



# The Commercial New-Build Policy Playbook

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Towards net zero  
commercial  
development –  
a resource for local  
authorities

VERSION 1.0

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With thanks to partners:

### Lead Partner



### Programme Partners



### Peer Review Group

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# Introduction



# Commercial New-Build Policy Playbook

## Introduction



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## Purpose

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This playbook is intended to help cities, combined and local authorities drive up the sustainability of new commercial building development. It is intended to help drive and accelerate national policy at the pace that is required to meet the UK's environmental commitments.

Some local authorities are already demonstrating leadership through ambitious policy, and we wish to build on these areas of best practice as a springboard to enable the wider sector to progress apace. Therefore, we propose what we believe is a pragmatic way to enable others to learn from and further this leadership, whilst working towards a common goal and avoiding a patchwork of differing requirements for industry.

UKGBC advocates for a consistent approach and level of ambition across the country, enabling local authorities to benefit from shared learning and common resources, while providing confidence for industry regarding requirements across different parts of the country.

## Intended use & how to contribute

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This is intended to be a collaborative resource, designed to be used and adapted to support the work of local authority officers with responsibility for sustainability, planning, regeneration, commercial investment, and other related fields. It may be used in the following ways:

- To inform and enable progressive planning policy in relation to the sustainability of new commercial development
- To enable positive engagement with developers that want to support a local authority's aspirations
- To articulate the trajectory that policy, regulation, and the industry will need to follow over the coming years, thereby giving guidance to those seeking to future-proof their assets and ensure they stay ahead of likely regulatory changes.
- To signpost policy precedents, industry-agreed standards, and other helpful resources for those working on these topics.
- To inform the procurement and leasing of commercial space by public bodies, through adoption of the stretch targets as requirements for local authority leases, acting as a market-builder for higher-performing commercial space.

As a live document we intend this guidance to be co-owned by users, and we actively seek ongoing feedback and engagement.

To that end, **local authorities** should:

- consider how and when the recommendations can be incorporated into policy and associated guidance
- open or maintain dialogue with UKGBC on the status of current policy and plans for future updates. Please contact [ANZ@ukgbc.org](mailto:ANZ@ukgbc.org).

Built environment **professionals** should:

- consider the implications of the policy recommendations for projects and business models
- positively engage with UKGBC through membership, to develop further iterations of policy proposals.

## Defining our terms

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*Sustainability* – this playbook focuses on energy and carbon within the non-domestic built environment. While of vital and urgent importance, this is nevertheless just one small part of a wider landscape of factors that contribute to the sustainability of the environment and economy. UKGBC espouses a holistic approach to sustainability, in which new commercial development supports the regeneration of the natural environment and aids local decarbonisation efforts through sustainable site location, low carbon infrastructure and transport, and adaptive reuse of existing resources, while at the same time supporting a vibrant local economy.

*Net zero carbon* – UKGBC has published guidance on what net zero carbon means in practice, specifically in the 2019 Net Zero Carbon Buildings Framework Definition,<sup>1</sup> which clarifies the interrelated ways of looking at net zero:

*Net zero operational carbon* – when the amount of carbon emissions associated with a building’s operational energy use on an annual basis is zero or negative (demonstrated through an energy use intensity (EUI) metric). A net zero carbon building in operation is highly energy efficient and powered by on-site and/or off-site renewable energy sources, with residual emissions minimised and any outstanding carbon balance effectively offset.

*Net zero embodied carbon* – when the amount of carbon emissions associated with a building’s product manufacture and construction stages up to practical completion is zero or negative, using offsets or the net export of on-site renewable energy.

*Net zero whole life carbon* – when the amount of carbon emissions associated with a building’s entire lifecycle - from design, product manufacture and construction, through operation, maintenance, repair, and end of life - is zero or negative.

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<sup>1</sup> UKGBC, 2019; <https://www.ukgbc.org/ukgbc-work/net-zero-carbon-buildings-a-framework-definition/>

# Background to The Playbook



# Commercial New-Build Policy Playbook

## Background to the Playbook



### Section Contents

- I. Historical and UK Policy content
- II. Principles
- III. Defining the scope

## Historical and UK Policy Context

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As a signatory of the Paris Agreement, the UK is legally bound to do its part to keep global warming well below 2°C, preferably to 1.5°C. Since that Agreement was signed in 2015 the UK has continued to play a prominent role in the United Nations Climate Change Conference, culminating with COP26 in Glasgow in 2021 as part of the UK's presidency of the Conference of Parties. This is a key moment; that can be used as a fulcrum for wider change across the industry; driving action to meet national sustainability commitments.

In June 2019 the Government announced that the UK will 'eradicate its net contribution to climate change by 2050' by legislating for net zero emissions. In December 2020 it set an updated Nationally Determined Contribution under the Paris Agreement to reduce emissions 68% by 2030, alongside a national target of a 78% reduction in emissions by 2035.

