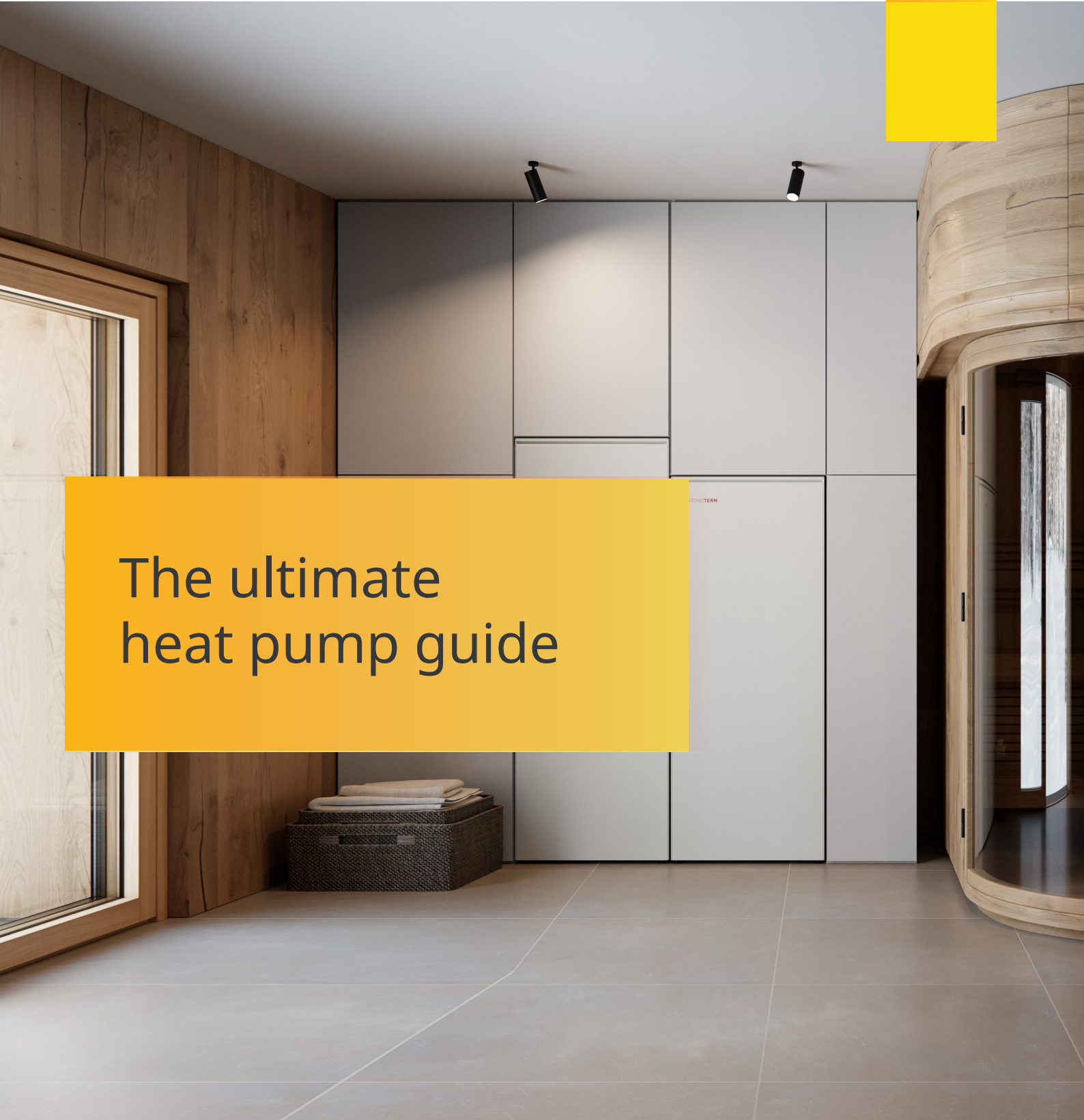




The ultimate heat pump guide





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The most talked about home energy upgrade

Why heating and energy matter

When it comes to home comforts, few things are as essential or as overlooked as heating. It's what keeps us warm through Scottish winters, protects our homes from damp, and gives us that cosy, lived-in feeling we can so easily take for granted.

