

## RENEWABLE ENERGY SYSTEMS

Solar technology

Heat pumps

Wood burning boilers



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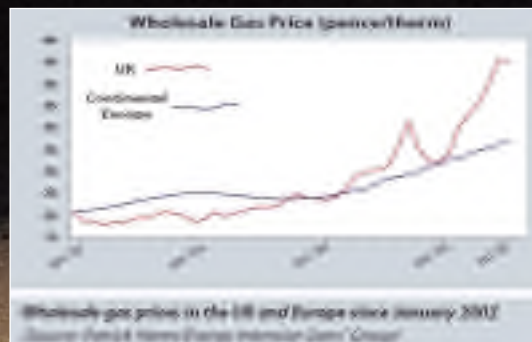
Your **Renewable Energy** questions  
answered by the **World's Expert** in  
eco-friendly heating:

## How can I save money and help save the environment?

The world's reserves of fossil fuels are running out. If you need proof, look at the prices. Price increases, political and economic uncertainties and environmental impact have driven Viessmann and our customers towards new technologies that make savings in all areas.

You can reduce your dependence on fossil fuels by introducing renewable energy sources; from the sun, the air, heat stored in the ground and wood burning. With modular platform technology from Viessmann, your heating system can rely entirely on renewable resources, or be easily integrated with a high efficiency condensing boiler, for the ultimate combination of performance and economy.

Energy prices are going up:



**With a Viessmann  
renewable energy  
heating system!**



## Are there subsidies for renewable energy systems?

**Yes!** The government wants to encourage the installation of environmentally friendly heating systems.

Government agencies, local government and the utility companies support and encourage environmentally friendly energy systems.

Grants are available for all of the technologies described in this booklet; solar, heat pumps and wood burning boilers. Subsidies and renewable energy schemes are subject to change. For the latest information on grants and application procedures go to [www.dti.gov.uk](http://www.dti.gov.uk) or visit [www.viessmann.co.uk](http://www.viessmann.co.uk) and follow the links.

## VITOSOL

Viessmann lets you bring the sun into your home.

The sun's energy is free, effective and never going to run out. A home solar system by Viessmann reduces emissions of carbon dioxide (CO<sub>2</sub>, the greenhouse gas) by about three quarters of a tonne every year. So your solar system is good for the environment too.

Just think how quickly the inside of your car heats up if you leave it in the sun for only a few minutes - even in winter. A perfectly balanced system with high efficiency solar collectors on the roof, from Viessmann, lets you bring this solar energy home.

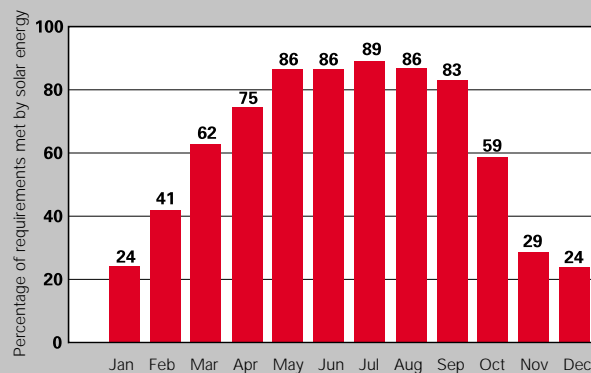
**Efficient**  
**Eco-friendly**  
**Future-proof**



## How much can I save with a solar heating system?

Obviously the intensity of the sun's rays varies from season to season. We can judge the efficiency of a solar system by considering what proportion of our hot water needs can be met by a solar system supplying domestic hot water. In the case of the average home or flat it averages 60%. From May to October solar energy will be almost sufficient to cover your total domestic hot water requirements. In the transitional months solar heating can usefully support the central heating system, resulting in a significant reduction in oil or gas consumption over any one year.

Average percentage of domestic hot water requirement, which can be met by solar power in an average home.



## Up to 60% energy for domestic hot water!

This is the average percentage of annual household requirements which can be met by solar energy. In summer, solar energy can provide nearly all the energy required in the average home.

The sun does not have to be shining all the time to produce energy. Remember coming back to your car on a dull day - the car had still warmed up. It's the same with solar collectors - they warm up too, assuming of course that you have high-efficiency fast response collectors on the roof.

**Is there enough sun in Britain to provide enough heat?**


**Yes!** An efficient solar heating system will make the best use of whatever sun there is.

## How does solar heating work?

The sun's heat is collected, stored and used when needed.

