

Room heaters

What are your best options for extra heat?

Room heaters are used to heat a small space and are normally portable or fitted to a wall. Most room heaters use gas or electricity.

Room heaters are usually used as an extra heat source (sometimes called secondary heating), alongside a main heating system.

They can be useful if you need to heat one room for a limited time or give an extra boost of warmth to someone who needs it. But they can be expensive if used over a long period of time because they consume a lot of gas or electricity.



What kind of room heater is best?

There are many options! To be most efficient, you should use the right heater for the space you want to heat, otherwise you may have a high running cost but not feel any warmer.

You should carefully control the temperature and the time you have the heater on. Heaters with these controls are usually cheaper to run.

The first thing to think about is what purpose you want it to serve.

1) Heating a whole room for a few hours or more

To warm up a room for longer periods of time, you should use a convector heater. These heaters work by warming the air immediately next to them. The warm air then naturally circulates around the room. They take a

little longer to work, but this type of heater can be easily controlled with a timer and thermostat, so you don't overheat the room or waste any energy (or money).

2) Heating a room for a short period of time

For a quick blast of warmth, or for more directional heating, you should use radiant heaters. These work quickly and are useful if you only want to warm up part of a room or a person for a short period. That's because they only heat what's in front of them.

Unlike convector heaters, radiant heaters don't achieve an even level of heat throughout the room so they might not give you the same level of comfort over time. They rarely have thermostats or timers, which can make their running costs more expensive over long periods.

There are many different types of radiant and convector room heaters, and they can use gas or electricity. Find out more about the different options below.



This leaflet is not about night storage heaters which are a particular type of room heater. For information on these, check our website: www.cse.org.uk

Electric room heaters

Electric heaters are very efficient because they turn all the electricity they use into heat. But this doesn't mean they are cheap to run.

To calculate the running cost, you need to look at the power rating of the heater, shown in kilowatts (kW). The higher the power rating the more heat will be produced, but also the cost will be proportionally higher.

This table shows typical running costs for a range of electric room heaters. Costs are for heaters used on the highest setting, and which are producing heat for the whole hour. However, heaters with a thermostat will automatically turn off when the required room temperature is reached, meaning in reality the cost will be lower over several hours.

Electric room heaters

| Pic. | Heater | Heat source | Typical power rating | Running cost per hour* | | |
|------|---------------------|-------------|----------------------|------------------------|-----------|-----|
| | | | | Single-rate meter | Economy 7 | |
| | | | | | Night | Day |
| (1) | Bar fire | radiant | 2 kW | 49p | 25p | 56p |
| (2) | Convector heater | convector | 2 kW | 49p | 25p | 56p |
| (3) | Oil-filled radiator | convector | 1.5 kW | 36p | 19p | 43p |
| (4) | Fan heater | radiant | 2 kW | 49p | 30p | 71p |
| (5) | Halogen heater | radiant | 1.2 kW | 30p | 15p | 33p |

*Running costs assumptions: Single-rate meter, 24p/kWh; Economy 7 (night), 12p/kWh; Economy 7 (day), 29p/kWh. To calculate this yourself times the heat output of your electric heater by your electric kWh unit cost.

Hot parade (electric)

- 1) radiant bar fire,
- 2) convector heater,
- 3) oil-filled radiator,
- 4) fan heater,
- 5) halogen heater.



Oil-filled radiators are often the cheapest electric heater when running over several hours



Halogen heaters tend to be the cheapest radiant heaters as they have a low power rating (but also produce less heat), while oil-filled radiators are often the cheapest convector heater because there is a thermostat to control the temperature.

Portable infrared heaters are getting a lot of attention at the moment. Manufacturers claim that they can save energy and they are cheap to run and callers to our energy advice line often ask "Are infrared heaters any good?"

Our response is that these are radiant heaters so there will be no warmth lingering in the air once the heater is turned off. If an infrared heater is the only heat source in a room, there's also a risk of damp and mould problems. That's because the air in the room remains cold which means it condenses on any cold surface.

Infrared heating can suit some homes, for instance where people spend a lot of time sitting rather than moving around, or where the building is draughty or poorly insulated - as warm air is not being lost out of the building. If you want to use an electric room heater, use it only when necessary and consider the following:

- Use a timer if it has one, if not, you can buy a time switch for the plug.
- A thermostat will reduce running costs, but by how much depends on lots of factors, such as room size, insulation levels and making sure the thermostat is not turned up too high.
- If you are on Economy 7, avoid using heaters for long periods within peak hours if you can. It's better to use night storage heaters that are charged at night.