But heating is changing. The way we warm our homes has become a frontline issue, not just for rising household bills, but for the planet too. In fact, heating accounts for over 74% of the average Scottish home's energy use, and a significant chunk of our national carbon emissions.



Heating accounts for
over **74%** of the average
home's energy use



At a time when energy prices remain volatile, the climate crisis is demanding bold action, and modern homeowners are seeking smarter, greener solutions, it's no surprise that heat pumps are rapidly becoming the most talked-about upgrade in home energy.



How does a heat pump work?

If you've ever used a fridge, you've already experienced heat pump technology. A fridge works by moving heat from inside the box to the outside, keeping the contents cool. A heat pump works on the same principle, but in reverse. Instead of removing warmth from an enclosed space, it captures renewable heat from the air outside and brings it into your home.

Rather than burning fuel to create heat, as a gas boiler does, a heat pump moves existing heat from one place to another. This makes it a highly efficient, low-carbon heating system that can help warm your home and hot water while using significantly less energy than many traditional systems.



Heat pumps can draw warmth from either the outside air or the ground. Even in cold weather, there is still heat energy available, with many systems able to operate in temperatures as low as -15°C.

Inside the heat pump, this captured warmth is transferred to a refrigerant fluid. Because the refrigerant has a very low boiling point, it changes state easily. It is then compressed, which raises its temperature further. This heat is passed through a heat exchanger and transferred into your home's heating and hot water system, including radiators, underfloor heating and your hot water cylinder.

Because a heat pump moves heat rather than generating it directly, it can typically deliver three to four units of heat for every unit of electricity it uses. That makes it one of the most energy-efficient ways to heat a home.



Many systems operate in temperatures as low as

-15°C



Air Source Heat Pumps

An air source heat pump takes warmth from the air outside your home and uses it to provide heating and hot water. It works efficiently even when the weather feels cold, making it a practical low-carbon alternative to traditional heating systems.

The **outdoor unit** contains a fan that draws in air and passes it over a coil. This allows the system to absorb heat from the air, even at low temperatures. The heat is then boosted within the heat pump and transferred into your central heating system.

From there, the heat can be used to **warm your radiators, underfloor heating** or **hot water cylinder**, depending on how your home is set up. Once the cycle is complete, the system continues drawing in fresh air and repeating the process.

Air source heat pumps are a popular choice because they are generally more straightforward to install than ground source systems. With no need for extensive groundworks, they offer a modern, efficient way to heat your home and reduce your reliance on fossil fuels.



Low maintenance, low carbon and designed for **long-term efficiency**, an air source heat pump is a tangible step towards a greener home.





Ground Source Heat Pumps

A ground source heat pump uses the natural warmth stored beneath the surface of the earth. In the UK, the temperature a metre or two below ground remains relatively stable throughout the year, typically around 10°C to 12°C. This makes the ground a reliable source of renewable heat, even during winter.

To collect this heat, a ground source system uses pipework buried outside your property. This can usually be installed in one of two ways: through horizontal ground loops or vertical boreholes.

Ground Loops

Ground loops are horizontal pipes laid in shallow trenches across a garden or outdoor space. They are often suitable for properties with a larger plot, softer ground conditions and enough room for the necessary excavation.

A water-based fluid, usually mixed with antifreeze, circulates through the pipework and absorbs warmth from the surrounding ground. This heat is then carried back to the heat pump, where it is upgraded and transferred into your home's heating and hot water system.



Steibel Eltron
ground source heat pump

Bore Holes

Boreholes are deep vertical shafts drilled into the ground, making them ideal for properties with limited outdoor space or where horizontal ground loops are not practical.

They access the stable warmth stored in the rock beneath your home, where temperatures remain consistent all year round. Boreholes can be drilled to depths of over 200 metres and, although more expensive to install than ground loops, they are space-efficient, less disruptive at surface level and offer excellent long-term performance.

The pipework is made from high-grade material trusted in the UK's gas and water networks, designed to last 50 years or more with minimal maintenance. For many homes, boreholes are the premium option for long-life, low-carbon heating.

