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Gas boiler ban: how much does it cost to install a heat pump?

Everything you need to know before you go green

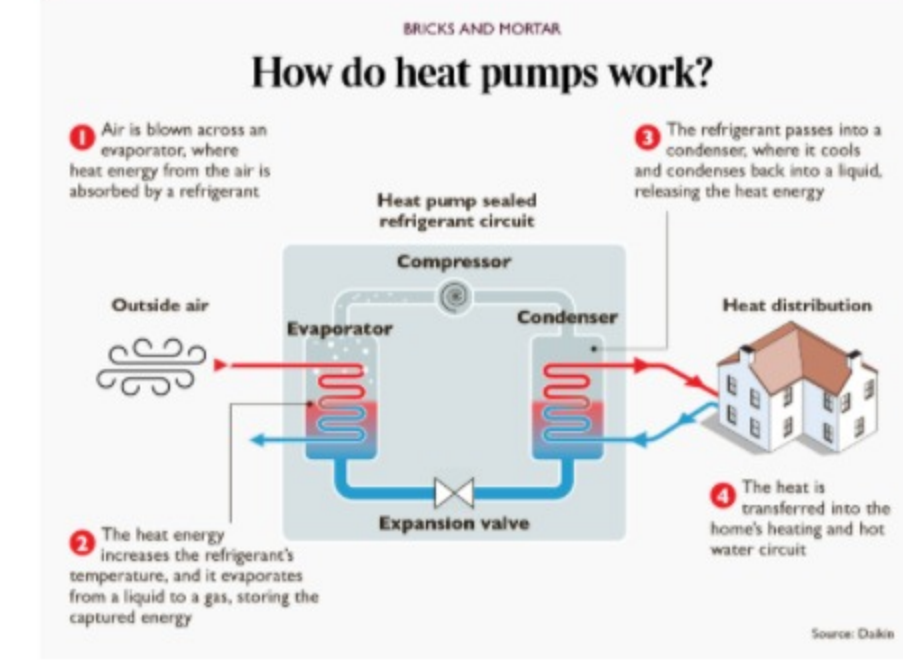


Heat pumps have a high-tech appearance, but they can help to save the planet – and your money

Everybody is talking about heat pumps, but are they just another eco-fad that will splutter and die? Or the new must-have when buying or selling a home?

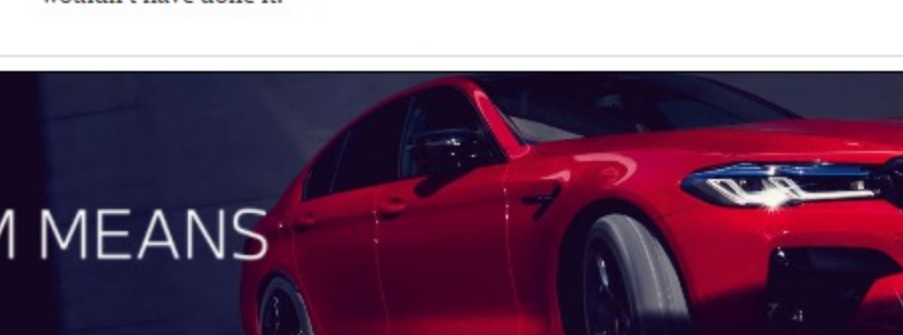
"It's a heat pump the highest thing on the list when people are looking around? Definitely not," says Lindsay Curfitt, a director and head of the country department at Savills estate agency. "However, among the rich and elite there is the sense of wanting to have the greenest possible heating. It isn't about money; it's about the planet."

Spending more time at home this year has certainly lit a fire under finding cheaper and greener alternatives to traditional fossil fuels. The government's **Green Homes Grant**, worth up to £5,000 for a typical household, has also provoked, or heated debate.



Graham Davidson, 58, a retired vehicle electric specialist, reckons his air-source heat pump is saving him about £1,000 a year. The bill for his all-electric 1980s bungalow is about £100 a month with the challenger energy supplier and air-source heat pump specialist **Igloo Energy**.

