

AROUND THE HOME

The cheapest power is power you don't need to buy! The first step in transitioning to a low energy low carbon home is to look at areas where savings can be made such as:

Insulation

A well-insulated home can save a considerable amount in heating costs, and also create a warmer, more comfortable living environment. However, insulation can also be very expensive as significant building work may be required. It is therefore essential to carefully consider how this work is carried out, and if there are any grants or subsidies that can help with the costs. Aspects that need consideration are:

Ceiling insulation: This is the most important area to insulate as it has the largest surface area linked to outside and is where most heat is lost. In many cases it is easy to insulate within a roof cavity, but in houses with a high skillion ceiling it can be difficult.

Underfloor insulation: While this is not generally an area where much heat is lost, it can be an area where significant air flow can enter. Insulating the underfloor to stop unwanted or cold air entering the house is essential.

Wall insulation: Depending on how the house is constructed, it is essential to have a degree of insulation and draughtproofing in the exterior walls. In an old house without insulation, particularly without building paper, it will be very difficult to heat in an efficient way. However, installing insulation can be complex and needs specialist advice. Some advertised wall insulation systems need to be treated with caution as they may cause more harm than good, by trapping moisture within the wall cavity.

Double glazing: While this is mandatory for a new build, it is worth considering if renovating an older home. This can be very expensive so might not be initially cost-effective, particularly when temporary double-glaze window films and/or well fitted thermal curtains can provide an adequate, cost-effective solution in the short to medium term.

Heating

Efficient heating is essential for a low-cost low-carbon home. Heat-pumps are 300-400% efficient (meaning 1kW of electricity can produce 3-4kW of heat) and can run on electricity generated from renewable sources, so they are the only sensible choice for heating. While a modern wood burner might provide ambiance and reduce the need to use expensive peak power, burning timber produces CO². Although trees planted will remove CO² from the atmosphere in the future, this might take 50 to 100 years. Any additional CO² in the atmosphere is not good, particularly when there are better solutions.

Ventilation

Cost-effective ventilation such as kitchen and bathroom extraction fans are essential (and mandatory in rentals) to remove excess moisture. Ventilation that brings exterior air in will not be cost effective unless there is also a good (and often expensive) heat recovery system installed.

Depending on how well it has been sealed, an older house may have adequate passive ventilation around its windows. Regular opening of windows and doors when it is warm or unoccupied may be enough, at least until further sealing and insulation is undertaken. Remember warm air can hold more moisture than cold air, so ventilation is just as important in the summer months as it is in the winter.

Unvented gas heaters produce significant moisture and should never be used.

Lighting

The lighting revolution is LEDs, saving up to 85% in electricity compared to incandescent or halogen bulbs and LEDs can last 15 times longer. They now come in all fitting types and styles and can easily be used to replace outdated bulbs. Be sure to get real LEDs from a trusted lighting store as there are some being sold that are not the genuine technology.

Appliances

Many older appliances are inefficient compared to newer appliances on the market that can save considerable energy. What is worth replacing now, and what is worth holding onto (until it needs replacement) is specific to each home, and needs to be considered item by item.

Hot Water Heating

There are three primary types of water heating:

Electric Hot Water Cylinder: A new well insulated electric hot water cylinder is highly efficient, and loses little heat. They can also be coupled with solar hot water, and low-cost off-peak power. Wetbacks can also be used, but it is better if heating is generally moved away from burning and releasing CO².

Gas Hot Water: This is relatively expensive to run and relies on burning fossil fuels so should be avoided. If there is an existing system, it can still be retained as a backup in case of high usage, breakdown or maintenance of an alternative system.

Heatpump Hot Water: This presents a significant opportunity to save money in a house with high water usage. As with other heatpumps, the energy used to heat the water can be 300-400% efficient, thereby considerably reducing an energy bill where hot water is a significant portion of the cost. They are however considerably more expensive than a traditional hot water cylinder, and they can be costly to install. They won't suit everyone, and putting that money into solar generation or battery storage might be a better option. Again, the full picture needs to be considered.