Which ground system is right for your home?

Both ground loops and boreholes collect stable renewable heat from beneath your property. The right option will depend on your available space, ground conditions, access, budget and the level of work already planned on site.

Your installer will assess the property and recommend the most suitable approach.

Ground source systems are particularly well suited to new builds, major renovations and homes with enough outdoor space or drilling access.

Because ground temperatures remain consistent throughout the year, ground source heat pumps can provide reliable performance and exceptional efficiency. They can deliver up to four times as much heat energy as they consume in electricity, helping to reduce both energy bills and carbon emissions over time.





The benefits of switching to a heat pump

Kronoterm
Exhibitor ISH 2025

Heating isn't just another utility; it's the beating heart of a comfortable home. Whether you're battling chilly Scottish winters or trying to stay on top of rising energy costs, the way we heat our homes has never mattered more.

Traditional heating systems like gas and oil boilers are becoming outdated, costly to run, reliant on fossil fuels, and increasingly at odds with the UK's drive towards being carbon neutral. In contrast, heat pumps offer a forward-

thinking, environmentally responsible alternative that's already transforming homes across Scotland.

By switching to a heat pump, you're not only reducing your carbon footprint, but you're unlocking a more efficient, reliable, and cost-effective way to heat your home. And with generous **government support available through the Home Energy Scotland Grant**, the transition is more accessible than ever.

So what makes heat pumps such a smart investment?

So, what makes heat pumps such a smart investment? Let's explore the top benefits for your wallet, your comfort, and the planet.

Year-round comfort

One of the greatest benefits of a heat pump is the consistent comfort it brings to your home. Unlike traditional systems that deliver heat in short bursts, a heat pump works quietly in the background, providing steady, gentle warmth that helps keep every room at the right temperature, even on cold Scottish mornings. Paired with good insulation and smart controls, it creates a balanced, cosy and energy-efficient home environment throughout the year.

Lower running costs

Heat pumps are highly efficient because they move existing heat from the air or ground rather than burning fuel to create it. For every unit of electricity used, they can produce up to three or four units of heat, helping to reduce energy bills, particularly for homes currently using oil, LPG or electric heating.

Government Grants and Support

If you live in Scotland, you could access up to £7,500 in grant funding (or £9,000 if you qualify for rural uplift) through the Home Energy Scotland Grant to help cover the cost of installing a heat pump. An optional interest-free loan is also available to top up the difference, making the investment far more manageable and attractive.

Add value to your home

As demand grows for energy-efficient properties, installing a heat pump can help improve your EPC rating, especially when combined with solar panels and battery storage. In some cases, this could support an A-rated EPC, potentially opening access to better mortgage offers and making your home more attractive to eco-conscious buyers.



Low-maintenance, Long Life

When properly installed, a heat pump can run efficiently with minimal maintenance, without the frequent adjustments or fine-tuning often needed by traditional boilers.



Cut heating
carbon by up to

65%

or go zero-carbon
with the right
renewable tariff.



Is a heat pump right for your home?

Heat pumps are a fantastic low-carbon alternative to traditional heating systems, but it's important to understand whether your property is suitable before you invest.

Thanks to advances in design and installation, they now work well in a wide range of Scottish homes, from new builds to period properties. However, factors such as insulation, heating setup and available space can affect performance and long-term savings.

Home Suitability Checklist

Use this quick checklist to see if your home is heat pump ready or what steps you might need to take to get there:

- **Your heating bills are high**
If you currently rely on oil, LPG, or direct electric heating, a heat pump could dramatically reduce your ongoing costs.
- **Your home is heat ready**
Your home does not need to be perfectly insulated for a heat pump to work well. Your installer will usually check basics such as loft insulation and glazing, but even traditional homes with solid walls can be suitable.
- **You have space for the unit**
An air source heat pump needs some outdoor space, usually near an external wall, with enough airflow around the unit. A ground source heat pump needs garden or land space for buried pipes, or a borehole where space is more limited.
- **You have (or are open to) compatible heating systems**
Heat pumps work most efficiently with underfloor heating or low-temperature radiators. Existing heating systems can be adapted by experienced installers who can advise you on what work is required.