Three years ago Davidson and his wife, Pauline, renovated their 1,400 sq ft home in the village of Horston, Norfolk. The heat pump took three days to install and cost £10,000, more than three times as much as the £3,000 they were expecting to pay for a gas boiler. The gas supply was capped. "I'd be lying if I was telling you that my motivation was all green issues," Davidson says. "The decision was about saving money, and without the domestic RHI (Renewable Heat Incentive) I wouldn't have done it."



Under the government-backed domestic RHI scheme, which essentially rewards homeowners for installing carbon-reducing measures, Davidson receives £800 back a year for seven years, making a significant contribution towards the initial installation cost. There may well be more in the long term as long as he owns the house.

Future pay-off is a consideration. Jeremy Leaf, a north London estate agent and former residential chairman, says: "We have noticed that installing a heat pump can play a big part in improving a property's EPC rating, but the level will depend on other factors too, such as insulation, double-glazing and draft-excluding."

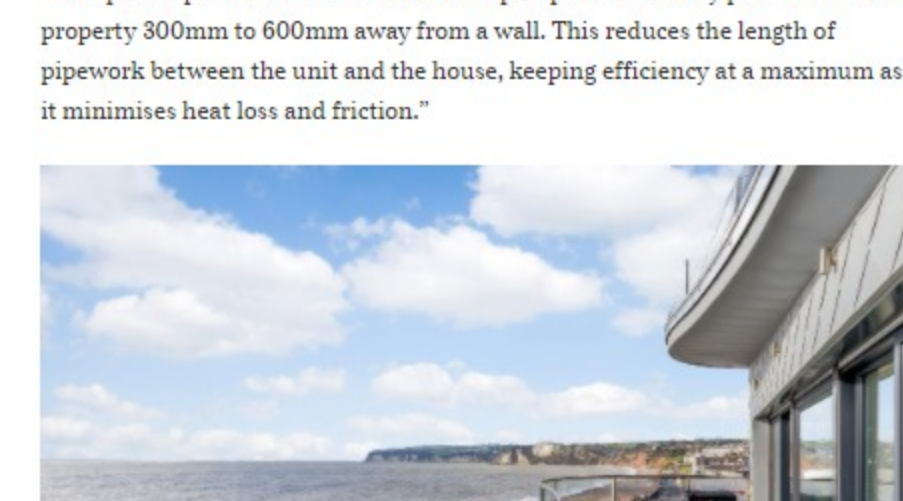


Stoke Hill in Kent, which is on the market for £8.75 million with Knight Frank, has used ground heating

About 27,000 heat pumps were installed in UK homes last year, compared with about 1.7 million gas boilers. Most of these will be air-source heat pumps, which extract warmth from the air and use it to power central heating and hot water. Think of it like a fridge in reverse: you fan heat away, conventional mains heating and renewables, at the heat-pump manufacturer Daikin UK, "In a fridge heat is extracted from the interior so it feels cold inside. This heated air is released externally, which is why the coil on the back of your fridge feels warm. A heat pump works the other way around."

An air-source heat pump is a box fixed to an exterior wall or roof, or that stands alone in the garden. Alternatives are ground-source heat pumps, which require a borehole to be dug; water-source heat pumps, which take water from your stream, river or lake; and heat pumps that work in conjunction with photovoltaic solar panels.

Where you put your heat pump is crucial. When problems such as inefficient performance and higher-than-forecast running costs occur, it is often because of incorrect siting and fitting, says Matt Clewley, chief executive of Igloo Energy. "For optimal performance air-source heat pumps are normally placed next to the property 900mm to 600mm away from a wall. This reduces the length of pipework between the unit and the house, keeping efficiency at a maximum as it minimises heat loss and friction."



A penthouse on Sussex Beach in Devon is in a Poshmark Plus certified block. On sale for £750,000 through Strutt & Parker

In addition, all parts of an air-source heat pump must be at least one metre from the property boundary. Noise can be an issue too. Look for the Quiet Mark accreditation.

Chris Cannon, a senior manager of heat at EDF, advises choosing a sunny, south-facing area to maximise the heat. You will also need space indoors for the hot-water tank (if you don't already have one).