The devolved administrations have begun interpreting these targets to their regional contexts, with varying levels of progress. In February 2021 Wales aligned with the national commitment to net zero by 2050, while Scotland has set the most ambitious timeline, with a legislative target to reach net zero by 2045. Northern Ireland has lagged the rest of the UK in setting targets, and currently lacks a regional commitment to net zero by a specific date.

To work together and meet the national commitments, progress on implementation across the UK will need to accelerate. In its June 2021 report to Parliament, the Climate Change Committee highlighted the need for bold and incisive action to be taken if the UK is to hit the Sixth Carbon Budget (2019-2035) on the way to net zero in 2050.<sup>2</sup> While eagerly awaiting incisive action at the national level, UKGBC believes that local governments cannot wait and should be moving ahead with their own policies to achieve net zero in their local built environment.

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<sup>2</sup> Climate Change Committee, *Progress in reducing emissions 2021 Report to Parliament*, June 2021

## Principles

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The following chapters make recommendations about the policies that UKGBC believes local authorities should introduce to drive up the sustainability of commercial development in their area. These recommendations are divided into two types:

- Proposed **minimum requirements** that all local authorities can and should introduce as soon as possible, and,
- Proposed **stretch requirements** that those wishing to move faster should consider implementing through their next planning policy update. Like the minimum requirements, these stretch requirements are both realistic and achievable, but represent a greater level of ambition for areas wanting to move ahead of national policy towards a decarbonised building sector, or for development proposals to demonstrate ambition towards achieving net zero new development. It is envisaged that these stretch requirements will become the standard, or minimum, requirements as the industry moves towards achieving net zero new construction UK-wide.

There is currently a patchwork of differing requirements in different locations. This poses a challenge for developers and demonstrates the need for a clear pathway through various standards and verification methodologies. **This playbook attempts to balance the need for consistency with the necessity of allowing local government to set policy that is suitably ambitious in context.**

Its aim is to propose policy that sets local areas along the same pathway to the common goal - a net zero UK-wide built environment. Local areas may move along this path at different speeds, but the shared trajectory - and convergence towards a common set of metrics and standards - will bring more clarity and allow industry stakeholders to forecast with greater certainty.

## Defining the Scope

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This playbook is intended to inform local policymaking for all new commercial development. There is, however, great diversity and complexity contained within that umbrella, and so the policy recommendations set out here will need to be analysed and adapted for application to specific use classes of development.

Most of the recommendations (including all the minimum requirements) have been written to be applicable generally across all non-domestic new buildings, and where analysis has already been carried out for specific sub-sectors (for example, for office developments), energy efficiency and embodied carbon targets specifically for these building types have been included. It is envisaged that these targets will be adopted into planning policy through Supplementary Guidance that can be updated and expanded over time.

Additional work is required to translate these targets for various other use classes of development, which several industry bodies have begun, but which will need to accelerate for adoption into local planning policies as soon as possible.

# Reducing Energy Demand & Carbon Emissions in Commercial Development



## Playbook by topic

The UK's participation in the Paris Agreement requires all sectors of the economy to decarbonise rapidly to meet national commitments. As the largest contributor to climate change-related emissions, buildings must be a central component in this shift. Among advocates and industry stakeholders there is consensus that, practically, the UK's commitments mean that by 2030 all new buildings must operate at net zero. According to the London Energy Transformation Network (LETI), this means that by 2025 all new buildings will need to be designed to meet this target.<sup>3</sup> Furthermore, the Royal Institute of British Architects (RIBA) has set a target of net zero whole life carbon for all new and retrofitted buildings by 2030, meaning that both operational and embodied carbon should be minimised and offset by that date.<sup>4</sup>

UKGBC is helping to drive this transition through the Advancing Net Zero programme, campaigning for all new buildings to be net zero in operation by 2030, while reducing embodied carbon by 40% by that date.<sup>5</sup> The Net Zero Whole Life Carbon Roadmap is the next step in this national advocacy, aiming to build a common vision and agreed actions for achieving net zero carbon in the construction, operation, demolition, and reuse of buildings and infrastructure in the UK.

Government policies, however, have been slow to respond to the challenge of meeting national targets. Commercial development, specifically, does not have a robust and consistent pathway to net zero through policy at the national level. Current action to address this need centres on the Department for Levelling Up, Housing and Communities consultation ahead of the 2021 Building Regulations 2021 uplift and the 2025 Future Buildings Standard.

While UKGBC welcomes the forthcoming improvements to Building Regulations, local authorities should be moving ahead now, to prepare for net zero development in their area. The aim here is to set out the ways in which local authorities, and industry, can best prepare themselves to be ready for the rapid changes that will come this decade.

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<sup>3</sup> LETI, 2020; <https://www.leti.london/cedg>

<sup>4</sup> RIBA, 2021; <https://www.architecture.com/about/policy/climate-action/2030-climate-challenge>

<sup>5</sup> UKGBC, Advancing Net Zero Programme, 2019 et. seq.

