



## Renewable Energy in London: The role of architects

### Summary

**This document shows how the building design market is changing to reflect local and national government concerns over climate change. Renewable energy and energy efficiency are already being designed into new build and major refurbishment work and are set to become even more common with the introduction of new legislation. Both detailed technical information and training materials are provided free as part of this package from London Renewables. These can help you get trained up on renewable energy technologies and the issues around them so that when your clients ask, you will have the answers.**

### Introduction

Energy efficient and renewable energy technologies provide a unique marketing opportunity for architects, developers and the construction industry. The technologies are regarded as progressive and can add design value to a building as well as help improve the environmental performance and public relations of the building owner, landlord or tenant. Moreover, renewable energy technologies can help your company to be recognised as innovative, to demonstrate to potential clients that your designs are of the highest standard.

Reduced environmental impact and lower running costs, accompanied by increased central and local government pressures are the main reasons why architects should take note of incorporating energy efficient and renewable energy technologies within major works and new designs.

London Renewables and the London Energy Partnership have jointly developed a training package on renewable energy. This document, and the resources to which it refers, are designed to help you consider 'building in' renewable energy.

## Policy context

### Biomass heating

Fyne Homes Housing Association has installed a biomass boiler to supply 14 of its flats. The boiler is fed by woodchips from a local mill. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



Ken Livingstone launches the Solar for London initiative: a one-stop shop for householders wanting to install solar heating.

© Sustainable Energy Action

### The London Plan

In February 2004, the Mayor published 'The London Plan: Spatial Development Strategy for Greater London'. This plan increases dramatically the drivers for planners to require renewable energy and energy efficiency in new developments. The London Plan states that:

- 'The Mayor will and boroughs should support the Mayor's Energy Strategy... 'by, amongst others: 'requiring the inclusion of energy efficient and renewable energy technology and design...in new developments wherever feasible...' (Policy 4A.7);
- 'The Mayor will and boroughs should request an assessment of the energy demand of proposed major developments, which should also demonstrate the steps taken to apply the Mayor's energy hierarchy' (Policy 4A.8). 'The hierarchy states that essential energy needs should be met through applying in sequence the following: using less energy, using renewable energy and supplying energy efficiently' and
- 'The Mayor will and boroughs should require major developments to show how the development would generate a proportion of the site's electricity or heat needs from renewables, wherever feasible...' (Policy 4A.9). The Mayor's Energy Strategy expects 10% of a new development's energy demand to come from renewable energy generated on site.

### UK context

The energy elements in the London Plan reflects the objectives of the Mayor's Energy Strategy. This was developed within a national context set out in the government's Energy White Paper, published in February 2003. This looked to increased energy efficiency and use of renewable energy as two of the main mechanisms by which government energy policy could be delivered, given one of the major challenges we face is climate change. Sustainable energy in buildings was portrayed as part of a more general drive towards sustainable construction, and is being supported with government funding for technology research and demonstration, and the formation of working groups such as the Sustainable Buildings Task Group.

Furthermore, it was announced in the Energy White Paper that there will be a further review of the Building Regulations energy efficiency provisions (Part L)<sup>1</sup>. This review will also embody the UK implementation of the EU Energy Performance in Buildings Directive, due by January 2006. The revisions are expected to result in more consideration given at the design stage of developments when it comes to energy efficiency and renewable energy technologies, thus impacting directly on the work of architects. The aim is to bring the next revision into effect in 2005<sup>2</sup>.

1 Part L of the Building Regulations (Conservation of Fuel and Power) sets out the legal requirements for the conservation of fuel and power in buildings. Approved documents L1 and L2 cover dwellings and other types of buildings, respectively.

