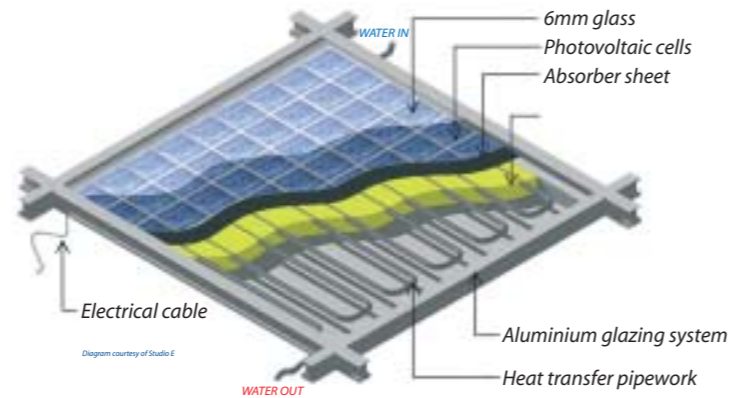


# Energy from the sun

Solar panels capture the energy from the sun for use in homes, offices and other buildings. There are two types - photovoltaic cells (PVs) that convert light to electricity and solar thermal panels that provide hot water for heating. Both of these systems provide energy in a non-polluting, sustainable and renewable way and both are in operation here.

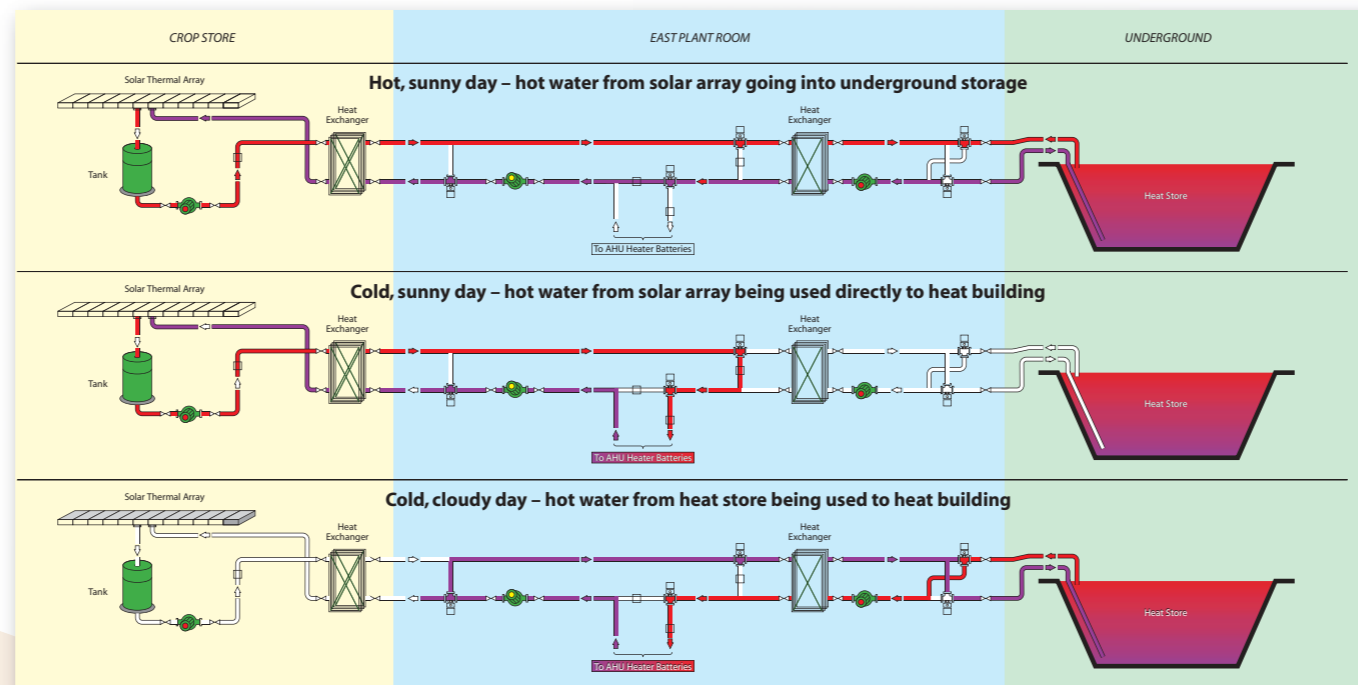
At Beaufort Court we have installed the largest solar water heating system of its kind in the UK, along with innovative photovoltaic and thermal panels (PVT) that provide both electricity and heat. The 170m<sup>2</sup> solar array comprises 54m<sup>2</sup> of PVT panels (the first 7 panels) and 116m<sup>2</sup> of solar thermal panels (the remaining 15).



## Electricity and heat

The PVT array consists of a photovoltaic panel that converts light into electricity with a copper heat exchanger laminated to capture the thermal energy that would otherwise go to waste. The PVT panels have been developed by ECN in the Netherlands, incorporating Shell Solar PV polycrystalline silicon cells. Zen Solar incorporated the PVT laminates into modules the same size as the thermal modules the company manufactured. All the modules were then plumbed together to provide hot water and the PVT modules were wired together to provide electricity for the building.

The full array of PVTs and solar thermal panels will generate 3.2MWh of electricity and 39MWh of heat every year.

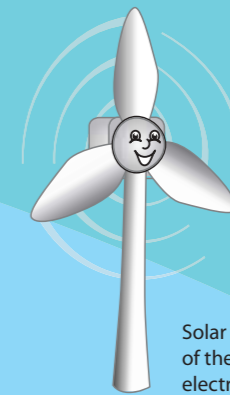


## Changes in the weather

The water heated by the solar array in the summer is stored in the heat store for use in colder months. In the autumn, some of the solar heat generated will be used directly in the buildings and the excess will be added to the heat store. Even on a sunny winter's day, the array will provide heat directly to the building.

39MWh of heat should be generated every year, with 15MWh of this going direct to the building and 24MWh collected into the heat store (of which 50% will be lost during storage).

# BEAUFORT'S ENERGY TRAIL



Solar power uses the natural energy of the sun to provide us with heat and electricity in a clean, green way.

The sun is a massive furnace radiating energy into space.

One thousandth of a millionth of the Sun's output of around 400 000 000 000 000 000 000 000 watts is intercepted by the Earth.

About 30% of this energy is reflected back into space, the rest is absorbed by the atmosphere, land and oceans.



Did you know... enough sunlight falls onto the earth every 15 minutes to supply all of the earth's electricity needs for a whole year? It certainly makes sense to use it!

- ⚡ Some of the panels look slightly different from the others - can you spot them? Why do you think this is?
- ⚡ Nowadays you can buy solar powered calculators, watches and battery-chargers. Do you have anything at home with solar cells on it? Do any houses in your street have solar panels on their roofs?
- ⚡ Can you work out which way is south?