CHAPTER 3.0

POLICY CONTEXT

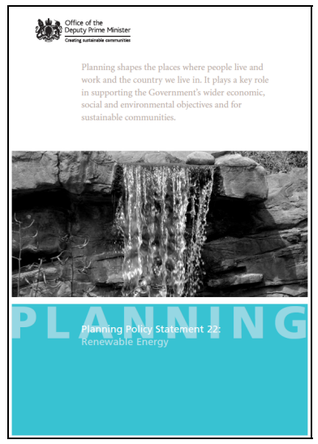
3.0 Policy Context

3.1
Policy Context
Rising international and national aspirations have led to the strengthening of national planning policies and building control processes that contribute to the Government's long-term commitment to achieve CO_2 emissions savings of 80% by 2050 from 1990 levels, with an interim target of 20% CO_2 reduction by 2020.

3.2
International Policy Context
The Kyoto Climate Change Treaty formed the basis for countries worldwide to develop policy and legislation related to reducing greenhouse gas emissions. Subsequently, the European Union has produced Directive 2002/91/EC (Ref. 04) on the energy performance of buildings, which is now enshrined in United Kingdom law by amendments to Approved Document L2A of the Building Regulations (England and Wales) (ADL2A) 2006 (Ref. 03), and the Housing Act 2004 (Ref. 05).

3.3
National Policy Context
The Government has launched a raft of measures to combat global warming and climate change. The following publications demonstrate a timeline for the measures that have been implemented within the development of national policy:

- The Department of Transport and Industry White Paper entitled Our Energy Future – Creating a Low Carbon Economy, 2003 (Ref. 06), sets a target for 10% of electricity to be produced from renewable sources nationally by 2010 and twice this by 2020, with a 60% reduction in CO_2 emissions by 2050;

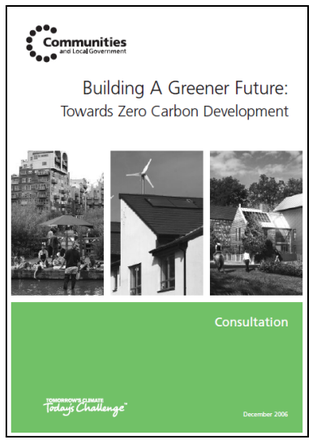


- Planning Policy Statement 22: Renewable Energy, 2004 (Ref. 07), provides guidance for planning authorities concerning implementation of renewable energy technologies when preparing local development documents and when taking planning decisions;

- Sustainable and Secure Buildings Act 2004 (Ref. 08), sets out the purposes for which Building Regulations may be made to further the conservation of fuel and power, ensure water use efficiency, protect and enhance the environment, and prevent/detect non-compliance with the Building Regulations;

- Planning Policy Statement 1: Delivering Sustainable Development, 2005 (Ref. 09), sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system;

- Climate Change and Sustainable Energy Act 2006 (Ref. 10), enhances the contribution of the UK to combating climate change, alleviating fuel poverty and securing a diverse and viable long-term energy supply;



- The department for Communities and Local Government (CLG)'s Building A Greener Future: Towards Zero Carbon Development, 2006 (Ref. 11), demonstrates the step change required in the Building Regulations to achieve zero carbon housing in order to ensure energy security, which is a risk of climate change;

- The Department of Transport and Industry White Paper entitled Meeting the Energy Challenge, 2007 (Ref. 12), sets out the UK strategy, which recognises the need to tackle climate change and energy security;

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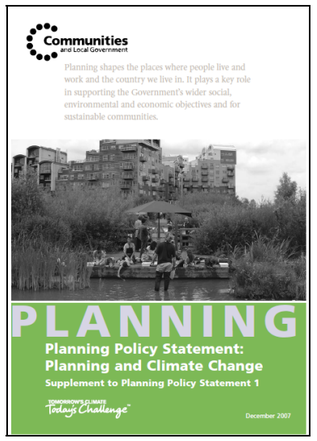


- Planning Policy Statement 1: Planning and Climate Change, Supplement to Planning Policy Statement 1, 2007 (Ref. 13), sets out how planning should contribute to reducing greenhouse gas emissions and stabilising climate change (mitigation), and takes into account the unavoidable consequences (adaptation);

