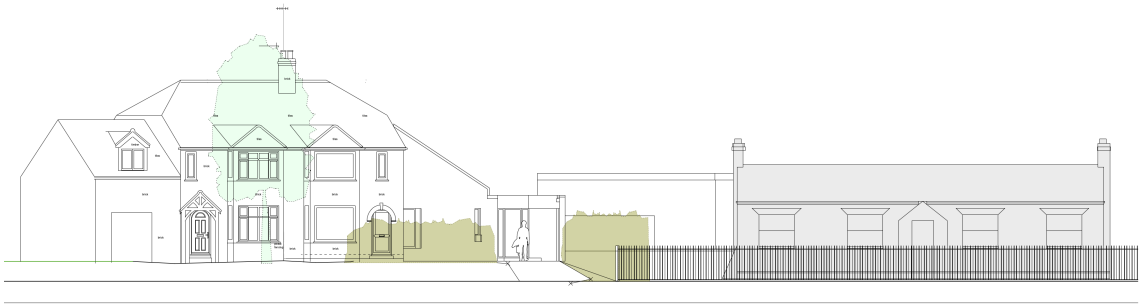
21-22

NEW DWELLING, LAND TO THE SIDE OF 8 STOCK LANE, WHADDON, MK17 0LS

Sustainable Construction & Renewable Energy Statement

For: Mr Peter Hudec

Date: 19 July 2022



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CONTENTS

INTRODUCTION

1. A separate Design Statement (reference 21-22) sets out the principles and approach to the design for a new dwelling on land to the side of 8 Stock Lane, Whaddon. Please read this report first alongside the application drawings.

2. Site address:

   8 Stock Lane

   Whaddon

   MK17 0LS

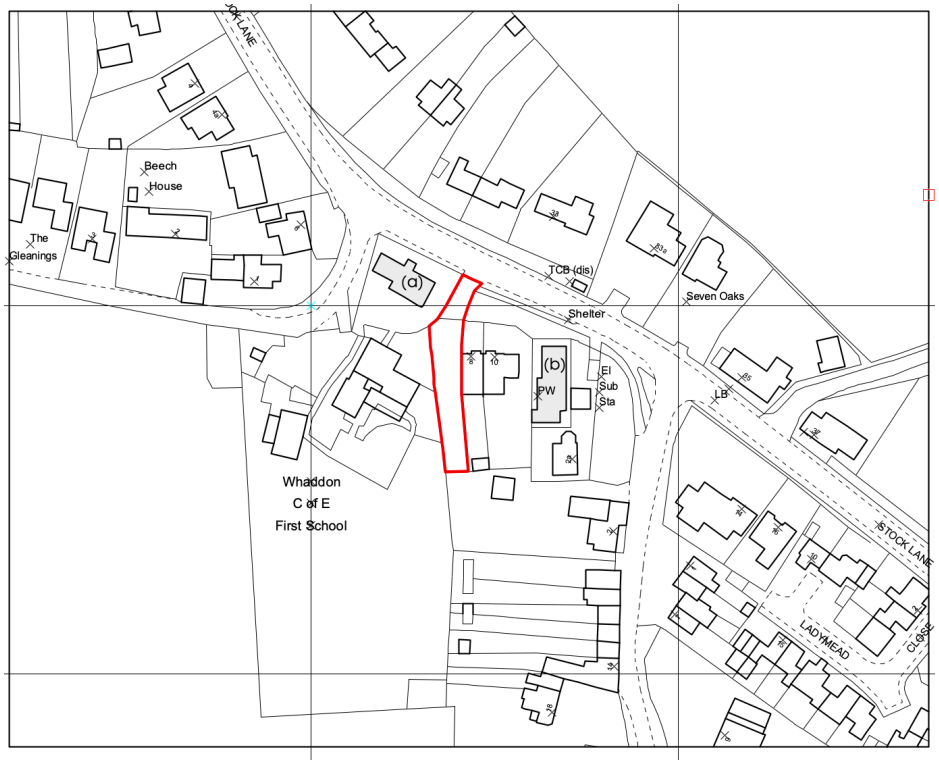

Fig 1: Location map, red line boundary identifying the site.

3. The proposal is for a new 2 bedroom dwelling located in Whaddon and within walking distance of the following amenities:
    - Public Transport Bus Stop and access to a regular bus service (less than 50m walk)
    - Whaddon Cof E First School (less than 50 m walk).
    - Whaddon Post Office (approx. 150 m walk).
    - Local Places of Worship: including St Mary's Church Whaddon (approx. 300 m walk).
    - Public House: The Lowndes Arms (approx. 300 m walk).
    - The Co-op local store in Kingsmead (25 minute walk via pedestrian footpaths)

LAYOUT

4. The layout of the proposed dwelling is orientated on a north south axis with the main habitable accommodation on the south side with access to the garden.
5. This orientation provides natural light and controlled passive solar gain to the main habitable spaces during the cooler seasons.
6. The pitched roof has projecting rafters to create a small overhang to provide solar shading in the summer.
7. Part of the roof will have a planted sedum green roof system for rainwater attenuation and the added benefit of biodiversity gains (17.5 m2).