This document is divided into chapters focusing on the component elements of achieving net zero carbon new commercial development. These are:

- **Reducing energy demand** – optimising efficiency of the building form and fabric
- **Reducing embodied carbon** – driving down the carbon impacts related to the product and construction stages
- **Measuring in-use performance** – closing the gap between modelled and actual energy performance
- **Low carbon energy supply** – encouraging on-site generation of low carbon heat and hot water
- **Zero carbon balance** – addressing any shortfall in achieving net zero carbon emissions

# Reducing Energy Demand

## Introduction

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To achieve a net zero carbon economy by 2050, on balance the UK must reduce total energy consumption to a level that can be met by rising renewable energy supply. Given that additional demand will be created by the continued electrification of transport, infrastructure, and other sectors of the economy, it will be necessary for the energy use of all buildings to be minimised as a point of priority. Newly constructed buildings must be ahead of the curve, displaying best practice in energy demand reduction to avoid adding unnecessary burdens between now and 2050.

The Department for Levelling Up, Housing and Communities is preparing an uplift in energy performance requirements within the Building Regulations (Part L), to come into force in 2022. Beyond this, the next major step in regulating for greater efficiency will take the form of the Future Buildings Standard, targeted for introduction in 2025. Local authorities with ambition to move ahead of the national minimum standards can do so, with the March 2019 Planning Policy Guidance stating that local authorities are not restricted in setting energy performance standards above Building Regulations for non-housing developments.<sup>6</sup> UKGBC believes it is imperative to set those increasingly progressive standards, with a move to design-for-performance being a crucial part of this. Design-for-performance is a process whereby a developer or owner commits to design, build and commission a new development or major refurbishment to achieve a specific energy efficiency rating.<sup>7</sup>

Our recommendations for those wanting to move ahead are informed by current industry benchmarks and advocacy by professional bodies, including the RIBA's Climate Challenge Version 2 (2021),<sup>8</sup> LETI's Climate Emergency Design Guide,<sup>9</sup> and UKGBC's own Energy Performance Targets for Offices.<sup>10</sup>

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<sup>6</sup> MHCLG, 2019; <https://www.gov.uk/guidance/climate-change#can-a-local-planning-authority-set-higher-energy-performance-standards-than-the-building-regulations-in-their-local-plan>

<sup>7</sup> BRE, 202; <https://www.bregroup.com/nabers-uk/nabers-uk-products/nabers-design-for-performance/>

<sup>8</sup> RIBA, 2021; <https://www.architecture.com/about/policy/climate-action/2030-climate-challenge>

<sup>9</sup> LETI, 2020; <https://www.leti.london/cedg>

<sup>10</sup> UKGBC, 2020; <https://www.ukgbc.org/ukgbc-work/net-zero-carbon-energy-performance-targets-for-offices/>

## Recommendations

Proposed Recommendation	Rationale
<b>Minimum:</b>	
A 35% reduction in carbon emissions for non-domestic development shall be achieved, based on the 2013 Edition of the Building Regulations (Part L), while putting in place measures to enable a shift to using energy use intensity metrics (below).	Local authorities with ambition to pursue net zero must seek to move ahead of Building Regulations as soon as practically possible. Given the likely uplift to Part L to mandate a 27% emissions reduction over the 2013 Edition, it is recommended that local authorities go beyond this as a minimum. 35% is the figure reached by UKGBC in discussion with members while responding to the Future Buildings Standard consultation. Given the pressing need to move to in-use performance metrics, this recommendation should only be considered in conjunction with the following two minimum requirements.
The operational energy use (both regulated and unregulated) of a proposed development shall be considered at the design stage, to minimise any performance gap. This should be demonstrated through modelling using Design for Performance or CIBSE TM54.	Operational energy consumption should be calculated using realistic estimates of intended use, operating hours, and occupancy of the building. This will enable the designer to both estimate energy use more accurately, beyond just the regulated consumption as required by Part L and highlight specific areas for improvement during the design process. By utilising design-for-performance methodologies, the performance gap can be minimised.
The energy use intensity (EUI) of new commercial development shall be estimated at the design stage and reported to the local authority on a kWh/m <sup>2</sup> /year gross internal area (GIA) basis.	An energy use intensity metric based on kWh/m <sup>2</sup> /year provides a more accurate reflection of actual energy consumption than EPC ratings. It is therefore recommended that a transition to using EUI is adopted within planning policy.

### Stretch:

Supplementary Guidance should be introduced at the next available opportunity, that specifies absolute energy performance targets for specific use classes, as analysis becomes available. Begin as soon as possible with an as-designed whole-

The evidence base is evolving and is currently only available for certain use classes. Supplementary Guidance should be used to introduce absolute targets for other building types as soon as possible.