On new-build developments heat pumps can be factored in from the first drawing. Smaller developers are at the forefront, says Charlotte Monon, head of regional new homes at Strutt & Parker estate agency. "From the stock we're selling, around 20 per cent of new properties use heat pump technology which is around 10 per cent more than last year. I find it's smaller, more bespoke developers as opposed to large PLCs at the moment but I think this will change." At Lime Grove in Tuffrey, Gloucestershire, 19 flats and four-to-five-bedroom family homes built to sustainable principles by Matt Homes use a ground-source heat pump for energy, from £210,000 for a two-bedroom property (www.mattshomes.co.uk).

"You could say that this year there are clear signs of greater interest from developers," says Brian Kay, a director at Green Business Watch, a renewable-energy advice service. "The government announcement that **from 2023 boilers will be banned in new homes** (the Future Homes Standard 2023) certainly sped this up, but it was heading in that direction anyway. New-build is the ideal time to fit a heat pump, because the whole house can be delineated that way."

However, Leaf speaks of teething problems. "There is a lot of nervousness and scepticism as reliability and running costs are still at an early stage. Certainly in some of the new developments in which we have been involved where they have been installed, performance has been mixed at best. We seem to have experienced more issues on a 96-home development by a well-known developer where a dual heat pump system had been installed, including air cooling and heating. Occupants welcomed the opportunity of living with an energy-saving heating system, but were not very excited by its lack of reliability and surprisingly high running costs."

Brown says a domestic heat pump has an expected lifetime of 15 years, which is about the same as a gas boiler. "The most costly component if it were to break down is the compressor. Look for a five-year warranty and an annual service contract/maintenance plan to ensure the system is always operating at peak efficiency and the warranty remains valid for its full term."

Robin Gould, a director of the buying agency Prime Purchase, says he is hearing lots of interest because people want to move away from oil. "To have this modern technology installed is a great plus, not least because it costs a fortune to heat a large country house with oil," he says.

And he should know. When he bought his own new-build home near Tibbury in Wiltshire Gould had an air-source heat pump installed. "I asked the plumber who looked after the oil burner at an old house to come and check it out. He said that within a year I would be begging for an oil burner as the heat pump wouldn't cope. Five years later I am delighted with it. Our house is 85 per cent bigger than our last home, but it costs about half what I used to spend on oil."

The only downside is noise, he admits. "You are supposed to have the two fans running 24/7, but we switch it off at night because we live in a quiet area and the constant humming is enough to keep a light sleeper awake." However, presumably he's losing less sleep over his fuel bills – and the fate of the planet.



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B **Barbara Hill** | 14:01:40Z
I have a large new flat in... Our flat was never close to two houses that were converted into a large doctor's surgery and powerful heat pumps were installed without any notice close to our boundary wall, but just over 1 m away. The pump air in a narrow space between the two high narrow walls, on the ground level and in between several of the glass-enclosed outside stairs to the roof. The loud, deep rumble is deafening, especially in winter. All the neighbours complained to the council a few years ago and an acoustic baffle had to be built around the large fan, but it hasn't helped. The surgery claims the noise is within permitted limits, but they refuse to take noise measurements from our stairs and first floor patio. Another massive set of heat pumps installed next to our main front door the next window is large almost, but the neighbours opposite now also have noise day and night. We need better laws to deal with what could soon be serious noise pollution in residential areas.
1 Reply | 0 | Assumed

N **Nina Fatchid** | 15:07:40Z
Had a heat pump at a house close to the ocean 30 years ago. Worst thing we could have heated with! If we ran cold outside it would just heat itself with electricity at very high rates. It shows 146 like it was blowing air into the house while running. Heat pump. God only knows (laughs) they've improved in 30 years. I love my natural gas heat.
1 Reply | 0 | Assumed

M **Alison** | 1:01:40Z
My house faces East, and do not have a 'sunny, south-facing wall'. Just hope my gas boiler 128 years old won't deep sleep.
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S **Sho** | 1:01:40Z
It's vital. The purpose of a heating system is to keep you warm economically as possible, not just to save money. No good saving each if it doesn't do the job. If it runs an unattended heat morning frost, can turn it up to max and get very expensive heating in 10 minutes. Not very convenient.
1 Reply | 0 | Assumed

