

# Natural renewable energy solutions

AIR SOURCE | GROUND SOURCE | SOLAR THERMAL | SOLAR PV



## SPECIALIST IN RENEWABLES



Established in 2009, PowerNaturally has installed over 1,000 renewable systems in a variety of projects from small houses to large hotels and schools.

We have become a recognised leader in the field through our extensive experience and technical knowledge - in particular our ability to combine renewable technologies.

We are MCS accredited installers for:

- Air Source Heat Pumps
- Ground Source Heat Pumps
- Solar Thermal
- Solar PV

## OUR SERVICES



### DESIGN

We undertake:

- Full Site Survey
- Heat Loss Calculations to EN12831
- Heat Pump Sizing
- Mechanical & Electrical Schematics
- Ground Loop Sizing & Plan

All of our design work is fully indemnified



### INSTALLATION

We install:

- Air Source Heat Pumps
- Ground Source Heat Pumps
- Solar Thermal
- Solar PV

Including all primary pipework and electrical connections to controls and thermostats as per client and system requirements.



### COMMISSION

Under our MCS accreditation we:

- Test
- Set To Work
- Commission
- MCS Register

And provide a full set of product instructions, user guides, warranties for both product and installation work.

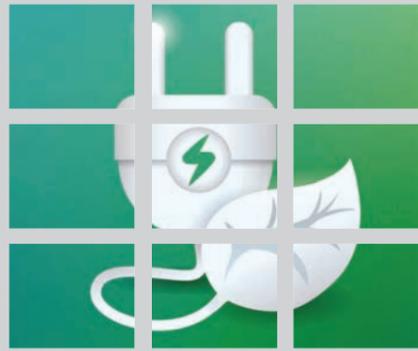
## OUR ACCREDITATIONS & MEMBERSHIPS



## RENEWABLES SHOWROOM

Open to the public and trade for viewing demonstrations and training at our Ferndown location.

## OUR RENEWABLE TECHNOLOGIES



At PowerNaturally we can offer a number of different renewable technologies to best suit your requirements.

We also have the experience and expertise to combine different renewable technologies to provide the lowest cost and most efficient heating systems.

### AIR SOURCE HEAT PUMPS

ASHP's are becoming an increasingly popular option for heating many properties as they are simple to install and can reduce heating bills significantly.

ASHP extract heat from the outside air in the same way that a fridge extracts heat from its inside. This heat from the air is then transferred to the heating and hot water system to heat the home. Like fridges, the technology is tried and tested and is very reliable. ASHP can provide all the heating and hot water for your home.

#### Benefits

- Low Maintenance & running costs
- Low Noise : 45dBA at 1m
- No gas or other fuels required
- High efficiency rating of 250% - 350%
- Expected life span 15 - 20 years



**Air Source Heat Pumps**

### GROUND SOURCE HEAT PUMPS

GSHP's are the most efficient type of heat pump and for properties with the ground space and capital to invest offer the lowest running cost for home and hot water heating.

By pumping a fluid through underground pipes which then absorb heat from the ground they are able to comfortably heat a home to 21°C or above and provide lots of hot water. GSHP's can also offer cooling in the warmer summer months by simply reversing their cycle.

#### Benefits

- Low Maintenance & running costs
- Low Noise : 45dBA at 1m
- No gas or other fuels required
- High efficiency rating of 300% - 410%
- Expected life span 20 - 25 years



**Ground Source Heat Pumps**

### SOLAR THERMAL

Solar Thermal systems utilise the free energy provided by the sun and so represent a very low cost approach to providing hot water compared to traditional heating methods. Modern solar systems absorb diffused radiation as well as direct sunlight so that they work even on a cloudy day.

Solar systems are available as either flat panels or gas filled tubes depending on the application. Solar Thermal systems can be fitted 'on roof' or 'in roof' depending on your preference for aesthetics.

#### Benefits

- Utilise free solar energy
- Low maintenance
- Life span of 25 years plus
- Great for larger hot water demand such as swimming pools



**Solar Thermal**

### SOLAR PV

Photo voltaic solar systems produce electricity from the sun's radiation which can be used to power lights and other appliances such as heat pumps or connected an immersion to heat hot water.

PowerNaturally have expertise in fitting both domestic and larger scale PV arrays. Systems can be arranged to fit on a single roof or be split between roof locations to capture the best position for solar gain.