<p>building target for offices of 70kWh/m<sup>2</sup>/year (GIA).<sup>11</sup></p>	
<p>For all other use classes where analysis on specific targets is not yet available, a demonstrable effort to minimise energy demand shall be evidenced, pre-approval, and EUI reported to the local authority.</p>	<p>As an early guideline for new non-domestic development generally, there should be convergence towards a whole-building energy use intensity of 55kWh/m<sup>2</sup> (GIA) for the 2030-2035 period<sup>9</sup>, recognising that not all building types can reach the same goal, and there may be exemptions for niche use classes. Specific targets for each building type to be determined.</p>

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<sup>11</sup> UKGBC Net zero carbon: energy performance targets for offices (2020)

# Reducing Embodied Carbon

## Introduction

Embodied carbon is the carbon associated with the product and construction stages of a building’s lifecycle, as well as that emitted throughout the building’s life from, for example, maintenance, repair, refurbishment, and end-of-life. As operational carbon emissions from buildings are reduced through energy efficiency and grid decarbonisation, embodied carbon can represent 50% or more of total emissions over a building’s lifetime. Despite this there is currently nothing in national policy that requires embodied carbon emissions to be measured, let alone reduced.

The World Green Building Council has published a target of reducing all construction-related embodied carbon by 40% by 2030. This relates to ‘upfront’ embodied carbon, or that generated up to the occupation of a building (corresponding to RICS Module A1-A5). Whole Life Cycle carbon emissions, by contrast, encompass all emissions attributable to a building from conception to deconstruction (and even beyond, with consideration for circular economy principles). Achieving net zero whole life carbon is inherently much more difficult, but to meet national climate targets a strategy and roadmap will be necessary.

As a first step to meet those targets (and knowing that most embodied carbon emissions occur near the start of a building project), construction emissions can be targeted. In this, local authorities have an important role to play in beginning to address the challenge through local planning policy and guidance.

## Recommendations

Proposed Recommendation	Rationale
<b>Minimum:</b>	
All new commercial developments shall assess as-designed upfront embodied carbon for RICS Modules A1-A5, based on the RICS PS Whole Life Carbon methodology.	<p>In the absence of national policy on embodied carbon, the first step for local authorities is to determine a baseline from which specific, informed targets can be set. Assessing upfront carbon should be manageable for all developments now.</p> <p>The assessment should be carried out as early as possible in the design process, to allow changes to be made to reduce embodied carbon.</p>
All developments shall take demonstrable actions to reduce embodied carbon and maximise opportunities for reuse through the provision of a Circular Economy Statement.	A Circular Economy Statement will encourage true whole life thinking by examining the impacts that design choices will have throughout, and beyond, the life of the development. It will give planning departments sight of the decision-making process regarding the design of the form, structure, façade materiality, glazing ratios, construction methodology, mechanical, electrical, and plumbing systems, etc.

<b>Stretch:</b>	
Major developments (those >1000m <sup>2</sup> ) shall calculate and report whole life embodied carbon for RICS Modules A-C, based on the RICS PS Whole Life Carbon methodology.	Measurement of whole-life carbon is necessary for a complete and accurate picture of buildings' carbon impact to be gained. Local authorities should begin requiring whole lifecycle carbon assessment wherever possible.
Supplementary Guidance should be introduced at the next available opportunity, that specifies upfront embodied carbon targets for specific use classes, as the analysis becomes available. Begin with the requirement that major office developments (>1000m <sup>2</sup> ) shall target 600kgCO <sub>2e</sub> /m <sup>2</sup> up-front embodied carbon as-designed (LETI 2020 design target). <sup>12</sup>	Setting as-designed targets will enable more immediate uptake, but there is a need to move to measuring and reporting as-built embodied carbon as soon as possible.  As a guide for new non-domestic development generally, there should be convergence towards an upfront embodied carbon target of 350kgCO <sub>2e</sub> /m <sup>2</sup> by 2030 (LETI 2030 Design Target), <sup>10</sup> with specific targets for each building type to be determined as analysis progresses.

<sup>12</sup> LETI Embodied Carbon Target Alignment (2021)

# Measuring In-Use Performance

## Introduction

Addressing the gap between modelled and as-built energy performance is a crucial part of achieving a built environment that is net zero in practice. Systemic changes to Building Regulations will be required to address this problem. However, local authorities have an important role to play in the meantime, by requiring developers to demonstrate actions they are taking to close the performance gap.

