

# Benefits of the Cleaner Heat Cashback

## How will upgrading my heating system benefit my business?

You should save up to 25 per cent off your fuel bills each year. Exact savings will depend on the size and type of the heating system, among other factors. Heating accounts for around half of business' energy consumption, and boilers represent 30 to 40 per cent of energy spend each year, so an efficient heating system makes a big difference. The more energy efficient your boiler is, the less fuel it uses.

Renewable heating systems harness the natural environment (sun and the ground) to produce heat. These technologies can help to protect your business against energy price rises.

## How will upgrading my business' heating system help reduce air pollution in London?

Air pollution in London is one of the most serious environmental and public health concerns facing London. While reducing harmful emissions from transport will have the biggest impact on air quality, this won't be enough on its own to deliver compliance with legal or safe limits on air pollution.

Heating systems in buildings emit pollutants called nitrogen oxides as they burn fuel, and these gases contribute to local air pollution. Businesses tend to have bigger heating systems, and the larger and older the heating system, the more polluting it is. Businesses can therefore play an important role in improving London's air quality by upgrading to heating systems which work more efficiently, burn less fuel or use renewable energy sources.

The Mayor has identified some parts of London that have particular local air quality issues, as Air Quality Focus Areas. If your business is in one of these areas you'll get extra financial support through the Cleaner Heat Cashback.

## How will upgrading my business' heating system help reduce carbon emissions?

The energy used by businesses accounts for around 40 per cent of London's carbon emissions. By becoming more efficient in their fuel use and installing cleaner or renewable heating systems, businesses can play a big part in helping to fulfil the Mayor's ambition of London becoming a zero carbon city by 2050.

If your boiler uses gas, oil, LPG or coal, it will emit carbon dioxide as it burns the fuel. Although an old heating system might be working without any problems, it will become less efficient over time, which means it will burn more fuel and emit more carbon. By moving to a newer, more efficient heating system you will be using less fuel and emitting less carbon as a result. If you move to a renewable heating system, your carbon emissions are likely to reduce significantly.

## Eligibility

### About your business

### Is my business eligible for the Cleaner Heat Cashback?

The Mayor of London has designed this scheme to help Small and Medium-sized Enterprises (SMEs) save money on their energy bills whilst improving the energy efficiency of their business and reducing air pollution.

Businesses which meet the EU definition of an SME, are located within Greater London and have an inefficient heating system are eligible to apply.

### **What type of businesses are eligible to apply?**

Any SME can apply (for example, sole traders, partnerships, Limited Liability Partnerships and Limited companies).

### **What is the definition of an SME?**

A Small or Medium sized Enterprise (SME) is defined as an enterprise which employs fewer than 250 persons and which has an annual financial turnover not exceeding 50 million euros (equivalent to around 44.3 million pounds, depending on the exchange rate), and/or an annual financial balance sheet total not exceeding 43 million euros (equivalent to around 38.1 million pounds, depending on the exchange rate).

### **How will you check that I am a business?**

We will run a number of checks:

- that your business address (where the heating system installation address is taking place) pays business rates
- publicly available information on your business held at Companies House and HMRC.

We may also use the Energy Saving Trust's (scheme administrators) business credit checking company (Creditsafe), to do further financial due-diligence although no credit assessment will take place. It will be up to you to provide evidence confirming you are a legitimate business and that the premises where the heating system installation will take place is used by your business.

You may also be asked to provide evidence that your business has a business bank account.

### **I run my business from my home, am I eligible to apply?**

No, the Cleaner Heat Cashback is aimed at replacing commercial boilers and will therefore only support installations that take place in commercial properties. You will not be eligible if the installation address pays domestic rates in part or in full.

If you require energy efficiency advice and support, up to date information and guidance on home energy grants, visit <https://www.eachhomecountsadvice.org.uk/grants>

### **My business operates across multiple sites within London. Can I make more than one application?**

Yes. Provided each individual site is a commercial site which pays business rates, then you can make more than one application.

