

News for the month of November 2015

White paper on International Solar Alliance



Government of India has released white paper on International Solar Alliance International Solar Alliance (ISA) is a Partnership initiative to establish with membership from the solar resource rich countries lying fully or partially between the Tropic of Cancer and the Tropic of Capricorn. 121 countries and territories have been identified. It has the highest level of support from India. Prime Minister of India visualizes ISA as a potent tool for mutual cooperation among the member countries for mutual gains through enhanced solar energy utilization. In a meeting on 30 July 2015 the idea received high level support when the Honourable Indian Minister for Renewable Energy convened a meeting of representatives of prospective ISA member countries in New Delhi.

The overarching objective is to create a collaborative platform for increased deployment of solar energy technologies to enhance energy security & sustainable development; improve access to energy and opportunities for better livelihoods in rural and remote areas and to increase the standard of living.

The UN General Assembly Resolution A/RES/36/193 in 1981 underlined the need for cooperation among developing countries and mobilization of financial resources for new and renewable sources of energy.

International Solar Alliance (ISA) is conceived as a coalition of solar resource rich countries to address their special energy needs and will provide a platform to collaborate on addressing the identified gaps through a common, agreed approach. It will not duplicate or replicate the efforts that others like IRENA, REEEP, IEA, REN21, United Nations bodies, bilateral organizations etc. that are currently engaged in, but will supplement their efforts in a sustainable and focused manner.

There is a gap at present in the application of solar technologies and arises primarily from lack of systematic information about the on-ground requirements as well as scarce opportunities for capacity building and training of users of technologies and finally, a shortage of suitable financing arrangements to make new technologies affordable to very poor users who require them. The potential energy from sunlight which shines on these countries throughout the year should be harnessed and used to transform lives through simple solar energy that already exist and need to be scaled up and made accessible where they are needed.

ISA will have five key focus areas:

- a. Promote solar technologies and investment in the solar sector to enhance income generation
- b. Formulate projects and programmes to promote solar applications
- c. Develop innovative Financial Mechanisms to reduce cost of capital
- d. Build a common Knowledge e-Portal: and
- e. Facilitate capacity building for promotion and absorption of solar technologies and R&D among member countries.

These focus areas will cater grid connected solar power projects, solar thermal systems largely for water heating and cooling and also decentralised off-grid solar systems. These activities will contribute significantly in employment generation in a decentralized manner at the local levels, and also in spurring economic activities.

ISA's proposed governance structure would consist of an Assembly, a Council and a Secretariat. However, it will be subject to member countries' deliberations and suggestions.

Government of India will support ISA by hosting its Secretariat for an initial period of five years and thereafter it is expected to generate its own resources and become self-financing. Till a separate infrastructure is created, ISA secretariat will be located the newly built "Surya Bhawan" [Sun House] in the premises of - National Institute of Solar Energy (NISE). The total Government of India support including putting normative cost of the land will be Rs 400 crore. Of this Rs 175 crore will be utilized for creating building infrastructure and recurring expenditure. The recurring expenditure on ISA will be met from membership fee; contributions from bilateral and multilateral agencies; other appropriate institutions; and also from interest earned from the augmented corpus to be built up with contribution from bilateral, multilateral agencies and other appropriate institutions.

Globally all solar energy announcements focus on Photovoltaics (PV) but the objectives of ISA has equally admired the solar thermal technologies. This will likely foster trade within the countries and help solar thermal manufacturers to look beyond

Francois Hollande, President of France commented "I welcome this initiative because if (these) countries can formulate ambitious targets for renewable by modifying regulatory frameworks for financing and improving technologies for lowering price of solar energy, then it will be a major contribution to the implementation of climate agreement."

"ISA can provide a unique focus in supporting global efforts to increase the uptake of renewable energy through the development of solar policies, the promotion of applications to reduce poverty and the facilitation of energy access. I welcome this initiative by an IRENA Member Country and the Chair of the IRENA Council, India, and look forward to supporting ISA member countries in all possible ways" said Adnan Z. Amin, Director General, IRENA

<http://mnre.gov.in/file-manager/UserFiles/ISA-Working-Paper.pdf>

Workshop on CST systems successfully held at Intersolar India 2015



The Ministry of New and Renewable Energy, government of India in association with the organizers of Intersolar India 2015 under the banner of UNDP-GEF project on Concentrated Solar Thermal (CST) heat successfully organised an International workshop on Concentrated Solar Technologies on 19th November at Mumbai as part of Intersolar India 2015

