

Hub Guide 3 – Planning

Introduction

This Hub guide is intended for Planning Authorities that wish to implement best practice under the current policy environment as of publication in January 2019. The guide can be used to inform Local Plans, Neighbourhood Plans and Garden Town policies, among other areas of interest.

If you have any further queries after reading the guide, please see the Greater South East Energy Hub website www.energyhub.org.uk or contact info@energyhub.org.uk.

Policy Background

Future Homes Standard

In October 2019, the Government released a consultation, which sets out plans for a Future Homes Standard to be introduced by 2025, including proposed options to increase the energy efficiency requirements for new homes under Part L in 2020.

Energy efficiency requirements for new homes are set by Part L (Conservation of Fuel and Power) and Part 6 of the Building Regulations. New homes being built now and in the next 5-10 years will still exist in 2050. Therefore, we must ensure that the energy efficiency standards we set for them, put us on track to meet the UK target of net-zero by 2050.

The Government expects that an average home built to the Future Homes Standard will have 75-80% less carbon emissions than one built to current energy efficiency requirements (Part L 2013). This means that a new home built to the Future Homes Standard might have a heat pump, triple glazing, and standards for walls, floors and roofs that significantly limit any heat loss.

The Government proposes to introduce a meaningful but achievable uplift to energy efficiency standards in 2020, as a stepping-stone to the Future Homes Standard. This is to help the construction industry reach by 2025, a position where it can deliver these requirements. The intention is to make new homes more energy efficient and to future-proof them in readiness for low carbon heating systems.

The consultation sets out two options to uplift energy efficiency standards and requirements under Part L in 2020:

Option 1: 20% reduction in carbon emissions compared to the current standard for an average home. Anticipated to be delivered by very high fabric standards, typically with triple glazing and minimal heat loss from walls, ceilings and roofs.

Option 2: 31% reduction in carbon emissions compared to the current standard. Anticipated to be delivered based on the installation of carbon-saving technology such as photovoltaic (solar) panels and better fabric standards, though not as high as in option 1 (typically double rather than triple glazing).

Currently, the Government's preference is for option 2, as it is calculated that the option will deliver more carbon savings and help prepare supply chains for heat pumps. Table 4 from the consultation's accompanying [impact assessment](#) clearly outlines the differences between the options.

Please find more information about the Future Homes Standard consultation and how to respond on the [Government website](#). The consultation deadline is 11.45pm on 7 February 2020.

Local Authority Powers

In 2015, the Housing Standards Review reported the withdrawal of the [Code for Sustainable Homes](#). The exception to the change was energy performance. Local authorities could continue to require building standards higher than Building Regulations, up to the equivalent of the Code for Sustainable Homes Level 4, "until commencement of amendments to the Planning and Energy Act 2008".

These amendments would have removed the ability of local authorities to require energy performance standards for new homes that are higher than Building Regulations. The amendments were intended to be enacted at the same time as a Building Regulations uplift, which would be "set at a level equivalent to the (outgoing) Code for Sustainable Homes Level 4".

However, after the 2015 General Election, the planned Zero Carbon Homes policy and Building Regulations uplift were cancelled, and the powers to amend the 2008 Act were not enacted.

The Future Homes Consultation is consulting on when and if to commence the amendment to the 2008 Act. If enacted, the amendment would restrict local planning authorities from setting higher energy efficiency standards for dwellings.

This means that, pending the outcome of the Future Homes Consultation, local authorities are currently able to implement higher energy efficiency policy standards than building regulations, up to the equivalent of Code for Sustainable Homes Level 4.

Recommendations

The following recommendations are intended to offer insight for Planning Authorities into current best practice related to energy. The policies are primarily directed at new-build housing, and focus on existing adopted policies, in order to provide confidence to decision makers. These recommendations will be updated during 2020 following the outcome of the Future Homes Standard consultation.

