

Renewable Energy Brochure

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Renewable Energy Systems Brochure

Contents

About ZLC Energy	1
Solar Photovoltaics (PV)	2
Smart Switch	5
Battery Storage System.....	6
Electric Vehicle Charger	7
Renewable Heat.....	8
Solar Thermal	9
Heat Pumps	10
Biomass Boiler	13
Heat Distribution System	14
Scope of Works	15
Useful Information	16

About ZLC Energy

ZLC Energy are engineering and environmental specialists dedicated to providing **Zero or Low Carbon Energy** solutions for homes and businesses throughout the United Kingdom. We have built up our reputation based on good advice, competitive pricing, skilled service and quality product.

We are able to offer a full range of renewable energy technologies, which means that we are technology and product agnostic and will only recommend solutions that we believe are right for you. Our expertise lies in the complete integrated renewable solution. Beyond renewable energy, we can also offer professional, Eco-Build design and delivery services to meet the requirements of Merton (PPS22), Part L2, BREEAM and Code for Sustainable Homes.

Our Customers

We are proud to have worked with many commercial and domestic customers including:



Your Installation

ZLC Energy are fully qualified renewable energy installers under the Microgeneration Certification Scheme (MCS no. NIC3746). We are also qualified as Competent Persons under the Building Regulations, including Domestic Electrical Installers with NICEIC. We are CHAS registered for our safety management standards. Our installation team has installed hundreds of systems for both domestic and commercial projects.

You can be assured that your installation will be carried out to the highest standards by experienced professionals. Our team will guide you through your entire installation from your very first conversation to the completed installation. We employ installation engineers who spend every day installing renewable energy solutions. This means that our teams have a wealth of experience and can confidently and efficiently manage even the most challenging installations. Our engineers are fully qualified and are accredited with the relevant regulatory bodies.



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Solar Photovoltaics (PV)

Solar PV technology converts sunlight into electricity, this is commonly in the form of a solar panel consisting of multiple solar cells made of semi-conductors. When a photon of light falls on a panel, this excites electrons within the semi-conductors, creating a flow of electricity.

Here in the United Kingdom, a solar PV array is most efficient located on a south-facing roof. An east-west array will yield about 85% of a south-facing array's output. A solar PV installation depends on the **usable roof space available** and how many panels can fit in this space, each panel measures approx. 1m x 1.7m. The number of panels and the capacity of each panel will determine the overall system capacity. A wide range of panels and inverters are available from ZLC Energy as we are not tied to one supplier.

Various mounting system options are available depending on the roofing material. A retrofit Solar PV installation would include a standard on-roof mounting system, whereas an in-roof option is available for a new build or roof refurbishment installation. A bespoke PV design would be required for the following:

- Complex roofs with multiple orientations
- Flat roof PV layout

For a bespoke PV layout design, please see the section on placing an order on the last page.

A Ground-Mounted PV system would require planning permission, we can assist by producing supporting documents you may require for your application.

Features and Benefits

- | | |
|------------------|---|
| Panels | Each solar panel comes with a 10-year Manufacturer's Warranty, with at least a 25-year linear performance warranty.
The panels have an excellent tolerance level of -0% +5%.
The panels are Salt mist tested so are built to last in our coastal air environment. |
| Inverters | Our inverters come with at least a 10-year warranty
No fan design for higher reliability and lower noise
WiFi & Ethernet communication are available for more flexible configuration and monitoring |



On-roof Mounting System



In-roof Mounting System



Flat Roof Mounting System



Ground-Mount Solar PV



Solar PV System Costs

Features

- ☀ 25-year warranty on panels
- ☀ 10-year warranty on inverter
- ☀ MCS Certification
- ☀ Project specific mounting system
- ☀ Electrical equipment system including cabling, connectors, AC & DC Isolators
- ☀ Comprehensive Engineering design, Installation and Commissioning
- ☀ Comprehensive 2-year Workmanship Warranty

Option	System Capacity	Roof Space Required	System Cost (ex. VAT)	Annual return	Estimated Carbon Savings
A	2 kWp	14 m ²	£3,975	£ 390	1,328 kg CO ₂
B	3 kWp	17 m ²	£4,275	£ 580	1,660 kg CO ₂
C	4 kWp	24 m ²	£5,175	£ 680	2,324 kg CO ₂
D	5 kWp	31 m ²	£6,125	£ 870	2,988 kg CO ₂
GMPV	4.8 kWp	Ground – 28 m ²	£6,625	£ 770	2,709 kg CO ₂

*Values are calculated assuming an export tariff of 5.5p and electricity tariff of 18p per kWh and that 75% of all generated power will be used on site. If the site uses more than 75% of the free solar energy produced and/or signs up for an export tariff (see page 17 for more detail), the payback will be quicker than predicted. We can assist you in improving self-consumption and energy efficiency.

