SOLTRAIN

Southern African Solar Thermal Training & Demonstration Initiative

SOLAR HEAT FOR INDUSTRIAL PROCESSES

www.soltrain.co.za

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AEE INTEC

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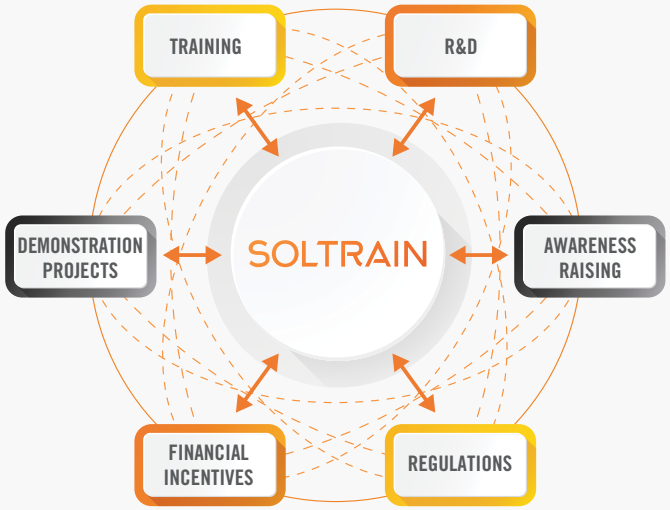
THE PROJECT

SOLTRAIN – the Southern African Solar Thermal Training and Demonstration Initiative - is a regional initiative on capacity building and the demonstration of solar thermal systems in the SADC region. The initiative started in 2009 and is currently in its 4th phase. The initiative is implemented in cooperation with partnering countries - South Africa, Namibia, Lesotho, Botswana, Zimbabwe and Mozambique.

*SOLTRAIN supports the partnering countries by off-setting their **fossil fuel-based heat demand** with **sustainable solar thermal alternatives** across different sectors.*

The **focus areas** of SOLTRAIN include; awareness raising on the potential of solar thermal technologies across the different sectors; building competence of solar thermal technologies within the countries; creating solar thermal technology platforms; and the demonstration of the solar thermal technologies.

This is achieved through the strategies below:



INDUSTRIAL APPLICATIONS

The use of solar heat for industrial processes is becoming more common around the world, offering industry a **cleaner alternative** for supplying the heat required for their day-to-day operations. Common solar thermal collectors have the capability of providing temperatures of **up to 100 ºC**, with concentrating collector technologies capable of providing temperatures well above this. Some of the sectors with processes suitable for solar heat are listed below, amongst others:

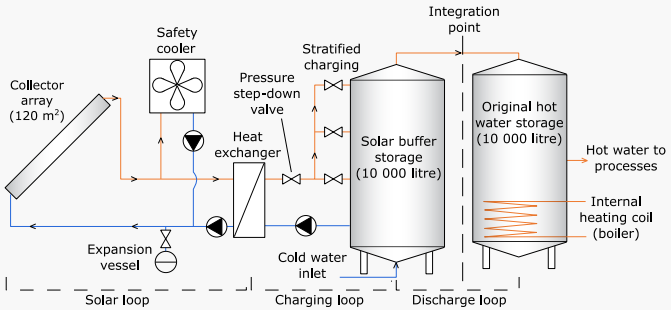
- Food and beverage
- Textiles
- Manufacturing
- Chemical
- Machinery and equipment
- Rubber and plastic
- Wood
- Mining
- Metal finishing

Solar heat allows industries to **offset their use of fossil fuels**, such as LPG, HFO, diesel, paraffin and petrol, in boilers for producing hot water and steam for processes.

SOLAR HEAT APPLICTIONS

SOLAR HEAT

Solar thermal systems can be used by industrial plants depending on the heat requirements of the plant or specific process. In plants that require high temperature, above 100 ºC, solar thermal systems are often used for pre-heating the water supply to a boiler in order to reduce fuel usage.



Solar thermal systems can be directly integrated into industrial processes in which the heat is directly used to regulate and maintain temperatures required for processes. When it is not possible to achieve the desired temperature with solar energy, the conventional heating technology is used. Unlike residential solar thermal systems, each system design for large-scale industrial applications is different and has to be tailored to most effectively meet the heat requirements of the specific process or plant.

SOLAR COOLING

Solar cooling works on the principle of converting the heat generated by the solar thermal system into useful cooling for air-conditioning and refrigeration applications. The solar generated heat is used to drive an adsorption or absorption chiller that acts as a heat sink to produce the cooling effect. Solar thermal projects are especially appealing when used for cooling and heating applications in buildings or processes to maximise operational and financial benefits.

SOLAR DRYING

Solar drying systems offer solutions for the drying of natural and industrial products by removing the moisture content. It is commonly used for the drying of crops, agricultural products and foodstuffs. Solar drying technologies can either operate by exposing material to direct sunlight or make use of enclosed solar collectors for heating air and removing moisture through convective heating.

DEMONSTRATION SYSTEMS

SOLTRAIN has co-funded more than **320 solar thermal systems** to date across the various partnering countries. To date, SOLTRAIN has co-funded 3 solar thermal systems for industrial process within the food and beverage, and textiles sectors of South Africa. These demonstration systems serve as showcase systems for the first of its kind in the country.

SOLTRAIN co-funded the **600 m² solar thermal demonstration system** at a tannery in Oudtshoorn, South Africa. The system provides the tannery with hot water required for their tanning processes. AEE-INTEC also provided technical assistance during the design phase of the project as part of the SOLTRAIN project.

*There are many industry sectors within the SADC region that have not yet explored the benefits of solar technologies for their processes. The SOLTRAIN project aims to **drive and demonstrate its benefits** for the local industries.*

For more information on the project, events, demonstration systems visit the SOLTRAIN website at: **www.soltrain.org.za**

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