- **Underfloor heating considerations**

Underfloor heating can maximise efficiency and comfort, but it may require lifting existing flooring to lay pipework. If that's not practical, modern low-temperature radiators can be just as effective without the need for floor disruption.

- **You have room for a hot water cylinder**

Most heat pump systems will require a cylinder for hot water storage, often located in an airing cupboard, utility space or garage.

- **You're planning a renovation or energy upgrade**

Installing a heat pump works particularly well if you're already upgrading insulation, replacing radiators, or extending your property, but it's certainly not limited to new builds. Knowledgeable, experienced installers can fit a heat pump in an existing heating system.



Compatible with radiators and underfloor heating

Heat pumps work best with low-temperature heating systems, which gently warm your home over a longer period, rather than blasting out heat in short bursts like a traditional boiler.

If you already have underfloor heating, that's ideal as it pairs naturally with a heat pump and maximises efficiency.

But don't worry if your home has radiators, in most cases, your existing system can be used or adapted. Some homes may benefit from larger radiators to distribute heat more effectively at lower flow temperatures. A qualified installer will assess this during your heat loss survey and recommend the right heating system.





How much does a heat pump cost and save?

Installing a heat pump is an investment in your home, energy bills and future. In Scotland, a typical air source heat pump installation usually costs £13,000 to £16,000, depending on your property, existing heating setup and any upgrades needed.

With Scottish Government support, interest-free loan options and long-term energy savings, switching can be more affordable than many homeowners expect. If your radiators, pipework and hot water tank are suitable, you may not need major changes to the rest of your system.



What's included?

Air source heat pump-only installation

- The heat pump unit
- Outdoor and indoor components (e.g. pumps, valves, controls.)
- A heat pump-compatible hot water cylinder.
- Smart controls or weather compensating controls
- Full system design and professional commissioning.
- MCS certification (which is essential for claiming government grants).



**Up to £16,500
in support**

£7,500 grant + £7,500 optional
interest-free loan + £1,500 rural or
island uplift where eligible

Through the Home Energy Scotland Grant & Loan Scheme, you may be able to access up to £7,500 grant funding, plus an optional £7,500 interest-free loan. Eligible rural or island homes may receive a further £1,500 uplift, bringing total support to up to £16,500.



Why you don't need to do it all at once

At Renewable Heat, we take a phased approach that fits your home, budget and lifestyle. We can start by installing a heat pump that works with your existing radiators, helping you reduce carbon and begin saving money sooner, then upgrade your system over time for even greater efficiency.

When you're ready, we can help you add solar panels, battery storage, smart controls, performance monitoring and access to low-cost energy tariffs. As part of the upgrade, we can also improve your hot water system with mains pressure for better showers and stronger water flow.

A **ground source heat pump** typically costs between £30,000 and £35,000, due to the groundwork or boreholes involved. However, it can offer lower running costs and a longer system life, as the heat pump is housed indoors and the borehole acts like a long-term utility, designed to outlast the heat pump itself and support future replacements. Home Energy Scotland Grant funding, including rural uplift support where eligible, can also help reduce installation costs.

How much does it cost to upgrade your heating too?

For many homes, especially those with older radiators, pipework or a combi boiler, it can make sense to upgrade parts of the heating system at the same time as installing a heat pump. This can help improve performance, efficiency and long-term savings.

Depending on your home, this may include larger or more efficient radiators, a new insulated hot water tank, pipework upgrades, smart zoning and controls, or, for larger and more complex properties, a buffer tank or thermal store.

These wider upgrades can make the total project cost higher than a standard installation, but Home Energy Scotland grant funding and the optional interest-free loan can help make a fully modernised, low-carbon heating system more affordable than many homeowners expect.



Comparing heat costs and savings

One of the biggest long-term advantages of a heat pump is its outstanding efficiency. While traditional boilers burn fuel to generate heat, heat pumps simply move heat using electricity to transfer warmth from the air or ground into your home. That means for every 1 unit of electricity used, a heat pump can deliver 3 to 4 units of heat, significantly lowering your energy consumption.