WATER EFFICIENCY

8. The sanitary fittings will be specified to meet Part G of the Building Regulations for water efficiency.
9. As part of the sustainable drainage strategy storm water from the roof will be attenuated and collected in a water feature providing water for use in the garden. This has been illustrated on the proposed site plan.

MATERIALS

10. The house will be constructed using timber for main structural load bearing walls, floors and roof. Timber is a regenerative sustainable material and its use in construction provides sequestered carbon.
11. The external envelop will be fully insulated cavity wall construction to meet the new Part L Building Regulations.

12. The use of breathable natural materials such as timber and wood fibre insulation will contribute to the highly insulated, sustainable approach to construction.
13. The technical design will be subject to a SAP energy assessment to ensure compliance with current requirements as set out in Part L of the Building Regulations.
14. The proposals integrate a fixed Electric Vehicle charging point as illustrated on the proposed site plan.
15. The site is located within the establish residential area of Whaddon with access to mains services.

ADVANTAGES OF CROSS LAMINATED TIMBER (CLT)

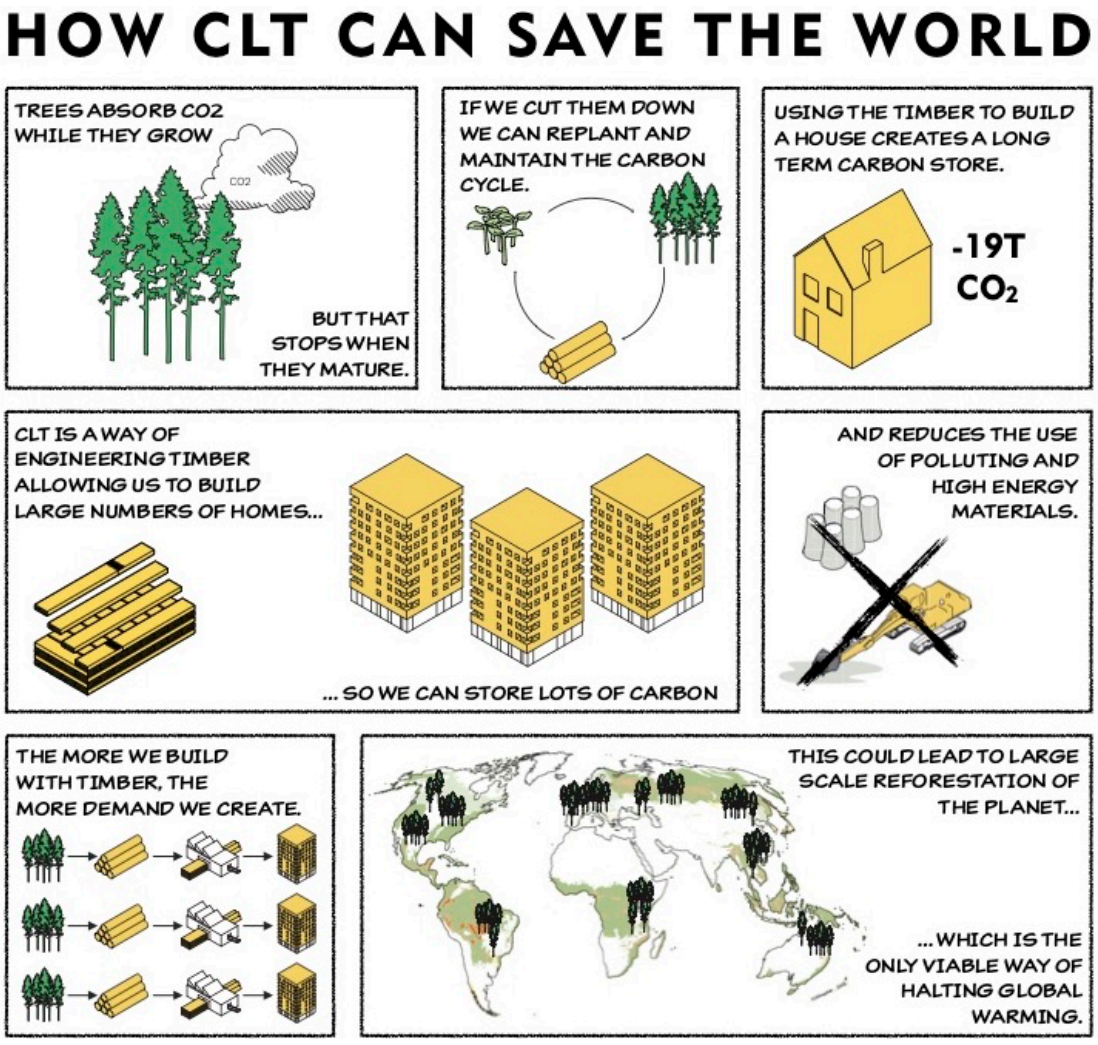

Fig 2: CLT explained by Waugh Thistleton Architects.

