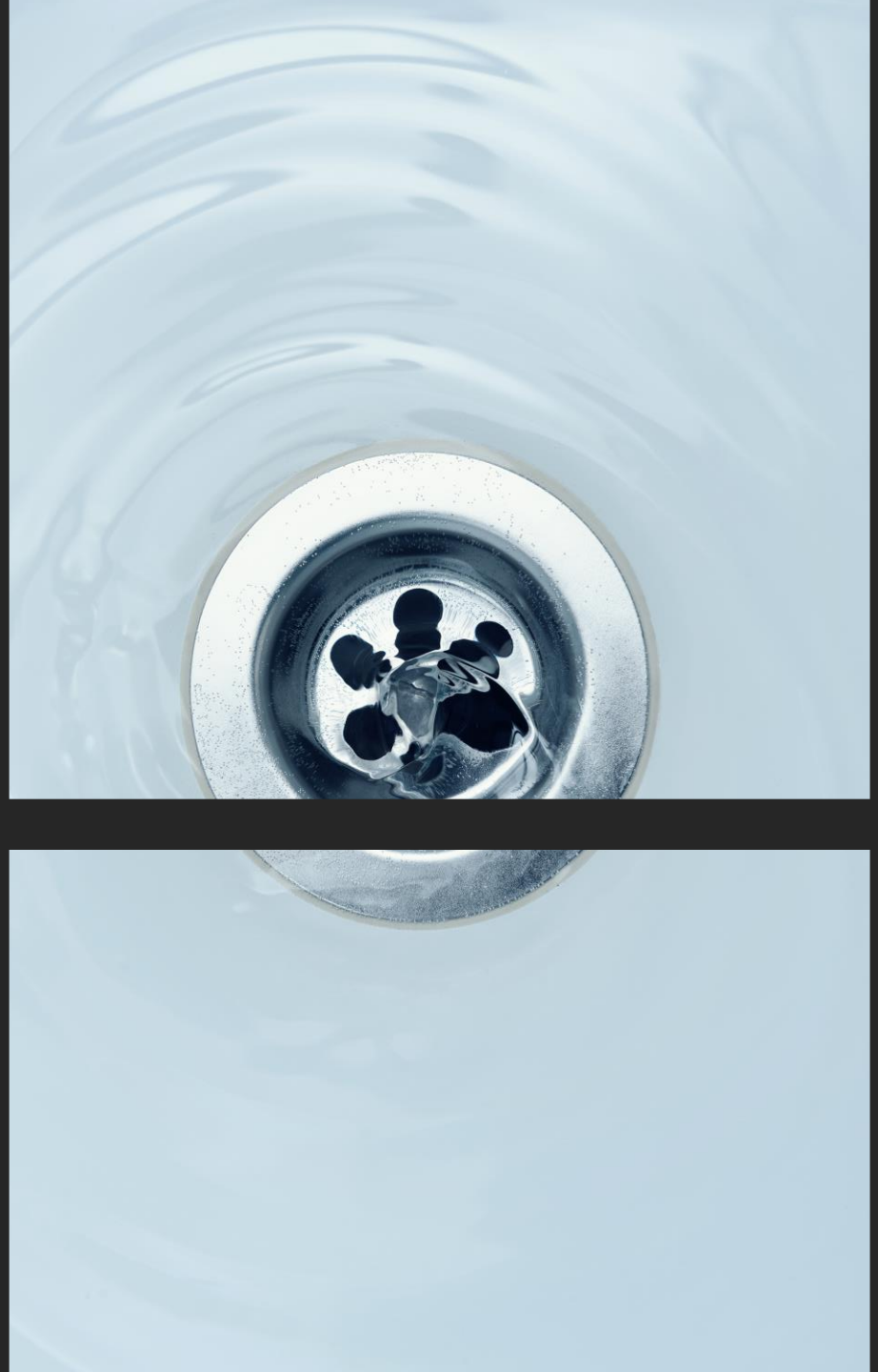
LaZer2
solar thermal

- Highly efficient evacuated tube technology
- Designed and built in Britain
- Verified efficiencies to EN12975
- UK Government approved
- MCS approved

Image: Reef Leisure Centre, Norfolk



Hot water shouldn’t be costing the Earth.

Solar thermal is specifically for generating heat, mainly for hot water applications to which it is ideally suited.

Over 55% of solar radiation arrives in the infrared part of the electromagnetic spectrum, which is detrimental to PV panels as they deliver much lower performance at higher temperatures.

Dedicated solar thermal panels are 3.5 to 4 times more efficient at generating hot water than solar PV.

Heating water consumes a large amount of energy (4842 j/Kg/C) and it is thrown down the drain.

You can minimise heat loss from space heating with the use of insulation, but with the many uses of hot water both domestically and commercially, the percentage of energy used in heating water is increasing significantly as a % of overall energy usage.

A LaZer2 solar thermal system can reduce the energy for Hot Water requirement by 60 to 70% per annum.