## **About your heating system**

### **What type of heating system can I replace?**

The Cleaner Heat Cashback aims to encourage businesses to replace old inefficient heating systems which are contributing to London's air pollution and carbon emissions with cleaner alternatives. Therefore, you will only receive the Cleaner Heat Cashback if you are replacing an inefficient heating system.

The heating system (which could be either a single boiler or a cascade system) being replaced must be a gas, LPG, oil, biomass or coal heating system that is:

- a minimum of 70 kW (heating system output)
- in working order
- the main heating system used to heat the business address
- for mains gas, LPG and oil systems, the boiler must also be over 10 years old.

**Note:** Electric heaters or renewable heating systems (other than biomass), are not eligible for the Cleaner Heat Cashback.

### What type of new heating system can I install?

Eligible replacement heating systems must be either:

- a gas or LPG system that is at least 90 per cent energy efficient in use (as defined in the Energy related Products (ErP) Directive) and less than 40 mg NOx per kWh
- an air source heat pump with an efficiency above 250 per cent (as defined by ErP Directive)
- a ground source heat pump with an efficiency above 330 per cent (as defined by ErP Directive)
- a hybrid system combining one or more of the above or with the inclusion of solar thermal
- a connection to a heat network.

The below table shows what you can replace your current system with.

		<i>Which heating system can I install?</i>				
		<b>Gas boiler</b>	<b>Heat Pump</b>	<b>Heat Network</b>	<b>LPG boiler</b>	<b>Hybrid boiler solar thermal</b>
<b>If my old boiler is:</b>	<b>Gas</b>	✓	✓	✓	x	✓
	<b>Oil</b>	✓	✓	✓	x	✓
	<b>Coal</b>	✓	✓	✓	x	✓
	<b>Biomass</b>	x	✓	✓	x	x
	<b>LPG</b>	✓	✓	✓	✓	✓

### Why does my current boiler have to be working to be eligible for the scheme?

The Cleaner Heat Cashback is aimed at improving air quality and reducing carbon emissions, this will happen where boilers are replaced before the end of their natural life.

### Why must my installer be on the manufacturers' approved list of installers to undertake the installation of my new heating system?

We want to ensure that all new heating systems installed under the Cleaner Heat Cashback are installed safely, to a high standard and in line with the law. By using an installer from the

manufacturers' approved list, you will have more assurance that the work is being carried out by someone who not only has the necessary accreditation (e.g. Gas Safe (formally CORGI) or Microgeneration Certification Scheme (MCS) approved), but is also familiar with the system they are installing.

### **Why are new biomass heating systems not eligible?**

The Cleaner Heat Cashback encourages installations of heating systems which are less polluting and help improve London's air quality. Biomass fuels produce more air pollutants compared to the other technologies eligible under the scheme, therefore we are not supporting the installation of new biomass boilers.

See list of eligible technologies.

### **I would like to replace my old oil boiler with a new efficient oil boiler. Will this be eligible?**

No. The aims of the Cleaner Heat Cashback are to address air quality issues and improve the environmental impact of heating systems in London's commercial sector. Oil boilers – even efficient ones – contribute to air pollution, and the Mayor wants to help enable the transition from polluting oil boilers to cleaner technologies.

If you have an existing oil boiler, support is available to transfer to a mains gas system if a connection to a gas network is possible.

The Mayor is also offering higher levels of cashback towards the cost of replacing your old system with a renewable heating system, e.g. a heat pump.

If you are located close to an existing heat network you could also explore the potential for the heat network operator to connect your business to their network.

### **I would like to replace my old biomass system with a new efficient gas boiler. Why is this not eligible?**

The aims of the Cleaner Heat Cashback are to reduce carbon emissions and improve air quality, so we want to ensure that the replacement system will be cleaner. If you have a biomass boiler and replace it with a gas boiler, this could result in an increase in carbon emissions.

