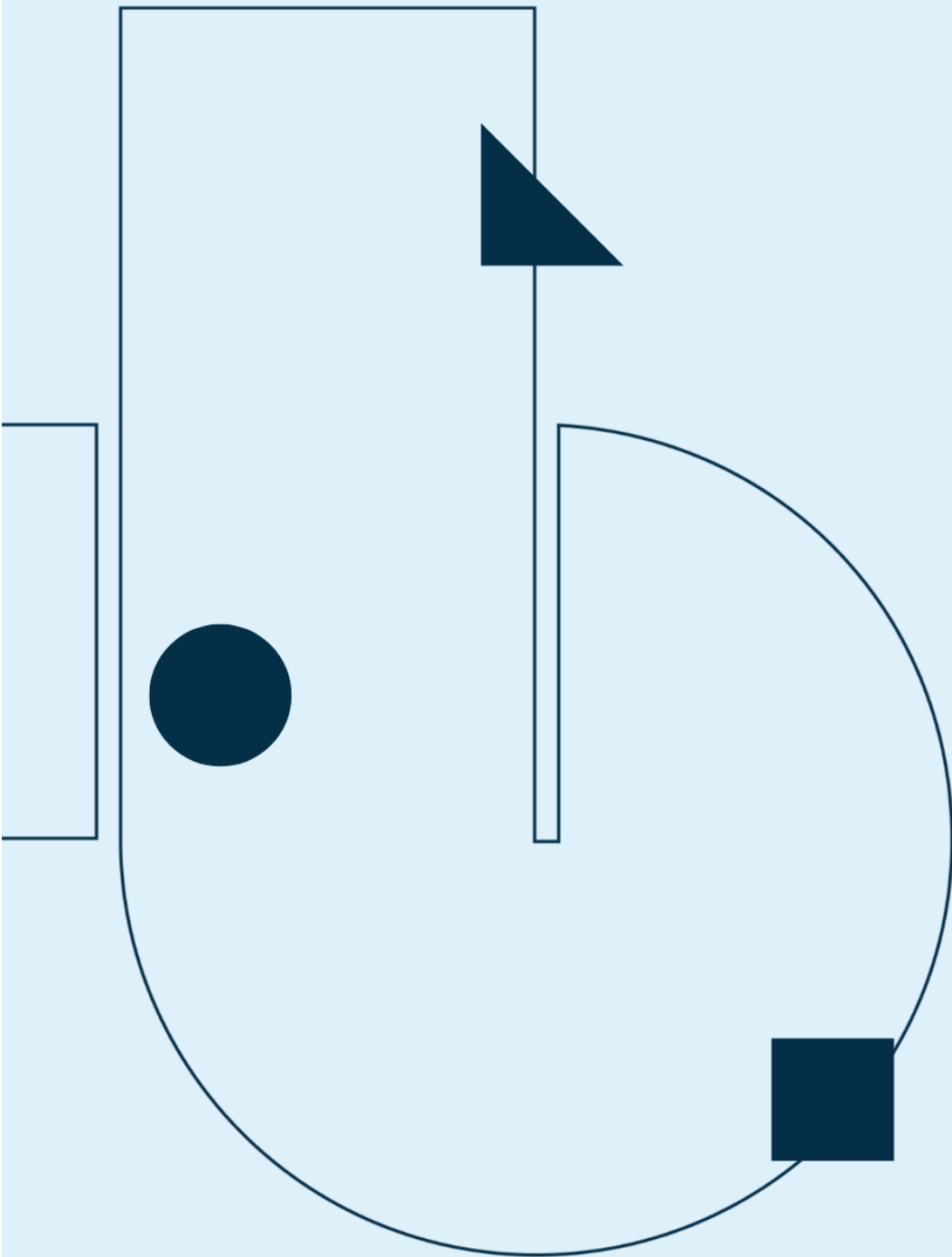




Gloucestershire Net Zero Carbon Policy Evidence Base

Work Package 1: Literature Review

Version 3

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Written by: Julia Evans Asano (Senior Analyst) and Jimin Oh (Senior Analyst)

Checked by: Marina Goodyear (Senior Consultant) and Dr Ada Lee MRTPI (Senior Consultant)

Executive Summary

Bioregional (in partnership with Etude) was appointed by Climate Leadership Gloucestershire on behalf of the relevant local districts (Cheltenham, Gloucester, Forest of Dean, Stroud, Tewkesbury) to provide an assessment of options available within the local planning system to address climate change in Gloucestershire. The project consists of two core tasks:

- **Task 1a:** Literature review and policy appraisal
- **Task 1b:** Policy recommendations
- **Task 2a:** Feasibility analysis (led by Etude) and cost analysis (led by Currie & Brown)
- **Task 2b:** Carbon budget analysis

This Literature Review forms part of Task 1, which also contains a policy appraisal, presented in a separate document (1b). This literature review:

- Explores what ‘net zero’ means for a building;
- Explains the local plan’s climate mitigation powers, duties and mandates;
- Outlines existing carbon emissions in Gloucestershire County using public national data;
- Summarises specific measures outlined in the Climate Change Committee’s Balanced Pathway to Net Zero; and
- Identifies a variety of policy options for net zero carbon new buildings, drawing on precedents

This overarching document is intended to be relevant for the development of any local plans by the respective local authorities that fall within Gloucestershire (three Districts, two Boroughs and a City). It is understood that the various emerging local plans in Gloucestershire at present are expected to come within different planning regimes due to their timing. Still, this document is intended to provide a basis for greater consistency in carbon reduction policies as far as possible within the different planning regimes that apply to those different local plans.

This document’s conclusion is a Position Statement that establishes a recommended general stance towards policymaking on climate change mitigation. The statement can guide the ongoing formulation of relevant local plan policy and spatial choices. It could also be inserted directly (fully or partly) into a local plan itself, consultations, or examination statements (if policies are formulated in line with that Position Statement). We will present our proposed Position Statement on the next page, followed by a summary of the key findings on:

- The definition of ‘net zero’;
- What a local plan is and what it does;
- The legal duty for local plans to take action towards net zero carbon;
- Legislative and policy powers for local plans to take action towards net zero carbon;
- How other local plans have used their powers towards carbon reductions.

Draft position statement

To meet their legal duty to mitigate climate change, Local Plans within Gloucestershire should be designed to do all within the local plan’s power to ensure that development and land use in this area is compatible with, and actively helps to realise, the following:

- The nationally legislated carbon budgets and Net Zero 2050 goal of the Climate Change Act 2008,
- Gloucestershire County Council’s commitment to making this a net zero carbon by 2045 objective to play its part in reducing emissions across the county towards the national goal of net zero carbon by 2050,
- And the local and national carbon budgets needed to keep climate change below 2°C as per the UK’s commitment to the Paris Agreement.

These Local Plans’ policies and approaches to carbon should be taken in light of Gloucestershire County Council and its constituent district/borough/city authorities’ commitments and characteristics relating to carbon emissions and the net zero carbon imperative. Specifically:

- Gloucestershire’s two highest-emitting sectors are transport and homes (38% and 21% respectively as of the latest data at the time of writing). Fortunately, these sectors are well within the influence of the local plans in relation to new development.
- The emerging local plans across Gloucestershire* are together expected to deliver approximately 4,637 homes per year (equating to roughly 88,555 homes over all of their planning periods which vary slightly), which will add to the county’s overall emissions in the absence of further intervention by local plan policy to ensure these are zero carbon homes.
- Via the Climate Leadership Gloucestershire (CLG) Greener Gloucestershire Action Plan commits the 7 local planning authorities (Gloucestershire, Stroud, Gloucester, the Cotswolds, Cheltenham, Tewkesbury and the Forest of Dean) and other members of CLG to work in partnership to deliver enhanced ambition and cohesive delivery of climate adaptation and mitigation outcomes. Currently the seven Gloucestershire Councils have published net zero targets of 2045 before for their localities and are signatories to the ambitious UK100 network of UK Council. This is a more ambitious than national net zero target dates of 2050 and is supported by ambitious council specific plans. The Gloucestershire County Council plan in particular is committed to pursuing the following, which will need support from the respective Local Plans of the Districts, Boroughs and City within Gloucestershire:
 - Become carbon neutral as soon as possible
 - Play a part in reducing carbon emissions across the county to work towards the national net zero 2050 goal
 - Planning for the long-term, including resilience and adaptation to climate change.
 - The committed goal of a ‘net zero carbon Gloucestershire County’ must be understood in context of the national ‘net zero’ goal and carbon budgets, as do the criteria for development in line with those goals.
 - The development of a surface transport decarbonisation specific budget and net zero targets.

Based on the evidence (on climate change, best practice in carbon accounting, and low-carbon development), for the local plan policy to strive towards this goal, it is considered that:

- **A Net Zero Carbon UK** is one that (as per the Committee on Climate Change, and Climate Change Act 2008 regarding legislated targets) ...
 - Stays within its legislated carbon budgets
 - By 2050, has net zero carbon emissions in the UK’s scope 1 and+ 2 (as defined by the Global Greenhouse Gas Protocol)
 - Achieves both of the above without resorting to the use of non-UK offset credits
 - Strives to do all in its power to reduce its scope 3 emissions to a level compatible with a safe climate as per the UK’s commitment to the Paris Agreement 2015.
- **A Net Zero Carbon Gloucestershire County will be one that ...**
 - Has net zero carbon emissions in its scope 1 and +2 (recognising that this will require growth in renewable energy and a shift towards sustainable transport, in this area as well as the rest of the UK)
 - Achieves this without the use of carbon offset credits from outside the local area, and never from outside the UK
 - Keeps within the local area’s fair share of the UK’s legislated carbon budgets.
- **In Gloucestershire, a Net Zero Carbon Building (operational) is one that ...**
 - Has net zero carbon emissions associated with its total energy use (regulated and+ unregulated) across the course of each year, by
 - Meeting best-practice energy efficiency targets that are in line with the performance needed for the UK’s carbon reduction trajectory, as established by industry thought-leading bodies
 - Annually generating renewable energy equal to the building’s energy demand over the course of each year, achieving a balance of renewable energy export and grid energy import
 - Achieving this renewable generation on site, or, where this is demonstrably unfeasible, contributing to off-site renewable energy directly or via an energy offsetting fund implemented within Gloucestershire
 - Does not use fossil fuels on site whether for heating, cooking or other
 - Evidences all of the above at planning stage with a calculation methodology proven to be accurate in forecasting the energy use of the proposed building.
- **Development should also strive for optimal embodied carbon targets** reflecting evidence of what is both feasible and aligned with the UK’s carbon commitments (such as the analysis by professional bodies or alliances such as LETI, RIBA and the UKNZCBS), albeit accepting that embodied carbon will not be zero in most cases.

The various local plans within Gloucestershire should therefore seek to develop policy that brings forward development that meets the above criteria.

Where a national policy presents a contradictory constraint against the creation of local plan policies that fulfil national policy carbon goals and climate legislation, we consider that the local plan should exert efforts to overcome that constraint – using the best available justification evidence and arguments – on the grounds of the need to fulfil its legal duty to mitigate climate change, and consistency with the national policy goals of net zero carbon by 2050 and the Paris Agreement. If it proves impossible to create policies that directly ensure the above goals – whether due to viability, feasibility, or obstacles set by national policy – the local plan should be designed to pursue the above goals to the greatest possible extent within these constraints.

Definition of ‘net zero’

The term ‘net zero’ is often used differently by different people or entities, depending on their focus and the scale (global, national, local, building-level; organisational). It is sometimes mistakenly interchanged with ‘carbon neutral’. However, at the building scale, an understanding of the difference between the two is vital for planning policy purposes. The Intergovernmental Panel on Climate Changeⁱ essentially explains that:

- ‘Net zero carbon’ typically means a balance of emissions and removals under direct control or territorial responsibility of the entity reporting them (such as a country, district, or sector); whereas
- ‘Carbon neutral’ can also apply to a firm or commodity, and typically also includes emissions and removals beyond the entity’s direct control or territorial responsibility.

There are several ways to define a ‘net zero carbon building’. These definitions rely on **calculations** that cover some or all of the following scopes (varying by the definition chosen):

- **Annual use of different types of fuels and grid energy at the building:** These cause carbon emissions.
- **Annual renewable energy use at the building:** Usually from on-site generation, but some definitions/calculations of ‘net zero carbon buildings’ also allow off-site sources.
- **Annual amount of renewable energy that the building exports to the grid** at times when the building produces more than it is using: This counts as a negative amount of carbon emissions, because it actively reduces the amount of fuel that needs to be burned in power stations to supply grid energy to others.
- **Embodied carbon:** Carbon emitted to produce, transport and assemble the construction materials. Can also include emissions from maintenance/replacement and eventual demolition/disposal.

The ‘National Calculation Methodologies’ for buildings’ energy use and carbon emissions are SAP (for homes) or SBEM (for other buildings). These are used in Building Regulations Part L, which sets limits per m² per year for carbon, heat demand, and ‘primary energy’¹ use. But:

- **They only cover operational carbon (energy use)**, not embodied carbon (materials/construction).
- **They do not include ‘unregulated’ energy uses like plug-in appliances**, which can be 50% of total operational energy and carbon (for example see later pie charts in Figure 6).
- **They provide inaccurate predictions** because they are based on a theoretical model instead of specific conditions, and their predictions do not get validated in practice. They are compliance tools and not designed to accurately assess building energy performance; buildings typically use two or three times the amount of energy predicted by SAP or SBEM (see Figure 1).

¹ ‘Primary energy’ is the energy from renewable and non-renewable sources which has not undergone any conversion or transformation process. This metric is meant to show the total amount of energy or fuel that must be put *into* a

Thus a ‘net zero carbon’ building defined by the Building Regulations is not actually net zero.

The Future Homes Standard has now been confirmed as Part L 2026, with SAP expected to be replaced with a new methodology ‘HEM’ (Home Energy Model) in due course. However, even this update will not deliverⁱⁱ the very low space heat demand that the UK needs for its legislated carbon budgets. This is partly because SAP and SBEM underestimate energy demand and are not verified in operation (as there is no regulatory requirement for the building to actually perform to the SAP/SBEM predictions) and partly because Part L sets that vary by the building’s form (shape and size), not the absolute targets that are needed for UK carbon budgets. For example, to meet the nationally legislated carbon budgets, space heat demand of new homes should ideally be ≤15-20kWh/m²/yearⁱⁱⁱ. Space heat demand is affected by building form not just insulation and airtightness, but Part L does not require better insulation and glazing to counter inefficient form. It is not yet known if ‘HEM’ will remedy or continue these problems.

Other calculation methods and definitions are available. The two leading alternatives are:

- **LETI operational net zero carbon:** A building that (each year) generates as much renewable energy as it uses, sometimes using grid electricity and other times sending renewable energy to the grid. The building must also be gas-free and meet specific energy efficiency targets that match the performance needed for national carbon budgets.
- **UKGBC Framework Definition of Net Zero Carbon:** This has two parts:
 - **Operational:** When the carbon associated with a building’s energy use is zero, by use of renewable energy (from onsite or offsite sources) or purchasing verified carbon offsets.
 - **Embodied:** When the carbon associated with a building’s construction up to the point of completion is zero or negative, through the purchase of verified carbon offsets.

Because the LETI and UKGBC definitions are for actual operational performance not just modelling, the design process would need *accurate energy* calculation methods, such as PHPP or TM54. PHPP and TM54 account for total energy, not just the share that is ‘regulated’ by Part L.

Building on earlier frameworks from LETI and UKGBC, the new **‘UK Net Zero Carbon Buildings Standard’ (UKNZCBS)** defines a science-based pathway to net zero by voluntary standard **for both operational energy and up-front embodied carbon**, aligned with the UK’s share of the 1.5°C carbon budget. The UKNZCBS applies to new and existing buildings and is grounded in actual in-use performance, requiring verified, metered operational energy data alongside embodied carbon assessment. However, UKNZCBS targets do not necessarily make a building ‘net zero’, rather they mean the building is in line with the UK’s overall *trajectory* to net zero.

By combining performance-based targets, annual re-verification, independent third-party assurance and a clear route for future tightening and expansion, the UKNZCBS provides a unified,

system in order to get one unit of useful energy *out* at the other end, accounting for the losses that occur in (for example) converting fossil fuel to electricity or heat, or in distributing power through the grid.

credible industry guidance of how buildings can perform to the level necessary for the UK's transition to net zero over time, rather than relying purely on design intent.

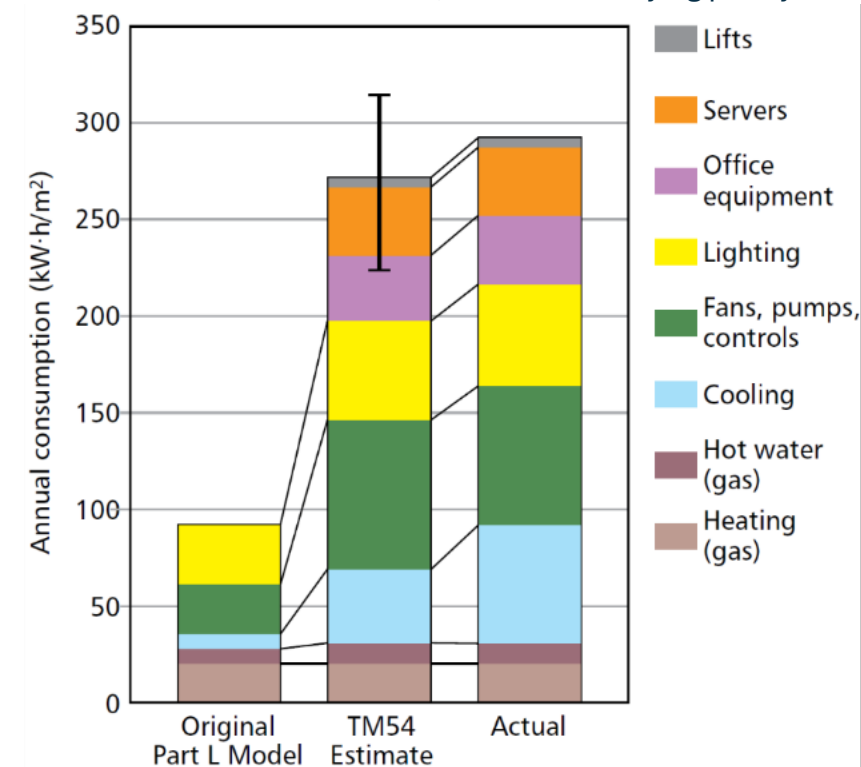


Figure 1: CIBSE graph that reveals the inaccuracies of Part L SBEM prediction of energy use, compared to a prediction using the CIBSE TM54 method, and the building's actual measured energy use in operation. This is for an office building.

What a local plan is and what it does

A local plan is a land use or spatial plan that responds to identified issues and needs. Preparation of a local plan must conform with specific legal requirements and national planning policy. It must be evidence-based and informed by community engagement, and co-operation with certain third parties.

A local plan sets out policies for change in the type, quality and location that will be considered acceptable for a range of land uses in the area and includes a strategy for delivering future required growth. Its policies are used to determine planning applications. It identifies appropriate areas and sites for development, such as new homes, offices, shops, and community facilities. It also identifies circumstances where development is not appropriate, and can set certain conditions on changes to existing buildings or other land uses.

The local **plan must be in accordance with the National Planning Policy Framework (NPPF)**. The NPPF was last updated in 2026. This latest version represents a significant restructuring of the planning system. Most notably, it separates plan-making policies from decision-making policies. The new system will streamline local plans so they focus on spatial strategy and genuinely local matters. As there are several emerging local plans in Gloucestershire's constituent local planning authorities (LPAs), these are each on a different timeline. As a result, some of these will be examined against NPPF 2024 (but the NPPF 2026 could have an impact on examination and development management) while others will be examined under the new NPPF which is expected to be finally published in summer or autumn 2026.

Notwithstanding recent reform, local plans continue to **have a legal duty to mitigate climate change, and a policy mandate to deliver 'sustainable development' and support the UK's transition to net zero by 2050**. After a local plan is drafted and consulted upon, the local authority must then submit the draft plan to the Planning Inspectorate for independent examination before it is adopted. The Planning Inspectorate will assess the draft local plan to see if it is 'sound'. The NPPF's four 'tests of soundness' are:

- **The plan must be positively prepared:** It should respond to 'objectively assessed needs' (in particular, needs for housing), and should deliver sustainable development.
- **The plan must be justified:** Its approach should be appropriate based on evidence and consideration of reasonable alternative approaches
- **The plan must be effective:** It should be based on effective joint working on cross-boundary strategic matters (cooperation between local authorities), and 'deliverable in the plan period' (e.g. often taken to mean that the policies are feasible and should not make it impossible to deliver the required amount of housing within the plan period).
- **The plan must be consistent with national policy:** This means it is in accordance with the other policies in the applicable version of the NPPF and other relevant statements of national policy.

The Local Plan is separate from Building Regulations. Building Regulations apply nation-wide and define the national *minimum* standards that new buildings must meet in order to be legal. These cover a wide range of technical topics including materials, structure, drainage, contaminants, fire and electrical safety, acoustics, ventilation, sanitation, water use, overheating, electric vehicle charging, and energy efficiency/ carbon emissions. Building Regulations apply not just to new developments, but also extensions and alterations. As Building Regulations standards are a ‘floor’ not a ‘ceiling’, a Local Plan can require more stringent standards to be met, subject to certain conditions set by national policy.

The Local Plan

- **Has a duty to deliver ‘sustainable development’** that meets environmental, social, and economic needs – housing delivery targets are a key part of this
- **Is separate from Building Regulations** (which set minimum technical standards for buildings nationwide)
- Has powers to require new development to do better than some of the standards set by Building Regulations – including for energy efficiency and carbon emissions
- **Must be based on proportionate evidence** showing that the Plan policies are justified, effective, deliverable, and consistent with national policy
- **Must pass an examination by the Planning Inspectorate** – who will check it is in accordance with the National Planning Policy Framework, including that it proactively enables ‘sustainable development’.

Building Regulations Part L

- Sets basic targets for new builds’ energy and carbon using specific metrics:
 - Fabric Energy Efficiency in kWh/m2/year – this is a measure of the building’s need for space heating and cooling
 - Carbon emissions in kgCO2/m2/year
 - Primary Energy Demand in kWh/m2/year
- **Building must use specific calculation methods to fulfil these targets:** SAP for homes; SBEM for other buildings. These are to be replaced by HEM. However, these do not accurately reflect actual performance.

The legal duty for local plans to take action towards net zero carbon

The **Planning & Compulsory Purchase Act 2004** imposes a **legal duty for every local development plan** to have “policies designed to secure that the development and use of land in the Local Planning Authority’s area contribute to the **mitigation of ... climate change**”.

Mitigation of climate change means reduction in the impact of human activity on the climate^{iv} by reducing greenhouse gas in the atmosphere^{v,vi}. This will require action further than “minimising the additional emissions from *new* development”. Rather, it will entail an overall reduction in the net amount of emissions from all activities in Gloucestershire (to the extent that a local plan can influence these). This has two parts: reduction of emissions, and increase of sequestration (removal and storage of carbon by trees, other natural features, or future technology).

- The **National Planning Policy Framework** (both 2024 and 2026 versions) clarifies the extent of mitigation, i.e. the local plan should:
- Take a proactive approach in line with the Climate Change Act 2008
 - Shape places in ways that contribute to radical reductions in greenhouse gas emissions
 - Support the transition to net zero by 2050
 - Provide a positive strategy to increase the use and supply of renewable and low-carbon energy.

- The **Climate Change Act 2008** contains the following legislated carbon reduction targets for the whole UK, therefore in order to be in line with the Act the local plan would need to be designed to take the necessary local action to achieve:
- Net zero carbon by 2050 (based on a 1990 baseline);
 - Steeply reducing ‘carbon budgets’ for each five-year period up to 2050

The carbon budgets place a limit on the amount of carbon that can be emitted in each 5-year period from 2008 up to the 2050 net zero goal. This is a vital action towards the UK’s commitment to the international Paris Agreement 2015, in which 174 countries worldwide agreed to limit climate change to no more than a 2°C rise on pre-industrial temperatures – above which the global impacts would be catastrophic due to ‘tipping points’. For context, the world has already passed a 1°C rise and is on track for a 3-4°C by the end of the century.

- These carbon budgets are devised by the Committee on Climate Change, before being legislated every few years by Parliament as per its duties in the Climate Change Act. The Committee also identifies the **necessary sectoral changes to deliver those carbon budgets**, of which most relevant to a Local Plan are:
- All new homes from 2025 to have low carbon heat (not gas), and very low space heat demand
 - Rapid and large-scale roll-out of heat pumps to existing homes, and expansion of heat networks
 - No installation of new fossil fuel boilers from 2033

- Fully decarbonise the electricity grid by 2035 (to be 80% renewable and 20% nuclear by 2050)
- Reduce travel mileage by car, and ensure all new cars/vans are electric from 2032
- Increase woodland cover to 18%, up from today's 13%, and restore peatlands
- All sectors to be at or near net zero carbon by ~2045 except aviation, waste, & agriculture (most or all of the UK's capacity for carbon removals will be needed to balance these sectors' remaining emissions).

The legal and policy mandate

- **Planning & Compulsory Purchase Act 2008** establishes that the Local Plan has a legal duty to mitigate climate change (reduce carbon)
- **National Planning Policy Framework (all versions)** states that mitigation should be in line with the Climate Change Act 2008
- **Climate Change Act 2008** sets the 2050 net zero carbon goal, and also interim 'carbon budgets' that reduce every 5 years
- **Committee on Climate Change analysis and a High Court Ruling (2022)** shows that national government's current policies & plans will not deliver the Climate Change Act goals – so the Local Plan would need to take further action to fulfil its duty to mitigate climate change in line with that Act.

Climate Change Committee analysis^{vii,viii,ix} shows that national government plans are insufficient to deliver all these necessary changes. The government's Net Zero Strategy was twice (2022 and 2023) found unlawful^{x,xi} as it failed to deliver on the Climate Change Act obligation to set sufficiently detailed policies that show how the carbon budgets will be met.

Legislative and policy powers for the local plan to take action towards net zero carbon

The main sources of emissions (and removals) that a local plan can affect are:

- **New buildings** – energy efficiency, energy supply / on-site generation, and embodied carbon
- **Transport** – enabling the right type and location of new development to reduce new and existing communities' car dependence, and bringing forward sustainable transport infrastructure
- **Existing buildings** – encouraging carbon-reducing renovations where permission is needed
- **Renewable energy** – encouraging new standalone renewable energy generation and distribution
- **Natural environment** – protecting and expanding landscape features that capture or store carbon

This report focuses mainly on planning powers for net zero carbon in the buildings and energy sectors.

Through their respective local plans, the local planning authorities within Gloucestershire can:

- **Set new-build energy efficiency standards** that exceed the requirements of building regulations, drawing on powers granted through the Planning and Energy Act 2008;
- **Use planning obligations** to require carbon offsetting payments from new development, under Section 106 of the Town and Country Planning Act 1990;
- Take a proactive approach to **renewable energy planning**, using provisions in the NPPF;
- Adopt a **vision-led approach towards transport planning**, as encouraged by the 2024 NPPF;
- **Set out retrofitting policy** for historical buildings, in accordance with the NPPF.

Alongside the local plan, local authorities in Gloucestershire can use Local Development Orders to promote renewable and low-carbon energy.

The NPPF 2026 contains provisions that restrict local authorities' power to set higher energy efficiency standards. These restrictions are similar to the limitations imposed by the [Written Ministerial Statement \(WMS\)](#) published in December 2023. Recent cases show that these can be overcome, as seen in recent cases such as the examination of Uttlesford Local Plan (adopted March 2026), Salt Cross Action Plan (adopted February 2026), and Winchester District Local Plan (adopted March 2026).

Local Plan powers for net zero carbon development

- **Planning & Energy Act 2008:** The Local Plan can require new builds to provide / use renewable energy and improved energy efficiency
- **National Planning Policy Framework**
 - For plans undergoing the new plan-making systems, PM13 of NPPF 2026 states that local energy efficiency standards should be expressed as a percentage uplift of a dwelling's 'Target Emission Rate' (TER). This mirrors the language of the Written Ministerial Statement (WMS) 2023 (see p. 22) – which the NPPF 2026 has superseded. Some Local Plans have successfully adopted alternative metrics when the WMS 2023 was in force, justified by their effectiveness in delivering on national carbon reduction targets – see precedents.
 - For plans undergoing the legacy system, PM13 will not apply as a plan-making policy, but DM7 (which cross-references PM13) will. DM7 states that planning decisions should not duplicate or extend ‘controls imposed by separate regulatory regimes, *unless there is a development plan policy in place applying technical standards*’. This gives local authorities scope to make decisions according to their local plan policies on energy efficiency standards, given energy efficiency is an area permitted by PM13.
 - It is appropriate to seek carbon reductions via new development’s location, orientation and design, and to plan for renewable energy under both NPPF 2024 and 2026.
- **Building Regulations (Part L 2026)** exceed the supposed previous limit on how far the Local Plan carbon and energy requirements could go (the limit was expressed in Planning Practice Guidance and a 2015 Ministerial Statement),
 - Therefore it can be assumed that the limit is obsolete and that local Plans can go as far as necessary to fulfil their duty to mitigate climate change
 - ...so long as the requirement is shown to be ‘reasonable’ and does not stop the plan passing the four tests of soundness (justified, effective, consistent with national policy, and positively prepared to deliver development that meets needs)
- **Town & Country Planning Act 1990** allows the Local Plan to:
 - Seek payments from development (sometimes used to offset new developments’ carbon emissions, or for carbon-reducing infrastructure)

How other local plans have used their powers towards carbon reductions

Most older adopted local plan example policies on net zero carbon buildings have been expressed in terms of metrics from Building Regulations. They require:

- A minimum reduction in carbon emissions compared to the standard set by Building Regulations Part L (the Target Emission rate), and
- The remainder of the Building Regulations ‘regulated carbon’ (Building Emission Rate) to be offset by a payment per tonne of regulated carbon emissions.

These are designed to **go beyond the legal minimum requirement set by Building Regulations at the time those plans were written**. An example is the [London Plan \(adopted 2021\)](#), which requires a minimum improvement in the carbon emissions rate by 10% for residential and 15% for non-residential development (within the overall minimum 35% on-site). These levels were set to reflect the technically feasible energy efficiency improvements identified by analysing the Building Regulations Part L figures of recent development.

The requirement to **improve energy efficiency** reflects the ‘carbon hierarchy’, where improving efficiency should come before the use of low-carbon energy sources.

Some such precedent policies then also require a **minimum contribution of renewable energy**, either as a percentage of the building’s energy use, or as a percentage reduction on the carbon emissions rate. For example:

- [Milton Keynes \(adopted 2019\)](#): Renewable energy to contribute a further 20% reduction in the carbon emissions rate, *after* an initial 19% reduction has been made by other measures (applies to schemes of 11 or more homes or 1,000m² or more floorspace).
- [Solihull \(Emerging\)](#): Provide at least 15% of energy from renewable or low carbon sources, in major residential and non-residential over 1,000m² floorspace (however please note that this plan was withdrawn from examination in late 2024 for reasons unrelated to this policy).
- [West Berkshire \(adopted 2012\)](#): Renewable/low carbon energy to achieve net zero total carbon emissions (regulated and unregulated) from 2016 for homes, or 2019 for other buildings, in all major proposals, unless proven unviable/ unfeasible. This requirement was upheld by the planning inspector at appeal in 2022, although other parts of the policy that were based on the now-withdrawn Code for Sustainable Homes were deemed inapplicable. This Local Plan was replaced in 2025 but kept this renewable energy target; [see detail later in this report](#)).

Where carbon offsetting is one of the mechanisms within the net zero carbon policy approach, the cost per tonne of carbon is set by various rationales. London’s £95/tCO₂ rate matched a previous national carbon value, set annually by BEIS (as of 2026 this national value has risen^{xii} to £416/tCO₂). By contrast, some other plans have used a per-home payment (see Central Lincolnshire in [the table at the end of the Executive Summary](#)) with lower and upper bounds reflecting the approximate amounts of funding that would be needed to install renewable energy sufficient to offset the typical new building’s emissions.

An increasing number of vanguard local authorities are pursuing even more ambitious policies, by moving away from Building Regulations metrics and taking a more effective route of energy use limits and/or 100% renewable energy. Some examples include:

- Bath & North East Somerset^{xiii} (B&NES), and Cornwall^{xiv} (2023):
 - Limits of 40 kWh/m²/year EUI ([glossary](#)) and 30 kWh/m²/year space heat demand.
- Central Lincolnshire^{xv} (2023):
 - Residential: ≤35 kWh/m²/year EUI. 15-20 kWh/m²/year space heat demand limit.
 - Non-residential: ≤70 kWh/m²/year EUI. 15-20 kWh/m²/year space heat demand limit.
- London Borough of Merton^{xvi} (2024): Space heat demand 15-20kWh/m²/year and a requirement to *report* EUI, although all EUI *targets/limits* are advisory rather than mandatory.
- Tendring Colchester Borders Garden Community DPD (2025)^{xvii}: Same as B&NES, above.
- Uttlesford Local Plan^{xviii} (indicatively approved 2025): Space heat demand ≤20kWh/m²/year bungalows; ≤15 all other buildings. EUI in kWh/m²/year: ≤35 (homes); ≤70 (offices); ≤65 (schools); ≤35 (light industrial); but flexible to unavoidable/unique feasibility challenges.
- Salt Cross Area Action Plan^{xix} (approved 2025; awaiting adoption): 15-20 kWh/m²/year space heat demand in all buildings. EUI limits in kWh/m²/year: 35 (homes); 70 (offices), 65 (schools). Other non-residential: must discuss and agree an appropriate EUI target with the council.

These policies also require on-site renewable energy generation equal to the building's energy use. The aim is that although the building may use grid energy at times when its own renewable generation is not sufficient, there will be other times when it generates more than it is currently using and exports the excess to the electricity grid, resulting in a net 'zero energy balance' over the year.

Several other emerging local plans are pursuing this 'true net zero' policy approach (using the metrics of EUI and space heat demand) instead of relying on the Building Regulations Part L carbon emissions rate as the basis for the improvements that must be made. Examples include:

- Greater Cambridge Emerging Local Plan
- Leeds City Council Emerging Local Plan
- South Oxfordshire & Vale of the White Horse Emerging Joint Local Plan 2041

Common features of these pioneering plans are targets reflecting the performance identified by the Climate Change Committee to be needed to meet the UK's legislated carbon budgets:

- **Limiting new homes' space heat demand to 15-20kWh/m²/year** (sometimes up to 30kWh where this is found to be more cost-effective).
- **Limiting new buildings' total energy use intensity in kWh/m²/year** – the target varies by building type but is always set to a level that rules out gas boilers and requires a heat pump or other efficient low carbon heat (as heat pumps use about one-third of the energy of gas boiler or direct electric).
- Use of an accurate energy prediction calculation to demonstrate the building's compliance with these metrics, such as PHPP or TM54, not the methods used in Building Regulations.

These emerging policies are all supported by evidence bases showing feasibility and viability in new building types typical to the local area, using highly accurate specialist energy modelling and analyses of build cost uplift compared to the existing building regulations.

'Energy offsetting' (rather than 'carbon offsetting') is permitted in the case of technical non-feasibility of renewable energy targets, in these emerging policies. Developers would have to pay an amount per kWh of energy use not matched with on-site renewables. Funds would be used to install renewable energy elsewhere in the local plan area, priced accordingly per kWh. The aim is to simplify the offsetting process by avoiding the need for complicated calculations about the changing amount of carbon related to use of different fuels and electricity over time (e.g. grid decarbonisation).