## Recommendations

Proposed Recommendation	Rationale
<p><b>Minimum:</b></p> <p>Proposed developments shall demonstrate that the principles of Soft Landings<sup>13</sup> will be followed to minimise the potential performance gap between design aspiration and completed development. The effectiveness of measures should be reviewed and ratified as part of the post-completion discharge of conditions, with Display Energy Certificates<sup>14</sup> and/or a NABERS UK<sup>15</sup> landlord rating used to demonstrate adherence, while allowing for differing responsibilities and performance between landlord and tenant, where applicable.</p>	<p>Greater transparency regarding actual in-use performance is the first step towards closing the performance gap.</p>

<sup>13</sup> BSRIA, 2021; <https://www.bsria.com/uk/consultancy/project-improvement/soft-landings/>

<sup>14</sup> MHCLG, 2015; <https://www.gov.uk/government/publications/display-energy-certificates-and-advisory-reports-for-public-buildings>

<sup>15</sup> BRE, 2021; <https://www.bregroup.com/nabers-uk/>

<b>Stretch:</b>	
All commercial developments shall measure and report in-use performance annually, using Energy Use Intensity in kWh/m <sup>2</sup> /year	Reporting actual energy use will demonstrate where buildings are meeting targets and enable local authorities to refine planning policy over time to achieve net zero operational energy use across all building types.
Local authorities should provide an open-source and public platform for sharing energy data reported for buildings.	This begins to build a market-driven incentive to improve the energy performance of commercial buildings. The best-performing buildings are likely to attract more interest from prospective tenants, and vice versa.

# Low Carbon Energy Supply

## Introduction

To successfully decarbonise the built environment both sides of the energy equation must be tackled - creating buildings that are as efficient as possible, while also increasing renewable generation to meet the residual energy demand.

At the building level this means designing to minimise heating and cooling loads, while incorporating low and zero carbon generation of heat to eliminate the need for fossil fuel combustion. Opportunities for onsite renewable power generation coupled with demand management technologies can likewise reduce peak and annual demand on the electricity grid, assisting in the goal of decarbonising the national power supply.

## Recommendations

Proposed Recommendation	Rationale
<b>Minimum:</b>	
New commercial development should not include onsite combustion of fossil fuels for the building operations (exempting life-safety generators).	This will be feasible for most proposals. In edge cases where current technology does not allow this, approval should be at the discretion of the local authority. Connection to existing, fossil-fuel powered local energy networks should only be approved in cases where a plan is in place to decarbonise the network's generation.
All developments shall assess the viability of onsite renewable generation, demonstrated through provision of a feasibility statement to the local authority pre-approval.	Widespread adoption of on-site renewable generation will be a key component in minimising demand on the grid, enabling decarbonisation. This site-based approach recognises that each development proposal will have unique demands and constraints, necessitating pragmatism in requirements. A feasibility statement will demonstrate how far a proposal goes in maximising the potential for renewables, in the context of the specific circumstances.
Major developments' annual peak energy demand from the grid shall be reported to the local authority for each year post-occupancy.	As the UK moves towards balancing energy demand with renewable generation capacity, it will be important for local areas to build a more detailed understanding of energy demand within their jurisdiction.

**Stretch:**

New developments should seek to meet their total annual energy demand through a combination of onsite renewable capacity, energy storage and smart controls (see next chapter for guidance on addressing residuals).

Combining renewable generation capacity with additional energy storage and smart controls allows for demand-side response, encouraging the storage of energy during off-peak hours and discharge during peak times. Developments should then model their total annual energy demand against that which they will produce, and address residuals via a Local Planning Authority-approved method.

Major developments should consider the viability of new energy networks to meet their needs. However, this should be carefully implemented to avoid de-prioritisation of demand reduction, and any expansion in the use of fossil fuel-powered energy networks should be avoided, unless there is a clear plan for the network's decarbonisation in the short term.

Building-level efficiency must be the priority. Once this has been maximised, energy networks may be considered. Connection to an energy network should only be mandated in cases where the network has already been (or has a plan in place to be) decarbonised, otherwise the mandate only serves to shift emissions, rather than eliminating them.

# Zero Carbon Balance

## Introduction

Many local authorities have already declared Climate Emergencies and are setting ambitious targets for their localities to become net zero. This often includes a short-term aspiration for new development to be built to a net zero standard, a goal that has led some areas to explore setting up a carbon tax fund. These typically require developers to make in-lieu cash contributions to offset, or account for the shortfall in achieving net zero carbon developments.

Ideally there should be a consistent national framework for local carbon tax funds to improve consistency and transparency. In the absence of this, there are steps that a local authority can take to create a reasonable and effective way for developers to contribute towards a net zero local area.

## Recommendations

Proposed Recommendation	Rationale
<p><b>Minimum:</b></p> <p>Where clearly demonstrated that net zero carbon cannot be fully achieved through on-site measures, new developments shall be required to address residual <b>regulated</b> emissions by:</p> <ul style="list-style-type: none"> <li>• a commensurate investment into an LPA-approved carbon reduction or removal scheme, or into additional renewable capacity off-site, or</li> <li>• where an LPA transition fund or carbon tax fund has been set up, a financial contribution equal to the residual regulated emissions (at a rate set by the LPA through a published methodology) calculated for a period of 30 years.<sup>16</sup></li> </ul>	<p>In the absence of an established national approach to offsetting, UKGBC proposes giving local authorities options for how to require accounting for energy use beyond target.</p> <p>These options <b>must ensure additionality</b><sup>17</sup> (which precludes, in UKGBC’s view, green tariffs), and provide <b>visibility of outcomes</b> (particularly important for carbon tax funds) to give accountability of real, commensurate carbon reduction.</p> <p>Additional information on carbon offsetting can be found in UKGBC’s Renewable Energy Procurement &amp; Carbon Offsetting guidance, with particular reference to the eight principles of carbon offsetting.<sup>18</sup></p>

<sup>16</sup> It is recommended that the carbon price is at least equal to the HM Treasury Green Book non-traded central scenario. For 2021, this is priced at £70/tCO<sub>2</sub>.

