



Solar Process Heat Installation

FASA, Spain

Summary description

The automobile brand Renault is a large French company which is present in 118 countries around the world with a workforce of 122,615 employees. In Spain, there are three factories and one technological centre. The analysed case is the Valladolid mechanical and assembly centre, in the Central-North zone of the country.

Background

The automobile industry has heat needs for treatments of bodyworks, painting works, welding, washing and cleaning processes etc. In the described factory, the solar thermal energy is used in the bodyworks sheet surface preparation for the welding process and before the painting.

The solar thermal installation is the result of the company's Environmental Programme, which aims to limit the atmospheric emissions, minimize the waste, optimize water and energy consumption, guarantee the waste quality and prevent the soil pollution. This solar system supports approximately with the 50% of the demand, the NG boilers that provide heat to the previous processes to the weld and painting works.

Technical data

- year of construction solar thermal system: 2007
- temperature level 50 °C.
- heating system to support: NG boilers.
- total energy demand: 254 MWh

Technical data solar thermal installation:

- units: 120 panels Wagner Solar Euro C32 RH
- surface 243,6 m²
- providing 128 MWh/year
- storage tanks: 3 x 5,000 litres

Technical description

The solar heating system has almost 244 m² of surface and is installed in batteries of 5 units. The system is mounted on the floor, because of the lack of space over the roofs.

The NG heating system provided the required energy, 254 MWh/year, but now the solar heat supply 128 MWh/year, covering approximately the 50% of the needs. The process where the solar heat is used is in the degreasing tanks, which temperature is of 50°C, and need water input to maintain the level. With this action, the solar heat avoids an extra thermal input to the process.

The solar system saves 9,200 € every year, placing the payback period in 10 years, due to the great discounts existing to great fuel consumers. The total investment calculated is 150,000 € approx., however, the investment made by Renault only reached a figure just over 100.000 € as the project received grants from local authorities and fiscal deduction of the total investment for the first year.

Results & conclusions

The solar heat can be used in conjunction with the traditional heating systems, like NG boiler, reducing part of the energy bill of their owners. It's technological, economical and environmental feasible, and more and more it's being an option chosen by industrial companies.

Nowadays, most industrial companies have green or environmentally friendly programs to improve their impact and improve their public image, in addition to improve the energy bills in case of renewable energies or energy efficiency. For this reason, the solar heat could be a safe investment if they want to fulfil the goals proposed.

In the actual economical situation, it's important the local and national administrations support to improve the installation levels of renewable technologies like solar thermal energy and help the companies in the initial investment.

When the solar heat it's going to be placed in an industry building, sometimes there is a problem with the space. The roofs of the buildings can have installed equipment of the processes, like air conditioning and heating machines, so it could be a barrier too to carry out the installation.