2 Possible future performance standards for Part L, October 2003: [http://www.odpm.gov.uk/stellent/groups/odpm\\_buildreg/documents/pdf/odpm\\_breg\\_pdf\\_024792.pdf](http://www.odpm.gov.uk/stellent/groups/odpm_buildreg/documents/pdf/odpm_breg_pdf_024792.pdf)

# What is renewable energy?

Renewable energy is a term that covers a range of cleaner and more sustainable energy technologies. It has been defined as “energy derived from renewable or replaceable resources, such as sun, wind, water and plant material”<sup>3</sup>. Renewable energy and energy efficiency should usually be looked at together in order to reduce the emissions of carbon dioxide from a building or development.

There are various renewable energy technologies suitable for London. The key ones are summarised here:

**Biomass heating** can either be stoves or boilers that use biomass instead of traditional fossil fuels such as oil and gas. Biomass refers to any fuel material derived from living organisms, but in most cases the fuel will be wood that is either the waste product from another activity (e.g. tree surgery) or has been grown for the purpose.

**Biomass Combined Heat and Power (CHP)**. A CHP plant is an installation where there is simultaneous generation of usable heat and power (usually electricity) in a single process. It may use biomass as fuel.

**Ground sourced heating** uses underground pipes or boreholes to absorb heat from the ground, which is then upgraded to a useful temperature and used to provide space heating and to pre-heat domestic hot water.

**Ground sourced cooling/borehole cooling** involves using the ground or groundwater for cooling of offices and other non-domestic buildings. As the temperature of the ground remains fairly constant, and in summer is well below peak air temperatures, a system working on the same principle as a ground sourced heat pump can be used to replace conventional cooling in offices and other buildings.

**Solar heating** systems use solar energy to heat water. The systems use solar collectors (flat plate or evacuated tube collectors), usually placed on the roof of a building, to pre-heat water that will be used in sinks, showers and other hot water applications.

**Solar power panels (photovoltaics or PVs)** can be fitted to buildings in a variety of different ways, such as bolt-on panels and roof tiles. They use daylight to create an electric current, which can be used to power buildings or can be exported to the grid.

**Wind turbines** use the energy from the wind to turn a generator, which produces electricity. A wide range of sizes is available.

In addition to the renewable energy technologies mentioned above, architects should make use of passive solar design. The aim of passive solar design is to plan the orientation and layout of buildings and plots and vegetation on and adjacent to buildings to take advantage of available daylight and to either use or avoid heat gain, depending on heating or cooling requirements of the building.<sup>4</sup>



Solar power panels being fitted at Blackpool Borough Council's new Solarium 21 building, which is a model of best practice in sustainable development. © Blackpool Borough Council

## Biomass Combined Heat and Power

BedZED (London Borough of Sutton) is a low energy residential and work/live development. A biomass combined heat and power unit provides the site with all its energy needs, supplied by local green waste. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



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<sup>3</sup> [www.saveenergy.co.uk/renewables](http://www.saveenergy.co.uk/renewables)  
<sup>4</sup> Energy Efficiency Best Practice in Housing, General information report 27, Passive solar estate layout, 1997. Available at: [www.est.co.uk/bestpractice/uploads/publications/pdfs/GIRO27.pdf](http://www.est.co.uk/bestpractice/uploads/publications/pdfs/GIRO27.pdf)

## What's happening already?

There is a range of case studies demonstrating the integration of renewable energy installations into new developments. The following two case studies have been selected for the purposes of this document, but to access the wealth of other case studies available please refer to the *London Renewables: Toolkit for planners, developers and consultants*.

### Beaufort Court - Zero Emissions Head Office for Renewable Energy Systems (RES)

Built on the site of the old Ovaltine Egg Farm in Hertfordshire, about two miles outside the M25, this development involved the conversion and extension of the existing 1930s buildings to provide 2,665m<sup>2</sup> of office accommodation.