Commercial buildings and City rooftops

In city centres throughout the world, space is at a premium.

Architects, planners and developers all strive for greater energy efficiencies.

Here too, heated water is being discharged as waste.

LaZer2 solar thermal systems are a significant piece of the city centre decarbonisation jigsaw.

Commercial buildings generally require hot water delivery temperatures well above 60$^{C.}$ A LaZer2 solar thermal system is quite easily capable of delivering boiling water, and generally takes 60^{c} in its stride.

Even in the winter months as a pre-heat, the energy savings are impressive as water can be regularly pre-heated to 40-50^{C} meaning the backup heating only needs to input ½ the total energy otherwise required.

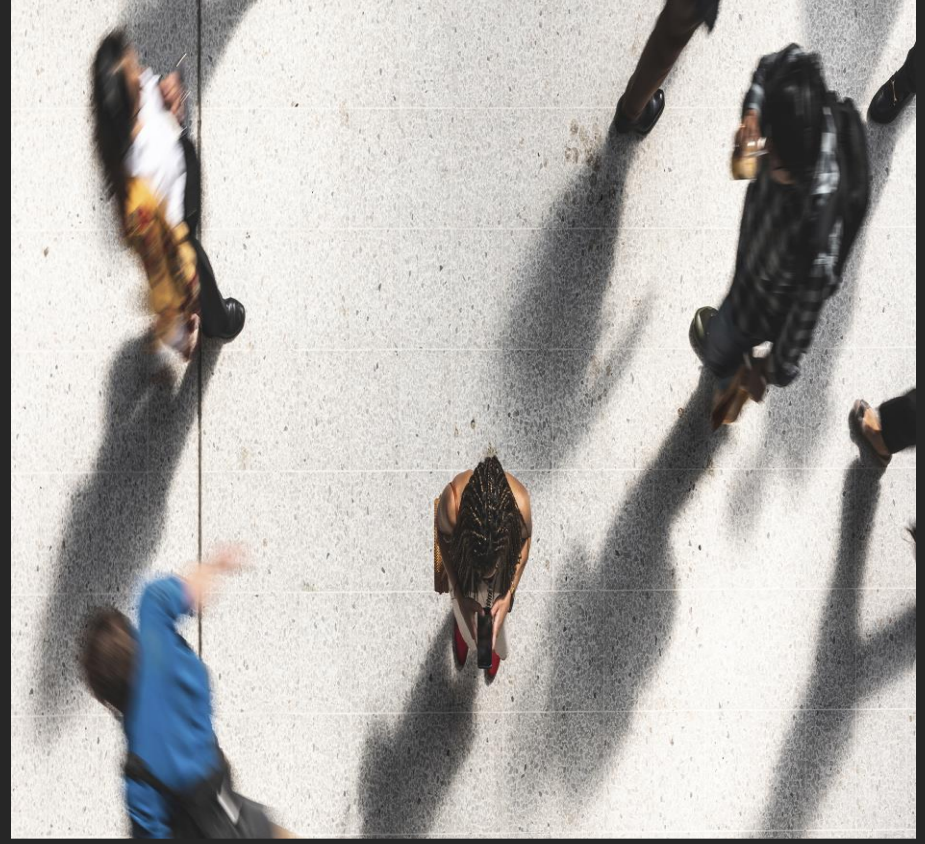
Sports and Leisure

With their larger pools, spa facilities, and showers, and their consequent higher water usage, we see increasing benefits of deploying LaZer2 solar thermal heating in the leisure sector.

The higher efficiencies of solar thermal over solar PV result in far more energy being delivered from the available roof areas. These energy-hungry operations generally demand more energy than the available roof space can deliver. However, because 100% of solar-generated heat directly offsets what would otherwise have come from alternatives, the financial return on investment is usually far greater.

And it isn't just leisure centres. Domestic swimming pools often contain around 60 to 80 tonnes of water and so require huge amounts of energy to heat the water. Domestic pools see relatively low levels of utilisation, so paying for heating is extravagant and hugely expensive.

However, using solar thermal panels means the daily heating cost is significantly reduced, and potentially eliminated. Because of the large water volume and the correspondingly large solar thermal system, adding a mere 0.25 tonnes for domestic hot water is a bonus.



