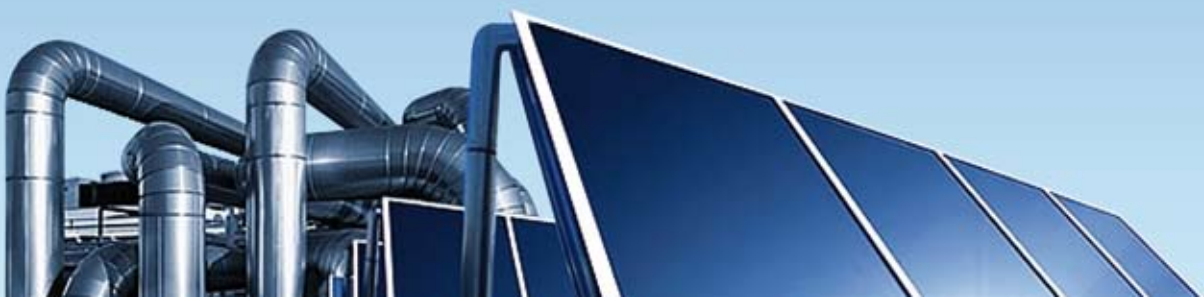
SOLAR PROCESS HEAT

Checklist for companies



Why solar thermal process heat?

Solar process heat is the production of hot water by solar thermal collectors which is used by commercial and industrial companies for process heat purposes. It can be an interesting solution for companies that need process heat at temperature levels below 100° (even better below 50°) during the warmer months.

Solar thermal energy can be used for a range of processes, for example for cleaning and washing, heating of baths & vessels, drying, pre-heating etc.

The solar thermal collectors are usually mounted on the roof. The size of the systems depends on the heat demand, a sufficiently large area is required. The solar system does not need to cover the total process heat demand. A cost optimised system which produces only a part of the process heat demand or is used for pre-heating purposes can be a good solution.

For storing solar heat, a buffer storage is usually necessary, for which sufficient space must be available. The economic viability of a solar process heat installation is generally better if the solar system also supports hot water production or space heating.

Presently, solar process heat is especially relevant for companies that are interested in innovative technologies and in reducing their emissions from fossil fuel based heat production.

Intelligent Energy Europe

O.Ö. ENERGIESPARVERBAND

SOLAR PROCESS HEAT

The SO-PRO project

www.solar-process-heat.eu

While solar heat for domestic and service applications has increasing market shares across Europe, solar process heat is still in a very early stage of market development. In principle, the potential is enormous: about 30% of the total industrial heat demand is at temperature levels below 100°C which can be provided with commercially available solar thermal collectors. However, only about 70 installations in Europe were identified by the IEA Task 33 "Solar Heat for Industrial Applications".

The SO-PRO project activities include - among others - targeted awareness raising for industrial decision makers, training of professionals, development of checklists and planning guidelines and 12 pilot projects. Comprehensive European dissemination activities ensure that the know-how gained is applied around Europe.

National versions of the checklists as well as planning guidelines in German, Spanish, Czech and Slovene as well as further information on the project and its activities are available at the project website www.solar-proces-heat.eu

The SO-PRO project is coordinated by the O.O. Energiesparverband, Landstrasse 45, 4020 Linz, +43-732-7720-14380, office@esv.or.at, www.esv.or.at, www.solar-process-heat.eu

How to use this checklist?

The following checklist is aimed at production companies which have a principle interest in solar process heat. The checklist supports technicians within the companies, their planners and installers to do a preliminary assessment whether solar process heat could be a suitable solution for the company.

The checklist is split into two steps:

- the first step, the "K.O. criteria": if any of these questions is answered with "no", it is rather unlikely that a solar process heat will be economically feasible
- the second step, "O.K. criteria": the more of the questions are answered with "yes", the better the economic and technical conditions for solar process heat are.

