Council, Tuesday 7 November 2006

Opposition Policy Item

Greener Homes: improving environmental sustainability in local housing

This Policy Item sets out a brief overview of climate change and emissions, how housing contributes to emissions, the policy framework, and some principles and methods for reducing the impact of housing on climate change. The item raises some suggestions for the way forward and sets out initial recommendations.

Climate change and emissions

Many scientists are concerned that the global average temperature's natural fluctuation has been overtaken by a rapid human-induced warming that has serious implications for the stability of the climate on which much life on the planet depends. The greenhouse effect refers to the role played by gases that effectively trap energy from the Sun in the Earth's atmosphere. Greenhouse gases include carbon dioxide, methane and nitrous oxide, which are released by modern industry, agriculture and the burning of fossil fuels. Their concentration in the atmosphere is increasing, for example the concentration of carbon dioxide has risen by more than 30% since 1800.

The majority of climate scientists accept the theory that an increase in these gases will cause a rise in the Earth's temperature. Sea levels have risen 10-20cm as a result of the expansion of warming oceans. Most glaciers in temperate regions of the world and along the Antarctic Peninsula are in retreat; and records show Arctic sea-ice has thinned by 40% in recent decades in summer and autumn. If nothing is done to reduce emissions, current climate models predict a global temperature increase of 1.4-5.8°C by 2100.

Globally, the result is that we could expect more extreme weather events, with heat waves becoming hotter and more frequent. Many scientists predict more rainfall overall, but say the risk of drought in inland areas during hot summers will increase. More flooding is expected from storms and rising sea levels. The potential impact is huge, with predicted freshwater shortages, sweeping changes in food production conditions, and increases in deaths from floods, storms, heat waves and droughts. Plant and animal extinctions are predicted as habitats change faster than species can adapt.

In London, the main risks are considered to be flooding from tidal, river and heavy rainfall, availability of water resources, higher temperatures, and subsidence.

How does housing contribute to emissions?

Domestic households are responsible for around 30% of UK energy use, some 27% of UK carbon dioxide emissions and around 24% of greenhouse gas emissions. So reducing emissions from existing homes and designing new homes to produce fewer emissions is key to tackling climate change.

Policy framework

National policy

The target for reducing greenhouse gas emissions is 12.5% below 1990 levels over the period 2008-2012. The 'Climate Change the UK programme' (2000) sets a higher target for reducing carbon dioxide emissions by 20% by 2010. The climate change programme sets out a broad range of policies and measures across all sectors of the economy.

The 5-year plan published in January 2005, *Sustainable Communities: Homes for All*, promotes more sustainable, high quality design and construction, to reduce waste and improve resource efficiency. The Plan commits the UK to more sustainable buildings, saving energy, water and materials and to help to meet the target to cut UK carbon emissions by 60% by 2050. Key targets include:

- Making existing homes more environmentally friendly, including energy efficiency improvements to over 1.3 million social homes between 2001 and 2010, and
- Improving minimum energy standards for all new homes – reducing carbon emissions by around a quarter, and promoting best practice by establishing a new Code for Sustainable Buildings.

Tackling energy use goes hand in hand with tackling fuel poverty. Around 480,000 council homes in the UK have already benefited from improvements to their heating and insulation since April 2001. An estimated 50,000 vulnerable households in the private sector are being made more energy efficient each year.

National policy guidance on renewable energy is set out in Planning Policy Statement 22 (PPS22) *Renewable Energy*, which was published in 2004. PPS22 encourages local planning authorities to use planning policies to promote and encourage the development of renewable energy resources, setting out the criteria that will be applied in assessing planning applications for renewable energy projects. Local planning authorities may adopt policies that require a percentage of the energy to be used in new developments to come from on-site renewable energy developments, provided that this is viable and does not place an undue burden on developers.

Currently, the Building Research Establishment (BRE) operates the Environmental Assessment Method (BREEAM) in the UK. The BREAAM for domestic homes is 'EcoHomes'. This is an assessment method that rates the environmental qualities of new and renovated dwellings. Buildings are verified by independent assessors and rated on a scale of Pass, Good, Very Good or Excellent.

An Ecohomes Excellent Standard includes: better wall construction; additional window insulation; additional floor/loft insulation; FSC timber etc; dual flush

toilets/spray taps; bicycle stowage; recycling facilities; ‘A’ rated appliances; home offices; drying space; an efficient heating system and; low energy lighting.

