centre for sustainable energy

Making the most of your **air source heat pump**

Air source heat pumps take warmth from the air outside (even when it's freezing) and use it to heat the home. Heat pumps can take getting used to as they operate differently to other forms of heating. They are designed to heat to low temperatures over a long period of time, rather than quickly providing heat when turned on.

Heat pumps are run with underfloor heating or specially designed oversized radiators. Running costs differ between the two because heat pumps do not need to work as hard with underfloor heating. This is because as the surface area of the heater (e.g. the floor) gets larger, the temperature of the water in the system can be lower while providing the same amount of heat.

This also explains why traditional radiators are not recommended with heat pumps. Their small size means hotter water is needed, which will be expensive, and your home is still likely to need supplementary heating to be warm enough.

Changing the temperature in your home

Heat pumps are designed to run for long periods of time. This means it is usually cheaper and warmer to leave them running during the day, compared to only heating in the morning and evenings.

Annual cost of electric space and water heating for the average 2 bed house *(Does not include running costs of electrical appliances like TVs, lighting or electric showers)*	
Air source heat pump with underfloor heating	**£1,006**
Air source heat pump with radiators	**£1,280**
Night storage heaters on Economy 7	**£1,598**
Electric radiators and immersion hot water tank	**£2,230**

Figures from Sutherland Tables April 2020

Photo: NIBE

They respond slowly to temperature changes. So when you want to turn the temperature up, change the setting of your room thermostat by one or two degrees at a time. Wait to see if you are comfortable at this new setting before turning it up further. If you turn the temperature up too quickly, the heat pump cannot respond quickly enough and will run at an increased capacity to boost the temperature, which costs more.

Adjusting individual rooms

You might also be able to control the temperature in individual rooms – either with radiator valves or zone controls if you have underfloor heating. In general, temperatures should only be lowered in unused rooms or bedrooms.

If there's a short warm spell in the winter, it is usually better to turn down the individual room controls instead of adjusting the main room thermostat.

"Keep the external unit clear of obstructions, otherwise the restricted air flow can increase running costs"

When you don't want heat

Heat pumps should NEVER be turned off completely. This is because they will be extremely expensive when turned back on as they will try to raise the temperature as quickly as possible. It can also take several days to restore the home to a comfortable temperature.

AT NIGHT: Lower the temperature to around 10-15°C, and then set it to slowly increase in the morning so that the room is a comfortable temperature when you wake up.

AWAY FOR A DAY: Just leave the system running as usual.

AWAY FOR A WEEK: The system's control panel should have a 'frost protection' or 'holiday' setting which will lower the room temperature while you're away. This will also prevent the pipes freezing in cold weather.

DURING THE SUMMER: Your heat pump might have a 'summer' mode, or you can simply turn down the room thermostat. This means the heating will not come on, but you will still get hot water. You can raise your thermostat temperature again slowly as autumn approaches.

If the heat pump turns off...

If you have a power cut the heat pump will turn off. If the power is off for a long period the heat pump will need to warm itself up before it can heat your home again. Check your instructions as this may happen automatically or you may need to select a setting.

If you have a pre-payment electricity meter you risk the heat pump turning off if the meter runs out of money. So always try to keep money on your meter, or consider changing your meter and paying monthly or quarterly bills instead.

Hot water tank

The heat pump should heat your hot water tank to around 35-40°C. However this is not hot enough to kill any bacteria within the tank. Therefore the tank should be timed to heat up to 60°C once a week - you will notice a corresponding spike in your electricity usage.

Air source heat pump controls are generally simple and similar in size to central heating control units.

AIR SOURCE HEAT PUMPS

Some additional things to be aware of ...

INSULATION: If your home lacks insulation or is draughty then it may struggle to get warm and your running costs will be higher. This is because the heat pump will have to work harder to maintain a constant interior temperature.

CONTROL UNIT: The main control unit is often in a cupboard and should only be adjusted by a trained engineer (e.g. at an annual service), otherwise accidental changes risk increasing your running costs. A separate 'user' unit should include the settings you need to use.

ELECTRICITY TARIFFS: In general, heat pumps are best run on a single-rate tariff rather than Economy 7 (where you have cheaper night electricity, but it's more expensive during the day). Your electricity company can advise on which tariff suits your usage.

More information

For technical information see the Heat Pump Association **www.heatpumps.org.uk** and to find approved installers, see the Microgeneration Certification Scheme (MCS) **www.microgenerationcertification.org**

See our other factsheets on air source heat pump technology, battery storage and Renewable Heat Incentive: **www.cse.org.uk/resources/category:advice-leaflets**

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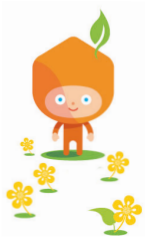
The Centre for Sustainable Energy is a national charity that helps people change the way they think and act on energy.

Our Home Energy Team offers free advice on domestic energy use to people in Bristol, Somerset, Wiltshire, South Gloucestershire and Dorset.



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