It is intended that all energy used at Beaufort Court be provided by renewable sources located on the site. These include:

- A 225 kilowatt, 50 metre tall wind turbine;
- A 170m<sup>2</sup> integrated solar array comprising 54m<sup>2</sup> of photovoltaic and thermal (PVT) panels and 116m<sup>2</sup> of solar heating panels. The PVT panels consist of a photovoltaic element, which converts light into electricity, and a copper heat exchanger on the back<sup>5</sup>;
- A 75 metre deep ground water borehole to provide cooling; and
- A 100 kilowatt biomass boiler, fuelled by 5 hectares of Miscanthus (elephant grass).

The total installed cost of the wind turbine was £140,000 and the payback period is relatively low at approximately nine years, largely because it is a second-hand turbine and RES managed the installation themselves. The total cost of Beaufort Court is slightly higher than the present commercial value of the building as an office. However, running costs are expected to be less than half that of an ordinary office building. The electricity generated is 'free' and will create an income of at least £6,000 annually by exporting surplus electricity to the grid. Funding of £465,830 was obtained from the European Union.

The area is metropolitan green belt, similar in planning terms to other areas in the outer London suburbs. The buildings, in the same way as many in the heart of London, have high historic value, which requires sensitive development of renewable energy systems. However, RES were aided by the positive approach of Three Rivers District Council, which granted planning permission in 2001. They required the external appearance of the buildings to remain unchanged, which meant incorporating solar panels into a new building set into the ground some distance away from the main construction.



The entrance to Renewable Energy System's head offices in the metropolitan green belt of Hertfordshire, just outside the M25. © RES/Reter Mackinven



Solar power panels and solar heating at Renewable Energy System's head offices. © RES/Peter Mackinven

5 The panels have been developed by ECN in the Netherlands, incorporating Shell Solar photovoltaic elements and Zen Solar thermal elements. They produce electricity and hot water. The solar thermal panels are identical to the PVT panels, but without the photovoltaic element. This is a relatively new technology where the technologies of solar power and solar heating have been combined.

## What's happening already?

A separate planning application was made for the wind turbine, which was granted, without controversy, in 2001. Local residents were thoroughly consulted before both planning applications were submitted and there has been positive feedback from the local community as well as high local demand to visit the site.

RES went into this project with their eyes wide open regarding the capabilities of the technologies they were using and as such their expectations have been met. Dr Ian Mays, Managing Director, RES Group said: "We had a superb opportunity to take a fascinating old building that had fallen into dereliction and disrepair, and breathe new life into it. In doing so, we were able to create a paragon of sustainability and good practice and, on top of that, for the company it is an excellent demonstration of our nature and our ideals."

### **The Vauxhall Cross Transport Interchange**

This 130 feet long, £25 million structure, developed by Transport for London Street Management, incorporates closed circuit television, lighting, dot matrix displays and public telephones, all of which are powered by solar power panels (PVs). It is located in the Vauxhall area of the London Borough of Lambeth.

The panels can produce up to 30 kilowatt of electricity and cover the giant cantilevered arms that extend from the bus station's roof. They are expected to generate enough electricity to power the equivalent of eight three-bedroom homes every year.

No separate planning permission for the solar power panels (PVs) was required; rather the installation was considered as part of the overall design of the building. The only requirement was that the solar power panels (PVs) were to be kept at as low a profile as possible on the surface of the cantilevers. A new mounting bracket was designed to ensure this.

So far, the only issue surrounding the use of solar power panels (PVs) is the rate to be paid for exported energy, which is still being negotiated until a satisfactory deal is agreed on.

David Ley of solarcentury, which designed the solar power panel, sees this building as, "An opportunity to demonstrate the efficiencies of the solar power revolution. This is a high profile project, seen by tens of thousands of people every day, which needed to be a symbol of regeneration."

The DTI's Major Photovoltaic Demonstration Programme provided 65% grant funding for the installation of the solar power panels for this project.

