News for the month of June 2016….

Bajaj Auto Limited commissions Arun dish

The Aurangabad plant of Bajaj Auto Limited (BAL), has commissioned the Arun160™ dish concentrated solar thermal water heating system integrated into its existing Liquefied Petroleum Gas (LPG) for meeting its process heat requirements.

BAL requires 38 m^3/hour with a temperature differential of 10 ^{0}C hot water for washing of components etc. in the treatment process. The actual heating requirement based on actual production was assessed as 3,00,000 kcal/hour. Clique Solar suppliers of the system, designed a Fresnel paraboloid collector that provides a draw-off with a flow of 5 m^3/hour from the return header to the hot water generator (HWG). This draw off, by means of a separate centrifugal pump with mechanical seal, is pumped to the receiver of the Arun160™ solar concentrator.

The hot water is delivered back into the return header where it mixes with the return water thereby increasing the return temperature to the HWG. The higher return water temperature then results in reduced LPG consumption at the HWG with consequent fuel cost saving and reduction in carbon footprint due to reduction in emissions.

The collector automatically tracks the sun from start-up in the morning to evening. The solar radiation falling on the low-iron solar grade mirrors is concentrated at the focus at which the receiver is placed. The control system of the dish automatically brings the dish to parking position at the end of the day.

In the period of satisfactory radiation from the Mar 2016 to May 2016, the concentrated solar thermal hot water generation system delivered about 35 lakh litres of hot water resulting in a reduction of about 3,730 kg of LPG.

http://www.bajajauto.com/

Amul Dairy acquires eco-friendly Solar thermal generation

Photo courtesy: Amul Dairy

AmulFed Dairy (AFD), Gandhinagar is the largest dairy in Asia with milk handling capacity of 3.5 million liters per day. Its present annual energy consumption is about 54 million kWh electricity and about 12 Million Cubic Meters Natural Gas. With the objective to acquire eco-friendly generation, eight Single axis parabolic trough each of 6.41 m^2 collector area are commissioned in the roof at an estimated cost of Rs. 1,60,00,000/- that will yield annually close to 650 tons of steam at 17.5 kg/cm^2. The boiler is generating the steam at 17.5 kg/cm2 pressure and steam is injected in main steam grid. From this, it is used for all applications like pasteurization/sterilization of milk, CIP of pipelines and tanks etc.

The parabolic trough have aluminium coating with reflectivity >92%. A receiver tube with selective coating, encompassed by a glass tube is installed at focal point of parabola to concentrate the reflected heat on the water.

Feed water is first injected in three parabolic troughs in series. and the hot water is further taken to second array of three parabolic troughs in series. At this end of second array, water is converted into steam and passed through a moisture separator to convey dry steam to the steam header. Separated water is recycled back to the feed tank through heat exchanger to pre-heat the feed water. The pressure on the plant steam header is maintained at 15 kg/cm2 to inject the steam into main header.

The system starts automatically every morning and is also shut off in the evening time in auto mode. It is regulated through programmable logic controller and all the real time data are stored.

To ensure safety, steam safety valves are installed on each boiler steam outlet line and also on the common steam header. Wind speed is also continuously monitored and the interlocking is made to bring the troughs into stow position in the event of high wind speed.

http://www.amul.com/

Ladakh bags maximum honours at the National Solar Thermal Workshop

Photo: Jigmet Takpa receiving the award from Hon'ble Minister Shri Piyush Goyal

The glittering solar panels on virtually every roof in Ladakh region in the Jammu Kashmir state is a delight to gaze at. Despite in Himalayan territory it gets more than 320 clear sunny days in a year and is undoubtedly India's solar energy leader as the masses happily embrace this cleaner and inexpensive energy option. All this could happen due to the aggressive initiative by Ladakh Renewable Energy Development Agency (LREDA). LREDA is the nodal agency of Ministry of New and Renewable Energy (MNRE), government of India for promoting renewable energy technologies.

So far solar collectors with an area of 17,584 m2 and 2,160 numbers of Solar steam cooking systems with receiver area of 3,120 m2 are commissioned. This development by LREDA so far was recently rewarded by MNRE at the National Workshop on Concentrated Solar Technologies (CST) and Solar Cookers. It was the only nodal agency of MNRE to have bagged maximum awards in solar thermal. The awards were received in the following category:

a) Contribution for Supporting CST Projects by Government Institutions
b) 2nd Position in Category of Special States with Highest Numbers of CST Installations
c) 3rd Position in Category of Special States having Largest Area of CST Installations
d) Appreciation of Effective Implementation Awards for Greenhouses

From 0.1% of the population in the year 2011 to 40% of the population in the year 2015 Ladakh is covered by solar collectors. If all goes well as planned by LREDA the entire Ladakh region will be covered 100% by solar collectors by 2018 says Jigmet Takpa their Director.

The government's decision to subsidise the solar-energy devices between 40% - 90% depending on beneficiary has attracted almost all households to the initiative. Schools, residential homes, hotels and guest houses receive a 50 % subsidy for solar equipment, while government offices enjoy a 90 % subsidy for installing solar energy systems.

One of the product innovations is the greenhouse. The extreme where winters temperatures drop to -25°C make it difficult to harvest vegetables. To overcome this a greenhouse is constructed using three insulated mud-brick walls, and a south-facing area coated with plastic or of glass set at a 45 degree angle. The thermal mass of the north wall is augmented black painted barrels and filled with water. This maintains the temperature that is sufficiently warm for the cultivation of vegetables, even in harsh winters. These greenhouses

are now providing eight times the volume of vegetables prior to acquiring these greenhouses, and have seen their incomes rise by 30%. There are over 3,500 greenhouse successfully working in Ladakh.