16. The proposed scheme has potential to adopt the mass timber construction principles which will provide a carbon sink for the lifetime of the building.

17. CLT construction is fabricated off site and minimises site waste during construction and can significantly reduce the duration of the building programme and associated disruption.

RENEWABLE ENERGY

18. The existing oil tank is to be removed and replaced with an air source heat pump (ASHP).
19. The ASHP will provide stainable energy for hot water to the property.

Fig 3: Existing old tank to be replaced with ASHP renewable energy system.

APPENDIX: Air Source Heat Pump Specification

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Potential project costs and return on investment consultation document

Peter Hudec

Site Adress
8 Stock Lane
Whaddon
MILTON KEYNES
MK17 0LS

Project Name: MK17 0LS - 8 Stock Lane

Please note: This is not a quotation, it is a document for discussion.

Prepared by: Edward Howes
On: 23rd February 2022
Reviewed by: Edward Levien

Introduction

Further to our site visit and subsequent analysis of the information that you provided, we are writing to provide a possible outline solution for the heating and hot water requirements at your property. These initial suggestions should be seen as a starting point and subject to change as plans develop. It is difficult to predict exactly at this stage what the total costs of this project may be so please be aware that all estimates are just that – estimates and subject to revision as the project scope becomes clearer. We have broken down likely costs into materials and labour. For transparency, we have also tried to include all the costs we believe you are likely to incur including those not directly under the scope of isoenergy.

All items are shown without including VAT as the applicable rate of VAT depends on your circumstances. However, it is likely to be 0% for new-build houses and a reduced rate of 5% for residential houses installing renewable energy.

We are happy for our scope to be extended or constrained depending on your other contractors' requirements.

The overall site requirement is potentially as follows:

1. To provide spatial heating and domestic hot water to the existing house
2. To provide spatial heating and domestic hot water to the new house

This document outlines our proposed solution to these requirements.

Background and Broad Concepts

The site is located in a quite rural environment and currently consists of an existing residential property which is being extensively renovated. The plot is to be split into two and a new build house constructed. We expect that the exiting house has an internal area of 100m^2 and the new build will be 85m^2.

We have analysed the project and we estimate that the existing house will have a peak thermal load of approximately 5kW and an annual energy consumption of 13,000kWh for heating and hot water and the new house will have a peak heating load of 3.4kW and an annual usage of 9,000kWh.

This estimate is based on the size of the property and our assumption that the peak heat load is 50W/m^2 for the existing house and 40W/m^2 for the new house, but will need to be verified by a full energy assessment should you wish to explore a heat pump system further.

Proposed Solution

At this stage, and for further discussion, we recommend the following possible scenarios:

Existing House
The heating and hot water loads of the existing house could be covered by an 8kW air source heat pump connected into a combined heating and hot water indoor unit which would then connect into a pre-insulated pipe running from the plant room at the bottom of the garden to the house. At this stage we have assumed that the heat pump units will be located on the outside wall of the plant room.

New House
The heating and hot water loads of the new house could be covered by a 6kW air source heat pump connected into a combined heating and hot water indoor unit which would then connect into a pre-insulated pipe running from the plant room at the bottom of the garden to the house. At this stage we have assumed that the heat pump units will be located on the outside wall of the plant room.

In summary, the factors influencing the design in this case include the amount of suitable land for a ground source collector array that you have available, the availability of sufficient electrical capacity, the required swimming season, the availability of a suitable location for all the plant, the volume of DHW storage required, and optimising any potential to access government grants or subsidies.

Why isoenergy?

isoenergy is one of the most respected renewable and sustainable energy practitioners in the UK with very specific experience with new-build residential properties. The company is technology and brand independent and is therefore able to make recommendations on technology deployment in a completely unbiased way. All the installation personnel are directly employed ensuring complete control over quality and reassurance over site safety is provided by our CHAS compliance.

Our company is MCS accredited in multiple technologies and works to ensure that, where grant or subsidy potential exists, only MCS accredited hardware is specified as this is frequently the baseline for funding eligibility. In addition, the company has experience in assisting with funding applications and with the preparation of sustainability statements in support of both planning consent applications. isoenergy also carries full PI insurance in support of both the design and installation of renewable energy systems.

We deliver a complete turn-key solution against most sustainable energy requirements. The fact that our systems are designed, specified, installed and commissioned by our in-house teams ensures that we can take complete responsibility for the outcome. Our policy is to present full project costs with no hidden extras and to only work with hardware suppliers who can provide the quality that these long-term energy investments demand. Whilst other providers (and hardware manufacturers) may offer lower specification solutions, our proposals are based on our very significant experience working with new-build properties, mixed radiator and UFH emitter circuits and air source collectors and the unique circumstances that each provides when renewable and sustainable energy systems are being considered.

National Coverage

isoenergy operates nationally out of two offices.

