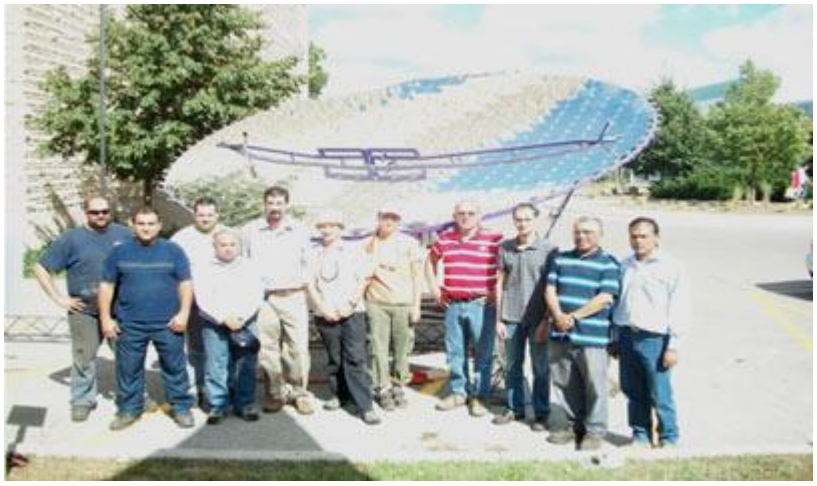
Bhagawati International Limited

Solar Thermal Energy



Solar Thermal Energy System produces steam directly from the Sun. It is simple, durable and scalable. The Solar Steam Generating System comprises of automatically tracked parabolic, solar collector and Steam Generation System. The concentrated sunlight boils.

the water in the tubes, generating high pressure steam for direct use in power generation and industrial heat applications.This system can also be integrated with conventional steam generating system already available with the user to make it reliable under all climatic conditions. In this system, steam can be generated from 2-16 bar pressure. This system is very useful for industrial process heat applications at 80-350oC and more. Air can also be heated directly at high temperature.

Now the Bhagawati group has ventured into Renewable Energy business with focus on Solar Energy. The solar concentrator has been developed and fabricated jointly with co-operation from Western Ontario University in Canada. The solar dish is more specifically referred to as a concentrator. It collects the solar energy coming from sun and concentrates or focuses it on a small area where the very high temperature up to 1000oC can be achieved. The resultant solar beam has all of the power of the sunlight hitting the dish but is concentrated in a small area so that it can be more efficiently used. Glass mirrors reflect ~92% of the sunlight that hits them, can be cleaned, and last a long time in the outdoor environment, making them an excellent choice for the reflective surface of a solar concentrator. The dish structure must track the sun continuously to reflect the beam onto the thermal receiver. This heat energy can further be utilized for generating steam and other heat application across the industry. Countries with one of the best direct normal solar radiation are poised to reap large economic benefit.

One key competitive advantage of concentrating solar energy systems is their close resemblance to most of the industrial boilers and power plants operated by the nation's industry. Concentrating solar power technologies utilize many of the same technologies and equipment used by conventional central station power plants and industry, simply substituting the concentrated power of the sun for the combustion of fossil fuels to provide the energy for conversion into heat application. It also makes concentrating solar power technologies the most cost-effective solar option for the production of large-scale Business and Market Opportunities. With one of the best direct normal Insolation resources anywhere on earth, the States are poised to reap large and as yet largely uncaptured economic benefits from this important natural resource. Many countries are exploring policies that will nurture the development of their solar-based industries. Concentrated solar thermal energy (solar Hot water & steam generation) can be used for many process heat applications e.g.

APPLICATIONS

- In Dairy Industry for pasteurization, cleaning and other thermal processes
- In Chemical Processing plants, galvanizing, Textile and dyeing industries, Pharmaceutical industries, Paper Industry, Textile Mills for cloth processing, Timber Industry for wood seasoning For DRYING applications like turmeric, ginger and fruits, drying, chemicals, paint, paper , herbs etc.
- For space cooling using VAPOUR ABSORPTION REFRIGERATION and AIR CONDITIONING systems
- For BOILER make-up water and feed-water heating as well as steam generation
- In Service Industries like Hospitals, Hotels, Hostels for cooking, bathing, washing, sterilization etc.
- In Cold Storage Units for preservation of perishable food, marine and horticultural products at remote places
- OIL & GAS industry for crude oil heating
- For Solar Co- Generation generating power along with process heat

BENEFITS

- 100% eco-friendly
- Solar Thermal Energy serves as domestic hedge against volatile fuel price
- Zero pollution during operation
- Can be configured to existing system
- No environmental risk
- Hot air at high temperature possible
- Most land efficient solar technology
- User can be eligible for carbon credits

SERVICES

Our skilled human capital, engineering capabilities and experience will be useful in developing small power system utilizing solar thermal energy coupled with waste heat being wasted in many medium & small enterprises. Bhagawati offer turnkey solution for setting-up large and small customized solar concentrated solar steam system, an unparallel, engineering expertise maintaining high standards in terms of quality, efficiency and service. As a project integrator, Bhagawati also offer complete Solar-VAM project solutions including supply of VAMs and its installation, cooling towers, pipeline, insulation, VAM for temperature control systems can also be designed for industries where Heat Energy can be recovered.

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