Design Basis

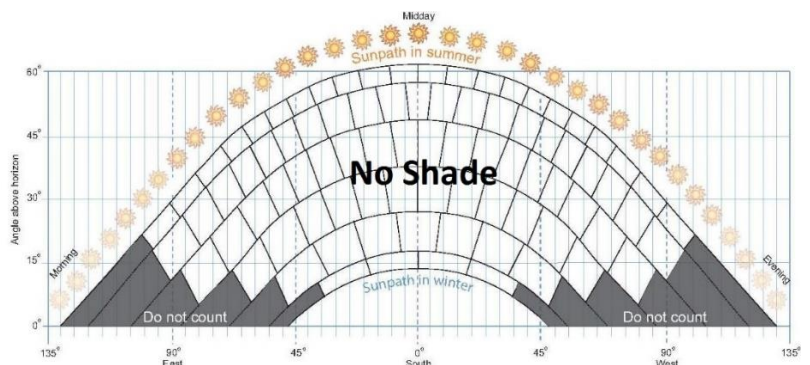
The quoted system is based on the data and assumptions below and is based on a south-facing system. It can be expected that an East-West array will yield around 80% of this system's output. We are happy to work with you in modifying this quote with site-specific data once an order is placed, please see more detail on the last page.

Orientation of PV system – degrees from South	0 °
Inclination of system – degrees from horizontal	30 °
Postcode region	PL / TR / TQ / EX
Calculations	
Irradiation Ratio (Kk)	1082 kWh/kWp
Shade factor (SF)	1

Shading Analysis & System Performance

We assume the following amount of shade on the proposed location of the panels.

The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the standard MCS procedure is given as guidance only. It should not be considered as a guarantee of performance.



Solar PV – Premium Products

Solar Edge

Solar Edge Inverters have developed a system using integrated optimizers which mitigate power loss caused by shading, soiling, aging, and unfavourable roof orientations to ensure maximum power output. The fixed-voltage technology ensures the inverter is always working at its optimal input voltage, regardless of the number of modules in a string or environmental conditions. The system comes with built in module-level monitoring receiver more flexible configuration and monitoring. (Requires good WiFi connection). In short, this system allows each panel to operate completely independently of the next and therefore maximises output.



Costs to add Solar Edge option to Solar PV installation

Option	System Capacity	Additional Cost (ex. VAT)
A	2 kWp	£500
B	3 kWp	£500
C	4 kWp	£600
D	5 kWp	£800

LG Solar Panels

LG Solar panels offer a higher capacity per panel and are recommended for smaller roofs to allow for more output from a smaller area where required. LG panels are Tier One panels with a 25-year product and linear performance warranty. In addition to enhanced output for a limited space, LG panels are designed with modern aesthetics and durability in mind, complete with a reinforced frame design and sleek appearance. This premium product is accredited with the highest standard of quality and consistently stamped as a Top Brand of PV. LG panels are tested with double the intensity as the EIC standards and adhere to the LG Standard of performance.



Costs to add LG Panels option to Solar PV installation

Option	System Capacity	Estimated Roof Space Required	Additional Cost (ex. VAT)
A	2 kWp	11 m ²	£250
B	3 kWp	16 m ²	£400
C	4 kWp	19 m ²	£600
D	5 kWp	26 m ²	£1,000

Smart Switch

You are always better off using as much of the power from your Solar PV as possible. Any electrical energy generated by your PV array must be either used, stored or exported at the point of generation.

When sending excess electricity back to the grid, you might expect to get paid between 5p – 6p/kWh, only to pay around 18p/kWh when you buy it back!

An Eddi will give you options. The Eddi is a clever little piece of kit that helps you self-consume the green energy produced by your Solar PV system. The Eddi device acts as an automatic power controller that diverts surplus power to a designated area.

The Eddi system is fitted with a clear, graphical LCD display that will detail your saving information. It works as a standalone product with any size Solar PV array to heat your immersion heater with surplus power from your solar panels to save energy and minimise your utility bills. Once installed, this system can reduce an average household's energy bill by around £250 per year.

This controller really is the perfect addition to any PV installation.



MyEnergi Product	Cost (ex. VAT)
<i>Basic Eddi with Solar PV Installation</i>	£675
<i>Basic Eddi Standalone Installation</i>	£855

Assumptions & Exclusions:

- We assume that there is already an immersion element within the hot water cylinder, and it has a dedicated circuit to it from the main consumer unit. i.e. the immersion is separately fused
- We have a clear working environment to all required locations
- Any additional work, materials or travel caused due to the above assumptions not being met will be charged at our standard rate: **£35 per hour + extra materials at cost**

Battery Storage System

Hybrid Option

Batteries are a great way of becoming more energy efficient and benefitting more from a Solar PV system by storing unused electricity generated for use when the sun goes down. The system is configured to charge batteries before exporting to the grid. Battery storage is only recommended for Solar PV installations of a higher capacity, minimum of 4kWp system.