### **I would like to install a heat pump; will this affect my ability to claim the Renewable Heat Incentive (RHI)?**

Potentially, yes. Applying for the Cleaner Heat Cashback may affect your ability to claim the RHI. This is because the RHI will not be paid if the cost of installing certain parts of a heating system have already been covered by grant funding from elsewhere. However, you can claim the Cleaner Heat Cashback for only part of the new heating system.

More information can be found through Ofgem's website on page 27, section 4.8, "What is an installation?"

[https://www.ofgem.gov.uk/system/files/docs/2018/06/guidance\\_volume\\_1\\_june\\_2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/06/guidance_volume_1_june_2018.pdf),

It is your responsibility to check what potential impact receiving the Cleaner Heat Cashback will have on RHI payments. The Greater London Authority and the Energy Saving Trust accept no responsibility in determining or advising on the potential impact.

## **Applying for the scheme**

### **Do I have to apply online?**

You are encouraged to use the simple, user-friendly online application process. This is the quickest way to apply.

If you are unable to apply online yourself, you can apply over the phone by calling the Cleaner Heat Cashback helpline on **0808 108 9414** (option 2). Calls to this number are free from UK landlines and mobiles. The scheme is administered by the Energy Saving Trust and one of their advisors will be able to help you complete the on-line application form. They will then ask you to post or e-mail in your supporting documents so an assessment of your application can be made.

### **What information do I need to apply?**

We want to make the process of applying for the Cleaner Heat Cashback as straightforward as possible. To apply you will need to provide the following:

- business name, contact name, address, e-mail address and a contact telephone number
- installation address for your current and replacement heating systems
- details of your business:
  - limited company registration number (if applicable)
  - nature of business
  - number of years the business has been trading
  - number of employees
  - turnover
  - balance sheet total
  - bank account details to allow the cashback payment to be made
- details of the current heating system including:
  - fuel type, age, size
  - photos of the boiler plate(s) (a boiler plate is a plaque on the side of the boiler which provides details of the heating system including serial number) of the current system, and the boiler room showing the current heating system in situ
- copies of your heating fuel bills, going back at least 12 months
  - **for gas boilers**, supply us with your monthly or quarterly fuel bills over the last 12 months
  - **for LPG boilers** supply the invoice or account statement, which shows the amount of fuel purchased in the last 12 months
  - **for oil boilers** supply the sales invoices for the fuel purchased over the last 12 months, which show the amount of fuel purchased in litres
  - **for biomass boilers** supply the sales invoices for the fuel purchased over the last 12 months, which show the weight of fuel purchased
  - **for coal boilers** supply the sales invoices for the fuel purchased over the last 12 months, which show the weight of fuel purchased
- details of the new heating system including two quotes from installers who must be on the manufacturer's list of approved installers. We recommend you get at least three quotes, but we require only two for the application. The quotes need to be on headed paper, dated, and contain a breakdown of the work including costs per item, detailing:
  - business name and contact name
  - installation address
  - details of the new heating system, including make, model and size, as well as the Energy Related Product (ErP) data fiche (your installer will provide this).

Please ensure that the two quotes you provide relate only to the heating system that you are applying to the Cleaner Heat Cashback for. For example,

- 100 kW gas condensing boiler
- 250 litre hot water tank
- labour associated with the installation of the above.

### **How will my application be assessed?**

Your application will be assessed in two parts.

Part 1 Non-technical assessment: this is carried out by the Energy Saving Trust (scheme administrators). This will determine that your business is eligible and your current and replacement heating systems are within commercial premises in London.

Part 2 Technical assessment: this is carried out by [Kiwa](#), (a testing and inspection company working with the Energy Saving Trust to deliver the Cleaner Heat Cashback). This will determine that your current and proposed new heating system are eligible.

We aim to carry out both stages of the assessment process within 10 working days, subject to the accuracy and completeness of the information submitted. We may contact you if further information is required.

#### **How will I be notified about the outcome of my application?**

Once your application has been assessed, you will be notified of the outcome by e-mail. If you are successful, you will receive your cashback voucher outlining the grant award and how to claim your cashback.

If you are unsuccessful, we will tell you why and let you know if you are able to resubmit your application for reassessment.