Head Office

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Proposed Solution: Existing House
8kW Air Source Heat Pump

Equipment

Product
8kW 1ph NIBE F2040-8 ASHP + VVM S320 indoor unit with inbuilt DHW tank and controller
30m 'Quattro' pre-insulated pipe from plant room to house
Plumbing materials: copper and steel fittings, pressure vessels, filter ball valves, isolation valves, commissioning valves
Electrical equipment: isolators, thermostats, data cable, trunking & sensors and electricity meters (excludes heat meters)
Insulation
Delivery, insurance and positioning
Total equipment cost

Services

Description
Heat loss survey and heat emitter assessment
Design and P&ID (maximum of 1 revision per design included)
Planning and project management (including maximum of one onsite visit)
Installation including ASHP, indoor unit and pre-insulated pipe
Electrical installation
Commissioning and testing
MCS accreditation, production of certificates and manuals and onsite user training
Total contracting cost

Totals

Description
Equipment
Services
Total cost

All budget costs shown exclude VAT which will be levied at the appropriate rate for the project.

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Proposed Solution: New House
6kW Air Source Heat Pump

Equipment

Product
6kW 1ph NIBE F2040-6 ASHP + VVM S320 indoor unit with inbuilt DHW tank and controller
30m 'Quattro' pre-insulated pipe from plant room to house
Plumbing materials: copper and steel fittings, pressure vessels, filter ball valves, isolation valves, commissioning valves
Electrical equipment: isolators, thermostats, data cable, trunking & sensors and electricity meters (excludes heat meters)
Insulation
Delivery, insurance and positioning
Total equipment cost

Services

Description
Desk-based heat loss survey and heat emitter assessment
Design and P&ID (maximum of 1 revision per design included)
Planning and project management (including maximum of one onsite visit)
Installation including ASHP, indoor unit and pre-insulated pipe
Electrical installation
Commissioning and testing
MCS accreditation, production of certificates and manuals and onsite user training
Total contracting cost

Totals

Description	
Equipment	
Services	
	Total cost

All budget costs shown exclude VAT which will be levied at the appropriate rate for the project.

Description of additional work

The proposed solution above will require some work to be done by others which is not covered under our scope and will be required to ensure the system is completed successfully. This section describes this additional work. We have shown our thoughts on likely costs to give you some idea of the total project investment required even though this work will be done by others.

We will require an appropriate single-phase power supply to be brought to the plant room.

All required trenching will be specified by us but the excavation, back-filling and making good are not included in our budgets. Our labour to lay the pipe work and pressure test is included.

A hard-standing will be required in the location of the outdoor air source unit.

Flow and return for all heating and domestic hot water distribution circuits within the house are to be brought to specified locations to our design. We will leave connections off the pre-insulated pipe in the house for others to connect onto.

Ingress into the buildings for the pre-insulated pipe is to be provided by others to our specification to be provided following completion of our design at a further stage of the project.