4.8kWh Batteries



10kWh Battery

Please note, the battery storage options shown below are **only available in conjunction with a Solar PV installation**, as it needs to be installed with a hybrid inverter.

Battery Storage Options	Cost (ex. VAT)
4.8 kWh Battery	£2,500
10 kWh Battery	£5,500

Tesla Option

The Powerwall is a fully integrated AC battery system with a revolutionary compact design that allows for more energy density for less space. A minimum of 1.15m² wall space is needed for the installation of a Tesla Powerwall and can either be mounted on the wall or floor.

Every Powerwall system includes a backup gateway which provides energy management and monitoring. It features monitoring of real-time power usage, energy consumption history, energy reserves, and breakdown of energy sources. It also allows for time-based control and backup operation. The system can be configured to Backup mode wherein the gateway controls connection to the grid, automatically detecting power cuts and seamlessly transitioning to using the battery for backup power.

Tesla provides a user-friendly interface through the Tesla app compatible with any smart phone.

TESLA
ENERGY



The Tesla Powerwall has a 10-year product warranty. Please note that this option is **only available in conjunction with a Solar PV installation**.

Battery Storage Option	Cost (ex. VAT)
13.5 kWh Battery	£7,500

Electric Vehicle Charger

Zappi – The SMART EV charger in a league of its own

Zappi is an EV charger with a difference. Not only does it operate as a traditional EV charger, it can also charge your EV using 100% FREE energy generated from your Solar PV or wind generation.

Here's the SMART bit. Zappi can charge for FREE using your PV during the day and be set to charge at the most economical times at night if you have preferred economy rates from your energy provider. All controllable by the MyEnergi APP.

No PV? No Problem! If you don't have a Solar PV system, the Zappi can still operate like an ordinary EV charging station importing from the grid. You can always add your renewable energy system later.

The Zappi comes in 7kW single phase or 22kW 3 phase options, as well as either untethered or tethered (6.5m cable included). It has Type 2 connector and 3 charging modes: ECO, ECO+, and FAST.

ZLC Energy are approved MyEnergi installers. We have a Zappi installed at our office in Liskeard should you wish to have a demonstration.



MyEnergi Product	Cost (ex. VAT)
7 kW Zappi with Solar PV Installation	£1,305
7 kW Zappi Standalone Installation	£1,565

Assumptions & Exclusions:

- We assume that the Zappi is located within 5m of a suitable point of electrical connection
- We have a clear working environment to all required locations
- Any additional work, materials or travel caused due to the above assumptions not being met will be charged at our standard rate: **£35 per hour + extra materials at cost**
- ZLC Energy are OLEV approved and can work with you to claim the government grant if eligible

OLEV Grant

The Office for Low Emission Vehicles (OLEV) currently offers a grant for EV charger installations. The grant covers 75% of installation costs and is capped at **£350**. This amount is deducted from the final invoice and we as installers claim the grant on your behalf.

Renewable Heat

How to work out your Heat Loss

Before browsing through our renewable heat options, it is important to have a good idea of how much heating your property needs. Find the system capacity that would work best for heating the property by using our equation below: (Please use this calculation as an estimate to aid you in browsing through your options)

$$\text{System Capacity} = \text{Property's Total Internal Floor Area (in m}^2\text{)} \times \text{Heat Loss}$$

Find the right Heat Loss for the property using this guide:

Age of Property	Description	Heat Loss (W/m ²)
2006 - Present	Up to current Building Regulation Standards of Insulation	45 - 60
1970 -2005	Cavity filled walls, Double Glazed Windows, and Insulated Loft	60 - 100
Pre 1970	Unfilled Cavity Walls, Double Glazed Windows, and Insulated loft	100 - 130
	Unfilled Cavity Walls, Single Glazed Windows, and No Loft Insulation	130 - 140

Heat Loss Calculations

Prior to any renewable heat installation, proper sizing is required to determine the capacity needed to meet a property's complete heating and hot water requirements. This depends on factors such as the total internal area of the property, the building heat loss, and the number of occupants within the property. A heat loss survey is mandatory prior to an installation and is undertaken by a member of the Technical team. A Heat Loss Calculation Report is then provided along with a site-specific heat pump estimate. This report includes the heat loss for each room, radiator sizing, and noise calculation. This initial survey and calculation require specialist skills and is done up to standard, thus is charged at **£250 (ex. VAT)** and is deducted off the final invoice should you wish to proceed.