Ladakh is jetting ahead to become the first such administered region in India with no use of fossil fuel or wood for heating water.

http://ladakhenergy.org/

Direct subsidy to solar energy manufacturers may be extended

India may extend direct subsidy support for domestic solar equipment manufacturers after it failed to defend existing benefits before a World Trade Organization panel. The government will continue to defend the domestic solar panel manufacturing industry in India. "I can give the subsidy directly to the solar manufacturer, this is permissible under the World Trade Organisation (WTO) law" said Piyush Goyal, Coal, Power and Renewable Energy Minister. The statement perhaps seems to be more in context to Photovoltaic panel manufacturing. Piyush Goyal's statement that the subsidy could move on to the other side of the spectrum, which is to the manufacturers directly makes sense but again it will have to be seen how they structure it and who gets how much support

However solar thermal industry's long pending demand has been to incentive manufacturers as against the end user that was always and continue to be favoured.

According to Madhusudhan Rao of Oorja Energy, most of the players in CST are small companies that do seldom can claim tax credits. "My fear is that developing such an SEZ will not deliver the benefits that players in the solar thermal field are looking for. A good example is Fab City in Hyderabad which was billed as place to build solar PV panels and it has never really taken off."

Sanjeev Kachchwa of K Energy stated "solar thermal industry is helping the nation in conserving more than 40% of its fuel, that is imported, for meeting the heating loads and thus help reduce valuable foreign currency. Hence solar thermal manufacturers deserve to receive subsidy for similar to one proposed for Photovoltaic manufacturers."

http://www.mnre.gov.in

India records positive growth of solar water heaters

The recently launched report Solar Heat Worldwide 2016 offers a comprehensive overview of the global and national market development in the solar heating and cooling sector

The year 2015 again showed a strong decline trend of cumulative worldwide markets. The principal reasons for the strong decline were shrinking markets in China (-18 %) and Europe (-3 %), which together accounted for 85.9 % of the newly installed total collector area. The only positive developments were reported from the other Asian countries (+3 %) including India and from Latin America (+8 %).

India was placed fourth in the cumulative solar water heater market development after China, Turkey and Brazil. India also ranked amongst the top 5 countries in terms of overall market growth year on year basis. India now dominantes the Asian market with a positive growth of 7.0% whereas China (-17.6%) Japan (–13.4%), South Korea (–33.9%) and Taiwan (–3.3%) reported negative growth. Table 1 highlights the top 5 categories featuring India.

Total capacity in operation (glazed collectors) at the end of 2014	China, Turkey, Germany, India and Brazil
Newly installed capacity of glazed collectors in 2014	China, Turkey, India, Germany and Brazil

Table 1: Categories featuring India in the top 5 global scenario

Preview of the 2015 markets

- By the end of 2015 the estimated total capacity of solar thermal collectors in operation worldwide is 435 GWth, or 622 million m² of collector area.
- This corresponds to an annual collector yield of 357 TWh, which is equivalent to savings of 38.5 million tons of oil and 123.8 million tons of CO2.
- The number of jobs in the fields of production, installation and maintenance of solar thermal systems is estimated to be 730,000 worldwide in 2014.

Levelized cost of solar thermal generated heat

- The range for levelized cost for pool heating systems lies between 1€-cent/kWh (Australia, Brazil) and 2€-cent/kWh (Canada, Israel).
- For small thermosiphon domestic hot water systems the levelized cost range between 2-5€-cent/kWh (Brazil, India, Israel, Turkey) and 7-12€-cent/kWh (Australia, China, South Africa)
- Small pumped domestic hot water systems range between 7-8€-cent/kWh (Australia, China) and 12-20€-cent/kWh (Australia, Austria, Canada, Denmark, France)
- For large pumped domestic hot water systems and/or space heating systems levelized cost range between 2-6€-cent/kWh (Brazil, China, India, South Africa)

- Large pumped domestic hot water systems range between 8-14€-cent/kWh (Austria, Canada, Denmark, France)
- Small combined hot water and space heating systems range between 11-19€-cent/kWh (Austria, China, Denmark, South Africa)

http://www.iea-shc.org

Solar water heater manufacturers seek incentives

Photo: Jt. Secretary Tarun Kapoor addressing delegates of solar thermal on pending issues

Joint Secretary (Solar) in Ministry of New and Renewable Energy (MNRE) Tarun Kapoor requested the solar thermal industry bodies to write to Department of Industrial Policy and Promotion for seeking incentives for manufacturing while addressing a meeting on 24th June 2016 at Pune. This will help the markets breed further to take on the path of growth. Until now incentives in solar water heaters were confined to end users and beneficiaries. He also gave assurance that all pending subsidies will be cleared in 2 – 3 months.

Members of Solar Thermal Federation of India (STFI) also demanded mandatory Bureau of Indian Standards (BIS) be implemented. Joint Secretary informed that the BIS standards for ETC are already finalized and under print. Once this is released the necessary order can be released.

Regarding the higher duty structures of component Joint Secretary informed that MNRE has already written to the concerned authority in Ministry of Commerce and awaiting their reply. Subsequently MNRE is also awaiting the reply from Secretary Revenue regarding exclusive Harmonised System (HS) code for evacuated tubes.

Since Municipal Corporations are independent bodies hence MNRE has limitations to imposing compulsory implementation of solar water heater although the GR exists from Urban Development Ministry. However the industry body like STFI will have to approach the respective Municipal Corporations and convince them on the benefits that will pave way for considering mandatory clause.

http://www.stfi.org.in