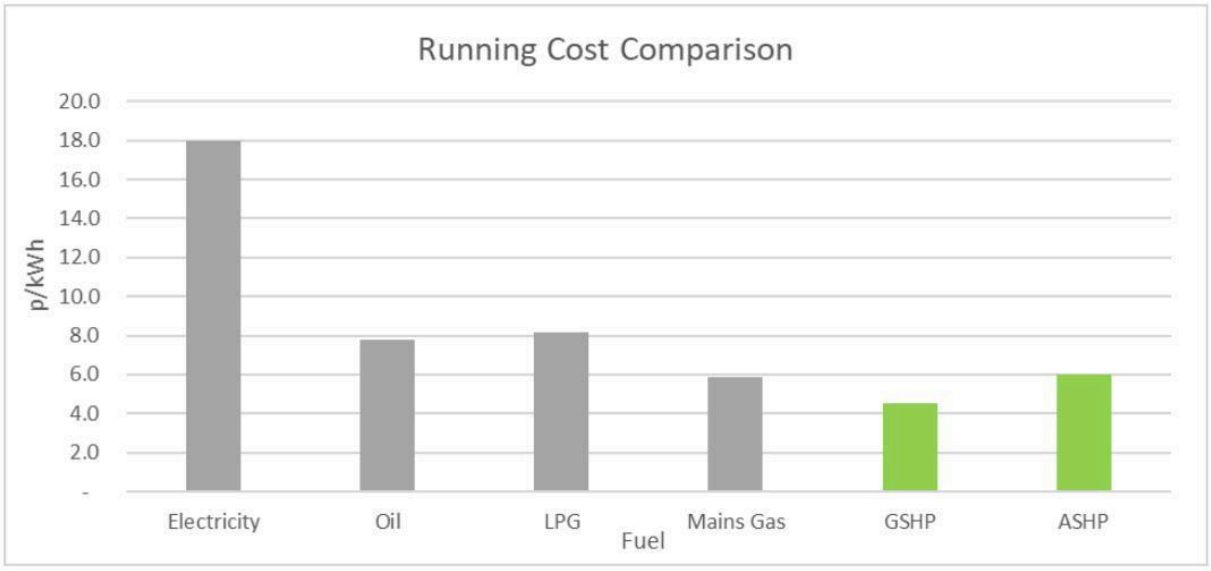
Other topics to consider

1. The running costs and carbon emissions of the system installed depends on the efficiency of the system which, in turn, depends on:
    a. ASHP evaporator.
    b. The quality of the equipment chosen.
    c. The adequacy of the installation of the buffer tanks and other plant room equipment.
    d. The size and suitability of the “heat emitters” in the property. We have extensive experience of retro-fitting renewable energy systems into old properties with existing radiators as well as into new build houses with underfloor heating systems. We are well-placed to advise what will work and what will be efficient.
2. Tariff selection – It is important to ensure that you are on the cheapest tariff for electricity once a heat pump is installed. The complete change to the heating paradigm with the heat pump always on, is more efficient than cycling the building twice in each twenty-four hour period but ensuring you are on the most cost-effective tariff for your electricity will have a significant effect on overall running costs.
3. Lighting – Low energy lighting systems, specifically LED, should be considered where appropriate. These incur significantly lower running costs (up to a 90% reduction on normal incandescent or halogen bulbs) and put out little heat to the back, which is especially important in insulated roof spaces in period properties as this reduces fire-risk. Low energy lighting will reduce electricity costs faster than any other option including insulation.
4. Insulation levels in the building may not be up to current regulations; it is advised that all available steps should be taken to improve the insulation levels wherever possible. We recommend installing the highest levels of insulation available as this represents the best possible value for money when preparing any house for a renewable energy solution.

Running cost comparison

The following table shows the approximate costs of various forms of fuel. A note of warning is in order: fuel costs can vary by large amounts over short periods of time and always depend on the agreements that you have been able to negotiate and may also depend on your usage and region of the country.

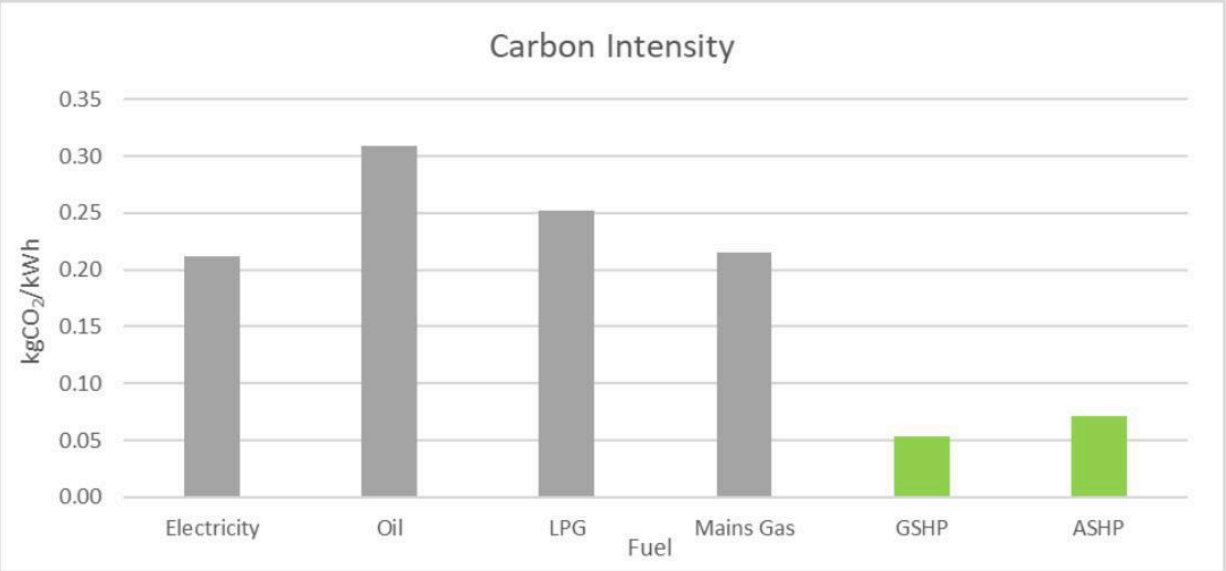
	Price	Unit cost / kWh	Efficiency	**Cost / kWh**
Electricity cost	18 p/kWh	18 p/kWh	100%	**18 p/kWh**
Heating oil	60 p/litre	6.2 p/kWh	80%	**7.8 p/kWh**
LPG	60 p/kg	6.9 p/kWh	85%	**8.1 p/kWh**
Natural gas	5.0 p/kWh	5.0 p/kWh	85%	**5.9 p/kWh**
GSHP	18 p/kWh	18 p/kWh	400% (SPF=4.0)	**4.5 p/kWh**
ASHP	18 p/kWh	18 p/kWh	300% (SPF=3.0)	**6.0 p/kWh**



Carbon Dioxide Reduction

In addition to the running cost comparisons shown above, the carbon footprint of a heat pump system will be significantly lower than a conventional fossil-fuel system. The following table shows the carbon intensity of a variety of domestic heating fuels:

	Conversion Factor (kg CO_2 / kWh)	Efficiency	**Carbon Intensity (kg CO_2 / kWh)**
Electricity	0.21233	100%	**0.21233**
Oil	0.24677	80%	**0.30846**
LPG	0.21449	85%	**0.25234**
Mains Gas	0.18316	85%	**0.21548**
GSHP	0.21233	400% (SPF=4.0)	**0.05308**
ASHP	0.21233	300% (SPF=3.0)	**0.07078**



This includes an allowance for the fact that electricity is considered to be a "dirtier" fuel due to transmission losses, etc. Figures have been taken from government conversion factors for company reporting of greenhouse gas emissions: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting.

