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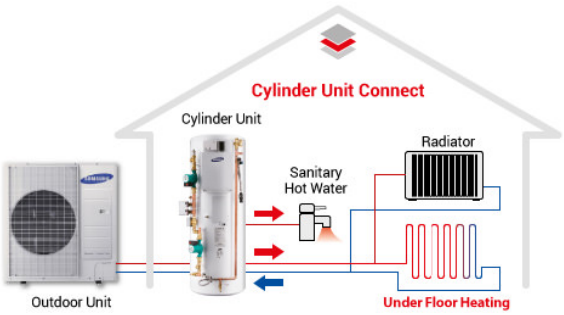
CHALFORD CLIMATE ACTION NETWORK

Air Source Heat Pumps; A Summary

The Basics – Air source heat pumps (ASHPs) absorb heat from the outside air to heat your home and hot water. They can still extract heat when air temperatures are as low as -15°C.

Heat from the air is absorbed at low temperature into a fluid. This fluid passes through a compressor, increasing the temperature, and transfers that higher temperature heat to the heating and hot water circuits of the house.



Air source heat pumps need electricity to run, but because they are extracting renewable heat from the environment, the heat output is greater than the electricity input. This makes them an energy efficient method of heating your home.

Types of Air Source Heat Pump

There are two main types of ASHP: air-to-water and air-to-air. Choosing an air-to-water or an air-to-air system will determine the type of heat distribution system you need.

Air-to-water heat pumps absorb heat from the outside air and transfer the heat to water. An air-to-water system distributes heat via your wet central heating system. Heat pumps work much more efficiently at a lower temperature than a standard boiler system would. This makes them more suitable for underfloor heating systems or larger radiators, which give out heat at lower temperatures over longer periods of time.

Air-to-water heat pumps are the most common model in the UK.

Air-to-air heat pumps require a warm air circulation system to move the warm air around your home. They will not provide you with hot water as well. Air-to-air heat pumps are not eligible for the UK Government's Renewable Heat Incentive (RHI) scheme.

Changing to an ASHP

Unlike gas and oil boilers, heat pumps deliver heat at lower temperatures over much longer periods. If you are installing an ASHP to replace a gas or oil boiler, you should consider whether you can also upgrade your insulation to get the most out of your ASHP. You might also consider fitting larger radiators or underfloor heating.

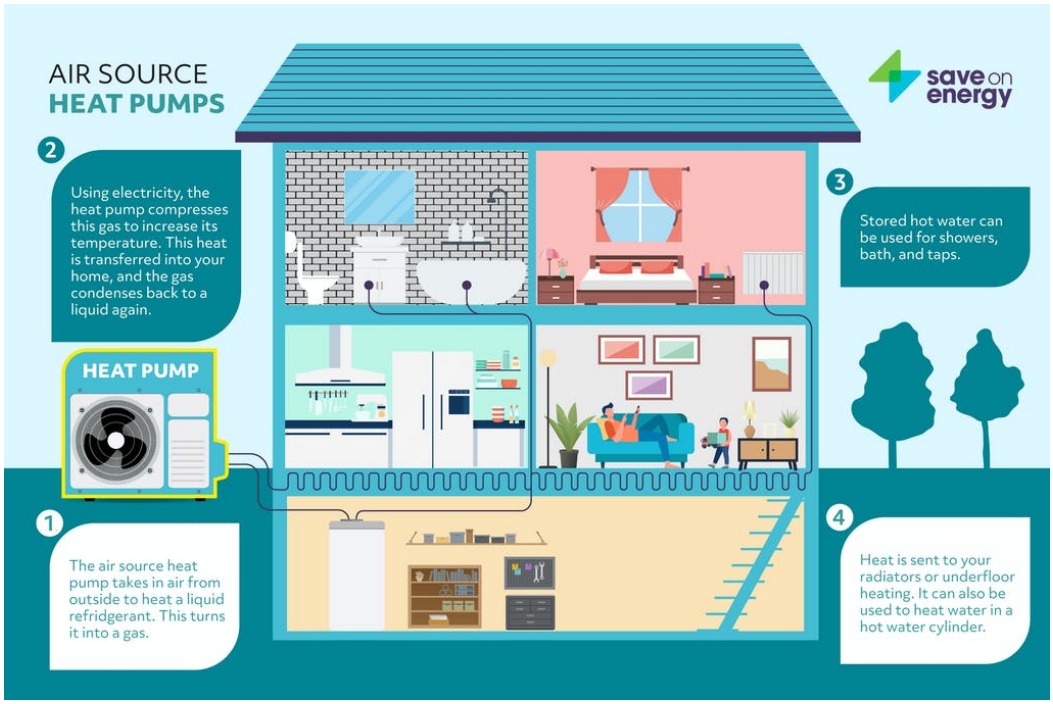
You'll need a place outside your home where a unit can be fitted to a wall or placed on the ground. It will need plenty of space around it to get a good flow of air. The external unit is connected to an internal unit containing circulation pumps and hot water, which is usually smaller than the average boiler.