#### **How can I find the best deal on replacement heating systems and installation?**

We recommend that you shop around by enquiring with a range of installers, manufacturers or energy companies for the most competitive deal.

To apply for the Cleaner Heat Cashback you will need to provide two quotes. This is to help you get good value for money so you can compare different options and offers.

#### **How many quotes do I need to provide alongside my application?**

We require you to submit at least two quotes stating your preferred quote. There is no requirement to go with the cheapest quote and you must ensure that you are comfortable with the quote you have chosen.

#### **If I get a Cleaner Heat Cashback voucher and I find a better deal, can I change my installer?**

Yes. Providing your new installation continues to meet the scheme criteria and the installer is on the manufacturer's approved list to install the system, we welcome you shopping around to find the best deal. If you would like to discuss making changes to your cashback offer, please contact us on 0808 108 9414 (option 2). You should wait to ensure that you get a new Cleaner Heat Cashback offer before instructing a new installer so we can confirm you still meet the eligibility criteria.

#### **How can I get more information about the Cleaner Heat Cashback?**

These FAQs should answer most of the questions you have about the scheme. However, if you have any other questions or queries, or you need to make a complaint about the scheme, you can contact the Cleaner Heat Cashback team by e-mail at [chc@est.org.uk](mailto:chc@est.org.uk) or by phone on **0808 108 9414** (option 2). Calls to this number are free from all UK landlines and mobiles.

## **Claiming your cashback**

#### **How long do I have to claim my cashback?**

Once your application has been accepted you will be issued with a voucher. The voucher will be valid for six months from the date issued for all heating system options, with the exception of ground source heat pumps when the voucher will be valid for 12 months.

Following the installation, you will have a further 10 days to return your completed voucher and documents.

We will send you reminders about the expiry date of your Cleaner Heat Cashback voucher to ensure you're clear about how much longer you have to complete the installation and submit your claim.

### What do I need to provide to claim my cashback?

To claim your cashback, you will need to have:

- the completed voucher, which must be signed by both the applicant and the installer in the sections marked 'Applicant Declaration' and 'Installer Declaration'
- a copy of the invoice(s) marked 'Paid' from your installer for the supply and installation of the new heating system
- a copy of the Installation Certificate (Gas Safe, Microgeneration Certification Scheme or equivalent or competent person scheme such as OFTEC or HETAS)
- a copy of the benchmark gas heating system commissioning checklist (if appropriate), completed by your installer
- any other documents that the Energy Saving Trust may request if it has any queries about your claim.

You must also complete a short on-line survey in relation to your experience of applying for the scheme so that this information can be used to further shape and develop the scheme.

### How will the cashback payment be made?

Payment will be processed via BACS, or by cheque, if required.

## Money and fairness

### How much cashback will I receive for my new heating system?

The amount of Cleaner Heat Cashback you can receive will depend on the type of system you want to install and where your business premises is located.

In addition to the cashback provided for the heating system, you will receive an additional five per cent cashback if your business is within an Air Quality Focus Area. Therefore the maximum level of cashback that a business can receive through the scheme is 40 per cent.

		Percentage (%) of total heating system replacement cost covered by Cleaner Heat Cashback	
Your old system	Your new system	Outside an Air Quality Focus Area	In an Air Quality Focus Area
<b>Gas/oil/coal/LPG boiler</b>	Gas boiler	30%	35%
	Heat pump	35%	40%
	Hybrid systems (e.g. including solar thermal)	35%	40%
	Heat network	35%	40%
<b>LPG boiler</b>	LPG boiler	30%	35%
<b>Biomass boiler</b>	Heat pump	35%	40%
	Heat network	35%	40%

### Is there a maximum amount of cashback?

No, there is no maximum amount of cashback your business could receive towards its new heating system. However, in cases where the application for cashback is over £70,000 your application will be looked at more closely to establish the suitability of the system you want to install. We may ask you for more detailed information, or we may need to contact your installer to understand whether the costs they have provided are fair and reasonable.

