducing the carbon footprint of the operations and as a part of sustainable development.

Compound Parabolic Concentrators (CPC) is used in industrial application where medium pressure steam at around 150^{O}C is required as Flat Plate Collectors (FPC) are not efficient enough to deliver water at temperature more than 100 ^{O}C. The name CPC may suggest that this collector also belongs to the family of focusing collector, but in fact this is more alike to FPC, due to its mostly fixed orientation and medium temperature water delivery. Considering the temperature demand under 100^{O}C hence CPC was found to be the ideal solution. Since sloping roof was available facing south hence it made installation ideal.

This project is designed to provide an annual diesel savings of about Rs. 3,00,000 and will payback in less than 3 years after accounting for the capital subsidy received from Ministry of New and Renewable Energy (MNRE) and applicable incentive under GEF-UNDP. They have also availed the accelerated depreciation benefit under Section 32 of the Income-tax Act, 1961.

Established in the year 1987, Frontier Knitters, is a coveted manufacturer, supplier and exporter of a quality assortment of sports, men, ladies and kids wear.
http://frontierknitters.in/

Solar Payback kicks OFF in India

Photo: Kick-OFF meeting attended by German Solar Industry Association, Indo-German Chamber of Commerce and Solar Thermal Federation of India (STFI), courtesy: STFI

Solar Thermal Federation of India (STFI) partners along with Indo-German Chamber of Commerce (IGCC) in an international project 'Solar Payback' to disseminate the market potential of solar thermal applications for industrial process heat. With support under the German Federal Ministry of Environment, the project will be implemented in Germany, India, South Africa, Mexico and Brazil. The German Solar Association (BSW) is the lead partner in this project. It commenced in India from 16th December 2016 and will last up to August 2019 and will be executed by STFI. The aim is to raise attention for the huge market potential of solar process heat, which is still playing the role of a relatively new niche technology in the above mentioned countries.

'Solar Payback' is part of the German International Climate Initiative (IKI) which financed climate and biodiversity projects in so called developing or emerging countries since 2008:

Almost 15 million tones fuel oil is consumed in annually for heat up to 250 ^{O}C alone in industries & close to 5,000 trillion kWh of electricity for heating. Industrial sector accouns for 38% of total energy consumed in India. Energy efficiency measures and renewable energy sources offer hope for conserving up to 25% of the industrial energy requirement. The country has close to 10,50,000 m2 of solar thermal installation of which, nearly 35% is for industrial process heating using technologies from flat plate to concentrated dishes and compound parabolic collectors. The saving potential is enormous, payback times are surprisingly low. Considering the vast requirement for industrial process heat there is plentiful of scope for exploiting the market size. Solar thermal applications for industrial process heat could change India's energy supply for many producing industries.

Solar Payback is concentrated on in-depth technology information for an efficient project development as well as strengthening the sector through capacity building workshops for manufacturers as well as potential end-users. It follows a market oriented multiplier concept and works closely together with the STFI, Indo-German Chamber of Commerce, relevant industry associations, project developers, energy consultants, and energy service companies (ESCOs) will closely work in realising the objectives. Further the development of business and financing models by energy service companies (ESCOs) and financial institutions as well as the optimisation of installed projects to improve the efficiency of the technology is also intended. Finally, political decision makers will be informed and enabled to improve the legal framework.

'Solar Payback' is likely to coin a radical hope for solar thermal process heating in India and increase the confidence of industrial customers to implement and supplementing carbon based fuel.

BSW Solar with its around 1,000 member companies is one of the largest lobby organisations for solar electricity and solar heat in Germany headquartered in Berlin.

Solar Thermal Federation of India (STFI) founded in 2010 is the voice of solar thermal industry in India comprising of country's low temperature solar thermal manufacturers that constitute 80% of the market.

IGCC promotes Indo-German Economic Cooperation since 60 years with its almost 100 professionals in India and Germany and over 6,000 company members in both countries.

https://www.international-climate-initiative.com/en/?iki_lang=en&cHash=3fa9cbdf06d5d23e1efb5e0e740f9260
http://indien.ahk.de/about-us/
http://www.stfi.org.in/
https://www.solarwirtschaft.de/en/start/english-news.html

Steady growth witnessed SPPU National Test facility

Photo: Test-set up at Savitribai Phule Pune University (courtesy: STFI)

Ever since the national test facility for testing Concentrated Solar Thermal (CST) technologies was set up at Savitribai Phule Pune University (SPPU), Pune in July 2014 it has been witnessing a steady growth and benefitting the manufacturers as well as the start-ups on understanding their system performance. The test facility was set-up under the UNDP-GEF CSH project implemented by the Ministry of New and Renewable Energy (MNRE) and is a crucial development in the interest of manufacturers. For ensuring the quality of products as per the norms laid down by MNRE manufacturers of CSTs need to get their collectors tested from either SPPU or National Institute of Solar Energy NISE. Presently this testing is free of charge however post completion of the GEF-UNDP programme the testing will be on chargeable basis.