As a general rule, air source heat pumps are easier to install than ground source heat pumps, as they do not require any land to be dug up for installation. The size of the air source heat pump will vary depending on your home's heat demand – the bigger the home, the bigger the heat pump unit you'll need.

Air source heat pumps perform particularly well with underfloor heating systems or warm air heating because they operate at low temperatures. Homes without an existing central heating system will require one to be installed for an air source heat pump to work.

Practicalities

An air source heat pump is subject to fluctuating air temperatures and has to work harder to produce heat when the outside air temperature is lower. This means that in the colder months, when the heat pump is likely to be relied on the most, it will use more units of electricity to produce the same amount of heating as a ground source heat pump in the same period of time.



Since air source heat pumps work best when producing heat at a lower temperature than traditional boilers, it's important that your home is well insulated and draught-proofed to minimise heat loss.

Air source heat pumps will continue to operate at temperatures of around -15°C (some can operate at even lower temperatures), but will be most efficient at higher temperatures.

While air source heat pumps don't take up too much outdoor space, the unit will be visible from the outside of your property, so it's best to check with your local planning authority first, to find out if you need planning permission. As the unit is above ground, it will produce a noise similar to that of an air conditioning unit, which could be bothersome to you or your neighbours. Before starting, check if you need to apply to the relevant planning authority for permission for the siting and external appearance of the air source heat pump.

If you have the opportunity, underfloor heating can be more efficient than radiators because the water doesn't need to be so hot. If underfloor heating isn't possible, use the largest radiators you can. Your installer should be able to advise on this.

Financial

The system is more likely to pay for itself if it's replacing an expensive system like electric heating. You're unlikely to save much on your heating bill if you're switching from mains gas.

Installing a typical system costs around £7,000 to £13,000. However, much of this cost may be offset with the Renewable Heat Incentive. Running costs will vary depending on a number of factors including the size of your home, how well insulated it is and what room temperatures you are aiming to achieve. The Renewable Heat Incentive is due to end in March 2022, however a grant of £4,000 per instalment has been advertised as a possible replacement. In comparison, the maximum value of the current incentive could be up to £11,500.

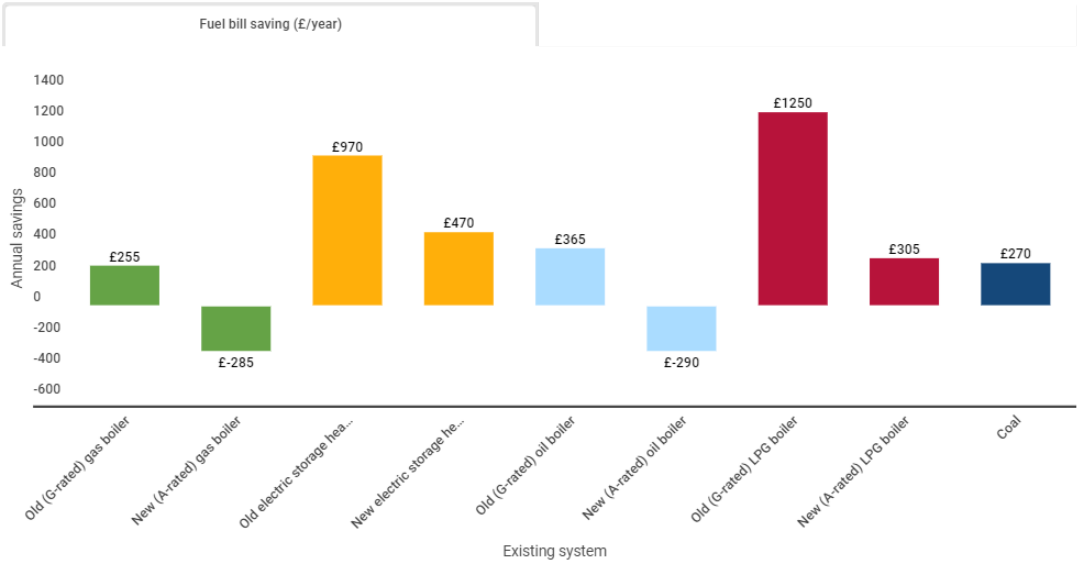
You will still have to pay fuel bills with a heat pump because it is powered by electricity, but you are likely to save money on your fuel bills (depending on the type of heating you are replacing). If your old heating system was inefficient, you are more likely to see lower running costs with a new heat pump.