Table 1: Table of residential new build requirements in selected precedent policies

Residential new-build requirement	London Plan (2021)	Milton Keynes (2019)	Central Lincolnshire (2023)	B&NES and Cornwall (2023)	Tendring Colchester Borders Garden Community DPD (2026)	Uttlesford (2026)
Scope of emissions that must be ‘net zero’	Regulated carbon as per Part L (some boroughs also include unregulated)	Regulated carbon as per Part L	Total operational carbon emissions from all energy use (regulated and unregulated)	Total operational carbon emissions from all energy use (regulated and unregulated)	Total operational carbon emissions from all energy use (regulated and unregulated)	Total operational carbon emissions from all energy use (regulated and unregulated)
Minimum reduction in on-site carbon emissions (vs Building Regulations Part L 2013)	35%	39% (19%, plus a further 20% by renewable energy)	n/a	n/a	n/a	n/a
Energy use limits in homes (EUI = Energy Use Intensity; see glossary)	n/a	n/a	35-60 kWh/m ² /year EUI 15 kWh/m ² /year space heating demand	40 kWh/m ² /year EUI 30 kWh/m ² /year space heating demand	40 kWh/m ² /year EUI 30 kWh/m ² /year space heating demand	35 kWh/m ² /year (site-wide average, with no unit over 60 kWh/m ² /year) 20 kWh/m ² /year space heating demand in bungalows; 15 in all other homes
On-site net zero (i.e. 100% on-site renewable energy supply)	No	No	Yes, through 100% renewable energy, but with exceptions for feasibility	Yes, through 100% renewable energy	Yes, through 100% renewable energy, but with exceptions for feasibility	Yes, through 100% renewable energy, or 120kWh/m ² footprint/year
Offset price	Recommend £60-£95/tCO ₂ , but decision by borough (e.g. Lewisham, £104/tCO ₂)	£200/tCO ₂	£5-15k/dwelling, or direct provision of offsite renewable energy equivalent to dwelling usage	£373/tCO ₂ (B&NES) 10p/kWh (Cornwall)	Not defined in the DPD itself ; likely to follow Essex recommendation (£1.82/kWh)	Not defined in the plan itself ; likely to follow Essex recommendation (£1.82/kWh)
Years’ worth of emissions to be offset	30	1	n/a	30	n/a	n/a

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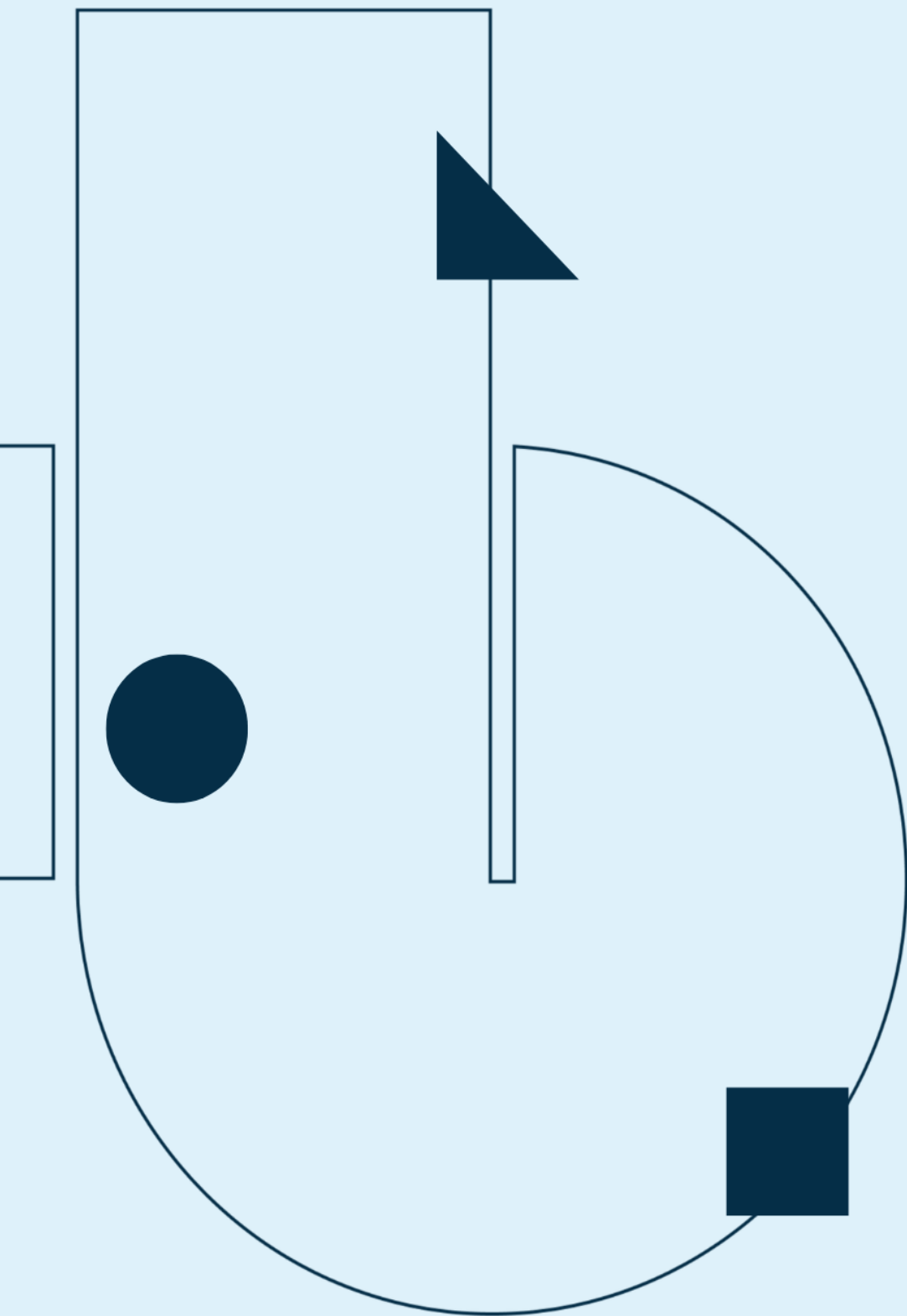
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Full Report

1. Introduction

Bioregional (in partnership with the Currie & Brown) was appointed by Climate Leadership Gloucestershire on behalf of the relevant local districts (Cheltenham, Gloucester, Forest of Dean, Stroud, Tewkesbury) to provide an assessment of options available within the local planning system to address climate change in Gloucestershire County.

Local Planning Authorities (LPA) have a legal duty to mitigate climate change (deliver carbon reductions) via the planning process, and national planning policy confirms these reductions should be in line with the Climate Change Act. The Climate Change Act includes both the 2050 goal for a net zero carbon UK, and sharply declining five-yearly carbon budgets until then.

Our current appointment to support Climate Leadership Gloucestershire in this effort comprises three core work packages:

1. Literature Review and policy appraisal
2. Energy modelling to support net zero operational carbon policies
3. Policy recommendation and final report creation summarising the above

The current document forms the first part of the output for Work Package 1, with the second part – the Policy Appraisal – contained in a separate document.

In this literature review, we:

- **Explain what ‘net zero’ means** for a building, a local authority area and the UK, forming a basis for the concepts that will be used in the rest of the work so that the policy links back to national net zero commitments.
- **Explain the local plan’s climate mitigation powers, duties, and mandates** flowing from relevant legislation and national policy, drawing on our recent work with other UK councils such as Uttlesford, Greater Cambridge, Central Lincolnshire, South Oxfordshire & Vale of White Horse, Warwick, West Berkshire, South Staffordshire, Coventry, Rugby, Greater Nottingham and others.
 - **Relevant legislation items** include the Planning and Compulsory Purchase Act, Climate Change Act, Planning & Energy Act and Levelling Up & Regeneration Act. Relevant national policies include the NPPF and 2023 Written Ministerial Statement among others.
- **Outline existing carbon emissions in Gloucestershire** using public national data, revealing the scale of impact of buildings and transport and how little carbon is recaptured by green landscapes thus the need to urgently cut emissions at source.

- **Summarise specific measures outlined in the Climate Change Committee’s Balanced Pathway to Net Zero** to understand the scale of action necessary to align with the Climate Change Act 2008 legislated carbon goals in accordance with the NPPF 2024, and the extent to which national programmes are delivering this or not.
- **Identify a variety of policy options for net zero carbon new buildings**, illustrating this via recent precedents in other local plans including many that we have worked on directly. Examples of relevant precedents we expect to cite include the adopted Cornwall Climate Emergency Development Plan Document, the B&NES Local Plan Partial Update, the Central Lincolnshire Local Plan Review, and the emerging Uttlesford Local Plan.

While the main focus will be new buildings, we will also comment on any **implications for retrofit of heritage assets that may be part of development proposals and design** implications for new build development that may be located in historic settings. Where clear, we will note the relevant levers and policy precedents for acting on this issue, although from our experience these levers for retrofit are less clear, the policy precedents less prevalent and the applicable performance standards less universal in retrofit than those for new buildings.

The Literature Review will culminate in a **Position Statement** outlining the local planning authority’s role and duty in helping to deliver a net zero carbon county, informed by the literature review. To form a robust starting point for developing an ambitious and locally tailored policy approach, the position statement will:

- Confirm the role of the Local Plan in meeting climate change objectives
- Clarify the scope and limitations of the Local Plan in influencing carbon reductions
- Propose a definition of net zero carbon in the context of the Local Plan that a preferred policy will strive to achieve and identify what is needed to achieve it.

About the purpose of this work

We note that there are six local planning authorities within Gloucestershire, each at different stages in the process of developing four different emerging local plans. While our work is for Climate Leadership Gloucestershire, Gloucestershire County is not one of the local planning authorities. The goal of the work is to provide a basis by which those emerging local plans can inform their policy development and justification of those policies. While each local planning authority remains free to develop its own local plan policies as it deems appropriate for its area, this consistent and locally-relevant evidence can form the basis for consistent policy development across the County.

2. What is net zero carbon?

As climate and carbon emissions are global challenges, consistency of effort is key (from the building scale through to the local, regional, national and international scales). If carbon emissions are not consistently accounted for, there will be a risk of not reducing emissions but simply displacing them – or failing to account for the full emissions of new development.

When devising and reviewing local plan policies within Gloucestershire, it will be vital to make sure those policies use a definition of ‘net zero carbon development’ that fully contributes to the achievement of a net zero carbon Gloucestershire and a net zero carbon UK.

We here look at the global, national, area-wide and building-level definitions of net zero carbon that are generally accepted. Precedents of how local plans have defined and pursued net zero carbon is then explored.

This context is important because national policy expects local plan policy to act “in line with the objectives and provisions of the Climate Change Act 2008”. Yet, most of the older adopted precedent local plans use a definition of ‘net zero carbon development’ that is significantly different to how a fully-fledged carbon accounting methodology would define it.

The reason for this difference is that most – although not all – of the older local plan adopted precedents have set their ‘carbon reduction’ requirements based on energy and carbon metrics defined by national building regulations. These building regulations metrics do not account for the building’s full energy use, let alone the embodied carbon of the building’s materials and construction, or the transport carbon that will be induced in the lifestyles of the building’s users. The use of building regulations metrics in local plan policy has been due to the way in which planning legislation defines the Local Planning Authority’s powers, and the ways in which other pieces of national government policy may constrain how those powers are exercised.

This section looks at the global, national, and district-level definitions of net zero carbon. This makes it possible to understand the relative merits of different definitions of net zero carbon buildings in existing and emerging precedent local plans.

This report also helps contextualise the levels of performance or change that would be necessary to achieve those definitions of net zero carbon – in terms of changes to new buildings, existing buildings, transport, the energy system, and land use.

2.1 Net zero carbon at the global level

At the global level, ‘net zero carbon’ means that emissions of greenhouse gases (GHGs) are balanced out by removals of GHGs from the atmosphere. ‘Greenhouse gas’ encompasses a bundle of different gases that have a climate-changing effect. The most common greenhouse gas is carbon dioxide (CO₂) which represents 80% of the UK’s climate impact. Six other GHGs are also relevant: methane (12%), nitrous oxide (5%), and four types of fluorinated gas (refrigerants, 3%).

Some of these have a weaker global warming effect, and some have a stronger effect but stay in the atmosphere for longer and therefore cause more change over time.

As CO₂ stays in the atmosphere for a long time, there is a fixed amount – a ‘carbon budget’ – that we can emit between now and 2100 if the world is to avoid the worst impacts of climate change (limiting global warming to less than 2° C above pre-industrial climate). The other greenhouse gases are not subject to the ‘budget’ approach, because they stay in the atmosphere for a different amount of time, but should still be reduced as far as possible.

Together, **the bundle of greenhouse gases is referred to as ‘carbon dioxide equivalent’ or ‘CO₂e’**. This refers to the global warming effect that the gas would have in a 100-year timeframe, compared to that of carbon dioxide. ‘Carbon emissions’ can refer to carbon dioxide, or the whole collection of greenhouse gases.

‘Net carbon’ or ‘net emissions’ refers to the amount of CO₂ or greenhouse gas that remains after deducting the amount that was removed from the atmosphere, usually over the course of a year.

‘Net zero carbon’ is sometimes used interchangeably with the term ‘carbon neutrality’. These are overlapping concepts which essentially mean the same thing at global level, but at sub-global levels they are used slightly differently, to reflect whether the emissions and removals are achieved directly by or purely on behalf of a particular country, area or organisation. This becomes a question of ‘carbon accounting’, discussed next (see section 2.2).

2.1.1. Where is carbon emitted from and how can carbon be removed from the atmosphere?

The main source of rising GHG levels in Earth’s atmosphere is the burning of fossil fuels (as this is an emission of carbon that had been locked up underground for many thousands of years until recently). Greenhouse gas is also emitted by many other human activities including fertiliser use (nitrogen fertilisers are often made from fossil fuel), ruminant livestock’s digestive systems, breakdown of organic waste, and the chemical reaction during the production of cement.

Greenhouse gas removals are achieved by plants and soils such as forests, grassland, and wetland. These are currently the only reliable and scalable means to remove greenhouse gases, as no technology for carbon capture has yet been developed that is appropriate, efficient or scalable for most purposes. Still, research is underway to develop such technologies, and future carbon removal technology is a significant part of many countries’ long-term strategy to limit the total amount of carbon emitted this century.

2.2 Carbon accounting methodologies: whose carbon is it?

Human activities and economies are highly interconnected across local, organisational and international lines. Activity by a person in one location (such as using electricity) can cause carbon emissions by another entity elsewhere (such as burning coal to generate energy in power stations).

Therefore we need ‘carbon accounting’ methodologies to work out what share of carbon ‘belongs’ to which entity. An entity could be a person, organisation, building, local area, or country.

Returning to the question of ‘net zero carbon’ compared to ‘carbon neutral’, the Intergovernmental Panel on Climate Change^{xx} explains that:

- **‘Net zero carbon’** typically means a balance of emissions and removals under direct control or territorial responsibility of the entity reporting them (such as a country, district, or sector).
- **‘Carbon neutral’** can also apply to a firm or commodity, and typically also includes emissions and removals beyond the entity’s direct control or territorial responsibility.

It follows that ‘net zero carbon’ would be the appropriate term if the district or country achieves enough carbon removals within its own area to balance out its own carbon emissions, while ‘carbon neutral’ is a less appropriate term for a country/district but would be the term to use if the balance of emissions/removals is achieved by buying carbon offset credits from outside that location.

For the purposes of the Local Plan, it is relevant to consider the carbon account of three key entities: **the entire UK, Gloucestershire as a geographic area, and each new building.** If development is to truly mitigate (i.e. reduce overall) carbon emissions, we must consider how the building’s carbon emissions fit into Gloucestershire’s carbon account, and how Gloucestershire’s emissions fit within the wider UK’s carbon account which is legally bound to achieve net zero by 2050 and steep reductions in the preceding years. If we use inconsistent definitions or accounting methods, then our ‘net zero carbon’ buildings might not help Gloucestershire to achieve its net zero objective, and Gloucestershire in turn might not help the UK meet its 2050 goal or its interim carbon budgets.

Several carbon accounting approaches are available to determine how much carbon a geographical area is responsible for:

- Global Greenhouse Gas Protocol for Cities (GPC) – which has three ‘scopes’
- PAS2070
- Local area CO₂e inventories, released annually by the UK government DESNZ (formerly BEIS)

Each of these methodologies is designed to define the area’s ‘carbon account’ based on the degree of direct or financial control the area has over activities that emit or absorb carbon.

Although each methodology differs slightly from the others, a local area would usually achieve ‘net zero carbon’ status when the GHG removals achieved within the local area are equal to greenhouse gas emissions from directly within the local area plus the greenhouse gases due to production of grid energy the local area consumes. If an area exports grid energy to other locations, any emissions associated with the production of that energy would not count towards the area’s carbon account. The methodologies generally agree that the local area’s carbon account should not include offsets purchased from outside the area. These should be reported separately, if at all. However, such offsets may still help towards the overall UK net zero carbon goal so long as they are within the UK.

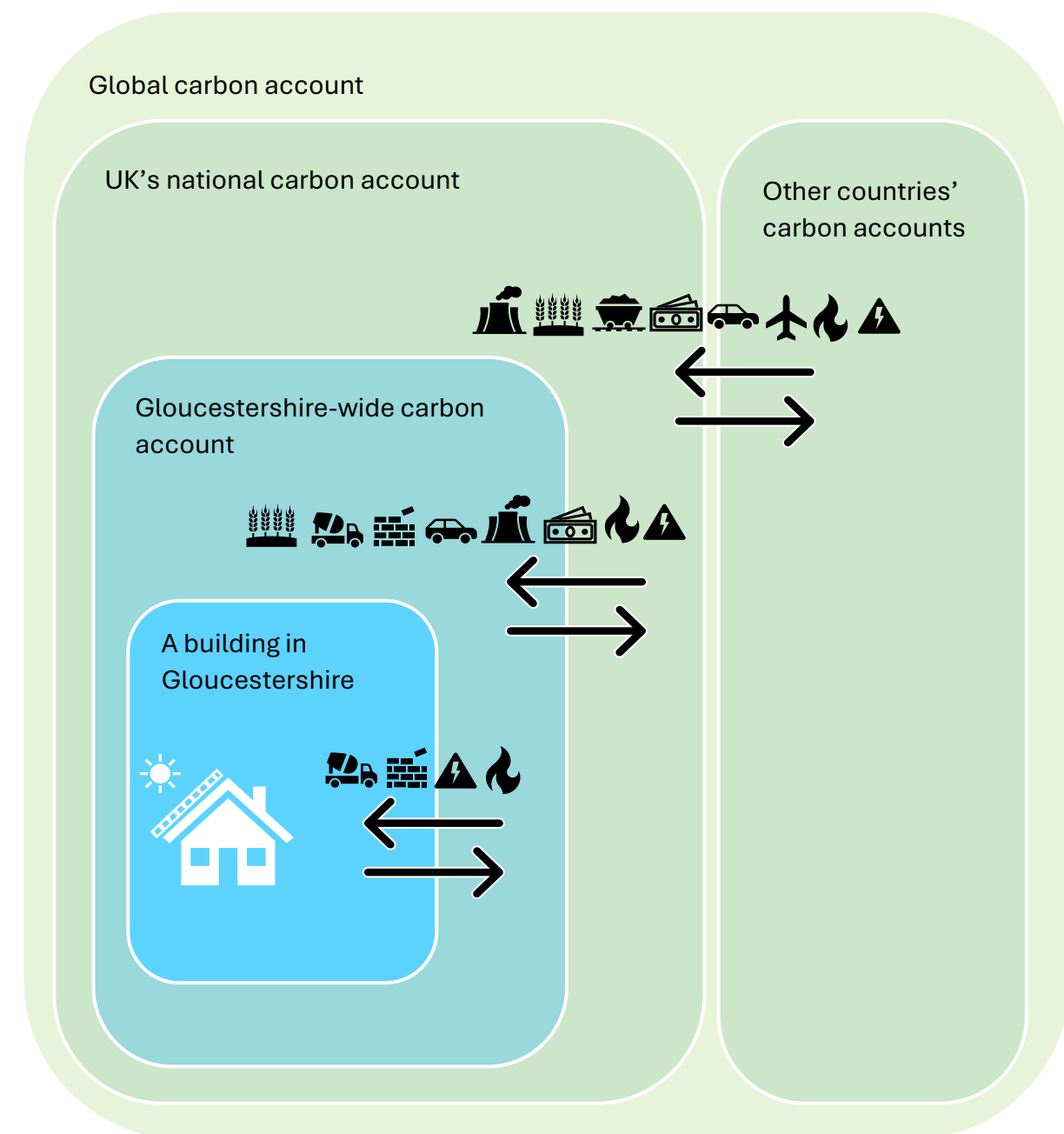


Figure 2: Illustration of the global carbon account system

2.2.1. The Global Greenhouse Gas Reporting Protocol for Cities (GPC)

The Greenhouse Gas Reporting Protocol is the **most widely used and accepted methodology** to account for any entity's carbon emissions. The GPC is a version of that methodology that has been adapted for the use of cities or any other local area. Its aim is to enable local area carbon accounts to be tracked consistently enough to be aggregated to the regional or national level.

The GPC covers several gases (along with CO₂) and splits the account into three 'scopes' which reflect the degree of responsibility and control the local area has:

- **Scope 1:** emissions directly from within the area – such as through burning fuel, or through methane emissions from livestock kept within that area. Ditto, carbon removals achieved directly within the area, such as by trees growing in the area.
- **Scope 2:** emissions associated with that area's use of grid electricity, whether that energy was actually generated inside the area or outside the area.
- **Scope 3:** emissions that happen outside the area but caused by activity or spending by entities inside the area – such as production and transport of goods imported from elsewhere.

The GPC states that if an area purchases carbon offsets from outside the area in order to mitigate some of its emissions, these should be reported separately and not deducted from the total.

If Gloucestershire County Council (or an LPA within Gloucestershire) chooses to use any external 'offsets' in its quest for emissions reduction (as a last resort), these should be from within the UK so that they fall within the UK's Scope 1 account and thus contribute to the UK's overall net zero carbon goal (which should not include overseas offsets).

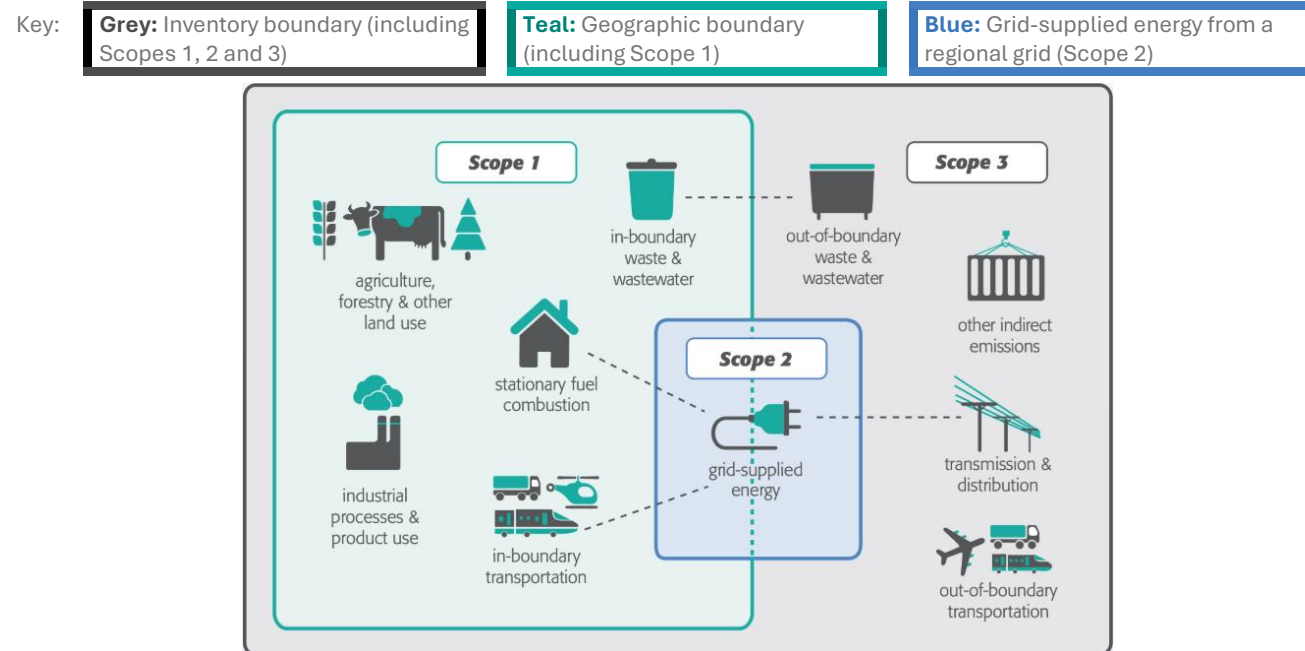


Figure 3: Various sources of emissions according to Scope 1, 2 and 3, from the GPC methodology

2.2.2. PAS 2070

A PAS is a Publicly Available Specification, which is essentially the precursor to a British Standard or European EN standard. A PAS defines good practice standards for a product, service or process.

PAS 2070 aims to define good practice for the assessment of the greenhouse gas emissions of an area. **It builds on the GHG Protocol for Cities (GPC)** to include a **wider range of emissions sources and a slightly wider bundle of gases**. It also offers two ways of accounting, one of which is equivalent to the GPC's three scopes ("direct plus supply chain"), and the other of which allows exclusion of emissions from goods produced in the area that are then exported ("consumption-based emissions").

Just like the GPC, PAS2070 notes that if out-of-boundary offsets have been bought (whether by the municipality, businesses, organisations or residents) these should not form part of the total of a city's GHG account by deducting them from the total. Instead, such offsets should be accounted separately.

2.2.3. UK DESNZ/BEIS official subnational emissions inventories

The Department of Energy Security and Net Zero (DESNZ, formerly BEIS) releases annual figures that break the UK's carbon emissions down to a local level^{xxi} to help local authorities make decisions. Until the 2021 data release this counted CO₂ only, but since 2022 now **includes CO₂, methane and nitrogen dioxide (although not F-gases)**. It uses data from the National Atmospheric Emissions Inventory and national statistics on local area's energy consumption. It excludes aviation, international shipping and military transport because there is no clear basis for how these would be allocated to local areas.

These DESNZ figures include only **local direct emissions** (including from land use, chemical use and waste processing, as well as fuel use) **and grid energy use**. They do not include consumption-based emissions (embodied emissions of goods produced elsewhere but transported to and consumed in Gloucestershire). They are not broken down into 'scopes' as in the aforementioned GPC's concept, but would mostly equate to Scope 1 + Scope 2 as they do not include emissions from the local area's consumption of goods produced elsewhere (except electricity, which is Scope 2).

The DESNZ figures are **broken down into several sectors**: industry, domestic, commercial, public sector, transport, and land use/forestry ('LULUCF'). Each sector's data is also further broken down into the different activities within that sector (most include electricity use, gas use and other fuel use; whereas transport is broken down into railways, different types of roads, and 'other'). Transport emissions are calculated based on traffic flow data on local roads, plus fuel use on inland waterways and trains. Electricity use in railways is accounted for separately (in the 'industry/commercial' sector instead of 'transport').

The DESNZ figures show how much carbon is sequestered (removed) by Gloucestershire’s green landscapes. This is a vital contribution to climate change mitigation, but also shows the scale of the challenge: This sequestration is only 9% of the emissions. Although this is better than the national rate of 7%, it is still nowhere near enough to counterbalance the area’s current emissions even if the green areas were expanded many times over.

The DESNZ figures also reveal how important it is to plan for reduced car use and enable low-emissions deliveries – as transport is responsible for 38% of the area’s emissions (larger than any other sector, followed by the domestic at 21%).

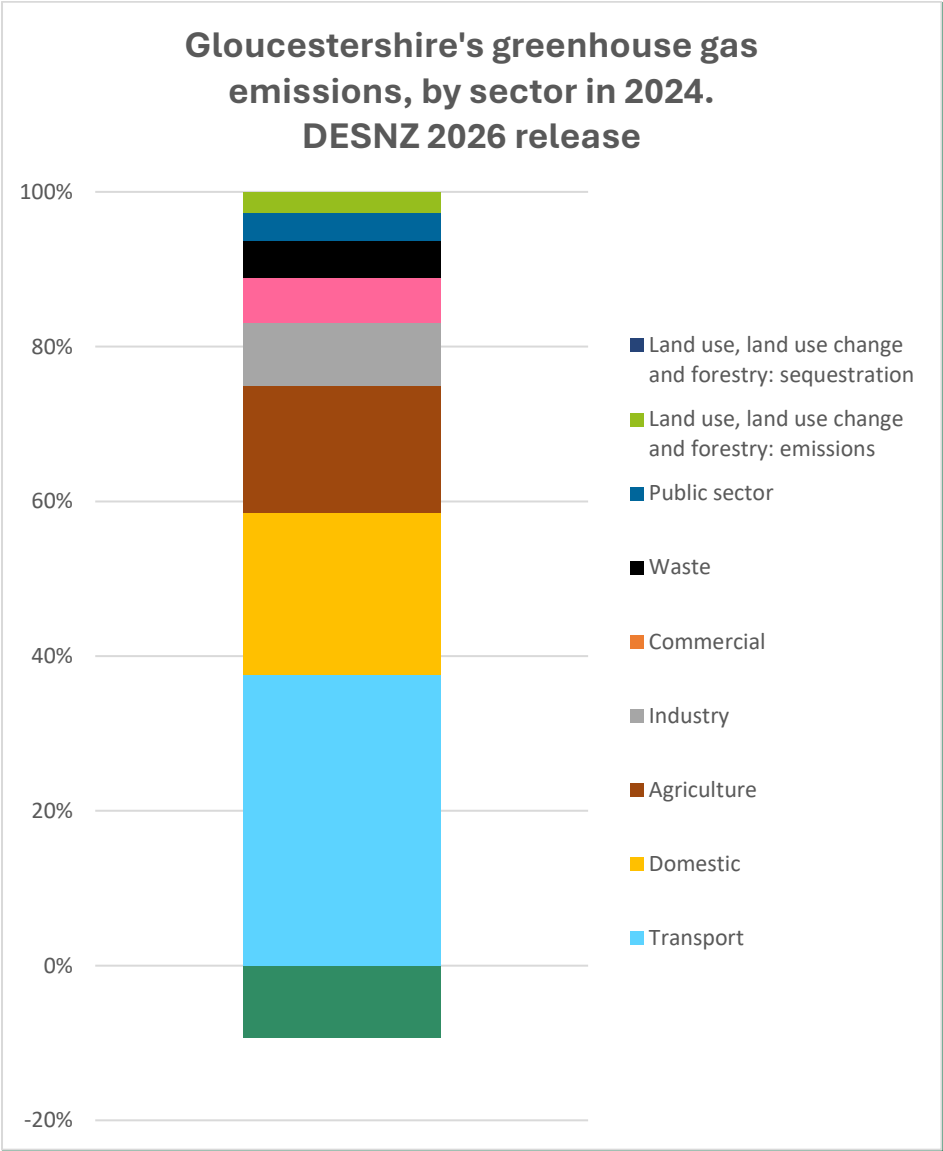


Figure 4: Gloucestershire’s greenhouse gas emissions (percentage of carbon emissions) by sector in 2023. [DESNZ 2026 data release](#).

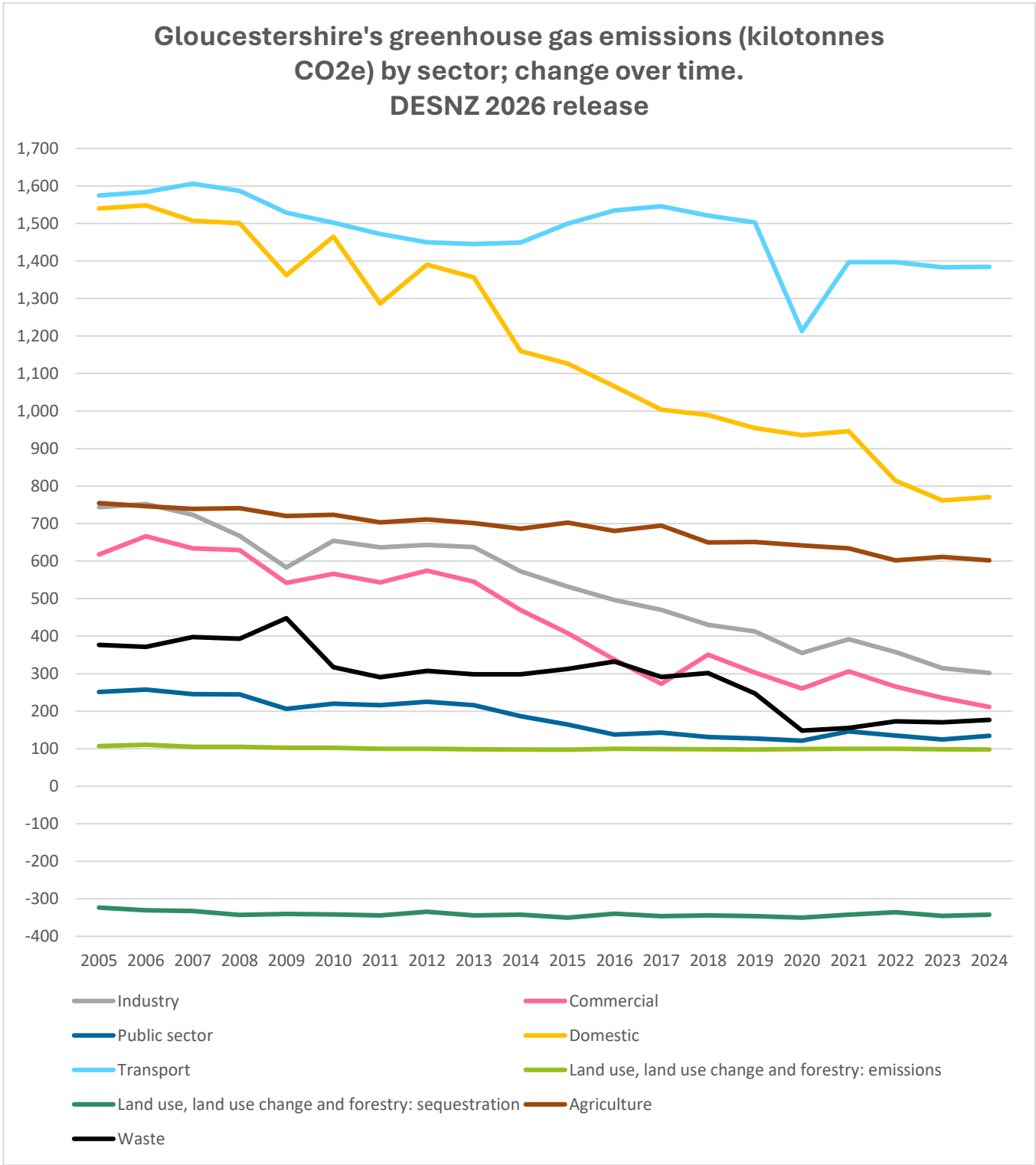


Figure 5: Gloucestershire’s greenhouse gas emissions (kilotonnes CO2e) by sector; change over time. [DESNZ 2026 data release](#)

2.3 ‘Net zero carbon building’ definition in national building regulations and planning

Building Regulations Part L is the legal tool that controls buildings’ energy and carbon emissions. Most definitions of ‘net zero carbon buildings’ in local and national policy are based on Part L’s metrics and calculation methodologies. Part L was updated in 2026 (the Future Homes Standard, FHS) but that new version will only begin to take effect on 24th March 2027.

Building Regulations Part L looks only at operational energy and carbon (and does not even address the entirety of this, as explained below). There is currently no regulatory method to consider *embodied* carbon, nor to hold new development responsible for carbon emitted by new occupants’ transport.

Part L only controls the ‘fixed’ energy uses of a building: space heating/ cooling, hot water, fixed lighting, ventilation, fans, pumps. It **ignores plugin appliances**, lifts, escalators, and so on (‘unregulated energy’). **This means a ‘zero carbon’ building using Part L is not truly zero carbon.** See Figure 6 showing how little of a building’s emissions are from regulated energy uses.

To legally comply with Part L, a proposal must use an **energy and carbon calculation** named the **Standard Assessment Procedure (SAP, for homes)** or the **Simplified Buildings Energy Model (SBEM, for non-residential)**. These are submitted to building control. SAP will be replaced with a new ‘Home Energy Model’ (HEM) sometime after the implementation of the FHS/Part L 2026.