Flat or tubular solar collectors absorb the heat from the sun. Here a liquid is heated by the sun's rays and fed to the water tank. There the heat is transferred by a heat exchanger to the domestic hot water supply or the central heating circuit. The fluid which is now cooler is returned to the collector for reheating - and the cycle continues. If there is not enough sun, in the winter for example, then the boiler will top up the heat.

## What can I use solar technology for?



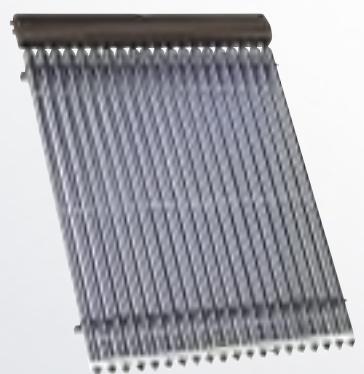
Viessmann solar systems are high performance, so as well as heating domestic hot water they can be used to support the central heating system. The Vitosolic solar control ensures that heat collected by the solar collectors is used as efficiently as possible. Depending on your preferences and the system design you can use it just for domestic hot water or for supporting the central heating or even for heating a swimming pool. As soon as the sun can provide enough heat, the boiler switches off and saves you money.



**VITOSOL 100**



**VITOSOL 200**



**VITOSOL 300**

## Which collector is the right one for me?

The Vitosol range has solar collectors for every requirement, location and budget.

**VITOSOL 100** flat collector:

Low cost, with Sol-Titan titanium coating for high efficiency.

**VITOSOL 200** vacuum tube collector:

Extremely effective insulation, with Sol-Titan titanium coating for high efficiency, for mounting at any angle.

**VITOSOL 300** vacuum tube collector:

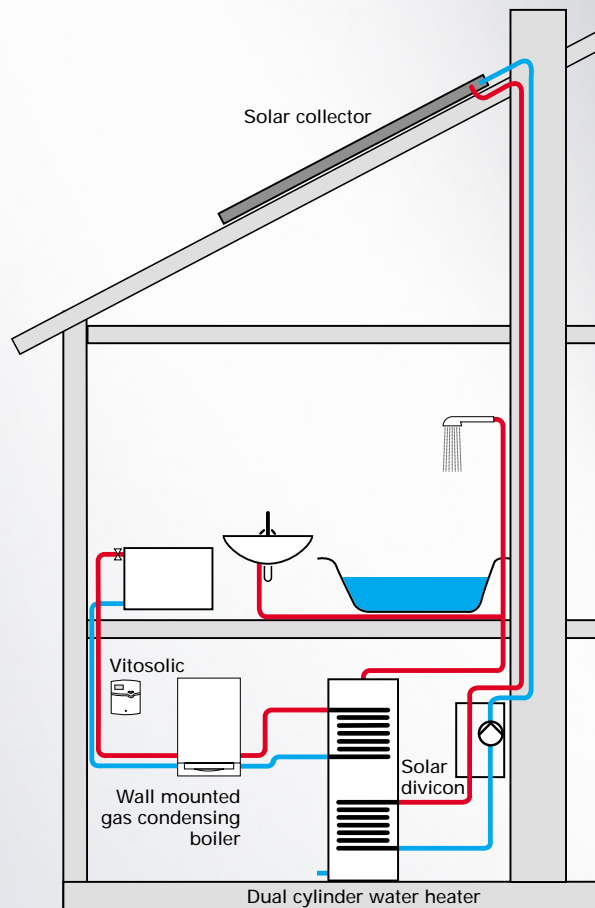
Top grade high performance collector which works on the heat pipe principle.



## But aren't solar technology and central heating two totally separate systems?

With Viessmann everything is perfectly integrated, so you can rely on the best efficiency and extreme reliability - all from a single source. Viessmann offers everything from the solar collectors to specially developed solar hot water cylinders, the Vitosolic solar control system, a Solar-Divicon pump system for safe operation and thermal protection of solar installations to oil/gas condensing boilers.

**No!** Viessmann gives you system technology from a single source.



## Is a solar heating system really reliable?

Viessmann has more than 30 years of experience in the solar technology business and has fitted more than 5 million square metres of solar collectors on roofs in Germany alone. Viessmann solar products are highly efficient, durable and an excellent investment in the future. In addition to the savings in fossil fuels and emissions you have the reassurance of Viessmann performance and reliability. Quality testing by the world renowned SPF Institute confirms that Viessmann collectors go on delivering constant high thermal performance for more than 20 years.

