

Powering your own home

A guide to using renewable energy in your home



Renewable technologies are powered by sources of energy that can be replenished, many of which are free, like the sun. Generating energy from renewable sources can help reduce our dependency on non-renewable sources like fossil fuels, which take millions of years to replenish. They also produce much less carbon dioxide (CO₂) and other greenhouse gases – the main contributor to climate change. There are a few different types and styles of solar panel, some of which produce electricity and others which produce hot water.

Generating your own electricity

Solar Photovoltaic (Solar PV)

Solar PV modules convert sunlight into electricity for use in the home or to export to the National Grid. It's an easy system to install, which is suitable for any house with an unshaded roof (or similar space) facing somewhere between south east and south west.

Installation cost



£5,000 to £7,000



Solar panels



Generating your own hot water

Solar thermal

Solar thermal panels collect heat directly from the sun and use it to meet a proportion of your hot water requirements. Solar thermal systems can usually be integrated into your existing hot water system. System choices and installation times depend on your existing heating system, the amount of storage space you have and the orientation of your roof. You could also heat water with the electricity produced by Solar PV panels using an immersion heater.

Installation cost



£3,000 to £5,000



Energy availability: Limited electricity provided in winter; most electricity is provided in summer.



Maintenance: Once installed and commissioned, limited maintenance is required. Some parts may need replacing after 8 to 10 years.



Running costs: Minimal ongoing costs once installed – limited maintenance is required.



You'll need: A large area of unshaded roof or other appropriate space – typically about 15 square metres – facing somewhere between south east and south west.



Energy availability: Throughout the year but mostly in summer months. Boiler is still required as a top up to meet all your hot water demands.



Maintenance: Minimal annual checks with a service every 3 to 7 years. Expect to replace after 8 to 10 years.



Running cost: Virtually none. A small electric pump is usually required.



You'll need: You'll get the best result if your roof faces south. Will not work with some combination boilers – seek advice from your boiler manufacturer.

Heat pumps

Heat pumps take low temperature heat from the surrounding area and upgrade it to higher temperature heat that can be used to provide space and water heating for a home. The heat comes from the surrounding air, ground or water, and so heat pumps are mainly classified as air-source, ground-source or water-source.

Heat pumps use some electricity but they generate more heat energy than the electrical energy they use and are a good option to consider if you have no access to mains gas as a fuel.

£ **Air-source heat pump**
£7,000 to £11,000

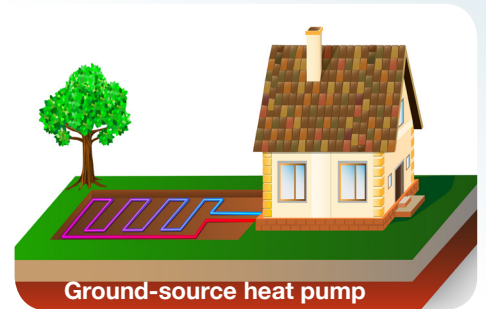
£ **Ground-source heat pump**
£13,000 to £20,000

● **Energy availability:** Energy provided all year round but most efficient when used with a low temperature heating system such as under-floor heating.

£ **Running cost:** Running costs will vary depending on a number of factors including the size of your home, how well insulated it is and what room temperatures you are aiming to achieve.

● **Maintenance:** An annual service is recommended.

● **You'll need:** Ground-source heat pumps require space and access to bury a loop or drill a vertical borehole in your garden to collect heat. For an air-source heat pump you'll need space outside your home for a collector coil, which is about the same size as an air conditioning unit and attached to the outside wall. Air-source heat pumps are cheaper to install than other types of heat pump, but can be less efficient in cold weather.



Wood-fuelled heating systems

Wood-fuelled heating systems, also called biomass systems, burn wood pellets, chips or logs to provide low carbon central heating via boilers or stoves.

For storing fuel for a pellet boiler, several cubic metres are required; this could be a large shed or could take up half a garage.

£ **Pellet Boiler**
£9,000 to £21,000

Did you know?

The domestic Renewable Heat Incentive can give you regular payments over seven years if you install an eligible renewable heating system, such as a solar thermal system, a biomass boiler or heat pump. For free and impartial advice visit the **Ofgem website** (www.ofgem.gov.uk), contact Energy Saving Trust at energy-advice@est.org.uk or call a friendly Energy Saving Trust advisor on 0300 123 1234 (England and Wales). If you live in Scotland, you can contact Home Energy Scotland on 0808 808 2282.

● **Energy availability:** Wood available throughout the year, large fuel store will help ensure availability.

● **Maintenance:** Ash removal, sweeping the flue.

£ **Running cost:** Fuel can be cheaper than gas and running costs are often lower than other off-grid fuels.

● **You'll need:** Boilers are larger than conventional alternatives, so you will need enough room to accommodate it as well as a large space for fuel storage.

Finding an installer and getting quotes for renewable energy systems



The cost for different types of system can vary a lot depending on the choice of technology and the amount of work involved. You should get quotes from at least three installers.

To claim any financial support you must use an installer and a product that are registered under the Microgeneration Certification scheme (www.microgenerationcertification.org).

If a solar thermal installation includes work on a gas boiler system, the installer must also be registered with Gas Safe (gassaferegister.co.uk).

If you are fitting a wood fuel boiler then we strongly recommend that you use a member of a relevant Competent Person scheme - see www.competentperson.co.uk.