Energy Efficient Homes
The Retrofit Toolkit

Sheet no 13: Renewables

The third part of a Whole House retrofit plan based on the Energy Hierarchy (see Information Sheet 3) is to install renewable energy measures. These will provide you with free energy, and you should be paid for any surplus electricity which you "export" into the National Grid.

By reducing your consumption and improving efficiency in the first two stages, you should know how much energy you need, and can plan the size of any renewable system accordingly. This does not necessarily mean that renewables should be the last investment that you make, but where they have been installed earlier, they will now become part of an integrated system.

Solar PV

- **Mounted on roof or ground?**
- **Which direction does the roof or garden face?**
- **How strong is the roof? How secure is the garden?**

Solar PV panels may be bought or rented. They can be mounted on the roof or on the ground. The best position is on a south-facing roof, since this will benefit most from the long hours of summer sunshine. On an east-west facing roof panels may have to be sited on both sides to gain the maximum sunlight, but this increases the cost and reduces efficiency.

The roof must be in good condition and strong enough to carry the panels and not shaded by trees, and these factors will be checked out by the contractor. It saves time and money to combine installing the panels with any other measures which require scaffolding.

Panels on the ground are simple to clean and maintain, but also easier to damage or steal.

Renewables do not usually require planning permission, but you should check this first. Don't forget to report any installation to your insurers.

The following websites should enable you to identify the issues and choose the best system:

www.cse.org.uk/advice/renewable-energy/solar-pv

www.cse.org.uk/advice/getting-the-best-from-your-solar-pv-panels

https://energysavingtrust.org.uk/advice/solar-panels

Battery storage

The cost of renewables has fallen considerably over recent years, but the Government grants and tariffs previously paid are no longer available. This makes it more worthwhile to use as much as possible of our home-produced electricity ourselves rather than "exporting" it to the National Grid, and battery systems can help us to take advantage of this. See:
https://energysavingtrust.org.uk/advice/storing-energy

www.cse.org.uk/advice/battery-storage

Electric vehicle (EV) charger

Most people install home chargers when they switch to an electric vehicle. These need to be installed by professionals who will check the capacity of the property's electrical system and the security of the earthing. See:

https://energysavingtrust.org.uk/advice/charging-electric-vehicles

Smart controls

Smart controls play a valuable part in managing your renewable system and integrating it with the energy you buy through the National Grid. They can control whether you use only your solar PV or battery to charge an electric car and operate other appliances. Depending on your tariff, they can also choose the cheapest times to use electricity from the Grid.

https://energysavingtrust.org.uk/advice/thermostats-and-heating-controls

https://energysavingtrust.org.uk/advice/smart-charging-electric-vehicles

Solar Hot Water

If you have a south-facing roof, you can use the light and heat of the sun to provide your hot water needs. In the summer months this should meet all your requirements, but even in winter the water can be sufficiently warmed to reduce your energy demand.

You will usually need a hot water storage tank, and a solar thermal system may therefore not be compatible with a combi+ boiler. The system will need servicing from time to time, and the glycol liquid which transfers the heat into your tank will need topping up.

Planning consent may be required if you live in a listed building or Conservation Area.

For further information, see:

www.cse.org.uk/advice/solar-water-heating

https://energysavingtrust.org.uk/advice/solar-water-heating

Other sheets available in this series