



Renewable Energy in London: The role of housing associations

Summary

This document shows how housing associations can play a lead role in the development of renewable energy in London. The benefits, both to housing associations and their tenants, from renewable energy are set out, as are the drivers coming from Government and the Housing Corporation. 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 your housing association doesn't get left behind.

Introduction

Housing associations, as the major provider of new social housing, are well placed to play an influential role in the uptake of renewable energy technologies. The introduction of renewable energy within new developments will ensure that low-income householders are exposed to new, cleaner technology and are not excluded from their benefits. In addition, installing renewable energy systems can lead to more affordable energy bills for occupiers. This links to the Housing Corporation's agenda of encouraging the development of sustainable development strategies and action plans, especially for housing associations with more than 250 units¹.

London Renewables and the London Energy Partnership are working to ensure that housing associations are aware of the benefits of renewable energy and its application on sites within London. This document, and the resources to which it refers, are designed to help you consider 'building in' renewable energy. In addition they have developed a training package on renewable energy as part of this initiative.

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*.

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)². This review will also embody the UK implementation of the EU Energy Performance in Buildings Directive. The revision is expected to result in more consideration given at the design stage of developments when it comes to energy efficiency and renewable energy technologies. The aim is to bring the next revision into effect in 2005³.

2 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.

3 The ODPM have issued a document which highlights in more detail the proposed revision: *Possible future performance standards for Part L*, October 2003: 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”.⁴ 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, and its effect on global warming.

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

Biomass heating can be either 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 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. The plant 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. They do not provide enough energy for space heating.

Solar power (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 voltage, 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. There is a huge range of different sizes available.

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*.



© Bill Dunster Architects



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

© Sustainable Energy Action

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*.

Metropolitan Housing Trust's 100 new build properties in Nottingham

Around 100 new homes will be built in various locations in and around Nottingham and fitted with ground sourced heating systems. Sixty nine are already completed and occupied.

Each home is fitted with either a 3.5 kilowatt (kW) or 5 kW Calorex ground sourced heat pump. These meet the total heating requirements of the properties through underfloor heating and deliver domestic hot water at temperatures greater than 60°C. Dependent upon the availability of land at each particular dwelling, ground heat is extracted by the use of either borehole based ground loop heat exchangers or horizontal coiled loop ground heat exchangers (known as slinkies).

The target for the total system cost was between £4,500 and £5,000 per property, although this can vary on a site-by-site basis. Actual costs ran at about £7,000 per property although this is still being finalised, since it is hard to pull out the additional cost of delays caused to other contractors by unfamiliarity with the technology from their total costs for a particular piece of work.

Although the heat pump systems do have higher upfront capital costs they also have a longer lifespan than fossil-fuelled alternatives and lower ongoing energy costs. In addition, if a boiler inspector cannot gain entry to a property, the £100 per property cost of a gas boiler inspection can rapidly escalate. In some cases court orders have been required to force tenants to allow access to their homes for the inspection to take place, with all the attendant costs. The use of ground sourced heat pumps means these unpredictable costs are avoided.

Councillor John Hartshorne, the Sheriff of Nottingham and City Council representative on the Nottingham Energy Partnership, said, "To many people a bungalow is a dream home, but these are just a bit better thanks to the Metropolitan Housing Trust's imaginative use of local renewable energy. The Housing Trust are locally leading by example in home energy efficiency, thus raising awareness of what can be achieved. Over 25% of greenhouse gases are produced in the home and we hear weekly about the effects of climate change."



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



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

What's happening already?

Gallions Housing Association's Ecopark development in Thamesmead, Greenwich

The Ecopark development consists of 39 two, three and four bedroom affordable homes for rent and, having been awarded Housing Demonstration Project Status by the Housing Forum, has been built and run in a way that can be copied by any social landlord or private developer.

Cost parity with conventional build was achieved through the use of strong partnering contracts (using Project Partnering Contract 2000), with build cost totals including design and on-costs amounting to £3,981,000. This converts to approximately £1,000/m². As a social landlord, low-energy sustainable housing also makes sense for Gallions' tenants. Lower energy consumption means that the Ecopark houses will cost a lot less to run than conventional houses of the same size.

The benefits resulting from Ecopark will be quantifiable on the completion of Gallions' monitoring strategy. However at present the following benefits have been estimated:

- Up to 50% reduction in energy consumption;
- Up to 60% reduction in carbon dioxide emissions;
- Up to 50% reduction in expected water consumption;
- Up to 30% reduction in general waste refuse as a result of the on-site recycling strategy; and
- A reduction in internal pollution levels as a result of the 'green' (Low Volatile Organic Compound) paint used throughout the scheme.

