



Microgeneration Supply Chain

Directory 07



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**Northwest**  
REGIONAL DEVELOPMENT AGENCY

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Envirolink Northwest works to strengthen and develop the renewable energy sector in England's Northwest. This directory lists details of over 30 firms based in the region who offer different microgeneration technologies available for use in both domestic and industrial premises.

This directory includes a guide to the microgeneration technologies currently available including, solar water heating, building mounted wind turbines, ground and air source heat pumps, small-scale wind turbines, photovoltaic cells, biomass and combined heat and power boilers, microCHP, and fuel cells.

The regional case studies within this directory highlight the different types of alternative renewable energy technologies available to the end user.

This directory makes reference to current government policy and support currently administered through the Low Carbon Building Programme. This is a useful port of call for anybody interested in new or rebuild projects.



**Foreword** England's Northwest led the world during the Industrial Revolution and was at the forefront to the world's technological advances. In 1783 Preston born Richard Arkwright, the father of the factory production system, was the first person to apply a steam engine to power textile machinery at his mill in Manchester.

Since the industrial revolution power generation has become more centralised and dependant on fossil fuel generation. However, in recent times increasing demand, steadily rising prices and global warming are making it necessary to look for alternative generation methods from exciting and new technology.

Through the Regional Economic Strategy the Northwest Development Agency has set out a vision of a future 'low carbon economy' for the region. We have also recently launched a Climate Change Action Plan for the region which identifies the support for increased uptake of microgeneration (and energy efficient) technologies as a key priority action.

I am confident that Microgeneration will form a key part of the future energy mix of the Northwest contributing to Climate Change goals and security of supply.

We are now seeing significant interest in microgeneration products and services and the companies listed in this directory will play a pivotal role in responding to this demand.

I am very pleased to see that England's Northwest is at the forefront of the next industrial revolution and as the Vice President of the Micropower Council I am particularly delighted to support this Envirolink Northwest directory.

*Bryan Gray*

Bryan Gray  
Chairman of the Northwest  
Regional Development Agency

Microgeneration is the production of power, on a small scale. Microgeneration technologies generate heat, and / or electricity, but emit low levels of carbon dioxide, if any. Microgeneration technologies are usually situated close to where their energy is required, eliminating many of the inefficiencies associated with producing, transmitting and distributing electricity from centralised power stations.

#### The options

Microgeneration or small-scale renewable energy covers a range of technologies from building mounted wind turbines and solar panels to small-scale wind turbines and biomass boilers. When choosing the technology most suitable for a particular site there are a range of factors to consider as each site is unique.

Heat and electricity demands need to be matched with technologies that meet these requirements, although this is less important for electricity generation on sites connected to the national grid.

#### Historical context

Microgeneration is not a new concept, since before the introduction of centralised power generation small-scale energy production was prevalent. Wind and water mills were abundant and combined heat and power (CHP) was commonly used to power the first factories - the heat which was created as a by-product was then used to warm the buildings.

#### The benefits

Microgeneration heating technologies offer alternative methods of heating homes and offices, and reduce dependency on gas, either by using renewable resources or by using gas more efficiently, typically at greater than 90% efficiency. These technologies are often able to utilise heat that would otherwise be wasted.

Microgeneration technologies provide diversity in energy supply, and offer a real alternative to those without access to the gas or electricity networks, although they are not restricted to this. According to DTI figures, the UK has an estimated 82,000 installations of low or zero carbon technologies, generating heat or electricity.

#### Government policy and support

Government support for households, businesses and public sector organisations that want to install microgeneration technologies is administered through the Low Carbon Buildings Programme.

The Low Carbon Buildings Programme (LCBP) was launched at the start of the 2006 / 07 financial year and is operated under two streams with a total pot of money of £78.5 million.

Stream 1 offers grants to householders and further information can be found on the LCBP website.

Stream 2 offers grants to community projects and businesses, for retro-fit and new build. Information for phase 2 is also on the LCBP website.

Further details about the LCBP is available on [www.lowcarbonbuildings.org.uk](http://www.lowcarbonbuildings.org.uk) telephone 0800 915 0990.

Please see the back of this directory for details of contacts for further information.

## England's Northwest Microgeneration Technologies

### Solar Water Heating

The most common form of solar energy usage in the UK, solar water heating can be used to heat water for domestic use or for larger scale, low temperature heating applications such as swimming pools.

### How does it work?

Domestic water heating systems consist of solar panels or collectors, a preheat tank, pump, control unit, connecting pipes, hot water tank and back-up source such as a gas or electric immersion heater.

The solar panels, usually fitted to the roof, convert solar radiation into heat, which warms the water as it is circulated between the panels and the tank.

### Performance and approximate costs

In a typical household, solar water heating can provide almost all hot water requirements during the summer months and average around 50% all year round. Solar water heating is also suitable for businesses and offices which have a demand for hot water.

### Please refer to the following company listings for product information:

- ☉ Advantage Projects Ltd
- ☉ Ambient Efficiency Ltd
- ☉ Energy and Environment Ltd
- ☉ Grisedale Solar
- ☉ NJ Robinson Plumbing and Heating
- ☉ Planet Solar Ltd
- ☉ Lakeland Solar Ltd
- ☉ Solar Form Ltd
- ☉ Sol Heat
- ☉ Solar Twin Ltd
- ☉ Wolf Heating UK Ltd

## Ground and Air Source Heat Pumps

### What are they?

The earth beneath the UK has a constant temperature of between 11-12°C throughout the year. Ground source heat pumps tap this heat and convert it into energy.

They are ideal for use in domestic housing and commercial properties that are not connected to the natural gas network or those with a consistent demand for heat.

### How do they work?

The heat pump uses a refrigeration circuit similar to that used within a standard refrigerator. The heat is captured by fluid circulated through pipes buried in trenches, through a vertical borehole or through ambient air in the case of air source heat pumps.