Heating Incentives

Renewable Heat Incentive (RHI)

ZLC Energy installations can be eligible for the Renewable Heat Incentive (RHI). This incentive payments along with savings being made against alternative fuel heating costs is designed to cover the cost for the heat pump installation over a 7-year period. The property must have an Energy Performance Certificate (EPC) no older than 2 years to qualify for the RHI. The Domestic RHI runs to March 2022. This offers a payment to produce renewable heat in a domestic dwelling, the tariff rates are:

	Air Source Heat Pump	Ground Source Heat Pump	Biomass Boiler	Solar Thermal	Life of Scheme
Domestic Tariff (p/kWh)	10.85p	21.16p	6.97p	21.36p	7 years

Green Homes Grant

Heat Pumps, Solar Thermal, and Biomass Boilers are primary measures eligible for the Green Homes Grant. Within this grant, homeowners and landlords in England can apply for a voucher towards installing energy efficient and low-carbon heating improvements to homes.

The grant will provide a voucher that covers up to two thirds of the works, capped at £5,000. Low-income homeowners can qualify for a higher subsidy and be provided with a voucher covering 100% of works, capped at £10,000.

Only retrofit installations are eligible for the grant. The grant can be claimed alongside the Renewable Heat Incentive, any amount that is covered by the Green Homes Grant will be deducted from the RHI payments. For more info or to apply, please visit: <https://www.gov.uk/guidance/apply-for-the-green-homes-grant-scheme>

Solar Thermal



Solar Thermal technology provides hot water heating with the use of roof-mounted solar thermal technology. Not to be confused with Solar PV technology which generates electricity, Solar Thermal technology only produces hot water heating by using the heat of the sun. Solar Thermal energy technology have two types of collectors: flat plate or evacuated tubes.

The roof-mounted unit acts as a collector for heat, running through the collector is a closed loop system of anti-freeze and water. The anti-freeze mixture heats up as it passes through the collector on the roof, then passes through the hot water cylinder, transferring heat in the process. The liquid, now cooler than when it left the roof, is then pumped back up to the roof to repeat the process. A cylinder with a solar coil is essential for the system. Anti-freeze is used in the closed loop system to ensure the system can still operate in freezing outdoor temperatures.



Similar to a Solar PV array, here in the UK the most efficient location of a Solar Thermal array is on a south-facing roof. A Solar Thermal installation depends on usable roof space available and the property's hot water requirements. We offer the Veissmann Flat Plates and each collector measures 1.73m x 1.17m. The number of collectors required will be determined by the hot water requirement. We offer short or tall solar cylinders to accommodate for the space available. Tall cylinder dimensions are 540mm in diameter and 1490-2040mm in height, short cylinders are 600mm in diameter and 1150-1815mm in height.

If you are interested in Solar PV as well, we would recommend fitting a smart switch instead of a Solar Thermal array. It is more cost-effective to install an Energy Diverter shown in page 5 as it can also provide hot water with fewer components.

Features

- ✿ 5-year warranty on flat plate panels
- ✿ 25-year warranty on twin coil solar cylinder
- ✿ MCS Certification
- ✿ On-roof mounting system
- ✿ Solar thermal pump station
- ✿ Electrical equipment system including solar thermal controller, cabling etc.
- ✿ Comprehensive Engineering design, Installation and Commissioning
- ✿ Comprehensive 2-year Workmanship Warranty

Option	Number of Panels	Roof Space Required	Number of Occupants	Hot Water Cylinder Size	System Cost (ex. VAT)	Estimated Annual Yield
A	1	2 m ²	1-2 people	200L	£5,155	845 kWh
B	2	4 m ²	3-4 people	250L	£5,755	1,572 kWh
C	3	6 m ²	5-6 people	300L	£6,430	2,225 kWh

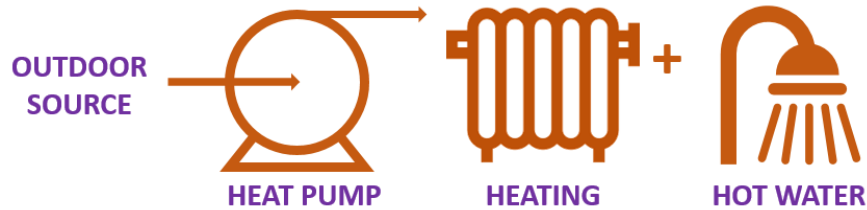
*Yield is estimated assuming installation on a south-facing roof with 30° pitch and no shading. System cost assumes 15m pipe length.