### Does the Cleaner Heat Cashback cover the installation costs as well as the cost of the heating system?

Yes. When you receive your quotes from installers, they should include the cost of the heating system itself, the system's ancillaries (e.g. heating controls), as well as the labour costs related to the installation.

### What costs are covered?

The table below outlines the support which is eligible and ineligible under the scheme.

Expenditure	Eligible for support	Ineligible for support
Capital cost of replacement equipment	<ul style="list-style-type: none"> <li>Gas boiler</li> <li>LPG boiler (only when replacing an existing LPG boiler)</li> <li>Solar thermal</li> <li>Air source heat pump</li> <li>Ground source heat pump</li> </ul>	<ul style="list-style-type: none"> <li>Coal powered boiler</li> <li>Oil boiler</li> <li>LPG (unless replacing an existing LPG boiler)</li> <li>Biomass boiler</li> </ul>
Capital cost of system ancillaries	<ul style="list-style-type: none"> <li>New / replacement flue</li> <li>Pumps with variable speed drives</li> <li>Standard control system</li> <li>Heat or electricity meters</li> <li>Accumulator tank</li> <li>Lagging of accumulator pipework etc. in plant room</li> </ul>	<ul style="list-style-type: none"> <li>New radiators/heat emitters</li> <li>Upgraded Building Management System (BMS)</li> </ul>
Removal costs	<ul style="list-style-type: none"> <li>Removal of old boiler</li> <li>Removal of old flue</li> </ul>	<ul style="list-style-type: none"> <li>Removal of old radiators / heat emitters</li> <li>Plant room repairs/renovations</li> <li>Asbestos removal</li> <li>Remedial work (e.g. redecoration, painting, and general making good)</li> </ul>
Installation costs	<ul style="list-style-type: none"> <li>Installation of replacement heating</li> <li>Connection to the existing heating system</li> </ul>	<ul style="list-style-type: none"> <li>Installation costs of heating system ancillary works e.g. new radiators, pipework etc</li> </ul>
Start-up costs	<ul style="list-style-type: none"> <li>System cleaning</li> <li>First fill water treatment chemicals</li> </ul>	

	<ul style="list-style-type: none"> <li>• Recommissioning of plant in line with best practice</li> </ul>	
Metering	<ul style="list-style-type: none"> <li>• Heat meters</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity meters</li> <li>• Submeters</li> </ul>
Heat network connection	<ul style="list-style-type: none"> <li>• Removal of old boiler and redundant ancillaries (e.g. cylinder if necessary) and if necessary making safe of gas supply</li> <li>• Heat Interface Unit (HIU) (along with integrated controls)</li> <li>• Installation of HIU</li> <li>• Pipework connection to an existing network up to 50m away</li> </ul>	<ul style="list-style-type: none"> <li>• Changing of radiators / emitters</li> <li>• Heat metering (as this should be an obligation on the heat supplier)</li> <li>• Upgrading controls or BMS</li> <li>• Complete disconnection from gas mains</li> <li>• Pipework connection to an existing network over 50m away</li> </ul>

If you are unsure as to what aspects of your installation are covered through Cleaner Heat Cashback please contact [chc@est.org.uk](mailto:chc@est.org.uk) or 0808 108 9414 (option 2) before installation.

#### **Will the Cleaner Heat Cashback cover the cost of remedial work?**

No. If remedial work is required as a result of the installation, such as plastering and repainting, these costs will not be eligible for support under the Cleaner Heat Cashback.

The costs of removing any asbestos which is identified during any surveys will not be covered under this scheme.

#### **Will the Cleaner Heat Cashback cover the cost of other energy efficiency measures?**

No. The Cleaner Heat Cashback will not cover the cost of additional energy efficiency measures such as lighting, insulation or smart controls.

#### **Why do I need to pay for my installation before claiming my Cleaner Heat Cashback?**

As a cashback or rebate scheme, the Cleaner Heat Cashback can only be paid once your installer has been paid in full. This provides protection for you and your installer. By signing your voucher and claiming your cashback, you will have indicated that you are satisfied with the installer's work.