An exchanger then extracts the heat, which is used to supply hot water, via radiators or under-floor heating, to the user. Ground source heat pumps require electricity, although this can be provided by complementary renewable energy sources, for example, from a wind turbine.

Air source heat pumps source heat from ambient air. Air temperature is more variable than the temperature below ground, which means the comparable performance is likely to be lower, however installation costs are less since trenching or ground drilling will not be required.

### Please refer to the following company listings for product information:

- ☉ Advantage Projects Ltd
- ☉ Energy and Environment Ltd
- ☉ Sol Heat
- ☉ Wolf Heating UK Ltd
- ☉ Woosh Energy Ltd

## Biomass and Combined Heat and Power

### What is it?

Biomass (also called 'bioenergy' or 'biofuels') is a term used to describe plant matter such as wood; grasses; agricultural crops including miscanthus and oil seed rape; agricultural waste, such as straw; and animal waste.

It is a renewable source of energy and can be used as a solid fuel or converted into liquid or gaseous forms, for the production of electricity, heat, or transport fuel. Humans have used biomass heating for centuries, however modern technologies are far more efficient than traditional open fires.

### How does it work?

Combustion is the easiest way to recover energy from dry biomass fuels, to provide heating or hot water. This can be achieved by simple log fires and stoves or through sophisticated wood or straw fuelled boiler systems, usually with automatic fuel handling and control systems. Biomass fuels are increasingly being used with advanced conversion technologies, such as gasification systems, which may offer superior efficiencies compared to conventional power generation.

Gasification is a process in which biomass is heated with little or no oxygen present to produce a low-energy gas which can be used to fuel a gas turbine or a combustion engine to generate electricity. Biomass boilers can be used to provide space heating for homes, office buildings, schools, town halls and industry.

Ideally, they are located where there is an almost constant, or high demand for heat, for example in schools or nursing homes, and close to a local supply of biomass. This could be from sources such as waste wood from forestry clearings or industry off-cuts.

### Please refer to the following company listings for product information:

- ⊙ AW Jenkinson Forest Products
- ⊙ Bowland Bioenergy Ltd
- ⊙ Ceramic Fuel Cells Ltd
- ⊙ Hadfield Wood Recyclers
- ⊙ Lakeland Forest Fuels
- ⊙ Vital Energi
- ⊙ Wolf Heating UK Ltd

## MicroCHP

### What is it?

CHP boilers are more efficient than standard boilers as they produce electricity as well as heat, giving them efficiency rates of over 90%.

CHP is becoming increasingly attractive, offering a reliable, low-cost heat source for industrial or commercial use, such as district heating systems for small communities, and electricity, which can be used or sold to the local grid.

MicroCHP systems are suitable for domestic use and look similar to a gas boiler - the only difference being that a CHP system produces electricity as well as heat.

CHP systems are usually fuelled by gas, although some can burn a range of other fuels, and produce electrical power and thermal energy from the single fuel source.

There are two major types of engines used in microCHP systems - reciprocating and stirling but newer technology such as gasification and pyrolysis can also be used.

### Please refer to the following company listings for product information:

- ⊙ Baxi Heating
- ⊙ Ceramic Fuel Cells Ltd

## Fuel Cells

### What are they?

Fuel cells provide heat and electricity to individual or multiple homes and can be used to power cars. They are an intermediate technology, not a renewable source of energy, and cannot contribute to renewable energy targets.

The production of hydrogen from renewable energy sources, however, offers the potential to create an almost zero emission energy chain, with hydrogen and fuel cells used to power everything from domestic households (providing both heat and power) to mobile phones and cars.

### How does it work?

Fuel cells combine hydrogen and oxygen to produce electricity, heat and water. Ideally they work using pure hydrogen, although other natural gases can be converted into hydrogen for use in a fuel cell.

The technology is still at the pre-commercial stage and existing installations are demonstration projects. These include stationary power generation or CHP, such as in Woking where the UK's first fuel cell combined heat and power system provides electricity and heating to the swimming pool; and transport, for example, a London fuel cell bus has been created as part of a pan-European fuel cell experiment.

### Please refer to the following company listings for product information:

- ⊙ Ceramic Fuel Cells Ltd

## Small and building mounted wind turbines

### What is it?

Wind can be harnessed by small-scale applications as well as large commercial wind farms.

Domestic and community wind turbines can be deployed in rural locations or on industrial estates to provide on-site electricity for houses and businesses. Building mounted turbines have a rotor diameter of 1.5m - 2m and one or more may be installed on a house or office building to supply its electricity.

Wind turbines can be used as stand-alone applications, can be connected to a utility power grid and even combined with other power generation sources, such as photovoltaic or diesel generators. Modern wind equipment ranges from small water pumps and chargers for batteries sited at remote locations, to large megawatt wind farms supplying power to the electricity grid.

### How does it work?

Wind turbines capture the wind's energy with two or three propeller-like blades, mounted on a rotor, to generate electricity. Each blade acts like an airplane wing. As the wind blows, a pocket of low-pressure air forms on the downwind side of the blade.

This pulls the blade toward it, causing the rotor to turn, or lift. The force of the lift will be stronger than the force of the wind, or drag, against the front of the blade. The combination of lift and drag causes the rotor to spin, which in turn spins a generator, via the turning shaft, to generate electricity. The turbines are positioned on towers to take advantage of the stronger and less turbulent wind at 8 - 15 metres or more above ground.

### Please refer to the following company listings for product information:

For building mounted turbines:

- ⊙ Energy and Environment Ltd
- ⊙ Solartech (UK) Ltd

For small-scale applications:

- ⊙ 12 Voltz Ltd
- ⊙ Genasys Power Systems Ltd
- ⊙ Sundog Energy Ltd
- ⊙ Turbine Service (Wind / Hydro)
- ⊙ Woosh Energy

## Photovoltaic cells

### What are they?

The sun's energy can be converted directly into electricity using photovoltaic (PV), or solar, cells. They deliver electricity at the point of use, for example by being integrated into the roof or the cladding of the building that they supply, as can be seen at the CIS Tower in Manchester.