#### Benefits

- Utilise free solar energy
- Little or no maintenance
- Life Span of 25 years plus
- Generate own electricity and receive a FIT payment for doing so



**Solar PV**

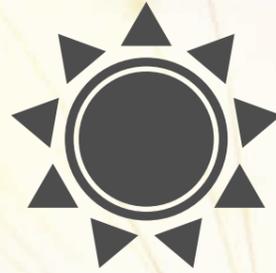
## THE RENEWABLE OPPORTUNITIES



Renewable technologies, utilising the free energy from the sun offer many benefits.

Combining renewable technologies can offer even more benefits.

## WHY RENEWABLES?



### Solar Energy - Free and Sustainable

Unlike fossil fuels, solar energy is free and due to last for many millions of years, and the heat it delivers to the air or ground is then captured by the renewable technology.



### Reduced Carbon Footprint

There can be a big reduction in the carbon footprint, in some cases to zero where Solar PV is used to power other forms of renewable technology.



### Highly Efficient Technology

Heat pumps are highly efficient, for every 1KW of energy put in, they typically deliver between 2.5KW and 3.5KW of output e.g. 250% to 350% efficient compared to a typical gas boiler which is only 90% efficient.



### Lower Running Costs

An **Energy Savings Trust** have indicated that a Ground Source Heat Pump can save

- between £475 and £725 a year when replacing an oil-fired heating
- between £830 and £1,465 a year when replacing electric heating

And of course solar energy is free and can be used to reduce your heat pump costs even further.

## COMBINING RENEWABLES

If you are convinced about the benefits of renewables then why not consider making use of more than one renewable on a project?

PowerNaturally specialise in bringing together different technologies to give added benefits.



Air Source



Solar PV

### BENEFITS

- PV power can be used to help run the ASHP
- PV power can be diverted to help heat the hot water in the summer when the ASHP can be switched off



Air Source



Solar Thermal

### BENEFITS

- Solar Thermal heat will provide hot water for most of the year - reducing the demand on the ASHP



Ground Source



Air Source



Solar PV

### BENEFITS

- Using the GSHP to heat the home all year round - provides the lowest running cost
- Use an ASHP for a specific task e.g. pool heating
- PV power can be used to help heat hot water

In each case RHI or FIT payments would be available for each technology although it may be necessary to meter the output of each to determine which technology is contributing at the different times. PowerNaturally will consider key design requirements to ensure that each technology can work together, be controlled easily and visibly, and contribute heat and power at the right time at the lowest cost.

## OUR PROJECTS



PowerNaturally have the experience of combining renewable technologies to deliver the most efficient, lowest cost heating solutions for our clients.

We will undertake a full site survey of the property and we will advise the most suitable options based on your needs and budget.

### Willowhale, West Byfleet

- Floor Area: 1220 sqm
- Heating: Solar Thermal + PV + Gas Boiler
- Emitters: Underfloor Heating

Due to the large size of this property and the high demand for hot water the client was keen to invest in a solution that was low cost and as efficient as possible. A roof mounted solar thermal system feeding to 2 no. 500L hot water cylinders supported by a PV array that provided electrical input to the immersion heater gave a solution that offered much lower costs and large amounts of heated hot water.

Both systems were mounted on a flat roof using A frame mounting kits to provide the correct elevation, but were centrally located on the roof to both avoid being seen from ground level and to minimise any impact of shading from the house or the surroundings.

To ensure that there was hot water all year round the system was also connected into the main gas boiler heating.



### ECO Tree-Houses, Chewton Glen Hotel, New Forest

- Floor Area: 12 suites x 70 sqm
- Heating: ASHP
- Emitters: Underfloor Heating

When the exclusive 5 star Chewton Glen Hotel in the heart of the New Forest decided to build some eco tree-houses in their grounds to offer guests the opportunity of living closer to nature but with luxury included, they turned to PowerNaturally.

The result for the 6 tree-house pods and 12 custom designed suites complete with whirlpool baths and power showers, was a high temperature split ASHP that allowed for the external heat pump to be situated at ground level out of sight of the guests, but via hydroboxes installed for each suite together with an integral 200L hot water cylinder, was capable of delivering both hot water to 65°C with rapid reheat times, whilst at the same time satisfying the lower heat demand of the underfloor system at 45°C.