#### **What happens when the money runs out?**

When the money runs out we will close the scheme. Those with a valid Cleaner Heat Cashback voucher will still be able to claim their cashback, but must do so before their voucher expires.

#### **Will the scheme operate on a first-come, first-served basis?**

Yes. Everyone who applies (i.e. completes and submits their application) will be put into a queue ordered by the date and time of their application. Provided you have filled out everything correctly online, you will receive an e-mail confirming your application has been submitted and setting out the process for dealing with your application.

#### **Does the Cleaner Heat Cashback affect any claim I make under the Enhanced Capital Allowances (ECA)?**

The GLA cannot give specific financial advice on individual cases as it will depend upon how the business applying for the grant, accounts for the transaction in their own financial system. It is recommended that you seek financial advice to determine what impact the Cleaner Heat Cashback might have on your ECA claim.

## Quality assurance and fraud

### Will there be checks on my new heating system?

Yes. During the application process, Kiwa (which help deliver the Cleaner Heat Cashback with scheme administrators Energy Saving Trust) evaluate the new heating system specification you submit, to ensure the system is both suitably sized and priced. If there are any concerns, we will contact you and ask for further clarification to ensure that value for money is being provided.

Once you have installed your new heating system you may be selected for an audit. Kiwa may visit your business premises to check that the heating system installed is as described in the quote you submitted with your application and meets quality standards.

For a heating system to work as safely and efficiently as possible it must be installed correctly. We therefore recommend you choose your installer carefully to ensure the quality of the new system. This is why we ask applicants to check whether their chosen installer is approved by the manufacturer of the heating system they are installing. If you are installing a gas heating system, check the [Gas Safe Register](#) to find engineers who are qualified to work on commercial and industrial heating systems.

### How will fraudulent claims be prevented?

We have rigorous requirements and checks in place to prevent fraud, so that only eligible businesses installing eligible heating systems benefit from the scheme. These checks include the following:

- business checks: we will use the Valuation Office Agency, HRMC, Creditsafe and other publicly available information to verify the applicant is a legitimate business
- installation checks: when submitting your claim, we will ask you to provide a receipted invoice and a commissioning certificate/Micro Certification Scheme certificate. Where relevant, to verify your claim, we may contact Gas Safe and/or your installer and ask them to verify the information you have given us.
- random pre- and post-installation audits to ensure that the information provided is accurate.

We reserve the right to conduct other checks and monitoring procedures, for example acting on the receipt of information from an anonymous source. In the unlikely event of fraud being detected, we will report and prosecute and will require that the cost of any improvements undertaken is repaid.

### What are my responsibilities under the Construction (Design and Management) Regulations 2015 (CDM 2015)?

*The Construction (Design and Management) Regulations 2015* are a set of regulations to be followed by businesses carrying out small-scale building and maintenance work in their building. Businesses having this type of work carried out need to make suitable arrangements for managing the work safely.

As an applicant of the Cleaner Heat Cashback and in line with the CDM 2015, you must ensure that you:

- appoint the right contractors for the type of work you will be doing;
- allocate sufficient time and resources for the work
- provide the relevant contractors with the information they need;
- provide adequate welfare facilities.

It is your responsibility to ensure that you follow the CDM 2015 Regulations and only claim your cashback if you are satisfied that you fully comply. For more information on the CDM 2015 regulations visit <http://www.hse.gov.uk/pubns/indg411.pdf>

The GLA has no role or responsibilities under CDM 2015 as a result of providing funding through the Cleaner Heat Cashback.

## Choosing a heating system

### How do I find a manufacturer approved installer to carry out the work?

To look for installers who are approved by heating system manufacturers, or to check if your preferred installer is approved by the manufacturer of the heating system you will be installing, visit the manufacturer's website. Most have a 'Find an installer' search page where you can find the relevant information. You can also check with your local installers.