Based on these numbers, the following reduction in CO_2 emission levels is predicted:

	Annual Energy Usage (kWh)	**Alternative Carbon Emissions ($kgCO_2$/year)**	**Heat Pump Carbon Emissions ($kgCO_2$/year)**	**Potential Reduction ($kgCO_2$/year)**
Existing	13,000	2,801	920	1,881 (67%)
New	9,000	1,939	637	1,302 (67%)

Boiler Upgrade Scheme (BUS)

The Boiler Upgrade Scheme (BUS) will offer capital grants to property owners to install heat pumps and in some limited circumstances, biomass boilers, to replace fossil fuel heating systems.

The main details of the scheme are:

- the scheme opens to applications from Spring 2022. Guidance from the scheme administrators, Ofgem, is available on how to apply and the information that will need to be provided.
- the scheme covers both domestic and commercial properties. It is not open to new build properties other than self-builds.
- there is currently a total of £4.5 million of funding designated for the scheme which will be spread over 3 years until 2025.
- in order to be eligible, the total capacity of the system must be under 45kWth and must be certified under the Microgeneration Certification Scheme (MCS) scheme and meet relevant standards for each technology.
- the renewable system must be completely displacing the original heating system meaning that it must provide both spatial heating and domestic hot water (if applicable) without the support of a backup/top-up boiler.
- initially the installer will submit an application to Ofgem for a BUS voucher which will involve providing information of the proposed system, contact details of the property owner and a copy of accepted quotation.
- during the approval process Ofgem will contact the property owner to confirm that the application is valid.
- once the application is approved, a voucher will be issued to the installer to be redeemed once the system has been commissioned.
- once issued, the voucher is valid for 3 months for air source and 6 months for ground source.
- The value of the grant depends on the technology:

Technology	BUS Value
Air Source Heat Pump (ASHP)	£5,000
Ground Source Heat Pump (GSHP)	£6,000

The exact details of the BUS are yet to be finalised therefore the eligibility of the proposed systems will need to be confirmed once more information is available.

Summary

I trust that the above is of some help as a starting point. At this early stage, we have erred on the side of caution and some items could well be over-specified. If you are interested in proceeding further, we will produce a full quotation after further analysis and detailed discussions on options and your specific requirements.

Please let us know if you have any questions, comments or if you would like to progress to the next stage.

I look forward to hearing from you.

Yours sincerely,

Edward Howes
isoenergy

Appendix

Key Design Factors That We Include in Our Costing

isoenergy endeavours to provide a fully inclusive service with all costs shown. Our clients can be assured that there are no hidden extras or additional equipment or works that have been "omitted" or should have been included. We try to provide the best solution possible, one that will be inexpensive to run and will last and perform beyond expectations.

When installing renewable energy systems the long term performance and running costs are critical. A poor quality solution or a poorly designed or installed system will cost many times more to run than a well designed and installed system. High quality equipment and small design details can make a big difference.

For this reason isoenergy only install the highest quality solutions and we pay great attention to each individual design. Our engineering expertise and our knowledge of installation design is unsurpassed in the UK.

Our clients can be assured that their installation will be designed and installed to the highest of standards and perform as designed to give years of service at the lowest possible running cost.

Engineering Design

Our design process includes calculating pressure losses and flow rates. These are critical design points of a successful installation and if not correctly calculated are the area where most systems fail.

If the flow rates are insufficient or the pressure losses too great the system will not work as intended. To correct this, the circulation pumps will need to be increased in size, and therefore the running costs will be greater.

We spend as much time as necessary to ensure that our designs are as efficient as practically possible. Included in our design costs are Computer Aided Design (CAD) layouts of Piping and Instrumentation Diagrams (P&ID) for the Plant room, ground array, electrical schematics and controls. These drawings are delivered at an early stage and included with our installation packs on completion. We allow for a specified number of design revisions of the system within the quotation. Changes at the client's request, resulting in the need for additional drawings to be issued, will incur an additional hourly fee subject to account manager's discretion.

Heat Pumps

Before recommending or selling a manufacturer's heat pump, we will have tested it in our own working test centre. We have test facilities for six different machines at any time and our preferred machines are:

- Chosen for robustness of technology (for example we favour Copeland compressors because of their robust design and excellent performance).
- Chosen to be suitable for the installation tailored to each client and matched to UK climatic conditions.
- Selected independently from heat pump manufacturer's recommendations as we rely on our experience not the manufacturer's figures.

Ground Loops for Ground Source Heat Pumps (GSHP)

A critical element of a successful GSHP installation is the ground loop design and construction.