Government Incentives

Solar Thermal is one of the primary measures eligible for the Green Homes Grant. Only retrofit solar thermal installations are eligible for the grant. The grant can be claimed alongside the Renewable Heat Incentive, any amount that is covered by the Green Homes Grant will be deducted from the RHI payments. See page 8 for more detail on these incentives.

Heat Pumps

Heat pumps are designed to provide 100% of a property's space heating and hot water requirements and is a great way to reduce exposure to rising fuel costs while having a better environmental impact. Heat pumps are the same technology used in refrigerators and air conditioners, only reversed to transfer heat from outside the house indoors. Since the ground and air outside always contain some heat, a heat pump can supply heat to a house even on cold winter days.

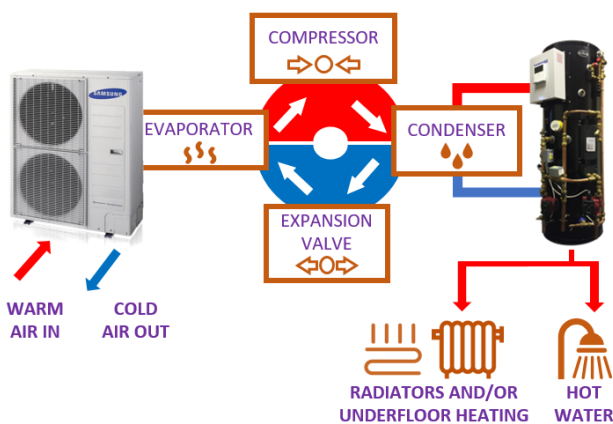


A heat pump installation includes a compatible hot water cylinder that can operate in lower flow temperatures and can be connected to radiators and/or underfloor heating.

Outlined below are the two heat pump types we offer depending on the source:

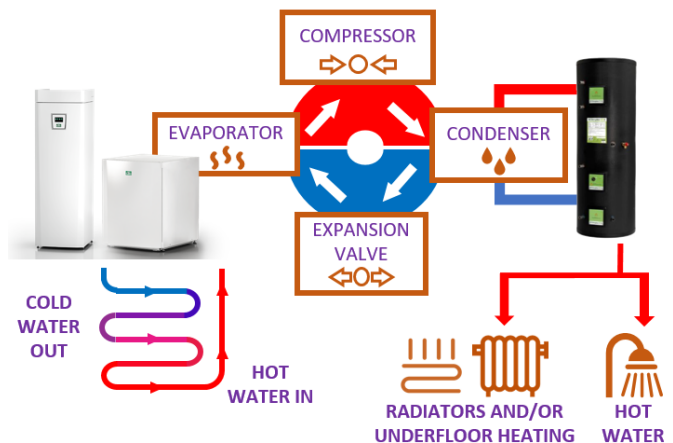
Air Source Heat Pump (ASHP)

An air source heat pump extracts heat from the air outside and transfers it to heating the home. An ASHP works best in smaller domestic properties with proper insulation. This system consists of the main outdoor heat pump unit, hot water cylinder, heat pump control pad, and low loss header/ heat exchanger.



Ground Source Heat Pump (GSHP)

A ground source heat pump extracts heat from the ground to heat the home. A GSHP has a higher capacity and is better suited to larger domestic properties. This system requires a ground loop array, which can either be vertical (borehole) or horizontal (slinky) and must be 1.2m below the ground where the temperature remains constant. A GSHP will incur an additional cost of drilling or trenching but is the superior option if you have the capital to invest and the land space.



Air Source Heat Pump (ASHP) – System Costs**Features**

- ✿ 7-year warranty on Heat Pump
- ✿ Compatible domestic Hot Water Cylinder
- ✿ MCS certification, Building Regs & Grid Connection Approval
- ✿ Comprehensive Engineering design, Installation and Commissioning
- ✿ Comprehensive 2-year warranty

Option	System Capacity	Hot Water Cylinder Size	System Cost (ex. VAT)	Estimated Total Annual Return
A	5 kW	150 L	£ 7,000	£ 1,150
B	6 kW	150 L	£ 7,050	£ 1,420
C	7 kW	200 L	£ 7,500	£ 1,480
D	8 kW	200 L	£ 7,750	£ 1,600
E	11 kW	250 L	£8,900	£ 1,925
F	16 kW	250 L	£10,300	£ 2,000

*Total annual return includes estimated fuel savings and annual RHI return (see page 8 for more detail on the Renewable Heat Incentive). Fuel savings calculations are based on a two-storey detached house with a retrofit installation replacing an oil boiler. Annual return will vary, and heat loss calculations will need to be undertaken, please see Design Basis below.