If the heat pump is providing hot water, then this could limit the overall efficiency. You might want to consider solar water heating to provide hot water in the summer and help keep your heat pump efficiency up.

Learn how to control the system so you can get the most out of it. You will probably need to set the heating to come on for longer hours, but you might be able to set the thermostat lower and still feel comfortable. Your installer should explain to you how to control the system so you can use it most effectively.

Financial Savings, depending on current heating system

Potential annual savings of installing a standard air source heat pump in an average sized, four-bedroom detached home.



Figures are based on fuel prices as of June 2021. Negative fuel savings indicate a fuel bill increase. The saving you can expect will depend on the size of your home, any heating system upgrade and fuel type being replaced. You can expect the saving to range between old and new, depending on the age of your current heating system.

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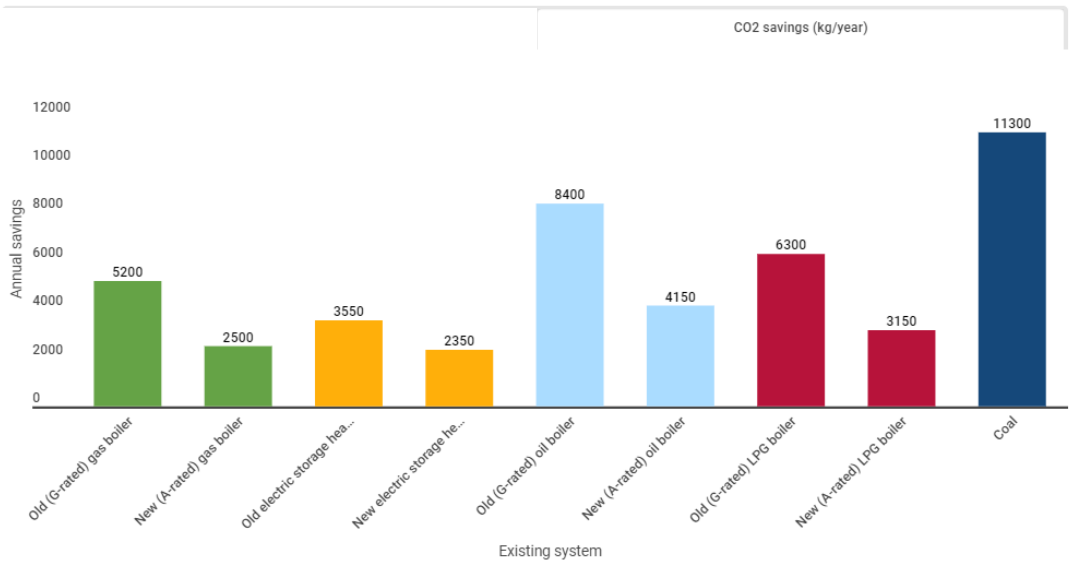
Carbon Savings, depending on current heating system

Potential annual savings of installing a standard air source heat pump in an average sized, four-bedroom detached home.



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Maintenance

Heat pump systems typically come with a warranty of two to three years. Workmanship warranties for heat pumps can last for up to 10 years, for example, through Quality Assured National Warranties (QANW). Many manufacturers also offer options for warranty extensions for a fee.

With regular scheduled maintenance, you can expect an air source heat pump to operate for 20 years or more. Every year, you should check that the air inlet grill and evaporator are free from leaves or other debris. Remove any plants that start to grow near the heat pump. You may also be advised by your installer to check the central heating pressure gauge in your house from time to time.

Ask your installer for written details of any other maintenance checks you should undertake to ensure everything is working properly. Consult with your supplier for exact maintenance requirements before you commit to installing a heat pump.

A professional should service the heat pump every two to three years. [1]

A Note about Ground Source Heat Pumps:

If you have large garden space outside, you could consider a ground source heat pump. Despite the greater upfront cost of installing a ground source heat pump, this type of pump is more efficient when it comes to heating your home, which results in higher fuel savings and lower energy bills. Furthermore, the financial incentive for a Ground Source Heat Pump is greater than for an Air Source Heat Pump. [2] Ground source heat pumps can extract heat from a large area of land with shallow pipes; or alternatively from a deep bore-hole, reducing the area needed - however, we are currently uncertain whether this second method is feasible in Chalford due to the nature of our bedrock.

Personal Experience of an Installation in Chalford

Our primary driver for installing a heat pump was to reduce carbon emissions. Unfortunately for us, our aged gas boiler broke in the middle of winter, at which point I began researching whether an air source heat pump would be appropriate for our property. The period of investigation, purchase and installation took about 6 weeks, so we were without hot water and a heating system for this time!