<sup>17</sup> Any available option must result in real and verifiable emissions reduction or avoidance, that would not otherwise have taken place.

<sup>18</sup> UKGBC Renewable Energy Procurement & Carbon Offsetting (2021)

**Stretch:**

As per the above approach but including **regulated and unregulated** energy use (modelling using Design for Performance or CIBSE TM54)

In addition, major developments (those >1000m<sup>2</sup>) shall be required to address their residual upfront embodied carbon (calculated using a recognised Whole Life Carbon Assessment methodology and relating to the emissions covered by Modules A1-A5 of the RICS methodology) using the approach outlined above.

Note: this recommendation should be adopted alongside specific targets for embodied carbon reductions, as proposed in the 'Reducing Embodied Carbon' section above.

Local authorities with a greater level of ambition should now be considering the total energy use attributable to a building and its use.

To meet net zero targets, it will be essential that unregulated energy use and embodied carbon are included in reduction and offsetting requirements.

Embodied carbon will account for an increasing share of carbon emissions produced and must be addressed by any local planning authority declaring a climate emergency and/or with a net zero target. Initially, steps should be taken to minimise the carbon intensity of materials and manufacturing involved in the construction process, but as data for whole life cycle emissions becomes more widely available it is recommended that this requirement be extended to include the remaining embodied carbon modules as per the RICS methodology.

# Appendices



# Appendix A: Local Policy Examples

## Greater London Authority – The London Plan 2021

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### Policy SI 2: Minimising greenhouse gas emissions

- A. Major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:
  1. be lean: use less energy and manage demand during operation
  2. be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
  3. be green: maximise opportunities for renewable energy by producing, storing, and using renewable energy on-site
  4. be seen; monitor, verify and report on energy performance.
- B. Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.
- C. A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should achieve 15 per cent through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided, in agreement with the borough, either:
  1. through a cash in lieu contribution to the borough’s carbon offset fund, or
  2. off-site provided that an alternative proposal is identified, and delivery is certain.
- D. Boroughs must establish and administer a carbon offset fund. Offset fund payments must be ring-fenced to implement projects that deliver carbon reductions. The operation of offset funds should be monitored and reported on annually.
- E. Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e., unregulated emissions.
- F. Development proposals referable to the mayor should calculate whole life-cycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.

## Bristol City Council – Bristol Local Plan Review 2019

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### Draft Policy CCS2: Towards zero carbon development

*Energy use in new development*

Development will be expected to:

- Minimise the demand for heating, cooling, hot water, lighting, and power through energy efficiency measures; then
- Meet its remaining heat/cooling demand sustainably, as set out below; then
- Maximise on-site renewable energy generation; and then
- Meet any outstanding reduction in residual emissions through carbon offsetting.

Development will be expected to achieve:

- A minimum 10% reduction in regulated CO<sub>2</sub> emissions through energy efficiency measures; and
- A minimum 35% reduction in regulated CO<sub>2</sub> emissions through a combination of energy efficiency measures and on-site renewable energy generation.

After applying on site measures, development is expected to achieve a 100% reduction in its remaining regulated and unregulated emissions using carbon offsetting as set out below.

Once on-site CO<sub>2</sub> reduction requirements for energy efficiency and renewable energy measures have been met, the remaining emission reductions will be met by carbon offsetting measures such as:

- Providing the residual emission reduction through a financial contribution to renewable energy, low carbon energy and energy efficiency schemes elsewhere in the Bristol area; or
- Agreeing acceptable directly linked or near-site provision.

The financial contribution required will be equivalent to the cost of mitigating the residual CO<sub>2</sub> emissions off-site, at a rate of £95 per tonne of CO<sub>2</sub> that would be emitted over a period of 30 years.

## Greater Manchester Combined Authority – Greater Manchester Plan for Homes, Jobs, and the Environment

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### Policy GM-S 2: Carbon and Energy

The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

1. An expectation that new development will:
  - a. Be zero net carbon from 2028 by following the energy hierarchy (with any residual carbon emissions offset), which in order of importance seeks to:
    - i. Minimise energy demand
    - ii. Maximise energy efficiency
    - iii. Utilise renewable energy
    - iv. Utilise low carbon energy; and
    - v. Utilise other energy sources.
  - b. Incorporate adequate electric vehicle charging points to meet likely long-term demand
  - c. Where practicable, connect to a renewable/low carbon heat and energy network
  - d. Achieve a minimum 20% reduction in carbon emissions (based on the dwelling emission or building emissions rates) through the use of on site or nearby renewable and/or low carbon technologies; and
  - e. Include a carbon assessment to demonstrate how the design and layout of the development sought to maximize reductions in whole life CO<sub>2</sub> equivalent carbon emissions. District Local Plans may set out specific carbon emission reduction targets or promote other measures through which energy efficiency of buildings can be achieved.