Design Basis

Within the Microgeneration Certification Scheme (MCS), heat pump installations are rated based on their efficiency depending on the flow temperature from the heat pump. Typically, the lower the flow temperature then the more efficient the heat pumps performance will be. This figure is referred to as the SCOP (Seasonal Coefficient of Performance). The SCOP will vary from with different manufacturers and different flow temperatures.

Heat pumps are designed to the standard design parameters ensuring it will provide 100% of the space heating for all temperatures down to and including an outside temperature of -0.2°C. The recommended flow temperature is either 45°C or 50°C.

Ultimately detailed heat loss calculations will need to be undertaken to calculate the precise building's heat loss. This is only therefore an estimate however with new builds/ complete renovations, we can be confident that the figures should not alter greatly on completion of heat loss calculations. We are happy to work with you in modifying this estimate with site-specific data once an order is placed, please see more detail on the last page.

Ground Heat Pump (GSHP) – System Costs**Features**

- ✿ 3-year warranty on Heat Pump
- ✿ Compatible domestic Hot Water Cylinder
- ✿ Manifold
- ✿ MCS certification
- ✿ Western Power notification
- ✿ Comprehensive Engineering design, Installation and Commissioning
- ✿ Comprehensive 2-year warranty

**Enertech Group**

Option	System Capacity	Hot Water Cylinder Size	Estimated Internal floor area	System Cost (ex. VAT)	Estimated total Annual Return
A	6 kW	150 L	100 m ²	£17,600	£3,060
B	8 kW	200 L	170 m ²	£18,500	£3,900
C	12 kW	250 L	250 m ²	£19,600	£4,700
D	16 kW	300 L	325 m ²	£21,000	£5,450
E	25 kW	300 L	400 m ²	£27,500	£5,500

*Total annual return includes estimated fuel savings and annual RHI return (see page 8 for more detail on the Renewable Heat Incentive). Fuel savings calculations are based on a two-storey detached house with a retrofit installation replacing an oil boiler. Annual return will vary, and heat loss calculations will need to be undertaken, please see Design Basis below.

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Ground Loop Array

Part of the heat loss survey is an assessment of the soil makeup to determine the best ground loop array option. This varies on a case-by-case basis but as an indicative pricing, borehole drilling will cost considerably more than trenching for Slinky's. Vertical boreholes need circa 25m per kW required, horizontal boreholes need circa 52m per kW required, and Slinky's need circa 17m per kW required. Outlined below is the additional costs incurred by each ground loop option:

Horizontal Borehole Percentage Increase	Vertical Borehole Percentage Increase
-15%	+50%

Biomass Boiler



Biomass boilers can provide both space heating and hot water and is a great alternative for a fossil fuel boiler. Biomass boilers essentially operate like oil boilers or gas boilers, the main difference is the use of sustainable fuel.

Our biomass boiler of choice is the wood pellet boiler, pellets are a carbon neutral, renewable energy fuel as the CO₂ released during combustion is re-absorbed by the amount of new trees planted. Wood pellets use has been well established in Europe for the last 25 years. Warmflow biomass boilers have been designed to run only on the highest quality of pellets in the industry, ENplus A1 pellets. Wood pellets boilers have also proven to be more cost-effective and easier to maintain than wood chip boilers.



Features

- ✿ 4-18 kW Warmflow WS18 modulation Biomass Pellet Boiler with integral 120kg pellet hopper and 5-year warranty
- ✿ 50L Expansion Vessel
- ✿ Twin wall flue with wall support
- ✿ Backflow protection set for biomass boiler
- ✿ Pipework and controls for system integration to existing heating and hot water "S-plan" or "Y-plan" system
- ✿ New time control, room thermostat and cylinder thermostat installation to comply with Part L Building Control Regulations
- ✿ Electric supply to boiler room with isolation switch for emergency shut off
- ✿ MCS certification
- ✿ Comprehensive Engineering design, Installation and Commissioning
- ✿ Comprehensive 2-year warranty

System Capacity	System Cost (ex. VAT)
4 - 18 kW	£9,640

Assumptions

- ✿ Existing hot water cylinder can be re-used
- ✿ Biomass boiler will be installed outdoor

The RHI will be based on the EPC rating of the property and will need to be confirmed prior to commencement, please see more detail on the RHI on the last page. Detailed heat loss calculations in compliance with MIS 3004, the MCS Standard for Solid Biofuel Heating Systems will need to be undertaken to calculate the precise building's heat loss. We are happy to work with you in modifying this estimate with site-specific data once an order is placed, please see more detail on the last page.

Government Incentives

Biomass Boiler is one of the primary measures eligible for the Green Homes Grant. Only retrofit biomass boiler installations are eligible for the grant. The grant can be claimed alongside the Renewable Heat Incentive, any amount that is covered by the Green Homes Grant will be deducted from the RHI payments. See page 8 for more detail on the Green Homes Grant.

