



## Renewable Energy in London: The Role of Planners

### Introduction

The installation of renewable energy helps to improve the environmental performance of buildings, which builds on the current drive towards sustainable development practices in general, and in implementing the policies set out in the London Plan and London Energy Strategy. Planners have a major role to play in working with developers and other interested parties in facilitating the installation of renewable energy technologies in London.

This initiative aims to support planners in their implementation of the policies set out in the London Energy Strategy and London Plan, therefore helping planners to work towards achieving policy targets for renewables.

### 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 renewable energy technology and design... in new developments wherever feasible' and 'facilitating and encouraging the use of all forms of renewable energy where appropriate' (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 factors: using less energy, using renewable energy and supplying energy efficiently';
- '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 developments energy needs to come from renewable energy generated on site.

In addition to the London Plan, planners should be aware of the Government Planning and Compulsory Purchase Act 2004. The Act has a range of impacts on the planning system in relation to planning for renewables. Furthermore, planners should be aware of Planning

## Renewable energy

### 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*.

Policy Statement (PPS) 22 which sets out the Government's policies in relation to renewable energy technologies. Lastly, planners should be familiar with policy guidance set out in PPG/PPS 1 which addresses issues regarding sustainable communities<sup>1</sup>.

### Context

The energy elements in the London Plan reflected the aspirations 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 increase energy efficiency and the use of renewable energy as two of the main mechanisms by which government energy policy could be delivered. Sustainable energy in buildings was portrayed as part of a more general drive towards sustainable construction. It is being supported with government funding for technology research and demonstration, and formation of working groups such as the Sustainable Buildings Task Group.

## What's happening?

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*.

### The Vauxhall Cross Transport Interchange

This 130 feet long, £25 million structure, developed by Transport for London Street Management, incorporates CCTV, 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 peak (kWp) 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 consultants were asked to keep the solar power panels (PVs) at as low a profile as possible on the surface of the cantilevers. A new mounting bracket was designed to ensure this.



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

<sup>1</sup> As part the Government's planning reforms, Planning Policy Guidance Notes are due to be called Planning Policy Statements. At the time of publication the review was still in progress.

# What's happening?

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 Willow Lane industrial estate development

This is a 4,500m<sup>2</sup> speculative commercial development comprising of 10 units, likely to be occupied by a mixture of storage and distribution, light fabrication, partial offices, light manufacturing or other similar industries. It is located in a light industrial estate in a built-up suburb that forms part of the London Borough of Merton.

London Borough of Merton's new renewable energy policy PE13/E11 states that, "All new non-residential development above a threshold of 1,000m<sup>2</sup> will be expected to incorporate renewable energy production equipment to provide at least 10% of predicted energy requirements."

This is the first time in the UK that a developer has been compelled to respond to a prescriptive renewable energy policy and as such is a vital test case for this approach to increasing levels of installed renewable energy technologies.

Chancerygate, the developers, have proposed the following energy technologies for the site:

- Energy saving measures including condensing boilers, intelligent lighting and passive stack ventilation;
- 10 small-scale wind turbines; and
- 5kWp of solar power panels.

London Borough of Merton has adopted a flexible, holistic and consultative approach to the planning application, mindful of the implications not just for renewable energy planning policies in the borough, but also nationally. However, this flexibility has led to worries that by adopting such an approach the Council could be perceived as being weak. This is exacerbated by the fact that the solar power panels and wind turbines proposed would result in around a 7% reduction in carbon emissions, as opposed to the 10% target.

During an external consultation, London Borough of Merton asked which of the following would be the best approach:

- Reducing the overall carbon emissions of the building by 17% of which 10% is through energy and water saving measures, and 7% through renewable energy generation. This would be complemented



*The offices at this distribution centre in Peterborough are heated and cooled by a ground source system.  
© Geoscience Ltd*

## Biomass heating

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

## What's happening?

### 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. Stringent noise controls require the engine to be enclosed in an acoustic room and switched off between 01.00 and 04.00 am. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



© Bill Dunster Architects

by custom-designed recycling facilities and the use of recycled construction materials and mutually agreed, with goodwill and in collaboration with, the developer, or

- Reducing the overall carbon emissions of the building by 20% by requiring the developer to meet the full 10% target by installing solar power panels at an additional cost of £54,000 over and above the cost of option above. This would be achieved without the goodwill and collaboration of the developer.