The New Progress Housing Association has used PV tiles as part of a renovation scheme and further information on this installation can be found in Case Study 4.

Small-scale PV modules are available as roof mounted systems, roof tiles and conservatory or atrium roof systems.

In areas where grid connection or other forms of generation are not feasible, PV can be very cost-effective.

This could be in a remote location or in a city centre where grid connection is impractical - it may be cheaper to power parking meters using solar energy rather than use mains electricity.

### How do they work?

A PV cell consists of two or more thin layers of semi-conducting material, usually silicon. The electrical charge is generated when the silicon is exposed to light and is conducted away by metal contacts as direct current (DC). PV cells are typically combined into modules that hold around 40 cells and these may then be mounted into arrays.

The electrical power generated from an array can be fed back into the grid. Grid-connected installations require an inverter to turn the electricity generated from direct current (DC) to alternating current (AC) and for off-grid installations a storage mechanism and control system are used.

### Please refer to the following company listings for product information:

- ⊙ 12 Voltz Ltd
- ⊙ Energy and Environment Ltd
- ⊙ Genasys Power Systems Ltd
- ⊙ Lakeland Solar
- ⊙ Planet Solar Ltd
- ⊙ Sol Heat
- ⊙ Solartech (UK) Ltd
- ⊙ Sundog Energy Ltd
- ⊙ Turbine Services (Wind / Hydro)
- ⊙ Wolf Heating UK Ltd
- ⊙ Solarform Ltd

## Small Scale Hydro

### What is it?

Flowing water creates kinetic energy that can be converted into electricity by a turbine connected to an electricity generator. Known as hydropower this is currently the largest source of renewable power in the world.

### How does it work?

There are several ways in which this energy is harnessed. At a micro level the energy within a stream or river is harnessed by turbines which are turned by the flowing water. Hydraulic power can be captured wherever water falls from a higher to a lower level.

This may occur where a stream runs down a hillside, passes over a waterfall, through a man-made weir or where a reservoir discharges water into a river. Micro-hydro is only suitable for landowners with a watercourse with fast flowing water.

### Please refer to the following companies listings for product information:

- ⊙ 12 Voltz Ltd
- ⊙ Genasys Power Systems Ltd
- ⊙ Gilbert Gilkes & Gordon Ltd
- ⊙ Turbine Services (Wind / Hydro)

## Case Study 1

### Solaris Centre, Blackpool

Owner, Blackpool Council

#### Why?

The Solaris Centre was an abandoned art deco solarium, which was renovated and refurbished for use as a regional centre of excellence in environmental sustainability.

Greenhouse gas emissions from the building must be minimal, so renewable energy technologies were installed to generate heat and power.

#### Technology installed

- ⊙ 860 solar (PV) panels covering 232m<sup>2</sup> rated at 18 kW<sub>e</sub>
- ⊙ 83m<sup>2</sup> flat plate solar water heating panel manufactured by Broag
- ⊙ 82 x 6kW, 9m Proven wind turbines with a 5.5m rotor diameter
- ⊙ 812.5 kW DACHS mini-CHP unit supplied by Baxi Potterton with a heat rating of 12.5kW<sub>th</sub> and an electrical rating of 5.5kW<sub>e</sub>

#### Finance

The installation of the wind turbines cost £35,000. The PV installation, which was part funded by a grant of £132,000 from the DTI's Major PV Demonstration Programme, cost approximately £203,000.

The capital cost for the whole restoration was £1.8million, funded by Blackpool Council, the European Regional Development Fund, Blackpool Challenge Partnership (SRB) and Lancashire Tourism Partnership (SRB), North and Western Lancashire Priority Partnership, New Opportunities Fund and the DTI.

#### Success

The Solaris Centre is a 'zero carbon building' generating as much heat and electricity from renewable energy as it uses.

## Case Study 2

### Gamblesby Village Hall, Cumbria

Owner, Gamblesby Village

#### Why?

The village hall, which is situated in a remote village in the North Pennines, was in need of renovation. A ground source heat pump was installed to minimise heating costs, particularly important since the building is not connected to the national gas network.

#### Technology installed

- ⊙ Ground source heat pump

#### Finance

The total cost of the renovation of the whole building was £42,016 (the cost of the ground source heat pump was only a proportion of the overall costs), and the project received grants from the North Pennines Leader+ Programme, Northern Rock Foundation, Eden District Council, Shell Better Britain Campaign and CLAREN.

The running costs are for the supply of electricity to power the pump.

#### Success

The pump provides a reliable source of free heating, (apart from the cost of the supply of electricity to the pump), with a low environmental impact and low CO<sub>2</sub> emissions. Little maintenance is required, only occasional servicing.



## Case Study 3

**Kingsmead Primary School, Northwich**  
Owner, Cheshire County Council

### Why?

When a new primary school was needed in Northwich, Cheshire County Council included sustainable design principles within the plan for the building.

10% of the school's energy requirements had to be supplied from renewable sources to fulfil the requirements of the Council's Draft Planning Policy.

### Technology installed

- ⊙ 8C1-B 50kW biomass boiler supplied by Talbots, with heating fuel supplied by Hadfield Wood Recyclers
- ⊙ 84 solar water panels supplied by Solartwin Ltd
- ⊙ 85kWp PV panels, installed by Solar Century

### Finance

The DTI's Major PV Demonstration Programme provided a grant covering 50% of the cost of the PV installation. The typical cost for the installation of this type of biomass boiler is £30-35,000. The project received an undisclosed subsidy from the Northwest Regional Development Agency for a range of environmental features and Cheshire County Council funded the remainder.