SAP and SBEM set limits on the amount of energy a building uses per square metre per year, and the amount of carbon emissions that are associated with the building’s energy use. These are the **Target Emission Rate (TER)** and **Target Fabric Energy Efficiency (TFEE)**. The TFEE relates only to energy used for heating and cooling. The TER is the carbon emissions associated with all ‘regulated’ energy uses. Again, this is only a fraction of the operational emissions (see Figure 6).

These limits are set by modelling a ‘notional building’ of the same size and shape as the proposed building, with a range of basic energy saving measures applied (insulation, glazing, air tightness, lighting efficiency, heating system efficiency and so on). Part L defines what these measures are. The proposed building must be designed so that it uses no more energy nor emits more carbon than the ‘notional building’ would. This means the targets vary between buildings, as heat losses are affected not only by the fabric but also the size and shape (more external surface and joins = more heat loss).

Part L is updated periodically, but not often. It was last updated in 2026, following a consultation on the ‘Future Homes Standards’. These revisions come with changes to the ‘notional building’^{xxii}. Part L 2021 has small improvements to fabric (insulation/glazing) and some solar panels, but still has a gas boiler. Together these make the target emission rate (TER) 31% lower than that of Part L 2013. Part L 2026 has a heat pump and solar panels, with a slight improvement in airtightness. Together these make the TER ~75% lower in 2025 2026 than in 2013 (or ~64% lower than Part L 2021). Local policies often seek percentage reductions on the TER of a specific version of Part L.

SAP and SBEM methods are also periodically updated to reflect changes in the carbon emissions of grid electricity, and the efficiency of various appliances or fittings such as boilers and hot water taps. Nevertheless, it is widely acknowledged that **these methods are poor at predicting actual energy use** (discussed overleaf) and their periodic **updates tend to lag far behind the real-world changes** to electricity grid carbon or changes to the efficiency of different heating technologies.

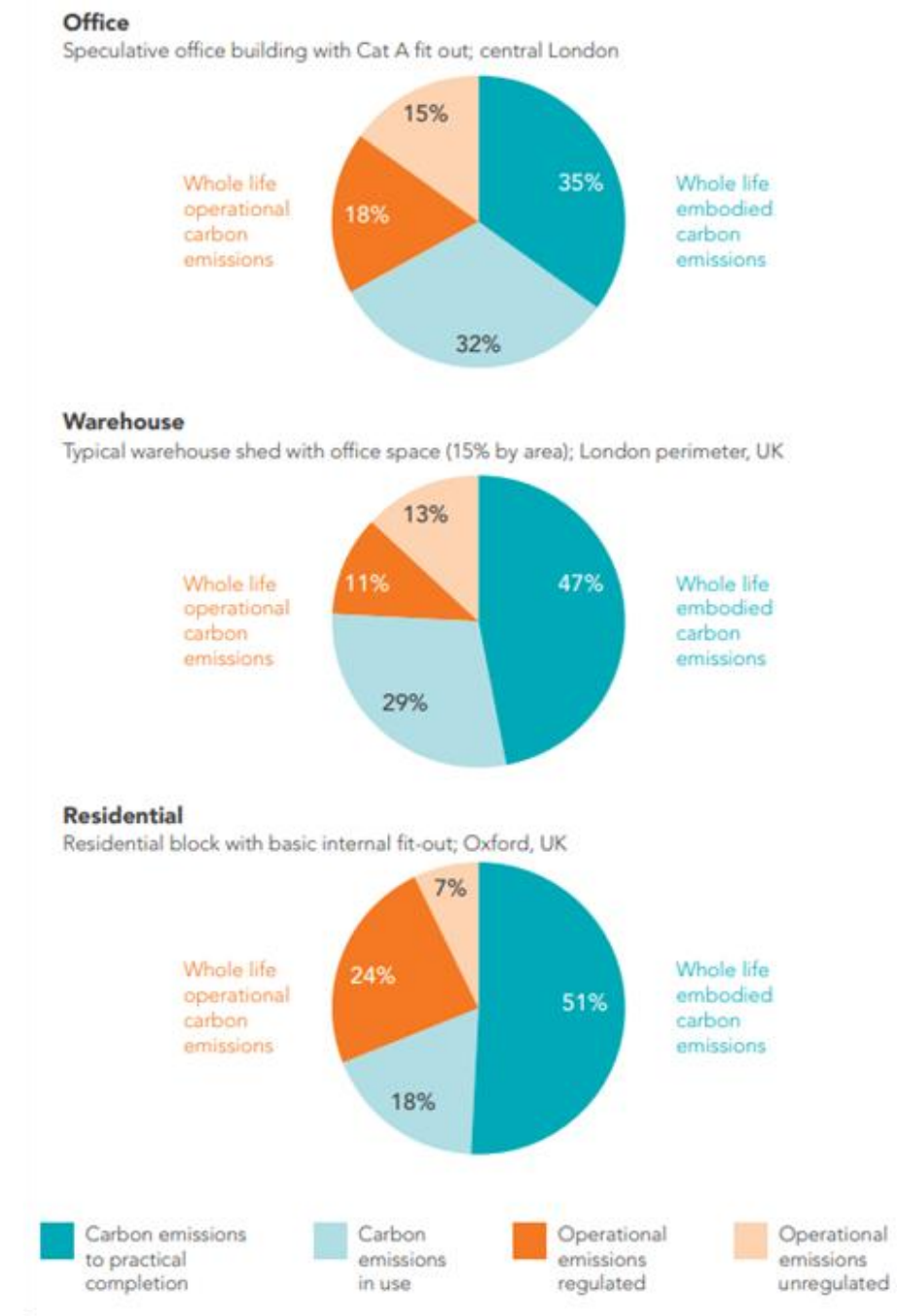


Figure 6: Diagram showing a breakdown of whole-life carbon emissions for several examples of new-build developments. Building Regulations Part L (including the Future Homes Standard) only looks at the dark orange segments. Source: UKGBC

2.4 ‘Net zero carbon building’ – alternative definitions in the construction sector

Green construction experts have recently been developing new approaches to remedy the shortcomings of the national building regulations, SAP and SBEM in defining and delivering net zero carbon buildings. The main **weaknesses in Building Regulations identified by the sector** are:

- **Failure to account for ‘unregulated energy’** – plugin appliances, lifts, escalators, and any other use not covered by building regulations – which can be 50% of total operational energy use^{xxiii}
- **Poor accuracy at predicting buildings’ actual energy use using SAP and SBEM methods** (the ‘energy performance gap’), often incorrect by a factor of 200-300%
- **Frequently outdated carbon emissions factors** for energy, especially electricity
- **Failure to sufficiently incentivise energy-efficient building design**, due to relatively weak standards for airtightness and not setting absolute targets in kWh/m² that all buildings of a certain type must achieve.
- **Failure to address embodied carbon** (the carbon that was emitted to produce building materials, transport them to site, and assemble them into a finished building).

For all of the reasons above, a ‘net zero carbon building’ calculated by Part L SAP, SBEM or HEM will in fact be very far from being carbon-free in operation^{xxiv}, before even considering its embodied carbon impacts.

The industry has therefore begun to collaboratively develop new definitions that address not only the end result of net zero carbon, but also inform the design and energy procurement measures that should sensibly be used to achieve it, such as energy efficiency targets and embodied carbon targets.

2.4.1. UK Green Building Council (UKGBC) Framework Definition of Net Zero Carbon, 2019

The UKGBC definition^{xxv} of net zero carbon buildings includes twin tracks: operational and embodied. These twin tracks for net zero carbon buildings can be treated separately. However, buildings seeking ‘net zero carbon construction’ should also aim to fulfil the operational track too.

- **Net zero carbon in construction** [embodied carbon] is: “When the amount of carbon emission associated with a building’s product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy.”

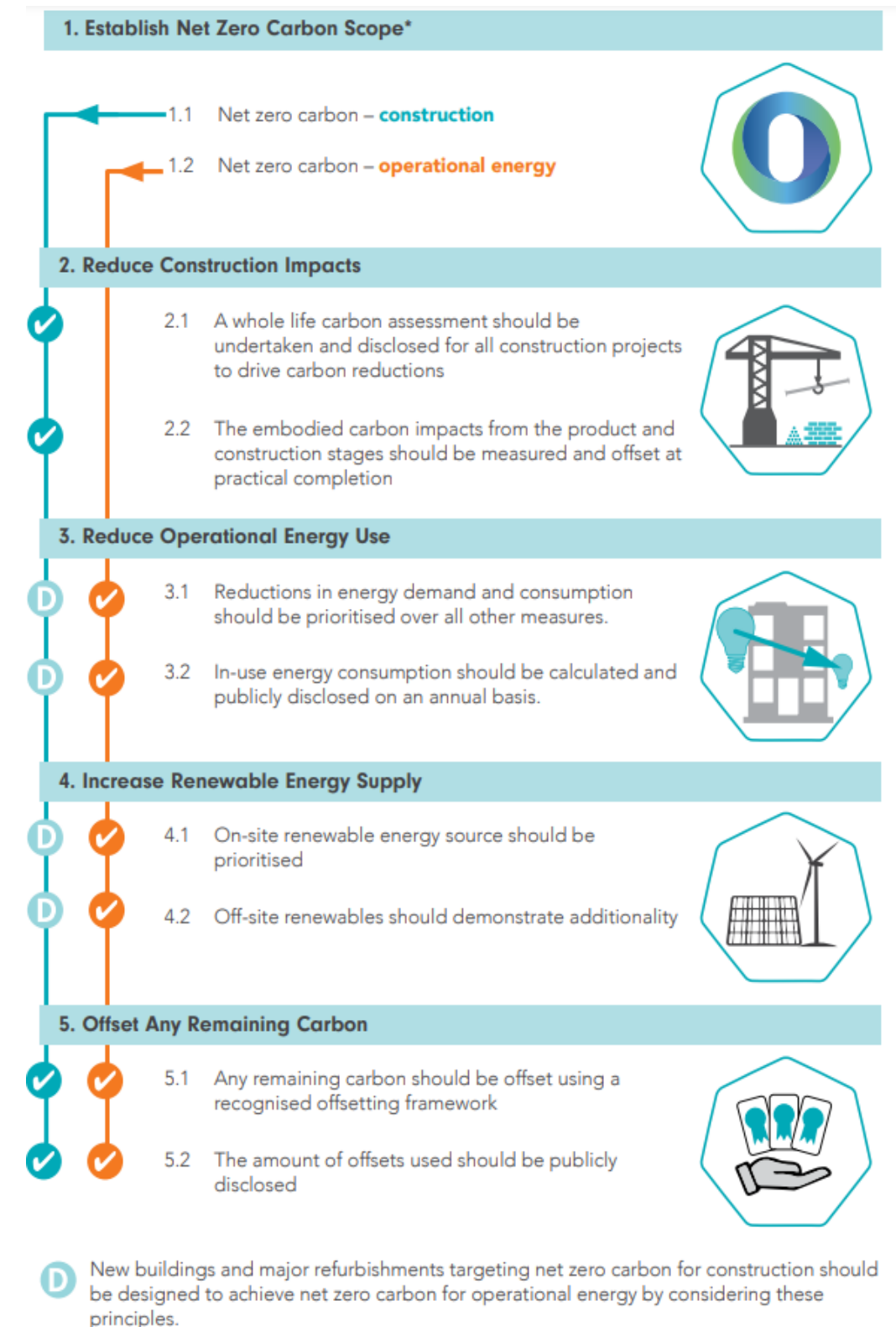


Figure 7: UKGBC Net Zero Carbon Buildings Framework Definition - twin track diagram

- **Net zero carbon in operation** is: “When the amount of carbon emissions associated with the building’s operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.”

UKGBC does not require the building to hit any specific targets for space heating, operational energy use, or embodied carbon, although it encourages reductions to be prioritised before offsetting.

UKGBC’s separate energy procurement guidance^{xxvi} confirms that off-site renewable energy supply does not have to be via a long-term power purchase agreement², but can be a green tariff so long as that it meets certain criteria on ‘additionality’ (so the purchase of the energy brings forward additional renewable energy generation capacity, not just buying up existing renewables present in the grid). The guidance notes that when it was written (2021) only three such tariffs existed in the UK. It also notes that:

- Fossil fuel must not be the primary energy source for heating, hot water and cooking; and
- All new build energy systems should be compatible with being renewably powered.

2.4.2. Low Energy Transformation Initiative (LETI) Net Zero Operational Carbon

LETI is a coalition of industry-leading green building experts, architects and surveyors.

It offers a definition^{xxvii} of zero carbon ‘balance’ in a building, measured by its energy on an annual basis. That means. For each unit of energy that the building consumes from the grid, it exports at least one unit of zero-carbon energy produced by the building itself (generally assumed to be through solar panels). Alternatively, the building’s energy demands can be entirely met by additional renewable energy supply from off-site.

LETI’s definition also requires that the building fulfil the following targets:

- **Space heat demand:** 15kWh/m²/year for all building types.
- **Total energy use intensity**, including unregulated as well as regulated: 35kWh/m²/year in homes, 65kWh/m²/year in schools, or 70kWh/m²/year in commercial offices
- These targets are designed to ensure the use of heat pumps, as these have a ~300% efficiency which translates a 15kWh space heat demand to a 5kWh energy use for heating. All space heat and energy demand targets must be pursued at the design stage using an **accurate predictive energy modelling methodology** (not the building regulations methods SAP or SBEM^{xxviii}), such as Passivhaus Planning Package (PHPP)³

² A fixed contract between a renewable energy generator and a customer at a pre-negotiated price. This long-term certainty can unlock finance allowing the generator to install dedicated new capacity for generation.

- Heating and hot water not to be generated using fossil fuels
- Onsite renewable energy should be maximised.

These targets – specifically the space heat demand target and fossil-free heating – are in line with the similar targets that apply to the industry certification ‘Passivhaus’ (although Passivhaus basic certification does not require any level of renewable energy provision nor ‘net zero carbon’ status).

Other sustainable construction frameworks such as the RIBA Climate Challenge^{xxix} have adopted similar targets for energy use intensity at similar levels, although not for space heating.

LETI also recommends annual reporting of energy use and renewable energy generation on site for 5 years to verify the net zero carbon status, and that embodied carbon should be separately assessed and reported. It offers separate targets^{xxx} for embodied carbon, but does not expect the embodied carbon to be offset – rather, reduced at source as far as possible.

We note that although UKGBC has not updated its ‘framework definition’ (discussed in the previous section), it has since endorsed the LETI definition of net zero carbon^{xxxi}.

More recently, both LETI and UKGBC have been part of the coalition that developed, and are now endorsing/promoting, the very new UK Net Zero Carbon Buildings Standard (discussed next).

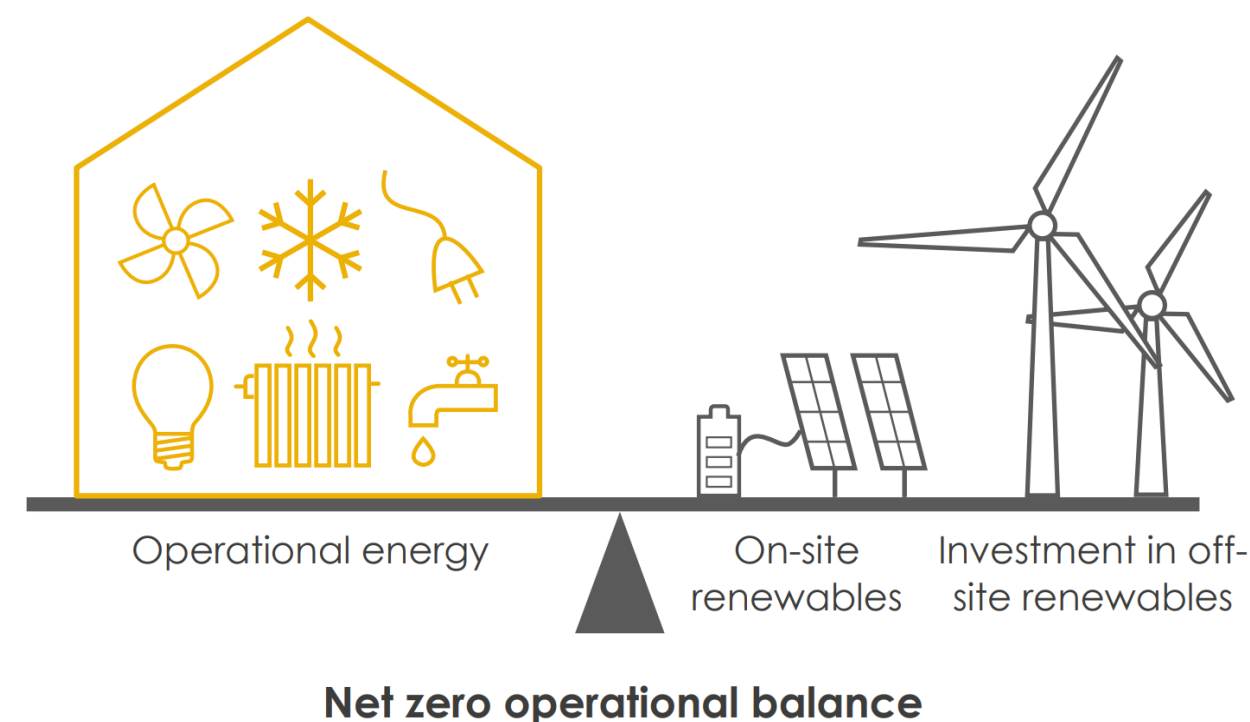


Figure 8: Illustration of net zero operational balance. Source: LETI

³ Please note the Passivhaus Planning Package (PHPP) is a method to model and predict building’s energy use. Although it was developed for use in the Passivhaus certification process, there is no obligation to undergo Passivhaus certification – the PHPP tool can be used in any project without pursuing certification.

2.4.3. UK Net Zero Carbon Buildings Standard (UKNZCBS)

Building on the work by LETI and UKGBC, a unified industry standard is in the works by a [coalition](#) that includes LETI, UKGBC, BRE, RIBA, RICS, CIBSE, and other standard-setting entities in the buildings sector. **This new Standard aligns with science-based carbon goals** (the UK buildings sector's share of the carbon budget to stay under **1.5°C** of global warming as per [the UK's Paris Agreement pledge](#)).

A pilot version was released in September 2024. Representatives from UKNZCBS founding entities UKGBC, RIBA, LETI, BRE and CIBSE (and others) presented it at a [launch webinar](#), where it was stated these entities commit to aligning their ongoing work with the UKNZCBS. Thus it appears **the UKNZCBS is now the 'correct' approach in those entities' view**.

The UKNZCBS is applicable to both new builds and existing buildings/retrofit. It allows two potential levels of claim about a building:

- **“Net-Zero Aligned”**: The building meets all the applicable targets that the UKNZCBS sets (and is thus aligned with the UK trajectory to net zero within the global carbon budget for 1.5°C – but does not mean that the building is ‘net zero carbon’ in its own right).
- **“Net-Zero Aligned Plus Offsets”**: The building meets all the applicable targets, and also the claimant has offset all emissions in the reporting period (5 years for up-front embodied carbon, and 1 year of emissions associated with operational energy and refrigerant leakage).
- This is the point when a building would actually be ‘net zero carbon’ in its own right.
- Valid offsetting mechanisms include renewable energy procurement (to offset electricity use not met by onsite renewables), or carbon credits (ICROA or ICVCM)

There are several mandatory targets that must *all* be met for a building to meet UKNZCBS:

- Operational energy use limits:
 - Energy Use Intensity (in kWh/m² floorspace/year; nearly all building types/sectors)
 - Space Heat Demand (in kWh/m² floorspace/year; certain building types/sectors only)
- Global warming impact of refrigerants, expressed as CO₂ equivalent (kgCO₂e / kg refrigerant)
- Embodied carbon limits (up-front only, not whole-life) (including the last 5 years of works in the case of existing buildings, or to building completion in the case of new builds):
 - Buildings, excluding on-site renewable electricity equipment: limits in kgCO₂e/m² floorspace.
 - (Other renewable electricity generation is not subject to an embodied carbon limit).
- Renewable electricity generation target: in kWh/m² building footprint/year; varies by region (this variability is due to differing amounts of sunlight at more northerly or southerly areas).
- No operational fossil fuel use on-site by the building other than for critical backup power.

The operational energy and embodied carbon limits vary by project type (new build or existing / retrofit), building/sector type (e.g. homes, various types of non-residential, etc), and the year in which the project seeks to meet the UKNZCBS (the limits gradually tighten in each year to 2050).

The UKNZCBS comes with:

- A pro-forma spreadsheet that applicants can fill in to submit their data
- A ‘roles and responsibilities’ annex of whose action is likely to be needed to meet UKNZCBS.

Where a building use type is not represented in the Standard (see Appendix1), the UKNZCBS is not yet applicable to that sector. The Standard also does not apply to infrastructure.

The Standard also requires a range of additional metrics to be reported, which are not currently subject to universal pass/fail limits. These include whole-life embodied carbon, operational water use, electricity demand, and delivered heating and cooling energy (often measured via sub-metering), along with refrigerant quantities and, where applicable, leakage reporting for systems above defined thresholds. These metrics form part of the Standard's broader data collection framework, with the intention that evidence gathered through their reporting will inform the introduction of future limits and targets as methodologies and datasets mature.

Key points to note about the UKNZCBS (in which it differs from earlier frameworks such as the RIBA Climate Challenge or the net zero definitions set in Part L, LETI, and UKGBC) include:

- **The operational energy targets are for in-use actual metered energy use**, based on at least one year's metered data of full occupancy of the building.
- Thus it is impossible to claim full compliance with the Standard at the point of submitting a planning application (except perhaps in very late retrospective applications). However, the UKNZCBS does offer a “practical completion on-track” status via tests on the completed building, which might align with discharge of planning conditions before occupation.
- UKNZCBS compliance is only valid for 1 year at a time, as it relies on energy meter data.
- **A UKNZCBS building must meet both the operational *and* embodied carbon targets** – there is no ‘net zero in construction’ versus ‘net zero in operation’ unlike prior work by UKGBC or LETI.
 - **The claim must be verified via an independent third-party verifier** (a status that the UKNZCBS coalition will award to entities with the appropriate skills and experience).
 - **‘Equivalence’ opportunity**: UKNZCBS invites other standard-setting entities to align their standard to a point where UKNZCBS would recognise them as equivalent. At the launch webinar, BRE indicated interest in seeking this ‘equivalence’ for relevant parts of the BREEAM rating system as part of the updates they are currently making to finalise version 7 of BREEAM.

3. Why must Gloucestershire and its constituent local planning authorities take action towards net zero carbon?

Local planning authorities, including the six district/city/borough councils within Gloucestershire, have a duty to take action towards net zero carbon via their respective local plans. This is set out in planning laws. Furthermore, national policy (the NPPF) states that local plan climate action should align with the UK's broader national commitments to climate change mitigation. Gloucestershire has declared a climate emergency in May 2019. Climate action is hence also a case of honouring its local commitment.

3.1 Planning laws

The **Planning and Compulsory Purchase Act 2004** is the foundational legislation for this. According to Section 19, paragraph 1a:

“Development plan documents must (taken as a whole) include policies designed to secure that the development and use of land in the Local Planning Authority's area **contribute to the mitigation of, and adaptation to, climate change**”.

Mitigation of climate change means reduction in the impact of human activity on the climate system^{xxxii}, primarily by reducing the level of greenhouse gas in the atmosphere^{xxxiii,xxxiv}. This has two parts: reduction of carbon emissions, and action to increase the sequestration of carbon (removal and storage of carbon by trees, grassland, other green infrastructure, or future technologies).

As outlined elsewhere in the current report, if the global average temperature warms more than 2 °C above the pre-industrial average, the planet will hit ‘tipping points’ where various natural systems will be damaged to the point where they begin to release even more greenhouse gases and result in runaway climate change that may be unmitigable after that point.

Therefore to truly “contribute to the mitigation of climate change”, a local plan's policies should ideally aim to facilitate the required carbon budget that would be compatible with staying below a 2 °C future. This essentially means there is no room for new development to add to the overall carbon emissions of the UK, given the existing vast challenge of reducing existing emissions. The Royal Town Planning Institution (RTPI) and Town and Country Planning Association (TCPA) also assert that “This means that Annual Monitoring Reports should [assess] carbon performance against the carbon budget regime set out in the Climate Change Act^{xxxv}” (although some experts argue^{xxxvi} that this legislated UK carbon budget is twice the size it should be to achieve the 2 °C limit while also following the Paris Agreement equity principles of to which the UK is a signatory.

This duty to mitigate climate change is repeated in **the Levelling Up and Regeneration Act 2023 (LURA)**. The LURA paved the path for new plan-making system and the development of National Development Management Policies (NDMPs) The LURA extends the climate change-related duty in the Planning and Compulsory Purchase Act to the central government when developing

NDMPs. However, it is important to note that the ‘national decision-making policies’ introduced in the NPPF 2026 are given the statutory status per LURA.

3.2 The UK's national and international commitments

The planning-specific legislation introduced above must be understood within the broader context of the UK's national and international commitments. They form a key basis for Local Plan policy design and justification, especially on how stringent the local standards should be.

The UK is a signatory to the international **Paris Agreement 2015**, brokered via the United Nations. This commits all signatories to **limit global average temperatures to 2 °Celsius** on pre-industrial levels, and to pursue a limit of 1.5 °C. This would require very fast and drastic cuts to global emissions, as there is a limited ‘carbon budget’^{xxxvii} to be emitted before the 1.5C and 2C limits will be reached – and a rise of 1 °C has already happened. If the 1.5 °C or 2 °C limits are breached, climate change impacts will be devastating worldwide, and the world is currently on track to breach 3 °C by the end of the century^{xxxviii}.

The Paris Agreement also commits that the extent of each country's carbon reductions is related to wealth and technological ability. As a rich and technologically advanced country, the UK is responsible for faster and deeper cuts. Given the speed and scale of carbon cuts needed in existing buildings, transport and other energy use, we cannot afford for new buildings to add to the burden.

In 2019 the UK Government declared a climate emergency and updated the legally binding carbon reduction goal for 2050 enshrined in the **Climate Change Act 2008**. The new goal is to achieve a **net zero carbon UK by 2050**, rather than the original goal of an 80% reduction on the carbon emissions of 1990. The Act also comes with **legislated interim 5-yearly carbon budgets** that are devised by the independent Committee on Climate Change (CCC) and then passed into law by Parliament.

The latest legislated^{xxxix} five-yearly carbon budget (passed by Parliament in June 2026^{xl}) legally commits the UK to achieve an ~87% emissions reduction by in 2038-2042 compared to the 1990

baseline^{xli}. That is equivalent to a 74% reduction compared to [current levels](#), which would require an average drop of circa 5% each year⁴ from today to the middle of that period (2040).

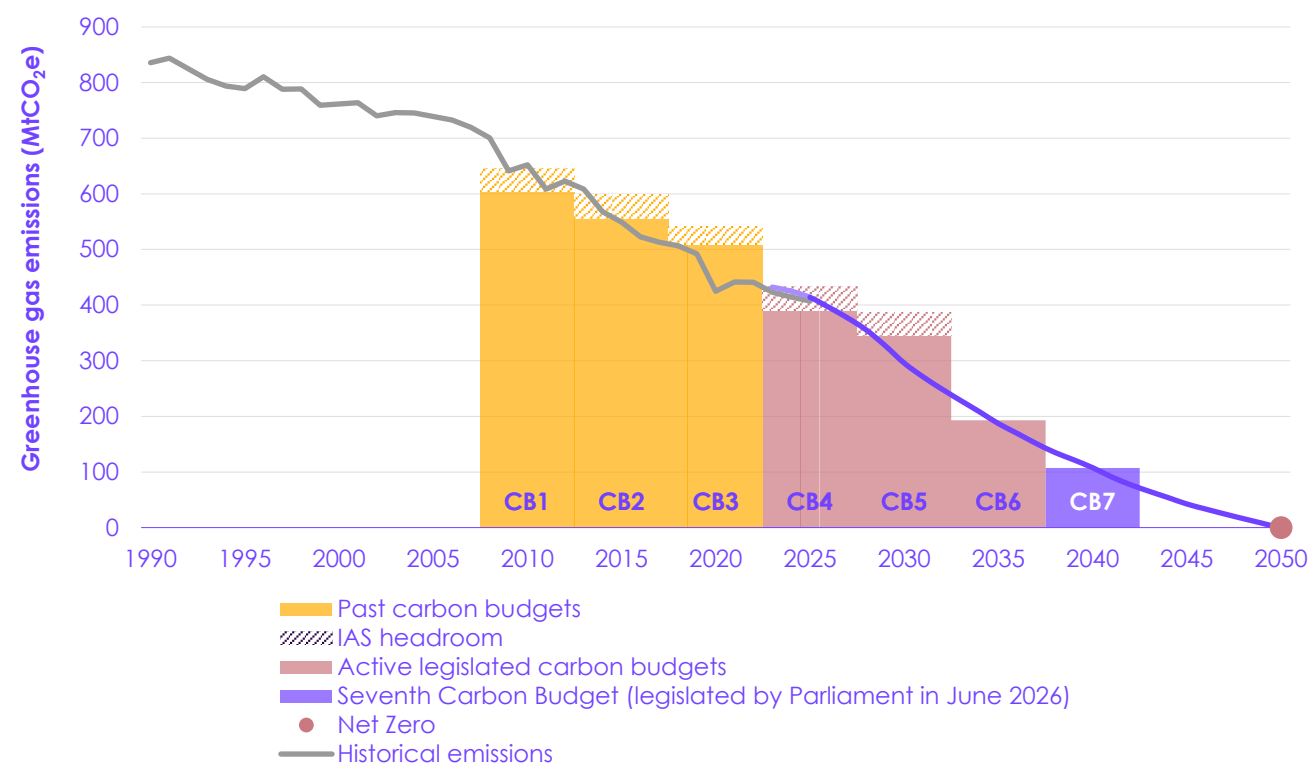


Figure 9: UK legislated carbon budgets under the Climate Change Act. Data from: Climate Change Committee (2025), The Seventh Carbon Budget, and Climate Change Committee (2026) Progress in reducing emissions 2026 report to Parliament.

The analysis supporting those carbon budgets also comes with a ‘balanced pathway’ which shows that the sectors of buildings, energy and land transport should all achieve steep and rapid reductions and reach zero or near-zero emissions on their own terms (see Figure 10, overleaf). These specific sectoral pathways are not legislated, but are the most realistic way that the legislated carbon budgets can be achieved. The Committee on Climate Change explains that “a little more or a little less may be achieved in any area, or alternative low carbon options could be used, but the overall level of ambition and delivery must match” the proposed carbon budgets. Given that all sectors face a huge challenge in achieving their own required reductions, this means there is **very little room to offset emissions in one sector by reductions or removals in another sector**. For example, even highly ambitious levels of tree planting would barely be enough to offset unavoidable emissions from agriculture – see Figure 10 - thus the buildings and energy sectors should not rely on tree planting to make up for insufficient reductions in their own emissions.

⁴ For context, the UK’s emissions fell by 9.5% in [2020 due to the COVID](#) pandemic but rebounded by about half that figure in 2021, while global emissions fell by about 5% in 2020, but then in 2021 [rebounded to even higher levels](#). The UK’s average year-on-year emissions drop since the Climate Change Act was passed in 2008 has been just 3%.

⁵ It is important to note that the carbon budgets, while challenging, are really the minimum degree of action logically necessary for the UK to achieve to play its proportionate role in preventing catastrophic climate change. Other [recent](#)

The CCC’s supporting analysis for the UK’s five-yearly carbon budgets also identifies the **combination of actions necessary to stay within the budgets**⁵. These include wide-reaching and ambitious changes to buildings (new and existing), the energy system and transport, as well as agriculture/forestry, industry and waste. Most relevant to Local Planning are:

- **No new homes connected to the gas grid from 2025** at the latest^{xlii} (and ideally be zero carbon^{xliii}), instead using low-carbon heat such as heat pumps or gas-free heat networks
- **New homes to have a very low space heat demand of only 15-20kWh/m²/year** (a 60-70% reduction on a new home that just complies with the previous 2013 building regulations^{xliiv})
- **Accelerate and scale-up rollout of low carbon heat to existing buildings**, with 3.3 million heat pumps to be installed in existing homes by 2030, expansion of low carbon heat networks in the 2020s, and a limited role for hydrogen in the existing gas grid in some locations after 2030
- **End the installation of any fossil fuel boilers by 2033 for all existing buildings** including homes, commercial and public buildings, unless in hydrogen gas grid areas
- **Rapid rollout of insulation and other energy efficiency measures to existing buildings**, so that all existing homes for sale from 2028 have EPC rating of C or better, and 15 million homes to receive insulation to their walls, floors or roofs by 2050, to include by 2025:
 - Loft insulations to reach 700,000 per year (from current level of just 27,000/year)
 - Cavity wall insulations to reach 200,000/year (current level: 41,000/year)
 - Solid wall insulations to reach 250,000/year (current level: 11,000/year)
- Construction materials to be used more efficiently and switching to low carbon materials (e.g. timber and low-carbon cement) – although this has only a very small role overall
- Fully decarbonise the electricity grid by 2035, by:
 - Scaling-up renewable electricity to represent 80% of generation by 2050 – primarily wind power but also solar, with much of the wind power being offshore – in step with greater electricity demand as buildings and transport switch away from fossil fuel
 - Adding energy storage to the system, including batteries, hydropower, and hydrogen
 - Maintaining or restoring the existing nuclear power capacity by building new capacity in the 2030s to replace existing plants that are being retired in the 2020s

[expert analysis by UK academics](#) has found that, according to the equity principles that the UK has committed to through the Paris Agreement, the UK’s proportional of the global carbon budget should logically be about half the size of the budgets that the CCC permits.

- **Reduction in travel mileage by car**, and phase out of new fossil fuel cars and vans from 2032 in favour of fully electric vehicles – and road investment should be contingent on analysis justifying how it supports the UK’s route to net zero and not increase emissions^{xlv}
- **Increase woodland cover to 18% of UK land**^{xlvi}, up from 13% today, and restore peatlands.

It is vital to note that to realise the ‘balanced pathway’ to net zero and the carbon budgets, all of the above changes must be achieved in combination, not either/or. This is because there are many interdependencies, and each sector faces such a large challenge in addressing its own emissions that most sectors (buildings/ energy/ transport/ agriculture/ waste) cannot be reasonably expected to have the capacity to reliably pick up slack from others that underperform. As a result, the charts above show the ‘buildings’ sector needing to reduce emissions at source and not allocated a share of removals.

