

INTELLIGENT
ENERGY
SOLUTIONS



Solar Electricity

Air Source Heat Pumps

Ground Source Heat Pumps

Solar Water Heating

Underfloor Heating

Rainwater Harvesting

Wind Power



Renewable *Energy* Specialists

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The Future is here

Do you want to make a prudent financial investment?

Save money on your spiralling fuel bills?

Or simply reduce your carbon footprint?

Whatever your motives - Intelligent Energy Solutions can offer a system that will achieve all this without compromising your quality of life.

At Intelligent Energy Solutions we find that some people know exactly which renewable energy solution they want to install. However, some people know they need to make a change but are unsure as to which technologies would be most suitable for them. Either way, we offer a comprehensive service, from basic guidance to a complete installation.

We offer a comprehensive service, from basic guidance to a complete installation

We are unique. We specialise in not one but all the major forms of renewable energy systems. This means we can offer balanced sound advice as to the most appropriate system for you. This also means that our understanding of how different systems can integrate is unparalleled.

Since establishing in 2006 we have set ourselves clear goals to offer friendly and clear advice. This enables customers to make informed decisions on how appropriate renewable energy installations can save them money and reduce their carbon footprint. We strive to offer an outstanding service in terms of quality of information, quality of equipment and quality of the final installation.



Generate your own electricity from the energy provided by the sun.



Extract heat from around your property to provide central heating and hot water.



Use the sun's energy falling on your rooftop to heat your hot water.



Collect and store rainwater to reduce mains water usage.



Use the power of the wind to generate your own electricity.

“Green taxes are increasingly on the horizon, therefore having a carbon-friendly footprint makes sense”

Jonathan Johns, Ernst and Young

We're here to help...



Intelligent Energy Solutions is a family run business spanning 3 generations. With branches in Leicestershire, Gloucestershire and Yorkshire we are happy to supply and install throughout the UK. We pride ourselves on being knowledgeable, professional and friendly.



MCS - Microgeneration Certification Scheme

The Microgeneration Certification Scheme (MCS) was designed to ensure that all government supported microgeneration systems utilise effective equipment and are installed to the highest of standards. All government incentives such as the Feed In Tariffs and local council grants require MCS approval to be eligible. At Intelligent Energy Solutions, we have chosen The Buildings Research Establishment (BRE) to inspect our procedures and installations. The BRE are a world renowned organisation for setting high standards and applying strict discipline when assessing microgeneration installations and procedures.

To find out more, call 01509 768565 or visit www.iesolutions.co.uk



Solar Electricity Panels

Solar electricity panels convert the sun's radiation into electricity that can be used in your home or business premises.

Solar Electricity Panels

Solar photovoltaic (PV) systems work in a similar way to the solar cells sometimes found on a calculator. The system uses the sun's free energy to create electricity. The sunnier the position, the more electricity can be generated.

Solar photovoltaic systems can be installed on both new and old properties. Our trained team will survey your property and advise you about the best position to take full advantage of your potential solar energy.

Most homes and business premises already have the

luxury of a connection to the national grid. In these cases your installation will be designed so that surplus electricity is metered and sold to your electricity supplier. For instances where a grid connection is not available, a battery backup will supply electricity when the sun isn't shining.



Where appropriate, system performance can be monitored in real time via a wireless digital display. Data can also be downloaded to a PC and analysed via a USB interface.

Feed In Tariff (FIT)

In April 2010 the government launched the feed in tariff (FIT). The tariffs are for electricity generating renewable energy installations, such as Photovoltaic solar panels and wind power systems. The feed in tariff for photovoltaic installations will reward the system owner for every unit of electricity generated, the rate paid can be as high as 41.3p/unit. This is more than 3 times higher than electricity normally costs to buy. The FIT is paid on all electricity generated even if it is used in your own property. This means that you save twice!



“I can report great satisfaction with the installation, in the first year of running we are on target to produce 20% more electricity than estimated”

HOT TIPS

You get paid the FIT on everything you generate even if you use it yourself.

The power generated is supplied to your fuse box. The electricity is then automatically redistributed to wherever it is needed.



PhotoVoltaic panels use the sun's energy to free up electrons. These electrons then flow between positive and negative which creates an electric current.



Heat Pumps

Heat pumps are the sustainable equivalent to conventional boilers. Instead of using costly fossil fuels they extract heat from around your own property. This is then upgraded by the heat pump so it can be used to heat your home and hot water. We specialise in air and ground source heat pumps.

Air Source Heat Pumps

Air source heat pumps extract heat from the air outside and upgrade this heat to temperatures in excess of 55°C. Unlike other suppliers, our heat pumps are capable of delivering high temperature hot water, which can be used with radiators, underfloor heating and domestic hot water heating. A correctly designed system can provide central heating and water heating

with efficiencies higher than 330%. They can provide heat to your home even when the outside temperature is -10°C. With this type of performance our heat pumps can significantly reduce your heating bills and your impact on the environment.