### **Ground sourced heating**

London's first domestic development to use ground sourced heating is 'Earthdome', comprising 4 flats in the London Borough of Croydon. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



*The Vauxhall Cross Transport Interchange will be partly powered by solar power panels lining each of the cantilevered arms.  
© solarcentury*

## Frequently asked questions

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For London, climate changes means hotter, more humid summers, wetter winters and a significant increase in the risk of flooding. © Ian Yarham

### **Why is Government advocating the use of renewables?**

In order to reduce the impact of climate change caused largely by the burning of fossil fuels, the Government has stated in the Energy White Paper that, “Our ambition is for the world’s developed economies to cut emissions of greenhouse gases by 60% by around 2050. We therefore accept the... recommendation that the UK should put itself on a path towards a reduction in carbon dioxide emissions of some 60% [based on 2000 levels] by about 2050”.

To help achieve this target, the Government has set a target of producing 10% of UK electricity from renewable sources by 2010 as one of the main measures of tackling greenhouse gas emissions, and aspires to double this to 20% by 2020.

### **What are the benefits of prioritising renewables when others are not?**

Competitive advantage. With London seeking to be an international leader in renewable energy, it gives an opportunity for architects and their partners to gain early experience, competitive advantage and benefit from being part of an international showcase. By building up a proven track record of installing renewable energy, architects will be more likely to attract clients seeking these technologies within their developments.

### **How much additional cost will be incurred by our clients if we include renewables in a development?**

The *London Renewables: Toolkit for planners, developers and consultants* provides comprehensive tables for typical development scenarios showing their benchmark energy demand, cost and applicable renewable energy sources. It is recognised that capital cost will play an important role in decision making regarding which renewable energy technologies to include in development proposals.

The costs depend on many design, site and commercial factors. Costs are also likely to change over time, as will the availability of government and other grant funding. The benefits of renewable energy should be taken into account at the same time as costs, taking time to develop as holistic an analysis as possible. Thought should also be given to potential savings achieved by replacing conventional materials and designs with renewable energy technologies. For example, prestige building materials such as the bronze façade on the parliamentary offices at Portcullis House will cost significantly more than photovoltaics. This is despite the fact that using photovoltaics can project an equally potent message about a building and its occupants as well as generating energy for use in the building.



This distribution centre in Peterborough is heated and cooled by a ground sourced system. © Geoscience Ltd

# Frequently asked questions

## How can our clients, obtain funding for installing renewable energy technology?

Two grant schemes funded by the Department of Trade and Industry (DTI) offer partial grants for a range of technologies.

- Solar Grants, for solar power (photovoltaic) panels<sup>6</sup>
- Clear Skies, for other small-scale renewable energy technologies<sup>7</sup>.

The level of grant depends upon the technology and the use of the building.

Moreover, Enhanced Capital Allowances<sup>8</sup> enable a business to claim 100% first-year capital allowances on their spending on qualifying energy saving systems (e.g. biomass boilers, Combined Heat and Power, ground sourced heat pumps and solar heating).

In addition, since April 2002 each electricity supplier has had to produce a target proportion of its electricity from renewables, or prove that someone else has done so on its behalf. Anyone who produces green electricity is issued with a Renewables Obligation Certificate<sup>9</sup>, which has an added value above the electricity itself thus providing extra income for the generator - the property owner.

## How can we encourage our clients to be interested in, and to pay for, renewable energy technologies?

*Promoting the benefits of renewable energy* will help clients, such as developers and organisations that will occupy the buildings, see how renewable energy can help them reduce their environmental impact as well as be seen as a leading edge company. This can therefore help their public relations strategy at two levels. Case study examples can: demonstrate that there are clients interested in installing renewable energy technologies; provide cost benefit analyses; illustrate the public relations opportunities and demonstrate competitive advantages. It is important for architects and other related industries to use case studies to provide as much information to clients as is possible to help them make an informed decision. Furthermore, there is a range of innovative renewable energy funding schemes available for public and private developments (see above). Discussions regarding the incorporation of energy efficient and renewable energy technologies into developments should be initiated at the earliest opportunity.

