

News for the month of October 2015

Cairn India solves their waste water problem through solar energy



Cairn India, part of the Vedanta Group operates ~27% of India's domestic crude oil production. It has a portfolio of 9 blocks in India, Sri Lanka and South Africa.

While Exploration several thousands of gallons of waste water is generated which is contaminated with oil and minerals which cannot be thrown in the desert or river basins, this was a major issue and they needed a solution for speedy thermal evaporation. They however make use Solar Ponds to evaporate this water. After analysing several options and in order to find a solution for expediting evaporation process they decided to go for a solar thermal based waste water evaporation on pilot scale at Barmer site in Rajasthan and approached Taylormade Solutions, one of the manufacturers of concentrated solar thermal systems in India.

To take this project as a pilot study, it is agreed upon to install 8 parabolas of 32 m² for evaporating 10,000 liters of waste water per day. The project was commissioned in April 2015 and is successfully operating.

The Waste water is electrically pumped on a metal open tray coated with marine grade paint. The water is further made to fall by gravity on the receivers of the concentrated solar thermal that have temperatures in excess of 1000 °C. The falling water on the receivers will start evaporating and the rest of the water which will not evaporate is heated up. The heated water sent in the nearby Solar Pond and the cycle is repeated continuously.

To control the flow of water, a level indicator with a controller is installed, to make the process completely automatic.

The project is running without any problems since its inception and following the successful pilot Cairn India is planning for bigger size projects

The total investment in this pilot project was little over Rs. 60 lakh and was self-funded. The applicable capital subsidy from Ministry of New and Renewable Energy and additional support under the UNDP-GEF was also availed that has helped in improving the economics

Cairn India is one of the largest independent oil and gas exploration and production companies in India with a market capitalisation of ~ US\$ 7 billion.

<https://cairnindia.com>

Residential Workshop for State Govt. officials on CST



World Renewal Spiritual Trust (WRST) organized a two day residential workshop from 8-9 October, 2015 on concentrated solar thermal (CST) systems for the Senior Officials of State Nodal Agencies (SNA's) & other Government Departments at Mount Abu as a part of the UNDP-GEF CSH Project. It was with the aim to boost installation of Concentrating Solar Technology (CST) based systems for community cooking, laundry, process heat and space cooling applications in the country and give exposure to some show case installations.

13 states were represented by senior officials from respective SNAs and other government bodies. Dr. R.P. Goswami (Director, MNRE), Dr. A.K. Singhal (National Project Manager - UNDEP-GEF program) and Bhanu Pratap Singh, CEO of Himachal Pradesh Energy Development Agency (Himurja) and Dr. S.K. Singh (Director of National Institute of Solar Energy) chaired various sessions.

Technical sessions on existing CST applications, were addressed by senior officials of Ministry of New and Renewable Energy (MNRE) and UNDP-GEF project team . All states shared their current status of CST developments, as well as challenges and plans for the future. Key actions were defined and will be followed up by the identified bodies.

Delegates from Ramakrishna Mission Students Home (Chennai) and Navodaya Vidyalaya Samiti (Jaipur) shared their experiences as end users on institutional cooking and currently used CST based systems, based on which the inputs were proposed for further developments such as storage system and possibility to prepare the whole range of meals. The challenges were addressed later on by a WRST expert presentation on direct solar cooking with the new concept of a fixed focus paraboloid dish with receiver cum heat storage with cooking surface.

Detailed analysis and explanation of the criteria and procedure to select the most optimal CST based system based on heat requirements and DNI availability was presented by Dr. S.K. Singh, Director of National Institute of Solar Energy (NISE). He informed selection tool considering the application requirements and location will be soon made available for all interested stakeholders via on-line application.

Four manufacturers of various CST based systems shared the salient features of their respective solutions, together with case studies.

Field visits to several installations in and around Mt. Abu were also undertaken to get first-hand knowledge and witness the latest developments undergoing.

The workshop created an interactive, informative and conclusive platform for sharing and discussing various support available from MNRE, UNDP-GEF assisted CSH Project and updates on new developments, challenges and opportunities from all CST stakeholders such as beneficiaries, manufacturers, installers and policy makers.

<http://www.mnre.gov.in>

<http://www.brahmakumaris.org/whatwedo/globalinitiatives/environment.htm>

Meet addresses potential of CST in dairy industry



A national level workshop to explore the business development of use of solar thermal in dairy processing industries to its fullest was organized in New Delhi on 12th October 2015. It primarily addressed the shortcomings that is preventing its optimal use. The Workshop was organised by United Nations Industrial Development Organisation (UNIDO) programme in India on industrial solar thermal heating for Ministry of New and Renewable Energy (MNRE).

The applications within the dairy sector include pasteurization, spray drying, washing etc. which require hot-water/ steam which can be best fulfilled by a typical concentrating solar thermal system delivering heat up to 150 °C. Modern day dairies in India are vastly getting organised and the processing of dairy products is done using semi-automatic and automatic equipment.

In his inaugural address, Ashok Kumar Angurana Secretary, Department of Animal Husbandry, Dairying and Fisheries, under Ministry of Agriculture discussed about the critical linkage in between food security and energy security. He highlighted the importance of the Workshop for the dairy industry to understand how application of solar thermal technology can provide process heating/cooling needs of the milk industries.