Sophisticated Control

Our heat pumps typically have a much greater degree of temperature control compared to conventional boilers. When the weather is mild the heat pump subtly reduces the heating output of the radiator or underfloor heating system. This enables the room temperature to be maintained precisely without the uncomfortable fluctuations associated with conventional systems.



The air source heat pump system includes a heat exchanger that needs to be positioned near to the property.

Case study



Geoff Norman proceeded with an 8.5kW Mitsubishi Electric air source heat pump at his farm stable block conversion. After looking at the alternatives he felt that the 'Ecordan' offered a cost effective and environmentally friendly way to heat the property and the domestic hot water. Geoff commented "Intelligent Energy Solutions were able to offer me a heat pump that would provide heating and hot water all year round without the need for a boiler backup. This made the decision simple and very cost effective."

Renewable Heat Incentive (RHI)

At the time of going to print the government had outlined a new incentive that rewards people for generating heat from renewable sources. Suitable systems include heat pumps and solar thermal panels. The government is targeting a return on investment of over 12% for heat pump installations. This will mean that payback for this systems will now be well under 10 years.



Ground Source (Geothermal) Heat Pumps

Just a metre beneath the ground the temperature typically varies between 7 and 12°C, this heat is primarily provided by the sun. When heating is in greatest demand the ground is often warmer than the external air. This means that the ground source heat pump is able to achieve higher annual efficiencies than air source systems, in the order of 450%. This compares to a high efficiency gas boiler which has an efficiency of around 90%.

The ground loop

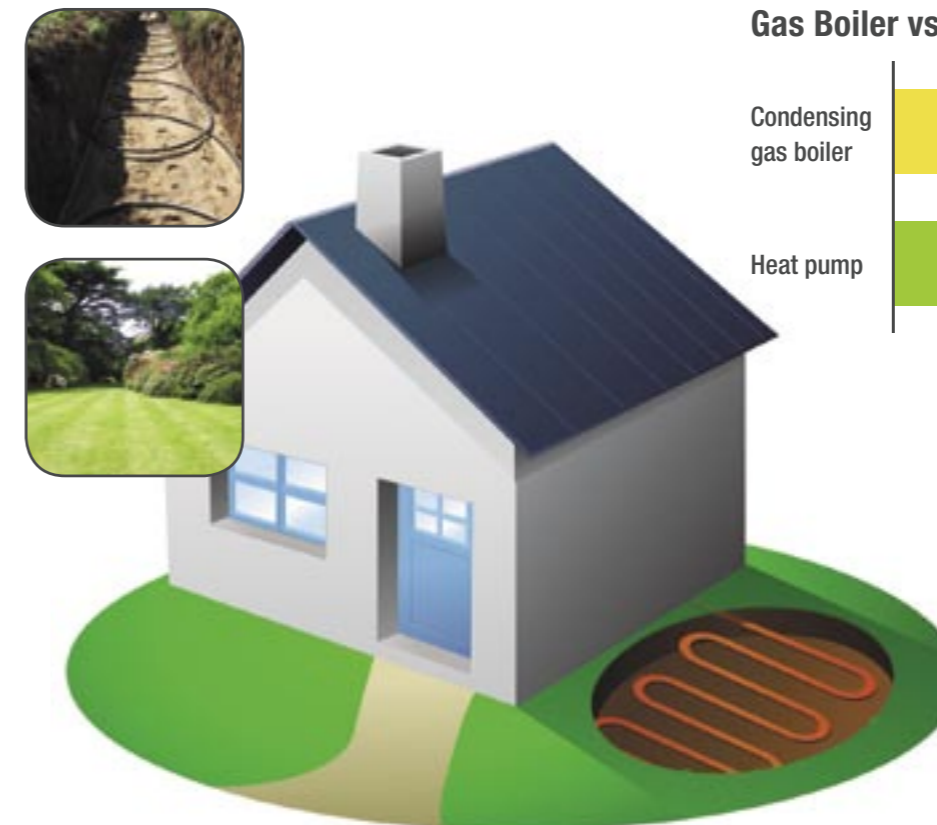
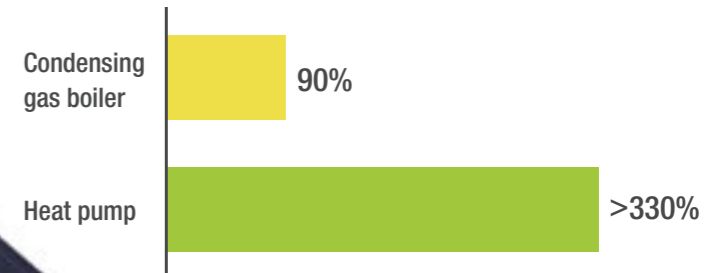
At Intelligent Energy Solutions we offer a complete installation service, including the installation of a ground loop. The ground loop comprises lengths of pipe buried

The ground source heat pump is about the same size as a fridge freezer and can be positioned in any weather proof area.



in the ground, either in a borehole or a horizontal trench. This pipe is filled with a heat transfer fluid which collects heat from the ground. Boreholes enable properties with very little outside space to take advantage of ground source heat pumps.