In terms of individuals that approach architects, the reduction in occupier energy bills and the environmental benefits of energy efficient and renewable energy technologies should be highlighted at the design phase of the project.

## Solar heating

The Crowndale Building (office accommodation for London Borough of Camden staff plus a public library and health centre) has a solar water heating system that serves the washrooms.

The Council has a policy to reduce greenhouse gas emissions. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



*The Metropolitan Housing Trust's new headquarters is heated and cooled by a ground source system.*  
© Geoscience Ltd

6 [www.est.co.uk/solar](http://www.est.co.uk/solar),  
T: 0800 298 3978,  
E: [pvenquiries@est.co.uk](mailto:pvenquiries@est.co.uk)

7 [www.clear-skies.org](http://www.clear-skies.org),  
T: 0870 2430 930,  
E: [info@clear-skies.org](mailto:info@clear-skies.org)

8 [www.eca.gov.uk/et/](http://www.eca.gov.uk/et/), T: 020 7170 7000,  
[eca@thecarbontrust.co.uk](mailto:eca@thecarbontrust.co.uk)

9 [www.dti.gov.uk/energy/renewables/policy/renewables\\_obligation.shtml](http://www.dti.gov.uk/energy/renewables/policy/renewables_obligation.shtml)

## Frequently asked questions

### Are renewable energy technologies reliable?

Many renewable energy technologies are tried and tested. Full details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.

### Can renewable energy technologies improve the aesthetic design of buildings?

Some renewable energy technologies, like ground sourced heat pumps and ground sourced cooling systems are almost completely invisible once installed. Biomass boilers and CHP systems like conventional boilers have no aesthetic impact as they are inside the building or may be housed in a separate building. However the combustion gases will require an external flue usually terminating above the ridge line of the building and in the case of CHP above the ridge lines of adjacent buildings. This part of the system should be designed to be as unobtrusive as possible. Flues have been put adjacent to neighbouring facilities such as multi-storey car parks to achieve this. Room stoves where flames are visible can add to the occupants' sense of comfort and enjoyment of a room.

Solar heating systems and solar power systems, which can come as roof slates or can be integrated into other building materials such as glass, can be designed to blend into a roof design or at the least to look as inconspicuous as a skylight or roof window. Indeed, solar power panels in certain circumstances can add design value to a building, for instance when applied to a south-facing façade or the roof of an atrium, allowing some light to filter through.

### Where can we find qualified installers of renewable energy systems?

Both the Solar Grants and Clear Skies grant programmes operate a registered installer scheme, the latter offering mentoring for new installers. Training on solar power panels is available from a number of colleges, training organisations and manufacturers. Also some renewable energy trade bodies offer an accredited installer scheme.

### How can we avoid delays in the building process if renewables are to be installed?

Delays in the process are possible when unfamiliar or new technologies are being employed. Therefore:

- Use the technology guide in the *London Renewables: Toolkit for planners, developers and consultants*. This provides information on likely technical issues and gives an indication of how "tried and tested" the technologies are;
- Make use of experience. It makes sense to employ designers and

### Solar power panels

St James Homes have installed solar power panels, part funded by the DTI's solar grants programme, on a community building in an up-market housing development in the borough of Sutton. The company is committed to trialling the technology as part of its sustainability strategy. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



The UK's first private commercial new build housing development to incorporate photovoltaics, in Edmonton, North London.  
© solarcentury

## Frequently asked questions

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- contractors who have experience with the relevant technologies;
- Train staff: London Renewables have developed a series of training modules that can be used in this respect (see Further Information);
- Seek timely guidance: Through seeking expert advice in the design phase, the new technologies can be integrated into the project and their installation planned into the overall timeframe of the development, and
- Gain confidence in their benefits. By looking at good exemplars the process becomes less of an unknown and staff are better informed.

### Where do we get advice on the feasibility of different renewables for a site?

The *London Renewables: Toolkit for planners, developers and consultants* offers an excellent source of information on each technology. This covers the benefits of the technologies, details of applicability to different types of site, planning requirements and costs. Please refer to the Further information section for more support.