Heat Loss Survey

The company who were undertaking the installation conducted a heat loss survey on the property, at a cost of £200 which would be discounted from the cost of the installation. This involves measuring the dimensions of each room, and assessing how much heat energy is lost through the walls, ceilings, doors and windows. Along with the overall size of the property, this will determine broadly how much heat is required from a heat pump. Assumptions include using standard values for external temperature and required internal temperature in different rooms, as well as the quantity of hot water used per person per day. The survey also determines if any upgrades to radiators will be required. In my case, it was recommended that 3 radiators should be upgraded, however they did not increase in size, only requiring an upgrade to double fin depth.

An example of a heat loss survey:

Room Names	Type of Emitter	Current Emitter watts (70°C)	Current Rad Oversize %	Flow Temperature °C	W/m²	Room Heat Loss watts	Oversize Factor based on heat pump flow temp	MCS Heat emitter guide watts1	Underfloor Heating Details			Likely SPF	Star Rating
									Floor Type	Floor Surface	Max Pipe Spacing	ASHP	
Hall	Underfloor Heating	0	-	40	27.43	482.85	0	Select UF Heating	Screed	with wood	300	4.14	*****
Bathroom 1	Underfloor Heating	0	-	40	44	312.4	0	Select UF Heating	Screed	with wood	200	4.14	*****
Utility Room	Underfloor Heating	0	-	40	36.5	284.72	0	Select UF Heating	Screed	with wood	200	4.14	*****
Bedroom 1	Underfloor Heating	0	-	40	27.52	484.29	0	Select UF Heating	Screed	with carpet	300	4.14	*****
En Suite	Underfloor Heating	0	-	40	36.19	213.5	0	Select UF Heating	Screed	with tiles	300	4.14	*****
Store Room	Underfloor Heating	0	-	40	19.1	97.43	0	Select UF Heating	Screed	with tiles	300	4.14	*****
Bedroom 2	Underfloor Heating	0	-	40	25.58	378.61	0	Select UF Heating	Screed	with carpet	300	4.14	*****
Bedroom 3	Underfloor Heating	0	-	40	27.03	327.07	0	Select UF Heating	Screed	with carpet	300	4.14	*****
Lounge	Underfloor Heating	0	-	40	28.36	1548.43	0	Select UF Heating	Aluminum Plates	with wood	300	4.14	*****
Study	Underfloor Heating	0	-	40	37.93	254.12	0	Select UF Heating	Aluminum Plates	with wood	Improve insulation	4.14	*****
Kitchen	Underfloor Heating	0	-	40	41.55	1446	0	Select UF Heating	Aluminum Plates	with wood	Improve insulation	4.14	*****

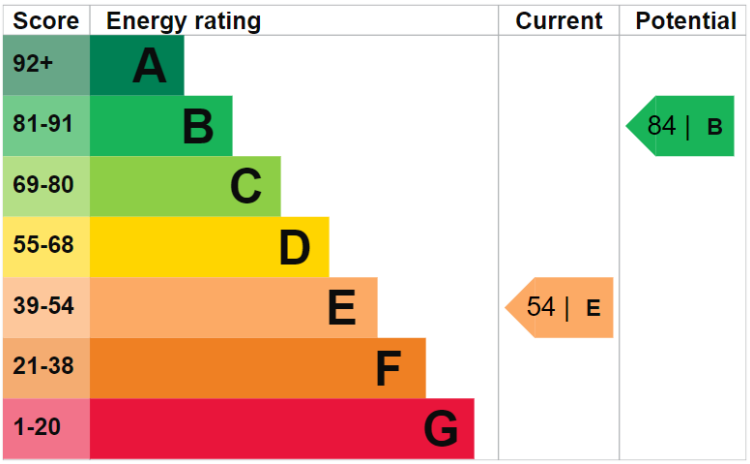
In conclusion, an 8kW air source heat pump was recommended. This Samsung model was available at short notice when there were long lead times for other heat pumps (such as the Mitsubishi *Ecodan*) due to delays caused by Covid. The Samsung *Joule* comes with a 7-year warranty, and claims a high SCOP (Seasonal Coefficient of Performance), low noise levels, and it uses a single component refrigerant, R32, which is claimed to be more environmentally friendly than previous refrigerants.

Energy Performance Certification and Heat Load

An EPC less than 2 years old is a requirement before a heat pump installation and claim for the Renewable Heat Incentive. There are two fundamental requirements for your property which could preclude a successful application:

1. Loft insulation to 250mm
2. Cavity wall insulation if cavity walls are present

There may already be an EPC in existence for your property, and they remain current for 10 years.