Gas room heaters

Gas heaters are not as energy efficient as electric heaters because as not all the gas is converted into heat output into the room (some is lost as exhaust gases, moisture and the creation of light). However, mains gas is usually cheaper than electricity, so the running cost is often comparable.

Gas heaters can be run on mains gas, or LPG (liquid petroleum gas) also known as bottled gas. If you are considering buying a gas heater you need to check current safety regulations as some fixed heaters require flues or chimneys, to ventilate combustion gases and moisture out the home.

Portable gas heaters don't need flues, however you still need to make sure the room is well ventilated. Otherwise, there is a risk from carbon monoxide and the water vapour



Modern radiant gas fire

that gas heaters produce can cause condensation leading to damp and mould problems.

Gas heaters are sold with a heat output rating and an efficiency rating, which should be looked at in conjunction with each other. Heat output is an indication of how much heat will be provided into the room. If you look at two heaters with the same heat output, the heater with a higher efficiency will be cheaper to run than the heater with the lower efficiency. This is because it will use less gas to provide the same amount of heat.

The table on the left calculates the running cost for heaters using mains gas and LPG, based on the average heat output and efficiency rating of various heaters. Actual costs will vary, but what's important is how they compare with each other. These are based on the heaters being on full power for the hour, without a thermostat to regulate the temperature.

Gas room heaters

| Pic. | Heater | Heat source | Typical output | Average efficiency | Running cost per hour* | |
|------|----------------------------|-------------|----------------|--------------------|------------------------|-------|
| | | | | | Mains gas | LPG |
| (6) | Radiant gas fire | radiant | 5 kW | 60% | 54p | £1.29 |
| (7) | Gas convector heater | convector | 3 kW | 60% | 33p | 77p |
| (8) | Open decorative gas fire | radiant | 2.5 kW | 28% | 58p | £1.38 |
| (9) | Closed decorative gas fire | radiant | 4 kW | 60% | 43p | £1.03 |
| (10) | Bottled gas heater | radiant | 4 kW | 92% | n/a | £1.12 |

* Based on 6p per kWh for mains gas and on Oct 2018 Sutherland tables calculations for LPG. To calculate this yourself: (output ÷ efficiency) x 100. Multiply the result by your gas kWh unit cost.

Hot parade (gas)

- 6) radiant gas fire
- 7) gas convector heater
- 8) open decorative gas fire
- 9) closed decorative gas fire
- 10) bottled gas heater



If you're on mains gas, then gas central heating is usually the best way to heat your home (modern boilers are around 90% efficient).

For more information on gas central heating, see our website: www.cse.org.uk



Is it cheaper to heat one room with an electric heater?

The answer depends on what your heating needs are, the type of electric heater you're using, and what your main heating is.

If you are only using one room – for example, because there are only one or two people in your home and you're going to be in the same room for while – then using an oil filled radiator may work out cheaper than running your gas central heating during that time. However, if you use a high wattage heater like a fan heater for a long time this may well work out as more expensive than having your central heating on.

If your household has more people in who are likely to be using other rooms, then although you may be saving money by only heating one room, this will be uncomfortable and unhealthy for the occupants in the unheated rooms.

Also, heating just one room only in cold weather could lead to damp and mould problems in the parts of your home that you're not heating. This is because the moisture you produce from washing, bathing, and breathing, will condense on the colder surfaces in the other parts of your home and this can cause mould to grow.

Electric room heaters are the most expensive type of space heating so are not appropriate as a main heating source, apart from in homes which are very well insulated and only need a small amount of heat. Gas and oil powered central heating is cheaper to run. So, when considering the best option to heat your home over a sustained period, central heating is likely to work out cheaper.



Tips to cut your electricity use, and save money ...



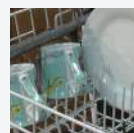
Give your clothes a day in the sun (and give your tumble drier a break). Clothes dried in fresh air feel great, and there are sunny days in winter, too.

Dodge the draught! Fit draught-excluders to your front door, letter box and key hole, and draw your curtains at dusk to keep the heat in.



Only fill the kettle with as much water as you actually need (but make sure you cover the metal element at the base).

Buying a new appliance? Remember to check the energy rating label and consider the size.



Wait until you have a full load in your dishwasher or washing machine before doing a wash. Two half-loads use more energy than one full load.

Sleep tight. Make sure all the lights are turned off when you go to bed. You can get low-wattage night lights for children's rooms or landings.



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The Centre for Sustainable Energy is a national charity supporting people and organisations across the UK to tackle the climate emergency and end the suffering caused by cold homes.

Our Home Energy Team offers free advice on domestic energy use to householders in central southern and southwest England.