



Solar Costs Summary

By Dr Phil Wallace

Options

There are many options for solar systems in the UK. Solar panels can be installed alone or in combination with batteries. Electric cars have batteries too and in a few years' time these will act as storage systems for domestic use. Costs will decline as production of these systems increases in scale and grants and subsidies, like the old feed-in-tariff, will help encourage people to change the way they use energy.

Motivation for change

The early adopters of these new technologies are motivated by the effects of climate change on our environment. It is currently more difficult to argue an economic reason to change from grid electricity and gas but subsidies do help improve the case. It is always best to improve your home insulation first.

Basic solar panels

You can fit panels to your roof and have an inverter that converts the collected DC energy into AC current. This is used in the house, with spare generation being sent to the grid.

A simple cost calculator can be found at:

<https://energysavingtrust.org.uk/tool/solar-energy-calculator/>

A simple system with a south facing roof delivering 4kWh (peak) may cost £6,000. This may generate 3,500 kWh a year. By modifying your usage (e.g running dishwashers in the morning), 60% of this could be utilised in the house. Cost savings may amount to £312 per year.

'Solar together', a Suffolk CC group buying scheme, can reduce costs considerably to about £4,000 for a similar system, but you are still looking at a 12 year payback. Fuel prices are likely to go up over time and costs for solar panels come down, so a 10 to 12 year payback period is not unreasonable.

<https://www.suffolk.gov.uk/planning-waste-and-environment/initiatives/solar-together-suffolk/>

Solar plus battery

A basic battery that could store 4 kWh might add a further £2,500 to £3,000 to the project costs. This is enough to get you through the night without pulling from the grid. Overall usage of generated energy will be improved. In addition, depending on your tariff, you can store off peak electricity in your battery, especially useful in the winter when solar output is low. Energy can also be used to heat water if you already have an immersion heater in your hot water tank. 'Solar thermal' is an alternative for hot water.

Equipment costs and useful information can be found at <https://midsummerwholesale.co.uk/>

Scaling up

Looking ahead at the bigger picture, we need a more comprehensive home energy system if we are to help with climate change. More cars will become electric over time and gas will become more limited as a resource, with supply perhaps not under UK control, and prices rising.

To replace gas used in the house for heating, an air (or ground) source heat pump (ASHP) is a good option, especially in conjunction with solar panels/batteries. For every kWh used to run an ASHP, 3 kW of heat energy is produced. An 'intelligent' system can therefore compete with low gas prices. The cost of an ASHP system is a big capital investment (maybe £15,000) but currently there are government grants and subsidies that might cover 75% of this outlay over time through the Green Homes grant and the Renewable Heat Initiative (RHI) scheme.