Often deficiencies in this area manifest themselves after three or four years of use. Too small or too compacted a ground array and the ground will cool and eventually freeze due to over extraction. Almost equally important is the flow through the pipes. Design criteria need to include pressure losses and the turbulence in the pipes which effects collector performance and the size of the circulation pump.

Our ground array designs include the highest quality manifolds which include individual loop isolation, individual flow meters and individual balancing valves. These ensure optimal efficiency from the collector array by maximising performance of the ground loops and minimising circulation pumping capacity and operational cost.

Circulation Fluid - Glycol

First the collector array is flushed with a biocide to sterilise the system. Then the ground array is charged with a glycol/water mixture (the glycol may also be referred to as antifreeze) to which we add a bacterial growth inhibiter to maximise the life of the glycol. Some glycols can be harmful to river and ground water in the event of a leak of accidental discharge. For this reason, we only use non-toxic, biodegradable glycol

which is not a notifiable chemical and which is therefore of no immediate concern to the Environment Agency should there be a leak or accidental discharge. This glycol is more expensive but this is in keeping with our commitment to the environment to use products with low or zero environmental impact.

Upon commissioning we provide pressure test certification which is included in the system installation information pack.

Evaporator Sizing - Air Source Heat Pumps (ASHP)

When selecting an ASHP the size of the evaporator is critical, although this can be the most expensive component in a heat pump. Large evaporators are expensive but, this is not an area to compromise on.

The larger the evaporator the less energy is being extracted per sq.cm. The larger the area, the less often the heat pump will need to defrost.

We only select air-source devices which have well balanced evaporator to extraction ratios resulting in enhanced performance in the UK winter climatic conditions where air temperatures are not generally too low but where humidity is generally high.

Hot Water Tanks and Buffer Cylinders

- The hot water tanks we use are to our own specifications and are designed for optimised heat pump or solar thermal system compatibility and efficiency of recovery.
- All heat pump systems should include a buffer cylinder to optimise efficiency by improving control over the number of compressor starts per hour. Compressors take a high current draw when starting so electrical consumption is minimised if the number of starts per hour is regulated.

Plant Room Installation and Plumbing Materials

- Pipework is sized for efficiency and is normally completed in copper and or steel, which is the most efficient and durable pipework but which is significantly more expensive than plastic equivalents.
- We normally install filling units.
- There is a wide selection of other components: pumps, expansion vessels, etc. that are sized and selected to suit each individual scheme, we always endeavour to specify the most efficient equipment practical, especially circulation pumps which will inevitably cost more to purchase but much less to run in the long term compared to cheaper alternatives.
- Isolation valves and filter ball valves are installed throughout the system for built-in serviceability. Commissioning valves on the flow and return of each unit, and G3 kits, expansion vessels, filters, etc. are included in the price.

System Control

- The key requirement for maximum efficiency is proper control of complex systems.
- We aim to configure the system for optimal performance. This is undertaken at commissioning stage. We suggest a ‘bedding in period’ to check the system has settled and is working efficiently. If a maintenance contract is taken out with us, we normally schedule a service visit within three-months of commissioning.

Commissioning and Training

- Upon completion of installation and commissioning we will schedule a training session with you, during which we will explain the components of the system to you, how to use it efficiently and what to do when you wish to adjust settings.
- To assist you and for future maintenance and as part of our Health and Safety requirements we label our plant room components and pipe work and provide valve lists.
- We take you through the user and maintenance manuals. We normally only plan for one training session in our quotations. If you feel it necessary we can arrange further, chargeable training sessions, particularly for large commercial projects.

Project Management

Like all good installation companies we employ a project management team to ensure proper planning, smooth installation, delivery and commissioning.

Microgeneration Certification Scheme (MCS)

The MCS is an internationally recognised quality assurance scheme which demonstrates the quality and

reliability of approved products and installers by satisfying rigorous and tested standards.

The MCS was designed with input from product and installer representatives and it demonstrates the quality and competency of installation and design. isoenergy is certified as an MCS installer in multiple technologies. Details are available upon request.

Installation Pack

Installation packs are issued after the final stage payment is made and include:

- Final CAD drawings and P&ID layouts as actually built.
- Operation and Maintenance manuals for the relevant principal products and controller and diagrams including how to clean a filter ball valve.
- We include a full valve list and details of the components used including serial numbers.
- Certificates relating to the installation.

Pipework Insulation

It is essential that all new plant room pipework be insulated to meet the current MCS standards and building regulations. We routinely work with three types of insulation:

- silver Isover insulation used in commercial plant rooms.
- black Armaflex code 0 25mm insulation used on the cooling side.
- grey Climaflex generic insulation for heating /hot water side.

While isoenergy can provide services to insulate pipework, insulation services can frequently be procured locally at lower cost. Unless otherwise stated, isoenergy will take responsibility for all brine-side insulation where the quality is critical to the protection of the fabric of the building or to the protection of other wet services in the path of the collector array and flow and return trenching.