- The Climate Change Act 2008 (Ref. 14) sets up a framework for the UK to achieve its long-term goals of reducing greenhouse gas emissions by 80% over the 1990s baseline by 2050 and to ensure steps are taken towards adapting to the impact of climate change. The Act introduces a system of carbon budgeting which constrains the total amount of emissions in a given time period, and sets out a procedure for assessing the risks of the impact of climate change for the UK, and a requirement on the Government to develop an adaptation programme. The Act will be used to support emissions reductions through several specific policy measures;

- The Energy Act 2008 (Ref. 15) implements the legislative aspects of the Meeting the Energy Challenge (2007) document produced by the Department for Transport and Industry and manages the processes related to the Renewables obligation;

- The Planning and Energy Act 2008 (Ref. 16) enables local planning authorities to set requirements for energy use and energy efficiency in local plans.

3.4
Regional Policy Context
The London Plan (2010)
The London Plan (Ref. 01) sets out policy and guidance in the London context and identifies a number of main objectives related to improving the living and working conditions in London.

3.5
Policy 4A.1: Tackling Climate Change of the London Plan requires developments to make the fullest contribution to the mitigation of and adaptation to climate change and to minimise emissions of CO_2. The Mayor's Energy Hierarchy will be used to assess applications:

- Using less energy, in particular by adopting sustainable design and construction measures (Policy 4A.3);

- Supplying energy efficiently, in particular by prioritising decentralised energy generation (Policy 4A.6); and

- Using renewable energy (Policy 4A.7).

3.6
Integration of adaptation measures to tackle climate change should most effectively reflect the context of each development – for example, its nature, size, location, accessibility and operation. The Mayor will and boroughs should ensure that development is located, designed and built for the climate that it will experience over its intended lifetime.

3.7
Policy 4A.2 – Mitigating Climate Change includes targets towards the long-term reduction of CO_2 emissions for London by 60% by 2050. The minimum reduction targets for London against a 1990 base are as follows: 15% by 2010; 20% by 2015; 25% by 2020; and 30% by 2025.

3.8
Policy 4A.4: Energy Assessment supports the Mayor's objective of improving energy efficiency and increasing the proportion of energy used generated from renewable sources. It requires an assessment of the energy demand and CO_2 emissions from proposed major developments, which should demonstrate the expected energy and CO_2 emission savings from the energy efficiency and renewable energy measures incorporated in the development, including the feasibility of Combined Heat and Power (CHP)/Combined Cooling Heat and Power (CCHP) and community heating systems. The assessment should include:

- Calculation of the baseline energy demand and CO_2 emissions;

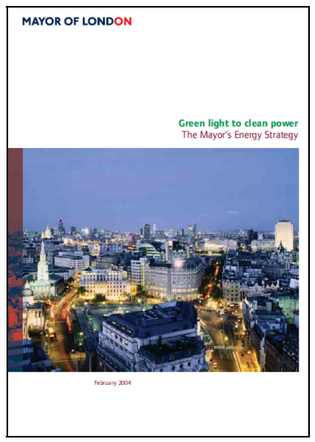
- Proposals for the reduction in the energy demand and CO_2 emissions from heating, cooling and electrical power (Policy 4A.6);

- Proposals for meeting residual energy use through sustainable energy measures (Policies 4A.7 and 4A.8); and

- Calculation of the remaining energy demand and CO_2 emissions.

3.9
Policy 4A.5 – Provision of Heating and Cooling Networks requires all new development to be designed to connect to heating and cooling network.

3.0 Policy Context



3.10
Policy 4A.6 – Decentralised Energy: Heating, Cooling and Power prioritises the use of a decentralised energy supply wherever possible, most importantly by connecting to existing community CCHP or CHP networks. The need for active cooling systems should be reduced as far as possible through passive design measures including natural ventilation, appropriate use of thermal mass, external summer shading and vegetation on and adjacent to the development. The Mayor will expect all major developments to demonstrate that the proposed heating and cooling systems have been selected in accordance with the following order of preference:

- Connection to existing CCHP/CHP distribution networks;
- Site-wide CCHP/CHP powered by renewable energy;
- Gas-fired CCHP/CHP or hydrogen fuel cells, both accompanied by renewables;
- Communal heating and cooling fuelled by renewable sources of energy; and
- Gas fired communal heating and cooling.

3.11
Policy 4A.7 – Renewable Energy requires all new developments to achieve a reduction in CO_2 emissions of 20% from on-site renewable energy generation unless it can be demonstrated that such provision is not feasible.