[Find an energy performance certificate (EPC) by postcode - Find an energy certificate - GOV.UK (communities.gov.uk)]

The EPC also provides guidance about other potentially energy saving measures, and provides a total heat load for the property.

Estimated energy used to heat this property

Space heating	17553 kWh per year
Water heating	3699 kWh per year

The heat load is a crucial component in the calculation to determine how much money you can receive from the Renewable Heat Incentive, and is a measure of how much energy is required to heat the property. In my case the total heat load (space and water heating combined) was greater than 21,000 kWh. In general, the bigger and less draught-proofed / less well insulated a property is, the higher the heat load is, and the more money is available from the RHI (up to a maximum 20,000 kWh).

Renewable Heat Incentive

The Domestic Renewable Heat Incentive (Domestic RHI) is a government financial incentive to promote the use of renewable heat. Switching to heating systems that use eligible energy sources can help the UK reduce its carbon emissions and meet its renewable energy targets. The latest date for application for the RHI is 31st March 2022.

People who join the scheme and stick to its rules receive quarterly payments for seven years for the amount of clean, green renewable heat it's estimated their system produces.

The scheme is open to anyone who can meet the joining requirements (your Energy Performance Certificate number and the Microgeneration Certificate Scheme certification number for your heat pump). It's for households both off and on the gas grid. The Renewable Heat Incentive has two schemes - Domestic and Non-Domestic. [3]

The following guide provides detailed information about the RHI:

drhi_essentialguide_forapplicants_mar2021_v7.pdf

Note that if you will have a hybrid heating solution, for example with a gas boiler as a back up system, you will need to have 'metering for payment', whereby the use of your heat pump is monitored for RHI payments. In most other cases, you will install 'metering for performance', which will provide daily information to you about the performance of your heat pump, however this will have no impact on your RHI payment, which is calculated from the heat load recorded on the EPC.

Years	RHI £
1	£1,555.27
2	£1,586.37
3	£1,618.10
4	£1,650.46
5	£1,683.47
6	£1,717.14
7	£1,751.49
Total	**£11,562.31**

The current tariff for ASHP is 10.85p per kWh, with the total number of kWh being taken from the theoretical value on the EPC.

In the case of our installation, RHI payments based on the heat load as determined by the EPC and the efficiency of the pump are projected (including 2% inflation) as £11,562. The cost of the installation was approximately £13,000, plus an additional cost to site the pump 6m from the property.

Coefficient of Performance and Seasonal Performance Factor (SPF or SCOP)

The Seasonal performance Factor (SPF) is the average Coefficient of Performance (CoP) of a heat pump over the full heating season. The CoP is the ratio of heat output (in kilowatts) divided by the electrical input (in kilowatts) at any one time. The CoP of an air source heat pump falls as the temperature of ambient air falls.

Many ASHP now quote a SPF of 3.5+, meaning that they use 1 'unit' of electricity to deliver 3.5 'units' of heat, making them '350% efficient'. The performance of your heat pump will determine how efficiently it heats your home, and the amount of RHI available. The SCOP quoted for the Samsung ASHP which we had installed is 3.53.

This is a summary of the COP data to date, quoting only complete months of use. The mean over 5 months is currently 3.38:

	Energy (kWh)		COP
	Use	Generated	
February	764	2226	2.91
March	541	1888	3.49
April	417	1314	3.15
May	145	553	3.81
June	74	248	3.35
July	65	224	3.45
August	41	143	3.49

Noise

Prior to installation a noise assessment will be undertaken to check that the heat pump will not cause noise disturbance to the homeowners or neighbours. Regulations involving 'line of sight', and distance to neighbouring properties must be adhered to. In our case, we decide to install the pump at a

distance of 6m away from the rear of the property, mainly due to the fact that the sides of the house are very close to neighbouring properties.

In summer, the heat pump is only used in heating hot water. The cylinder maintains water at 50 degrees centigrade, and the pump generally activates for 10-20 minutes after someone has had a shower. During this time the pump blows cold air from the fan; however, we find the noise level to be very acceptable, and the neighbours can barely hear anything at all.

In winter, the heat pump has to deal with heating the radiators as well as the hot water tank. As a result, the fan is blowing for a much more extended period. We have not measured this, but the noise level is low enough not to be heard from inside the property. If we have any windows open, we sometimes hear a faint hum when everything else is silent. Be cautious about playing videos demonstrating the volume of heat pumps, as your perception will be completely dependent on volume settings during the recording and playback processes. Distance from the noise, and other background sounds (and well as your state of mind and expectations) will all affect your perception. Perhaps the best test is to visit a heat pump in operation.