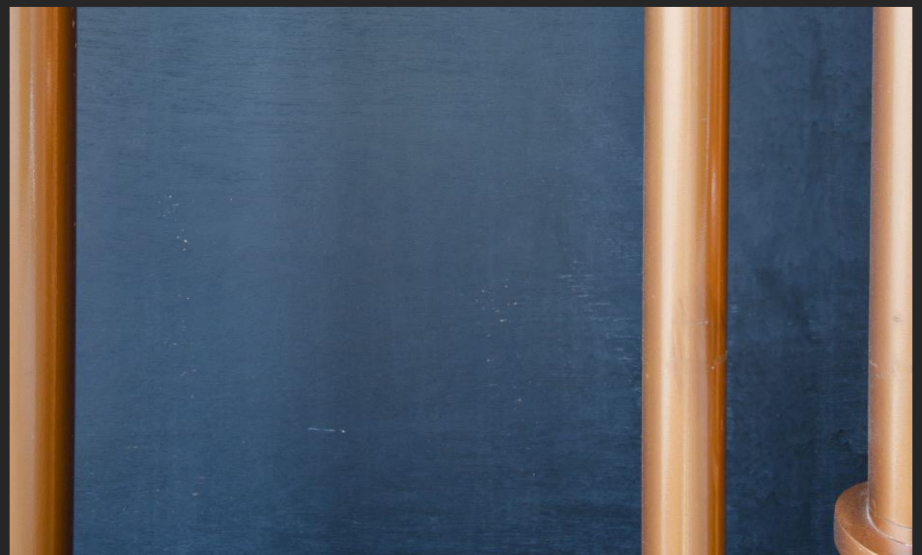
Hospitality, Care and Education

Anywhere people gather in large numbers, there is nearly always a hot water requirement.

Hotels, care & nursing homes, student accommodation, schools, colleges, and universities, to name a few examples.

Where large numbers of people gather outside the home, hot water usage is often significantly higher per occupant than it would otherwise be, and yet still the water is discharged as waste.

The benefits of solar thermal give even more impressive financial returns than in domestic household situations simply because of this far higher utilisation and the mindset of the consumer.

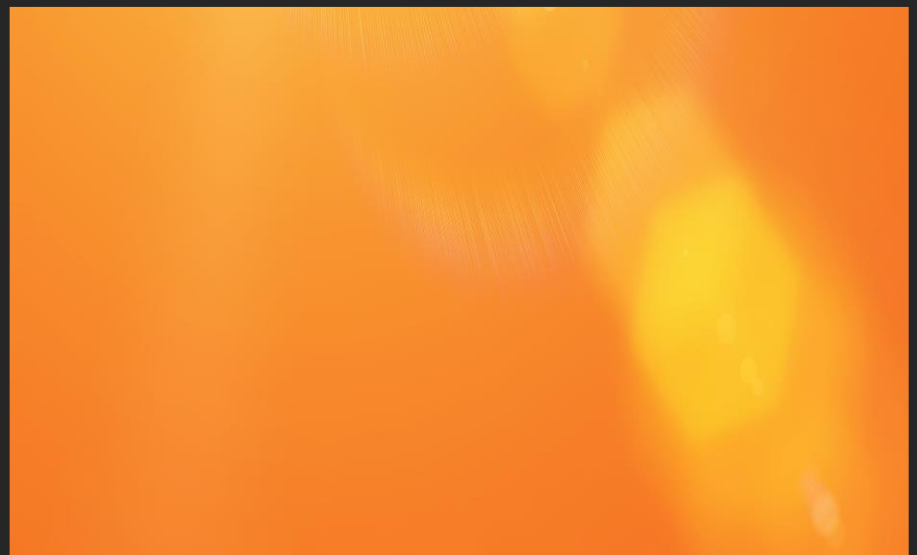


Process Heat

Solar thermal is the definition of renewable energy for commercial and industrial process applications.

From hospitals to laundries, agriculture and dairy to brewing and food processing, there is a huge demand for hot water for cleaning down and sterilisation, or as part of their production and operating processes.

LaZer2 solar thermal delivers hot water to site for immediate point-of-use or as a pre-heat for wider applications.



Pre-heat

Heat pumps are a great way of attaining low grade heat, but the coefficient of performance (CoP) is hugely dependant on the required “lift” i.e., the temperature difference between the *heat source* and that required at the point of *heat delivery*.

With sufficient surface area, space heating can work quite well with low grade heat. However, the target domestic hot water temperature of 60^{c} is above the output temperature of most modern heat pump primary circuits, and therefore additional heating via a second-stage compressor or an immersion heater is required. As a result, the coefficient of performance drops to a level where even a good old immersion heater becomes competitive.

Given that LaZer2 solar thermal takes these temperatures in its stride (LaZer2 efficiency hardly drops at 60^{c}), a combination of a heat pump and a LaZer2 solar thermal system significantly increases the service life of the heat pump, as well as retaining the fuel saving advantage, with summer solar gain almost eliminating heat pump usage for ½ the year!

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Please get in touch to discuss how LaZer2 can help you achieve your decarbonisation goals.

Vantage Point
North Trade Road
Battle
East Sussex
TN33 9LJ

Tel: +44 (0) 1424 772903
Email: sales@solaruk.com
Web: www.solaruk.com

- **LaZer2 is a SolarUK brand**
- **Designed and built in Britain**
- **Highly efficient evacuated tube technology**
- **Verified efficiencies to EN12975**
- **UK Government approved**
- **MCS approved**
- **More than 2,000m^2 collectors installed to date**
- **25-year performance warranty**
- **10-year product warranty**

Image: HCA Hospital, Birmingham