In case the results of the checklist assessments are positive for a company, the following options are available:

- if your company is based in Austria, the Czech Republic, Germany, Slovenia or Spain, the partners of the SO-PRO projects are available for further information (e.g. on support programmes, specialised planners etc.)
- if your company is based in another EU country, send the completed checklist to the co-ordinator of the SO-PRO project, the O.O. Energiesparverband in Austria. They will try to provide contact information to specialised organisations in your country.

Obviously, positive results of the checklist are only a first indicator, detailed analysis and planning are necessary to determine the technical and economic feasibility of a solar process heat installation.

Contact details

- **Austria:** O.O. Energiesparverband, www.esv.or.at, office@esv.or.at, Fax: +43-732-7720-14383
- **Czech Republic:** Energy Centre České Budějovice, www.eccb.cz, eccb@eccb.cz, Fax: +420-38731-2581
- **Germany:** – GERTEC Ingenieursgesellschaft, www.gertec.de, klaus.kottsieper@gertec.de, Fax: +49-201-245 64-20
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- **Slovenia:** Energy Agency of Podravje (Energap), www.energap.si, vlasta.krmelj@energap.si, Fax: +386-2-2342361
- **Spain:** ESCAN, www.escansa.com, fpuente@escansa.com, Fax: +34-913234203

CHECKLIST for the company _____

"K.O. criteria"	Yes	No
Does the company need process heat at temperature levels below 100°C?		
Is space available to install solar thermal collectors areas at the company site?		
Is this space oriented towards south/south-east/south-west or on a flat roof?		
Does the company use fossil fuels for process heat production during the summer months?		

If any of these questions above is answered with "no", it is rather unlikely that a solar process heat will be economically feasible.

If these questions are all answered with "yes", solar process heat could be a principle option for the company. Please also complete the answers in the box "O.K. criteria". The more of the questions are answered with "yes", the better the economic and technical conditions for solar process heat are.

"O.K. criteria"	Yes	No
Does the company require process heat from March to September?		
Is process heat required at least during five days a week?		
Is the temperature level of the process heat mostly below 50°C?		
Are there any plans for reconstruction or expansion at the production site for the next years?		
Is there enough space available to install a buffer storage? (e.g. in the basement, in a storeroom or outside, min. 10 m^2)		
Is the use of waste heat or heat recovery from other processes (e.g. from chillers, compressors or economisers) technically or economically not possible?		
Is a pay back period of more than 5 years for energy-related investments acceptable?		
Are energy costs an important factor for the company?		
Are energy consumption data monitored by the company?		
Is there a general interest in the use of renewable energy sources (e.g. for environmental or climate protection reasons, motivated by image considerations or CO_2-reduction targets)?		

More information: www.solar-process-heat.eu

Examples for solar process heat installations

Leitl Beton, Hörsching, Austria

- Production of pre-fabricated concrete ceilings and components
- 315 m² solar thermal collectors
- 3 x 12.000 l buffer storage & 500 l hot water tank
- Total heat demand of 530.000 kWh covered by solar thermal & wood chip installations
- Up to 70% of the annual costs for process heat can be saved

Montesano, La Esperanza, Spain

- Production of meat derivates
- Solar process heat for hot water preparation of the washing system
- 290 m² solar thermal collectors
- 23.000 l buffer storage
- The solar thermal system covers 45% of the total heat demand
- Annual heat production of the solar thermal plant is approx. 314.000 kWh

Steinbach & Vollmann, Heiligenhaus, Germany

- Production of pivots and fittings
- Solar process heat for heating of galvanic baths
- 400 m² solar thermal collectors
- 23.000 l buffer storage
- The solar thermal system covers 30 – 35% of the total heat demand

The SO-PRO project, a project supported by the Intelligent Energy Europe Programme, aims to trigger the starting-up of markets for solar process heat in 6 European regions (Upper Austria, the regions of Castillas y Madrid/Spain, South Bohemia/Czech Republic, North-Rhine Westphalia and Saxony/Germany, the Maribor region/Slovenia).

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