Samsung quote 45dB for this model [4], which falls between 'moderate rainfall' and 'a quiet library':

MODERATE		
	60	· Normal conversation · Dishwashers
	50	· Moderate rainfall
SOFT		
	40	· Quiet library
	30	· Whisper

Heat Pump Installation

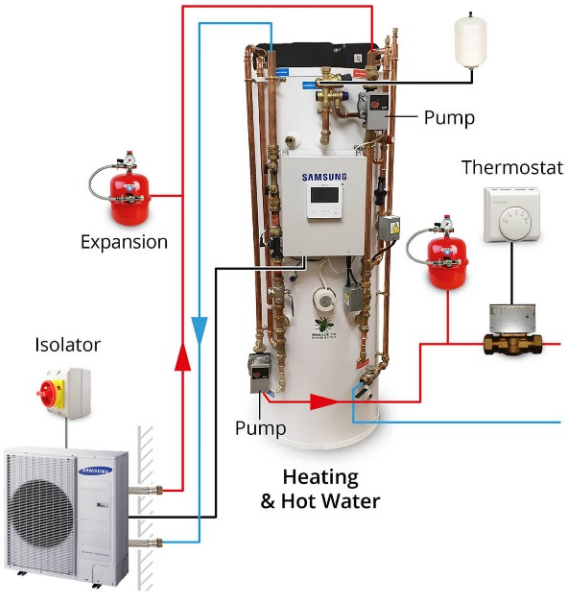
Installing the pump away from the house entailed digging a trench 1m below the level of the patio in which water pipes could be laid. The pipes deliver colder water to the heat pump, and return warmer water to the cylinder in the old 'airing cupboard' on the first floor. The trench and pipes (in black) are clearly visible in the photograph.

We set the heat pump on a concrete block, raised by about 40cm to mitigate against the possibility of flood damage (flood water has reached ground level at the base of the heat pump site in the past). We are currently in the process of making a skirt to hide the feet of the pump, and adding planting where possible to reduce visual impact. However, we feel it will be difficult to plant in front of the fan as the cold wind generated from the pump will stress nearly all plants.

The installation took 4 days in total, including installing the cylinder and pipework through an extension attic space and into the first floor 'cupboard'.

Cylinder

Amazingly, the 180L hot water cylinder (plus a 20L buffer) and two expansion tanks were all fitted into the airing cupboard, as pictured:



Controls and Behaviour

We have the hot water set for 50 degrees centigrade, which means that we generally have to add a tad of cold water when showering, washing up etc. However, in our case, we top up the water temperature from immersion heating using electricity generated from solar PV, and in summer this increases the hot water temperature significantly. As a consequence, less electricity is needed to bring the water temperature up to the set value of 50 degrees C.

The biggest adjustment to the way we heat the property is space heating in winter. At a temperature of 50 degrees C, radiators feel warm but not hot, and they should be left on at this level for 24 hours a day. The heat pump adjusts for temperature automatically, and if the internal temperature drops below a set value, the pump will increase the temperature of the radiators accordingly. There is a psychological adjustment to be made in accepting that the heating should be left on all day (and night), maintaining a much more constant temperature. Our personal preference is to have this level relatively low, and to focus on draughtproofing and keeping doors closed etc! Even in our old Cotswold stone property, without solid wall insulation, we find that the house is warm enough as long as we are happy to wear a jumper; although in winter we generally 'top up' with the log burner in the living area on colder evenings.

Running Costs & Economy (Electricity & Gas Bills post-installation cf pre-installation)

Our electricity bills have gone up significantly, and our gas bills have dropped to nearly zero. It is difficult to compare accurately, because many factors interfered with our bills, including long periods of time away from the house, estimated readings, switching supplier, varying levels of wood burner use etc. However, based on the 5 months energy use of the heat pump so far, I am projecting that it will use approximately 5,000kWh over the year, on a typical tariff costing approximately £1,000 for

heating and hot water (bearing in mind that the PV and wood burner also contribute). Prior to installation, our gas heating bill was approximately £700 for the year (additional gas use for cooking is pretty negligible in comparison). This is an apparent increase in heating costs, but more information is needed to confirm. In addition, we are considering further alterations which will serve to reduce heat loss (and carbon emissions) yet further, and improve economy:

- Switch to an *Economy 7* tariff, heating water at night-time at a cheaper rate, and using the hot water over the course of the next 24 hours
- Investigate installing a battery, allowing us to store electricity generated from PV, instead of exporting it directly to the grid (if we are not using it)
- The battery would also allow us to capitalise on cheap electricity on an *Economy 7* tariff
- Investigate further insulation within the home, such as internal wall insulation on solid walls. Any modification to improve heating efficiency in our property will not affect the RHI payment we are awarded
- Replace the gas hob with an induction hob, so that we will not use any gas, with the added bonus of not paying the standing charge for connection, saving up to £100 per year