Heat Distribution System

To maximise the efficiency of either an air source or ground source heat pump system, the heat distribution system should be designed to operate at low temperatures. The lower the flow temperature from the heat pump the more efficient the heat pump will be.

Wet radiators

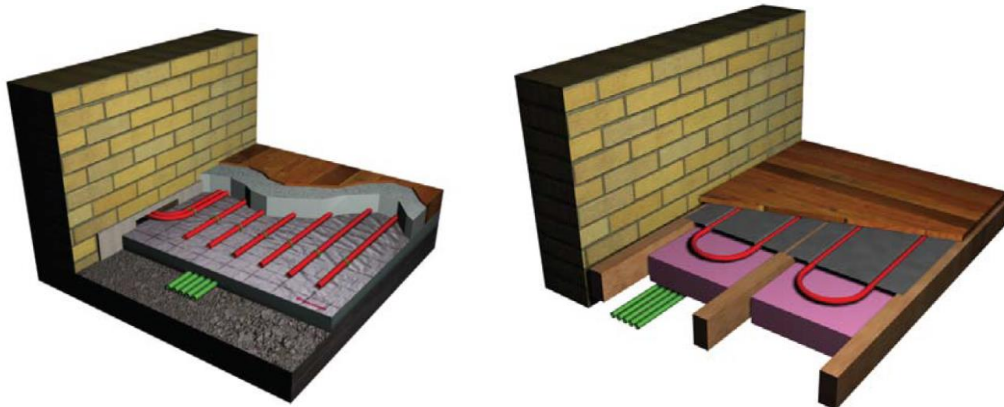
We would be pleased to work with you to specify, supply and install the most suitable radiator system for you. Traditional steel panel radiators can work very well with heat pumps. However generally they need to be considerably oversized (see below), to accommodate low to medium running temperatures. The typical cost to supply and install heat pump compatible radiators is **£350 (ex VAT)** each. If installing a biomass boiler, typically the existing radiators can be kept.

The typical oversizing factor for radiators with a lower flow temperature is as follows:

Heating Flow Temperature	Standard Radiator Oversize Factor
35°C	6.8
40°C	4.3
45°C	3.1
50°C	2.4
55°C	1.9

Wet under-floor heating (UFH)

UFH systems work very well with a heat pump and are certainly worth considering as an option where relevant. Generally, under floor heating pipes will either be installed in a solid floor or a suspended floor, the following illustrations highlight typical installations.



Solid floor – pipes laid over insulation within a screed

Suspended floor – pipes suspended between joists over insulation within a screed

Without undertaking a detailed design with the under-floor heating manufacturers, it is not possible to offer a detailed quotation for the under-floor heating at this stage. The typical cost to supply and install heat pump compatible under floor heating is **£35 per m²**.

Scope of Works

Our scope of works includes but is not limited to the following:

Works Included

- ✿ Building Regulations Compliance
- ✿ MCS compliant system design and certification
- ✿ Western Power notification
- ✿ Mechanical handling of materials
- ✿ Supply, installation and commissioning of system
- ✿ On site client training, instruction and handover
- ✿ Assistance to obtain any relevant government incentives

Work Excluded

- ✿ Energy Performance Certificate (EPC) assessment
- ✿ Scaffolding
- ✿ Secure storage of panels on site
- ✿ Planning Permission – you will require planning permission for a GMPV installation and some ASHP installations
- ✿ GMPV Groundworks – installation of the 3 (3.4m x 800mm x 380mm) concrete sleepers – please contact us if this applies to you
- ✿ All trenching and ground works
- ✿ Removal of existing heating system
- ✿ Provision of concrete slab for mounting heat pump and/or suitable plant room space
- ✿ Plumbing connections past DHW tank or low loss header
- ✿ Provision of welfare facilities
- ✿ Structural calculation
- ✿ Although we are very careful our price excludes redecoration & making good any disturbance caused by internal electrical works
- ✿ Removal of waste from site
- ✿ Accepting delivery of materials to site (it is assumed that the customer will be available to accept deliveries of kit)

Assumptions

- ✿ We assume work can be carried out in one continuous visit; re-visits due to customer will incur additional charges. Standard ZLC Energy fees - **£35 per hour per engineer**
- ✿ We assume a free and clear working space for installation
- ✿ Warranties offered assumes that the heat pump undergoes annual maintenance as per manufacturers guidelines
- ✿ We assume heat pump is to be located near to the property and within 5m from the cylinder location
- ✿ We assume a suitable power and water supply is provided to the location of the heat pump

