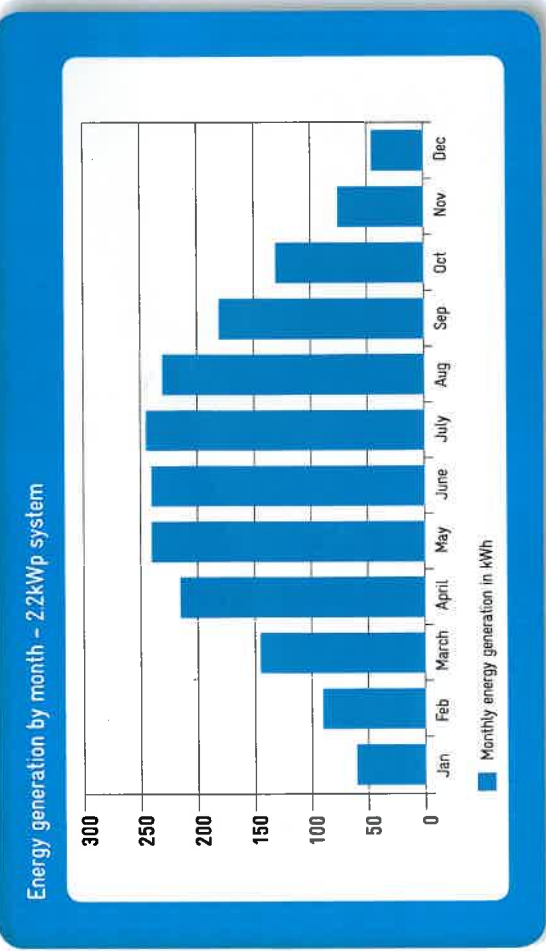


## Solar PV cell types

There are several different types of solar PV with different characteristics, costs and benefits. The main options for domestic use in the UK are:

### Crystalline cells

These are the most commonly manufactured type. There are performance variations depending on whether you opt for a 'monocrystalline' cell (often the more efficient of the two) or a mix of crystals or 'polycrystalline' cells which have a marble-like appearance. Polycrystalline cells can be cheaper to produce.



### Seasonal performance

The chart above shows a typical seasonal spread of energy generation for an average system of 2.2kWp facing south. The winter months generate significantly less electricity compared to the summer months.

### Site location

The amount of electricity generated by a solar PV system can also vary depending on where you live in the UK. Northern areas receive slightly less energy from the sun over the year. For example a 1kWp system will generate less electricity in Northern Scotland than it would in Cornwall. However solar electricity is still worth while in the northern parts of the UK as the differences aren't substantial.

You can get an estimate of how much a system will generate in your location (and how much it will earn) using our Cashback Calculator visit [energysavingtrust.org.uk/cashbackcalculator](http://energysavingtrust.org.uk/cashbackcalculator)

### Shape of roof area

Solar PV arrays are made up of modules of about 1.5m<sup>2</sup> which allows most available roof shapes to be accommodated. Typical UK installations are around 14m<sup>2</sup> or 15m<sup>2</sup>. For example a 2.2kWp system could comprise of 12 panels taking up an area of 15m<sup>2</sup> and will generate roughly 1800kWh per annum.

### Shading

Any shading on a single module will affect the performance of the whole array as all the modules are connected. A system can tolerate some shading early or late in the day without much reduction of overall output but it should not be shaded between 10am and 4pm. Nearby trees, chimneys, TV aerials and vent pipes are all common causes of shading and should be accounted for before any installation.

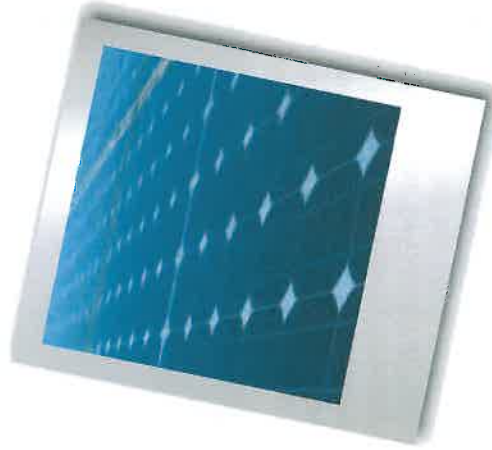
Solar electricity doesn't necessarily require direct sunlight and can still generate electricity on cloudy days. You will generate approximately 1/3 of the energy on a cloudy day as on a sunny day at the same time of year.

### Hybrid cells

These combine crystalline cells with another cell type, thin film to give the best overall performance and do not cost much more to produce than conventional crystalline cells.

### Comparison summary of different technologies

Hybrid panels often cost more to buy than the other types. However, there are many other factors that also affect the total installed cost of a system. A typical 2.2kWp system will cost around £12,500.



Cell type	Efficiencies*	Approximate area per kWp(m <sup>2</sup> )
Monocrystalline	13-17%	6-8
Polycrystalline	11-15%	7-9
Hybrid	17%+	5-6

\* The efficiency of a solar cell gives an indication of how much of the sun's energy is actually used by the system per unit area. The higher the efficiency, the better the cell is at converting the sun's energy.