### Success

The solar water heating panels provide approximately 30% of the school's hot water requirements, supported by the biomass boiler and a gas boiler. The biomass boiler is expected to provide 60% of the school's heating.

The school has won many awards including the Prime Minister's Better Public Buildings award for 2005 in which the school won the Best Practice and Small Building Project of the Year category.

The project has also successfully raised environmental awareness amongst parents and pupils.

## Case Study 4

**22 houses, Leyland, Lancashire**  
Owner, New Progress Housing Association

### Why?

New Progress Housing Association became the owners of 22 houses, built c.1933, which were in need of extensive renovation and re-roofing.

This provided the opportunity to install integrated solar photovoltaic tiles, instead of conventional slate, enabling the properties to generate some of their own electricity.

### Technology

- ⊙ 24.6kWp PV roof tiles installed by Sundog Energy Ltd

### Finance

The total cost of refurbishment was £500,000. A grant of £200,000 was awarded by the DTI from the Major Demonstration Programme, and Scottish Power Green Energy Trust provided £20,000.

The bulk purchase of solar tiles for the project reduced the total cost of the installation.

### Success

The householders now have access to cheaper electricity with a low environmental impact and low CO<sup>2</sup> emissions.

The project has raised awareness within the community of the benefits of renewable energy.

## Case Study 5

### Barton Locks, Manchester

Owner, Novera Energy

#### Why?

This is a small, commercial power station where electricity is sold to the national electricity grid to provide an income stream. Water from a pond upstream of the locks is diverted to a turbine and then discharged into a downstream pond.

#### Technology type

A small-scale hydro system, with a horizontal axis, semi-kaplan-type turbine, supplied by Newmills Hydro of Co. Antrim.

#### Finance

The project was developed at a cost of £850,000 (in 1994). The annual income from electricity sales under the NFFO (Non Fossil Fuel Obligation) contract, which has expired, was in the range of £180,000 - £200,000. Electricity from the site now qualifies for Renewable Obligation Certificates.

#### Success

This is a low-head (4.4m) scheme. It generally produces a maximum of 660kW of power and has an average annual electricity output of 3200MWh - enough to meet the needs of 600 homes. The project offsets the emission of 914 tonnes of carbon dioxide, 55 tonnes of sulphur dioxide and 6 tonnes of nitrogen dioxide a year.

## Case Study 6

### Dalehead Church, Forest of Bowland

Owner, Church Commission

#### Why?

When a small church in the Bowland Forest underwent major renovation in 2005, due to its location and remoteness offered the chance to explore new sources of energy, as the church was previously heated by bottled gas.

#### Technology installed

Sundog Energy Ltd installed a 5 kW wind turbine in the grounds of the church yard to generate electricity which is used to power the lights and an electric fire.

#### Financed

The project was funded by DEFRA, the Lancashire Environmental Fund, Forest of Bowland AONB Sustainable Development Fund, the Heritage Lottery Fund, and local benefactors including Forest Enterprises and United Utilities. The total cost of refurbishment was £115,000.

#### Success

This scheme enabled the parochial parish council to renovate the building and re-open it as a place of worship which also welcomes and informs visitors to the area.

The churchyard is an important site for wildflowers and this, together with the history of the church, means it has since applied to become a Biological Heritage site. The project addresses microgeneration in rural areas and as a result Dalehead Church now serves as both a wayside chapel and heritage centre.

**\_ Advantage Projects Ltd**

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Hankelow, Cheshire CW3 0JB

Mrs Anne Draper, Director  
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e enquiries@advantage  
projects.ltd.uk

www.advantageprojects.ltd.uk

Advantage Projects Ltd provides independent advice, design and installation of all types of renewable energy, - geothermal, micro wind turbines, solar PV and thermal, CHP units, biomass and small scale hydro. We are particularly involved with the combining of different technologies in bespoke packages for clients.

Our work can also incorporate waste heat recovery and grey water usage if required.

We source wind turbines, solar panels, geothermal systems, biomass, CHP, depending on client requirements.

**\_ AW Jenkinson Forest Products**

Clifton Moor, Clifton,  
Penrith, Cumbria CA10 2EY

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e materials@awjenkinson.co.uk  
www.awjenkinson.co.uk

Processor, supplier and trader of forest products - wood fibre, bark products, growing media and animal bedding - to the wood panel, paper, saw milling, agriculture, horticulture and amenity, equestrian, and biomass markets. Provides transport and logistical services to local and national forest products industries. Waste-wood and green-waste processor and recycler operating in the Midlands, Northwest and Scotland.

**\_ Ambient Efficiency Ltd**

4 Berkeley Court, Manor Park, Runcorn,  
Cheshire WA7 1TQ

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t 01928 579068

e sales@aelheating.com  
www.aelheating.com

AEL stock many different styles of heating equipment from highly efficient modern aluminum radiators to traditional cast iron radiators. AEL also have Corgi approved engineers to service and install the AEL range of commercial boilers and air /air or water / water or solar heat recovery systems.

**\_ Baxi Heating Ltd**

Baxi Heating UK, Brooks House,  
Coventry Road, Warwick CV34 4LL

Ian Stares, Commercial Business Manager  
- New Technologies

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e ian.stares@baxi.co.uk  
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Baxi Heating UK is the country's leading heating manufacturer of innovative, high efficiency boilers with excellent environmental credentials, marketed under a number of well known brand names including Baxi, Potterton and Main. Baxi Heating UK continues to invest in new technologies such as combined heat and power for the domestic market and renewable technologies.