Useful Information

Insurance Cover

NFU Mutual Insurance Services provide our insurance cover as follows:

Public liability: £5,000,000 indemnity limit
 Products liability: £5,000,000 indemnity limit
 Employer's liability: £10,000,000 indemnity limit
 Professional Indemnity £2,000,000 indemnity limit



ZLC Energy is a member of the RECC Assurance Scheme, member No. 00053142 and this document is prepared in accordance with its Consumer Code. The Code can be viewed in full at: <http://www.recc.org.uk/scheme/consumer-code>

Support

Before our installation engineers leave site, they will ensure that you are fully conversant with the system controls and they will have discussed with you how your renewable energy solution works and operates. We also have a team of support engineers that can be contacted by phone or email during normal business hours for an instant and informed response.

Experts in Integration

No customer or site is the same, so why would one size fit all? Because we specialise across a range of solutions, we can provide a power and/or heat solution for you that works wherever you are, whatever the weather. We have chosen what we consider to be the best products from the most reliable manufacturers; we have a close relationship with those that actually design and build the products ensuring that we are always up to date with the latest product developments and ideas. This means that our customers will always receive the most current advice and expertise.

Maintenance & Servicing

We are able to carry out servicing on most renewable technologies at your request whether installed by ZLC Energy or not. Thankfully Solar PV systems require little maintenance or servicing however on a large scale installation it pays to ensure your investment is working for you as best it can. We can therefore offer an annual maintenance package at your request. It is worth noting that solar PV inverters, may need to be replaced after 12 – 15 years.

Planning Permission and Building Regulations

Many renewable technologies are covered by Permitted Development Rights; however, we advise that you check the current policy at www.planningportal.gov.uk. In addition, if your property is a Listed Building or in a Conservation Area you should confirm the appropriate policy with your local council. We will ensure that the installation complies with building regulations legislation but please note it is the customers' responsibility to obtain any relevant planning consent or approvals prior to installation commencing. We will require evidence of all relevant approvals prior to issuing your MCS Certificate. We are happy to assist with this process if required.

Smart Export Guarantee (SEG)

The Smart Export Guarantee was launched in the beginning of 2020 as the successor of the Feed-In Tariff (FiT). All energy suppliers/ utility providers are now obliged to offer an export tariff scheme in which they decide the rate/type/length of their export tariffs. It's not mandatory to apply for this scheme from your energy supplier and it is encouraged to shop around and see what different energy suppliers offer. It is a requirement however to have a smart meter installed which is something to discuss with the chosen SEG licensee.

The market for export tariffs is constantly changing, a live comparison table of export tariffs can be found at: <https://www.solar-trade.org.uk/seg/>

Renewable Heat Incentive (RHI)

The Domestic RHI runs to March 2022. This offers a payment to produce renewable heat in a domestic dwelling, the tariff rates are:

	Air Source Heat Pump	Ground Source Heat Pump	Biomass Boiler	Solar Thermal	Life of Scheme
<i>Domestic Tariff (p/kWh)</i>	10.85p	21.16p	6.97p	21.36p	7 years

Green Homes Grant

Heat Pumps, Solar Thermal, and Biomass Boilers are primary measures eligible for the Green Homes Grant. Within this grant, homeowners and landlords in England can apply for a voucher towards installing energy efficient and low-carbon heating improvements to homes. The grant will provide a voucher that covers up to two thirds of the works, capped at £5,000. Low-income homeowners can qualify for a higher subsidy and be provided with a voucher covering 100% of works, capped at £10,000.

Only retrofit installations are eligible for the grant. The grant can be claimed alongside the Renewable Heat Incentive, any amount that is covered by the Green Homes Grant will be deducted from the RHI payments. For more info or to apply, please visit: <https://www.gov.uk/guidance/apply-for-the-green-homes-grant-scheme>

To Place an Order

To place an order with ZLC Energy please contact the number on the cover page. We will then send out an order form, our terms and conditions and any other information you require. Please read our terms of business carefully. These terms form the basis of your contract with us. If, having considered all the information, you wish to proceed then please complete the Order Form and return it to us together with your deposit payment. When we have received your deposit, we will contact you to arrange delivery and installation dates.

VAT: The following VAT rate would apply –
 20% for Electric Vehicle Charger installations
 5% for Retrofit Domestic installations
 0% for New Build Domestic installations

Valid until: This quote is valid for 30 days

Lead Time: Normal lead time from order to completed installation is 4 - 6 weeks

Payment Terms: £500 deposit with order form
 50% when stocking your equipment (usually 1 week prior to installation)
 30% Commencement on site
 Balance on completion of installation

Once an order is placed, we shall run through the steps as highlighted above to progress your install. We look forward to hearing from you soon.