### Do people really want renewables?

London Renewables commissioned a study entitled 'Attitudes to renewable energy in London: public and stakeholder opinion and the scope for progress', which noted that, "The vast majority of the public support renewable energy; 81% believe it is a 'good idea', compared to just one per cent who disagree." The majority of Londoners didn't just support renewable energy in principal but also approved of renewable energy technologies in their local area.

This is the attitude of a sample of the general public in London; in other words the people who will be buying or renting domestic properties from your clients. They are also the people that companies you are working with will want to impress through a demonstrable commitment to the environment.



*YHA Rotherhithe goes Solar with support from Renewable Energy Action for London. © YHA 2003*

## Taking action

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Now is the time to take action. The questions below may help you to begin the process of integrating the delivery of low carbon buildings into your everyday business practice.

Which of the activities are most appropriate for you will depend on your role within your company and on how routinely your organisation includes sustainable energy in developments. However, in all cases the

## Taking action



Nottingham Community Housing Association has installed solar power panels on 22 new properties in the Corncroft area of the city.  
© Nottingham Community Housing Association

*London Renewables: Toolkit for planners, developers and consultants* and the training materials referred to later can help you find answers.

### Promote renewable energy

- Are you aware of all the opportunities for incorporating renewable energy systems into your designs?
- Is it possible to review designs (e.g. orientation) and specifications to try to incorporate renewable energy into the final project?
- Can you use long-term 'cost in use' models to show that the greater initial costs of renewable energy technologies are often offset by the reduced costs of running the property<sup>10</sup>?
- Have opportunities for passive solar design and passive ventilation been fully exploited?
- Are you in a position to promote renewable energy and to educate your prospective and existing clients?
- Are there any examples of schemes/properties you have delivered successfully which can be used as case studies?

### Consider specific sites

Are your clients planning major developments, which will be referred to the Mayor<sup>11</sup>? Alternatively, do you have an interest in sites where the borough has included a renewables target in their Unitary Development Plan or Local Development Framework, and does its definition of a 'major' development apply<sup>12</sup>? If so you will be asked to demonstrate that on-site renewable energy generation will be employed where feasible.

Therefore try to answer the following questions:

- How can you best address this requirement for a proportion of the development's energy needs to be met by on-site renewables?
- What are the most cost-effective options open to you and how do these fit with possible clients' preferences?
- How would reducing energy demand, by designing an energy efficient development which has considered: combined heat and power; passive solar design and connection to or development of a community heating network, impact on the size and cost of renewables required?

### Review clients' needs

- Try to identify your clients' attitudes towards energy efficiency and renewable energy. Where on their list of requirements does sustainable energy sit? (It may come as high as third, behind location and price.)
- Investigate whether they want energy efficiency and renewable energy incorporated into their development.
- Consider including sustainable energy options in sales literature.

- 10 The financial payback of renewable energy technologies varies. For solar power panels it depends on a large variety of site-specific factors such as the electricity consumption of the building on which they are installed, the type of panel and the grants available. However, payback periods of between 10 and 70 years are being experienced. Clearly where the replacement of a more expensive prestige building material is being considered the payback is immediate.
- 11 This includes: >500 dwelling units, or for commercial space >30,000m<sup>2</sup> in the city, >20,000m<sup>2</sup> in Central London or >15,000m<sup>2</sup> outside of Central London. For more details refer to the *London Renewables: Toolkit for planners, developers and consultants*.
- 12 Each borough is able to define what they consider to be a major development. It is suggested that the definition adopted is that currently used by both the ODPM PS2 form, which each district planning authority must use to report general developments, and some Boroughs. The definition defines major developments as more than 10 dwellings, or for non-domestic use wherever the floor space is >1000m<sup>2</sup>.