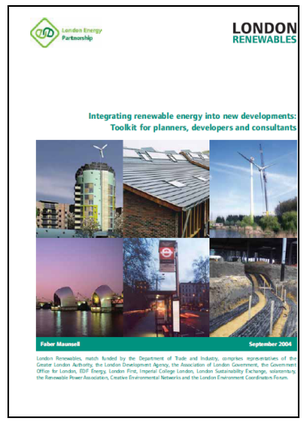
3.12
The Draft Replacement London Plan
The Draft Replacement London Plan (Ref. 17) was published for consultation in October 2009, setting out the Mayor's approach to planning. The London Plan Examination in Public (EiP) opened on 28 June 2010 and is scheduled to conclude by 22 October 2010. The Replacement London Plan is scheduled to be adopted by the end of 2011. As the draft policies have not been examined, they will have little weight attached to them.

3.13
The Replacement London Plan, which establishes policy to 2031, retains the fundamental objective of accommodating London's population and economic growth through sustainable development. The Mayor's vision is for London to "excel among global cities, expanding opportunities for all its people and enterprises, achieving the highest environmental standards and quality of life and leading the world in its approach to tackling the urban challenges of the 21st century, particularly that of climate change. Achieving this will mean making sure London makes the most of the benefits of energy, dynamism and diversity that characterise the city and its people: embraces change while promoting its heritage, neighbourhoods and identity; and values responsibility, compassion and citizenship."

3.14
The Mayor's Energy Strategy
The Mayor's Energy Strategy (Ref. 18) provides a vision and strategic framework for the Mayor's energy policy as set out in the London Plan. Delivery of this strategy comprises the combined approach of:

- Reducing London's contribution to climate change by minimising emissions of CO_2 from all sectors (i.e., commercial, domestic, industrial and transport) through energy efficiency, CHP, renewable energy and hydrogen;
- Helping to eliminate fuel poverty by giving Londoners, particularly the most vulnerable groups, access to affordable warmth; and
- Contributing to London's economy by increasing job opportunities, delivering sustainable energy and improving London's housing and other building stock.

3.0 Policy Context

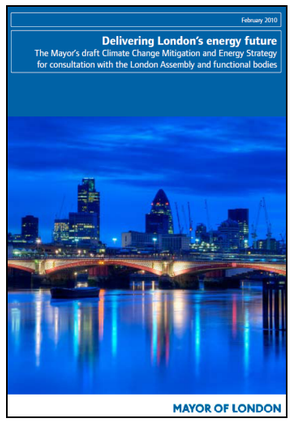


3.15
Renewables Toolkit
The London Energy Partnership document 'Integrating Renewables into New Developments: Toolkit for Planners, Developers and Consultants' (Ref. 19), otherwise known as the 'Renewables Toolkit' provides a review of the planning context, guidance on feasibility studies, case histories and cost models for a wide range of applications. Renewables are defined as solar hot water, Photovoltaic (PV) arrays, biomass heating or CHP, geothermal, ground source heat pumps, borehole cooling, solar air heating, fuel cells using hydrogen from a renewable source, gas from anaerobic digestion, ground cooling and micro hydro-electric schemes.

3.16
Guidance on Planning Energy Assessment
The GLA Energy Team published a guidance note on planning energy assessments in October 2009 (Ref. 20). This note provides details on how to address the London Plan's energy hierarchy through the provision of an energy assessment to accompany strategic planning applications.

3.17
The Mayor's Draft Climate Change Adaptation Strategy
The aim of the Mayor's Draft Climate Change Adaptation Strategy (Ref. 21) is to assess the consequences of climate change on London and to prepare for the impacts of climate change. This aim will be met through achieving the following objectives:

- Identify and prioritise climate risks and opportunities facing London and key actions required to prepare London;
- Promote and facilitate new development and infrastructure that is located, designed and constructed for the climate it will experience over its design life;
- Improve the resilience of London's existing development and infrastructure to the impacts of climate change;
- Ensure emergency management plans exist for the key risks;
- Help business, public sector organisations and other institutions prepare for the challenges and opportunities presented by climate change;
- Facilitate the adaptation of the natural environment;
- Raise general awareness and understanding of climate change; and
- Position London as an international leader in tackling climate change.