Ecopark has also helped to focus and progress Gallions Housing Association's wider development strategy by providing a practical sustainable example of what works and does not work in relation to sustainable development.

Solar heating

Gallions Housing Association has developed 39 properties (London Borough of Greenwich) that have on average 65% of their hot water needs provided by solar heating. The Association wanted to demonstrate that sustainable housing can be provided without huge effort or cost.



© Gallions Housing Association

Frequently asked questions



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

Solar Power Panels

This Green Lane site is a complex of 2 bed semi-detached bungalows, which provides housing for low-income tenants, including elderly and disabled people, within Nottingham. A total of 33kWp of solar power is installed, built into the roofs of 22 of the houses, giving an average of 1.5kWp per house.



© Nottingham Community Housing Association

Why is the 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% from current [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.

This national target has been complemented by a series of regional targets. In London, the Mayor has produced the London Plan, which sets out the spatial implications of the Mayor’s environmental strategies. London’s renewable energy targets can be found in the London Plan and in more detail in the Mayor’s Energy Strategy (proposal 6). Section 4 of Chapter 4A of the London Plan covers ‘Improving the Use of Energy’. More specifically, Policy 4A.7 states that, “The Mayor will and boroughs should support the Mayor’s Energy Strategy and its objectives of reducing carbon dioxide emissions, improving energy efficiency and increasing the proportion of energy used generated from renewable sources”.

The Mayor will work with strategic partners to ensure that the spatial, transport and design policies of this plan support the Mayor’s Energy Strategy and contribute towards achieving carbon dioxide and renewable energy targets.

Furthermore, job creation as a result of the application of renewable energy technology is desirable for the Government. Currently the industry supports 8,000 jobs. Assuming activity is sustained, it is projected that by 2020 the industry will support between 17,000 and 35,000 jobs in the UK. Moreover, the UK Government has pin-pointed the competitive advantage over other countries that the UK could achieve if it developed a robust industry in renewable energy technologies.

How much additional cost will we incur if we include renewables in a development?

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

Frequently asked questions

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 technologies should be taken into account at the same time as costs, taking time to develop as holistic an analysis as possible.

How can we obtain funding for installing renewable energy and energy efficient technologies?

Two grant schemes funded by the DTI offer partial grants for a range of renewable energy technologies:

- Solar Grants⁵, for solar power (photovoltaic) panels and
- Clear Skies⁶, for other small-scale renewable energy technologies.

The level of grant depends upon the technology and the use of the building. Funding may also be forthcoming from the EST's Innovation Programme⁷ and the Housing Corporation's Innovation and Good Practice grant programme. In addition, the Low Energy Design programme (XCo2Conisbee), provides housing associations with practical 'hands-on' support in developing low-energy and sustainable homes in new and refurbished developments⁸.

The following programmes provide help and advice on the design and installation of energy efficient technologies (see Further information for details):

- Energy Efficiency Best Practice in Housing;
- Energy Days Phase 2 - Practical Support Programme;
- Routes to Sustainability (Practical Environment);
- The Energy Saving Trust's Managed Housing programme - designed specifically for housing professionals and
- The Sustainable Development section of the Housing Corporation's website gives plenty of further sources of information and guidance.

Are renewable energy technologies reliable? Do they require costly on-going maintenance?

Generally, most renewable energy technologies currently in use are reliable and require little maintenance. Biomass boilers require more frequent cleaning than gas or oil boilers, however community based systems can make significant savings compared to individual dwelling systems which require regular maintenance. These savings are due both to the reduced amount of maintenance work and avoiding the legal steps which are sometimes required to gain access to individual dwellings. The maintenance requirements of biomass CHP are currently unknown as there are not many systems installed. Please see the *London Renewables: Toolkit for planners, developers and consultants*.

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

- 5 Solar Grants: www.est.org.uk/solar, T: 0800 298 3978, E: pvenquiries@est.co.uk
- 6 Clear Skies: www.clear-skies.org, T: 0870 243 0930, E: info@clear-skies.org
- 7 www.practicalhelp.org.uk/initiatives/initiative.cfm?initiative_id=16
- 8 Low Energy Design programme: www.xco2.com/

Frequently asked questions

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*.