Typical annual running costs

Here's how average heating and hot water running costs compare for a well-insulated Scottish home, based on early 2025 fuel prices:

Heating Type	Annual Running Cost
Mains Gas	£1,000 - £1,400
Oil	£1,500 - £2,000
LPG	£1,700 - £2,300
Electric (direct)	£2,000 - £2,500
Air Source Heat Pump	£675 - £975
Ground Source Heat Pump	£600 - £825

30-50%

In many cases, heat pumps can reduce heating costs by 30 to 50%, especially when replacing oil, LPG or electric heating.

Annual heat pump running costs are based on tariffs such as Octopus Cosy or similar, and will vary depending on your home's size, insulation, heating habits and whether you combine your system with solar panels or battery storage.

Scottish Grants, Incentives, and Finance Options

Switching to a heat pump is one of the most impactful changes you can make to cut energy bills and reduce your home's carbon footprint. And thanks to Scottish Government support, it's more financially accessible than you might think.

Home Energy Scotland Grant & Loan Scheme

Funded by the Scottish Government and administered by Energy Saving Trust, this scheme helps Scottish homeowners make energy-efficient improvements, including heat pumps.

What's currently Available?

- Up to £7,500 heat pump grant
- Up to £7,500 interest free loan
- Up to £1,500 rural or island uplift on the grant
- Up to £16,500 total support with the rural or island uplift

Optional interest-free loan

Many homeowners use the optional interest-free loan of up to £7,500 alongside the grant, bringing total support to up to £15,000, or £16,500 with the rural or island uplift. The loan can help cover remaining installation costs, including upgrades to radiators, underfloor heating, electrics or hot water cylinders.

Am I eligible?

In most cases, yes. If you own your home in Scotland, you can usually apply for support through the Home Energy Scotland Grant & Loan Scheme. There is no means testing, and funding is available for many heat pump installations, provided you use an MCS-certified installer and follow the correct application process. Home Energy Scotland can also offer free, impartial advice.

How to apply

Contact Home Energy Scotland to discuss your plans and request a tailored advice report. Then choose an MCS-certified installer, get a detailed quote and submit your grant or loan application through Energy Saving Trust. Some installers can also support you with the application.



Why it matters

With air source heat pump installations typically costing £10,000 to £14,000, funding can cover much of the upfront cost, especially in rural areas. Combined with long-term energy savings, it makes switching to a heat pump both environmentally and financially worthwhile.



HomeEnergyScotland.org

☎ 0808 808 2282



Installation and cost factors

The cost of installing a heat pump covers more than the unit itself. It also includes professional design, documentation, labour, system integration and any upgrades needed to make sure your heating works efficiently.

1. Home Survey and Heat Loss Assessment

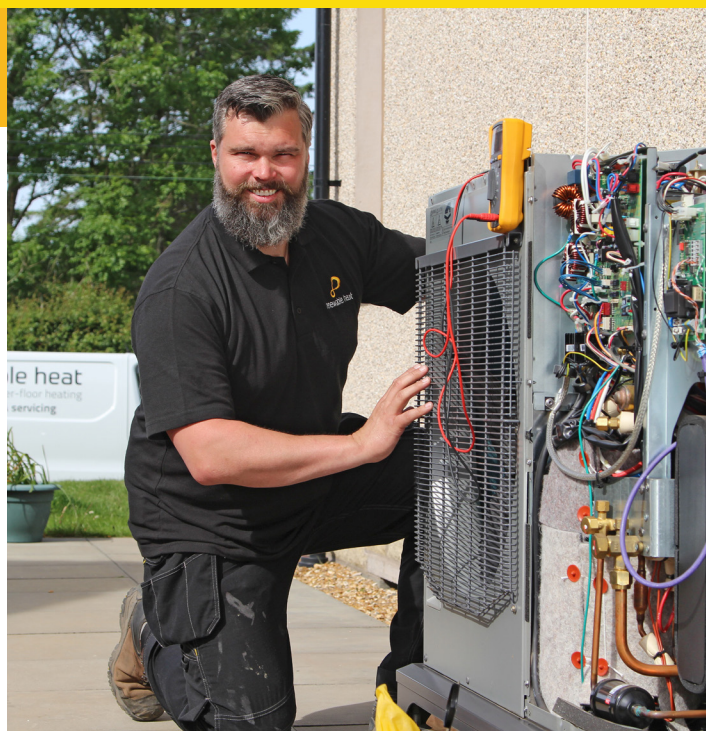
Every project starts with a detailed survey and heat loss assessment. At Renewable Heat, this can include a Home Energy Passport: a 3D model of your home that captures the key information needed to provide an accurate quote and identify the right system.