**Yes!** Viessmann has decades of experience in solar heating systems.

Where can I get a Viessmann solar heating system?

Viessmann UK has a network of trained installers, who can install domestic and commercial solar energy technology and integrate them into new or existing Viessmann heating systems. Please see page 58 for contact details.



## VITOCAL

Natural heat, from the air and ground.

Another alternative to conventional heating is a heat pump, which extracts heat from the air or ground, making cost savings whilst protecting the environment.

A heat pump uses heat from the environment around us. As an experienced leader in this field Viessmann has 25 years' experience in heat pumps and many of the earliest systems are still running perfectly. A heat pump can be used alongside a condensing boiler and is perfect for running an underfloor heating system.

**Using heat from the environment to protect the environment.**



## So how does a heat pump work?

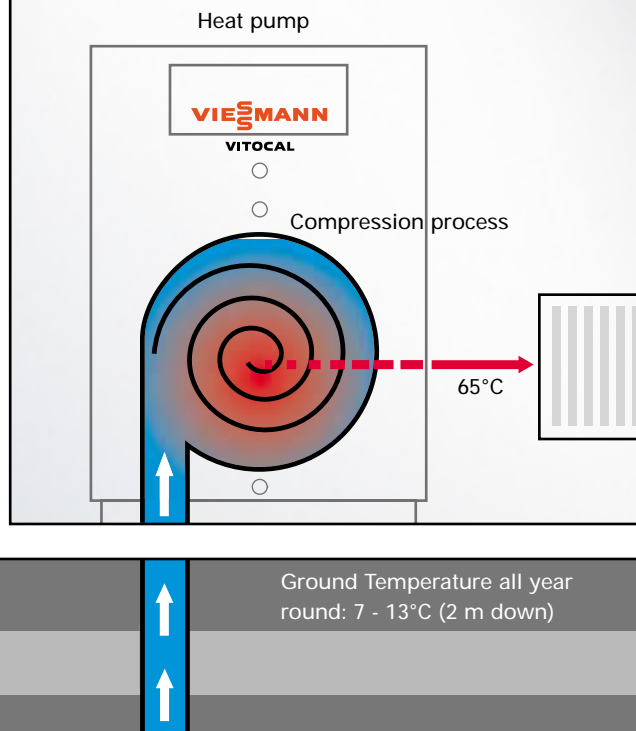
A refrigerator works by pumping the heat out. A heat pump does exactly the same, but the other way round. The heat from outside, the warmth in the ground for example, is pumped into your living room.

The temperature of the transfer fluid is increased to 65°C, meaning a highly efficient system that can be used for heating and domestic hot water.

In the summer you can use it to cool your home. Using "Natural cooling", heat pumps transfer the relatively low temperature heat from the ground or ground water through heat exchangers or underfloor heating systems into your living room, to reduce the temperature by 3 - 4°C

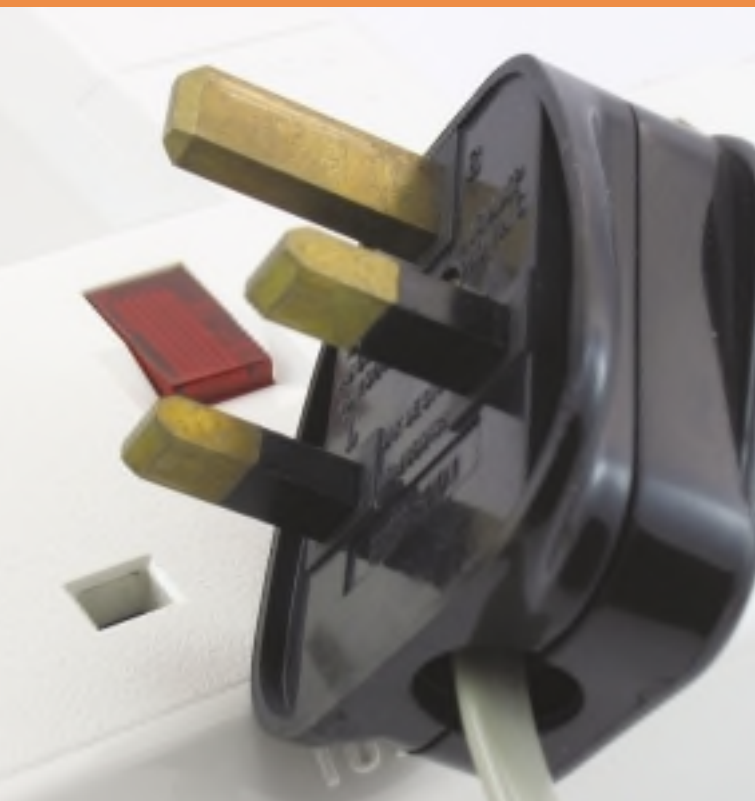
**Like a refrigerator,  
but the other way  
round.**

The heat pump concentrates the warmth from the environment below ground level and feeds it into your heating system. Like the air in a bike pump, the heat transfer fluid is compressed to increase the temperature. Viessmann heat pumps can achieve temperatures of 65°C.