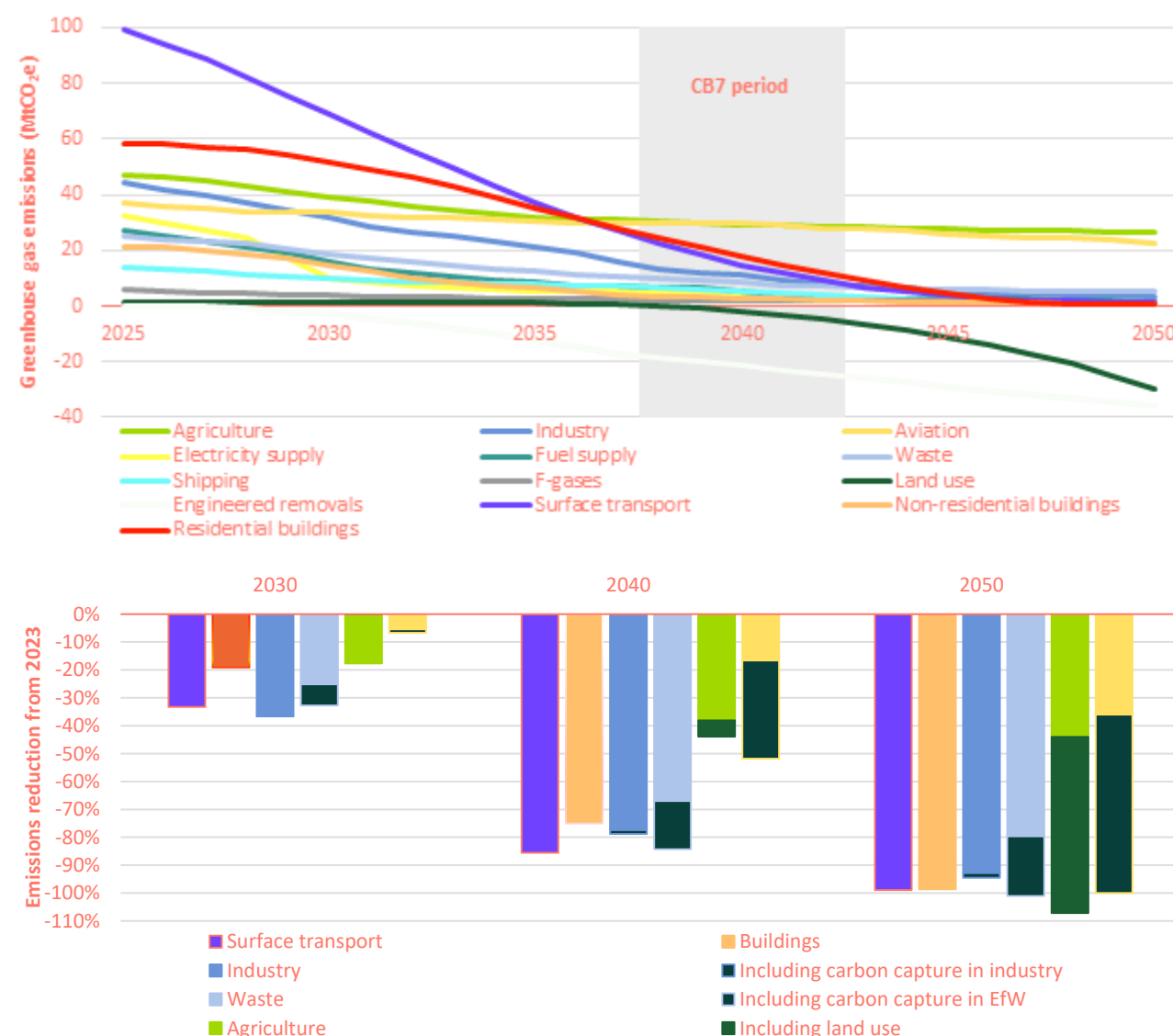


Figure 10: Two charts showing how the carbon emissions of each sector must fall to achieve the 'balanced' pathway to net zero carbon in 2050 and meet carbon budgets. From: Climate Change Committee (2025), *The Seventh Carbon Budget*, chart 3.6 and c.

3.3 Policy and guidance

While the above laws and commitments set out the duty for development plans to take action towards net zero, the issues of ‘how’ and ‘to what extent’ are addressed in policy and guidance.

3.3.1. National Planning Policy Framework (NPPF)

The NPPF is the rulebook for planning in England. Local plans must conform to the NPPF to pass the examination by the Planning Inspectorate. The NPPF was last updated in 2026. In this latest iteration, plan-making policies are separated from national decision-making policies, a departure from previous versions of the NPPF. Plans that undergo the legacy plan-making system will be examined against NPPF 2024. This means that plan-making policies in NPPF 2026 will not apply to them. However, decision-making policies started to apply from the date the NPPF 2026 was published (17 August 2026). For plans undergoing the new plan-making process, both plan-making and decision-making policies in NPPF 2026 will apply.

Chapter 5 of NPPF 2026 is titled ‘Meeting the challenge of climate change’, the objective of which is described as supporting ‘the **transition to net zero by 2050**’ and to shape places that ‘**contribute to radical reductions in greenhouse gas emissions**’. Similar provisions were given in NPPF 2024.

In the chapter, plan-making policy CC1 states that:

“Development plans should take a proactive approach to mitigating climate change and supporting the transition to net zero, in accordance with the objectives and provisions of the Climate Change Act 2008.”

This mirrors Footnote 61 in the NPPF 2024.

Decision-making policy CC2 of the NPPF 2026 states that development proposals should promote sustainable patterns of movement and ‘use design approaches which conserve energy and other resources’. They should also ‘take advantage of opportunities to reuse existing structures and materials’, and to ‘take advantage of opportunities to draw low carbon energy from decentralised networks’.

Both NPPF 2024 and 2026 encourage the development of renewable energy (paragraph 165 in NPPF 2024; plan-making policies W1 and W2, and decision-making policy W3 in NPPF 2026).

In the NPPF 2026, decision-making policy DP3.2.b states that development proposals should contribute to climate change mitigation and adaptation and the transition to net zero by using building layouts, building orientation, massing, landscaping and materials which conserve energy and other resources’.

While the above policies provide support for climate change policies in a local plan, plan-making policy PM13 and decision-making policy DM7 sets the constraints. These will be further discussed in Section 4.8.

3.3.2. Planning Practice Guidance (PPG)

The National Planning Practice Guidance is an online resource that adds further context and interpretation to the NPPF. It is separated into a series of topics, including climate change, renewable energy, planning obligations and viability. It makes several points about the duty and expectation for Local Plans to address carbon reductions. While the government sees the PPG as playing a ‘supporting role’ to national policy, the Court of Appeal ruled in 2025^{xlvii} that it carries the same weight as the NPPF and can be used to amend the NPPF.

The **PPG climate change section**^{xlviii} confirms that:

“Addressing **climate change is one of the core land use planning principles** which the National Planning Policy Framework expects to **underpin both plan-making and decision-taking**. To be found sound, Local Plans will need to reflect this principle and enable the delivery of sustainable development in accordance with the policies in the National Planning Policy Framework. These include the **requirements for local authorities to adopt proactive strategies to mitigate and adapt to climate change in line with the ... Climate Change Act**”.

This section reiterates Local Plans’ climate mitigation duty per the Planning & Compulsory Purchase Act 2004, and that plan makers should be aware of the 2050 net zero goal and carbon budgets set via the Climate Change Act 2008. The section on renewable and low carbon energy^{xlix} confirms that:

- All communities have a responsibility to help increase the use and supply of green energy, albeit not overriding other environmental protections
- Local Planning Authorities hold decisions over renewable energy development of 50 megawatts or less and that the Government intendedⁱ (at the time when this section of the PPG was written, in 2015) to amend legislation so that Local Planning Authorities would also hold decisions over onshore wind energy development of any size, including those over 50MW

However: It is important to note that at the time of writing the current report (June-July 2026), the PPG web page states that the climate change section was last updated in March 2019. Meanwhile the renewable energy section was last updated in August 2023 purely to add a section on battery storage systems, but all other content on that page remains unchanged since 2015.

This illustrates how the PPG is not always the most relevant and up-to-date expression of national policy in that its contents in this case have not been updated to reflect several years’ worth of NPPF changes, legislative changes and other statements of national government policy (such as Written Ministerial Statements) that may contradict or supersede the former national policies on which the PPG was based. Examples of significant national policy or legislative changes that occurred since the climate change section of the PPG was last updated include:

- The June 2019, July 2021, September 2023 and December 2023, December 2024, and August 2026 versions of the NPPF (albeit none of these brought major changes to the climate change mandate)
- The 2020 legislative instrument ‘The Infrastructure Planning (Electricity Storage Facilities) Order 2020, which now means that energy storage of over 50MW is now the domain of the Local Planning Authority, except pumped hydro^{li}
- The Written Ministerial Statement (WMS) on Energy Efficiency in Local Planning, 13th December 2023, which replaces and supersedes a previous WMS made in 2015 (whereas the PPG climate change section redundantly still echoes that 2015 statement despite the fact that that WMS2023 expressly stated that the PPG would be updated to reflect it). This has recently been superseded by NPPF 2026.
- The Levelling Up & Regeneration Act 2023, which replicates and cements the duty to mitigate climate change that was originally enshrined in the Planning & Compulsory Purchase Act (albeit that original Act remains relevant and is cited in the PPG)

This list is not exclusive; there may also be various other relevant policy evolutions with which the PPG is not up to date.

Furthermore, there is emerging PPG on ‘Design and Placemaking’ that was consulted upon in January to March 2026. The consultation stated^{lii} that this new draft piece of PPG was “intended to support the application of policies in the draft [NPPF] 2025”, which is now NPPF 2026. The consultation proposed that the new Design & Placemaking PPG would consolidate four separate existing guidance items: The National Design Guide (2021), the Design Process and Tools planning practice guidance (2019), and the National Model Design Code Parts 1 & 2 (2021). The proposed consolidated PPG, which takes the form of a single 161-page PDF, identifies:

- Part 1: “Seven features of well-designed places” of which one is “Climate”.
- Part 2: Five ways to incorporate design quality into the planning process (“design processes”; “design in plan-making”; “design tools”; “preparing design codes”; and “making decisions about design”)
- Part 3: Three key points about setting effective design codes (“Issues design codes can cover”; “using design codes to create liveable places”, and “technical guidance on setting design codes locally”).

The “Climate” section of this draft PPG document includes that:

- “Well-designed places and buildings identify measures to achieve ... mitigation, primarily by reducing greenhouse gas emissions and minimising operational and embodied energy”.
- “Local design policies ... can play a vital role in mitigating climate change. By prioritising energy efficiency, reducing greenhouse gas emissions and promoting sustainable construction practices, new development can contribute to climate change mitigation”

- Point C1, “The energy hierarchy” confirms that “well-designed places and buildings follow the energy hierarchy to prioritise sustainable energy sources and use:
 - Energy saving: Prevent or reduce the need for energy through passive measures including form, orientation and fabric.
 - Energy efficiency: use energy efficient materials and ...systems, ...
 - Renewable energy: maximise contributions from ... renewable energy. For example, orienting roofscapes to maximise opportunities for solar PV generation ...
 - Low carbon energy: making use of low carbon energy infrastructure at the neighbourhood and building level by using heat pumps and heat networks to reduce the demand for non-sustainable energy sources.”
- “Well-designed homes and buildings are efficient and cost effective to run.”
- Point C2, “Whole life carbon and sustainable construction” confirms that:
 - “To reduce operational and embodied carbon emissions and waste, development proposals can use whole life carbon assessment (W L C A) and circular economy principles.”
- Part C2 (“Minimising climate risks”) and part C4 (“Overheating and thermal comfort”) then go on to discuss ways in which design can help deliver climate adaptation.

Of particular interest for the topic of net zero carbon buildings policy are the parts that mention the energy hierarchy (C1 as above) and Whole Life Carbon Assessment (C2 as above). While the guidance only describes generic principles around these topics, clearly these topics could not be effectively evaluated without effective means to calculate performance or best-practice benchmarks against which performance could be compared:

- The endorsement of Whole Life Carbon Assessment (WLCA) in Point C2 echoes the existing National Model Design Guide. The only existing robust methodology for this is the RICS Whole Life Carbon Assessment (WLCA)^{liii}. As detailed later in this report in section 4.1, the RICS WLCA requires the calculation of total energy use via a predictive method, specifically endorsing the methods PHPP, NABERS and TM54. This national endorsement of WLCA therefore logically implies national endorsement of these calculation methods and total operational energy use accounting, in policy-making and decision-making on design quality. This would aid design-related policies DP1(1)(c) (plan-making) and DP3(1)(c) (decision-making) in the NPPF 2026.
- The mention of energy hierarchy (point C1) implies that in order to identify a well-designed building, decision-makers need to be able to identify whether energy demand has been “reduced” and renewable energy “maximised”. These terms are only meaningful in relation to a baseline or benchmark. The baseline for energy demand must logically be

Building Regulations compliance, while the benchmark for ‘maximising’ renewable energy may need to reflect evidence of the maximum level that is typically feasible in the area.

Part 2 of this draft PPG relates to integrating design into plan-making, including that:

- Local plans can incorporate design policies at a range of different scales including authority-wide, area-specific, and site-specific.
- Local plan design policies should be informed by evidence – which can include “priority design issues aligned with the seven features of well-designed places” (of which one was ‘climate’ as noted above) and can include “evidence of poor design and design challenges from analysis of previous planning applications and appeals”.
- “Design policies should support the implementation of the local plan vision and spatial strategy and respond to place specific issues. They should cover the relevant spatial scale”
- The subchapter “design in placemaking” relates more to how to move from the spatial strategy down to smaller scales and does not give any particular guidance on how energy hierarchy or whole-life carbon policies might fit into that hierarchy of scales.
- The subchapter “design tools” covers ‘masterplans’ (relating to specific sites/locations), ‘design codes’ (which “specify parameters for the physical development of a site, area or development type” and “help deliver the local plan vision by translating broad planning policies into specific, visual and measurable design parameters”), and ‘design guidance’ (which is more principle-based, advisory and flexible, versus ‘design codes’ which are more clear, measurable, directive and rule-based). In light of this, the most appropriate of these design tools for the setting of operational and whole-life carbon standards would appear to be a design code, as these would be measurable directive standards. This might be a site-specific code or it could be an area-wide code, depending on what the evidence shows about feasibility and viability in the local plan area.

Part 3 of this draft PPG then gives guidance on “Setting effective design codes”. This includes:

- Design codes should:
 - Be visual and have numerical parameters (as opposed to detailed policy wording)
 - Give certainty about what will be acceptable (for predictability and efficiency)
 - “Raise the baseline standard of design quality and create consistency” yet “allow flexibility and a suitable degree of variety”.

- A table titled “figure 51” highlights issues that design codes can cover under each of the aforementioned ‘seven features of well-designed places’. Under the feature of ‘climate’, the issues it lists are “Passive design” and “Reuse and adaptation”. These include:
 - The issue “Passive design” includes:
 - “Layout and orientation” (“specifying orientation of buildings that reduce energy needs and maximise opportunities for solar energy generation”),
 - “Specifying a maximum form factor ... to improve energy efficiency”),
 - The rationale given for this issue is the aforementioned point C2 (energy hierarchy), specifically that “well-designed places and buildings prevent or reduce the need for energy through passive measures including form, orientation and fabric”.
 - However, design codes should “not duplicate or contradict standards for overheating as per ... building regulations ... Part O, and ... M”. Interestingly, Building Regulations Part L is not mentioned even though that is the part of Building Regulations that deals with energy and carbon performance and therefore would have been most relevant to the topic of energy hierarchy.
 - The issue “Reuse and adaptation” confirms that “Design codes can specify how alterations to existing buildings can be carried out, to improve energy performance whilst respecting the identity of the area” including:
 - “Technical details: specifying acceptable ... construction details and materials ... to improve thermal performance”
 - “Renewable energy and resource efficiency” such as “how renewable energy resources ... can be integrated within existing buildings ... while respecting local character”.
 - These issues relating to existing buildings should only be addressed in design codes where permitted development does not apply.
 - The rationale given for this issue is the earlier point C2 whole life carbon and sustainable construction, in particular that “reusing and adapting buildings can lower resource construction”. However, this section does not give any further guidance on how whole-life carbon should be considered in *new* buildings policy or design code.

However, this draft PPG does not state anywhere that this is an exhaustive list of the ways in which local plan policy or design codes should address the energy hierarchy or whole-life carbon. Furthermore it is interesting that although this draft PPG places emphasis throughout on

the fact that design codes and policies should be ‘vision-led’ and aimed at delivering specific outcomes, the guidance it gives on the issues of energy hierarchy and whole-life carbon focusses more on encouraging the adoption of prescriptive design features rather than on how to measure and identify good performance in energy efficiency or whole-life carbon.

3.3.3. Potential tension with other duties

These carbon reduction duties (in the Planning & Compulsory Purchase Act, NPPF 2024, and NPPF 2026) are often thought to be in tension with the other expectations laid upon the local plan – e.g. to enable economic growth and delivery of government-mandated housing targets. It is often assumed or argued that these other objectives could be inhibited if the carbon reduction provisions are so onerous as to present technical challenges or put at risk the developers’ anticipated minimum profit margin of 15-20%.

Nevertheless, both NPPF 2024 and 2026 explicitly state that the goal of the planning system is ‘sustainable development’ which it defines as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (as per the United Nations definition).

Given that the continued existence of life across much of the Earth is at risk if the planet exceeds 2° C of climate change (as discussed elsewhere in this report) – or at least a good quality of life – there is a strong argument to make that carbon emissions should be treated as the fundamental bottom line for what we can define as ‘sustainable’ development.

3.4 Gloucestershire County Council’s role and commitments

3.4.1. Climate Emergency declarations 2019

In recognition of the urgency to tackle climate change, Gloucestershire County Council declared a climate emergency on 15 May 2019^{liv,lv} and produced Gloucestershire’s Climate Change Strategy Part 1 in December 2019 (adopted in 2020). The climate emergency declaration and the Strategy set out the following commitments by the council:

- Net zero council emissions by 2030 [presumably from the 2019 baseline]
- Working with partners to achieve 80% reduction in emissions by 2030
- Net zero county by 2050 (updated to 2045 in 2023)

While the county council’s climate emergency declaration and strategy do not explicitly define “net zero,” it establishes targets and delivery pathways to achieve the net zero targets that it has committed to.

All local authorities in Gloucestershire also declared climate emergencies by October 2019. In 2023, Gloucestershire County Council and all six of the local authorities in the county signed an agreement to **achieve net zero across the county by 2045^{lvi}**.

3.4.2. Gloucestershire County Council Climate Change Strategy Part 1 2019 (adopted 2020)^{liv}

This strategy establishes a county-level commitment to climate action with a clear immediate-term programme followed by a five-year reporting framework. Driven by eight key themes, the long-term strategy sets out a range of targets and actions to evidence the County Council's role in supporting the transition to net zero. The themes include:

1. Putting climate change at the heart of decision making
2. Buildings (the council's, residents', businesses' and partners')
3. Transport (via the council's role in home-to-school transport and as highways authority)
4. Power (assisting with the transition to green power via energy procurement and via renewable energy generation on council sites)
5. Waste (reducing and managing, via the Council's role as waste disposal authority)
6. Influencing others (including via the Council's role as statutory authority for highways, transport, minerals, education and waste disposal, as well as engaging youth and staff)
7. Land use (including via extensive tree planting)
8. Campaigning (including calling on Government to provide the necessary planning powers, and supporting the districts in being able to "make their changes").

In particular, the strategy outlines commitments that are relevant to the development of planning powers such as:

- Ensuring new development supports net zero objectives and delivers high quality green infrastructure
- Enabling low-carbon infrastructure such as the delivery of its existing electric vehicle (EV) strategy and exploring the feasibility of district heating networks
- Identifying opportunities to increase renewable energy generation on public land
- Establishing a Gloucestershire carbon offsetting scheme.

Therefore, while the strategy itself does not define specific delivery mechanisms, the listed actions establish a clear expectation that spatial development and infrastructure planning play a vital role in achieving the county's climate commitments.

3.4.3. Gloucestershire Climate Risk and Vulnerability Assessment (CRVA)

The Gloucestershire CRVA^{lvii}, developed through Climate Leadership Gloucestershire, provides a county-wide evidence base on the expected impacts of climate change across the area such as increased flooding, heatwaves, drought, wildfire risk and disruption to infrastructure. Therefore, the assessment highlights the need to prioritise targeted adaptation measures across six key sectors including the built and natural environment such as:

- Improving building design to manage overheating
- Implementing sustainable drainage and nature-based solutions to reduce flood risk

- Strengthening the resilience of infrastructure to extreme heat and weather events.

The CVRA underpins evidence for the types of interventions needed to meet the County Council's wider net zero and climate change commitments, demonstrating delivery through coordinate action across partners. Therefore the CVRA provides the critical risk context for which local plan and spatial planning policy development will need to address to support climate adaptation and resilience across the area.

3.4.4. Gloucestershire County Council Sixth Annual Climate Change Report 2024-2025

Building on the evidence set out in the Gloucestershire CVRA and actions in the Gloucestershire Climate Change Strategy, the Sixth Annual Climate Change Report (2024-2025) provides an update on progress against its current commitments to achieving net zero. The report confirms targets including achieving net zero emissions for the Council's operations by 2030 and 2050 for the wider supply chain. This is alongside the ongoing measures to reduce emissions through energy, transport, procurement and engagement with businesses and communities.

The report highlights that the majority of emissions fall outside the County Council's direct control, and therefore requires coordinated actions across partners across the region. Hence, demonstrating the County Council's primary role as a leader in coordinating and influencing instead of direct delivery paired with wider mechanisms such as spatial planning and development to reduce emissions across the county.

3.4.5. Gloucestershire County Council Corporate Strategy 2025-2029

The Gloucestershire County Council Corporate Strategy (2025-2029) establishes the Council's overarching corporate vision and priorities, positioning environmental sustainability and climate action within a wider programme of economic, social and infrastructure outcomes. Framed around a fairer, greener, and welcoming place, the corporate strategy emphasises the Council's role in working collaboratively with partners, communities and businesses to deliver county-wide change. While the corporate strategy does not define specific climate targets or delivery mechanisms, it does establish the Council's role as a strategic leader and coordinator, embedding climate considerations within its broader responsibilities and the need for cross-sector action.

3.4.6. Climate Leadership Gloucestershire (CLG) Greener Gloucestershire Action Plan^{lviii}

As stated previously, the Climate Leadership Gloucestershire (CLG) is a partnership between the county council, district councils and other strategic partners to take coordinated and accelerated climate action across Gloucestershire. The Greener Gloucestershire Action Plan sets out a shared programme of actions across 10 key themes. Of those 10 themes, the most relevant to local plan

policy development are transport, planning, energy and waste, detailing how strategic working can deliver emissions reductions and climate resilience through planning approaches laid out in detail in the table below.

Table 2: Key themes in The Greener Gloucestershire Action Plan and its relation to Local Plan 'net zero' policy development

Ref no. in Climate Action Plan	Climate Leadership Gloucestershire Actions	How could this relate to local plan 'net zero' policy development?
Transport	0904 Ensure policies and strategies support a shift to sustainable transport modes, reduce reliance on private vehicles, and coordinate funding to enable delivery.	Local plans could require high-quality walking and cycling infrastructure within and between development sites including connections to existing networks. Policies in the local plan(s) could also prioritise public transport accessibility in site allocation and require developments to demonstrate modal shift outcomes to be supported by the submission of travel plans and transport assessments. Finally, the Local Plan could also set parking standards to manage car dependency alongside cycle parking and infrastructure requirements to ensure modal shift through planning.
	0905	
	Ensure policies and strategies accelerate uptake of low emission vehicles, support provision of EV infrastructure, enable freight decarbonisation, and coordinate funding.	Building Regulations Part S already requires one EV charger for each home that has associated open-air parking, and one for non-residential that has 10 or more spaces. The local plan(s) could further require a proportional ratio of chargers at non-residential parking, on-street and covered parking, and charging hubs via site-specific policies, e.g. rapid-charge hubs at new employment parks or village centres and s106 payments for on-street chargers in existing neighbourhoods that lack off-street parking.
Planning	0701 Agree a set of shared climate planning policies by late 2024 for CLG to be developed once and used by all partners to support Local Plan preparation. Local variance is retained to allow each authority can apply appropriate standards and metrics locally while meeting overall net zero objectives.	In relation to becoming net zero , local plan(s) can address both new and existing buildings. For new development, this could include policies requiring zero operational carbon performance through a fabric-first approach, Energy Use Intensity and space-heating-demand standards, fossil-free heating, on-site renewable energy to meet total energy use, and clearly defined offsetting only where residual demand cannot reasonably be met on site. For existing buildings, local plan(s) can support retrofit through policies on change of use, redevelopment and extensions, including appropriate approaches for domestic, commercial and heritage buildings. This can be complemented by policies on embodied carbon and circular economy principles, including the reuse of existing buildings and materials, whole-life carbon assessment and circular economy statements for larger development.
	0707 Use CIL and S106 funding to deliver infrastructure aligned with CLG climate goals to be supported by sustainability assessment to guide spending priorities. Opportunities to pool funding across partners to deliver	

Ref no. in Climate Action Plan	Climate Leadership Gloucestershire Actions	How could this relate to local plan 'net zero' policy development?
	shared strategic outcomes should also be explored.	<p>Local plan(s) can also use spatial strategy, site allocation and design policy to ensure development responds to future climate risks, including overheating, wildfire, storms, high winds, flooding and drought.</p> <p>In relation to restoring and enhancing nature, local plan(s) should embrace policies that protect and enhance green and blue infrastructure networks, support 30by30, require BNG above the statutory minimum where justified, embed the Local Nature Recovery Strategy, safeguard carbon-sequestering habitats and support sustainable agriculture and local food infrastructure where relevant.</p> <p>(see chapter 4 of the current report regarding the power to do this).</p> <p>Policies could also strengthen overarching measures such as site allocation in locations with strong walking, wheeling, cycling, public transport and community transport access; safeguarding land and infrastructure for renewable energy, heat networks and energy storage; and requiring development to address overheating, wildfire, drought, flood risk, SuDS, and green and blue infrastructure.</p> <p>Planning policies may support low-emission freight by promoting last-mile delivery infrastructure, safeguarding logistics land, and managing freight routing through the spatial strategy. Policies could also require Delivery & Servicing Management Plans for large retail, logistics and employment proposals, including a required element of explaining choices made to minimise freight emissions:-</p>
Energy	0501 Develop a coordinated Local Area Energy Planning approach to align stakeholders and inform energy infrastructure and decarbonisation planning across the county	<p>The local plan(s) could adopt a strategic, plan-led approach to energy infrastructure using evidence such as the LAEP to identify locations and requirements for renewable energy, heat networks and supporting infrastructure.</p> <p>Local plan policies could also support infrastructure-led development to ensure new growth aligns with energy system capacity and decarbonisation pathways.</p> <p>As per the current and incoming versions of the NPPF, the local plan(s) should identify which areas are suitable for renewable energy development.</p>
	0503	
	0504 Explore and support the deployment of low carbon heat networks, including feasibility, design and delivery of shared heating infrastructure	
	0502 Support the deployment of renewable electricity generation	

Ref no. in Climate Action Plan	Climate Leadership Gloucestershire Actions	How could this relate to local plan 'net zero' policy development?
	across the county including large-scale and distributed energy opportunities	The local plan(s) could also require development proposals to demonstrate how they align with strategic energy priorities and contribute to the decarbonised energy systems.
	Support the development of a countywide community energy network to enable local investment, participation and delivery of renewable energy projects	Local Plan policies could identify opportunities to integrate community-led energy generation within new and existing development as well as enabling larger scale developments to facilitate or incorporate community energy opportunities.
Waste 1001 1005	Reduce residual waste through changes to collection systems and waste management practices	This action primarily relates to operational waste management and would more directly inform county-level waste planning such as a Minerals and Waste Plan. While it does not directly translate into specific district/ borough /city-level local plan policy requirements, it does provide a wider context for promoting waste reduction and resource efficiency within development.
	Plan and deliver new waste depot infrastructure aligned with net zero operational requirements	The Local Plan can support delivery by identifying and safeguarding sites for waste infrastructure and ensuring new facilities are designed to meet net zero requirements, including integration with renewable energy and low carbon systems.

3.5 The case for going beyond national minimum standards

As previously noted, both the current and incoming NPPF documents state that the Local Plan should proactively contribute to the mitigation of climate change “in line with the Climate Change Act”. There are national requirements (e.g. Building Regulations) and policy initiatives (e.g. heat networks) that it can follow and support. However, there is also a case for going beyond what is stipulated nationally, particularly where national policies fall short of delivering the reductions needed to fulfil the carbon budgets set under the aegis of the Climate Change Act.

This section examines the latest available evidence on whether the UK is already delivering the type, scale, speed and degree of changes that the Climate Change Committee has identified necessary to fulfil those national carbon budgets. We here focus only on the changes that are relevant to local plans’ sphere of influence, i.e. buildings that require planning permission, and transport (we do not cover changes that a local plan cannot influence, such as changes to existing agricultural or industrial practices).

3.5.1. Building regulations (current and incoming) do not deliver the performance needed

The national Building Regulations on energy and carbon – Part L – neglects the following:

- **Does not cover the entire scope of buildings’ energy use** (only ‘regulated’ energy uses, which make up circa 50-75% of total energy use), thus does not cover its full operational emissions.
- **Does not require its energy and carbon targets to be met in real life**, only via estimation methods that have been repeatedly found to be inaccurate (SAP and SBEM) as they underestimate energy use, especially space heat demand. This is the ‘performance gap’. A new method (HEM) is being introduced in 2025-2027, but its accuracy is as yet unknown.
- **Embodied carbon** – neither current nor future Building Regulations deals with this.
- The previous Part L (2021) did not rule out gas, and many buildings granted under this regime will actually be completed post-2026.
- **The Future Homes Standard (2026) (FHS)** will ensure that new homes are gas-free, but **is not net zero carbon from first operation**, going against the Committee on Climate Change’s recommended “rapid and forceful pursuit of zero-carbon new-build”^{lix}.
 - **The FHS will not deliver a low enough space heat demand^{lx}** for the UK’s carbon budgets. This is true whether calculated with SAP^{lxi} or a more accurate energy prediction method^{lxii, lxiii}, in all three FHS specifications Government has released to date. To achieve the necessary 15-20kWh/m² limit, improved fabric is needed. The published FHS (March 2026) confirms that the FHS fabric will only make a minor reduction in air permeability, with no improvement to insulation or glazing). If

modelled in SAP, a building fabric similar to this has been estimated to have a space heat demand of up to 54kWh depending on home type^{lxiv}, even before adjusting for SAP’s underestimation of this.

3.5.2. Government carbon strategy to date, as a whole, is insufficient to meet the UK’s carbon budgets

Government’s plans for the achievement of national carbon goals have twice been deemed by the High Court to be so ineffective as to be unlawful in their failure to deliver on the Climate Change Act: in 2022 the Net Zero Strategy^{lxv}, and in 2024 the Carbon Budget Delivery Plan^{lxvi}.

The Climate Change Committee’s annual progress reports reveal the UK’s progress towards emissions targets, including progress towards the necessary changes in each sector. Its analysis in 2022 found that the **government’s policy plans were insufficient to deliver the full suite of necessary actions for the carbon budgets**^{lxvii}. The Committee’s [2023](#), [2024](#), [2025](#) and [2026](#) reports also note a lack of progress on crucial issues. Its 2026 headlines include that:

- **Of the emissions reductions that must be made by 2030, only 44% have credible plans** for their delivery. National delivery plans for the rest are risky, insufficient or absent; this includes home energy efficiency, heat pump rollout, and carbon capture technology.
- From 2025 onwards, the majority of reductions in coming years need to come from sectors other than electricity generation, which carried the bulk of reductions achieved in 2008-25.
- Government’s (2025) Carbon Budget and Growth Delivery Plan fails to meet the 2030 carbon target and is over-reliant on as-yet non-existent carbon capture technology for emissions reductions in 2033-2037.

Further findings from the 2024 and 2025 progress reports are provided in Appendix 2.

To conclude, the recent reports on national progress in reducing carbon emissions show that, although there has been some good progress in absolute emissions cuts overall, the majority of recent years’ success have come from the phase-out of coal power and reductions in gas use due to high prices rather than to sustained improvements in efficiency. Moreover, key changes in relevant sectors to local plan-making (i.e. the built environment) are already behind where they need to be, and will need to accelerate in coming years in order to realise the UK’s future legislated carbon budgets. In particular, progress has been too slow on buildings energy efficiency, uptake of heat pumps, and embodied carbon in manufacturing/ construction. In these points and overall, the reports have found that national government’s current policies and plans are insufficient to drive forward large parts of this transition.

Therefore, this leaves a strong justification for Local Plan policy standards to be set to drive forward the necessary changes beyond or ahead of national standards, in order to compensate for the failure of national government action to do so. Without such action by the Local Plan, it would fail to mitigate climate change “in line with the objectives and provisions of the Climate Change Act” as per the requirement set by the current and incoming NPPF.

4. Legislative and policy powers for the Local Plan to take action towards net zero carbon

This report’s primary focus is to support local plan policy formulation regarding the carbon emissions of buildings (including energy generation), which are responsible for a large share of local area carbon emissions⁶. Specifically, new builds are the subject of most planning applications and thus the area that local plan policy wording (as opposed to spatial strategy) can most strongly influence. Therefore, this section focuses on the planning powers available to reduce the carbon of buildings, including via their energy supply. Specifically, we explore the **extent to which the local plan is empowered to require various different criteria of ‘net zero carbon buildings’** (whether by the [national definition](#), or preferably the more comprehensive [industry alternative definitions](#), as previously explained).

The previous section highlighted the key pieces of legislation and national policy that set out the *duties* local plans hold to address climate change. This section focuses on the *powers* available to local authorities, with reference to relevant sections in legislation and policies.

The powers afforded to the Local Plan to set policy requirements towards net zero carbon new buildings flow principally from the **Planning and Energy Act 2008**. Further direction on how these powers should be used is found in the **National Planning Policy Framework** (NPPF) and **National Planning Practice Guidance** (PPG). Additionally, **formal ministerial statements** and other official government policies can also affect interpretation of how those powers should be wielded.

The following sections outline power Gloucestershire County Council can exert through the Local Plan.

4.1 Set energy efficiency standards that exceed requirements of building regulations

The [Planning and Energy Act 2008](#) grants Local Planning Authorities the power to set “reasonable requirements” for:

- “Energy efficiency standards that exceed the energy requirements of building regulations”
- “A proportion of energy used in development in their area” to be from renewable or low-carbon sources “in the locality of the development”.

Policies using these powers “must not be inconsistent with relevant national policies”; that is, those relating to energy from renewable sources, low carbon energy, or furthering energy efficiency.

⁶ Beyond this, new development will often also have carbon impacts from the transport induced in the lifestyles of its residents, workers or visitors. This transport carbon is also part of Gloucestershire’s overall carbon emissions (in fact, the largest part as previously shown in Figure 4 graph) – and would therefore need to be reduced to zero in order to hit

The Act defines “energy efficiency requirements” as standards that are ‘set out or referred to in regulations made by the [Secretary of State]’ or ‘set out or endorsed in national policies or guidance issued by the [Secretary of State]’. This is also repeated in National Planning Policy Framework paragraph 167. The only ‘energy efficiency standards’ currently clearly set out or endorsed in this way are the energy and carbon calculation methodology used for Part L of the building regulations. **This may be interpreted to mean that energy efficiency requirements must use SAP/SBEM** or more detailed dynamic modelling method for non-domestic buildings. If SAP/SBEM, their scope will be limited to regulated energy only (heating, hot water, fixed lighting, ventilation). However, several local plan examples have recently successfully been adopted elsewhere that use PHPP as well as CIBSE TM54.

There is also one further way in which national policy could be interpreted to have endorsed energy efficiency calculation methods other than SAP and SBEM: In the National Design Guide^{lxviii} and National Model Design Code, national government endorses the use of embodied and whole-life or life-cycle carbon assessment. The only currently extant robust methodology for this is the RICS Whole Life Carbon Assessment (WLCA) (currently in its 2nd edition^{lxix}) which follows the relevant British/European Standard, BS15978. That RICS WLCA document clearly states that for the calculation of operational energy within that whole-life assessment, this must cover total energy use not just regulated energy and must be calculated using a predictive method, specifically endorsing PHPP and NABERS as well as TM54 (and explicitly ruling out Part L SAP and SBEM). In this way, the national design guidance documents’ endorsement of whole life carbon assessment forms an indirect national government endorsement of these calculation methods (PHPP, NABERS and TM54) and of accounting for total operational energy use rather than just regulated energy use, as these are essential within whole-life carbon assessment.

The act does not define ‘energy used in their area’. Therefore, there is nothing to prevent the interpretation that local plans’ requirements for renewable energy can cover a proportion of the new building’s *entire* energy use, not just the share that is ‘regulated’ by Part L and calculated using SAP/SBEM.

Definitions and requirements for ‘net zero carbon buildings’ in most previous Local Plans have often been based on Part L and the associated calculation methods (although some make a separate requirement for renewable energy). This means those plans are subject to the [previously](#)

the goal of net zero carbon by 2050. Nevertheless, the transport carbon is not part of the definition of ‘net zero carbon buildings’ for which we now explore the planning powers to deliver. Transport and standalone renewable energy are briefly considered in the section entitled “beyond the building”.

noted weaknesses that befall Part L in terms of inaccurate calculations of energy and carbon, and a lack of incentive to create an inherently thermally efficient building shape. However, several more recently adopted local plans (see later section 5.6 in the current report) have followed the more comprehensive, effective and accurate ‘net zero’ standards reflecting the [previously described](#) LETI approach.