Industry experts, government officials and the team of the UNDP-GEF concentrated solar thermal addressed to a packed auditorium for the workshop. Dr. A.K. Singhal, National Project Manager in his inaugural speech informed that concentrated solar thermal systems operate at efficiencies of over 50% and given the high radiation falling over India it had huge potential to meet the heating requirements. He later provided with the summary of the activities carried out so far and informed that close to 25,000 m² area from 85 systems was commissioned under the programme so far against a target of 45,000 m². He further said a sample monitoring of 15 already commissioned systems has now revealed that the performance is shoddy and several challenges need to be addressed.

Dr. R.P. Goswami, Director in Ministry of New and Renewable Energy informed that the almost 200 systems installed in the country had set a global example for meeting medium and high temperature heating requirements through variety of applications.

Ana Heimsath of Fraunhofer Institute of Technology, Germany in her presentation shared that worldwide 45% heat applications were in industries and the Asia region top with over 50% heat requirements due to industrialization.

A round table discussion involving industry experts and the programme officials was the highlight of the programme. Dr. S.N. Srinivas from UNDP while praising the developments so far expressed his reservations on several underperforming systems and called on the industry to offer suitable maintenance solutions so as to ensure life time operations. Dr. R.R. Sonde of Thermax Industries requested the government for massive hike the Research & Development funding as the technology is in nascent stage and needs attention for every sub component to be improved for successful operation. This is the only way young scientists and entrepreneurs will be motivated to take it to commercialization and make it look like a bubble. Dr. Ajay Chandak said to check on the underperforming systems it is best to introduce performance based subsidy instead of the present one-time area based subsidy Tobias Schwind, Director, Industrial Solar GmbH, Germany said that Heating Obligations was one of the best solutions for market growth.

MNRE and the team of UNDP-GEF agreed to look into the suggestions provided by various industry and stake holders in order to reach the target set under the programme.

<http://www.cshindia.in>

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

Solar cooking systems commissioned by NTPC



An all-weather cooking solution using Solar Thermal Cooking System is commissioned for first time at an NTPC Dadri station near New Delhi. It is a joint initiative of NTPC Dadri and NTPC Energy Technology Research Alliance (NETRA) at the Main Plant Canteen of the Station. There are two dishes each of 90 m² and set up at a cost of Rs. 66 lakh.

The two solar concentrator's dishes deliver 80,000 kcal/hour at peak capacity to heat the thermic Oil heater. "Cooking time has been brought down and use of LPG is reduced up to 25%" according to Siddharth Malik of Megawatt Solutions (MS), suppliers of the system. For the purpose MS analysed the kitchen operations at NTPC and gave an energy efficient solution to reduce the consumption of LPG.

The Smart Kitchen requires hot thermic Oil at 220°C with net heat output of 1,00,000 kcal/hour for baking, frying and boiling. Solar thermal and Liquefied Petroleum Gas (LPG) energy sources are used in hybrid mode. When sunlight is active the concentrated solar heating system supplies the necessary heat and the balance period uses LPG.

The system has capability to store additional solar energy and makes it available for cooking during by integrating with LPG fired Thermic Fluid Heater for non/lean solar period.

The NTPC project is unique in that it is one of the most advanced solar-LPG hybrid cooking systems implemented. The system is fully automated and is operated by a PLC controller to optimize LPG energy efficiency and solar energy usage for cooking requirements.

<http://www.ntpc.co.in/en/media/press-releases/details/first-solar-thermal-cooking-system-installed-ntpc-station>

Higher temperature system developed by Oorja Energy



Hyderabad-based Oorja Energy Engineering (OEE) has upscaled its earlier 2 m² and 4 m² troughs and developed a 12 m² parabolic trough using evacuated absorber tube. The 12 m² trough can provide temperature up to 300 °C. Such higher temperatures will help the company address the requirement for thermal storage from the industries to enable users to extend the benefits of solar thermal systems to non-solar hours. The tracking system is operated using a slew drive. Presently the system is under test for thermal energy storage using thermic fluid.

The evacuated receiver tube is made of stainless steel pipe carrying the Heat Transfer Fluid (HTF) with outer borosilicate glass. Steel tube pipe and the glass tube are joined using glass-metal welding.