**\_ Bowland Bioenergy Ltd**

Mead House, Green Lane, Chipping,  
Preston, Lancashire PR3 2TQ

Mike Ingoldby, Director  
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m 07766 757997  
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Services offered include: managing woodland to produce fuel wood from low value timber; acting as a single point of contact for those wishing to obtain biomass heaters and boilers. This is supported by an assured supply of fuel, which conforms to recognised standards. Wood chip and pellets are both available. Free surveys to determine the most suitable size and type of stove or boiler for a property; comparative costs are calculated for heating by chips or pellets and fossil fuels; installation and after sales servicing of boilers; provision of advice.

**\_ Biomass Engineering**

Junction Lane, Sankey Valley Industrial Estate,  
Newton-le-Willows, Warrington,  
Cheshire WA12 8DN

Andrew Connor, Project Manager  
t 01925 220338

e andrewc@shawton.co.uk  
www.Biomass.uk.com

Biomass Engineering Ltd is the 'turnkey' supplier of renewable energy gasification plants. Gasification is an efficient process of converting raw solid waste fuels into CHP power generation. Biomass Engineering provides full project development from feasibility studies and waste fuel testing to plant installation, commissioning and maintenance. The company is unique in gasification as the design and manufacture of its plant is done in-house. Biomass Engineering gasifiers are a sustainable power generator for the renewable future.

**\_ Ceramic Fuel Cells Ltd**

Regus House, Chester Business Park,  
Chester, Cheshire CH4 9QR

Chris Wilcox, Business Development Manager  
t 01244 893757

e chrisw@cfcl.com.au  
www.cfcl.com.au

CFCL produces solid oxide fuel cells and plans to take them to the international appliance industry, which will build an integrated appliance. This micro-CHP appliance will produce highly efficient electricity plus heat for hot water. CFCL is continuing to explore other product options. CFCL is initially focused on an existing and growing micro-CHP market in Europe, lead by a UK subsidiary in Chester. It will then move into other growing micro-CHP markets in Asia and North America. CFCL's testing services, expertise in powders, seals and materials handling are world-class and may provide additional business opportunities.

**\_ Energy & Environment Ltd**

91 Claude Road, Chorlton, Manchester M21 8DE

Tom Kennedy, Managing Director  
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e mail@energyenv.co.uk  
www.energyenv.co.uk

Online retail sales of solar PV modules, charge controllers, inverters, small wind turbines, solar lighting etc. Consultants and suppliers of domestic and commercial solar electric (PV) and larger wind turbine from 5Kw to 250Kw. Designers and installers of all types of off-grid energy systems.

– **Eco Erg Systems**

Station House, Kirkandrews-on-Eden,  
Carlisle, Cumbria CA5 6DJ

Mr John Whalley  
t 01228 576546  
e info@ecoenergysystems.co.uk  
www.ecoenergysystems.co.uk

Eco energy systems are suppliers and installers of solar collectors, heat pumps, pellet stoves, boilers and under floor heating, Eco Energy Systems are also Clear Skies and Hetias registered.

– **Genasys Power Systems Ltd**

Orwelco Buildings, Park Road Industrial Estate,  
Park Road, Barrow-in-Furness, Cumbria LA14 4EQ

Simon Jarvis, Managing Director  
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e sales@genasys.co.uk  
www.genasys.co.uk

Genasys Power Systems Ltd specialises in remote power and renewable energy systems for domestic, industrial and commercial applications. The company installs small-scale wind, PV and hydro systems, combined with diesel generators, batteries and DC-AC inverters. Genasys offers a complete range of services including: consultancy, system design, research and development / product testing for third parties, supply and distribution, installation, operations and maintenance.

– **Gilbert Gilkes & Gordon Ltd**

Canal Head North, Kendal, Cumbria LA9 7BZ

Lenny Cragg, Technical Sales Manger - Hydro  
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www.gilkes.com

Gilkes is a world leader in small hydro, with installations in over 80 countries, and offers equipment designed for a specific site at an economic cost using one of three machine types; Francis, Turgo Impulse and Pelton. Gilkes Hydro provides a complete service to the hydro-electric industry including design and supply of water turbines, specifying and / or provision of water-to-wire mechanical and electrical solutions and equipment, project management services, refurbishment and upgrades, service and maintenance, installation and commissioning. Gilkes' highly qualified and experienced engineers have been providing engineering solutions for over 150 years, helping its customers turn the force of water into profitable, renewable energy.

– **Grisedale Solar**

The Old Saw Mill, Back River Street,  
Congleton, Cheshire CW12 1HJ

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e grisedale@solar31.fsnet.co.uk  
www.apollosolar.co.uk

Grisedale Solar supply and install both domestic and commercial active solar water systems and undertake grant work. Grisedale Solar cover all locations in the North West.

– **Hadfield Wood Recyclers**

Lumm Farm, Littlemoss, Droylsden,  
Manchester M43 7LB

Mrs Vicky Hughes, Strategic Development Director  
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e vickihughes@btconnect.com  
www.hadfield.co.uk

Hadfield Wood Recyclers is one of the oldest and founder members of wood recycling in the UK. With more than 20 years experience, we have gained an enviable reputation for service and quality. Our Manchester-based family-run business specialises in the recycling of wood waste to produce a range of products including wood chip for fuel produced to specification, horse, poultry and cattle bedding, compost, panel board and arena surfaces. We accept all grades of non-hazardous wood waste.

– **Home Insulation Services (NW) Ltd**

St George's Park, Kirkham, Preston,  
Lancashire PR4 2EG

Mr John Harrop, Solar / Heating Energy  
t 01772 687600  
e johnharrop@homeinsulationservices.co.uk  
www.homeinsulationservices.co.uk

Installation of domestic insulation. Project management and energy consultancy work. Renewable energy technologies, solar and central heating.

– **Lakeland Forest Fuels**

Fell Foot Wood, Newby Bridge, Ulverston,  
Cumbria LA12 8NN

Mr Barry Houghton, Proprietor  
t 01539 531014  
e houghton@fellfoot01.fsnet.co.uk

Undertakes research and development relating to microgeneration, which involves enhancement of wood fuels and processing equipment at farm scale.