4.2 Use planning obligations to offset carbon or energy

Section 106 of the Town and Country Planning Act (1990) enables the local plan to require payments for the purpose of making an otherwise unacceptable development into an acceptable one. Section 106 (s106) obligations must pass the tests of being reasonable, proportional to the development, and necessary to make the development acceptable. **S106 has been used in several precedent local plans to require offsetting payments from new development that would otherwise fail to meet a local plan policy requiring ‘net zero’ carbon or energy status.**

The Levelling Up and Regeneration Act (2023) (LURA) would allow s106 and Community Infrastructure Levy to be replaced by a new ‘Infrastructure Levy’ set by gross development value (GDV). LURA was enacted under the previous government, but the new government has indicated^{lxx} it will not implement the new IL. Thus S106 remains available for offsetting, as above.

4.3 Take a proactive approach to renewable energy planning

Paragraph 168 of the NPPF 2024 states that:

“When determining planning applications for renewable and low carbon development, Local Planning Authorities **should not require applicants to demonstrate the overall need for renewable or low carbon energy**, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions”.

This provision is repeated in decision-making policy W3 in the NPPF 2026.

The 2024 NPPF update removed the de-facto moratorium on onshore wind that had been in place since 2015, now placing it on the same footing as other renewable generation technologies.

According to the NPPF 2024, the Local Plan should “provide a positive strategy for energy from these sources ... consider identifying suitable areas for [them]” (paragraph 165) and once such suitable areas have been identified, subsequent applications for commercial scale projects elsewhere should be expected to meet the criteria used in identifying those suitable areas.

Similarly, plan-making policy W2 the NPPF 2026 requires the development plan to plan positively for renewable and low-carbon energy by identifying suitable areas for development of such infrastructure.

An update to the National Policy Statement (NPS) for renewable infrastructure also places onshore wind on the same footing as other major energy infrastructure projects.

Under the policy, onshore wind developments of 100MW or greater will be determined via the Nationally Significant Infrastructure Project (NSIP) consenting regime, meaning that they would be subject to national planning consent rather than being a local planning decision. The updated NPS also increased the threshold for nationally significant solar power development projects from 50MW to 100MW. The NPS is a material consideration in planning decisions.

This is a positive step for both climate action and socioeconomic wellbeing: Firstly, in light of the [previously explained Committee on Climate Change analysis](#) showing how vital the expansion of renewable energy generation is (including wind) for the achievement of the UK’s legislated carbon budgets. Secondly, alongside the climate imperative there is also a socioeconomic argument for this especially in context of the recent energy price volatility, as onshore wind is one of the cheapest forms of energy generation^{lxxi}.

4.4 Adopt a vision-led approach towards transport-planning

The NPPF 2024 encourages a ‘vision-led’ approach towards transport planning, as described in **Paragraph 109:**

“Transport issues should be considered from the earliest stages of plan-making and development proposals, **using a vision-led approach to identify transport solutions** that deliver well-designed, sustainable and popular places. This should involve ... **identifying and pursuing opportunities to promote walking, cycling and public transport use**; and ... assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects.”

- **The 2024 NPPF’s glossary** explains that a ‘vision-led approach’ is “an approach to transport planning based on setting outcomes for a development based on achieving well-designed, sustainable and popular places, and providing the transport solutions to deliver those outcomes as opposed to predicting future demand to provide capacity (often referred to as ‘predict and provide’).”
- This is vital in that it allows the local plan scope to pivot away from a transport assessment that predicts the amount of car usage from a given development and simply provides for that, thereby inadvertently making that car usage more likely via ‘induced demand’ (the observed effect whereby the better the road infrastructure and parking provision, the more people will use their cars in response). Instead, the NPPF’s concept of ‘vision-led transport planning’ gives license to require transport provision that actively brings about the desired modal shift. This is urgently needed for the realisation of the UK’s legally binding carbon budgets (as previously explained via Climate Change Committee analysis.)

The equivalent policy in the NPPF 2026 is TR1: Vision-led approach to planning for transport, which alongside the above requirements, also references the Department for Transport’s Connectivity Tool. It stated that local authorities should consult the tool to assess the connectivity of locations.

4.5 Set out retrofitting policy for historical buildings

According to **Paragraph 203** of the NPPF 2024:

“Plans should set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats ... taking into account the desirability of sustaining [them] ... and putting them to viable uses consistent with their conservation”.

This may support a sensitive but permissive approach towards energy retrofit, where this keeps a heritage building fit for long term use.

4.6 Require development to offset carbon emissions or energy use

Section 37 of the Infrastructure Act 2015^{lxiii} included provision for the Building Regulations to be amended to require provision for off-site carbon abatement measures. This was in relation to the anticipation of the national net zero carbon building standard which was scrapped before coming into force. Nevertheless, this is where the concept of ‘allowable solutions’ to carbon emissions originated. This refers to the possibility for buildings to be legally accepted as ‘net zero carbon’ by delivering measures off-site to reduce carbon emissions or increase carbon sequestration, which could include paying others to perform those measures or purchasing carbon offset certificates through a national scheme.

Although the national net zero carbon buildings plan was scrapped and the government has not yet proceeded to enact the national ‘allowable solutions’ scheme envisioned by the Act, the concept was echoed in many subsequent Local Plans in the form of requirements for carbon offsetting either by payments or by direct delivery of projects that will reduce carbon emissions. This is the similar or identical to the use of S106 payments (developer contributions) for carbon or energy offsetting as previously described in section 4.2.

4.7 Constraints and considerations

The powers set out above must be viewed alongside various constraints. The NPPF 2024 for example requires that:

- “Any local requirements for the sustainability of buildings should reflect the Government’s policy for national technical standards.” (Paragraph 164b)
- New development should comply with local requirements for decentralised energy supply *unless it is demonstrated to be not feasible or viable*. (Paragraph 166)

At present, the relevant ‘national technical standards’ may mean the metrics or standards endorsed in building regulations Part L or national design guidance as previously cited, and perhaps also the electric vehicle charging requirements that were introduced through the new Part S of building regulations.

In the NPPF 2026, PM13 limits quantitative standards in local plan policies. While PM13.1.b.iii. permits local energy efficiency standards that are robustly justified and costed, it states that such standards ‘should be expressed a percentage uplift of a dwelling’s Target Emissions Rate (TER) calculated using a specified version of the Standard Assessment Procedure (SAP) or other approved calculation methodology.

While PM13 is a plan-making policy, and hence is strictly speaking only applicable to plans undergoing the new plan-making process, its influence extends to plans undergoing the legacy system through DM7. Decision-making DM7 states that:

“Planning decisions should not seek to duplicate or extend controls imposed by separate regulatory regimes other than where there is a development plan policy in place applying optional technical standards for the development proposed (see policy PM13).”

The wording of PM13.1.b.iii mirrors that in the Written Ministerial Statement on Local Energy Efficiency Standards 2023 (WMS 2023). **WMS 2023 has now been superseded by the NPPF 2026.** It is however important to continue to consider the WMS 2023 because of case law – as this demonstrates why the requirement in PM13 to express energy efficiency standards as a percentage uplift of TER can be overcome.

4.7.1. Written Ministerial Statement on Energy Efficiency 2023 (WMS2023; superseded)

On 13th December 2023, a new Written Ministerial Statement (WMS2023) was made by Lee Rowley (Minister of State for Housing) together with Baroness Penn (Parliamentary Under Secretary of State for Levelling Up, Housing and Communities). Its topic is “[Planning - Local Energy Efficiency Standards](#)”.

The WMS2023 attempts to place severe new limitations on the exercise of existing powers held by Local Planning Authorities to require improvements in residential new builds’ energy performance.

4.7.1.1. What did the WMS2023 say?

The WMS2023 did not remove the ability to set improved local standards, but purported to constrain them in this way:

- Energy efficiency policy must be expressed as % reductions on a building’s TER (Target Emissions Rate set by Building Regulations), using a specified version of SAP.
- Policies that go beyond national building regulations should be “applied flexibly to decisions ... where the applicant can demonstrate that meeting the higher standards is not technically feasible, in relation to the availability of appropriate local energy infrastructure ... and access to adequate supply chains.”

If interpreted literally, the above would have affected how the plan can exercise its power to require energy efficiency standards beyond those of building regulations (a power granted by the

Planning & Energy Act 2008). This WMS therefore undermined several previously adopted Local Plan precedents that used other more effective metrics to deliver buildings suitable for the UK's carbon goals, such as energy use intensity and space heat demand (Cornwall, Bath & North-East Somerset, and Central Lincolnshire).

The WMS also stated that any such energy efficiency policies should be rejected unless they have a “well-reasoned and robustly costed rationale that ensures that development remains viable, and the impact on housing supply and affordability is considered in accordance with the National Planning Policy Framework”. This was nothing new, as any new policy typically comes with such justification. Still, this reiteration in the WMS brought additional scrutiny to any evidence put forward.

4.7.1.2. What impact did the WMS 2023 have on Local Plan climate mitigation efforts?

For new buildings, the WMS2023's stipulations made it much more difficult to fulfil Local Planning Authorities' legal duty to mitigate climate change (Planning & Compulsory Act 2004) and the expectation laid on them to support “radical reductions in greenhouse gas emissions ... [taking] a proactive approach ... in line with the objectives and provisions of the Climate Change Act 2008” (NPPF, as [previously cited](#)).

The main ways in which the WMS made this duty harder to fulfil are:

- i. **Pushing the use of a carbon metric, when contrarily the goal is energy efficiency.** The biggest problem was that the WMS asked for energy efficiency policies to be expressed using the Part L TER metric – but TER is in fact not an energy efficiency metric. As the acronym suggests, TER is instead a carbon emissions metric. It is unclear why this choice was made in the WMS, given that the Part L methodology (SAP) does also contain two energy efficiency metrics: the TFEE (Target Fabric Energy Efficiency) and TPER (Target Primary Energy Rate). Additionally, as previously noted, the SAP methodology is notoriously poor at estimating the actual energy performance of a building, and therefore any of the SAP metrics would not reliably ensure that buildings have the absolute energy efficiency performance that is known to be a necessary part of the UK's legally binding carbon goals. That unsuitability is why several recently adopted precedents (Cornwall etc, as noted previously) had used alternative metrics that are actually effective for delivering energy efficiency and measuring whether a building is ‘net zero’.
- ii. **Forcing the use of a ‘specified version of SAP’ for the required metric:** SAP is the method used to calculate all target metrics set by Part L of Building Regulations for dwellings, including the TER metric named by the WMS. SAP is updated more often than Part L. SAP updates can include anything from changes to the assumptions about the baseline building characteristics or the performance of standard types of equipment, through to changes in the carbon intensity of grid electricity. The current version is SAP10.2. Some precedent Local Plans had previously overcome this issue by stating that calculations must simply use ‘the latest available version’ of SAP. That way, the policy does not go out of date each time a new version of SAP is released.

- a. The WMS did not make clear whether it would be acceptable to say, ‘the latest version of SAP’, or if it would have to be ‘SAP10.2’ or similar. If the latter, then the WMS would require the policy to be at risk of going out of date very quickly.
- b. SAP is going to be replaced with a new model, HEM (Home Energy Model) as the Future Homes Standard (FHS) has been introduced. This too would put local policy out of date if the policy states a ‘specified version of SAP’ as per the WMS2023. Although the FHS itself was published in March 2026, HEM's final form, function and outputs are not yet known. Thus it is not yet possible to write a policy that uses HEM metric for targets, as it would not currently be possible to robustly assess their feasibility or cost, even if the WMS had not failed to acknowledge HEM's imminent introduction.
- iii. **Creating a hostile climate towards buildings energy and carbon improvement policies:** Beyond its specific prescriptions, the WMS set a tone that is generally discouraging (albeit not prohibitive) towards any local policy that exceeds “current or planned building regulations”, stating that the government does not “expect” this. This negative stance lent itself to being used by developers in objections at examination. However, the WMS did not actually prohibit such policies so long as they are well-justified.

4.7.1.3. What is the status of the WMS compared to the legal duties and powers, and must it be followed?

The National Planning Policy Framework 2024 confirmed that Written Ministerial Statements are one of the “statements of government policy [which] may be material when preparing plans or deciding applications”. However, being a ‘material issue’ did not make a WMS incontrovertible.

Firstly: case law has established^{boxiii} that local plan policy can diverge from national policy where there is justification for this, for example on the basis of local or exceptional circumstances.

Secondly: Legislation holds far more material weight than a WMS. Non-statutory guidance such as a WMS cannot be lawfully interpreted in a way that frustrates the function of legislation. Therefore, it is possible to diverge from the WMS' stipulations by demonstrating that adhering to the WMS would prevent the Local Plan from fulfilling its legal duty to ‘contribute to the mitigation of climate change’ imposed by the Planning & Compulsory Purchase Act. This point can be underlined by evidence relating to the ability to meet the NPPF expectation for ‘radical’ carbon reductions in line with the Climate Change Act. The NPPF should hold at least equal material weight to the WMS, as the NPPF undergoes extensive public consultation – whereas the WMS had no consultation or democratic process. There may also be other national policy (e.g. on energy efficiency targets) whose aims the WMS2023 would inhibit.

Government does not appear to have made any assessment of how the WMS would affect the ability to fulfil those climate mandates, nor advised which should take priority where they conflict.

The most robust evidence for this argument would be energy and cost modelling to demonstrate the difference that would occur as a result of following the WMS stipulations, as opposed to using

more accurate energy metrics (used in [industry standards](#) and recent pioneer Local Plans). For example:

- i. The difference in carbon emissions, thus moving the buildings sector's carbon reduction trajectory even further from what it needs to be within the 'balanced pathway to net zero' as analysed by the Climate Change Committee to comply with the UK's legislated carbon budgets (set under the aegis of the Climate Change Act, [as previously explained](#)). This point could be made even stronger by identifying what share of the national legislated carbon budgets can be reasonably allocated for Gloucestershire, and showing the impact that the emerging local plans' combined housing growth trajectory would have on the achievement of that carbon budget without an effective 'true net zero' local plan policy.
- ii. The difference in energy efficiency compared to what the Climate Change Committee has shown to be necessary as part of the UK's wider energy system transition needed for all sectors (not just buildings) in order to meet the legislated carbon budgets as above. This is also relevant to any other Local Plan objectives on the affordability of home running costs.

Even with such evidence, there remains a risk that it may be challenging to fully express this argument to the Inspector in the time available at examination, as it is a highly technical topic to explain to anyone not already expert in net zero carbon building design. The WMS stated that such policies may draw close scrutiny from central government, meaning the Council may have to defend against not only the usual objectors but also central government (albeit that statement was made by the previous government). This does not mean Gloucestershire LPAs *should not* pursue such policies, but that they may need to even more robustly prepare to defend them if so.

Regarding the extent to which a WMS constrains Local Plans' powers, we note a [recent High Court decision](#) (February 2024) overturned a planning inspector's decision based on a *different* WMS (the WMS2015, [previously outlined](#)). This was in relation to energy efficiency policies within the Salt Cross Area Action Plan. The decision confirmed that **a WMS "cannot mis-state the law, or restrict the legal powers of the LPA under the 2008 [Planning & Energy] Act."** This should therefore also be true about the WMS2023. However, that decision also noted that the Planning and Energy Act includes a clause saying that local policies using the powers of that Act 'must not be inconsistent with relevant national policies for England'. It is thus difficult to predict how this would be interpreted by a planning inspector, given that there would appear to be somewhat of a 'circular reference' in that the Planning and Energy Act could be seen to contain within it a clause allowing 'national policy' to invalidate the exercise of the powers that it grants, although the Act itself – as a piece of formal legislation – holds primacy over the ill-defined set of items that could be considered to constitute 'national policy'. Nevertheless, since the WMS2023 has been in place, several local plan policies that diverge from it have successfully passed examination in 2025-2026 (Uttlesford Local Plan, Winchester Local Plan, Tendring & Colchester Borders Garden Community DPD, and the re-examination of the Salt Cross Area Action Plan).

4.7.1.4. Legal challenges against the WMS2023

A legal challenge to the WMS2023 was brought (by the same organisation that won the Salt Cross AAP case cited above). It put forward that the WMS2023 was unlawful on the following grounds:

- a. Failure to fulfil the duty (Environment Act 2021) to have regard to the Environmental Principles Policy Statement (EPPS), as no EPPS assessment was conducted until after the WMS was made
- b. That the WMS2023 unlawfully purports to restrict local authorities' exercise of powers granted statute (specifically the Planning & Energy Act, but also the Planning & Compulsory Purchase Act which establishes the climate mitigation duty and the statutory presumption in favour of the application of adopted development plan policies)
- c. That the WMS2023 unlawfully misleads the reader about decisionmakers' legal powers.

This case was heard at the High Court on 18 June 2024^{lxxiv} but was not successful^{lxxv}:

- Ground 1 was rejected because the judge followed other case law that had established that the assessment can be retrospective so long as it is with 'substance, rigour and an open mind'.
- Grounds 2 and 3 were rejected because the Planning & Energy Act has a clause that local policies must not be inconsistent with relevant national policy, of which the WMS2023 is part. However, the judgement did not evaluate whether the WMS2023's stipulations inhibit the ability to fulfil the separate duty to mitigate climate change.

This case was then taken appeal in June 2025 (only on grounds 1 and 2). That Court of Appeal also rejected the grounds^{lxxvi}, with key reasons being:

- Ground 1: Rejected because even if the WMS2023 were legally overturned on the basis of lack of EPPS assessment during its formulation, the Government would be free to simply re-adopt the WMS2023 in light of the retrospective EPPS assessment that it had now produced. That retrospective assessment included a Government assumption that the FHS would be aligned with the performance needed for the achievement of the Climate Change Act carbon goals, which the judges conclude was a genuinely held rationale by the Minister at the time whether correct or not. Also, the EPPS assessment duty does not bind the government to cancel national policy that has negative environmental effects, thus the government is free to prioritise the policy's assumed protection of housing delivery (albeit in this case, the assumed impact on housing delivery appears to have been purely based on developer commentary via the FHS consultation, not on any unbiased analysis of the housing delivery impact of such policies).
- Ground 2: Rejected because the judges were not convinced that the WMS2023 interfered with the Planning & Energy Act powers for similar reasons described in the 2024 judgement (above) and because the judges were not convinced that the WMS2023's stipulated metric (of TER) would count as a 'standard', given that when making the Planning & Energy Act, "the language used by Parliament does not limit 'energy efficiency standards' to a choice of metric."

However, the 2025 judgement makes various points that could be interpreted to support Local Plan energy efficiency standards that go beyond – or even diverge from the metrics of – Building Regulations:

- a. “For reasons which are unclear, s.1(4) of the [Planning & Energy Act] makes [the energy efficiency standard-setting power] subject to s.19 of the [Planning & Compulsory Purchase Act] legal obligation for the local plan to mitigate climate change]. However, if s.19 provides the source of power ... to [set] a more onerous standard than one endorsed by the Secretary of State, such as the draft FHS, it could be said that a [Local Planning Authority] has **no need to rely upon [the Planning & Energy Act] at all and the restraints in that provision upon setting standards that exceed the requirements of building regulations could be circumvented**”.
- b. The judges were therefore “left with the impression that the draftsman [of the Planning & Energy Act] did not think through the tension between the intention to use national measures to [restrict] how far a [local plan] may set standards exceeding building regulations and the **well-established legal principle that a [local plan] can [set] a local policy [that] conflicts with national policy [where] justified**”.
- c. The judgement clarifies that this legal decision does not pass any judgement on the relative merit of the WMS’ stipulated metrics versus others (like those of the pioneering ‘true net zero’ policies outlined in the

Executive Summary: “**judicial review is not a proper forum for resolving the dispute as to whether one metric is preferable to another**”.

These court judgements did not increase the material weight of the WMS2023 versus other national policy (such as the NPPF’s instruction to mitigate climate change proactively and in line with the objectives of the Climate Change Act). The Court of Appeal’s 2025 decision still only meant that the WMS2023 is not in itself unlawful (in that it is not incompatible with the Planning & Energy Act) and that it was acceptable that the required environmental assessment was retrospective.

Neither the 2024 nor 2025 judgement substantively engaged with whether the WMS2023 inhibits local plans’ ability to fulfil their legal duty to mitigate climate change in practice. Concerningly, the Court of Appeal judgement paragraph 37, when considering how the WMS2023 was made, included potentially misleading wording that “homes built to the FHS would be compatible with the UK’s 2050 Net Zero Target for carbon emissions in the Climate Change Act 2008”. This indicates a lack of understanding that such homes would in fact not be compatible with the Act’s legislated carbon budgets (as explained elsewhere in the current report). The lack of commentary on this may indicate that such evidence was not put before the courts. However, that wording may have simply been the judge’s recounting of the Government’s purported rationale in making and

assessing the WMS2023, rather than a statement of actual fact; this reading was supported by paragraph 95 which states that “The Government’s view [when conducting its environmental assessment of the WMS2023] is that the forthcoming FHS will set national standards for residential development in line with the Climate Change Act 2008 ... [but] It is not a matter for [this] court ... to say whether those conclusions are right or wrong”. That paragraph (95) appeared in the section on whether Government met its legal duty to environmentally assess such policies, not the section on whether the WMS2023 obstructs the Local Plan’s legal powers or duties.

Separately, it is also worth noting that:

- ii. The Secretary of State had to defend the WMS2023 via legal correspondence against a similar case raised in a pre-action letter^{boxvii} by a coalition of local authorities. The Secretary of State’s response^{boxviii} conceded that the WMS is only a material consideration (not a concrete constraint) and cannot limit the use of powers granted to Local Planning Authorities in legislation.
- iii. Essex County Council has updated its open legal advice^{boxix} to explain why the 2023 WMS should not legally be interpreted as a binding constraint from which local policy cannot diverge with sufficient justification.

4.8 Implications for the NPPF 2026

While the WMS has now been superseded by the NPPF 2026, it continues to be relevant to local energy efficiency standards as the legal challenges against it have established clearly that local policies can diverge from national policies, as long as they are robustly evidenced and costed.

What is important to note here is that **the NPPF does not necessarily carry more weight than the WMS 2023**. It is established in case law^{box} that national planning policy and ministerial statements are both material considerations. The weight to accord to each is a matter for the judgement of the decision-maker.

As mentioned above, PM13 mirrors the language in the WMS2023. However, there are significant contextual differences to consider when evaluating the applicability of PM13. The WMS was issued in 2023 in anticipation of the Future Homes Standards, thought at the time to be published by the end of 2025. In the WMS, then minister Lee Rowley said:

“Homes built to [the FHS standard] will be net zero ready and should need no significant work to ensure that they have zero carbon emissions as the grid continue to decarbonise.”

The WMS can hence be seen to allow a bridging solution (expressed as uplift of TER) before the FHS came into force.

Significantly, NPPF 2026 was adopted after the FHS has been published and the implementation date confirmed (March 2027). The government’s line that the FHS, together with grid decarbonisation, will deliver net zero and preclude any local standards is no longer repeated. In fact, in the government’s [response](#) to the NPPF consultation, it said it ‘recognises the concerns raised and the evidence provided [by respondents to the consultation]’, and acknowledged there are ‘circumstances in which local standards for energy efficiency may be justified’.

Importantly, the government also confirmed in its response that it would not commence s.43 of the Deregulation Act 2015, which would have barred local energy efficiency standards.

A softening of language can also be observed in PM13, compared with the WMS. The WMS stated that planning policies going beyond national energy efficiency standards ‘should be rejected’ if they are not well-reasoned or robustly costed. This direction for rejection was not present in PM13.

As mentioned above, PM13 requires local energy efficiency standards to be expressed as percentage uplift of TER, using the SAP methodology or ‘other approved calculation methodology’. SAP is being phased out as the FHS comes into force. It will be replaced by HEM (Home Energy Model). SAP and HEM are the only methodologies for TER. It is unclear why the NPPF 2026 named SAP only – the methodology that will eventually be replaced.

With the FHS coming into force, it will be challenging to adopt local energy efficiency standards expressed in the TER metric. At present, TER-based local standards use the FHS as a benchmark. Many plan policies for example require 63% improvement over Part L 2021, which reflect FHS standards. The same logic cannot be applied after the FHS has come into force as there is no longer a clear benchmark.

As explained in Section 2.3, the FHS will not deliver net zero because it only controls regulated energy. Its reliance on the inaccurate TER metric further adds to the barrier. A local policy that requires a percentage TER uplift over the FHS is unlikely to take development closer to net zero because it does not address the fundamental flaws. This is a different situation compared to local TER-based policies pre-FHS, when Part L 2021 was seen as an interim step. This raises questions over how the TER requirement of PM13 can be implemented in practice.

4.8.1. The conundrum of the NPPF’s non-statutory status

It is vital to note that these proposed new DM policies in the NPPF 2026 are *not* proposed to be designated as *statutory* NDMPs that the Levelling Up & Regeneration Act (LURA) section 93 allows national government to set, which would have had primacy over local plan policies as previously outlined. Section 93 of the LURA is not yet in force and the NPPF consultation does not propose to bring it into force.

If the NPPF’s ‘DM policies’ *had* been designated as statutory NDMPs under the LURA, they would have become subject to the LURA section 94 legal duty for government to “have regard to the need to mitigate, and adapt to, climate change” when making those policies. By refraining from designating them as statutory NDMPs, the Government has:

- Bypassed the legal duty to assess the NPPF policies’ impact on climate change, but
- Stopped short of giving those NPPF policies a legal status that could overrule the local plan
 - ... yet, contradicted this by adding Annex A in the NPPF 2026 that purports to take away weight from local plan policies that conflict with NPPF DM policies where the local plan was examined against the old NPPF, despite the fact that the local plan has statutory status while the NPPF DM policies do not.

4.8.2. What it means for Gloucestershire County Council

Where LPAs within Gloucestershire are submitted in time for the 31st December 2026 deadline to be examined under the NPPF 2024, they will still be able to follow the NPPF 2024’s clear mandate for climate change mitigation in the plan-making process.

For plans prepared through the new plan-making system, PM13 will be the main source of examination risk for locally set quantitative energy standards. PM13 permits energy-efficiency standards that go beyond current or proposed Building Regulations, but directs these towards a percentage uplift of TER using SAP or another approved methodology. Standards expressed through EUI, space-heating demand or energy-balance metrics would therefore need additional justification. This creates a similar issue to the 2023 WMS, which has now been incorporated into, or superseded by, the NPPF 2026. Case law on the WMS remains relevant because it indicates that national policy is not an absolute legal barrier to more ambitious local standards where local circumstances justify departure. However, any departure from the PM13 TER/SAP formulation is

likely to require clear evidence and careful explanation at examination. Once a plan has been examined and adopted against the NPPF 2026, the implementation risk from DM7 should be limited. While Annex A states that plan policies ‘materially inconsistent’ with development plan policies should be given very limited weight. It also offers protection for plans examined against the 2006 Framework.

For plans proceeding through the existing system, such as the SLP, the relevance of PM13 is limited to the mention in DM7, which states that planning decisions should not duplicate or extend controls imposed by separate regulatory regimes, except where a development plan policy applies optional technical standards (referring to PM13). As energy efficiency is allowed in PM13, there is scope to contend whether EUI/ SHD-based policies are ‘materially inconsistent’ as per Annex A.

This creates some implementation risk for existing-system plans, particularly where policies use EUI, space-heating demand or energy-balance metrics rather than the TER/SAP route set out in PM13. However, the risk is narrower than it appeared when the NPPF was in draft form, because PM13 now expressly allows local energy-efficiency standards above Building Regulations where

justified. The issue is therefore not whether energy-efficiency standards are prohibited, but whether any divergence from PM13’s preferred formulation is sufficiently evidenced and justified.

Existing-system plans can also rely on the climate-positive policies in the NPPF 2024 at examination stage, including its support for climate mitigation, adaptation, renewable and low-carbon energy, and sustainable patterns of development. The NPPF 2026 also provides support through decision-making policies such as W3, which gives substantial weight to renewable and low-carbon energy development and electricity network infrastructure, and DP3, which supports design approaches that contribute to climate mitigation, adaptation, green infrastructure, sustainable drainage and active travel. W1 and W2 are plan-making policies and therefore apply most directly to plans prepared through the new system, although similar themes are reflected in the NPPF 2024 for existing-system plans.

The Local Plan continues to have statutory primacy over NDMPs, and there will still be scope for Gloucestershire’s various LPAs to apply net zero carbon plan policies to development proposals .

5. How have other local plans used these powers?

Having considered the reasons why the local plan is obliged to act to achieve carbon reductions, the extent to which those can justifiably go, and the powers available to the Local Plan to achieve them, we now move on to illustrating this with examples of how other Local Plans have utilised those powers to fulfil that obligation to varying extents.

Although each area is different and although planning inspectors' reactions to carbon reduction policies have been far from consistent between each other (as is illustrated throughout this chapter), it is still relevant to consider these past examples because they show that certain approaches *can* be found sound. Additionally, despite the inconsistency in examination decisions and the fact that the planning system is not bound by precedent in the same way that the legal system is, planning inspectors at examination often show interest in examples of similar successful policies.

We here provide a range of examples or precedents that act to improve buildings' carbon and energy performance to differing extents and expressed in different ways.

Within these precedents, where relevant and especially where the policies push the boundaries of what might be considered consistent with national policy or other constraint, we note how the Planning Inspector weighed up these issues at the respective plan's Examination in Public, including their stated reasoning for either accepting or rejecting the proposed policies on carbon reduction.

We present these precedent example plans grouped by the approach they take, which vary by:

- What methods and metrics they use to set targets for climate mitigation performance of buildings – that is, Building Regulations metrics, or other metrics
- What frameworks or concepts they require development applications to apply when communicating the performance improvements they propose to make (such as the energy hierarchy)
- The use of offset payments – that is, carbon offsetting or energy offsetting
- Their use of qualitative or process-based requirements – such as mitigation of the energy performance gap
- Whether they have policy that seeks to bring forward improvements to energy and carbon performance in *existing* buildings as well as setting standards for *new* buildings
- Whether they act upon buildings' *embodied* carbon as well as *operational* carbon (see Glossary).

Later in this chapter we also revisit the importance of providing justification evidence in order to be able to robustly defend these policies at Examination in Public. We look at this in terms of necessity, feasibility, viability, and design quality. Within this we give examples of how these points have been made by other local plans at their examinations, where available.

Finally, the chapter covers ways that a local plan could conceivably act beyond the specific development management policies for building design – rather looking at the spatial choices in transport and protection of landscape features that sequester carbon. As spatial choices are necessarily unique to an area, there are fewer relevant precedents to mention in this section; however, it does mention some examples that are illustrative of a general approach that could be emulated by Local Planning Authorities within Gloucestershire.

5.1 Reductions on the building regulation baseline carbon emissions

Using powers granted by the Planning and Energy Act, most older precedent local plans lay out their 'low carbon' or 'net zero carbon' policy requirements in terms of a percentage reduction on the Target Emission Rate (TER) set by Part L of Building Regulations (usually the previous version i.e. Part L 2013, as Part L 2021 is more recent than most of the precedent local plans in existence).

This percentage reduction in on-site carbon emissions usually ranges from 19% to 40%. Some also require the remaining Part L carbon emissions to be offset at a fixed cost per tonne, payable by the developer through a Section 106 payment, to be spent on local projects for carbon reductions.

Older precedent plans sought only a 19% reduction because this reflected the national Code for Sustainable Homes which was previously seen as best practice – and because of the 2015 Written Ministerial Statement [as previously explained](#), which was taken to mean that 19% was the limit.

Later, requirements for higher percentage improvements in Part L TER were pioneered by the London Plan, justified by evidence assembled by the GLA and its consultants to show that new developments in preceding years had already been typically achieving 30 to 40% reductions^{lxxxii}. Several other adopted local plans have similarly adopted similar requirements (see examples box).

As of mid-2022, the building regulations Part L were updated (Part L 2021), resulting in a ~31% reduction in the carbon Target Emissions Rate compared to Part L 2013. At the end of 2025, it is due to be updated again to a ~75% reduction (Future Homes Standard; albeit with a 2-year period of legislation and transition meaning this standard will not be fully in force until at least the end of 2027^{lxxxiii}). However, as [previously noted](#), this 'Target Emissions Rate' of Part L does not cover the full scope of the building's carbon emissions as it excludes unregulated energy and embodied carbon, and uses inaccurate calculation methods (SAP or SBEM) even for the scope of energy use that it *does* cover.

5.2 Requirement to demonstrate implementation of the energy hierarchy

Some local plans divide their carbon and energy requirements into several steps prioritising the most effective and long-lasting carbon reduction measures first. This follows the **energy hierarchy**, which is generally accepted best practice across the low carbon building design sector.

The logic is that if energy demand is minimised first, this reduces not only the burden that the new building places on our limited energy resources in operation, but also the amount of new equipment needed to generate and distribute energy to meet that demand. This reduces the materials, carbon and cost involved in producing and installing that equipment (and lowers energy bills).

The energy hierarchy as applied in planning policy is typically as follows:

- i. Reduce energy demand (also known as ‘be lean’)
- ii. Supply energy efficiently (also known as ‘be clean’)
- iii. Supply renewable energy (also known as ‘be green’).

A policy requiring minimum improvements in each stage of the energy hierarchy makes the developer demonstrate that they have pursued the more effective on-site improvements as far as they felt possible, rather than just picking the cheapest options or resorting to offsets to reach zero carbon. Local plans usually express this as a requirement for the developer to show that they have made a minimum % improvement in the building’s carbon emissions rate by measures taken at each stage. Policy compliance is demonstrated in an energy statement submitted with the planning application.

Example local plans requiring overall percentage reduction on regulated carbon emissions compared to Part L Target Emission Rate (TER)

London Plan 2016, Policy 5.2: 40% reduction on Part L 2010 TER on site (equates to 35% on Part L 2013), via the energy hierarchy, in new homes and non-residential. Rises to 100% in homes from 2016, or from 2019 in other developments.

Reading Local Plan 2019, Policy H5: 35% reduction on Part L 2013 TER on site and offset remaining regulated carbon to zero (major residential). All other new build housing: 19% reduction on site.

New London Plan 2021: 35% on-site emissions reduction on Part L 2013 TER, followed by carbon offset payment for the remainder of Part L regulated emissions.

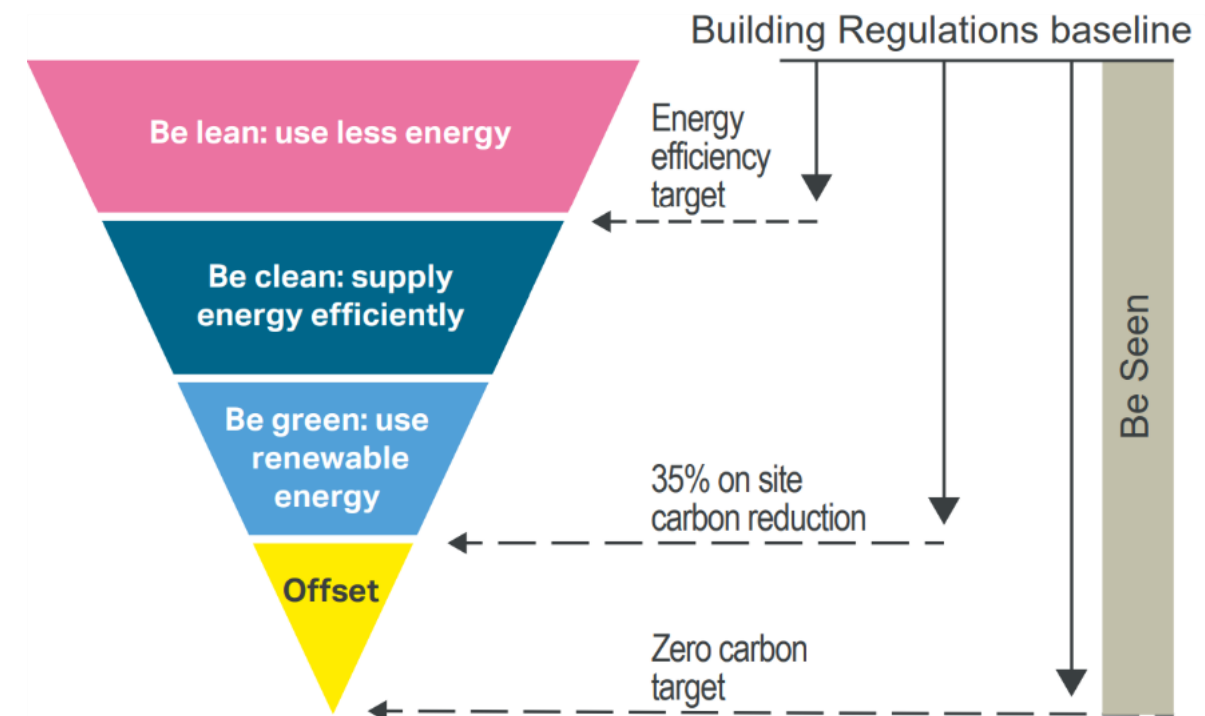


Figure 11: New London Plan (2021) Diagram of the energy hierarchy to reach 35% on-site reduction compared to baseline carbon emissions rate set by Building Regulations Part L 2013.