The unanimous response of the consultees was for the first option, because if the rationale behind the policy is to reduce carbon dioxide<sup>2</sup> then reaching a 17% reduction is clearly a success. In addition it proves that the policy can be successfully implemented in collaboration and partnership with a developer without confrontation and bad feeling.

The use of the word “expect” rather than “require” in Policy PE13/E11 ensures a degree of flexibility for both the developer and planning authority. It should be stressed however, that the flexibility allowed in this particular case should not set a precedent that allows developers to assume that the 10% has been abandoned, and that in any future cases 10% is the initial expectation. A developer will have to present a very robust argument as to why this target is not realistically achievable.

Chancerygate have been the first developer in the UK required to respond to a renewable energy policy. Therefore it has been necessary for them to commission a detailed technical appraisal examining the energy saving and renewable energy options available. This report was made available to London Borough of Merton.

In approving the policy, the Government Inspector said that there was “unambiguous national and regional support for the approach adopted by Merton”.

## Frequently asked questions

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

According to Tony Blair, there is “no bigger long-term question facing the global community than the threat of climate change”. Climate change is caused largely by man-made greenhouse gas emissions, which are the result of burning fossil fuels. This leads to global warming, which causes, among other things, rises in sea level and an increase in severe weather events, such as flooding and drought.

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

<sup>2</sup> As stated in the Energy White Paper, “The UK should put itself on a path towards a reduction in carbon dioxide emissions of some 60% from current levels [2000] by about 2050”.

## Frequently asked questions

by 60% by around 2050.” To help achieve this, 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.

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. Section 4 of Chapter 4A 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 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.<sup>3</sup>

### 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:

- Encourage the use of the London renewables: *Toolkit for planners, developers and consultants* which highlights likely technical and aesthetic issues;
- Encourage developers to seek advice from experts who have the experience. It makes sense to employ designers and contractors who have experience with the relevant renewable energy technologies;
- Train staff: Invest time in training officers on the issue of renewable energy issues and technologies to ensure the responsibilities and knowledge are spread within the development control teams to avoid bottlenecks in assessing applications. For training options you should refer to the London Renewables website (see Further Information);
- Encourage developers to 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 time frame of the development and
- Gain confidence in their benefits. By looking at good renewable energy exemplars, the process becomes less unfamiliar and staff are better informed.



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



© West Wales Eco Centre

<sup>3</sup> DTI, Renewable supply chain gap analysis, January 2004

## Frequently asked questions

### Supplementary planning guidance

London Borough of Camden's Unitary Development Plan encourages developments that utilise renewable energy. To complement this, Supplementary Planning Guidance has been produced on renewable technologies including solar heating and solar power panels. Further information from the Energy Saving Trust's Practical help service.



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

### How can we manage the potential risks or unknowns of installing renewable energy technologies?

Identify and minimise the risks. In most cases, risks are well known and easily overcome. Make use of the extensive guidance, training and case studies which are available. Tapping into this existing knowledge can provide the following:

- Insight into the cost-benefit analysis of installing renewables;
- Information about technologies that have successfully worked on various sites with differing requirements;
- Details of how other planning departments have dealt with applications with similar specifications;
- Examples of how funding was generated to get the projects off the ground and
- Suggestions about how problems were overcome.

### How can we monitor the installation process of renewable energy after planning applications have been passed?

Local Planning Authorities should have in place monitoring procedures that track the proposed specifications in planning applications against what is actually implemented. This is largely achieved through development control procedures. In future, local authorities will need to develop monitoring frameworks to measure their success in meeting targets set out in their Local Development Frameworks. This will involve setting indicators against which targets can be measured, such as the number of wind turbine installations in their area. This could be the sole responsibility of planning departments or a shared responsibility with other departments.