– **Lakeland Solar Ltd**

South Bank Lund Farm, Ulverston,  
Cumbria LA12 9DS

Andy Bell, Proprietor and Partner  
t 01229 583600  
07734 759 105  
e elakelandsolar@tiscali.co.uk

Lakeland Solar formulated in 2002 and operates the Northwest Lancashire and Cumbria postal regions. Our ethos to deliver an excellent solar product at a fair price, installed to the highest standards. We are fully approved Clear Skies installers of solar thermal products and have a total of 66 years experience in the electrical field. Fully qualified with certificates in City and Guilds 2372 PV and also hold 16th Edition Regs and City and Guilds 2391 Test & Inspect.

– **N J Robinson and Plumbing and Heating**

Number one, Lanark Close, Hazel Grove,  
Stockport SK7 4RU

Neil Robinson, Director  
**t** 0161 355 6645  
**m** 0778 2315722  
**e** njr.plumber@lycos.co.uk  
**www**.njrobinson.co.uk

N J Robinson Plumbing & Heating Ltd, are proud to be able to offer a design and installation service for solar panels manufactured by Valiant, the market leaders in solar panels. In addition to being CORGI registered, we are CITB Building Engineering Services certified, and are qualified in the installation of unvented domestic hot water systems. A solar panel package for hot water heating allows the consumer to take advantage of renewable and sustainable energy, thus protecting the environment. Solar panels harness the power in both direct and diffuse sunlight and convert the energy to heat for the production of hot water for the home.

– **Planet Solar Ltd**

Unit 232, Oldfield Place, Walton Summit,  
Preston, Lancashire PR5 8BG

Mark Dickinson, Commercial Sales Director  
**t** 01772 648800  
**e** info@planetsolar.co.uk  
**www**.planetsolar.co.uk

Planet Solar specialises in the design and installation of solar photovoltaic systems in the public, private housing and commercial sectors. planet solar provides a complete turnkey project management service encompassing all survey and design aspects including grant assistance, the provision of accurate software driven power generation and carbon saving figures through to grid connection and final system handover. Grid connected and stand alone solar photovoltaic.

– **Sol Heat**

Solar Heating Solutions, 70 Mostyn Road,  
Hazel Grove, Stockport, Cheshire SK7 5HT

Rob Yarrow, Director  
**t** 0161 612 9491  
**e** rob@solheat.co.uk  
**www**.solheat.co.uk

Sol Heat design supply and installs microgeneration solutions such as solar water heating systems using advanced evacuated tubes and superior thermal stores. We supply both internal and external air source heat pump space heating systems for homes and for larger applications such as swimming pools and industry.

– **Solarflair Ltd**

23 New Road, Lymm, Cheshire WA13 9DX

Tim Rhodes, Director  
**t** 01925 753795  
**e** info@solarflairltd.co.uk  
**www**.solarflairltd.co.uk

Environmentally friendly, Northwest based company promoting the sale of renewable forms of energy in the form of thermal solar water heating. Using highly efficient evacuated solar tube technology we harness the sun's rays to produce free hot water all year round. These panels can produce up to 70% of a household's hot water requirements so saving money and saving on burning fossil fuels that produce harmful carbon emissions. Saves money and helps the environment.

– **Solartech (UK) Ltd**

Alexander House, 197 Market Street,  
Tottington, Bury, Greater Manchester BL8 3HF

David Lindenberg, Managing Director  
**t** 01204 881402  
**e** info@solartechuk.co.uk  
**www**.solartechuk.co.uk

Solartech's products and services include PV modules, deep-cycle batteries, DC-AC inverters, solar bollards, in-house design, and project brokerage. The company supplies a unique range of readily deployable systems for road and amenity lighting, sign lighting, refrigeration, cooling, solar power. These products together with uncompromising quality and affordability give SolarTech a unique advantage in the market. In December 2004 SolarTech introduced quality administration system ISO 9001:2000 and is registered as ISO 9001 compliant company (Reg. no. 0044/1).

– **Solar Twin Ltd**

2nd Floor, 50 Watergate, Chester,  
Cheshire CH1 2LA

Dave Houston, Contracts Manager  
**t** 01244 403407  
**e** dave@solartwin.com  
**www**.solartwin.com

Supplies zero carbon solar water heating systems for residential and commercial applications where heated water is needed, such as washing and bathing. Solartwin is freeze-tolerant, so it does not require antifreeze chemicals. Solartwin is zero carbon by using a solar electric pump instead of a mains pump. Solar Twin's one stop shop approach includes offering full turn-key project management, solar awareness training seminars and a free project feasibility appraisal and detailed specification service.

– **Sundog Energy Ltd**

Matterdale End, Penrith, Cumbria CA11 0LF

Martin Cotterell, Director  
**t** 01768 482282  
**e** martin@sundog-energy.co.uk  
**www**.sundog-energy.co.uk

Sundog Energy Ltd designs, supplies and installs systems that generate electricity from solar or wind energy. Sundog Energy was founded in 1995, and combined expertise in electrical engineering and the environment to establish one of the UK's leading renewable energy companies. Sundog Energy aims to excel - installing technically excellent and appropriate systems, in a safe, efficient, professional and friendly manner, with minimal environmental impact. The company is: at the forefront of grid-connected solar photovoltaic (PV) technology; pioneering building-integrated solar PV systems; expert in installation and grid-connection standards; and serves both domestic and commercial markets.