What does it cost to use a heat pump for heating?

You just pay for the electricity!



An 8 kW system uses about 3,700 kW a year. Assuming electricity costs 7.5p per kW, the total for the year would be about £275.

To bring natural heat into your home, all you need is electricity. A Viessmann heat pump makes the best use of it - every kilowatt of electricity becomes 3 to 4 kilowatts of heat.

## How environmentally friendly is a heat pump?

A heat pump is the only type of heating system that allows you to heat in a 100% environmentally friendly way. It doesn't burn fossil fuels which are in limited supply, it doesn't create emissions and it can be run on 'green' electricity; hydroelectricity and electricity from wind farms.

**Up to 100% eco-friendly.**



## Can you be really warm with a heat pump?

A heat pump provides proper comfortable central heating - even this far north. In fact, in Sweden more than 50% of homes rely on a heat pump for their heating!


## As warm as you want!

A properly sized system in a well insulated home can provide all the heat you need, with no need for back up from a boiler or electric heating - not even in the UK. It is a proper heating system. Viessmann technology is advanced - and proven. Even at 20°C below zero you will be comfortable indoors with as much hot water as you need.



## Does a heat pump pay for itself?

The decision to invest in a heat pump will always pay off, even though the initial cost may be £2,000 - £3,000 more than a conventional heating system. You also save the cost of any alterations, such as a flue, or an oil tank or gas connection and you won't need a chimney sweep! But the main thing is you will never again have to pay for fuel or have to store it. On average the payback time for a heat pump is 8 years - and from then on you are literally making savings on your heating costs.



**Yes!** A typical heat pump pays for itself in 8 years.

## Can heat pumps only be fitted in new homes?

There's a Viessmann heat pump for every need including renovation. The Vitocal 350 has been specially designed for use in renovations, however you should check with your heating installer that the building has sufficient insulation as heat pumps are at their most efficient when installed in well-insulated properties.

With its high feed temperatures of up to 65°C Vitocal 350 can be used with existing radiators and will provide excellent domestic hot water.



**Viessmann has  
heat pumps for  
renovations too.**

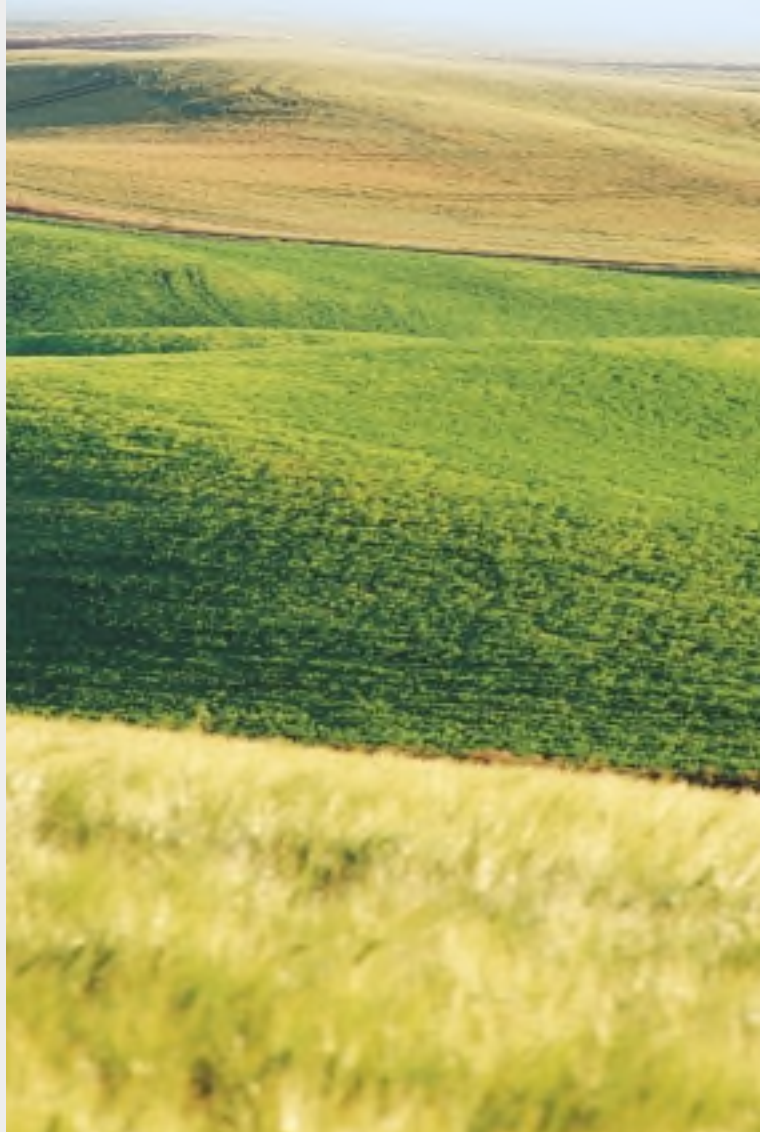
## Heat from the air or ground?