- 1. Research the new Standard Assessment Procedure update [SAP 10.1](#). This is designed to coincide with the new Future Homes Standard, as Building Regulations Part L are expected to be updated in 2020. It is anticipated that there will be a further update ([SAP 10.2](#)) following publication of the consultation.**

In SAP 10.1, the CO₂ emission factor of electricity is reduced from 0.519 kgCO₂/kWh to 0.233 kgCO₂/kWh, reflecting the increased influence of renewable energy in the national grid. The update brings electricity's emissions factor in line with gas at 0.210 kgCO₂/kWh, which may have important implications in relation to the transition to electric heating.

- 2. Local authorities need to work in partnership on a county-wide or regional basis to ensure consistent planning standards are applied. There will always be the potential for some developers to take the easiest, least-expensive option for short-term payback, and will identify sites in areas with the least regulation.**

Lower energy-efficiency standards in housing come at the long-term expense of the occupier through energy bills, and to the climate through carbon emissions. Furthermore, buildings that use more energy place a greater burden on energy infrastructure, leading to constraints on growth, higher infrastructure investment costs and reduced security of supply.

- 3. Implement a recognised quality regime such as [Passivhaus](#) or [Home Quality Mark](#) that ensures the 'as built' performance (i.e. energy use, carbon emissions, indoor air quality and overheating risk) matches the calculated design performance of dwellings.**

Air permeability testing is a regulatory requirement for new dwelling developments. This typically means that a high proportion of units (if not all) will be tested on any site. However, research from [Innovate UK's Building Performance Evaluation Programme](#), Zero Carbon Hub, The Carbon Trust and other sources, and recorded by the Chartered Institution of Building Services Engineers ([CIBSE](#)) suggests that actual building energy demand is usually more than 2.5 times, and often up to 4.5 times, that predicted from their design.

- 4. Install three-phase power supply in new-build homes in readiness for the future EV market, distributed energy supply and transition to electric heating.**

The [Department for Transport 'Road to Zero'](#) strategy, to decarbonise transport in the UK, will ban the sale of new petrol and diesel cars and vans by 2040. In readiness for this, the Government expects at least 50% of new car sales to be ultra-low emission by 2030, and [analysis by the Renewable Energy Association](#) has forecast that this may be achieved as soon as 2025. Preliminary results from the [Electric Nation](#) study by Western Power Distribution, indicate that over 80% of car charging will take place at home, and therefore future homes will need to have the necessary infrastructure.

While single-phase power supply is marginally cheaper to install, and is adequate for most customers, the common design of chargers integrated into vehicles is limited to 32A per phase, which gives an effective limit of 7.4kW on a single-phase supply. This is adequate for regular, slow charging, but may be insufficient for larger car batteries, particularly those used for longer journeys. This is demonstrated in the indicative table below from the [Renewable Energy Association](#).

Charger Size kW	Amps	Large Battery 90kWh	
3.7	16A	24h00	
7.4	32A	12h00	
11	16A three phase	08h00	
22	32A three phase	04h00	
50 (DC)	80A three phase	01h30	to 80% State of Charge

In addition to its EV infrastructure and grid-load management benefits, three-phase power also enables ~12kWp Solar PV arrays to be installed without permission from a Distribution Network Operator. Furthermore, with gas heating for new-build housing to be discontinued in 2025, three-phase power will help to supply the increased electricity demand from heat pumps. Distribution Network Operators will need to change from ~2kW allocated average demand per household, to 7kW+, to allow for the electrification of heat and transport, with three-phase power helping to both supply and balance the increased load.

- 5. Be aware of [Vehicle to Grid \(V2G\)](#) technology and consider implementing two-way V2G charge points in new buildings. Vehicle to Grid technology enables stored electricity in a car battery to be fed back into the grid during periods of peak demand. This provides a revenue stream for homeowners and private businesses under a managed contract, and it will help to ‘balance’ the electricity market in a smart energy-grid system.**

While V2G is still a relatively untested technology in the UK market, there are a number of pilot projects underway as part of a £30m [Vehicle-to-Grid-Britain](#) study. The study aims to understand the key drivers necessary to support the rollout of V2G. Customer concerns, including range anxiety and battery maintenance, will need to be addressed, as will technical issues relating to interaction with the distribution network. The [findings](#) of the study have now been published and should help policy-makers to make an informed decision around implementing the technology.