India has already showcased the success of solar thermal systems in the dairy sector using variety of technologies Scheffler and ARUN™ dishes besides low temperature solar water heater and is presently the pilot to the world.

Anil Misra, UNIDO Representative and Director, Regional Office South Asia mentioned that the workshop was very timely and aptly placed as it targets the dairy sector, which has an impact on almost every individual of the nation.

Secretary, MNRE strongly conveyed the message that renewable energy technologies in the world have come a long way and are moving fast, although the poor people of the country are still facing the most severe ill effects of the conventional fuels. Reliability of RE technologies is consistently improving with higher efficiency systems and better storage options are now available.

The economic incentives provided for CST installation include MNRE subsidy at 30% of the solar project cost, tax benefit from the government of India and the additional financial support under the UNIDO project to reduce the loan interest from IREDA for CST projects.

It was announced that a Memorandum of Understanding is expected be signed between MNRE, Department of Animal Husbandry, Dairying and Fisheries, National Dairy Development Board, Indian Dairy Association, Indian Renewable Energy Development Agency and Solar Energy Corporation of India in November 2015.

Anil Misra, National Project Manager, UNIDO can be reached at a.k.misra@unido.org

India to anchor global solar alliance



Government of India announced its post-2020 'climate action plan', promising to reduce emission intensity by 33-35% by 2030 over 2005 levels. It will meet 40% electricity generation through renewable energy sources and add forest cover to remove carbon dioxide from the atmosphere amounting to 2.5-3 billion tonnes of carbon dioxide.

The country is anticipating a power demand of 800,000 MW by 2030 and 40% of renewable energy amounts to 320,000 MW, which also includes nuclear and large hydro.

Government has also decided to anchor a global solar alliance, INSPA (International agency for solar policy and application), of all countries located between the tropics of Cancer and Capricorn.

The climate action plan of an individual country is called the Intended Nationally Determined Contribution (INDC) in climate change negotiation parlance. Environment Minister Prakash Javadekar said "India's INDC is fair and ambitious, considering the fact that India is keen to attempt to work towards a low carbon emission pathway while simultaneously endeavoring to meet all the developmental challenges that the country faces today."

The Minister also announced to reduce the emissions intensity of its GDP 33-35 % by 2030 from 2005 level. India cannot be compared to China, despite roughly similar population sizes, as its per capita emissions are much lower. According to the World Resources Institute, India's per capita emissions are 2.44 metric tonnes to China's 8.13 metric tonnes. Though India is the third largest emitter -fourth, if one counts EU as a single entity -it accounts for less than 7% of greenhouse gases (GHGs). While US and China have agreed to converge at 12 tonnes of CO₂ per capita by 2030, India is still far lower than these emission levels.

The government would seek the assistance of developed nations to help with technology and finance to meet an estimated US\$2.5 trillion needed to support climate change actions from now to 2030.

Solar thermal systems traditionally do not generate power rather generate heat. Tarun Kapoor, IAS Joint Secretary (Solar), Ministry of New and Renewable Energy said "solar thermal systems do not directly generate power but will definitely play a role in the INDC and will contribute by way of carbon dioxide savings by avoiding burning of fossil fuel."

<http://pib.nic.in/newsite/mbErel.aspx?relid=128403>

Mexico's first evacuated tube manufacturer



Frantor has become the first domestic evacuated tube manufacturer in Mexico and is expected to start manufacturing 80,000 tubes per month in 2018 in Jalisco state in western Mexico. It also plans to provide the tubes to other Mexican producers, as well as to companies across the Americas. The equipment to produce these tubes will come from a Chinese supplier whose name has not yet been disclosed.

Frantor offers a wide collector range across three product lines with 70 different models and was one of Mexico's first solar water heater suppliers, which started importing evacuated tubes around 10 years ago. Sales Manager, Hector Franco, said the company sold 46,800 water heater sets in 2014 with 2 m² each consisting of 15 imported vacuum tubes each.

Franco, said: "We are currently solving some issues we have had with the transformer and electrical substation and we are still waiting for some machinery to arrive from China, but we expect to start by 2018." He added that the company was currently building a new 5,000 m² factory to house the vacuum tube furnaces and that Frantor had already completed 5,200 m² of new premises. At the beginning, the company expects to produce tubes only for use in their own collectors. In this first phase, it plans to produce all the components required for collectors on its own (thermal tank, support structures, reflectors and vacuum tubes). In a second phase, Frantor is said to expand its production line and sell tubes to some other Mexican vacuum tube collector manufacturers which focus on the Mexican market and which currently import vacuum tubes from China or Turkey. In a third phase, Frantor plans to enlarge the tube production line even more and supply the Americas.

According to Franco, the National Council of Science and Technology, CONACYT, granted subsidies of Mexican Peso (MXN) 4,149,236 (USD 244,000) during 2013 and 2014 for the purchase of machinery. The company expects to obtain more funds from other sources over the following months.

The annual demand for evacuated tubes in India is presently close to 80 lakh pieces and if such financial support can be extended to local manufacturers then hopes for "Make in India" is feasible and can to a greater extent resolve the issue of cheaper products.

<http://www.frantor.com>

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