3.18
The Mayor's Draft Climate Change Mitigation and Energy Strategy
The vision of the Mayor's Draft Climate Change Mitigation and Energy Strategy (Ref. 22) is to make London one of the world's leading low carbon cities by 2025.

3.19
To achieve this vision, the following measures are being implemented:

- Homes and buildings energy efficiency programme to retrofit homes and public sector buildings;
- Low carbon zones programme to establish ten Low Carbon Zones in London;
- Decentralised energy including energy from waste programmes to develop and fund new decentralised energy projects across the city;
- Electric vehicle roll-out to introduce 1,000 vehicles into the GLA fleet and new charging infrastructure to support the introduction of 100,000 electric vehicles on London's streets;
- Promotion of energy efficient buildings and LZC energy generation; and
- Endorsement of sustainable means of transport.

3.0 Policy Context

3.20
Local Policy Context
Camden Replacement Unitary Development Plan
The Camden Replacement Unitary Development Plan (RUDP) (Ref. 23), adopted in June 2006, sets out the Council's long-term strategic goals for land use, together with the planning policies and standards that will be used to make decisions on planning applications.

3.21
In September 2004 a major reform of the planning system was introduced through the Planning and Compulsory Purchase Act. As part of the reform, the RUDP plans will be replaced by Local Development Frameworks (LDF). Camden Council is currently consulting on a number of LDF documents. The RUDP was subject to a Secretary of State Direction in June 2009 (under Paragraph 1(3) of Schedule 8 of the Planning and Compulsory Purchase Act 2004) to save some of its policies. The policies not listed in the Direction Notice expired on 26 June 2009. At the present moment the Camden Replacement RUDP is the statutory plan that covers the whole of the borough and sets out the Council's planning policies.

3.22
Specifically with regard to energy, Policy SD9C of the RUDP seeks developments that conserve energy and resources through energy efficiency and renewable energy use.

3.23
The Council will require major developments to demonstrate the energy demand of their proposals and how they would generate a proportion of the site's electricity and heating needs from renewables wherever feasible.

3.24
Camden Planning Guidance
Camden Planning Guidance, adopted in December 2006 (Ref. 24), supports the RUDP and gives additional advice and information on how the RUDP policies are applied when decisions are made on planning applications.

3.25
According to the guidance, to promote sustainable design and construction, development proposals must include a statement to show how the proposal will reduce energy consumption and incorporate onsite energy generation from renewable sources.

3.26
Additionally the Council will expect developments of 1,000 m^2 or more floor space to be designed, constructed and fitted so that they obtain at least 60% of the available BREEAM Energy credits.

3.27
Camden Local Development Framework
The new planning system introduced by the Planning and Compulsory Purchase Act 2004 (Ref. 25) replaces Unitary Development Plans with Local Development Frameworks (LDFs) and altered the procedures for reviewing planning policies.

3.28
The LDF is a group of documents that will contain the Council's planning policies and guidance. The relevant documents comprise: Core Strategy, Development Policies, Camden Planning Guidance, Camden Site Allocations, Area Specific Planning Guidance, Area Briefs, and North London Waste Plan.

3.29
Once adopted, the documents will replace the Replacement RUDP (Ref. 23). The LDF is still emerging: the Draft Core Strategy and Development Policies Document have been submitted to the Secretary of State (January 2010) and the EiP occurred between May and June 2010.The most recent Local Development Scheme (December 2009) schedules the Core Strategy's adoption for November 2010 and the Development Policies in March 2011.

CHAPTER 4.0

ASSESSMENT METHODOLOGY

4.0 Assessment Methodology

4.1
Assessment Methodology
The overall strategy and measures identified to reduce the energy consumption and CO_2 emissions of the Proposed Development reflect the Mayor's energy hierarchy and include the following:

- Passive design and energy efficiency (i.e. use less energy – 'be lean');
- Energy efficient supply of services (i.e. 'be clean'); and
- On site renewable energy technologies to provide energy (i.e. use renewable energy – 'be green').

4.2
Generally, this is applied to a development as follows:

- The baseline energy demand and CO_2 emissions are calculated;
- The most appropriate energy efficiency and passive design measures are determined and applied to the energy calculations, representing an enhanced baseline ('be lean') scheme;
- The most appropriate clean energy supply technology (CHP/CCHP) is determined and applied to the energy calculations, representing a 'be clean' scheme; and
- The most appropriate renewable energy technologies are determined and applied to the energy calculations, representing a 'be green' performance.