However, the national voluntary Code for Sustainable Homes, to be launched this year, will detail environmental standards that new homes will eventually need to meet. The Code will pave the way for future changes for tougher building regulations that will be more stringent regarding energy conservation. A new Planning Policy Statement on Climate Change is also expected to set out how the planning process is to work towards the reduction of carbon emissions in the location and design of new development.

Regional policy

The London Plan policy 4B.6 ‘Sustainable design and construction’ sets out the London policies for the sustainability of all buildings, and not just housing: “The Mayor will, and boroughs should, ensure future developments meet the highest standards of sustainable design and construction and reflect this principle in UDP policies. These will include measures to:

- Re-use land and buildings
- Conserve energy, materials, water and other resources
- Ensure designs make the most of natural systems both within, in and around the building
- Reduce the impacts of noise, pollution, flooding and micro-climatic effects
- Ensure developments are comfortable and secure for users
- Conserve and enhance the natural environment, particularly in relation to biodiversity
- Promote sustainable waste behaviour in new and existing developments, including support for local integrated recycling schemes, CHP schemes and other treatment options.

Applications for strategic developments should include a statement showing how sustainability principles will be met in terms of demolition, construction and long-term management. Boroughs should ensure that, where appropriate, the same sustainability principles are used to address planning applications.”

The Mayor of London’s Sustainable Design and Construction Supplementary Planning Guidance (SPG), published in May 2006, sets out in more detail essential standards and the Mayor’s preferred standards on environmental sustainability for buildings.

The more recent ‘Draft Further Alterations to the London Plan’ document sets out for consultation new policies to double the carbon emission reductions that developments must achieve through onsite renewable energy from 10% to 20% by 2015 as well as requiring new developments to connect to “decentralised” local energy supplies and achieve improved standards of sustainable building design.

Local policy

Barnet Council's Unitary Development Plan (UDP) chapter on Environmental Resources sets out the authority's policies on sustainable housing focussing on energy efficiency and renewable energy:

"Policy Energy: In planning for development in the borough the council will seek to conserve resources and minimise pollution by:
i. encouraging energy and water efficient developments;
ii. promoting the use of renewable energy;
iii. seeking to reduce traffic generation; and
iv. improving air, water and land quality.

Policy Env 1: The council will support and encourage proposals for efficient and environmentally acceptable forms of energy production such as renewable energy sources and the use of combined heat and power schemes where appropriate and will favorably consider plans to install equipment to provide alternative vehicle fuels where it is safe to do so.

Policy Env 2: The council will encourage energy efficient development through:
i. seeking forms of layout, design, landscaping and materials used in developments, refurbishments and conversions that conserve energy;
ii. expecting new developments to meet high standards of energy efficiency and achieve an energy rating of national home energy rating (NHER) 8; and
iii. encouraging the integration and mixture of land uses where appropriate."

The Council is to produce for consultation a 'Sustainable Development - Design, Construction and Mixed Communities' Supplementary Planning Document (SPD). This will give additional detail and guidance to developers and registered social landlords (RSLs) to supplement the Environmental Resources chapter in the UDP. Whilst the SPD will not constitute council planning policy, it is an opportunity to set out guidance in more detail. In future, the Local Development Framework (LDF) will set out new planning policies.

Aside from the SPD setting out expectations for new housing, the Council must also consider how existing homes can be made more environmentally sustainable.

Reducing the impact of housing on climate change and emissions

Reducing the impact of new housing focuses on energy, materials, water, the natural environment, waste and construction.

As a set of guiding principles, the 'energy hierarchy' is a useful framework for an energy saving strategy:

- Be Mean. Use less energy by avoiding waste.
- Be Lean. Use energy efficiently.
- Be Green. Use energy generated from renewable resources.
- Be Clean. Use any remaining energy required from the least polluting sources of fossil fuels in the most efficient manner.

Renewable energy technologies include:

- Solar panels systems absorb energy from the sun to heat water passing through the panels, and can generate around 50% of a home's hot water requirement.
- Photovoltaic panel systems convert energy from the sun into electricity through semi-conductor cells. They can be mounted on the roofs of buildings or integrated with external cladding or glazing.
- Wind energy. Small turbines can supply power direct to single users, such as homes, schools and businesses or a single larger turbine can supply a whole development.
- Gas can be derived from the anaerobic digestion of domestic green waste. Although these systems produce carbon emissions the total amount is no more than the carbon absorption of the fuel during growth. The processes would be 'carbon neutral' were it not for the emissions from transporting the biomass to the plant.
- Combined Heat and Power (CHP). Large development projects have both the critical mass and financial ability to procure all of their energy requirements from sustainable sources, on-site.
- Ground source heat pumps (GSHP). Ground warmth can be collected by circulating water through pipes laid horizontally in the ground or down deep bore holes.