2. Bespoke system design

Your installer will design around your property and priorities, whether that means minimising disruption, maximising efficiency or balancing both. This includes the heat pump, hot water cylinder, heating system, controls and any grant or building regulation requirements.

3. Internal upgrades

Some homes may need radiator, hot water, pipework or control upgrades, but these can often be staged over time to suit your home and priorities.



Plumbing and electrical connections

The system will then be connected to your home's plumbing and electrics. This may involve wiring upgrades, thermostat connections and careful commissioning to make sure everything is working safely and efficiently.

Handover and aftercare

Once installed, your installer will test the system, show you how to use the controls, explain how to optimise your settings and provide manuals and warranty information. Many installers also offer servicing and aftercare packages to keep your heat pump running smoothly for years to come.

How long does installation take?

A typical air source heat pump installation takes around five days, depending on the complexity of your home and whether any upgrades are needed. A ground source heat pump can take longer because of the groundworks or borehole drilling involved.

Most homeowners are surprised by how straightforward the process can be. There will be some disruption, but a good installer will plan the work carefully, keep heating downtime to a minimum and talk you through what to expect at each stage.

How to minimise disruption

To help your installation run smoothly, plan ahead and choose a timescale that works for your home, installer and any funding application. Clear access to indoor and outdoor areas will also help keep things moving.

You do not always need to do everything at once. In some cases, we can install the heat pump first and run it at a higher temperature, then upgrade radiators, pipework, controls or hot water storage over time for greater efficiency.

Most projects take around 4 to 8 weeks from first contact to completed installation,





A smarter home energy system

A heat pump can do a brilliant job on its own, but when it is paired with the right supporting technologies, the benefits go even further. Solar PV, battery storage and underfloor heating can all help you get more from your system, whether that means lower running costs, greater energy independence or even better comfort at home.

These technologies are not essential for every property, but they can work exceptionally well alongside a heat pump. Together, they create a more joined-up approach to home energy, helping you use less, waste less and make smarter use of the energy you generate.



Solar PV

Solar PV panels generate electricity from daylight, helping to power your home with clean, renewable energy. That electricity can be used for your everyday appliances, and it can also help power your heat pump, reducing the amount of electricity you need to buy from the grid.

This can make a real difference to running costs, especially during daylight hours. Even in Scotland, solar PV can be worthwhile, generating electricity all year round, not just in summer.

For homeowners looking to reduce both bills and carbon emissions, solar PV is one of the most effective technologies to pair with a heat pump. It helps turn your home into a more efficient, low-carbon energy system.



Together, solar PV, battery storage and a heat pump could save a typical home up to

£1,300* a year

**Source: MCS Foundation*



Better Together

Each of these technologies offers its own benefits, but when designed as part of a joined-up system, they can significantly improve the performance of your home heating. Solar PV can help generate electricity, battery storage can help you use more of it when it matters most, and underfloor heating can help your heat pump operate at its most efficient.

At Renewable Heat, we look at the bigger picture, not just the heat pump itself. By considering complementary technologies from the start, we can help you create a home that is more comfortable, more efficient and better prepared for the future.

Battery Storage

Battery storage allows you to keep the electricity your solar panels generate and use it later, rather than sending it straight back to the grid. This means you can store energy during the day and use it in the evening, overnight or when electricity prices are higher.

When combined with a heat pump, battery storage gives you greater control over your energy use. It helps you make the most of your solar generation, reduce reliance on the grid and take advantage of lower-cost off-peak tariffs.