In keeping with the surroundings the client was also notably pleased with the quiet operation of the system in maintaining the tranquillity and peace expected by their guests.



### Little Acorns, Windsor

- Floor Area: 600 sqm
- Heating: GSHP + ASHP + Solar Thermal + Gas Boiler
- Emitters: Underfloor Heating

The client was looking for a sustainable solution for this substantial property that was cost effective to run. They chose to combine a number of technologies to maximise the efficiency.

- The GSHP is the main heat source for the house and hot water. It gains its heat from vertical ground loops cast within the piling foundation of the house. It can also work to provide passive cooling during the summer.
- The ASHP heats the pool and spa and when there is high demand for hot water it can be backed up by short bursts of heat from the gas boiler.
- The Solar Thermal system offers virtually free heating for the hot water during the summer and supplementary heating to the pool and towel rails in 5 bathrooms.



The system incorporates a weather compensation monitoring system to ensure that the heating is managed smoothly in advance of external temperature changes and to maintain the highest possible efficiency and lowest running costs.

There is also a remote energy control module that allows the client to control and monitor the whole system remotely as well as providing remote access for PowerNaturally to inspect and manage the system.

# RENEWABLE ENERGY STANDARDS AND INCENTIVES



To ensure that Renewable Technologies are offered and provided in a reliable and effective manner, the government has established both standards for the industry as well as incentives to encourage conversion and growth in these technologies.

PowerNaturally are able to offer advice or assistance on eligibility of your project or any other detail of these schemes without obligation.

We are also authorised to carry out Green Deal Assessments - for more information please contact us.

**Scheme Eligibility**  
Typically to apply for RHI or FIT funding you will need to be a homeowner or self builder with the following:

- MCS approved product installed
- MCS installation registration
- Energy Performance Certificate (EPC)
- Green Deal Assessment (GDA)\*

\* Excludes new build properties



## Microgeneration Certification Scheme

Microgeneration Certification Scheme (MCS) is an internationally recognised quality assurance scheme, supported by the Department of Energy and Climate Change. MCS certifies microgeneration technologies used to produce electricity and heat from renewable sources.

MCS is also an eligibility requirement for the Government's financial incentives, which include the Feed-in Tariff and the Renewable Heat Incentive.

For more information visit [www.microgenerationcertification.org](http://www.microgenerationcertification.org)



MCS NIC3616

## Renewable Heat Incentive

The RHI is a government funded financial incentive to encourage a switch to renewable heating systems. It's a way to help the UK reduce carbon emissions and provide cost effective, sustainable heating.

For eligibility to the scheme there may be a requirement to undertake a Green Deal Assessment.

For an MCS Certified renewable installation the scheme will make a quarterly payment direct to the owner of the renewable system for a period of 7 years.

For more information visit [www.ofgem.gov.uk/environmental-programmes](http://www.ofgem.gov.uk/environmental-programmes)



## Feed-in Tariff

The Feed-in Tariff scheme (FITs) is an environmental programme introduced by the government to promote the use of small-scale generation technologies.

If a householder, community or business has an eligible installation, FITs pays them a tariff for the electricity they generate and a tariff for the electricity they export back to the grid.

For an MCS Certified renewable installation the scheme will make a quarterly payment direct to the owner of the PV system for a period of 20 years.

For more information visit [www.ofgem.gov.uk/environmental-programmes](http://www.ofgem.gov.uk/environmental-programmes)



## Green Deal

The Green Deal helps you make energy-saving improvements to your home and find the best way to pay for them. The improvements that could save you the most energy depend on your home, but typical examples include:

- Insulation, e.g. wall, cavity or loft insulation
- Heating
- Draught-proofing
- Double glazing
- Renewable energy generation, e.g. solar panels or heat pumps

The cost of these improvements are then funded from your energy savings, the money effectively being collected through your normal energy bill by maintaining the same level of payments until the costs are paid.

For more information [www.gov.uk/green-deal-energy-saving-measures/overview](http://www.gov.uk/green-deal-energy-saving-measures/overview)





RENEWABLES SHOWROOM

open for customer viewing,  
demonstrations and training at  
our Ferndown location.

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 **PowerNaturally**  
RENEWABLES | FROM DESIGN TO COMPLETION