The tubes were successfully tested for its efficiency at German space agency DLR. The company claims that for the 12 m² concentrator that receives roughly 10 KW of solar radiation, losses due to the receiver account for only 200 W.

The thermic fluid based heat storage is using a single tank. However, instead of using a thermocline system, OEE plans to use a movable insulated barrier that would segregate the hot and the cold fluid thus lowering the losses due to convection inside the tank.

OEE plans to get the entire trough tested at any of the testing centres approved in India soon.

<http://www.oorja.in/>

Industry body demands dedicated Harmonized System Codes for imports



India is one of the largest global importer of vacuum tubes used in solar thermal collectors. There is no local manufacturer yet for vacuum tubes in India. The market is an estimated 4 million pieces of vacuum tubes and presently imported under four different Harmonized System (HS) codes each of them having different end use vacuum tube application. Owing to lack of certified standards for vacuum tube based solar collectors some of the traders are taking undue advantage of this situation and falling prey to sub-standard quality with cheaper prices. As a result India has become virtually a dumping ground and the complaints are rising.

The government in March 2015 amended a central excise notification with optional excise duty of NIL without CENVAT credit or 12.5% with CENVAT credit extended to solar water heater and system. This move was seen to curb cheaper imports as traders were required to pay VAT and genuine manufacturers could claim VAT exemption. This condition of availing CENVAT credit for inputs and sell the end product with excise duty did not go well with the industry as they cannot take this route for economic reasons.

Further excise duty exemption on parts for use in manufacture of solar water heater and system is continued, subject to actual user condition. As a result the traders are not only importing vacuum tubes under this Act but also importing other sub-components largely storage tanks. This is taking a hit to domestic manufacturing and if continues will make imported solar collector cheaper from neighboring country China.

The national industry body Solar Thermal Federation of India (STFI) has demanded to create single HS code for vacuum tubes and a separate HS code for the whole solar collector system and its components imported in semi or completely knocked down condition to keep check on cheaper imports. It has also demanded immediate implementation of anti-dumping by immediately announcing standards for vacuum tube collectors.

According to R. Sethuraman "Let this present duty exemption for the vacuum tubes continue with actual user condition. Some additional regulation can be created by Excise department that importers of the tubes should file returns of utilization which should be linked to the systems manufactured. The exemption of CVD for imports under the second HS code can be totally removed for all imports. This will discourage the traders and the manufacturers who import the parts to go for local manufacture, which in turn shall do justice to 'Make in India', carry its full meaning"

Members of STFI had a meeting with senior officials in Ministry of New and Renewable Energy to apprise of the situation and they reacted stating they would be according priority to this matter and follow with the Ministry of Commerce to devise dedicated HS code as suggested. The process for the same has been already initiated and STFI will be consulted suitably.

It may be recalled STFI in a recent event proclaimed that the Solar Mission target be revised to 40 million m² and offers plenty of optimism for domestic manufacturing.

<http://www.stfi.org.in>

Solar Thermal Desalination for Water-hungry California



WaterFX, will set up a project in California will be using parabolic solar thermal energy to bring water to desperate agricultural lands. A modest solar thermal desalination alternative now quietly undergoing permitting inland would produce 5 million gallons of water at a cost of US\$30 million, using a solar distillation process.

WaterFX will use a 24-MW trough-type solar thermal field supplied by SkyFuel to create direct steam from the sun to run multi-effect distillation, desalinating enough agricultural water for reuse to keep 2,000 acres of farmland irrigated each year. A 5 feet by 20 feet wide parabolic trough silver-coated aluminium reflector is used on the solar collector field creating steam for the WaterFX solar still. The solar collecting area and desalination plant would occupy about 1 acre for each 40 acres of farmland it can supply with irrigation. The thermal desalination leaves only about 7 gallons of highly concentrated brine per 100 gallons of intake water.

"The agricultural sector uses about 80 per cent of all the water in California," WaterFX Chairman Aaron Mandell explained. "If only 20 per cent of the water is being used for municipalities, and you reduce that water consumption by 50 per cent, you've only made a 10 per cent impact overall. Reducing agricultural use has a much bigger impact."

Thermal desalination is an ideal application for concentrated solar power (CSP), which turns sunlight to thermal energy. Unlike most CSP, which is used to ultimately drive a steam turbine to generate electricity, in solar desalination the steam is used directly in a solar still to simply evaporate out the waste.

<http://waterfx.co/>