The Vitocal 300 air-water heat pump converts the outside air, heated by the sun, into usable heat. This is more flexible in terms of installation, but may require a second heat generator, such as electric back-up or a boiler, to provide for increased heat requirements when outside temperatures are low.

The Vitocal 300 water-water heat pump draws heat from groundwater at stable temperatures and can achieve constantly high outputs. The brine-water version draws heat from the earth to provide heating and domestic hot water all year round.

For a ground source heat pump to be installed you will need either a garden which can be dug up & laid with 'slinky' collector pipes (1.8m - 2m below the surface) or a smaller outside space where one or more bore holes can be sunk to depths of up to 100m.

New in 2006, the Vitocal 343 heating tower offers the perfect combination of renewable energy technologies for low energy homes, with a heat pump and solar connections alongside the convenience of Viessmann condensing technology.



## So can I install a heat pump in any building?

**Yes!** with the choice of air-water and ground source heat pumps, they can be installed in any house or commercial property.

On the contrary, you won't need a chimney, a flue or space for an oil tank - all you need is an electric socket. Vitocal heat pumps are specially insulated, quieter than any dishwasher and compact. As they don't take up much room so they can be installed almost anywhere. If space is limited in your home, Viessmann has heat pumps for outdoor installation.

## Can I combine a heat pump with solar technology?

You can make maximum use of free energy from the environment by using solar collectors together with a heat pump. Many Viessmann heat pumps have, as standard, the controls and connections you need for integrating with solar collectors. This makes installation easier, quicker and cheaper.

**Yes!** Then you can make even greater savings on your energy.



## Can you really rely on a heat pump?

Viessmann gives a guarantee of quality, reliability and safety. Back in the 1980's Viessmann was already fitting heat pump heating systems - and many of them are still in service, as reliable as ever. Viessmann is the only heating manufacturer that designs, develops and builds its own heat pumps. So every Viessmann heat pump benefits from decades of experience and know-how.



**Yes!** Viessmann heat pumps are based on decades of experience.

## Which heat pump is right for me?

There's a Viessmann heat pump to suit your heating requirements and preferences, whether you are building or renovating.

### **VITOCAL 300**

Compact heat pump, complete and ready to connect, factory pre-assembled for rapid installation.

### **VITOCAL 350**

With flow temperatures up to 65°C it is perfect for a new building or a renovation - and it can be installed indoors or out.

### **New in 2006:**

### **VITOCAL 343**

Compact-Energy-Tower: Ideal for low energy homes with integrated solar water heat pump, domestic hot water cylinder and all the components for connecting to your solar system.

### **VITOTRES 343**

Compact-Energy-Tower: The first choice for ultra-low energy houses - a compact solution, for cooling too.



## Does a heat pump need servicing?

Viessmann heat pumps are virtually maintenance free. The whole system has very few moving parts. Intelligent design, high quality materials and precision manufacture ensure they have a long service life.

## Where can I get a Viessmann heat pump system?

Viessmann UK has a network of trained installers, who offer advice and installation of heat pumps and integrate them into new or existing Viessmann heating systems. Please see page 58 for contact details.

It's like your refrigerator.  
When did that last need a service?



## VITOLIG

Solid fuel boilers are a great alternative to oil and gas. Wood is a very economical fuel and not subject to the extreme price swings and uncertainties of other fuels. Viessmann advanced technology makes heating with wood both efficient and convenient.