When thinking about future proofing and finances, it is also worth considering how the cost of gas and electricity might change over the coming years. This will depend on a wide range of market forces, and further reading can be found here:

Future Energy Scenarios | National Grid ESO

References:

[1] A guide to air source heat pumps - Energy Saving Trust

[2] Ultimate Guide to RHI and Heat Pumps | GreenMatch

[3] Domestic Renewable Heat Incentive (Domestic RHI) | Ofgem

[4] 8KW R32 Air Source Heat Pump | Joule (jouleuk.co.uk)

General Reading:

David MacKay FRS: : Contents (withouthotair.com)

Low carbon heat pumps: debunking the myths - Energy Saving Trust

Technical Reading:

Air Source Heat Pumps field studies: A systematic literature review. P.Carroll, M.Chesser, P.Lyons

'Renewable and Sustainable Energy Reviews'. Volume 134, December 2020, 11027

CASE STUDY 1:

Why did you decide to install a heat pump?

In 2020, I purchased an 1870s home with an old electric storage heating system. I had two options: upgrade the storage heaters or look at an air source heat pump. I went with an air source heat pump for a few reasons:

- Cheaper running costs than a storage heating system.
- Removing heaters from my walls freed up wall space, replacing them with underfloor heating.
- I had little opportunity for insulation as the walls are very thick stone. External wall insulation was not suitable as I live in a conservation area and internal wall insulation would take up too much space. There's an apartment above me, so no loft to insulate. Floor insulation in suspended timber floors was the most reasonable option to improve insulation (and shared costs with underfloor heating system).

What was the application and installation process like?

I applied for the Home Energy Scotland Loan to help with the cost of installing the air source heat pump. After speaking with several installers, I received a range of quotes for the heating system and heat pump between £7,000 and £19,000. Booking installers to quote took a few weeks and I received my loan offer after two months.

Unfortunately, in the meantime, my selected installer had filled their schedule with other installs, which added another month's delay. The heat pump manufacturer was also experiencing delays in production, which added another few months to the process. It wasn't quite as smooth a ride as I'd expected, but this was during lockdown!

What's the main benefit of having a heat pump?

I'm really enjoying the underfloor heating. It saves space on my walls in a small flat and it's a very comfortable way to heat my home. I didn't live with the storage heaters, but I would think it's a

cheaper system to run, too. I'm so far getting between 3-4 times the heat as my electricity input, even through the recent cold, snowy spell in February.

Do you receive any payments under the Renewable Heat Incentive? Was this a factor in your decision to install a heat pump?

Not yet, but I am about to apply for Renewable Heat Incentive (RHI) payments. It was definitely a factor, as it will help to recover at least some of my installation costs.

What advice would you offer someone considering installing a heat pump?

Invite lots of installers round to your property and ask them lots of questions. Don't be afraid of sounding stupid. You're the person who has to live with it, so it needs to be installed as you'll use it – which is not necessarily the easiest or more routine for them to install.

Ask lots of questions about why that size of heat pump or hot water cylinder has been selected, why that insulation has been selected, why that heating distribution system is being used, what controls they'd recommend, and so on. Installers will have different ideas, so ask them to justify their decisions and convince you. Let them know what other installers have suggested as alternatives and ask them to critique.

Look at your metering. With the storage heating system, I had a complex metering (restricted meter). I had three rates for my electricity supply, a separate one for my storage heaters and hot water, plus a day and night rate for all my other electricity use. This set up isn't really compatible with a heat pump that needs power throughout the day and limits me to a single tariff. So, I arranged to get that meter changed to a single rate meter after my heat pump was installed.

If you do go for it, wear your project manager hat! There's likely to be a few different contractors, although this should all be organised by your heat pump installer. Just keep an eye on timescales and what's been promised, when.

CASE STUDY 2:

Can you tell us about your heat pump?

We bought a new home nearly five years ago, which came complete with a new air source heat pump, so it was already installed. We live within a small development where all our neighbours have similar systems.

The system heats our domestic water and powers an underfloor heating circuit downstairs and a separate circuit running convector radiators upstairs. The pump is located at the side of the house and is around seven years old now. It is quite a large unit compared with heat pumps available now, as the technology is moving on so fast.

Do you receive payments under the Renewable Heat Incentive?

We looked into the Renewable Heat Incentive (RHI) scheme, which is great for householders who wish to convert an existing system to renewable heating. Our heat pump was already installed so we don't qualify for RHI.

