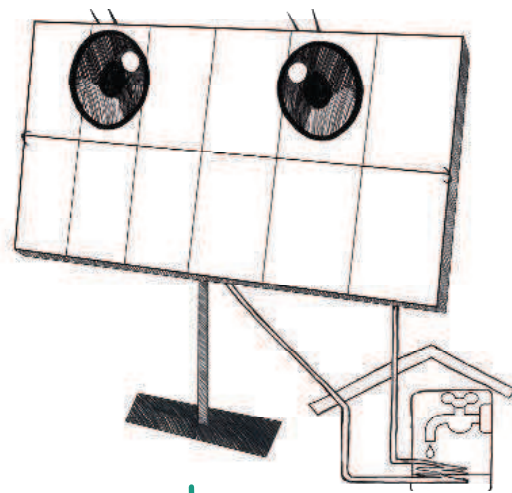


Water heated by the sun



A short story

Solar thermal systems work much like a greenhouse. They involve simply trapping sunlight to concentrate its heat, and then use it for domestic purposes: heating water in your home!



How do they work?

The small glazed thermal collectors capture sunlight and transfer its energy to metal absorbers. These then heat up a network of copper pipes through which a «heat-transfer» fluid (this can be water or air) circulates. This exchange makes it possible to heat water stored in a water heater. Installing solar thermal panels is one of the most popular and efficient ways to save energy. Such systems use the sun to heat the majority of the domestic water used in a home.

For a water heater, a 200–300 litre tank is usually appropriate for a four-person household and will require a thermal panel of between two and four square metres, depending on levels of sunshine. Most solar thermal collectors have a yield of around 80%. The different types of collector available are:

- Unglazed collectors: the heat-transfer fluid is contained in black plastic tubes. This system is not an economic option for producing water at a temperature of 60°C and is often reserved for heating water in swimming pools
- Glazed flat-plate collectors: the glass is treated to prevent radiation and facilitate a greenhouse effect. Offering good value for money, these collectors produce an excellent yield during summer and are ideal for heating domestic water
- Evacuated tube collectors: these prevent heat loss. They are more expensive, and are particularly effective for heating water to high temperatures (more than 80°C)



Savings

As in single-family homes, up to 60% of hot water needs in apartment buildings can be covered by solar energy if a system of the appropriate size is installed. This offers a genuinely effective, economical and environmentally friendly solution. You can reduce your hot water bill by up to 75%. For example, a family of five using a solar water heater will save 1500 kWh of electricity per year.

How much do they cost?

The cost of installing an individual solar water heater, comprising between three and five square metres of collectors and a 200–300 litre hot water tank ranges from €5,000 to €10,000. A family of three to four people, for example, will need collectors covering a surface area of around four square metres. It should be noted that integrating the collectors with your roof may incur additional costs.

Good to know

Solar thermal systems are 100% recyclable! All of the components can be recycled: the panel (glass, copper absorber, plastic insulation, and water-based heat-transfer fluid), the copper pipes, and the steel tank and its plastic insulation (similar to a traditional tank).



The installation of a solar thermal system: a turning point for the Principality.

The Principality of Monaco is breaking new ground thanks to the installation of both private and shared-use solar thermal systems for domestic hot water and/or heating purposes in buildings. More than 800 square metres have already been installed in the Principality: «École Saint Charles» uses such a system for its swimming pool, and there are installations in place at the crèche in Larvotto, the Helios building, etc. Solar thermal technology can produce heat, while solar photovoltaic technology produces electricity.



For more tips, go to www.transition-energetique.gouv.mc