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

Are there enough qualified installers to do renewable energy systems installations?

In general there are enough installers to meet customer demand, but it has been recognised that more engineers will be needed to meet an increased demand for renewable energy technology installations. However, solar water heating for example is a comparatively simple system and so could be installed by any plumber with appropriate training.

Can renewable energy technologies improve tenants' living conditions?

Many residents living in housing association homes have low incomes and are likely to live there for a long time. They therefore have a direct interest in renewables energy, which can help to reduce their energy expenditure. Sustainable Homes is developing a guidance document, 'Green choices and voices' for housing associations based on a survey conducted with a sample of tenants. This is due to be published by September 2004. It sets out what tenants think about renewables (mainly solar water heating and solar power panels), amongst other sustainable technologies, and provides a series of learning points for housing associations to act on.⁹

How can housing associations benefit from renewables?

Although renewable energy technologies may have higher capital costs than conventional options, they will, with the exception of biomass, always produce savings in fuel costs. This is clearly advantageous for all tenants and especially those who are living in fuel poverty (please see the *London Renewables: Toolkit for planners, developers and consultants* for more information).

Savings for tenants on fuel costs will allow them to heat their homes adequately. This in turn will help to prevent incidences of mould, mildew and other damp related problems that can cause and exacerbate certain illnesses and lead to high maintenance bills. The installation of renewables will also feed into the process of mainstreaming sustainable development; a key target for the Housing Corporation, and one which is in the process of being incorporated into its Investment Strategy and procedures.

Where can 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 renewable energy technology. See also the summary of renewable energy technologies' characteristics. This covers the benefits of the technologies, details of applicability to different types of sites, planning requirements and costs. This Toolkit will inform Supplementary Planning Guidance on renewable

⁹ Sustainable Homes:
www.sustainablehomes.co.uk

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energy. Please refer to the Further information section for contacts for more support.

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, the options are to:

- Use the technology guide in the Toolkit which 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 contractors who have experience with the relevant renewable energy 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, these 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 renewable energy exemplars the process becomes less of an unknown and staff are better informed.

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. This is consistent with national studies by MORI and the DTI (2003) which also demonstrate very high levels of support for renewables in principle (88% and 92% respectively).” The study showed high levels of support for renewables in residents’ local areas, not just in principle.

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 you. They are also the people that companies you are working with will want to impress through a demonstrable commitment to the environment.



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



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

Taking action

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*.

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.

The activities which are most appropriate for you will depend on your role within your company and on how routinely the company includes sustainable energy in developments. However, the *London Renewables: Toolkit for planners, developers and consultants* and training materials referred to later can help you find answers to the questions posed.

Promote renewable energy

- Are you in a position to promote renewable energy to your tenants?
- Are you aware of existing good practice case studies on the inclusion of renewable energy within housing or wider development sites?
- Are there examples of schemes or properties you have delivered successfully which can be used as case studies?
- How might you raise awareness or consult with residents over a particular refurbishment programme incorporating renewable energy?

Consider new build activities

Are you planning major developments which will be referred to the Mayor¹⁰? Do you have an interest in sites in boroughs that have included a renewables target in their local development document, and will your proposed development be defined by the borough as a 'major' development¹¹? If either of these is the case, 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 potential requirement for a proportion of the development's energy needs to be met by on-site renewables?
- Is it possible to review the design and specifications for new buildings and incorporate renewable technologies into the final project?
- What are the most cost-effective options open to you and how do these fit with possible residents' preferences?
- How would reducing energy demand, by designing an energy efficient development which has considered passive solar design, passive ventilation and combined heat and power, impact on the size and cost of renewables required?

Consider refurbishment projects

- Do you have any major refurbishment works planned?
- If so, can any renewable energy (or energy efficiency) technologies be incorporated? It is often more cost-effective to include renewable energy technologies when major works are carried out, rather than as a separate retrofit measure.

10 This includes any development comprising or including over 500 units (houses or flats); or comprising or including houses or flats and occupying more than 10 hectares. Also all 'departures' from the relevant UDP of 150 units or more will be referable. For more details refer to the *London Renewables: Toolkit for planners, developers and consultants*.

11 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 the ODPM PS2 form that each district planning authority must use to report general developments. The definition defines major developments as more than 10 dwellings, or for non-domestic use wherever the floor space is >1000 m².