Advice on the insulation of the pipework on the delivery side of the heat pump can be provided upon request. Similarly, a quotation for isoenergy to carry out these works can also be provided upon request.

The philosophy of high quality pipework insulation should be carried across to all distribution circuits where access makes this possible. Minimising losses in both heating and DHW distribution is an essential part of any energy reduction strategy. Heat losses in DHW secondary return circuits, in particular, are frequently underestimated.

Insulation

Insulation is the most important part of any heating system. The more the better when it comes to the interior walls of your property. It is sometimes economically appropriate for insulation to be carried out by a specialist contractor. In this event, it is vital that industry standards are met including those set out in MIS 3005 v5.0.

Energy Assessment

We undertake Energy Assessments based on the estimated annual use, whether your property is existing, or new build. We assess how much energy is required from renewable sources and compare this against gas, electricity or oil dependent upon what is available.

In line with MCS requirements we will advise on how efficient the proposed system will be and ensure that it meets your energy requirements.

Maintenance and Warranty

If a maintenance contract is taken out, we may return within 3 months of commissioning the system to ensure that it is running efficiently. Manufacturers' warranties are fully supported. Should you require a maintenance agreement please let us know.

Health and Safety

In accordance with Constructor Design and Management regulations our engineers all carry the appropriate Construction Skills Certificate Scheme (CSCS) cards. We undertake Risk Assessment Method statements and can provide these upon request for larger commercial projects.

Legionella

Legionella is a naturally occurring bacteria living in water. Legionnaire's Disease occurs when droplets of contaminated water are inhaled. The risk is significant when the temperature of water is kept between 20 and 45 degrees and is reduced when water is heated above these temperatures. We ensure that our

systems are legionella compliant in their design.

Permitted Development and Planning Permission

Ground Source Heat Pumps

The installation of a ground source heat pump or a water source heat pump on domestic premises is usually considered to be permitted development, not needing an application for planning permission.

If you live in a listed building or a conservation area you should contact your council to check on local requirements.

Air Source Heat Pumps

From 1st December 2011 the installation of an air source heat pump on domestic premises is considered to be permitted development, not needing an application for planning permission, provided ALL the limits and conditions listed below are met.

These permitted development rights apply to the installation, alteration or replacement of an air source heat pump on a house or block of flats, or within the curtilage (garden or grounds) of a house or block of flats, including on a building within that curtilage. A block of flats must consist wholly of flats (e.g. should not also contain commercial premises).

Limits to be met:

- Development is permitted only if the air source heat pump installation complies with the Microgeneration Certification Scheme Planning Standards (MCS 020) or equivalent standards.
- The volume of the air source heat pump's outdoor compressor unit (including housing) must not exceed 0.6m^3.
- Only the first installation of an air source heat pump would be permitted development, and only if there is no existing wind turbine on a building or within the curtilage of that property. Additional wind turbines or air source heat pumps at the same property requires an application for planning permission.
- All parts of the air source heat pump must be at least one metre from the property boundary.
- Installations on pitched roofs are not permitted development. If installed on a flat roof all parts of the air source heat pump must be at least one metre from the external edge of that roof.
- Permitted development rights do not apply for installations within the curtilage of a Listed Building or within a site designated as a Scheduled Monument.
- On land within a Conservation Area or World Heritage Site the air source heat pump must not be installed on a wall or roof which fronts a highway or be nearer to any highway which bounds the property than any part of the building.
- On land that is not within a Conservation Area or World Heritage Site, the air source heat pump must not be installed on a wall if that wall fronts a highway and any part of that wall is above the level of the ground storey.

In addition, the following conditions must also be met. The air source heat pump must be:

- Used solely for heating purposes.
- Removed as soon as reasonably practicable when it is no longer needed for microgeneration.
- Sited, so far as is practicable, to minimise its effect on the external appearance of the building and its effect on the amenity of the area.

You may wish to discuss with the Local Planning Authority for your area whether all of these limits and conditions will be met.

If you believe you need planning permission it is your responsibility to check and obtain it. isoenergy will however, arrange building control consent for the work we undertake.

How Your Personal Information Will Be Used

By requesting isoenergy provide this document it is necessary for isoenergy to hold some personal information about you and your property. isoenergy will use the data for the purposes of providing this and future estimates or quotations. The data collected may also be used for marketing our services to you that we feel are relevant. Your data will not be passed on to any third party except where it is necessary to fulfil the request you have made (e.g. to obtain a price for drilling boreholes or digging trenching).

The information you provide to us is stored in our Customer Relationship Management system located on a secure server and will be kept as long as needed. Full details of how isoenergy handles your data and information on your rights regarding this data, please visit our website. www.isoenergy.co.uk/privacy

Using Your Project as a Case Study

At isoenergy we pride ourselves on our reputation and are delighted when customers recommend us to others. To help with this, we will normally produce a case study for our website and case study packs for each place we work. If you would rather us not use your property as a reference site please let us know and we can either change the name of the building to anonymise it or not produce a case study at all. In addition to producing a case study, we may ask to use your site as a reference site.