### What is the right heating system for my business?

#### Condensing gas boilers

Modern boilers are more efficient for several reasons, but their main advantage is that they are condensing boilers. All well-maintained boilers burn their fuel very efficiently, but they inevitably lose some heat in the hot gases that escape up the flue. A condensing boiler has a larger heat exchanger, so it recovers more heat, sends cooler gases up the flue and is more efficient.

New high efficiency boilers will have a seasonal efficiency of around 90 per cent, whereas a boiler that is 20 years old is likely to have an efficiency of 70 per cent or less.

Things to consider when thinking about installing a new gas boiler:

- the boiler must be sized correctly for your business heating and hot water requirements. An oversized system will affect its efficiency and you may end up paying more on running costs
- consider whether it would be useful to have more than one boiler. This may offer you more flexibility when trying to match the heat your system produces, with the heat that you are using. During mild weather you may only use one or two boilers, and one additional boiler during cold weather
- ensure you have room to accommodate the length and height of the flue
- ensure there is enough space available in the plant room and that access is not restricted.

The typical installation cost for a 100 kW sized gas boiler is around £7,000 and if upgrading from an old gas boiler, you could see around a 20 to 25 per cent reduction in running costs.

For further guidance on condensing boilers, see The Carbon Trust Guide on [How to implement condensing boilers](#).

#### Ground Source Heat Pumps

Ground source heat pumps (GSHPs) use pipes to extract heat from the ground. This heat is then used to heat radiators, underfloor or warm air heating systems, or hot water.

Benefits of installing a ground source heat pump:

- could lower your fuel bills

- could lower carbon emissions, depending on which fuel you are replacing
- no fuel deliveries needed
- can heat your building as well as your water
- minimal maintenance required

Things to consider when thinking about installing a ground source heat pump:

- is there space for a ground loop? The ground needs to be suitable for digging a trench or a borehole and accessible to digging machinery
- is your building well insulated? Since ground source heat pumps work best when producing heat at a lower temperature than traditional boilers, it's essential that your building is well insulated and draught-proofed for the heating system to be effective.
- what fuel will you be replacing? The system will pay for itself much more quickly if it's replacing a coal heating system
- what type of heating system will you use? Ground source heat pumps can perform better with underfloor heating systems or warm air heating than with radiator-based systems because of the lower water temperatures required
- when installing a ground source heat pump in the grounds of a non-domestic building, planning permission is not normally required, but certain conditions may need to be met. Check with your local authority to see what is required in your area

The typical installation cost for a 100 kW sized ground source heat pump is £175,000. The expected reduction in running costs, if moving from a gas boiler could be around 20 per cent.

For more information on Ground Source Heat Pumps, see The Carbon Trust guide on [How to implement ground source heat pumps](#)

### **Air source heat pumps**

Air source heat pumps absorb heat from the outside air. This heat can then be used to heat radiators, underfloor heating systems, or warm air convectors. They can get heat from the air even when the temperature is as low as minus 15 degrees Celsius.

Heat pumps have some impact on the environment as they need electricity to run, but the heat they extract from the air is constantly being renewed naturally.

Unlike gas and oil boilers, heat pumps deliver heat at lower temperatures over much longer periods. During the winter they may need to be on constantly to heat your building efficiently.

Benefits of installing an air source heat pump:

- lower fuel bills and carbon emissions, depending on which fuel you are replacing
- no fuel deliveries needed
- can heat your building as well as your water
- minimal maintenance required
- can be easier to install than a ground source heat pump.

Things to consider when thinking about installing an air source heat pump:

- do you have somewhere to put it? You'll need a place outside your building or on the roof. It will need plenty of space around it to get a good flow of air. A sunny wall is ideal
- is your building well insulated? Since air source heat pumps work best when producing heat at a lower temperature than traditional boilers, it's essential that your building is well insulated and draught-proofed for the heating system to be most efficient
- what fuel will you be replacing? The system will pay for itself much more quickly if it's replacing a coal, oil or LPG heating system

- what type of heating system will you use? Air source heat pumps can perform better with underfloor heating systems or warm air heating than with radiator-based systems because of the lower water temperatures required
- is the system intended for a new development? Combining the installation with other building work can reduce the cost of installing the system.