4.3
This strategy therefore accounts for four scenarios, which are addressed in detail in the following sections of this strategy.

4.4
The Proposed Development has been modelled using the IES Virtual Environment (VE) software (version 6.0.6), from Integrated Environmental Solutions (IES) Ltd. This software is approved for calculations in line with the current Building Regulations Approved Document L2A 2006 (ADL2A) (Ref. 03).

4.5
The IES thermal analysis is based on models of heat transfer processes and is driven by real weather data. The model uses the CIBSE Test Reference Year (TRY) for London as required by ADL2A 2006. Figure 4-1 shows an image of the IES model for the Proposed Development.

4.6
IES presents the energy performance of the Proposed Development in terms of the Building CO_2 Emission Rate (BER), compared to the Target CO_2 Emission Rate (TER). The BER represents the *actual building's* performance, while the TER represents the performance of a building that includes a 28% reduction in CO_2 emissions compared to the *notional building* – The *notional building* is a version of the actual building that is modified to conform to a clear defined set of standards relating to glazing area, construction and system characteristics but is subject to the same occupancy data and plant operations as the actual building. Its purpose is to provide a benchmark or target against which to measure the performance of the actual building

4.7
The *actual building* is the Proposed Development as designed, but subject to standard patterns of occupancy and plant operation for ADL2A (2006) as defined in the National Calculation Methodology (NCM) (Ref. 26). For the purpose of ADL2A compliance analysis, the occupancy data, equipment gains, minimum ventilation rates and the heating and cooling set points and operation periods are forced to standard patterns linked to the NCM activities within each room. This data is outside the users control and cannot be edited.

4.8
Note for ADL2A (2006) compliance, the BER is required to be less than or equal to the TER.

4.9
For the purpose of this study, the 'energy demand' refers to the total energy and includes both regulated energy and non-regulated (process) energy. The regulated energy represents hot water, space heating, space cooling, lighting and auxiliary energy consumption, and it is calculated by the IES model. The non-regulated energy includes the energy which cannot be simulated by the IES model because of the software limitations and regulatory constraints. Non-regulated energy includes energy for cooking, appliances, equipment, lifts, external lighting, Biological Research Facility (BRF), Data Centre, steam generated by CHP/boilers for humidification and processes, energy for laboratory equipment and processes and energy for other equipments. Calculating the energy demand combining regulated and non-regulated energy, is in line with the guidelines set out in the Mayor's London Plan (Ref. 01) and Sustainable Design and Construction SPG (Ref. 27).

4.10
Regulated energy uses are gathered from the IES model, whilst unregulated energy uses are based on assumptions on the building operation provided by the design team.

4.11
Details on the thermal templates, glazed construction data and system characteristics input for the IES model are included in Appendix A; whilst IES Building Regulations UK Part L (BRUKL) output documents for baseline, 'be lean', 'be clean', and 'be green' profiles are included in Appendix B.

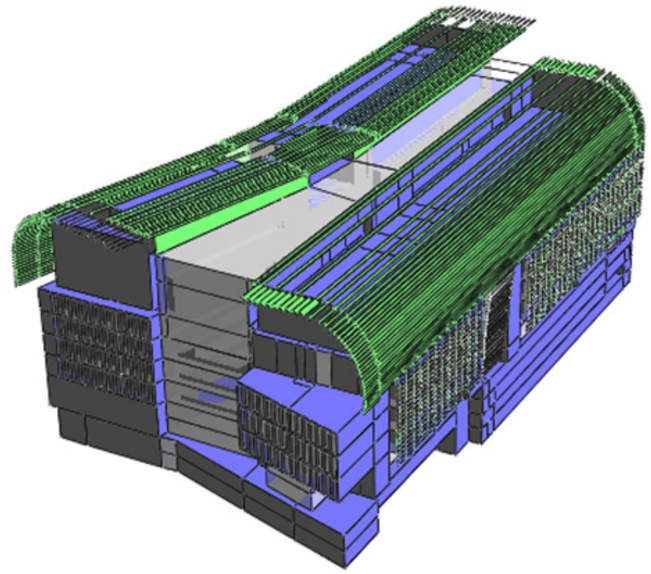


Figure 4-1. Integrated Environmental Solutions (IES) model image for the Proposed Development