Wood is a renewable, environmentally friendly fuel and wood pellets are very easy to use. Burning wood produces only as much carbon dioxide (CO<sub>2</sub>) as was absorbed when the tree was growing, or would be produced by the dead tree rotting in the forest. From the environmental balance point of view, burning wood neither adds to nor reduces the overall level of carbon dioxide in the environment.

AVAILABLE  
SUMMER 2006

**Reduce your heating costs and help the environment!**

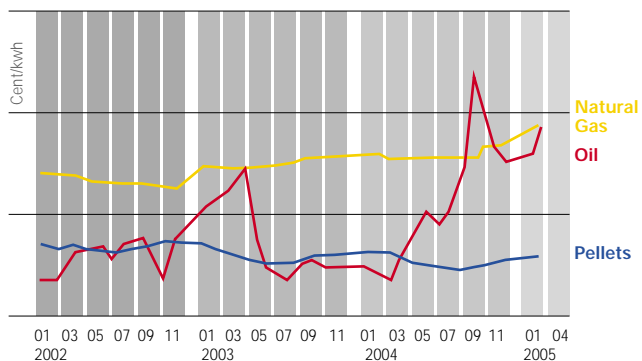


**Heating with wood - isn't it old-fashioned and hard work?**

You can forget everything you ever knew about heating with wood. Viessmann's Vitolig 300 boiler is virtually as convenient and easy to use as a modern oil or gas heating system. The Viessmann system with intelligent sensors is ultra convenient. The pellets are burned under ideal conditions so there is hardly any ash and only slight deposits in the combustion chamber. There is certainly no old wood smoke to pollute the air.

**It's easy and convenient with Viessmann!**

## Is heating with wood expensive?



**No!** Wood is consistently cheaper than other fuels and is not subject to sudden price increases.

In recent years oil and gas prices have just gone up and up. These unstable prices are the result not just of high taxes but also our dependence on oil imports from politically unstable regions abroad. By contrast, the cost of wood has remained very stable in recent years. This is not surprising as it grows close to home and is available in large quantities. So an investment in a Vitolig solid fuel boiler is an investment in the future.

## How does a solid fuel boiler work?

There are 4 stages of combustion:

Stage 1: The wood heats up and residual moisture is removed.

Stage 2: At about 150° the wood begins its thermal decomposition.

Stage 3: The volatile elements in the wood are expelled & burn off at temperatures exceeding 500°C.

Stage 4: The wood is fully converted into charcoal which glows at over 800°C with virtually no flame.

The combustion of any remaining wood residues leaves only very small quantities of a fine ash - which you can use to improve your garden soil or as a fertiliser.



## Can anyone use wood for heating?

Today's solid fuel boilers by Viessmann are so efficient that wood can be used for heating almost any home or flat. But you do need a dry storeroom, because the humidity content of the wood affects the quality of the combustion. It is not usually necessary to modify the chimney. You can also combine the benefits of Viessmann solid fuel boilers with oil or gas systems, so you can choose which fuel you want to use and when.

**Yes!**

## Which solid fuel boiler is the right one for us?

The Vitotlig 300 from Viessmann is a compact, easy to use boiler that uses wood pellets. Modulated power, digital control and fully automatic operation ensure excellent performance and efficiency levels.



Wood pellets are simply compressed sawdust and as they are very dry they have a high calorific value. Delivery and storage of pellets is simple. Controlled pellet feed to the boiler is automatic and convenient.



## Can I combine a solid fuel boiler with solar technology?

Combining two renewable energy sources for your heating is a great way of saving costs and saving the environment. Viessmann are experts at integrating heating systems to give you all the heating and hot water you need.



**Yes - and you'll make twice the savings!**

## Where can I get my solid fuel?

Solid fuel and especially wood pellets are available from most fuel merchants, many sawmills and some wood processing companies. The pellets are pumped into your store, almost like heating oil.

## Where can I get a Viessmann renewable energy system?

For advice on how to select or combine solar heating, heat pump technology and wood burning boilers, contact a specialist installer. Viessmann trained installers are listed at:

[www.viessmann.co.uk](http://www.viessmann.co.uk)

## Where can I find heating systems I can rely on?

Viessmann renewable technologies are supported by a full range of modern heating systems, including oil and gas wall hung and free-standing condensing boilers, designed with stainless steel heat exchangers for long term reliability.

All Viessmann products are made from the highest quality materials with perfectly matched components, so it's easy to build a high performance heating system for your needs, your budget and the environment.



**VIESSMANN**  
more than heat