The following sections explore example local plan policies in each of these steps and how they were justified. We then look at offsetting, existing buildings, embodied carbon and new innovative approaches based on Energy Use Intensity.

5.3 Energy hierarchy step 1: reducing energy demand

To achieve the legislated target of net zero carbon by 2050, we must reduce our total energy consumption as well as scaling up the supply of renewable energy. In the country’s transition to net zero carbon, **increased demand will be placed on the electricity grid** as vehicles and existing buildings’ heating switch from fossil fuels to electricity. Upgrading the electricity grid and expanding renewable generation is already a huge but necessary challenge, involving a great deal of **shared cost and embodied carbon to produce that infrastructure**. It is thus vital to minimise the extra burden that new buildings place on our energy infrastructure, to ensure that it does not become technically or financially unfeasible to deploy the required amount of renewable energy to meet our demands.

Improving the energy efficiency of new homes (minimising their energy demand) is a very cost-effective way to minimise the new infrastructure that will be required to support them in a future zero-carbon energy system. New homes should therefore target reductions in energy demand to reduce the amount of total energy that must be supplied, both from the electricity grid and from other renewable energy sources. Put simply, optimising the efficiency of the building fabric is the starting point for the whole net zero journey.

It is critical to set higher **fabric energy efficiency standards to ensure buildings do not need to be retrofitted expensively at a later date**, as the cost of retrofitting to tight energy standards is typically three to five times the cost of achieving the same performance in a new build^{lxxxiii}. This argument will be further underscored if the Government proceeds with the recent Committee on Climate Change proposal that no home should be able to be sold unless it reaches EPC Band C by 2028. However, EPCs have been deemed ‘not fit for purpose’ by Lord Deben, the Chair of the Committee on Climate, since the grading system is primarily based on the cost of energy and not the actual *amount* of energy used. This statement is supported by [research](#) that shows the actual operational energy use of existing buildings differs significantly from values predicted through EPCs. The Government has consulted on reforms to EPC and committed to introducing new EPCs from October 2026^{lxxxiv}.

(However: Please note that this point on the cost of energy performance in new builds vs retrofit is not an argument to allow demolition of existing buildings so that they can be replaced with new buildings – as this would result in greater [embodied carbon](#) from new building materials. Reuse of existing buildings is also desirable in that it reduces the need to build on greenfield, and tends to occur in urban areas, where there is typically less need for car use. Therefore, planning policy should encourage and enable reuse, especially wherever a proposal includes retrofit that would significantly improve an existing building’s energy efficiency. But where new buildings are proposed the policy should be designed to avoid a need for *future* retrofit by building to excellent standards in the first place).

Fabric efficiency (insulation and airtightness) is particularly pertinent for housing schemes that use **heat pumps and MVHR, as these will require highly insulated and draught-proofed buildings** to operate efficiently. The previously referenced costs report also found that if very high thermal efficiency is reached, the whole construction can become more cost-effective because the developer can then **save money on smaller-sized heating systems** (pipes, radiators, heat pumps, etc.).

A further final justification for including a minimum improvement on energy efficiency is that it helps with the **social needs of affordable living, fuel poverty and healthy homes**. An energy-efficient home saves energy bill costs for the home occupiers and also often helps make the home interior more comfortable and conducive to good health (warmer, less draughty, and with less condensation on cold spots on walls or windows thus reducing the chance of respiratory harm from mould growth).

5.3.1. How can local plans use building regulations metrics at the energy demand reduction stage?

The [Planning and Energy Act 2008](#) grants Local Planning Authorities the power to require “energy efficiency standards that exceed the energy requirements of building regulations”. It defines “energy efficiency requirements” as standards that are endorsed by national regulations, national policies, or guidance issued by the secretary of state.

Example adopted plans generally require a **set % reduction value to be achieved through energy efficiency measures** ranging from 5-15% against the emissions rate set by Building Regulations Part L 2013. In the examples we have examined, this contributes part of the total required % improvement on the Part L baseline, and were set to ensure that energy efficiency (not just energy supply) played a role within that total target. These % were set according to best practices already being achieved in local proposals when those plans were being drafted, which might now be outdated.

An alternative could be a percentage improvement on the ‘**Target fabric energy efficiency**’ (TFEE) set by Part L and SAP. The TFEE is the legal limit on how much heat a home needs per m², based on the *fabric* not the efficiency of the heating system. Part L sets the TFEE to reflect a home of the same size and shape to the proposed home, with a set minimum standard of insulation, glazing and airtightness. The TFEE thus varies by the size and shape of the proposed building. By law, new homes must not exceed the TFEE. An improvement on the TFEE would show effort at this step of the energy hierarchy. The requirement could be a % improvement on the Part L 2021 TFEE, or an absolute kWh/m2/year figure. The target may need to be updated when Part L 2025 (Future Homes Standard) enters force.

Table 3: Energy efficiency targets found in precedents

Energy efficiency targets found in precedents	Justification
Homes: <ul style="list-style-type: none">10% improvement on the Target Fabric Energy Efficiency Rate set by Part L 2021 using SAP10.2; andEnergy efficiency measures to deliver 63% reduction in TER carbon vs Part L 2021	The current national baseline is the notional building fabric of Part L 2021. In 2025-27 it will be replaced by the Future Homes Standard (FHS). <ul style="list-style-type: none">This 10% TFEE improvement reflects the approximate difference in fabric (insulation and airtightness) between Part L 2021 and the Government’s first draft of the FHS (2019-2021 consultations). More recent FHS drafts do not make this improvement.This 63% TER improvement figure equates to ~75% reduction on Part L 2013, i.e. equivalent to the Future Homes Standard (FHS). Demonstrably feasible in that the Government’s first draft of the FHS achieved this with only fabric and a heat pump. Follows the WMS2023 prescribed metric (TER % reduction).
Homes: 15-20kWh/m ² /year Fabric Energy Efficiency using Part L SAP10.2.	Homes: kWh space heat demand limit that is necessary for the UK to meet its legislated carbon budgets and net zero 2050 goal. Recent precedent evidence bases (Greater Cambridge & Central Lincolnshire) have shown this space heat demand target to be

Additional energy reporting with PHPP or TM54.	feasible even when using accurate calculation methods (PHPP or TM54), as opposed to SAP which underestimates space heat demand.
Non-residential: Energy efficiency measures to deliver 19% reduction in TER carbon vs Part L 2013 or equivalent vs Part L 2021.	Lacking any equivalent data of the energy efficiency % improvement that will be delivered in <i>non-residential buildings</i> by the Future Buildings Standard 2025 compared to Part L 2021. Therefore, a 19% improvement on Part L 2013 is cited here because it has been demonstrated feasible and viable in Milton Keynes; see case study.

Example: Milton Keynes Local Plan 2019

Milton Keynes Local Plan 2019 Policy SC1 includes a requirement for a reduction of **19% on the building regulations carbon emission rate**, followed by a **further reduction of 20% through the use of renewable energy** and low/zero carbon technologies.

The latter 20% would fall under step 3 of the energy hierarchy ('be green'), implying that the first 19% must be achieved through the first two steps of the hierarchy (reducing energy demand, and supplying energy efficiently)⁸. Milton Keynes Sustainable Construction Supplementary Planning Document (2021) states why the overall requirement is considered to be feasible:

"As the Whole Plan Viability Study (2017) for Plan: MK demonstrates, the requirement to exceed the TER by 19% would not be unduly onerous for developers. Analysis of BRUKL data for recently consented schemes in Milton Keynes also indicates an average improvement of 41% over the TER is already being achieved at the design stage."

Example: Warwick Net Zero Carbon DPD 2024

This DPD sets a series of policies. The first establishes a requirement for net zero carbon in new buildings including an overall minimum % reduction in TER on-site. Subsequent policies define steps that must be taken towards that, following the energy hierarchy. (*Other policies in the DPD address embodied carbon and existing buildings, but the current report section focuses use of building regulations metrics*). The DPD's overarching 'net zero' policy is NZC1, which requires new-builds of 1 or more dwellings or over 1,000m² floorspace to follow the energy hierarchy to deliver:

- Homes: At least 63% reduction on the Part L 2021 TER on site
- Other buildings: At least 35% reduction on the Part L 2013 TER on site
- Offset 30 years' worth of any remaining regulated carbon emissions.

Policies NZC2a-c then define energy hierarchy steps that must be met. NZC2a relates to energy hierarchy step 1 & 2 (energy demand reduction & efficient supply), requiring:

- New homes: 10% reduction on Part L 2021 Target Fabric Energy Efficiency (TFEE)
- Other new buildings over 1,000m²: Achieve a 19% reduction in Part L 2021 TER through energy efficiency (fabric, services, and/or efficient energy supply).
- If the above are unfeasible/unviable, then demonstrate pursuit of the greatest feasible carbon reductions from energy efficiency improvements.

Despite the TFEE metric not being the WMS2023's stipulated metric, the Inspector at examination accepted that this was a step towards, not separate from, the TER target.

Example: Warwick Net Zero Carbon DPD 2024

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Policies NZC2a-c then define energy hierarchy steps that must be met. NZC2a relates to energy hierarchy step 1 & 2 (energy demand reduction & efficient supply), requiring:

- New homes: 10% reduction on Part L 2021 Target Fabric Energy Efficiency (TFEE)
- Other new buildings over 1,000m²: Achieve a 19% reduction in Part L 2021 TER through energy efficiency (fabric, services, and/or efficient energy supply).
- If the above are unfeasible/unviable, then demonstrate pursuit of the greatest feasible carbon reductions from energy efficiency improvements.

Despite the TFEE metric not being the WMS2023's stipulated metric, the Inspector at examination accepted that this was a step towards, not separate from, the TER target.

Example: West Berkshire Local Plan Review (adopted 2025)

This updated Local Plan was submitted in March 2023, underwent examination in 2024, was approved by the inspector in April 2025¹ and adopted in June 2025.

Policy DM4 echoes the approach taken in the Warwick Net Zero Carbon DPD policies NZC1 and NZC2, but expands on it by setting an absolute TFEE rather than relative, and expanding the scope of the renewable energy requirement to total energy use. Its requirements are as follows (summarised):

- New Residential development must meet the following energy efficiency goals:
- Achieve the carbon Target Emission Rate (TER) set by the Future Homes Standard once this is confirmed by central Government; in the meantime, achieve 63% TER reduction by on-site measures, as compared to the baseline emission rate set by Building Regulations Part L 2021 (SAP 10.2), before the addition of on-site renewable electricity generation, and
- Achieve a specific Fabric Energy Efficiency rate (Part L FEE metric). The policy's required FEE ranges from 13.5kWh/m²/year to 51kWh/m²/year, depending on type of dwelling (end terrace, mid terrace, room-in-roof, detached, bungalow, low-rise or mid-to-high-rise apartment).
- New non-residential development of ≥100m² must achieve a reduction (no specific target) on the Part L 2021 TER, and BREEAM Excellent.
- All new development should include onsite renewable, zero and low carbon energy technologies sufficient to achieve net zero carbon operational energy (regulated and unregulated). If this is not achieved, then it must offset residual carbon emissions via a cash contribution, whose calculation can take into account future grid decarbonisation. The offset price is the nationally published non-traded value per tonne of carbon.

The policy's justification drew on third-party published evidence of cost and feasibility of these standards. For example, the FEE targets were selected to reflect work by the Future Homes Hub identifying the exact FEE that would be achieved with the original draft FHS specification that Government had published in 2019-2021.

The Inspector's report noted that this area has higher-than-average carbon emissions and fuel poverty. It acknowledged the plans' Planning & Energy Act 2008 powers, NPPF expectations around climate mitigation and sustainability standards, and the WMS2023. The rationale for accepting the policy included that the overarching requirement is expressed as TER (as per the WMS2023); the FEE target is also a building regulations metric; and that reasonable costs had been identified and tested in the plan's viability study. Thus "the Council's evidence demonstrates that the approach should be effective in ensuring [climate mitigation i.e. net zero carbon] without compromising the financial viability of development in West Berkshire." West Berkshire has since commissioned and published a carbon offset calculator.

5.4 Energy hierarchy step 2: efficient energy supply

This stage of the energy hierarchy is also referred to as 'be clean'. This step generally refers to the use of heat networks⁷ to distribute heat efficiently and cleanly and with minimal losses, as opposed to individual gas boilers.

Heat networks usually serve several buildings or sites from a common energy source and can be expanded over time to serve more sites. Networks have variously included:

- Heat networks fed by local waste heat sources that generate (or reject) a lot of heat as a by-product of their normal activity, such as waste incineration, refrigeration, or data centres
- Heat networks fed by large-scale heat pumps (taking energy from air, ground or water sources) at a standalone energy centre that does not 'belong' to any individual new building
- Networks that 'share' heat across mixed-use schemes where some facilities need to reject a lot of heat (e.g. refrigeration or air-conditioning) while other uses demand heat (e.g. hot water)
- Heat networks fed by CHP plant (combined heat and power), essentially a small-scale power station which burns fuel to generate electricity and heat at the same time.
 - This was previously seen as 'efficient' (versus centralised power plants) because the CHP plant would be close enough to homes or businesses that the heat could be reused.
 - However, it is no longer a sustainable option because CHP almost always runs on fossil gas which needs to be fully phased-out to meet the UK's net zero carbon goal and carbon budgets, unless carbon capture technologies emerge in future (which to date have been [too slow](#)). The electrical grid now⁸ provides electricity at a lower carbon intensity than a CHP plant, and heat pumps are a more efficient and cleaner heat source which will reach zero carbon as the electrical grid decarbonises, and avoids the negative air quality impacts that come with fuel combustion in CHP.

Because local waste energy sources are extremely geographically site-specific and because heat networks in general are dependent on a relatively high density of heat demand, it is not appropriate to seek a universal carbon percentage reduction to be achieved at this stage of the energy hierarchy.

Because heat networks are often powered by waste incineration or fossil gas – neither of which currently has a path to zero carbon – there is a risk that a building connected to a heat network may not necessarily save carbon compared to a building that has an individual heat pump other electrical heating, especially if the latter is combined with renewable electricity supply. One grey area is waste incineration, where the incineration may occur whether or not the heat is reused. The most logical policy approach may therefore be a case-by-case treatment that considers

operational and embodied carbon of the new network, and the counterfactual (the system that the developer would otherwise choose, e.g. heat pump).

Thus, it may be beneficial to design a policy so that heat network connection is only sought where the heat source is low- or zero-carbon and/or a lower carbon solution to individual electrical heating solutions per building. If the Local Plan also has a policy requiring on-site renewable electricity generation (see [next section](#)), then it is likely that individual heat pumps utilising this renewable electricity would be a lower-carbon solution than a heat network in most cases. One potential exception could be large-scale mixed-use development, where a communal heat sharing network driven by heat pumps could be the optimal solution as these can (if correctly designed) enable recycling of heat rejected from cooling systems at commercial buildings at the scheme.

This is why the many newer Local Plan policies do not *require* connection to any heat network, although they may *allow* any carbon savings from such networks to be counted towards a policy's overarching target for carbon savings for renewable and low-carbon energy sources.

The following pages present other Local Plan examples/precedents that are expressed as:

- A requirement to connect to an existing or planned heat network, if present
- A requirement to have energy systems that are compatible to later connect to a future heat network, if the proposed development is within suitable area identified in a heat mapping exercise (for example, such systems could include having the necessary heat pipework incorporated into the building)
- An acknowledgement that lower-carbon energy options may be available, in which case the heat network connection will not be required, and
- An acknowledgement that the requirement may be waived if there are unsolvable feasibility or viability obstacles which make heat networks unsuitable for the specific scheme.
- In some policy examples, heating system options are arranged into a 'heat hierarchy' with heat networks being the top priority, and developers only permitted to use solutions further down the hierarchy if they can prove that the higher-priority solutions are unfeasible or unviable. However, this approach can give rise to unwanted outcomes if the hierarchy is too prescriptive to respond to technological change⁹.

Example: New London Plan (adopted 2021)

Policy SI3: Energy Infrastructure

This policy requires that major development proposals within identified 'Heat Network Priority Areas' should have a communal low-temperature heating system, whose heat source should be selected according to the following hierarchy:

- a. Connect to local existing or planned heat networks
- b. Use zero-emission or local secondary heat sources (in conjunction with heat pump, if required)
- c. Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network)
- d. *Use ultra-low NOX gas boilers (which must meet requirements of a separate air quality policy).*

Where a heat network is planned but not yet in existence the development should be designed to allow for the cost-effective connection at a later date.

⁷ Heat networks (also known as district heating) are networks that supply heat across an area through underground piping systems flowing from a central heat source.

⁸ Thanks to the phase-out of coal power stations and the last 15 years' significant growth in renewable energy generation feeding into the electrical grid.

⁹ If specific technologies are arranged into a hierarchy at the time of writing the plan, but other lower-carbon technologies emerge during the plan period, this can result in a 'lower priority' technology becoming in fact lower-carbon than a 'higher priority' technology. For example, gas-fired heat networks were once considered a 'better' option than electric heat pumps when the electrical grid mix had coal and less renewable generation, but this is no longer the case thanks to grid decarbonisation.

Example: Bristol Local Plan 2011 (adopted)

Policy BCS14: (Sustainable Energy) contains a ‘heat hierarchy’ whereby specific technologies are arranged in order of preference, from highest to lowest:

- Connection to existing CHP/CCHP distribution networks [combined heat and power/combined cooling, heat and power]
- Site-wide renewable CHP/CCHP
- Site-wide gas-fired CHP/CCHP
- Site-wide renewable community heating/cooling
- Site-wide gas-fired community heating/cooling
- Individual building renewable heating.

That policy establishes that, in the specified “Heat Priority Areas”, “major development will be expected to incorporate, where feasible, infrastructure for district heating, and ... to connect to existing systems where available.” These Heat Priority Areas are based on areas identified by the *Citywide Sustainable Energy Study (2009)* as suitable due to the density of heat demand.

Supporting text to the policy asserts that by following this hierarchy, “the lowest carbon heating / cooling solution feasible for the development will be achieved”.

However, this hierarchy does not include individual electric heating systems (albeit heat pumps may be considered “renewable heating”). **In practice, this hierarchy unfortunately pushes the use of existing gas heat networks over individual heat pumps**, despite the fact that electric heat pumps (whether individual or network) are now lower-carbon than gas heat networks, thanks to decarbonisation of the electricity grid and the 300%-500% efficiency that modern heat pumps achieve (3-5 units of heat delivered per unit of electricity used). Connection to a gas heat network locks a building into fossil fuel use until the network may switch to a new heat source (if ever). By contrast, even direct electric heating will become zero carbon by 2030 if *the Government's grid plans* are realised (albeit direct electric heat is only 100% efficient thus much costlier to run than heat pumps or gas, therefore only suits highly insulated properties).

Example: Milton Keynes Local Plan 2019 (adopted)

Policy SC2: Community energy networks and large-scale renewable energy schemes

This policy requires that:

- Major development proposals should consider the integration of community energy networks in the development. This consideration should form part of development proposals and take into account the site’s characteristics and the existing cooling, heat and power demands on adjacent sites
- All new developments in proximity of an existing or proposed combined heat and power (CHP), combined cooling, heat and power (CCHP) station or local energy network will be expected to connect to the network unless it can be demonstrated that:
 1. A better alternative for reducing carbon emissions from the development can be achieved; or
 2. Heating and/or cooling loads of the scheme do not justify a CHP connection; or
 3. The cost of achieving this would make the proposed development unviable.

Example: Bristol emerging new Local Plan (published November 2023 and submitted April 2024, and main modifications documents April 2026)

Notably, this does not repeat the very prescriptive hierarchy found in the adopted plan (above). Instead, its Policy NZC2 ([original 2023 version](#)) sets a heat hierarchy of only two steps:

1. Where possible, connection to an existing or new “classified heat network”;
2. Communal or individual heating that is fossil fuel free.

The [April 2026 main modifications](#) version also includes a third step::

1. Communal or individual low carbon systems.

Supporting text explains the criteria to define a “classified heat network” which include that “The heat supplied is from renewable and/or low carbon sources or has a decarbonisation plan to remove all fossil fuel heat generation from the network by 2030”. This avoids the risk of indefinitely locked-in gas usage.

5.5 Energy hierarchy step 3: renewable and low carbon energy at new buildings

The third step of the energy hierarchy typically used in previous Local Plan examples (see previous Figure 11) is to decarbonise energy supply: both electricity and heat. The Committee on Climate Change 2019 report ('UK housing: Fit for the future') identified that grid decarbonisation is a vital component in the trajectory towards net zero. Onsite renewable generation at new buildings supports this in two ways. First, it drives investment in additional renewable electricity, and second, it can simultaneously reduce peak and annual demand on the grid (if the selected energy generation technology produces energy at the time when the development needs to use that energy).

Requirements for renewable or low-carbon energy supply in Local Plan policy can be expressed as:

- a. A further **percentage reduction in carbon emissions** against the building regulations baseline, in addition to the percentage achieved through fabric (*see example from Milton Keynes*), or
- b. A 'Merton Rule'¹⁰; where the proposal must include renewable energy generation equipment on-site or near-site, sufficient to **meet a certain proportion of the building's own energy demand** (see example below from Solihull). This can be:
 - i. total energy,
 - ii. or regulated energy only.
 - This uses the [Planning and Energy Act power](#) to require a 'reasonable' proportion of the development's energy use to be from renewable sources in the locality.

The value of onsite generation has long been recognised in Local Planning policy, but has not been without its critics. It has sometimes been argued that the prescriptive nature of such policies may not be applicable for all sites and can occasionally lead to the installation of inefficient onsite renewables^{xxxv}. Some sites may not be able to meet a very high requirement for renewables, such as if they are overshadowed (meaning solar PV panels would not work well), or if it is a tall building where there is a larger amount of internal floor space demanding energy but a relatively smaller roof space for PV.

However, a 100% renewable energy supply (whether on or off site) is a vital component of achieving net zero carbon buildings by the increasingly consensus-based industry definitions

¹⁰ The original Merton Rule (introduced in 2003) required only 10%, but more recently adopted and emerging Local Plans aim higher.

[previously explained](#). In cases where this cannot occur onsite, [offsetting](#) can be a mechanism for policy flexibility.

There is a growing number of adopted example policies that set specific targets for onsite renewable generation as part of a requirement for 'net zero carbon' or 'net zero energy' new buildings. In practice, these policies are often applied flexibly if the developer can show how and why it was not possible to meet the required metric and that they have pursued renewable energy measures to the greatest reasonable extent. If such a policy is adopted, it will be **important to upskill development management officers to be able to recognise the sort of site constraints** that would legitimately impede the ability to meet 100% of energy demand with on-site renewable generation, and to differentiate these from incidences where developers may make a claim of non-feasibility simply to save the cost or the time it may take to improve their designs to meet the target.

5.5.1. Defining 'low and zero carbon technologies'

If setting a plan policy requirement under this stage of the energy hierarchy, it will be necessary to define the types of measures that will count as 'renewable / low and zero carbon technologies'.

- i. Some technologies, such as solar PV panels, solar thermal and turbines, always count.
- ii. Other technologies – such as heat pumps – may need the policy to clarify on where to account for these in an energy statement.

Heat pumps are not automatically zero carbon – they still use electricity to run, and the UK's electricity grid is not yet zero carbon (albeit grid electricity is now lower carbon per kWh than gas boiler heat is). Yet heat pumps are a low carbon heating system, thanks primarily to their high efficiency. They can deliver three to five times as much heat energy as they consume in electrical energy, because they take ambient heat from outdoor air – thus there is a renewable element to the heat they deliver. To achieve this level of efficiency, they need to provide heat at a relatively low temperature. For a building to only need low-temperature heat delivery, that building needs to have low space heat demand – which is delivered through improved fabric (insulation, glazing and reduced air permeability¹¹).

The developer could make the heat pump zero carbon by supplying its electricity from a renewable source such as rooftop solar panels, so long as they are generating the renewable electricity at the same time the heat pump is running or if the building can store the solar electricity in a battery for later use. You will need less energy from your solar panels to run your 300% efficient heat pump, compared to using your solar panels to run direct electric heating

¹¹ Air permeability is the opposite of airtightness. As defined in Part F of Building Regulations, airtightness is "a general descriptive term for the resistance of the building envelope to infiltration with ventilators closed. The greater the airtightness at a given pressure difference across the envelope, the lower the infiltration".

which can only ever be 100% efficient – therefore you do not need as many solar panels, resulting in savings in embodied carbon.

In some other precedent Local Plans, carbon savings from heat pumps are treated under the same step of the energy hierarchy as renewables – that is Step 3/‘Be Green’. For example, London Plan draft energy guidance^{lxxxvi} asks that heat pumps be accounted for as a Step 3 measure, unless they are powering a heat network, in which case all heat from the heat network would be a Step 2 (‘be clean’) measure.

However, heat pumps could alternatively be counted instead as an ‘energy efficiency’ measure. That would allow a cleaner accounting for their benefits within Step 1 of the energy hierarchy, so that the energy efficiency policy can be aligned directly to the Future Homes Standard (i.e. a ~64% reduction in carbon emissions via energy efficiency improvements, comprising of fabric improvements *and* the heat pump along with any other efficiency improvements, as per the Government’s original indicative FHS specification consulted upon in 2020-22). The renewable energy requirement (Step 3 of the energy hierarchy) could then be more cleanly defined as “meet 100% of the remaining energy demand with on-site renewable *electricity* generation”, offering a clear improvement beyond what the 2025 building regulations would have already entailed (which as previously noted, is too weak for the achievement of national carbon budgets) and thus actively helping to deliver climate mitigation.

Example Sutton Local Plan (adopted 2018) Policy 31

In Policy 31, all proposed development must apply the Mayor’s energy hierarchy in the following order:

1. Being built to ‘the highest standards of energy efficient design and layout’,
2. Supplying energy efficiently (low or zero-carbon heat networks and cooling networks),
3. Using on-site renewable energy to achieve a reduction in total CO₂ emissions (regulated and unregulated) of 20% in major developments or 10% in minor.

Example: Milton Keynes Local Plan 2019 (adopted)

Policy SC1 (Sustainable Construction) includes that:

All proposals of 11+ dwellings or non-residential space over 1,000m² must apply the energy hierarchy to achieve:

1. A ≥19% reduction on Building Regulations 2013 carbon emissions,
2. A further ≥20% reduction through renewables (onsite or a local network),
3. The developer must then pay to offset remaining carbon emissions (see ‘carbon offsets’ section further on in this brief).

Example: Warwick Net Zero Carbon DPD 2024

*After the DPD’s Policy NZC1 sets the required total overall minimum onsite reduction in Building Regulations Target Emissions Rate, and after Policy NZC2a sets the required improvement in energy efficiency, **Policy NZC2b** then goes on to set the requirement for onsite clean energy generation to be achieved after the NZC2a requirement has been met:*

- *Incorporate sufficient renewable and low-carbon energy generation technologies to achieve the onsite carbon reductions specified by Policy NZC1 and achieve on-site net zero regulated operational carbon*
- *Or if the above is not feasible/viable, then demonstrate that these technologies have been deployed as far as feasible and viable, and ensure technologies used are at least ‘net zero carbon ready’.*

Example: West Berkshire Local Plan Review (adopted 2025)

As previously noted, this updated Local Plan was submitted in March 2023, examined in 2024, approved by the inspector in April 2025 and adopted in June 2025.

After the achievement of Policy DM4's energy efficiency targets (previously outlined in energy hierarchy step 1), the policy then expresses what new buildings must achieve through the addition of renewable energy (energy hierarchy step 3):

- All new development should include onsite renewable, zero and low carbon energy technologies sufficient to achieve net zero carbon operational energy (regulated and unregulated).

If this is not achieved, then the developer must offset residual carbon emissions via a cash contribution, whose calculation can take account of future grid decarbonisation. The offset price is the nationally published non-traded value per tonne of carbon. West Berkshire then commissioned and published a carbon offset calculator to make this easier and consistent. Offsetting thus forms a fallback alternative to the renewable energy target, making the policy more flexible to the variety of sites and constraints that may arise, although the examination evidence indicated that the renewable energy target was thought to be largely feasible.

Emerging example: Solihull Local Plan – Draft Submission Plan 2020

Policy P9, point 3, would require that at a site level, development must apply the 'energy hierarchy' to reduce energy demand for heating, lighting and cooling and minimise carbon dioxide emissions as follows:

- All new dwellings to achieve 30% reduction in energy demand/carbon reduction improvement beyond the requirements of Building Regulations Part L (2013) at the time of commencement up to March 2025.
- From April 2025, all new dwellings to be net zero carbon.
- Minor non-residential development will conform to at least BREEAM Very Good and major non-residential development will conform to at least BREEAM Excellent.
- Provide at least 15% of energy from renewable and/or low carbon sources for all major housing developments and non-residential developments of 1000sqm or more.

Solihull's draft plan was **withdrawn from examination in Autumn 2024**, but this was *due* to the Inspector's lack of confidence in the land supply, and was not related to the energy/carbon policies. It is therefore likely that similar energy/carbon policies will be included again when Solihull eventually comes to submit a revised plan with a revised land supply.

5.6 Alternative: more effective metrics for true 'net zero' buildings outside Building Regulations

There is a growing number of local authorities pursuing the industry-consensus approach (to achieving genuine net zero new build development as recommended by LETI, UKGBC, RIBA and others). The approach does not use baselines or % reductions based on previous iterations of Part L as in previously explored precedents. Instead the approach sets absolute limits on energy use, and requires this to be matched by 100% renewable energy. A policy following this approach sets three key requirements:

- iii. **Energy use intensity (EUI)** – the predicted total amount of regulated and unregulated energy used, per m² of floorspace.
- iv. **Space heating demand** – the amount of energy required to heat the building, per m² of floorspace.
- v. **On-site renewable energy generation** – must match total energy use across the course of each year, in order to be a 'net zero' building.

The table below is a comparison of targets for residential development.

Space heating demand (kWh/m ² /year)	Energy use intensity (kWh/m ² /year)	Target referenced
30	40	Cornwall Climate Emergency DPD (adopted 2023) Bath & North East Somerset Local Plan (adopted 2023)
15-20	35	Central Lincolnshire Local Plan (adopted 2023) Greater Cambridgeshire Draft Local Plan (emerging)
15-20	n/a	Committee on Climate Change (recommendation)
15	35	Low Energy Transformation Initiative (recommendation) CIBSE (recommendation) Good Homes Alliance (recommendation)

The EUI target includes all energy used by the building, importantly including unregulated energy, which Part L does not. EUI does however exclude contributions from renewable energy generation and does not consider electric vehicle charging in the calculation. Reducing the building's energy use is the primary aim of the EUI approach, which can then be supplemented to net zero by the requirement for renewable energy generation provision to match the energy demand of the building.

This **energy metric approach drives forward higher quality fabric and systems** installed in buildings. For example, high performance U-values are essential to achieve space heating demand targets set out above. Part L of Building Regulations does not however guarantee such high-performance since absolute energy targets are not set for certain building typologies. An additional benefit of this assessment is that **EUI can be easily monitored and verified in practice from meter readings**.

Additionally, a tight **EUI target essentially bans the use of on-site fossil fuels**, and more specifically, gas boilers for heating. Although explicitly stating the ban of gas boilers in policy wording may cause concern, the EUI target does this implicitly since gas boiler efficiency (c. 90%) will likely result in too large a contribution of overall energy use to result in a compliant EUI value. Contrarily, the **superior efficiency of heat pumps makes achieving the EUI target significantly easier**, as the technology can produce over 3 units of heat per 1 unit of electricity used.

Particularly **for more stringent EUI and space heating demand targets**, as proposed by Central Lincolnshire and Greater Cambridge, more than just the installation of a heat pump and high fabric efficiency will be required to achieve such targets. **To meet the more stringent targets, decisions must be made at an early stage of the development process to make appropriate decisions on form factor, glazing ratios and building orientation, which encompasses a fabric first approach.** These decisions will contribute towards the maximisation of energy demand reductions and the ability of the renewable energy generation system to create an on-site net zero energy balance.

This remedies a key weakness in Building Regulations, which fail to incentivise applicants to design a building with an inherently thermally efficient form or orientation because all of the Part L targets are not fixed targets but are set in relation to a building of the same size and shape as the proposed building.

To further strengthen a policy informed by this approach, a **robustly accurate energy modelling methodology will need to be used**. SAP 10.2, used for Part L compliance, is currently unable to accurately assess unregulated energy since the relevant equation is based on 1998 appliances, which clearly does not reflect modern efficiencies. It is therefore more difficult to comply with an EUI target using SAP because the proportion of unregulated energy, which can be up to 50%, is severely overestimated. SAP also frequently underestimates space heat demand by up to 270%, and SBEM has also been shown to generally underestimate overall energy use.

To mitigate such inaccuracies, an alternative energy modelling methodology is required to ensure design-stage performance values correspond to the as-built performance of the building. The **industry-recommended energy modelling method** to minimise such a performance gap is Passive House Planning Package (**PHPP**), which is used for the leading Passivhaus standard. Contrary to common misconceptions, PHPP can be used without needing to pursue the stringent Passivhaus certification process. An alternative accurate energy modelling calculation method, if used correctly, is **CIBSE TM54**. TM54 works by starting with the SBEM calculation and making adjustments to the inputs to reflect how the building will be used based on reasonable adjustments about occupancy and so on.

On-site renewable energy generation must match the EUI (multiplied by the floor space) to reach an on-site net zero energy balance. In the majority of cases, this has been shown to be technically feasible for buildings that have EUI up to 40 kWh/m²/year (depending on building height). The taller the building, the less likely it is that there will be sufficient roof space to match EUI. However, even for such taller, more shaded buildings, façade-mounted or ground-mounted solar panels could be

considered and an [offsetting mechanism](#) in the policy can provide suitable flexibility where needed.

Several examples are explored on the following pages, which, although they take a similar approach, have received very different reactions from their respective examination Inspectors.

In the precedents cited here, a difference may be noted between standards set for residential versus non-residential development. This an important aspect of the energy-based policy approach. The typical usage of residential buildings is less variable, therefore relatively easy to predict and understand. By contrast, non-residential buildings can vary significantly in terms of energy use even between buildings of the similar use classes. For example, an office with computers at each desk (and potentially a computer server bank) will have a far higher energy consumption than a retail unit that primarily consumes energy only through lighting and heating. Similarly, a retail unit with refrigeration (such as a supermarket or neighbourhood grocery shop) will have far higher energy use than a retail unit sells only unrefrigerated goods.

Therefore, non-residential buildings need to be treated in isolation of the archetype assessed because the whole scope of non-residential buildings involves a very wide range of energy consumption levels associated with the unique activities of the occupier. Approaches that have been or could be used to overcome this variability are:

- i. Setting total energy use limits (EUI limits) by different types of proposed development use
- ii. Setting absolute limits on energy consumption from *regulated energy uses* only, to be triggered where the specified total EUI limit cannot be met due to unavoidably high unregulated energy use (such as refrigeration units or server farms as noted above),
- iii. Requiring renewable energy generation to match 100% of energy use on an annual basis,
 - o But, in cases where this is demonstrably unfeasible due to the aforementioned unavoidably high energy use or building height versus roof space for solar panels, then set a fallback target of a minimum amount of annual renewable energy generation in kWh/m² building footprint /year,
 - And if the above is also demonstrably unfeasible due to unavoidable site characteristics (e.g. overshadowing from trees or buildings outside the developer's control), then allow offsetting payments in proportion to the shortfall in required renewable energy generation (see also later section of this report on [carbon and energy offsetting](#)).