### How can planning departments be more specific about what they want with regard to renewable energy in developments?

- Refer to the London Plan's energy policies for detail on the Mayor's expectations of borough policies
- Be clear about (and advertise as appropriate) the technologies they wish to introduce, where and why (e.g. do they wish to promote wind energy above solar energy given the borough's topography?). The most appropriate tool for achieving this is Supplementary Planning Guidance (SPG).
- The aims and objectives for renewable energy within the borough should be made explicit.
- The planning department should be clear about (and advertise as appropriate) how it aims to achieve the renewable energy targets set and over what time period. This is a function of the review,

# Frequently asked questions

preparation and monitoring of the Unitary Development Plan or Local Development Framework and the accompanying public consultation mechanisms.

- Draw people's attention to good and bad practice using case studies.

## 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 renewable energy technology. This covers the benefits of the technologies, site-specific details of applicability, planning requirements and costs. Refer to the Further information section of this summary document for more information on who to contact for more support.

## Why can't wind energy from outside of London be used to meet London's renewable energy targets?

The Mayor's vision for London is to be an exemplary sustainable world city that is prosperous, accessible and green. To do this, London needs to take a lead in being more responsible for the energy it uses, and the carbon dioxide emitted because of this use, thereby ensuring a sustainable future in London and beyond. The national target set for renewable energy is a challenging one, and is more realistically achievable if met from a number of renewable energy sources. For each new development and major refurbishment scheme, it is important that all opportunities to integrate renewable energy within the building are considered at the design stage and the planning system is key in ensuring this.

## How much additional cost will developers incur if they 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 (see Further information for details). Information on costs is also available in the summary of renewable energy technologies' characteristics. It is recognised that capital cost will play an important role in decision making on 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 technologies should be taken into account at the same time as costs, taking time to develop as holistic an analysis as possible.

## Ground sourced heating

Alexandra Park School (London Borough of Haringey) is a new comprehensive which uses ground sourced cooling to cool the Information and Computer Technology (ITC) areas. Further details can be found in the *London Renewables: Toolkit for planners, developers and consultants*.



Solar power panels installed in the UK's first private commercial housing development in Edmonton, North London. © solarcentury

## What are the options for London?

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>4</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 (eg 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. 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 (either flat plate or evacuated tube), 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 panels (photovoltaics or PVs)** can be fitted to buildings in a variety of different ways, such as bolt-on panels and solar power roof tiles. They use sunlight to create an electric current, which can be used to power building services 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.



Many councils are already installing renewable energy in challenging locations, such as this pay-and-display meter in Brixton, south London.  
© Impetus Consulting

<sup>4</sup> [www.saveenergy.co.uk/renewables](http://www.saveenergy.co.uk/renewables)

# Taking action

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

The activities which are most appropriate for you will depend on your role within your planning department. However, the *London Renewables: Toolkit for planners, developers and consultants* and training materials referred to in this summary can help you to further explore the points raised.

At the outset, it will be important to differentiate between policy planners and managers and development control officers:

- Policy planners and managers are in more of a position to facilitate change in approaches to renewable energy technologies and will therefore be able to take action to devise new strategies and policies, which set out renewable energy policies and
- Development control officers, on the other hand, will be more restricted in the changes they can make and therefore the focus should be on taking action when the policies are in place, by ensuring that renewable energy is implemented at the local level.

The following actions could be taken depending on your remit within the planning department.

## Review the Council's renewable energy policies

As a first step, planners on all levels should make themselves familiar with the Council's aims, objectives and targets for renewables to ensure they are working in tandem with the rest of the authority's policies. In addition, it is worth investigating the targets set out the authority's Local Agenda 21 policies and other targets or strategies towards which the sustainability team are working. More specifically:

- Consider the renewables targets to be achieved and in what timescale;
- Consider what type of renewables could be introduced first and where (you will need to think small to begin with to make a start which can then lead into the bigger picture of renewables across the borough);
- Use the opportunity of reviewing sustainable energy and energy efficiency issues when Unitary Development Plans (UDPs) are up for review and when developing the new Local Development Frameworks (LDF) as mentioned in the London Plan;
- Think about the development opportunities and developers in your area and identify which might be appropriate for the installation of renewable energy technologies;