Taking action

Gather internal support

- Who in your organisation needs to be convinced about the benefits of including renewable energy generation and energy efficient design in all new developments?
- What key messages are contained here, which can help you convince them?
- Are key staff in the organisation receiving briefings/training about sustainable energy?

In addition, the Housing Corporation actively invests in and supports housing associations in achieving goals set out in their sustainable development strategies and action plans. They have funded the development of a number of tools to support housing associations, one of which is a guide to 'Developing an Environmental Policy and Action Plan'¹². Furthermore, the Housing Corporation plays a key role in providing direction for housing associations in developing sustainable buildings using renewables. (See Further information for the contact details of their sustainable development team).

Develop a strategy

- Would it be a good time for your organisation to develop a sustainable development strategy, with defined sustainable energy targets included, and an action plan in line with that advocated and encouraged by the Housing Corporation?
- Who could develop this strategy?
- Could routine incorporation of energy efficient design and on-site renewable energy generation contribute to meeting your existing corporate aims?

In addition, consider the following:

- Set a target, e.g. a proportion of developments with on-site renewables or proportion of developments' energy needs which are met from on-site renewable generation and
- Consider and review development partners to take forward the renewable energy agenda with contractors and residents. Work with those that have an environmental sustainability policy and are familiar with renewable energy technologies.

Develop capability

- Which staff should be trained if the association decides to develop particular renewable energy skills as part of its portfolio?
- What technologies would give you a competitive edge and position you for the future?
- Are there particular partners or contractors you can work with, who have renewable energy skills and capability?



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

¹² Sustainable Homes, Developing an Environmental Policy and Action Plan, A guide for housing associations, www.sustainablehomes.co.uk/pdf/ENV%20policy.pdf

Further information

London Renewables: For information on London Renewables and the materials it is producing, including the *London Renewables: Toolkit for planners, developers and consultants*, summary documents and the training modules and presentations, take a look at the following website.
W: www.london.gov.uk/mayor/environment/energy/london_renew.jsp
T: 020 7983 4000 (main switchboard);

The website provides links to other organisations' websites and links providing further information and support, including the DTI's **capital grant schemes**, details of which can also be found on page 7, footnotes 5 and 6, of this document. The London Renewables site also links to **London-based schemes** that assist with installations and national grants.

Renewable Energy Enquiries Bureau: The DTI funds a renewable energy enquiries bureau and offers a range of detailed renewable energy publications online.
T: 0870 190 6349; E: nre-enquiries@aeat.co.uk
W: www.dti.gov.uk/energy/renewables

Practical help: an Energy Saving Trust initiative aimed specifically at professionals in local authorities and housing associations. Practical help also provides information about grants and funding.
W: www.practicalhelp.org.uk; T: 0870 241 2089;
E: info@practicalhelp.org.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
Other major trade associations are listed on the London Renewables webpages.

Housing Corporation: A Non-Departmental Public Body, sponsored by the Office of the Deputy Prime Minister. Its role is to fund and regulate housing associations in England.
T: 020 7393 2000; W: www.housingcorp.gov.uk

Sustainable Homes: Funded by an Innovation and Good Practice Grant from the Housing Corporation until 2005. It promotes awareness of sustainable development issues and good practice as well as encouraging housing associations to adopt sustainable policies and practices.
T: 020 8973 0429; W: www.sustainablehomes.co.uk

The Energy Efficiency Best Practice in Housing programme: Provided by the Energy Saving Trust, this is the Government's principal energy efficiency information, advice and research programme for professional organisations involved in all aspects of housing.
T: 0845 120 7799; W: www.est.org.uk/bestpractice

The Managed Housing programme: Provided by the Energy Saving Trust, this offers advice, support and information on funding for housing professionals working within housing associations.
W: www.est.co.uk/housing; E: housing@est.co.uk

The Low Energy Design programme (XCO2Conisbee): This initiative provides project specific consultancy on the technical aspects of low-energy design in new build and refurbished housing.
T: 020 7700 1000; W: www.xco2.com;
E: mail@xco2.com

Energy Days Phase 2 - Practical Support Programme: The Practical Support project aims to visit 120 housing associations over the next two years to provide practical advice and guidance on all aspects of sustainable energy projects.
T: 01225 816645; W: www.esd.co.uk/HAs

Routes to Sustainability (Practical Environment): This makes the links between the work housing professionals do and the sustainability issues outlined by the Housing Corporation, Local and Central Government.
T: 0870 2408274;
W: www.routestosustainability.org.uk;