We also note that many Local Plan policies also require a certain level of BREEAM certification in non-residential development. It is important to be aware that this would not translate into such optimal energy performance as the policy precedents shown here (as BREEAM does not set absolute targets for energy use or renewable energy and does not guarantee net zero carbon schemes). However, BREEAM does address a wider range of sustainability issues (for example, materials, management, water, biodiversity and other issues beyond energy use).

Example: Central Lincolnshire Local Plan (adopted)

The Central Lincolnshire Local Plan was adopted in April 2023. The adoption of this plan is significant as the energy requirements for Policy S7 and S8 are aligned with recommendations from LETI and the Committee on Climate Change.

Policy S7 (Reducing Energy Consumption - residential) includes that:

“Unless covered by an exceptional basis ... all new residential development proposals must include an Energy Statement which confirms in addition to the requirements of Policy S6 that all such residential units:

1. Can generate at least the same amount of renewable electricity on-site (and preferably on-plot) as the electricity they demand over the course of a year, such demand including all energy use (regulated and unregulated), calculated using a methodology proven to accurately predict a building’s actual energy performance; and
2. To help achieve point 1 above, target achieving a space heating demand of around 15-20kWh/m²/yr and a total energy demand of 35 kWh/m²/yr ... No unit to have a total energy demand in excess of 60 kWh/m²/yr [which means] the amount of energy used as measured by the metering of that home, with no deduction for renewable energy.”

The policy also includes a clause to address the energy performance gap:

“The Energy Statement must include details of assured performance arrangements. As a minimum, this will require:

- a. The submission of ‘pre-built’ estimates of energy performance; and
- b. Prior to each dwelling being occupied, the submission of updated, accurate and verified ‘as built’ calculations of energy performance. [This] should also be provided to the first occupier ... Weight will be given to proposals which demonstrate a deliverable commitment to on-going monitoring of energy consumption ... which has the effect ... of notifying the occupier [if] their energy use appears to significantly exceed the expected performance of the building, and explaining to the occupier steps they could take to identify the potential causes.”

Policy S8(Reducing energy consumption – non-residential) replicates the clauses except with a higher permitted total energy demand of 70-90kWh/m²/year. The assured performance clause is also mirrored.

If a non-residential proposal can demonstrate why the metrics are not achievable, it can instead source renewable energy from off-site, pay the local authority to deliver equivalent renewable energy or other offsite infrastructure to deliver the appropriate carbon saving, or connect to a decentralised energy scheme.

Alternatively, a non-residential proposal may demonstrate achievement of BREEAM Excellent or Outstanding, instead of complying with the energy metrics.

Example: Cornwall Climate Emergency DPD 2023 (adopted)

The Cornwall Climate Emergency Development Plan Document (DPD) was adopted in February 2023 and retained all key elements of its net zero carbon policies.

Policy SEC1 (Sustainable Energy and Construction) includes that (paraphrased):

- a. Major non-residential development (over 1,000m²) to achieve **BREEAM Excellent** (or “equivalent or better methodology”)
- b. New residential development to achieve all of the following:
 - i. Space heating demand of <30kWh/m²/year
 - ii. Total energy consumption of <40kWh/m²/year
 - iii. On-site renewable generation to match the total energy consumption, with a preference for roof-mounted solar PV.

Where it is not feasible or viable to include enough renewable energy generation to match total energy consumption, the development should pursue the following:

- Renewable energy generation to be maximised as far as possible
- Connection to an existing or proposed district energy network
- **Offset the residual energy demand** by a contribution to Cornwall Council’s Offset Fund.

This is supported by evidence in the form of energy modelling analysis¹ by expert green building engineers. This analysis used accurate energy modelling method (PHPP) to identify a range of energy performance targets that are feasible in Cornwall and can reach the net zero carbon target in a variety of ways (different combinations of fabric / energy efficiency and renewable energy measures). This evidence piece also compared the proposed ‘net zero carbon’ building performance options against how a building would perform if it simply met the Future Homes Standard.

The analysis included cost information for each modelled building that was then used in the viability assessment for the DPD. That viability assessment found that most residential development scenarios remained viable with the policies applied, and that the majority of the cost uplifts over the 2013 building regulations will be incurred by developers anyway in order to meet the new 2021 building regulations, even without the Local Plan carbon policy.

Contrarily to the Salt Cross AAP, [the Inspector’s report](#) positively stated that the 2015 WMS has clearly been overtaken by more recent events.

Example: Bath & North East Somerset Local Plan Partial Update (adopted)

The [Local Plan Partial Update](#) (LPPU) was adopted in January 2023 and became the first Local Plan in the UK to set net zero energy standards for new housing.

Policy SCR6 sets identical standards to Cornwall for residential development and was informed by the same technical evidence base. As set out in the [Sustainable Construction Checklist Supplementary Planning Document](#), PHPP is required for major development, whilst an option to use SAP with the Energy Summary Tool is available for minor residential development. The Energy Summary Tool adjusts outputs from SAP to reflect in practice performance. These options reflect the same approach as Cornwall. It is however important to note that the calculation approaches were not tested at examination as the requirements are set out in supplementary guidance.

A specific technical study for the Bath & North East Somerset (B&NES) area was not seen as necessary because Cornwall and B&NES share the same prominent housing typologies and climate patterns that influence the efficiency of solar PV to provide an on-site net zero energy balance.

A key piece of evidence that assisted B&NES to successful adoption was a [letter received from DLUHC](#), which reiterated the fact that local authorities are able to set standards that exceed Building Regulations i.e. that exceed the standards set out in the 2015 WMS. The 2015 WMS was not explicitly stated in this correspondence from government, yet the clarification on exceeding Building Regulations all but confirms that the 2015 WMS is no longer relevant.

This view was directly stated in the [Inspector's report](#):

“The **WMS 2015 has clearly been overtaken by events** and does not reflect Part L of the Building Regulations, the Future Homes Standard, or the legally binding commitment to bring all greenhouse gas emissions to net zero by 2050.

I therefore consider that the **relevance of the WMS 2015 to assessing the soundness of the Policy has been reduced significantly**, along with the relevant parts of the PPG on Climate Change, given national policy on climate change. The NPPF is clear that mitigating and adapting to climate change, including moving to a low carbon economy, is one of the key elements of sustainable development, and that the planning system should support the transition to a low carbon future in a changing climate. Whilst NPPF154b sets out that any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards, for the reasons set out, that whilst I give the WMS 2015 some weight, any inconsistency with it, given that it has been overtaken by events, **does not lead me to conclude that Policy SCR6 is unsound, nor inconsistent with relevant national policies.**”

The logical view provided by the B&NES Inspector appropriately summarises the context of local authority powers to set their own energy efficiency standards. In contrast, the West Oxfordshire Inspectors' views represent inconsistency in decision making on net zero policies at PINS. As more local authorities propose ambitious policies that will need to be weighted against consistency with national policy, increased consistency should become apparent.

Example: [Merton New Local Plan \(adopted 2024\)](#)

In April 2023, the inspectors expressed concerns in the Post-Hearings Letter¹ around the viability of mandatory energy use intensity targets, particularly for smaller development, that may negatively impact delivery. This relates to potential issues for small housebuilders in that the required expertise in energy-efficient construction may not be widespread.

The adopted plan **Policy CC2.3** therefore includes only requires *disclosure* of Energy Use Intensity (EUI) for all proposals of 1 or more homes or 500m² of floor space, and 5-year post occupancy monitoring for major development. Supporting text paragraph 2.3.18 explains that developments should calculate the EUI with (CIBSE) TM54, (PHPP) methodology or equivalent.

The supporting text also includes *non-mandatory* exemplary EUI targets that development proposals are advised to strive towards:

- Residential and multi-residential - 35 kWh/m²/year
- Offices, retail, GP surgery, hotels and higher education - 55-70 kWh/m²/yr
- Schools - 65 kWh/m²/yr
- Hotels - 160 kWh/m²/yr
- Light industrial uses - 110 kWh/m²/yr

The targets match those developed by the London Energy Transformation Initiative to be consistent with achieving national net-zero carbon targets (paragraph 2.3.21) and proven feasible by energy modelling for a set of 18 London Boroughs including Merton (paragraph 2.3.22). In contrast, paragraph 2.1.14 notes that typical current Part L EUI is 140/kWh/m²/yr.

Policy CC2.3 also includes the following space heat demand targets, with SAP:

Development type	Until 31/12/2022	01/01/2023 – 31/12/2024	From 01/01/2025
Block of flats & mid-terrace house	<43 kWh/m ² /year	39 kWh/m ² /year	15 kWh/m ² /year
Semi-detached, end-terrace & detached house	52 kWh/m ² /year	46 kWh/m ² /year	20 kWh/m ² /year
Non-residential (target flexible)		-	15 kWh/m ² /year

Supporting text paragraphs 2.3.9 – 2.3.13 explain that the gradual uplift allows time for developers to adapt, and that the 2022-24 targets reflect the Zero Carbon Hub ‘interim fabric energy efficiency standard’ and ‘full fabric energy efficiency standard’ which have been demonstrated to be feasible, viable, and achieved in several schemes in Merton. In Policy CC2.4, proposals must use low carbon heat. Proposals must demonstrate “how the proposal has made the best potential use of roof space” to maximise renewable energy generation, which should meet “100% of energy demand ... where possible”.

Example: [Tendring Colchester Borders Garden Community Development Plan Document \(DPD\), adopted 2025](#)

This development plan document relates to a new settlement or urban extension of 7,500 new homes adjacent to the existing urban area of Colchester. The proposed land overlaps the district boundary between Tendring District Council and Colchester City Council. The development’s proposed status as a ‘Garden Community’ provides enhanced rationale to pursue high sustainability ambitions here, on top of the climate emergency or national net zero goals that are relevant all across the UK. Its “GC Policy 8” (*submission version, 2023*) includes energy metric standards similar to those of the other ‘true net zero’ plans described above, as follows:

- GC Policy 8: Sustainable Infrastructure
 - “All buildings must be net zero carbon in operation and achieve net zero operational energy balance onsite”, to be achieved by:
 - New homes:
 - Space heat demand of ≤30kWh/m²/year
 - Total energy use intensity (EUI) of ≤40kWh/m²/year
 - All buildings: Onsite renewable generation to match or exceed the total energy consumption, or if this is demonstrated unfeasible, then offset the shortfall via contribution to offset fund.
 - “Compliance should be demonstrated by using an energy assessment tool proportional to the scale of the development.”

We note that non-residential buildings are not subjected to any EUI or SHD target in this policy; however they are still subject to the requirement to be net zero carbon in operation via the net zero energy balance.

This DPD was submitted to the inspector in September 2023 and underwent hearings in May 2024. Following that High Court decision, the carbon/energy policies of Salt Cross AAP were re-examined in 2024-2025. The new *Inspector’s post-hearing letter in 2025* permitted this DPD to retain all of the above energy metric targets, including the EUI and SHD targets despite the fact that these are different from the metric that one particular national policy purports to stipulate (the WMS2023 as *previously explained*). The Inspector’s rationale for this was that although that WMS2023 “is a material consideration”, it must “be read in the context of wider national policy and legislative considerations”; specifically that “reducing carbon emissions and supporting the transition to net zero forms a central part of the [NPPF] in line with the ... Climate Change Act”.

Example: Salt Cross Area Action Plan (West Oxfordshire), adopted 2026

This development plan document relates to a new settlement or urban extension at a specific large site. The development's proposed status as a 'Garden Community' provides enhanced rationale to pursue high sustainability ambitions here, on top of the climate emergency or national net zero goals that are relevant all across the UK.

Its "Policy 2 – Net Zero Carbon Development" includes energy metric standards similar to those of the other 'true net zero' plans described above, as follows:

- "All development at Salt Cross must achieve net zero operational carbon on-site", via:
 - Space heat demand of 15-20kWh/m²/year
 - Total energy use intensity (EUI) of :
 - Homes: ≤35kWh/m²/year
 - Offices: ≤70kWh/m²/year
 - Schools: ≤65kWh/m²/year
 - All other buildings: Agree a target with the council at pre-application stage.
 - All buildings: Onsite renewable generation to match or exceed the total energy consumption, or if this is unfeasible, then offset the shortfall via the offset fund.
- Compliance with these targets must be demonstrated using "A valid predictive energy modelling approach", and the policy specifically names PHPP and CIBSE TM54 as suitable.

We note that non-residential buildings are not subjected to any EUI or SHD target in this policy; however they are still subject to the requirement to be net zero carbon in operation via the net zero energy balance.

This DPD was submitted to the inspector in 2021 and underwent its first examination in 2022. The Inspectors in that case (D Spencer and D McCreery) decided in 2022 to reject the policy on the basis of inconsistency with one specific national policy: The Written Ministerial Statement of 2015 (WMS2015) previously explained. However, that decision was overturned in the High Court (hearings in 2023; judgement in 2024) when the High Court Judge found that those Inspectors had wrongly interpreted the weight of the WMS2015, which had become obsolete due to changes in Building Regulations and had been overtaken by other more recent national policies.

The Inspector noted that "no matter how energy efficiency is proposed to be measured, the environmental outcome, to mitigate climate change and contribute to meeting the net zero obligation, will remain the same. Based on the evidence ... the Council's approach is consistent with national policy".

The only amendment that the Inspector required were for the purpose of clarity and to define how implementation would work in outline applications. The plan is expected to be adopted in early 2026.

Example: Uttlesford Local Plan (Adopted)

This emerging plan was submitted in December 2024 and underwent examination in Summer 2025. It was adopted in March 2026. Its **Core Policy 22 (Net Zero Operational Carbon Development)** requires:

Part A: **All new buildings** (one or more dwellings or $\geq 100\text{m}^2$ non-residential floor space) must be Net Zero Carbon in operation, by meeting the following requirements:

1. Space heating demand must be demonstrated not to exceed the following limits:
 - $15\text{kWh}/\text{m}^2/\text{year}$ in all buildings other than bungalows (including non-residential)
 - $20\text{kWh}/\text{m}^2/\text{year}$ in bungalows.
2. No gas grid connection; no fossil fuel on-site for space heat, domestic hot water or cooking
3. Total Energy Use Intensity (EUI) must be demonstrated not to exceed the following limits:
 - $35\text{kWh}/\text{m}^2/\text{year}$ in homes (use classes C3 and C4) and light industrial
 - $70\text{kWh}/\text{m}^2/\text{year}$ in offices
 - $65\text{kWh}/\text{m}^2/\text{year}$ in schools
 - In other buildings, or where exceedance of the EUI targets is due to unavoidable unregulated energy use, then report EUI and strive towards limits set in [UKNZCBS](#).
4. On-site renewable energy generation to annually equal the development's energy use, or:
 - $\geq 120\text{kWh}/\text{m}^2$ building footprint/year in industrial buildings
 - $\geq 80\text{kWh}/\text{m}^2$ building footprint/year in other buildings
 - Contribute to the council's offset fund in proportion to the shortfall.
5. On completion, prior to occupation, recalculate energy performance (major schemes) or reconfirm as-built specifications (minor). In schemes ≥ 100 homes or $\geq 10,000\text{m}^2$ floor area, conduct in-use energy monitoring for the first 5 years in 10% of homes or floor area.

Part B: Applications for residential extensions and conversions of existing buildings (excluding listed buildings and conservation areas) are expected to incorporate renewable energy generation where possible and pursue minimum fabric standards specified in the [appendix](#).

About the justification of the policy:

As Uttlesford district lies within Essex, this policy benefitted from feasibility and cost [evidence](#) that had been commissioned at County level by Essex Planning Officers Association. Alongside Uttlesford's own evidence base's strong arguments justifying the policy in light of the climate change mitigation legal duty and national policy mandates on carbon reduction (similar to points made in this literature review), the Essex technical evidence was pivotal in showing that the policy could be feasibly met in this region's typical development types and climate (which affect space heat demand and PV generation), and that realistic costs for this region had been fed into the Uttlesford viability assessment. The Essex evidence suite also offered [open legal advice](#) on the relevance of the WMS2023 and that it can be diverged from with sufficient justification.

Also, the fact that the Essex resources include a model policy suite being pursued by other Local Plan documents in the region (including Tendring & Colchester DPD as above) meant that Uttlesford was able to make the argument that its policy did not represent a "proliferation of standards" as deterred by the WMS2023 but rather regional consistency.

Bioregional and Etude both supported Uttlesford at examination.

Emerging example: Greater Cambridge Local Plan (First Proposals 2021)

Policy CC/NZ would require and guide net zero carbon new builds. This will include:

- Space heat demand of 15-20 kWh/m²/year in all new developments
- No new developments to be connected to the gas grid; all heating low-carbon
- Total energy use intensity targets to be achieved as follows:
 - Dwellings including multi-residential: 35 kWh/m²/year
 - Office, retail, higher education, hotel, GP surgery: 55 kWh/m²/year
 - School: 65 kWh/m²/year
 - Leisure: 100 kWh/m²/year
 - Light industrial: 110 kWh/m²/year
- Proposals should generate at least the same amount of renewable energy (preferably on-plot) as they demand over the course of a year [including] all energy use (regulated and unregulated), calculated using a methodology proven to accurately predict a building's actual energy performance.

The need and deliverability of this policy is evidenced by a suite of net zero carbon evidence reports including:

- Local area carbon reduction targets that would represent a fair local contribution to the national net zero carbon transition and Paris Agreement
- Expert analysis by the Committee on Climate Change and various building industry experts about what must happen in the buildings sector to deliver the national net zero goal and interim carbon budgets – including proposed targets for heat demand, total energy use, and on-site renewable energy generation – and explaining how/why this is not delivered by building regulations (current or incoming)
- Technical feasibility studies which modelled whether it was possible to reach the proposed zero carbon energy balance in the typical types of development expected to come forward in the plan period (based on applying a range of energy improvement measures to real recent development proposals that received permission) – this showed that the targets were feasible
- Cost modelling to show the cost uplifts to meet the modelled energy improvement measures, as above, for inclusion in the viability assessment.

The supporting text notes that the alternative – having no policy and relying instead on incoming uplifts to building regulations – would fail to fulfil the plan's statutory duty to help fulfil the Climate Change Act and would fail to play Greater Cambridge's role in helping the UK fulfil its commitment to the Paris Agreement to limit climate change to 1.5°C or 2°C.

The plan was in its relatively early stages as of May 2022. It completed its First Proposals/Preferred Options consultation in 2021. Due to delays (related to water availability and transport; unrelated to the energy/carbon policies), the indicative timetable as of March 2024 is that this plan will follow the Government's new revised planning regime in 2025 onwards.

Winchester Local Plan (Adopted)

This proposed submission underwent Regulation 19 consultation in March-May 2022 and was submitted to the Inspectorate in mid-November 2024.

Policy CN3 (Energy efficiency standards to reduce carbon emissions) would require that all new-build residential development must demonstrate the following:

- **No on-site fossil fuels** for space heating, hot water or cooking.
- Space heating demand of **15 kWh/m²/year**.
- Energy consumption (EUI) of the building(s) to less than **35 kWh/m²/year**.
- **On-site renewable energy generation to provide 100%** of the energy consumption required by residential buildings.

Supporting text notes that Passivhaus Planning Package or CIBSE TM54 should be used for the required predicted energy modelling to demonstrate compliance with these targets.

It appears in this Draft Plan that there is no option to offset shortfalls to the renewable energy generation and/or EUI target. No other authority has proposed the EUI approach without a last resort option to offset, although most evidence studies prove that the absolute energy requirements are technically feasible for the majority of housing typologies and therefore offsetting may not be required. High-rise blocks of flats would be the primary typology that may struggle to meet on-site renewable energy requirements since there is limited roof space relative to the internal floor area. Given the housing mix in Winchester is unlikely to include this typology, this could explain why offsetting is not currently included in the Plan.

Examination hearing sessions for this plan commenced on 22nd April 2025.

The 'Modifications' documents (SD14a, SD14b, SD14c; all from April 2025, and revised SD14a from 12 June 2025) do not amend the energy targets. However, one of the Modifications (SD14a April 2025 item PM219) does clarify that blocks of flats should meet the targets at a building level, rather than necessarily on an individual dwelling level.

The final examination report is not yet available as of February 2026, but the Inspector's post-hearings letter of 10th September 2025 (exam item ED38a) confirms that this policy is sound, subject to making the proposed main modifications. This was accompanied by Inspector comments on the Main Modifications (examination document ED38b).

Emerging example: Leeds City Council Draft Local Plan (2023)

Policy EN1 Part B would require new development to be operationally net zero. All development must demonstrate a space heating demand of 15 kWh/m²/year. Energy use intensity required targets vary significantly between typologies, as set out below:

- All residential development – 35 kWh/m²/year
- Offices, retail, GP surgery, hotels and university facilities – 55 kWh/m²/year
- Schools – 65 kWh/m²/year
- Leisure – 100 kWh/m²/year
- Light industrial uses – 110 kWh/m²/year
- Research facility – 150 kWh/m²/year

On-site renewable energy generation is to deliver an annual net zero carbon balance (including regulated and unregulated emissions).

Additional secondary requirements:

- Calculations must be carried out using an approved building modelling software such as IES-VE, SBEM and PHPP.
- Gas boilers and direct electric resistive heating will not be supported.
- Expected official UK government electricity grid carbon intensity values to be used instead of static SAP10.2 factors.
- Offsetting at a cost of £248/tCO₂ – rising to £280 by 2030 to reflect further predicted grid intensity reductions.

Policy EN1 Part B goes further than similar recently adopted policies, since it prescribes EUI targets for non-residential typologies alongside residential. The policy also explicitly refers to the use of gas boilers, whereas other policies rely on the energy targets themselves to rule out gas boilers and direct electric heating.

Emerging example: Bristol City Council Draft Local Plan (Publication version November 2023)

Policy NZC2 requires new development to be operationally net zero based on absolute energy limits.

All development will be expected to:

- Achieve a maximum 15-20 kWh/m²/year space heating demand
- Achieve a maximum 35 kWh/m²/year energy use intensity – new homes and other forms of accommodation to achieve
- Comply with operational energy/carbon requirements of BREEAM ‘Excellent’ – major non-residential
- Provide on-site renewable electricity generation with an output equivalent to at least the annual energy consumption of the development
- Development should provide onsite renewable energy of 105 kWh/m²fp/year

In the case of Policy NZC2, offsetting is a last resort option for energy use intensity instead of on-site renewable energy generation – price set at £99/MWh or 9p/kWh. See [previous section](#) for further information.

The key policy element here that is unique to similar emerging examples is the expectation of a certain amount of renewable energy based on the footprint of the building. Best practice for this metric is currently 120 kWh/m²fp/year. Setting a target for this ensures that it is easy for planning officers to assess whether a development has truly maximised all available roof space. In most cases, if on-site roof top solar PV generation is predicted to be lower than the target set out, it can be assumed that all opportunities for generation have not been maximised from the earliest stage of the scheme.

Please note: The examination of Bristol Local Plan is nearing conclusion as of July 2026, with the Inspectors’ final post-hearing advice published in November 2025. The main modifications [documents](#) of September 2025 and [April 2026](#) indicate that the space heating demand and energy use intensity targets would be removed and replaced with targets for carbon reduction as a 100% reduction on the Building Regulations TER metric, reverting to the older style of previous local plans, because of the Written Ministerial Statement of 2023. However, the renewable energy target of 105kWh/m²footprint/year remained unmodified. Additionally, if the required 100% TER reduction is not met, the modified policy now also requires to offset any residual regulated carbon emissions over a 30-year period at the nationally determined ‘high’ value per tonne of carbon emissions expressed in the [Treasury’s Green Book](#) (for reference, this value in 2026 is £416/tonne, although this is not specifically referenced in Bristol’s document).-

5.7 Carbon and energy offset payments

This section considers the principles of offset approaches as they have been (or could be) used in Local Plan policy. This firstly covers carbon offsetting, then energy offsetting as a slightly different approach.

5.7.1. Carbon offsetting

Carbon offset payments are usually secured via Section 106, as they make a development's unavoidable carbon emissions acceptable by funding off-site actions to mitigate them.

Carbon offset payments from developers were [pioneered](#) by Milton Keynes in 2008 and later adopted by Ashford and Islington, then across London, and now also Reading. These funds are meant to deliver actions that will prevent or remove the same amount of carbon that the development will emit over a certain number of years. Several key differences arise in how this kind of policy can work:

- Calculation and scope
- Pricing
- Collection and spending

5.7.2. Calculation and scope

Key differences here are:

- Whether to offset **only regulated** carbon emissions as calculated by SAP or SBEM (national calculation methods), or **also unregulated** emissions (and how to calculate these if so)
- **Number of years** of carbon emissions that the developer should pay for
- **When the calculation should be performed** – i.e. at the time of planning application, or on completion or post-occupation to ensure the offset amount reflects reality.

Some local planning authorities in London and elsewhere also seek offsets for unregulated emissions. Where Local Plans require carbon offsetting to 'net zero' we have not found any examples that use any method other than SAP / SBEM to calculate the regulated portion of the carbon emissions that must be offset (although some seek offsetting of the unregulated portion using a different method). However, some energy-based policies that offset energy and not carbon use tools such as PHPP when calculating the amount of offsetting required for policy compliance.

5.7.3. Pricing

Pricing is:

- Either tied to a **nationally recognised 'carbon price'** such as the [BEIS carbon valuation](#),
- Or the **cost of delivering local projects** that would remove or prevent the same amount of carbon.

London's recommended offset price is based on a [2017 study](#) by AECOM. This explored a range of costs to enact carbon-saving projects, minus the amount of 'copayment' that can be secured (e.g. if homeowners pay part of the cost towards insulating their home, and the fund pays the rest). These projects mostly consisted of retrofitting existing buildings with insulation or renewables. It concluded:

"Given the wide variability in the costs and carbon savings for potential carbon offsetting projects combined with the uncertainty in the percentage copayments that could be secured, it would be difficult to assemble sufficient evidence ... to analytically derive a robust [London-wide] carbon price based on the cost of offsetting projects. As such, the approach adopted in this study is to ... base [offset] prices ... **on a nationally recognised carbon pricing mechanism**".

The AECOM study on pricing notes that offsetting [in the London Plan policy approach] must be considered in viability studies and could be varied by location in the same way that CIL zones differ. The London Plan 2021 lets boroughs set their own price, noting that "a nationally recognised non-traded price of £95/tonne has been tested as part of the viability assessment for the London Plan". However, that nationally-defined price of carbon is updated regularly^{xxxvii} – and the projected figure for today (2026) will be £416/tCO₂ if that AECOM exercise were repeated now. [2018 Mayoral guidance](#) notes some LPAs have based their price on the average cost of local projects to save carbon, e.g. Lewisham (£104/tonne), which is re-tested in a local viability assessment.

We note that it is important that viability assessments must not 'double count' the cost impact of net zero carbon policy: that is, the viability assessment should firstly consider the cost of meeting policy requirements for carbon reductions on-site through improvements to the building, and then only apply the cost of offsetting where there is any *remaining* carbon.

5.7.4. Collection and spending of offset payments

London mayoral guidance (2018) notes that offset payments should be collected via Section 106 agreements in the usual way and by the same team, and that:

"LPAs generally choose to **take payment on commencement of construction** on site. Some choose to **split the payment**, with 50 per cent paid post-construction and 50 per cent prior to occupation. This is up to the LPA to determine. However, taking payment later than commencement of works can mean a high degree of uncertainty as to when funding will be

received and is unlikely to enable carbon savings from the offset fund to be delivered before the development is occupied, creating a delay in offsetting a development's carbon impact. LPAs should also note the time limits that apply to discharging Section 106 agreements and ensure funds are collected and spent in this time period."

One potential pitfall is that carbon offset payments received via S106 agreements have sometimes had to be returned after not being spent in the allotted timescale. National Planning Practice Guidance notes that:

"[S106] agreements should normally include clauses stating when and how the funds will be used by and allow for their return, after an agreed period of time, where they are not."

This can be avoided. London's [2019](#) annual report on the use of offset funds notes that in that financial year, "No LPAs reported returning offset payments to developers" and also that "The GLA would not expect offset payments to be returned in any instance and expects LPAs to be collecting offset payments for all applicable developments and identifying suitable projects for spending funds." The [2020](#) report similarly indicates no incidences of payments being returned. The respective reports for years [2021](#) and [2022](#) each indicate only one incidence each year. The [2023](#) issue does not state the incidence in that year but focuses more on how London's LPAs are overcoming challenges in spending the offsetting funds, including streamlining their processes for fund governance, growing their internal capacity to administer the fund its projects, leveraging external match funding, promoting the fund internally and externally, and allocating funding to specific projects or services.

The Centre for Sustainable Energy [notes that](#) developers can ask for a refund of carbon offset payments that are unspent within 5 years. To avoid this, it recommends setting up:

"defined structures and processes to stimulate new markets and opportunities for carbon saving measures ... [Creating] an open application process to stimulate and attract carbon saving projects from council departments, the market and community that would be unviable without subsidy, for example community energy projects or insulation schemes. Applications should be proportionate to the scale of the funding provided, the emissions to be saved and the risk profile of projects."

"Programmes of standardised measures, low unit cost, low risk and lower variability of carbon savings (such as the many domestic insulation programmes, run by council housing departments) should be required to apply to the fund just once as a whole programme, with detailed implementation targets, specifications, predicted carbon savings and reporting processes and timetables. Once approved, it should be as simple as possible for residents, communities or businesses to access funding through these programmes."

The 2018 London mayoral guidance encourages LPAs to pool Section 106 carbon offset payments rather than committing to spend them on specific projects. When the guidance was written, Local Planning Authorities were only permitted to pool up to five S106 payments towards the same

project, but this restriction was [removed](#) in 2019 and this can now be pooled with CIL payments too. Councils using either CIL or S106 must publish an infrastructure funding statement annually. When setting the carbon price, the Local Planning Authority should factor in a cost to administer the fund and set up a pipeline of projects to be funded.

5.7.5. Energy offsetting as a means of carbon offsetting

Due to the rising number of local authorities setting standards based on the approach set out in the previous section (with fixed energy targets and 100% renewable supply), energy offsetting is becoming more prominent. In this context, it is preferred over carbon offsetting because the cost of offsetting is based directly on residual kWh (£/kWh), instead of tCO₂ (£/tCO₂). Carbon intensity factors (see glossary) of the grid or other energy sources are not required for calculations when energy is offset (instead of a carbon offset), which leads to a **more direct reflection of exactly what is being offset**. Carbon factors for offsetting are often quickly outdated, and are somewhat crude in their estimation since they are annually averaged and do not reflect seasonal grid intensity variations. Planning decisions on carbon offsetting could also face a stumbling block around uncertainty about what the grid carbon factor will be by the time the development is completed; energy offsetting avoids this problem.

Energy offsetting **simplifies the process for project selection** due to the absence of carbon factors, since it becomes easier to assess how many kWh a new rooftop solar PV installation will produce, for example. This better ensures that the residual kWh that were not mitigated on-site can be directly measured and mitigated off-site through a funded project through an energy offset fund.

With *carbon* offset funds, several types of project including energy efficiency, retrofitting, and renewable energy could deliver those offsets, because the residual amount of CO₂ is not directly assigned to a particular measure. In some cases even tree planting is proposed despite uncertainty about its longevity, or transport measures despite uncertainty that this will deliver the required CO₂ savings in reality. This uncertainty can result in political disagreement about how to spend the fund on competing priorities, and administrative complexity in assembling a portfolio of projects, thus the required amount of carbon mitigation may not be swiftly (if at all) achieved.

When energy needs to be offset, it is usually due to a technical inability to deliver the required on-site renewable energy generation. This **makes it a simple decision to spend the fund** on off-site solar PV installations, preferably on existing buildings, aiming to at least generate the residual on-site kWh. Through this simplified system, energy offsetting can become a reliable mechanism to ensure that any residual on-site renewable energy generation is wholly mitigated elsewhere.

5.7.6. Making offsetting effective for the overall transition to a net zero UK and Gloucestershire County Council

It should be explicitly noted that offsetting in all cases (whether carbon or energy) **should be a last resort only acceptable in exceptional circumstances**. The risk of offsetting is that it may increase the burden on existing area-wide decarbonisation plans and use up low hanging fruit resources that are needed to balance out other unavoidable emissions in the area that cannot be reduced at source. **Additionality must therefore be the primary consideration** of both offset approaches to ensure that the offset funding delivers something that would not have otherwise been created.

To best guarantee offset mechanism effectiveness, a locally-specific net zero offset price should ideally be set, which should be based on the cost of existing delivered renewable energy schemes of varying size. Subsequently, an appropriate price should be set to sufficiently deliver the residual kWh not mitigated on-site. In recent examples, prices to achieve this have been set at 9-12p/kWh.

Assuming the current electricity emissions factor in SAP10.2 (136 gCO₂/kWh), an estimated net zero local offset price in [Bath & North East Somerset \(£652/tCO₂\)](#) – was close to double the price of the 2023 BEIS Green Book valuation of £378/tCO₂. This represents the importance of a correctly set price, which otherwise risks insufficient funds to deliver the residual on-site energy elsewhere.

A 2022 [study](#) by the Centre for Sustainable Energy (CSE) for West of England (WoE) authorities determined the cost of energy offsetting based on 131 domestic rooftop PV installations that were delivered through the Local Authority Delivery Scheme (LADS), which was managed by Bristol City Council's energy service. The installation costs of solar PV projects through the LADS scheme well represents the costs of energy offset fund projects that are likely to occur in the WoE in the future, particularly due to the average installation capacity of 3.37kWp. The subsequent median installation cost under the LADS scheme was £2,180/kWp, in contrast to the BEIS installed cost statistics for 4-10kWp solar PV installations (2020-2021) value of £1,586/kWp. This again reiterates the importance of establishing a locally-specific and up-to-date offset price, as in the example above nationally-averaged costs produced a price 25% lower than the local cost. Using the £2180/kWp median installation cost value, an offset price (including 15% administration costs for the fund) of 9p/kWh was estimated by CSE, which can be considered a local net zero energy offset price for the West of England authorities.

Other recent Local Plan energy offsetting policies (and some regional 'model policies' that local authorities in those regions are invited to copy in their Local Plans) have tended to set prices closer to the £1-£2.50/kWh mark. One example is the Essex model policy for which the suggested^{lxxxviii} offset price of £1.82/kWh based on national data on solar panel costs per kW

¹² As-built SAP calculations have been used by several local authorities to determine the final amount of offset payments the developer must provide, but it does not verify performance or change the energy performance gap.

capacity, combined with data on the amount of kWh generation per kW capacity that would be achieved with the local rates of sunlight.

5.8 Energy performance gap

The energy performance gap is the difference between the predictions for a designed building's energy use, and the amount of energy it actually uses in operation. This is due to three factors:

- i. **Poor methods used to predict the energy use of a building** (including poor calculations, incorrect assumptions, and exclusion of 'unregulated' energy loads)
- ii. **Errors in construction which lead to worse airtightness or thermal envelope**
- iii. **Errors in system operation, and user behaviour different to assumptions** (for example, turning up space heating while opening windows to dry laundry, not using heat system as intended, spending more time in the building than anticipated, or bright lighting left on overnight).

Unfortunately, the calculation methods used in Building Regulations Part L (SAP and SBEM) are very inaccurate predictors^{lxxxix} of the actual energy use of a building. SAP and SBEM are compliance tools^{xc}, not really tools to predict energy and carbon performance (even though they purport to be). This is not only due to out-of-date carbon factors used for different energy sources, but the entire methodology.

For this reason, recalculating SAP on completion¹² will not prove that the building performs to the same metrics as in the SAP output (kWh/m² and CO₂/m²), only that it is *built* as designed in terms of installed specification of insulation, heating system and renewable energy generation. The nation-wide lack of post-occupation energy monitoring means that both developers and planning/building control enforcers are often unaware of the scale of difference between SAP outputs and actual performance.