K **Kerrie Smith** | 1:01:40Z
We are still building a new house next year. We want to be eco friendly so our walls have 150mm of STB, our roof doors and windows are triple glazed and less than 20% air leakage. All possible ground source heating with 600m of piping in the ground and underfloor heating. PV solar panels generating 4,800kwh. All would be great lower 1 comes at a very substantial cost but the long term. It might be worth it.
However to install this in existing homes would be prohibitively expensive and government have a great ambition but do not understand the cost and logistics of doing this.
One major thing to heat pumps are not small and have a lot of parts most houses put the gas boiler in a kitchen cupboard, not possible with a heat pump.
1 Reply | 0 | Assumed

A **adrian pegg** | 1:01:40Z
We have just had a Mitsubishi M2V system installed and am amazed about the noise it makes when it is cold. The smaller units of this new model line are 4dB quieter than the old ones but the big one has not changed. It was only possible to find this out once the machine was fixed because they did not release info until for the new line. It's flow if the temperature is above 7 degrees, at which the figure are quoted, but get 15 dB louder at freezing. The suppliers should be required to supply figures at a variety of temperatures, especially around freezing.
I am trying to build an enclosure out of a mixture of acoustic foam to absorb sound, glycol as a structure and weighted vinyl to minimise transmission. If anyone has any experience or plans I would be grateful.
On the plus side, we find it much better having a gentle breeze rather than the blast out off from a gas powered system. The master says that we have been getting four times more heat on the electricity we have put in. There is also a lack of control since it would be useful to be able to drop the maximum power overnight so that it makes less noise but could still make a little bit of heat over month better than our current approach of running the noise thing off.
The hot water sets nicely to 55 degrees but the normal approach is to only heat when the temp drops 30 degrees which is too low and it can only be set to a minimum drop of 2 degrees.
Be careful about your installers. They are often good people but they are plumbers or electricians and generally have the engineering to a standard piece of software to calculate heat loss - there give high and low figures and using the actual method the British standard will give a third smaller requirement allowing a smaller unit. In our case this would have allowed the installation of a quieter machine.
Overall a good idea but getting a good engineer to someone who just calls themselves an engineer involved would give a better solution.
1 Reply | 0 | Assumed

T **Tom Magan** | 1:01:40Z | 1 | 10000 pages
Excellent feedback, thank you.
1 Reply | 0 | Assumed

M **MLB09** | 1:01:40Z | 1 | 10000 pages
The will need a proper acoustic enclosure that will have louvers designed to remove the low frequency noise. Otherwise no air will get to the pump.
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B **Rehany Highbottom** | 1:01:40Z
Over in Oz and NZ they're in just about every house. Very good at heating and cooling the house.
1 Reply | 0 | Assumed

G **Goeff Ower** | 1:01:40Z
My neighbour has just installed a heat pump in a property they rent out and it's like being next door to a volcano. What are the limitations with noise pollution affecting these neighbours? A statutory nuisance?
1 Reply | 0 | Assumed

G **Ogley** | 1:01:40Z | 1 | 10000 pages
What? Are these queues of motor customers hanging around all night long? What's the best?
1 Reply | 0 | Assumed

R **Roderic Dero** | 1:01:40Z
Very interesting article and comments. The running cost comparison with gas is only relevant if you promise you may continue to use a fossil fuel to heat your home indefinitely. For those who believe that using fossil fuels is making the planet unsustainable then that is obsolete and dangerous myth.
The climate friendliness which has been touted is based on our current industrial age and Western modern lifestyle. The world has been here for 4.6 billion years and will still be here long after we've long died. Also please provide the scientific research papers proving mankind accelerated climate change? The UN IPCC even hasn't proven it!
Show all 2 replies

S **Steve Eskdale** | 1:01:40Z
Oh dear, where to start... but mercifully I don't need to, as Ogley below has said most of it. Get an expert, good advice, as a heat pump coupled to the wrong system will cost you a fortune in running costs.
1 Reply | 0 | Assumed

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