# Taking action

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- Consider whether there are potential groups of house buyers for whom low energy design and the integration of renewables could be the deciding factor between a new build home and an older property.
- Consider whether there are high profile clients you would like to attract which may be interested in schemes that incorporate sustainable energy. (Likely candidates include those which are proactive in terms of Corporate Social Responsibility or which could capitalise on the public relations opportunities of a leading renewable installation.)
- Consider whether certain clients are particularly aware of the impacts of climate change and will want to send out a message to their clients and customers. (These might include insurance companies, water utilities and relevant Government departments and agencies.)

## Gather internal support

- Identify who in your organisation needs to be convinced about the benefits of including renewable energy and energy efficient design and technologies in all new developments.
- Explore what opportunities exist, in trade media and elsewhere, for you to promote the company using the 'sustainable energy' hook.

## Develop a strategy

- Consider whether the development of a sustainable energy strategy could be of use to your organisation.
- Identify the person who could develop this strategy.
- Consider how the routine incorporation of energy efficient design and on-site renewable energy generation could contribute to meeting your existing corporate aims.
- Consider how sustainable energy will help to 'future-proof' your organisation.
- Set a target, e.g. a proportion of developments with on-site renewables, a proportion of a development's energy needs which can be met from on-site renewable generation.

## Develop capability

- Consider who should be trained if the company decides to develop particular renewable energy skills as part of its portfolio.
- Devise a training and awareness programme to ensure a clearer understanding of the objectives regarding renewable energy for key staff.

## Wind turbines

Ford's Dagenham Diesel Centre (London Borough of Havering and London Borough of Barking and Dagenham) uses two wind turbines constructed on site to supply all of the site's electricity. The installation helps demonstrate Ford's corporate commitment to sustainable development. The turbines are funded through a 'Merchant Wind Power' arrangement. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



© Ecotricity

## Further information



*The home of Andrew Finnis – the first project to be funded by the DTI's Major Photovoltaics Demonstration programme. © Energy Saving Trust*

**London Renewables:** For information on London Renewables, the materials it is producing and possible training options, take a look at the following website.

W: [www.london.gov.uk/mayor/environment/energy/london\\_renew.jsp](http://www.london.gov.uk/mayor/environment/energy/london_renew.jsp)

T: 020 7983 4000 (main switchboard)

The website provides links to other organisations' websites. Details of the DTI's capital **grant schemes** are also available from this site, and on page 7, footnotes 6 and 7, of this document. The London Renewables site also links to **London-based schemes**, that assist with installations and national grants. The following are some of the other sites listed.

### **London Renewables: Toolkit for planners, developers and consultants**

(Available via the above website.) There is a range of organisations involved with renewable energy. Refer to the toolkit's further information section where these organisations are listed.

**Renewable Energy Enquiries Bureau:** The DTI funds a renewable energy enquiries bureau and offers a range of detailed renewable energy publications online.

W: [www.dti.gov.uk/energy/renewables](http://www.dti.gov.uk/energy/renewables); T: 0870 190 6349;

E: [nre-enquiries@aeat.co.uk](mailto:nre-enquiries@aeat.co.uk)

**Renewable Power Association:** The Renewable Power Association is a trade association open to all companies involved in the UK renewable energy industry.

T: 020 7747 1830; W: [www.r-p-a.org.uk](http://www.r-p-a.org.uk);

All other major trade associations are listed on the London Renewables web pages.

**Action Energy** (for non-domestic buildings) & **Energy Efficiency Best Practice in Housing:** Two programmes offering assistance on energy efficiency.

W: [www.actionenergy.org.uk](http://www.actionenergy.org.uk); T: 0800 58 57 94;

E: [help@actionenergy.org.uk](mailto:help@actionenergy.org.uk);

W: [www.est.org.uk/bestpractice/index.cfm](http://www.est.org.uk/bestpractice/index.cfm); T: 0845 120 7799;

E: [bestpractice@est.co.uk](mailto:bestpractice@est.co.uk)