## Milton Keynes Council – Plan: MK 2016-2031

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### Policy SC1: Energy and Climate

H. Implement the Energy Hierarchy within the design of new buildings by prioritising fabric first, passive design and landscaping measures to minimise energy demand for heating, lighting, and cooling.

K. Development proposals for 11 or more dwellings and non-residential development with a floor space of 1000m<sup>2</sup> or more will be required to submit an Energy and Climate Statement that demonstrates how the proposal will achieve the applicable requirements below:

1. Achieve a 19% carbon reduction improvement upon the requirements within Building Regulations Approved Document Part L 2013 or achieve any higher standard than this that is required under new national planning policy or Building Regulations.
2. Provide on-site renewable energy generation, or connection to a renewable or low carbon community energy scheme, that contributes to a further 20% reduction in the residual carbon emissions subsequent to 1) above.
3. Make financial contributions to the Council's carbon offset fund to enable the residual carbon emissions subsequent to the 1) and 2) above to be offset by other local initiatives.
4. Calculate Indoor Air Quality and Overheating Risk performance for proposed new dwellings.
5. Implement a recognised quality regime that ensures the 'as built' performance (energy use, carbon emissions, indoor air quality, and overheating risk) matches the calculated design performance of dwellings in 4) above.
6. Put in place a recognised monitoring regime to allow the assessment of energy use, indoor air quality, and overheating risk for 10% of the proposed dwellings for the first five years of their occupancy and ensure that the information recovered is provided to the applicable occupiers and the planning authority.

N.B. Alongside production of a Sustainable Construction Supplementary Planning Document (SPD), Milton Keynes Council is developing a bespoke quality and monitoring regime to help developers close the performance gap and generate post-construction and post-occupancy data about how new homes perform in terms of energy use, carbon emissions, indoor air quality and overheating risk. Both the SPD and quality/monitoring regime are due to be adopted in March/April 2021.

## Leeds City Council – Core Strategy (with CSSR Policies) 2019

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### Policy EN1: Climate Change – Carbon Dioxide Reduction

All developments of 10 dwellings or more, or over 1,000 square metres of floorspace, (including conversion) where feasible), will be required to:

1. Reduce total predicted carbon dioxide emissions to achieve 20% less than the Building Regulations Target Emission Rate until 2016 when all development should be zero carbon, and
2. Provide a minimum of 10% of the predicted energy needs of the development from low carbon energy.

Carbon dioxide reductions achieved through criteria (2) will contribute to meeting criteria (1). Criteria (2) will be calculated against the emissions rate predicted by criteria (1) so reducing overall energy demand by taking a fabric first approach will reduce the amount of renewable capacity required.

If it can be demonstrated that decentralised renewable or low carbon energy generation is not practical on or near the proposed development, it may be acceptable to provide a contribution equivalent to the cost of providing the 10%, which the council will use towards an off-site low carbon scheme.

#### Policy EN2: Sustainable Design and Construction

Non-residential developments of 1,000 or more square metres (including conversion) where feasible are required to meet the BREEAM standard of 'excellent'.

## Oxford City Council – Oxford Local Plan 2036

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### Policy RE1: Sustainable design and construction

Planning permission will only be granted where it can be demonstrated that the following sustainable design and construction principles have been incorporated, where relevant:

- a. Maximising energy efficiency and the use of low carbon energy.

Energy Statements:

An Energy Statement will be submitted to demonstrate compliance with this policy for new-build residential developments (other than householder applications) and new-build non-residential schemes over 1,000 m<sup>2</sup>.

The Energy Statement will include details as to how the policy will be complied with and monitored.

Carbon reduction in new-build non-residential developments of 1000m<sup>2</sup> or more:

Planning permission will only be granted for development proposals of 1,000m<sup>2</sup> or more which achieve at least a 40% reduction in the carbon emissions compared with a 2013 Building Regulations (or future equivalent legislation) compliant base case. This reduction is to be secured through on-site renewables and other low carbon technologies and/or energy efficiency measures. The requirement will increase from 31 March 2026 to at least a 50% reduction in carbon emissions.