Applying for RHI support looks to be a straightforward process. It will involve doing your research carefully, using an MCS-registered installer, and then apply within 12 months of installing. The RHI scheme is currently open until 31 March 2022.

What are some of the benefits of owning a heat pump?

Being heat pump users for five years we noticed a number of benefits:

- **Low energy costs** – in our first year at the property our total annual energy bill was less than £600, compared with around £1,300 in our previous similar sized property, using a gas/electricity tariff. The savings really do depend on getting a good value electricity tariff and learning how to use the pump and controls to maximise the benefits. The fabric of the building also makes a difference, so they are a much cheaper option in a thermally efficient property like ours.
- **It's great off-gas solution –** in the part of West Wales where we live, two-thirds of households have no access to mains gas, and bulk LPG and oil-fired heating is commonplace. This costs

more than mains gas, plus you have minimum fuel delivery amounts costing hundreds of pounds, which can be a real problem for residents on low incomes. With a heat pump you can pay monthly or via prepay like all electric customers**.**

- **It's cleaner and greener** – it feels good to be using a renewable technology and reducing our carbon footprint. There are no oil or gas fumes, leaking oil tanks or flammable gas to think about, and there are no 'tanker miles' associated with bulk LPG and oil deliveries. I can also use a green tariff for my electricity to power the heat pump. For every unit of electricity used to run the pump, it gives around 3-4 units back by converting the air temperature outside to run our heating. It's also nice and quiet when running.
- **Underfloor heating** – this type of heating goes hand in hand with many air source heat pump installations. And it is luxurious feeling the warmth under your feet!

What advice would you offer someone considering installing a heat pump?

In a way, we have become experts through engaging with the technology, learning how the system works and how to maximise the benefits. My advice would be to do your research on the available technologies and the building itself. Use experts like Energy Saving Trust and speak to MCS-registered installers who will advise on costs and suitability. Wherever possible, obtain three quotes for the work. Finally, enjoy being part of the transition to renewable heating!

CASE STUDY 3:

Why did you decide to install a heat pump?

We moved into a new house that had an oil heating system and the oil boiler needed replacing in the next few years. We didn't want to stay using oil for environmental reasons, the cost and because we needed to re-order oil each time it ran out, which was a faff.

What was the installation process like?

The installation process was pretty simple. The installers decommissioned our oil boiler and installed a new hot water tank, K2 radiators and the heat pump. It took three days. We were doing other renovations at the same time so also installed underfloor heating and solid wall insulation in two of the ground floor rooms.

What's the main benefit of having a heat pump?

Not having to be dependent on oil.

Do you receive any payments under the Renewable Heat Incentive? Was this a factor in your decision to install a heat pump?

Yes, we do and yes, it helped with the decision. The payments will cover the cost of the heat pump over seven years.

What advice would you offer something considering installing a heat pump?

They're great, easy to install and surprisingly quiet – as this can be something people are concerned about.

We have also moved over to a time of use electricity tariff and try to make use of that by heating the house and hot water outside of the peak hours, which saves us money.

CASE STUDY 4:

Why did you decide to install a heat pump?

Having been in the renewables game for 20 years, I knew I had to put my money where my mouth was. And let's not forget that this really is a big financial decision. My 25-year-old boiler broke down and I was just about to build an extension, so I did the sensible thing and dealt with both at once.

What's the main benefit of having a heat pump?

Cheaper heating costs, convenience (no more organising fuel deliveries), and as anyone in my team will tell you, an unparalleled air of smugness!

Do you receive payments under the Renewable Heat Incentive?

I am expecting to receive payments under the Renewable Heat Incentive (RHI). I think anyone who says that incentives are not part of the decision-making process is possibly not being 100% honest. They won't pay for the installation outright, but over seven years about 75% of the capital cost will be covered and the fuel savings will make up the rest with surplus on top.

What advice would you offer someone considering installing a heat pump?

I think there is a parallel here to draw with owning an electric vehicle. Once you have agonised over details like efficiency, value for money, whether you can afford it or not, you bite the bullet. And then it all seems like a real non-issue. Life goes on and you wonder why you spent so much time worrying about it! And you would definitely never go back.

My best advice would be find an installer who you get a good feeling about and ideally comes with personal recommendations. You are better off having an average heat pump installed by a competent installer for a fair price that will still be in business in a year's time than finding the cheapest 'deal' from the latest company to jump on the band wagon.

I also stick by the idea that local installers have a reputation to protect, and national operators are more likely to cut corners. Finally, never respond to a leaflet through the door – companies that operate like this are mostly playing a numbers game.