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



*Entrance to Renewable Energy System's offices Hertfordshire, just outside the M25. The wind turbine meets the vast majority of the electricity demand of the offices. © RES/Peter Mackinven*

## Taking action

### 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

- Check your UDP for statements of support for renewables from your council and policies requiring renewable energy in new developments or major refurbishments. (Does your Council have any Supplementary Planning Guidance in place that helps to expand on any such policy?);
- Think about how the policy requirements for renewables can be factored into development proposals at the earliest possible stage, preferably during pre-application discussions. S106<sup>5</sup> agreements may also be appropriate for securing provision of renewable energy generation or financial contributions towards such provision. Introducing the topic of renewables at a late stage in the development process will make it less likely that a developer will be able to meet the policy requirements without making substantial changes and incurring unforeseen additional costs.

### Gather internal support

- Brief planning, building control and other relevant officers of the Council's renewed objectives and priorities in implementing renewable energy. As policy planners will be putting the framework in place, ensure that they are well-informed. Be clear on how building control and planning in particular will work together to achieve the objectives. Are you aware of the criteria for which major developments will be referred to the Mayor<sup>6</sup>? Are you aware that the majority of Londoners approve of renewable energy technologies in their local area<sup>7</sup>?
- Elect a representative or officer to specialise in renewable energy and therefore become a 'driver/key contact' for renewables within the department. Without this, assumed responsibility can lead to less being achieved.
- Ensure access to tools and information is provided to support those in the council in general and in the planning departments more specifically on renewable energy issues;
- Energy and housing managers could function as your main contacts to get the support needed and
- For external support, the London Borough of Enfield has produced a Sustainable Design and Construction Guide for developers and building professionals including issues on energy. Does your council have such a guide? Or could you gain access to another council's resources and information to help support your work?

<sup>5</sup> Planning obligations, also known as section 106 agreements, are typically agreements between local authorities and developers negotiated in the context of granting planning consent. They provide a means to enable the proposed development to proceed and to meet the needs of the local community associated with the new development by securing developer contributions towards the provision of infrastructure and services: [www.odpm.gov.uk/pns//pnattach/20030231/1.doc](http://www.odpm.gov.uk/pns//pnattach/20030231/1.doc)

<sup>6</sup> This includes >500 dwelling units, or for commercial space >30,000 m<sup>2</sup> in the city, 20,000 m<sup>2</sup> in Central London or 15,000 m<sup>2</sup> outside of Central London. For more specifications refer to the *London Renewables: Toolkit for planners, developers and consultants*.

<sup>7</sup> *Attitudes to renewable energy in London: public and stakeholder opinion and the scope for progress*, December 2003. Available from London Renewables.

# Taking action

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## Promote renewable energy

- Point developers and related industries in the direction of literature in support of renewable energy technologies (for example the *London Renewables: Toolkit for planners, developers and consultants*) at the pre-application stage or earlier. It is important to get the message out as soon as possible to planning stakeholders on the importance of renewables and the need to consider alternative practices and
- Consult with building control officers on the feasibility of including promotional literature during the Building Regulations approval process.

## Develop a strategy

- Investigate having targeted messages within the overall sustainability messages that are disseminated from the council, which address renewable energy specifically;
- Push for the inclusion of renewables in your Local Development Framework and
- The strategy should identify the roles and responsibilities of different departments eg building control and planning to avoid either duplication of duties or work ‘falling between the gaps.’

### 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.



© Ecotricity

## Further information



Ken Livingston launches the Solar For London initiative: a one-stop shop for householders wanting to install solar heating. © Sustainable Energy 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*.

**London Renewables:** For information on London Renewables, the materials it has produced 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 available from this site. 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);

**Practical help:** an Energy Saving Trust initiative aimed specifically at professionals in local authorities and housing associations.

W: [www.practicalhelp.org.uk](http://www.practicalhelp.org.uk); T: 0870 241 2089;

E: [info@practicalhelp.org.uk](mailto:info@practicalhelp.org.uk)

Sources of grants may change over time. Practical help, the Renewable Energy Enquiries Bureau and other organisations listed in the *London Renewables: Toolkit for planners, developers and consultants* should be able to advise you further.