- 6. Ensure 20% of new car-parking spaces have EV charging facilities, and provide the ducting, cabling and power provision for 80% of spaces, to allow for future demand. It is estimated that nearly 100% of new car and van sales will be electric by 2030 and therefore planning authorities need to facilitate the necessary infrastructure.**

The policy that 20% of new parking spaces should have EV charging facilities has been part of The London Plan since 2011, with an increase to 80% of 'passive' parking spaces (those that provide the network of ducting, cables and power supply) currently proposed in the [draft new London Plan](#), which is to be published in 2020.

For existing car parks, [The National Infrastructure Commission](#) recommends that local authorities work with charge-point providers to allocate 5% of their parking spaces (including on-street) by 2020 and 20% by 2025, which may be converted to electric vehicle charge points.

7. Design buildings that reduce the risk of overheating. Major development proposals should reduce the potential for overheating and reliance on air conditioning systems, and demonstrate this in accordance with the [Greater London Authority cooling hierarchy](#):

- I. Minimise internal heat generation through energy efficient design
- II. Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration and insulation
- III. Manage the heat within the building through exposed internal thermal mass and high ceilings
- IV. Passive ventilation
- V. Mechanical ventilation
- VI. Active cooling systems (ensuring they are the lowest carbon options).

There are a number of construction methodologies that address solar optimisation within buildings, including the [Assured Performance Process](#) by the National Energy Foundation. [The Design Methodology for the Assessment of Overheating Risk in New Homes](#) by CIBSE provides useful assessment criteria.

8. Develop a Local Authority Carbon Offset Fund, to enable carbon emissions arising from new buildings, that are not considered cost-effective to address at source, to be alleviated through other, positive means, such as the retrofit of existing housing stock. While high energy-efficiency standards should always be a priority for a new development, in order to achieve a zero-carbon future, a carbon-offset approach can make a significant and appropriate contribution to lowering carbon emissions across the entirety of the building stock.

An example is the [Milton Keynes Carbon Offset Fund](#) managed by the National Energy Foundation. The scheme has been in place since 2008 and is highlighted as a Best Practice example in the Mayor of London's Sustainable Design and Construction Supplementary Planning Guidance.

The principle of the Fund is simple. A new home's 'as-designed' Dwelling Emission Rate is used to specify the anticipated level of carbon which will be emitted by the home within its first year of use. For each tonne of carbon indicated, the developer pays £X per tonne into the Fund, that can then be used for energy efficiency projects.

- 9. For major non-residential development, we recommend a minimum building standard of BREEAM Excellent, which includes mandatory requirements related to carbon reduction. A 'major' development can be defined as the provision of a building or buildings where the floor space to be created is 1,000 m² or more, or development carried out on a site having an area of 1 hectare or more.**

For non-residential development, it is unclear what future levels of carbon reduction will be delivered through Building Regulations. A one-size-fits-all figure is inappropriate due to the range and type of buildings represented. While [Display Energy Certificates](#) are a useful method of demonstrating a building's energy efficiency, they are only required for public buildings over 250 m² and have **not been widely adopted in the private sector**.

The [BREEAM rating benchmark](#) enables a comparison of an individual building's performance against the typical new non-domestic buildings in the UK. Each BREEAM rating level broadly represents performance equivalent to:

- I. Outstanding: Less than the top 1% of UK new non-domestic buildings (innovator)
- II. Excellent: Top 10% of UK new non-domestic buildings (best practice)
- III. Very Good: Top 25% of UK new non-domestic buildings (advanced good practice)
- IV. Good: Top 50% of UK new non-domestic buildings (intermediate good practice)
- V. Pass: Top 75% of UK new non-domestic buildings (standard good practice)

For smaller, non-residential development we recommend the standard of BREEAM Good as a minimum, due to the additional financial and administrative pressures SME developers are likely to face. For more information about BREEAM and becoming certified, please visit their [website](#).