The typical installation cost for a 100 kW sized air source heat pump is around £70,000.

For more information on Air Source Heat Pumps, see The Carbon Trust guide on [How to implement air source heat pumps](#)

### **Hybrid boiler (e.g. with inclusion of solar thermal)**

Solar water heating systems, or 'solar thermal' systems, use heat from the sun to warm hot water. A solar hot water system can be added to a gas boiler, LPG boiler or heat pump to make a hybrid system. The boiler or heat pump can be used to make the water hotter, or to provide hot water when solar energy is unavailable. Solar water systems are suitable for businesses with high hot water demand.

Benefits of solar water heating:

- hot water throughout the year. The system works all year round, though you'll need to heat the water further using the boiler during the winter months
- reduced energy bills. Sunlight is free, so once you've paid for the initial installation, your hot water costs will be reduced
- lower carbon footprint. Solar hot water is a green, renewable heating system and can reduce your carbon dioxide emissions
- maintenance costs are generally low.

Things to consider when planning to install a solar water system

- do you have a sunny place to put solar panels? You'll need roof space which faces East to West through South and receives direct sunlight for the main part of the day. The panels don't have to be mounted on a roof however. They can be fixed to a frame on a flat roof or hang from a wall.
- do you have space for a larger, or an extra, hot water cylinder? If a dedicated solar cylinder is not already installed then you will usually need to replace the existing cylinder, or add a dedicated cylinder with a solar heating coil.

The typical installation cost for a 100 kW sized ground source heat pump with solar hot water is around £180,000. The expected reduction in running costs if moving from a gas boiler could be around 20 per cent.

The typical installation cost for a 100 kW sized gas or LPG boiler with solar hot water is £9,100 and if upgrading from an old gas or LPG boiler, you could see around a 20 to 25 per cent reduction in running costs.

### **Heat Networks**

A heat network connects an end user to an energy center where heat is produced. The heat is delivered to your business premises through insulated pipes which deliver heat in the form of hot water or steam. This means many end users can be connected to the same energy center and generating heat in one main center can often be more efficient than lots of buildings generating their own heat on site.

When connected to a heat network, you will have a Heat Interface Unit (HIU) in your building which gives you full control over your heat and hot water, so you can adjust the settings to match

your business' need for heat and hot water. The HIU acts like a bridge between your building and the energy center, where the heat is generated.

Benefits of heat networks include:

- you don't need to have a boiler installed on site, saving you space
- the HIU require little maintenance
- the maintenance of the energy centre is the responsibility of the network operator
- they can make use of waste energy from other sources to provide useful heat for your business, reducing the environmental impact
- they may work by using a variety of energy sources, this diversity helps protect customers from sharp changes in the cost of certain energy types and could therefore give long-term price stability.

Things to consider:

- you will need to be within 50 metres of an existing heat network in order to connect to one. If you are further away, the cost of installing the pipework needed to connect would likely be prohibitive
- if you are within 50 meters of a heat network, you will work with the heat network operator of that particular network to get you connected.

The typical installation cost for connecting to a heat network is £52,500 if you also require the installation of pipework (for a 100 kW heat output). If the pipework is already in place the cost is much lower at £2,500.

For more information on heat networks go to [London Heat Network Manual](#)

### **LPG boilers**

If you already have an old LPG boiler installed in your building, upgrading to a high efficiency boiler could deliver cost savings.

Benefits of an LPG boiler include:

- the fuel tank maintenance is the responsibility of your supplier
- you do not have to pay for your fuel tank
- your tank may be able to send automatic notifications to your supplier about when your fuel levels are low, so that they can deliver fuel to you before you run out.

The typical installation cost for a 100 kW sized LPG boiler is around £7,000 and, if upgrading from an older LPG boiler, you could see around a 20 to 25 per cent reduction in running costs.