

Ins & Outs of Integrating Solar Heat into Industrial Processes

October 13, 2015. Solar Heat for Industrial Processes (SHIP) is an important, upcoming market for solar thermal. To support the growth of this technology the IEA SHC Programme and IEA SolarPACES Programme, working with experts in this field, developed guidelines that describe in detail how to incorporate solar heat into industrial processes.

Solar Heat for Industrial Processes (SHIP) has a huge potential for solar thermal applications. In several specific industry sectors, such as food, wine and beverages, transport equipment, machinery, textiles, pulp and paper, the share of heat demand at low and medium temperatures (below 250°C) is around 60%. Tapping into this potential would provide a significant solar contribution to industrial energy requirements.

One of the first steps when integrating solar heat into industrial and commercial processes is to identify the most technically and economically suitable integration point and the most suitable integration concept. Due to the complexity of a heat supply and the distribution in industry, this job is usually not trivial and may dissuade industry from using SHIP despite its advantages over other fuel sources.

Before starting with the detailed planning of a solar thermal system, it is first necessary to know how solar heat can be integrated into the existing processes of a company. The IEA SHC has developed a sector-independent approach outlined in "[Solar Process Heat for Production and Advanced Applications: Integration Guideline](#)".

This Integration Guideline describes in detail how to incorporate solar heat into industrial processes. It includes schematics and descriptions for the different hydraulic modules of a solar process heat system: the primary solar collector circuit, the secondary solar circuit to load the storage, the storage system, the process distribution system and the production process itself. The guidelines depict both generalized and common examples of hydraulic schemes and include descriptions of pressurized and non-pressurized storage systems.

Planners, energy consultants and process engineers can use this general procedure to integrate solar heat into industrial processes, which includes the necessary steps to identify suitable integration points and integration concepts. Others will find value in this Integration Guideline as a training tool for planners, energy managers and consultants.

Another valuable resource of *IEA SHC Task 49: Solar Heat Integration in Industrial Processes* is the most comprehensive online database of SHIP plants (155 plants with a total solar thermal capacity of 101 MWth), which includes information on the integration points in the production processes, <http://ship-plants.info/>.

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Further information:

- IEA SHC website: www.iea-shc.org
- IEA SHC Task 49: Solar Heat Integration in Industrial Processes: <http://task49.iea-shc.org>
- [Solar Process Heat for Production and Advanced Applications: Integration Guideline](#)
- Christoph Brunner, IEA SHC Task 49, c.brunner@aee.at

PRESS RELEASE



About the International Energy Agency's Solar Heating and Cooling Programme (IEA SHC):

- IEA SHC was established in 1977.
- Its objectives are co-operative research, development, demonstration and exchange of information regarding solar heating and cooling systems.
- 20 countries, the European Union and four organizations are IEA SHC members.
- Research topics of the current 7 projects cover: solar resource assessment and forecasting, solar heat in industrial processes, advanced lighting, solar energy in urban planning, solar energy and energy economics in urban environments, new generation solar cooling and heating, and price reduction of solar thermal systems.

Contact information:

- IEA SHC Information Center:
Pam Murphy, communications@iea-shc.org