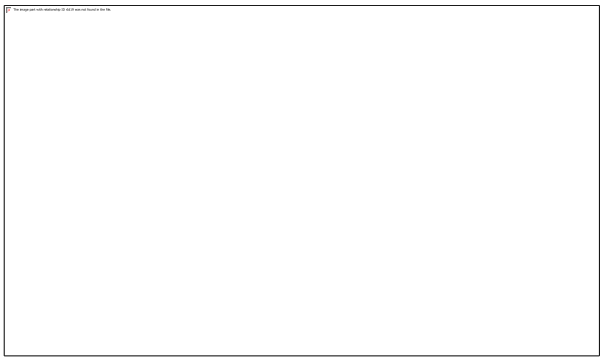
The immobile test bed is used for dish sizes under 32 m^2. It uses steam/pressurized water as well as thermic fluid. For system sizes greater than 32 m^2 the mobile test facility is used directly on the field. Thermal tests on the CST based solar collectors are performed to evaluate the extent of their capability to provide useful thermal output under given climatic conditions. The test methods suggested in the detailed Project Report (DPR) prepared under the same project by a consortium of SPPU and other parties are being followed for testing the CSTs.

So far seven CSTs of different manufacturers are tested using immobile test facility and four numbers of CSTs are tested using mobile test facility. One positive outcome of all the systems tested was that they all met the acceptance criteria as laid by MNRE. As an example these systems were able to achieve optical efficiencies between 0.64 – 0.69.

Establishment of a world class CST component test laboratory is planned in near future for quality as well as durability checking of the components for better system performance and life. Further to ensure that complete testing solution is offered the authorities at SPPU have demanded for component testing facility like accelerated testing of mirror's, salt spray testing for coastal installations, humidity chamber, advanced photo spectrometer, etc. MNRE is shortly planning to give status of Regional Test Centre to the SPPU testing centre.

http://www.unipune.ac.in

IREDA launches interest subvention scheme



The new interest subvention scheme of 5% interest subsidy for Concentrating Solar Thermal (CST) technologies administrated by the Indian Renewable Energy Development Agency (IREDA) is now open for applications. The scheme is developed in cooperation with the GEF-United Nations Industrial Development Organisation (UNIDO) programme.

The interest subvention will be applicable on 30% of the project cost while regular lending rates of IREDA will be applicable on 45% of the project cost as bridge loan. The beneficiary contribution will have to be 25%. The minimum loan amount has to be Rs. 50 lakh with seven years repayment period including 1 year moratorium. As a security hypothecation of assets will be considered. Even ESCO mode projects can avail of this benefit.

In the past, manufacturers were forced to pre-finance the 30 % subsidy when delivering the system, and they sometimes had to bear the financial burden over several months before getting disbursed by the MNRE. This scheme will provide financial relief to manufacturers and developers of obtaining quick finance and also take care on the growing number of proposals and the size of CST projects with time.

Currently the subsidy scheme is under the administration of Ministry of New and Renewable Energy (MNRE), in addition to fiscal incentives offered by other state-government schemes and international agencies, which requires several windows for application. IREDA's new, innovative interest subvention scheme from the GEF-UNIDO-MNRE programme thus offers the beneficiary faster processing because administration of the 30 % subsidy scheme has been transferred to IREDA as well.

To minimise the risks of long-term loans and to increase system performance, UNIDO insists on a detailed technical project report with fully integrated engineering and a long-term maintenance contract when applicants ask for the financial support package at IREDA.

The GEF-UNIDO project objective is 'Promoting business models for increasing penetrations and scaling up of Concentrated Solar Thermal (CST) technologies for process heating and cooling applications in the industrial sector targeting newly installed 45,000 m2 concentrating solar thermal collector area.

More details with Dr Anil Misra, National Project Manager, UNIDO (a.k.misra@unido.org).

http://www.ireda.gov.in/

Awareness Workshop at "India One" project held successfully

Photo: Participants at the CST Training Workshop, courtesy: CST Awareness & Training Center, WRST

A two day awareness workshop on Concentrating Solar Thermal (CST) Technologies was organized by CST Awareness Cum Training Center, World Renewal Spiritual Trust (WRST) on the 26th and 27th November, 2016 at "India One" Solar Thermal Power Plant, Abu Road in Rajasthan state. It was the 7th such programme as a part of Development of awareness cum training centre on Concentrating Solar Thermal Technologies (CSTs) under UNDP-GEF project. The objective of the workshops is to create awareness among various groups of stakeholders from industries, institutions & commercial establishments through seminars/workshops/ demonstrations that will motivate them and thus enable market development

There were a total of 26 participants drawn from entrepreneurs, consultants, state nodal agencies officials, academicians, scholars and industrialists interested in developing or applying concentrated solar thermal technologies.

The two days of event provided with insight about MNRE and UNDP-GEF policies and support, besides salient case studies for medium and high temperature applications were shared. An interactive session where end users requirements were discussed was also held. The first and oldest solar steam cooking system at Brahma Kuamris Gyan Sarovar, Pandav Bhavan, and one of the largest solar steam cooking system at Shantivan campus and "India One" solar thermal power plant were visited. Besides participants also visited the demonstration cum awareness and training center of various types of concentrated solar systems are set-up.

The "India One" Solar Thermal Power Plant has been conceptually commissioned and is planned to be fully commissioned in the coming weeks.

In 2014 the World Renewal Spiritual Trust was awarded with an assignment of Development of Awareness Cum Training Centre on Concentrating Solar Thermal Technologies (CSTs) under UNDP-GEF Concentrated Heat Technologies Project, the Ministry of New and Renewable Energy, Government of India.

http://www.india-one.net
http://www.facebook.com/indiaonesolar
http://www.cshindia.in