- 10. Local Authorities are increasingly required to lead on the provision of new electricity substations and grid reinforcement, in order to enable housing and commercial site development. A recent report produced by the [Committee on Climate Change](#) suggests that, provided it is well-managed, the cost of upgrading distribution network capacity is relatively insensitive to the size of the capacity increase. This is because most of the cost is in the civil works, rather than the equipment (e.g. larger cables). Therefore, it is essential that when grid capacity is increased, this is done sufficiently to avoid the need to upgrade the capacity again prior to 2050.**

Given the anticipated uptake of electric vehicles and full and/or hybrid heat pumps, electricity demand will rise significantly in most areas. A relatively large expansion in capacity is likely to have low regrets: 'future-proofing' the network to enable greater electrification if necessary, and/or enabling demand to respond more readily to variations in low carbon electricity supply.

The Greater South East Energy Hub is working with regional local authorities to assess how partnership working might deliver increased grid capacity and achieve better value for public money. If you would like to be involved with the project, please contact info@energyhub.org.uk. For more information on the electricity grid please download our [Hub Guides](#) about power.

Garden Town & Village Principles

The [Town and Country Planning Association](#) has produced a suite of guidance, with practical steps for all those involved in making Garden Cities a reality. The guidance provides detail and case studies on a wide range of key issues, including planning, investment, land assembly, delivery, and long-term stewardship. The key principles that the guidance is based on are:

- Land value capture for the benefit of the community.
- Strong vision, leadership and community engagement.
- Community ownership of land and long-term stewardship of assets.
- Mixed-tenure homes and housing types that are genuinely affordable.
- A wide range of local jobs in the Garden City, within easy commuting distance of homes.
- Beautifully and imaginatively designed homes with gardens, combining the best of town and country to create healthy communities, and including opportunities to grow food.
- Development that enhances the natural environment, providing a comprehensive green infrastructure network and net biodiversity gains, and that uses zero-carbon and energy-positive technology to ensure climate resilience.
- Strong cultural, recreational and shopping facilities in walkable, vibrant, sociable neighbourhoods.
- Integrated and accessible transport systems, with walking, cycling and public transport designed to be the most attractive forms of local transport.

What the Energy Hub Can Offer You

The Greater South East Energy Hub is focussed on increasing the number and scale of decentralised 'local energy' projects being delivered across the south east of the UK. We play a key role in facilitating discussions between local authorities, and where possible, we will be happy to provide contacts who can share best practise and experience. Our support includes:

- Online and telephone advice
- Access to case studies, briefings and guidance from authoritative sources
- Signposting to other supporting organisations

- Brokerage and stakeholder engagement
- Project structuring and critical review
- Business case development
- Routes to finance

Useful Websites

[The London Plan](#) provides the highest adopted standards in public sector energy policy

[UK Green Building Council](#) offers guidance in best practice construction standards & policy

[BRE - BREEAM](#) provides a recognised standard for building energy efficiency

[Home Quality Mark](#) provides a recognised standard for high quality homes

[Carbon Trust](#) provides various tools, guides and funding sources in the low carbon sector

[National Planning Policy Framework](#) sets overall guidance for policy makers

[National Infrastructure Commission](#) - see the National Infrastructure Assessment up to 2050

Legal Disclaimer

While the Greater South East Energy Hub has made every attempt to ensure that the information obtained in this guide is accurate, we are not responsible for any errors or omissions, or for the results obtained from the use of this information. All information is provided “as is”, with no guarantee of completeness, accuracy, or timeliness.

Date of issue: SB/V0.1/January 2020