Gas Boiler vs. Heat Pump Efficiency



HOT TIPS

As well as fitting your new heat pump, we also have the skills in house to provide a total radiator and under floor heating system.



Solar Water Heating

Solar water heating is one of the lowest cost renewable energy solutions, reducing your hot water heating bill by up to 70%.

Solar Heating

Solar water heating systems use the sun's energy to heat fluid in panels or tubes on your roof. This can then be used to supply heat to your general hot water system, or something more specific such as a swimming pool. Intelligent Energy Solutions provide solar water heating that will heat water even on a cloudy day.

When water heating is required, but sufficient energy from the sun is not available, it is usual for domestic systems to have a hot water back up system. A conventional boiler, geothermal or air source heat

pump system can then be used to add the extra heat the water requires.

Depending on specific usage, we would expect a properly specified solar water system to provide up to 70% of your hot water needs over a year.

Intelligent Energy Solutions install two types of solar collector, flat panel and evacuated tubes. We are happy to advise which system is most appropriate for you.

HOT TIPS

Solar energy will heat your water even on cloudy days.



Case study

Catherine Thorne felt that her gas bill was increasing rapidly but also wanted to do her bit for the environment. After consulting with Intelligent Energy Solutions she decided to have 4m² of solar flat plate panels integrated into her roof. The panels reduced her gas bill immediately by almost 20%. Catherine commented "it is so nice to know that when the sun is shining my water is being heated for free".



Flat Plate Panels or Evacuated tube Collectors

Both flat plate and evacuated tube collectors perform very well, which one you choose is often a personal decision. Evacuated tubes have a higher average efficiency over the year. This is because there is a vacuum between the heated water and the outside air, similar to double glazed windows. However, flat plate collectors are aesthetically more appealing and can be integrated into the roof structure with a flush finish. The finished result is often described as looking like a large roof window.

Renewable Heat Incentive

The proposed Renewable Heat Incentive (RHI) promises additional payments for heat generating renewable energy systems such as solar heating and heat pumps. This will improve the return on investment beyond the simple energy savings that have made this technology so popular.

HOT TIPS

Your roof doesn't have to face south, we can design a system suitable for both east and west facing roofs.

"It is so nice to know that when the sun is shining my water is being heated for free"



Our solar water heating systems can also be designed to heat swimming pools





Ideal for...
 Water conservation
 Vehicle washing
 Toilet flushing
 Washing machines
 Garden irrigation

Rainwater Harvesting

What if you could collect rainwater and use it in your home or business?

Case study



Steve Harris invested in a 6500 litre rainwater harvesting system to supply his two holiday cottages. Steve said "the saving is two fold, not only has our water bill decreased but our waste water charges have also reduced. This is because the less water we take from the mains, the more we save on waste water disposal."

Free rainwater falls on our roofs all year round, this water is clean and useable. A significant amount of this rainwater is purified and pumped to your property as a mains supply. This is expensive and unnecessary. If local rainwater could be collected and stored on your property, all this cost could be avoided.

Intelligent Energy Solutions supply and install rainwater harvesting systems that do just that.

Heavy downpours followed by severe droughts mean that the need for rainwater conservation has never been greater

Rainwater is diverted through a filter into a storage tank, usually in the ground. This water is then pumped when needed for toilet flushing, washing machines, garden irrigation and vehicle washing. Domestic properties stand to save around 50% of their mains water usage. Commercial properties could save even more due to the typically large roof size and high demand for non-potable water.

HOT TIPS

Rainwater is suitable for more than 50% of your mains water usage.



Ideal for...
 Supplementary electricity supply
 Exclusive electricity supply
 Electricity storage

Wind Power

Wind power is one of the most popular renewable energy technologies. Our turbines generate electricity from a fuel that will never run out and is entirely free.

Wind has been a source of clean energy for centuries. Wind was once used by windmills to grind corn or pump water. Today, turbines allow us to generate our own electricity. Whether you wish to supplement your existing electricity supply, or require a sole source of electricity, Intelligent Energy Solutions have the answer.

The windier the turbine's position, the more free electricity that you will be able to generate.

The key to a successful and cost effective installation is the turbine position. The turbine needs wind of a good speed that is free of turbulence. Our trained consultant will be able to survey your property and help you take full advantage of its energy potential.

Systems can be connected to the national grid or where a connection is not available the installation can function in isolation with battery storage.

Feed in Tariff

As detailed in the solar electricity section of this booklet, the electricity generated will be distributed automatically to where it's needed in your property. If you are not using electricity it will be automatically fed back into the national grid. Electricity generated will provide revenue through 'Feed in Tariffs' (FITs), electricity companies will pay up to 34.5p/kWh generated.

Even in high speed winds the turbine creates very little noise



HOT TIPS

Visit our website to check your average wind speed on the BERR's national wind speed database.

“By installing solar, homeowners can gain the dual benefits of a reduced fuel bill and increased property value”

Solar Trade Association



“We must unite and push for a greener cleaner future”

Barack Obama

“The UK has, in the form of wind power, the largest renewable energy resource in Europe”

British Wind Energy Association

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