Whilst renewable energy technologies are very popular, the passive design of new homes can reduce the need for energy in the first place. For example, the orientation of buildings and glazing towards a southern aspect helps maximise light and heat, and orientation towards wind currents helps maximise passive ventilation. Balconies and terraces can be designed so that glazing is in full sun when the sun is lower in winter, and in full shade when the sun is higher in summer. Rainwater harvesting, heat recovery ventilation, low water use gardens, and greywater use can all assist housing be more sustainable. Reducing the amount of ground that is paved also allows water to run into the ground, rather than overload drains and sewers.

There is also a need to conserve and enhance the natural environment and biodiversity. For example, retaining deciduous trees and bushes, and planting more, provides shade in summer, but lets the sun through in winter.

Construction waste contributes 33% of the total UK waste stream. Sustainable construction and reducing waste are not only about measures such as recycling facilities and cycle stowage being designed into new developments and landfill, but also about the materials used for buildings. Can these be recycled from other construction? Are the materials able to be recycled themselves when the building comes to the end of its use?

There are six recognised 'principles of sustainable construction'. These are:
- design for minimum waste,
- minimise energy in construction and use,
- do not pollute,
- preserve and enhance biodiversity,
- conserve water resources, and
- respect people and the local environment.

A more sustainable approach includes looking at the cost of building itself, including the use of local materials that are not transported over long distances, and multi-purpose design so that buildings can be converted for different uses in future, and can also adapt to the expected increases in hot dry summers and wet mild winters.

Existing homes

The Sustainable Development Commission's (SDC) report 'Stock Take: Delivering improvements in Existing Housing' sets out that at least 75% of current housing will still be in use in 2050. The SDC puts the case for improving the resource efficiency of existing homes, rather than seeing widespread new build that is carbon intensive and carries many wider environmental impacts.

The SDC estimates that water savings of 30% may be achieved through reducing demand and retro-fitting efficient appliances and fittings. The SDC report sets out that more needs to be done to encourage take-up of existing widely available measures such as insulation, draught proofing, secondary and double glazing, improved heating systems, heating controls, and efficient lighting and appliances. The SDC is also encouraging micro-generation of energy for existing homes.

Way forward

The Council should establish an overall strategy for environmentally sustainable housing. One way forward would be a strategy of 'Planning, Partnership, Persuasion' within the SPD, but the strategy needs to be broader (than just the SPD) to incorporate existing housing.

The Council should introduce a renewable energy requirement guidance/policy to encourage (and then require) a percentage of the energy to be used in all new developments to come from on-site renewable energy. The UDPs of other local authorities demand a 10% reduction in carbon emissions whilst, as set out above, the London Plan proposed amendments include a requirement of 20%.

The Council should engage and involve local people and developers more about environmentally sustainable housing. The Council could produce a free "Greening your home" guide for all households in the council magazine, use a regular column on energy in the local media or council magazine, support the Local Agenda 21 groups, or offer training to developers on sustainable housing.

The Council should encourage local people to access energy efficiency grants and discounts. There are a large number of schemes that offer grants/discounts mainly offered by energy companies as part of their Energy Efficiency Commitment. These can change fairly regularly and therefore keeping track of details is difficult. Other local authorities are working in partnership to establish dedicated advice lines that residents can contact to find out what energy efficiency grants or discounts they are eligible for. Other schemes offer advice and information on renewable energy technologies that can be applied directly to people's homes, primarily solar hot water heating.

The Council should continue to work with registered social landlords (RSLs/ housing associations) to improve the environmental sustainability of existing and new homes.

Training should be offered to council planning and housing staff, and Members, to ensure the Council gets the maximum possible use of environmentally sustainable technologies and design.

Recommendations

To ask the Executive to ensure the Head of Planning takes into consideration suggestions and comments from interested Members regarding the environmental sustainability of new homes ahead of the publication of the draft 'Sustainable Development - Design, Construction and Mixed Communities' SPD.

To ask the Executive to consult the Cleaner, Greener, Transport and Development Overview and Scrutiny Committee on how the Council can, in keeping with its lead role in the Borough, improve the environmental sustainability of existing homes.