Underfloor Heating

Underfloor heating is an excellent match for a heat pump because it works efficiently at lower water temperatures. It provides gentle, even warmth across the whole floor area, helping to create a comfortable and consistent indoor environment.

It is particularly well suited to new builds, extensions and major renovations, where pipework can be installed more easily. If underfloor heating is not practical, modern low-temperature radiators can also work very effectively with a heat pump.



Choosing the right heat pump installer

The performance of your heat pump depends heavily on the quality of the design, installation and aftercare. A good installer will assess your home properly, explain your options clearly and design a system around your comfort, budget and long-term savings.

With demand growing across Scotland, it's important to choose a qualified, experienced installer who understands both the technology and your property. Asking the right questions early can help you avoid costly mistakes, access available funding and feel confident before you commit.

Questions to ask before you say yes

- **Are you MCS-certified?**
Only MCS-certified installers meet recognised quality standards and can help you access government grant funding.
- **What type of heat pump do you recommend for my home, and why?**
A good installer should tailor their recommendation to your property, energy use, heating requirements and future plans.
- **Will I need to upgrade my radiators or hot water system?**
Knowing this upfront helps you understand the full scope of the project, plan realistically and avoid surprise costs.
- **Can you provide a full heat loss calculation?**
A heat loss calculation is essential for sizing the system correctly, supporting performance and meeting funding requirements.
- **Can the system be designed around my priorities?**
Your installer should explain the options available, whether you want maximum efficiency, lower running temperatures, reduced disruption or a phased approach to upgrades.



- **What's included in your quote?**
Ask whether the quote includes the heat pump, hot water cylinder, electrical work, radiator upgrades, controls, commissioning, documentation and aftercare.
- **How disruptive will the installation be?**
A good installer should clearly explain the process, likely timescales, heating downtime and what you can do to prepare.
- **What aftercare and servicing do you provide?**
Ongoing support matters. Make sure you know what happens once the system is installed, including servicing, warranties and help with settings or performance.



Why Choose Renewable Heat?

At Renewable Heat, we have over 20 years' experience designing, installing and maintaining home energy systems across Scotland. As an **MCS-accredited installer**, we work to recognised industry standards, giving you confidence that your system is designed and installed properly.

We supply and install heat pumps, solar PV and battery storage, creating joined-up energy systems that can grow with your home and family. Whether you are replacing an existing heating system or planning a new build, our experience means we can design a practical, efficient solution that reduces energy bills, lowers carbon emissions and supports your future needs.





What does good service look like?

A reputable installer should make the process feel clear, considered and properly managed from the start. You should expect a written quote with transparent costs, a detailed system design, a heat loss report, and clear guidance on your options, including any upgrades your home may need.

Good service also continues after installation. Your installer should show you how to use your system, explain how to get the best performance from it and offer ongoing support or maintenance options. At Renewable Heat, we can also help with your Home Energy Scotland grant application, making the process easier to manage.



Choosing the right installer

Before choosing an installer, check that they are **MCS certified**. MCS certification is essential for many funding routes and shows that your heat pump should be designed and installed to recognised industry standards. MCS is also strengthening consumer protection through its redeveloped scheme, including a clearer route for complaints about certified installers and installations.

Some installers may still be members of consumer codes such as RECC, which can provide additional reassurance around sales practices, contracts, deposits and dispute resolution. If an installer is vague about their credentials, pushes a one-size-fits-all solution or cannot clearly explain their design, costs and aftercare, it is a sign to look elsewhere.

Your next steps

Ready to explore a warmer, greener home?
Let's talk.

You now have a clearer idea of how heat pumps work, what they cost and how they could help reduce your bills, lower your carbon footprint and add long-term value to your property.

Every home is different, so **we offer a free, no-obligation 15-minute consultation with one of our renewable heating experts.** It's a chance to ask questions, get honest guidance, understand your eligibility for Scottish funding and find out what installation could involve for your home.





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Book your 15 minute no obligation call.

Heat pump, solar PV, battery storage, and underfloor heating specialists

Discover how we can reduce your energy bills and carbon footprint with a fully electric home.