**\_ Solarform Limited**

Unit 14, J2 Business Park Bridge Hall Lane,  
Bury, Lancashire BL9 7NY

Michael Mallison, Managing Director  
t 0161 761 1222  
e admin@solarform.co.uk  
www.solarform.co.uk

Solarform Ltd are manufacturers and distributors of solar thermal products, supplying the trade with all required system components for domestic and commercial installations. All design and installation services are carried out by BPEC accredited heating engineers / solar installers, with high efficiency space heating systems offering a reduction of over 50% in energy consumption. Installation contracts undertaken for new build operations or component supply only. Current products include, solar thermal collectors, pumping / hydraulic systems, temperature difference controllers, high efficiency space heating systems, copper and stainless steel multi coil storage cylinders, flexible stainless steel piping systems.

**\_ Turbine Services (Wind/Hydro)**

Armaside Farm, Lorton, Cockermouth,  
Cumbria CA13 9TL

Miles Postlethwaite, Managing Director  
t 01900 85616  
e info@turbineservices.co.uk  
www.turbineservices.co.uk

Designs and installs small to medium scale wind and hydro turbine systems suitable for domestic, community and small business applications. Can integrate with existing power supplies such as national grid, diesel generators and other renewable power sources.

Turbine Services also offer-

- PV panels as an integral part of wind or water system.
- Bespoke display panels suitable for schools and public buildings.
- Customised electronic control systems.
- On-going support and servicing.
- Batteries, diesel generators, inverters and ancillary equipment.

**\_ Vital Energi**

Burnden Works, Burnden Road, Bolton BL3 2RB

Karen Caunce, Marketing Executive  
t 01204 554 500  
e karen.caunce@vitalenergi.co.uk  
www.vitalenergi.co.uk

With over 20 years' experience in delivering Combined Heat and Power (CHP) and Community Heating (CH) schemes, Vital Energi specialises in offering turnkey solutions to both public and private sector organisations - including local authorities, ALMO's, and housing associations. Vital Energi works closely with clients to develop innovative solutions that provide an instant, reliable and affordable supply of heat and hot water, while lowering CO<sup>2</sup> emissions and power generation costs. Vital Energi's capabilities extend to developing and implementing sustainable energy solutions incorporating new technologies using renewable forms of energy such as biomass heating.

**\_ 12 Voltz Ltd**

105 Fleetwood Street,  
Preston, Lancashire PR2 2PT

Errol Kerone, Managing Director  
t 08712 500 555  
e help@12voltz.com  
www.12voltz.com

Suppliers and installers of remote power solutions, from small DC lighting systems for stables, chicken sheds etc, to remote farms and houses without power, or running on generators. Supplies: small wind turbines, solar panels, small water turbines, DC-AC inverters, batteries and battery banks, towers, remote security lighting systems and LED lighting.

**\_ Wolf Heating UK Ltd**

8 Brunel Court, Rudheath Way, Gadbrook  
Business Park, Northwich, Cheshire CW9 7LP

Steve Lauri, Managing Director  
t 01606 354370, 371, 372  
01606 44805  
e steve.lauri@wolfheatinguk.co.uk  
e sales@wolfheatinguk.co.uk  
e info@wolfheatinguk.co.uk  
www.wolfheatinguk.co.uk

Wolf Heating UK Ltd is a wholly owned subsidiary of Wolf GMBH. Wolf UK markets and distributes all heating, ventilating and renewable energy products produced by its parent company in Germany. The products range from biomass, gas and oil condensing domestic and commercial boilers, solar and PV panels, hot water cylinders and heat recovery units for air and heat pump installation. All products are available across the UK with full technical and sales support.

**\_ Woosh Energy Ltd**

CityLab, 4-6 Dalton Square, Lancaster,  
Lancashire LA1 1PP

Sam Usiskin  
t 01524 590 590  
e sam@wooshenergy.com  
www.wooshenergy.com

Woosh Energy designs, supplies and installs wind energy systems and related technologies. We offer customers a comprehensive advice, project management and installation service; a 'one-stop-shop' for a total solution to on-site microgeneration.

Services offered include:

- Advice about the most appropriate renewable energy technology based on site surveys and visits;
- System design and planning;
- Advice on submitting and negotiating planning consent;
- Identifying potential funding sources and assisting with grant applications;
- Providing estimates and quotations;
- Site works and installation;
- Negotiating arrangements with utility supply companies;
- Overall project management;
- Extended warranty packages.

Accredit Installers with the Low Carbon Building Programme Located in England's Northwest

## Ground Source Heat Pumps

<b>Arctic Air Cumbria Ltd</b>	Sandwick, Low Moresby, Whitehaven, Cumbria CA28 6RX	Michael Reaney t 01946 696310 e mareaney@hotmail.com www.arcticairltd.co.uk
<b>Energyworx</b>	47 Shellfield Road, Southport, Merseyside PR9 9US	Dave Halton t 01704 211708 e energyworx@mac.com www.energyworx.co.uk
<b>GHS Installations Ltd</b>	4 Oakland Drive, Windermere, Cumbria LA23 1AS	Andrew Martland t 01539 447325 e andrewmartland@btconnect.com
<b>Thermatech Heating Services Ltd</b>	Cobblers Cottage, Hackthorpe, Penrith, Cumbria CA10 2HX	Lloyd Whittaker t 01931 712977 e lloyd.whittaker@tiscali.co.uk

## Small Hydro

<b>Agrilek Ltd</b>	299-301 Duke Street, Barrow in Furness, Cumbria LA14 5UL	Ian Postlethwaite t 01229 829000 e ian.postlethwaite@agrilek.com www.agrilek.com
<b>Turbine Services (wind/hydro) Ltd</b>	Armaside Farm, Lorton, Cockerthorpe, Cumbria CA13 9TL	Miles Postlethwaite t 01900 85616 e info@turbineservices.co.uk www.turbineservices.co.uk