## Sutton Council – Sutton Local Plan 2016-2031

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### Policy 31: Carbon and Energy

- A. Proposed developments should meet the following targets for reducing CO<sub>2</sub> emissions expressed as a percentage improvement over Part L of the 2013 Building Regulations:
  - all major non-residential developments should achieve at least a 35% reduction in regulated CO<sub>2</sub> emissions on site.
- B. In seeking to minimise CO<sub>2</sub> emissions in line with the above targets, all proposed developments will apply the mayor's energy hierarchy by:
  - achieving the highest standards of energy efficient design and layout.
  - supplying energy efficiently in line with the following order of priority:
    - i. being designed to connect to existing or planned district heating and/or cooling networks supplied by low or zero-carbon energy, unless it can be demonstrated through whole life cycle evidence that connection is not reasonably possible.
    - ii. site wide heating and/or cooling network supplied by low or zero-carbon energy.
    - iii. communal heating and cooling.
  - using renewable energy generated on-site. Major developments will be expected to achieve at least a 20% reduction in total CO<sub>2</sub> emissions (regulated and unregulated) through renewables with minor developments achieving a reduction of at least 10%.

## Appendix B: Useful Resources

BSRIA, 2018, BG 54/2018 Soft Landings Framework:

[https://www.bsria.com/uk/product/QnPd6n/soft\\_landings\\_framework\\_2018\\_bg\\_542018\\_a15d25e1/](https://www.bsria.com/uk/product/QnPd6n/soft_landings_framework_2018_bg_542018_a15d25e1/)

Business, Energy & Industrial Strategy Select Committee, 2019, Energy efficiency: building towards net zero: <https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1730/1730.pdf>

Centre for Sustainable Energy, 2018, West of England Carbon Reduction Requirement Study - Carbon Offsetting in the West of England:

<https://www.bristol.gov.uk/documents/20182/3368102/Carbon+Offsetting+in+the+West+of+England.pdf/894f7c11-33e4-a8b4-ec89-383828553184>

HM Government, 2019, Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/850130/Env-reporting-guidance\\_inc\\_SECR\\_31March.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/850130/Env-reporting-guidance_inc_SECR_31March.pdf)

HM Government, 2020, The Ten Point Plan for a Green Industrial Revolution:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/936567/10\\_POINT\\_PLAN\\_BOOKLET.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf)

LETI, 2019, Climate Emergency Design Guide: <https://www.leti.london/cedg>

LETI, 2019, Net Zero 1-pager: <https://www.leti.london/one-pager>

LETI, 2021, Embodied Carbon Target Alignment: <https://www.leti.london/carbonalignment>

Mayor of London, 2018, Carbon Offset Funds:

[https://www.london.gov.uk/sites/default/files/carbon\\_offset\\_funds\\_guidance\\_2018.pdf](https://www.london.gov.uk/sites/default/files/carbon_offset_funds_guidance_2018.pdf)

Mayor of London, 2020, 'Be Seen' Energy Monitoring Guidance (Consultation Document):

[https://www.london.gov.uk/sites/default/files/be\\_seen\\_guidance\\_consultation\\_version\\_oct\\_2020\\_final.pdf](https://www.london.gov.uk/sites/default/files/be_seen_guidance_consultation_version_oct_2020_final.pdf)

Ministry of Housing, Communities & Local Government, 2021, The Future Buildings Standard: Consultation on changes to Part L and Part F of the Building Regulations:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/956037/Future\\_Buildings\\_Standard\\_consultation\\_document.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/956037/Future_Buildings_Standard_consultation_document.pdf)

Ministry of Housing, Communities & Local Government, 2020, Planning for the Future – White Paper:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/907647/MHCLG-Planning-Consultation.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907647/MHCLG-Planning-Consultation.pdf)

RIBA, 2021, RIBA 2030 Climate Challenge version 2: <https://www.architecture.com/-/media/files/climate-action/riba-2030-climate-challenge.pdf?la=en>

RIBA, 2020, Sustainable Outcomes Guide: <https://www.architecture.com/-/media/GatherContent/Test-resources-page/Additional-Documents/RIBASustainableOutcomesGuide2019pdf.pdf>

RICS, 2017, Whole life carbon assessment for the built environment: <https://www.rics.org/globalassets/rics-website/media/upholding-professional-standards/sector-standards/building-surveying/whole-life-carbon-assessment-for-the-built-environment-1st-edition-rics.pdf>

UKGBC, 2019, Advancing Net Zero Programme: <https://www.ukgbc.org/ukgbc-work/advancing-net-zero/#net-zero-carbon-buildings-framework>

UKGBC, 2020, Net Zero Carbon: Energy performance targets for offices: <https://www.ukgbc.org/wp-content/uploads/2020/01/UKGBC-Net-Zero-Carbon-Energy-Performance-Targets-for-Offices.pdf>

UKGBC, 2021, Renewable Energy Procurement & Carbon Offsetting: <https://www.ukgbc.org/wp-content/uploads/2021/03/Renewable-Energy-Procurement-Carbon-Offsetting-Guidance-for-Net-Zero-Carbon-Buildings.pdf>

WorldGBC, 2019, Whole-life Carbon Vision: <https://www.worldgbc.org/advancing-net-zero/whole-life-carbon-vision>