## Wind Turbines

<b>12 Voltz Ltd</b>	105 Fleetwood Street, Ashton-on-Ribble, Preston Lancashire PR2 2PT	Errol Kerrone t 08712 500555 e help@12voltz.com www.12voltz.com
<b>Agrilek Ltd</b>	299-301 Duke Street, Barrow in Furness, Cumbria LA14 5UL	Ian Postlethwaite t 01229 829000 e ian.postlethwaite@agrilek.com www.agrilek.com
<b>Genasys Power Systems Ltd</b>	Orwelco Building, Park Road, Barrow in Furness, Cumbria LA14 4EQ	Simon Jarvis t 01229 838000 e simon@genasys.demon.co.uk www.genasyspowersystems.co.uk
<b>Sundog Energy Ltd</b>	Matterdale End, Penrith, Cumbria CA11 0LF	Martin Cotterell t 01768 482282 e info@sundog-energy.co.uk www.sundog-energy.co.uk
<b>Turbine Services (wind/hydro) Ltd</b>	Armaside Farm, Lorton Cockerthorpe, Cumbria CA13 9TL	Miles Postlethwaite t 01900 85616 e info@turbineservices.co.uk www.turbineservices.co.uk

## Solar Pv

<b>Solar Gold</b>	Harehill, Todmorton, Lancashire OL14 5JY	Glen Mattock t 01706 814931 e TownleyMattock@btconnect.com
<b>Sundog Energy Ltd</b>	Matterdale End, Penrith, Cumbria CA11 0LF	Martin Cotterell t 01768 482282 e info@sundog-energy.co.uk www.sundog-energy.co.uk

## Wood Fuelled Boilers

<b>Vital Energi Utilities Ltd</b>	Burnden Works, Burnden Road, Bolton, Lancashire BL3 2RB	Karen Counce t 01204 554 500 e karen.counce@vitalenergi.co.uk www.vitalenergi.co.uk
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## Solar Thermal

<b>1st Response T/A Sol Heat</b>	70 Mostyn Road, Hazel Grove, Stockport, Cheshire SK7 5HT	Rob Yarrow t 0161 612 9491 e rob@solheat.co.uk www.solheat.co.uk
<b>David A Farrer Plumbing &amp; Heating &amp; Ltd</b>	15 Torrisholme Square, Morecombe, Lancashire LA4 6NJ	David Farrer t 01524 423 773 e sales@farrerltd.co.uk www.farrerltd.co.uk
<b>ECO NRG Systems</b>	Station House, Kirkandrews-On-Eden, Carlisle, Cumbria CA5 6DJ	John Whalley t 01228 576546 e info@ecoenergysystems.co.uk
<b>Energyworx</b>	47 Shellfield Road, Southport, Merseyside PR9 9US	Dave Halton t 01704 211708 e energyworx@mac.com www.energyworx.co.uk
<b>High Efficiency Heating UK Ltd</b>	258 Oldham Road, Ashton-under-Lyne, Lancashire OL7 9AP	Sharon Baxter t 0161 330 2774 e enquiries@heh.co.uk www.heh.co.uk
<b>Home Insulation Services Ltd</b>	St Georges Park, Kirkham, Preston, Lancashire PR4 2EG	Paul Cooper t 01772 687600 e paul@homeinsulationservices.co.uk
<b>Lakeland Solar Systems Ltd</b>	South Bank Lund Farm, Ulverston, Cumbria LA12 9DS	Andrew Bell t 01229 583600 e lakelandsolar@tiscali.co.uk
<b>PH Jones Ltd</b>	Aquq House, Hampton Heath Industrial Estate, Malpas, Cheshire SY14 8LY	Philip Jones t 01948 820244 e paul.nelson@phjones.co.uk www.phjones.co.uk
<b>Solar Twin Ltd</b>	2nd Floor, 50 Watergate Street, Chester, Cheshire CH1 2LA	Dave Houston t 01244 403 407 e hi@solartwin.com www.solartwin.com
<b>Solarflair Ltd</b>	23 New Road, Lymm, Cheshire WA13 9DX	Tim Rhodes t 01925 753 795 e info@solarflairltd.co.uk www.solarflairltd.co.uk

### Further Contacts

If you would like further information on microgeneration technologies please refer to the following websites:

British Photovoltaic Association  
[www.greenenergy.org.uk/pvuk2](http://www.greenenergy.org.uk/pvuk2)

British Hydropower Association  
[www.british-hydro.org](http://www.british-hydro.org)

British Wind Energy Association  
[www.bwea.com](http://www.bwea.com)

European Wind Energy Association  
[www.ewea.org](http://www.ewea.org)

Micropower Council  
[www.micropower.co.uk](http://www.micropower.co.uk)

Renewable Energy Association  
[www.r-e-a.net](http://www.r-e-a.net)

The National Energy Foundation  
[www.nef.org.uk/greenenergy/index.htm](http://www.nef.org.uk/greenenergy/index.htm)

The Heat Pump Association  
[www.feta.co.uk/hpa/index.htm](http://www.feta.co.uk/hpa/index.htm)

UK Heat Pump Network  
[www.heatpumpnet.org.uk](http://www.heatpumpnet.org.uk)

For further information or assistance contacting businesses in England's Northwest contact:

**Envirolink Northwest**  
 Spencer House 91 Dewhurst Road  
 Birchwood Warrington WA3 7PG

**t** +(0)1925 813 200  
**www**.envirolinknorthwest.co.uk

Helen Seagrave  
**e** h.seagrave@envirolinknorthwest.co.uk

Graeme Francis Mullin  
**e** g.mullin@envirolinknorthwest.co.uk

The information in this directory has been collated with the help of the following sources:

The Department for Trade and Industry  
[www.dti.gov.uk](http://www.dti.gov.uk).

Renewable Energy Association  
[www.r-e-a.net](http://www.r-e-a.net)

Micropower Council  
[www.micropower.org.uk](http://www.micropower.org.uk)

Every attempt has been made to ensure the accuracy of the information in this directory but the authors accept no responsibility for any errors that may occur.

Please refer to this Envirolink Northwest Directory when contacting companies directly.

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