Point (2) above relates to how imperfections in the construction process can lead to worse energy performance than predicted. For example, a building may leak a lot of heat if insulation is incorrectly installed, or if a hatch to a cold loft is put in the wrong place and then moved, leaving holes in the air tightness membrane. Lower-specification products or poor substitutions may sneak in – for cost-cutting reasons, supply difficulties, or [simply because](#) the right person was not on site at the time^{xci}.

5.8.1. Methods to address the performance gap

There are energy modelling methods that give much more accurate predictions than SAP/SBEM, such as the **Passivhaus Planning Package (PHPP)** and the **CIBSE TM54** method.

Relying only on SAP will always mean the developer offsets far less carbon than the building will actually emit – although it does simplify the offset decision-making and data gathering process.

However, it is not entirely clear whether Local Planning Authorities are legally empowered to require conformance with standards set using these alternative calculation methods because of definitions in the powers granted by Planning & Energy Act 2008 ([discussed](#)). The Local Plan may be able to **require reporting of predicted energy use using these methods** (subject to viability linked to the cost of the modelling), but it is uncertain whether the plan could require the building to achieve a certain metric using them (although please note the new examples from Bath/North-East Somerset, Cornwall and Central Lincolnshire have all successfully required this, sometimes through supplementary guidance). Of the two, TM54 is likely to be more clearly supported by the 2008 Act as it uses building regulations Part L as starting point^{xcii} and is now recognised in Part L 2021 for non-residential as a valid method to fulfil the new requirement for accurate energy forecasting).

There are also several quality assurance processes that can be applied during construction to avoid the unnecessary errors that can cause the building to perform worse than expected.

Examples include:

- i. Passivhaus process – in addition to using accurate energy modelling, a Passivhaus project undergoes a series of stages during design and construction which improve the build quality
- ii. NEF/GHA [Assured Performance Process](#)[™] – this maps to the five stages of the RIBA Plan of Work (inception to verification) and involves expert impartial review by accredited assessor.
- iii. Soft Landings – recommended by the UKGBC (as above) but discounted by some Local Planning Authorities as an acceptable ‘quality assurance’ method (see example of Milton Keynes).

There may be other suitable quality assurance processes. These **must** be based on quality of energy performance, not just generic building quality. Gloucestershire County Council would need to decide on a case-by-case basis whether these are acceptable based on their individual merits and evidence that they are effective (verified by track record of previous projects’ post-completion testing or post-occupation energy monitoring).

The Local Plan **could require the use of these processes, subject to viability** (again relating to the cost of appointing qualified professionals to undertake these processes). Proposals could submit:

- **Energy modelling:** evidence to be submitted in energy statement with planning application, and recalculation of this if any relevant details are changed at reserved matters / amendments. (This would be necessary in any case to demonstrate compliance with energy intensity targets even at design stage, even without an in-use verification requirement.)

- **Quality assured construction:** evidence to be submitted along with other documentation to gain sign-off on completion from building control and discharge of planning conditions.
- UKGBC Policy Playbook recommends “a recognised performance gap / assured performance tool will be used to minimise the potential performance gap between design aspiration and the completed development. The effectiveness of measures will be reviewed and ratified as part of the post-completion discharge of conditions”.
- **Evidence requirements in the case of no ‘quality assured construction’ scheme relating to energy use:** set a standalone requirement to carry out air tightness tests whilst the air barrier is still accessible as a construction requirement, if the full use of specific third-party quality assurance schemes would make necessary development unviable.

5.8.2. Verifying energy performance post-completion

Post Completion certificates can be issued once Planning Conditions are discharged. Local Authorities can condition to ensure that buildings are performing as anticipated; however, this would require engagement with the main contractor outside of their practical completion contract. Examples have sought this through an Area Action Plan and site-specific allocations.

There is debate about whether it is reasonable to hold developers accountable for carbon impacts of unregulated energy use, which would be untested by Part L SAP and largely out of their influence in terms of unconfirmed occupant fit-out, operational hours, occupancy, and other third-party factors. These uncertainties are larger in non-residential buildings, where there is a wider range of variation in how the buildings are used compared to residential building use patterns which tend to be more homogenous and predictable. However, even for non-residential, reasonable assumptions can be made about many of these uncertain factors, in order for the developer to include the appropriate amount of renewable energy in the design, even if the metered data in any post-occupation monitoring turns out to vary from the design-stage assumptions.

The following pre-completion testing requirements would help in the assurance of as-built performance against the design standard. Indicative outline costs¹³ could be as follows:

- i. Air tightness testing ~£1000 per property
- ii. Thermographic testing¹⁴ ~£400 per property
- iii. U Value testing ~£400 for a dwelling (3 weeks per property)¹⁵

Post-occupancy evaluation testing: ~£5000¹⁸. (if applied to scalable developments >c.50 dwellings, the economy of scale would reduce the cost burden through sample testing only).

Example: Milton Keynes Local Plan 2019 (adopted)

Policy SC1 includes that:

- K. 5 All proposals of 11+ dwellings or non-residential space over 1,000m² must
- “implement a recognised quality regime, which assures that ‘as built’ performance (energy use, carbon emissions, indoor air quality, and overheating) matches the calculated design performance”, and
- “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.
- The Sustainable Construction SPD explains that a ‘recognised quality regime’ must include:
 1. modelling of different scenarios at design stage and issuing performance targets such as kgCO₂e/year or energy use (which must use expected usage profiles rather than standard ones, and should ideally include Dynamic Simulation Modelling using the National Calculation Methodology [SAP or SBEM] as a baseline),
 2. processes and plans in place to ensure everyone in construction and dwelling management knows how to avoid common reasons for the performance gap,
 3. suitable fabric testing and iterative feedback mechanisms,
 4. demonstrating that the ‘as built’ targets set are achieved, and
 5. third-party verification that the quality regime has been carried out.
- The SPD also asserts that the quality regime must ensure the post-occupancy data will be available by implementing a suitable metering and monitoring strategy that can deliver performance data to compare with the designed performance targets.
- The SPD also notes that two suitable regimes are the Quality Assurance sections of Home Quality Mark ONE, and BSRIA Soft Landings Framework.
- The above specified requirement for the ‘quality regime’ means that the developer must also test the ‘as-built’ performance and submit data to the Council. A report is then submitted to both occupiers and to Milton Keynes Council, which states the performance gap metric and identifies any reasons for deviation from predicted energy usage, carbon emissions, indoor air quality and overheating performance, as well as specific actions that have or will be taken to reduce the gap.

¹³ Communities and Local Government (2008), Performance Testing of Buildings BD 2535

¹⁴ Thermographic surveys can only be completed during the heating season. Where building completion occurs outside that season, the applicant could commit test at the earliest opportunity and perform remedial measures where needed. Homeowners must be fully informed.

¹⁵ Accredited construction details are to be checked through thermographic testing performed according to BS EN 13187: 1999 Thermal performance of buildings. Qualitative detection of thermal irregularities in building envelopes. Infrared method. Identified locations with deviations from expected performance are further investigated through a borescope survey and remedial works performed if practical.

Example: Greater London Energy Monitoring Guidance 2020 (adopted)

The ‘Be Seen’ energy monitoring guidance ([April 2020](#)) requests that:

“Analysis guided by CIBSE TM54, which recommends using a tailored Part L model for the estimates of regulated and unregulated loads, should be undertaken and its findings should be reported in the ‘be seen’ reporting webform. A TM54 analysis gives more accurate predictions of a building’s energy use. This approach also aligns with the reporting requirements under the GLA’s Whole Life-Cycle Carbon (WLC) Assessment Guidance. The CIBSE TM54 findings should therefore also be used to represent the regulated and unregulated energy requirements for non-residential uses of Module B (operational energy use) of BS EN 15978.”

Example: Merton New Local Plan (adopted November 2024)

[Merton’s new Local Plan](#) Policy CC2.3 includes a range of non-mandatory but highly encouraged space heat and energy use intensity targets. It also requires that the developments’ energy use intensity must be disclosed (at design stage and pre-occupation, using calculations with (CIBSE) TM54, (PHPP) methodology or equivalent).

The supporting text explains that these calculation methodologies help to reduce the performance gap because they generate much more accurate predictions of energy use, compared to the SAP methodology used to fulfil Building Regulations Part L.

Example: Bath and North East Somerset and Cornwall 2023 (adopted)

[Supplementary guidance](#) from Cornwall Council, and the [Sustainable Construction Checklist SPD](#) from B&NES respectively set out compliance and reporting frameworks for the councils’ recently adopted net zero homes policies.

Both documents recognise the inaccuracy of SAP to accurately assess building energy performance, particularly with policies that assess energy use intensity and space heating demand. To resolve issues with SAP and subsequently minimise a performance gap, the councils take the same approach, which provides two options to developers for new build residential applications:

- **Passivhaus Planning Package (PHPP)** – suitable for all residential development
- **SAP + Energy Summary Tool** – suitable for minor residential development

PHPP is the preferred option for any size of development, but it is a requirement for major residential development.

The option for SAP to be used alongside the Energy Summary Tool is offered as a benefit to developers, so that the use of familiar Part L software can continue for minor residential development. The use of the Energy Summary Tool ensures that final outputs from SAP for energy use intensity and space heating demand reflect genuine in practice performance.

It is important to note that these requirements, which have the intention to reduce the performance gap, were not subject to deep interrogation during Examination.

Emerging Example: Solihull Draft Local Plan (draft 2021)

Draft Policy P9 requires that all major developments must “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 as specified above [a 30% reduction on Part L 2013 commencing from now, and net zero carbon for all new development commencing from April 2025]”.

Please note that Solihull’s draft plan was withdrawn from examination in Autumn 2024, but this was due to the Inspector’s lack of confidence in the land supply, not the energy/carbon policies. It is therefore likely that similar energy/carbon policies will be included again when Solihull eventually comes to submit a revised plan with a revised land supply.

Lessons

Setting effective energy performance targets is crucial, yet it is equally important to ensure that they are effectively implemented in practice. Therefore, policies need to be in place to address and monitor the energy performance gap. As shown in the examples above, policies in this area address accurate energy performance calculations, assured performance processes throughout construction, and post-occupancy monitoring mechanisms.

5.9 Existing buildings- decarbonisations via on-site improvements and via standalone renewable energy development for a cleaner grid energy supply

There is less clear direction in legislation, and fewer examples available, to demonstrate the acceptability of seeking energy and carbon improvements in existing buildings compared to new ones.

The variety of types, ages, uses and conditions of existing buildings make it impractical to devise universal requirements for their energy and carbon performance that could be reasonably sought through Local Plan policies. It is difficult or impossible to retrofit them to the same energy performance standard as new builds can achieve, and the workforce has a shortage of skills to do this effectively.

The decarbonisation of existing buildings is actually a more important challenge compared to new buildings, simply due to scale. This is supported by the fact that approximately 1/3 of the districts’ emissions are from existing buildings. The Committee on Climate Change has shown^{xciii} (and Government has recognised^{xciv}) that in order for the UK to meet its legally binding carbon reduction goals, it is vital that the existing building stock must be decarbonised via three main courses of action:

- Upgrades to building fabric and other energy efficiency measures

- Switching from gas or oil boilers to low carbon heating (largely heat pumps; some heat networks; and a small role for hydrogen in some areas in the future)
- Decarbonisation of the electricity grid via increases in wind and solar electricity generation to allow phase-out of fossil fuelled power stations.

The rollout of insulation and low carbon heating to existing buildings (‘energy retrofit’) have been far slower than predicted and needed^{xcv}. Heat pump rollout in particular must be vastly accelerated^{xcvi}. Costs for these technologies are decreasing and will continue to do so, particularly with Government grant assistance. It is important to note however that fabric measures should be prioritised initially before heat pump installation to avoid excessive energy use; this is to ensure heat retention as heat pumps operate at lower temperatures than conventional gas boilers. These measures are vital for net zero, and will deliver economic and wellbeing benefits in the long term if implemented correctly.

Take-up of solar panels to existing homes dropped steep^{xcvii} since the closure of the Feed-In Tariff scheme in 2019. Solar PV installations are however now back on the rise due to householders becoming increasingly concerned about the cost-of-living and energy crises.

Local Plans also have only a very limited influence on the carbon and energy performance of existing buildings, as they can only seek changes to buildings where the building owner is seeking to require a change to the building that requires planning permission.

However: The planning system can (correctly or incorrectly) be perceived by building owners as yet another obstacle to retrofitting, on top of the cost, disruption, and risk of building damage. Owners may (wrongly) assume that all changes need permission, or that permission is likely to be refused.

The National Planning Policy Framework confirms that (paragraph 152): “The planning system should support the transition to a low carbon future ... [by] encourag[ing] the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”. It also confirms that (paragraph 158) when determining applications for renewable and low carbon development, the Local Planning Authority should not require the applicant to demonstrate the overall need for renewable energy and should approve the application if its impacts are acceptable or can be made so. This supports a permissive approach towards proposals for the addition of carbon-saving and renewable energy measures to existing buildings.

The role of Local Plan policy in reducing existing buildings’ carbon therefore has two main strands:

- i. Removing the actual or perceived planning barriers to energy retrofit changes to buildings.
- ii. Allocating or identifying sites suitable for renewable energy generation and distribution in order to decarbonise the energy that existing buildings use

Point 1 (a permissive, supportive approach) could be pursued through the following tools:

- A **Local Plan policy** that explicitly encourages energy efficiency and carbon improvements to existing buildings with significant weight attached to those benefits, and signposts the reader to guidance about how to make such changes acceptable in heritage-sensitive settings
- **Supplementary Planning Document (SPD)**¹⁶ that clearly explains the range of retrofit measures that can be effective in improving energy performance of existing buildings, which kinds of changes are acceptable in different settings, how to make acceptable changes in heritage settings (referencing available expert guidance^{xviii}), and advising which changes simply do not need permission in most settings.
- A **Local Development Order** giving blanket permission to specific changes in geographic locations that are not considered heritage-sensitive – such as certain acceptable types of upgraded windows, doors, external insulation, or heat pumps visible from the street.

One further option is to seek ‘consequential improvements’ when changes are being made to a building that require planning permission. This could expand on Building Regulations requirements for the same. We have identified one example for this. However, discussions with energy officers at that local authority reveal that this has not proven very effective because very few relevant proposals pass over their desk, and the improvements can only be applied to the part of the building that is undergoing works, not the whole building – which can render some retrofit measures ineffective (such as airtightness). Still, the Local Plan can encourage low-carbon measures to be integrated into the areas of the building where permission is needed, and use of the energy hierarchy in design decisions.

Point 2 (proactive promotion of renewable energy generation and low-carbon energy distribution) could be pursued through the following tools:

- **Spatial strategy** (allocating or identifying suitable locations for such renewable energy features and potential low carbon heat network locations, in consultation with citizens, local business, conservation bodies and the electrical grid District Network Operator) – this can help to de-risk the prospect for potential investors, site owners and developers of renewable energy
- **Infrastructure Delivery Plan** – ensuring the electrical grid District Network Operator is ready to make the capacity upgrades necessary to serve a growing proportion of all-electric, gas-free, solar-exporting buildings, electric vehicles, and suitably located large-scale renewable energy
- A **Local Development Order** that gives blanket permission to add solar panels to buildings in locations not considered heritage-sensitive, expansion of strategic low carbon heat networks.

Examples that actively welcomes and steer the growth of renewable energy generation and distribution are highlighted in the following boxes.

Example: Using a Listed Building Consent Order to enable easier solar PV installation in listed buildings: Kensington and Chelsea (2022)

The Royal Borough of Kensington & Chelsea is the first council in the UK to issue a Listed Building Consent Order, which gives consent for solar PV on the majority of Grade II and Grade II* listed buildings without a requirement for listed building consent.

Certain conditions must be demonstrated on:

- Positioning
- Materials
- Fixings
- Protecting the appearance of fabric of the listed building
-

Providing the conditions are demonstrated, a far simpler application compared to a usual listed building consent application is required. This makes solar PV installations a more attractive and less time intensive prospect for householders in Kensington and Chelsea.

¹⁶ Supplementary Planning Documents are being phased out as part of the plan-making reform. The last date to adopt an SPD is 31 June 2026. Going forward, local authorities will have the option to adopt Supplementary Plans. They

are expected to be examined in a similar fashion to a Local Plan. While they are less agile, they will carry the same weight as the Local Plan.

Example: City of York -Local Plan (Adopted 2025)

Policy CC1 (Renewable and Low Carbon Energy Generation and Storage) includes that:

“Proposals for renewable and low carbon energy storage developments will be supported and encouraged subject to demonstrating that impacts on the above considerations are acceptable where relevant. Developments should be sited a suitable distance from major residential areas and have suitable fire suppression procedures.”

However, the policy does also set out a range of issues on which the development’s impact needs to be acceptable in order to gain permission. These include heritage, communities/amenity (including air quality, noise, odour, water pollution and waste), location in terms of “scale ... and new grid connection lines”, and nature conservation.

Supporting text to this policy also explains why storage is crucial, acknowledges that this is an emerging field and commits the council to work with experts to understand what the options are and develop an SPD which will include safety considerations.

This [plan began examination in 2019](#), underwent main modifications and associated consultation in 2024, and was adopted in 2025. However, the CC1 policy stance already formed the basis of a 2019 planning approval for a 50MW battery storage development in green_belt, due to its location (near a substation) and its contribution to sustainable development, innovation, and energy resilience.

Examples (various): using Local Development Orders to expand renewable and low carbon energy systems and promote energy retrofit

Swindon County Council has used LDOs to promote the growth of renewable energy generation and use, both on specific sites and in borough-wide terms. Examples include:

- A borough-wide LDO for non-domestic air source heat pumps and district heating;
- Hydrogen and electric vehicle charging stations (specific sites); =
- Identifying specific sites for solar photovoltaic arrays including solar farms. The LDO on solar farms has been particularly successful, by de-risking the process. It was created by issuing a ‘call for sites’ and then assessing these sites against various criteria.

Across several London Boroughs, an LDO was created to make it easier to deliver heating and cooling networks. By removing the need to make a separate application for each new network section, this makes the network more flexible for new connections and reduces the costs of expansion. It also creates a common standard for new heat networks.

Examples that actively welcome energy and carbon improvements to existing buildings

The following policies are not intended to be strict requirements, as the Local Plan cannot require changes to existing buildings where no permission is needed. Yet they are examples of how to signal a positive stance by the council towards retrofitting, offering confidence to potential applicants and steering officers to take seriously the benefits of energy retrofitting when weighing up impacts.

Example: Cornwall Climate Emergency Development Plan Document (adopted 2023)

This plan went through Regulation 19 consultation, underwent independent examination in [Summer 2022](#), and was adopted in early 2023.

Policy SEC1 (Sustainable Energy and Construction) includes that:

- Significant weight will be given to the benefits of development resulting in considerable improvements to the energy efficiency and reduction in carbon emissions in existing buildings.
- Proposals that help to increase resilience to climate change and secure a sustainable future for historic buildings and other designated and non-designated heritage assets will be supported and encouraged where they:
- conserve (and where appropriate enhance/better reveal) the design, character, appearance and historical significance of the building; or
- facilitate their sensitive re-use where they have fallen into a state of disrepair or dereliction (subject to such a re-use being appropriate to the specific heritage asset).

Milton Keynes Local Plan 2019 indicates a willingness to use LDOs to encourage wide scale energy retrofit.

Example: Milton Keynes Local Plan (adopted 2019)

Policy SC1 (Sustainable Construction) includes that:

“Proposals which would result in considerable improvements to the energy efficiency, carbon emissions and/or general suitability, condition and longevity of existing buildings will be supported, with significant weight attributed to those benefits.”

Supporting text notes that:

- “existing domestic buildings contribute 28% of the Borough’s carbon dioxide emissions (1.5 tonnes of CO₂ per capita in 2014). Along with other non-domestic buildings, retrofitting the existing building stock in the Borough presents a significant opportunity to help meet the strategic carbon dioxide reduction target of 57 per cent by 2030”.
- Policy SC1 recognises the benefits that retrofitting buildings can bring [e.g. fit-for-purpose housing as well as carbon reductions], giving significant weight to them ... in order to help achieve Strategic Objectives 11 [delivery of housing that meets needs] and 13 [mitigation of climate change]. The Council will encourage retrofit improvements to existing buildings ... on an individual and area-wide basis. Where appropriate the Council may employ Local Development Orders to support area-wide schemes”.

Emerging example: Wokingham Local Plan Update (Submitted February 2025, examination underway as of June 2026)

Draft Climate Change Policy CE6 confirms that planning decisions will support the “sensitive retrofitting of energy efficiency measures and the appropriate use of micro renewables in historic buildings, including listed buildings and buildings within conservation areas” as long as there are no unacceptable impacts to the historical asset’s significance.

The policy also notes that “Development proposals which involve the change of use or redevelopment of an existing building, or an extension to an existing building, should take all opportunities to improve the energy efficiency (including the original building, if it is being extended).”

Supporting text to the policy identifies specific processes and benchmarks that are encouraged, albeit not required, as a means by which developers could demonstrate the significance of energy performance improvements they are making to the existing building.

Emerging Example: Greater Cambridge Local Plan (draft 2025)

Policy GP/CC is titled ‘Adapting heritage assets to climate change’.

The proposed policy direction indicates that it will:

- Require **retrofit proposals**, where appropriate, to “be designed to satisfy the standards set out within the **BSI PAS 2035 (2023)** framework (or successor documents)”.
- Support proposals which “seek to undo the damage to a heritage asset caused by previous inappropriate interventions [...]” and/or which “seek to reinstate historic features that can enhance a heritage asset’s climate resilience (such as shutters)”.
- Support “Proposals for energy efficiency improvements and climate resilience adaptations that do not harm a heritage asset’s significance, setting, fabric or ongoing preservation, as informed by an assessment of the building’s fabric and robust technical detailing” and that “Where a proposal has the potential to harm the fabric of a listed building [it] must be supported and informed by a thorough understanding of the building’s historic evolution and construction, architectural and historic significance, and a demonstration of the building’s current fabric and energy performance.”
- Supporting text notes that **need for this policy is evidenced** by the Local Plan’s Net Zero Carbon Study (2021) which showed that existing buildings cause one-third of the area’s greenhouse gas emissions and thus “we cannot meet our climate targets without reducing emissions and energy usage in all our homes”, given that “**the Committee on Climate Change have concluded that at least 90% of existing buildings in the UK should have energy efficient retrofits** for the UK to meet its zero carbon targets”.

It emphasises the relevance given the Local Plan area’s high proportion of homes that are historic or Listed. It notes that **such improvement to existing buildings reduces running costs and increases the lifespan of the building**, and cites evidence that “90% of the existing buildings in the UK [will need] energy efficient retrofits for the UK to meet its zero carbon targets”. It refers to **Historic England guidance** on energy improvements in heritage assets.

5.10 Embodied carbon

Embodied carbon means the carbon that was emitted in the production and transport of building materials, and their assembly on site. It can also include the emissions associated with maintaining and eventually disposing of a building too. If the latter are included, this is termed ‘whole-life embodied carbon’.

These emissions rise largely from fossil fuel energy use to extract and process raw materials such as minerals and metals, then transport them. There can also be emissions from chemical processes to produce building elements (such the carbon dioxide that is cooked-off raw minerals to make cement) or from the breakdown of the material at the end of its lifespan.

Embodied carbon makes up a very large share of the total carbon emissions caused by the creation and use of a building across a typical ‘design lifetime’ of a building, usually 60 years (see UKGBC pie charts diagram previously referenced). Many commonly used building materials like ordinary cement, steel, aluminium and zinc have inherently high embodied carbon because of how they are produced. Vice versa, plant-based materials like timber can have less than zero embodied carbon because the tree absorbed carbon dioxide from the atmosphere, and this is locked up in the material for as long as it is in use.

Unlike operational energy and carbon, there is currently no mechanism to address embodied carbon in national building regulations or other national legislation for planning and building. Still, embodied carbon is relevant for the net zero goals of the UK and Gloucestershire because some of materials or products will have been produced here, and all will have been transported within the country or the local authority’s geographical area, and energy will be used during construction.

In the absence of a national regulatory approach to address embodied carbon and without a specific Local Planning power granted to address it, some Local Plans have nevertheless taken steps to ensure embodied carbon is not entirely neglected.

Example plans have taken one or both of the following approaches:

- Requirement to assess the building’s embodied carbon, and report this within the planning application
- Requirement to provide narrative about what steps are being taken to minimise embodied carbon, such as reusing existing buildings, use of lower-carbon materials, or efficient design to reduce material use.

Our review has only identified two adopted and one emerging plan that require a development to achieve a specific numeric target for embodied carbon, whether a limit or a % improvement on a baseline; see B&NES, Uttlesford and Bristol examples below. This may be because of a lack of explicitly granted powers, and the 2015 Written Ministerial Statement that directed Local Plans not to set ‘additional technical standards’ for the sustainability of housing. It may also simply be because this is an emerging area where local planners do not yet feel confident to set these requirements, robustly justify them at inspection, or interpret whether developers have sufficiently demonstrated compliance.

There is an industry standard method to calculate a building’s embodied carbon: the RICS Whole Life Carbon Assessment for the Built Environment^{xcix}, which builds on the relevant

British/European Standard (BS EN 15978). This RICS method splits the building’s whole-life embodied carbon into a series of ‘modules’:

- Modules A1 – A5: ‘Cradle to completion stage’ (from raw material extraction through to completion of the building)
- Modules B1 – B5: The ‘use stage’ of the building (such as maintenance, repair, replacement and refurbishment)
- Modules C1-C4: ‘End of life stage’ (deconstruction, demolition, transport, waste processing, and final disposal).

It is important to note that the RICS / EN15978 approach assumes that any carbon that was sequestered by trees and stored in timber is released during the C1-C4 modules. In reality this may be avoided if the timber is eventually reused. This means that a whole-life carbon assessment may not recognise the full benefit offered by timber buildings, which is that the timber would lock up carbon for most of this century. This is a critical period^c in which we are at risk of reaching tipping points for feedback loops of runaway climate change – such thawing permafrost releasing huge amounts of methane, or large areas of rainforest dying back. It matters not only *how much* carbon is emitted, but when.

Therefore, it makes sense to set targets that exclude modules C1-C4, to give timber buildings the ‘credit’ for the carbon they will lock up for many decades. B1 – B5 also include many assumptions about uncertain future actions, therefore may need to be omitted from any planning targets due to a lack of robust justification.

Using the RICS ‘modules’, other building industry specialist bodies have created benchmarks and ‘good practice’ targets expressed in kilogrammes of embodied carbon per square metre of floor area:

RIBA Climate Challenge embodied carbon targets^{ci}: Includes all RICS modules **A1-C4**.

	Business as usual	2025	2030
Homes	1200 kgCO ₂ e/m ²	<800 kgCO ₂ e/m ²	<625 kgCO ₂ e/m ²
Offices	1400 kgCO ₂ e/m ²	<970 kgCO ₂ e/m ²	<750 kgCO ₂ e/m ²
Schools	1000 kgCO ₂ e/m ²	<675 kgCO ₂ e/m ²	<540 kgCO ₂ e/m ²

LETI Embodied Carbon Primer targets^{cii}: RICS modules **A1-A5 only**.

	Business as usual	2020	2030
Homes	800 kgCO ₂ e/m ²	500kgCO ₂ e/m ² , (400 including sequestration)	300kgCO ₂ e/m ² (200 including sequestration)
Office or school	1000 kgCO ₂ e/m ²	600kgCO ₂ e/m ² (500 including sequestration)	350kgCO ₂ e/m ² (250 including sequestration).

Bath & North East Somerset Council (B&NES; see example below) has adopted an embodied carbon policy that requires a target to be met, yet this does not go as far as the LETI standards. However, it forms a highly important example that it is possible to justify such a target.

Uttlesford Local Plan (examined 2025; approved & adopted 2026) also embodied carbon targets. These are more stringent than those set in the B&NES plan cited above and are closer to the LETI/RIBA ‘band C’ (LETI.RIBA suggested level for year 2020) or ‘band D’.

Alternatively, LETI/RIBA levels of target could still inform supplementary planning guidance, to educate developers and allow planning officers a point of comparison to assess the relative merits of schemes’ embodied carbon reports submitted by developers.

If a Local Plan were to seek to require any of the LETI or RIBA embodied carbon targets, it is likely there would be challenges from the development sector consultees. One likely objection is the argument that such a requirement may inhibit the delivery of housing targets due to the volume housebuilding industry’s failure to become familiar with this vital exercise until now.

The LETI and RIBA baselines are derived from a range of existing project data. Their future targets may also be based on case studies that would justify the planning policy, especially on technical feasibility.

RICS may be able to provide estimates of the typical cost of embodied carbon assessments and the number of professionals who are able to conduct such assessments.

We also note that further evidence is continually emerging on this topic, which could help the planning justification for such targets. For example, in early 2022, the UK Green Building Council UK Green Building Council^{ciii} found that a real-world large low rise residential development in south-west Cambridgeshire achieved a 20% reduction in embodied carbon reduction at masterplan level compared to a typical baseline, with only a negligible impact on capital costs (0.6%). This was achieved through simple changes such as reducing the area of asphalt in favour of low-carbon permeable paving and using swales to reduce the need for other drainage infrastructure.

Beyond the assessments conducted within (separate reports) Tasks 3 and 4 of this evidence base, further relevant data could begin to be assembled by the local authority if it firstly adopts a Local Plan requirement for major developers to simply *report* on their embodied carbon using the RICS methodology, and ideally also any costs associated with steps taken to reduce embodied carbon as a percentage of overall costs. From these, local benchmarks for ‘business as usual’ and ‘best practice’ could be derived for inclusion in a subsequent Local Plan policy. This is an important next step for Gloucestershire County Council if an embodied carbon policy is successfully adopted.

To conclude: The local plan can (and should, for the sake of mitigating climate change in line with the Climate Change Act) look to set embodied carbon targets, given that solely requiring embodied carbon reporting is insufficient to deliver emissions reductions that align with net zero targets locally and nationally. An ambitious target should be set to limit the ‘upfront embodied carbon emissions carbon’ (modules A1 – A5). Including modules B and C could pose an additional unnecessary risk to policy adoption because these are reliant on many assumptions during the operational and end-of-life stages of a building. Additional requirements such as pre-demolition audits should be set to ensure that retrofit of existing buildings is promoted for new development where appropriate, instead of demolition and subsequent embodied carbon emissions.

Example: London Plan

Policy SI 2F states that:

Development proposals referable to the Mayor should calculate whole lifecycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.

Example: Bath & North East Somerset Council Local Plan Partial Update (adopted; 2023)

Policy SCR8 of this plan requires that large scale development (>50 dwellings or >5000m² of commercial floor space) achieves an embodied carbon target of 900 kgCO₂/m² for RIBA modules A1 – A5 (upfront embodied carbon). The target only includes the following building elements:

- Substructure
- Superstructure
- Finishes

The policy requirement was selected because it is predicted to be cost neutral, as set out in the [evidence study](#) produced by WSP.

There is no last resort option to offset any shortfall of embodied carbon emissions to the required target.

Example: Uttlesford Local Plan (adopted, 2026)

Uttlesford Local Plan Core Policy 24, “Embodied Carbon”, requires:

- All proposals to explain what steps are taken to reduce embodied carbon.
- Where proposals include an element of demolition, this should be justified in relation to e.g. “feasibility, or... energy efficiency”
- More in-depth demonstration of minimising embodied carbon in major development, such as via design choices and material selection
- ‘Large-scale’ proposals (100+ homes or 1,000m² floorspace) must conduct and submit a Whole-Life Carbon Assessment (following the RICS WLCA methodology) showing that they do not exceed the following quantified targets:
 - Upfront embodied carbon (WLCA modules A1-A5):
 - Residential: 500 kgCO₂e/m² floorspace
 - Non-residential: 600 kgCO₂e/m² floorspace
 - Total embodied carbon (all WLCA modules except operational energy & water):
 - Residential (detached & semi-detached): 1,100 kgCO₂e/m² floorspace
 - Residential (terraced houses & apartments): 1,000 kgCO₂e/m² floorspace
 - Non-residential: 970 kgCO₂e/m² floorspace

The supporting text to this policy explains that the up-front embodied carbon targets are aligned with LETI/RIBA band C (which is LETI’s suggested 2020 target). The total targets are aligned with LETI/RIBA band C for non-residential, or band D for residential.

Emerging Example: Bristol Local Plan Review (Drafts 2022-2026)

Policy NZC3 of this draft plan would expect new development to stay within the following limits on embodied carbon:

- Up-front embodied carbon:
 - Residential (4 storeys or fewer) - <625 kgCO₂e/m²
 - Residential (5 storeys or greater) - <800 kgCO₂e/m²
 - Major non-residential schemes - <970 kgCO₂e/m²
- Whole-life embodied carbon:
 - Residential (4 storeys or fewer) - <625 kgCO₂e/m²
 - Residential (5 storeys or greater) - <800 kgCO₂e/m²
 - Major non-residential schemes - <970 kgCO₂e/m²

The requirements are based on the RIBA Climate Change targets for 2025 Homes, 2030 Homes and 2025 Offices. In the original draft policy, any shortfall against the embodied carbon targets would be offset at £373/tCO₂, the Treasury’s Green Book 2023 value. Bristol’s [September 2024](#) and [April 2026](#) main modifications documents kept the policy but removed the specific current value of £373 in the policy, simply stating that the offsetting price will reflect the Treasury Green Book value.

5.11 Justifying the requirements: necessity feasibility and viability

5.11.1. Necessity and feasibility

The **necessity** for net zero carbon policies is clearly demonstrated by the previous sections' exploration of the scale and urgency of the climate crisis, the changes necessary to deliver the UK's legislated Net Zero Carbon 2050 goal and legislated carbon budgets (Climate Change Act), the absence of suitably ambitious national regulation or other incentives to deliver those changes, and the Local Plan's legal duty to proactively pursue carbon reductions (Planning & Compulsory Purchase Act) in line with the Climate Change Act 2008 (National Planning Policy Framework).

The Royal Town Planning Institute^{civ} points out that "Where local plan policy which complies with the duty [to mitigate climate change] is challenged by objectors or a planning inspector on the grounds, for example, of viability, they must make clear how the plan would comply with the duty if the policy were to be removed". This is because that duty stems from the Planning and Compulsory Purchase Act and Climate Change Act (supported by powers in the Planning and Energy Act). Formal legislation holds more weight than other government guidance that might seek to limit Local Plans' requirements.

Nevertheless, for a plan to meet the NPPF soundness test of being 'positively prepared to meet the area's objectively assessed needs for housing', the inspector will expect evidence that the carbon policies' cost impact does not prevent the delivery of the required housing targets. In addition, the NPPF paragraph 164 still asks that local requirements should reflect national technical standards. This was reiterated through the WMS2023 (as previously discussed) which emphasises that energy efficiency policies in particular must be accompanied by a 'robustly costed rationale that ensures development remains viable, and that any improvements to energy efficiency should be expressed as a % reduction on SAP TER. However, in this report we have noted several recent successfully adopted local plans that have expressed their energy efficiency requirements in other terms, including as EUI (energy use intensity) and space heat demand, both of which would be calculated using methodologies chosen for their accuracy, instead of the national building regulations methodologies. These recent local plans' success rested on being able to demonstrate at examination that their proposed standards and metrics would be more effective in combating climate change, and that these standards could be feasibly met, and that the cost of this had been tested in their viability assessment.

The **feasibility** of identified measures is demonstrable through case studies and modelling. Evidence of feasibility of similar performance requirements is found in supporting documents of several pioneering recent and emerging plans cited throughout this report. The evidence bases for Local Plan documents in Greater Cambridge (emerging)^{cv}, Central Lincolnshire (adopted 2023)^{cvi} and Cornwall (adopted 2023)^{cvi} all have studies showing that 'true net zero' requirements can be fulfilled in typical new buildings types in these areas. In these studies it was shown how recent local new builds could have complied with the policy without changing the form or orientation of

the building – only needing to add reasonably improved fabric, a heat pump, and solar panels that fit within the roof area.

In addition, feasibility in general is evidenced by the fact that all measures have been previously delivered by the building design and construction industry in the UK before today (low heat demand via effective insulation and airtightness; accurate energy modelling; heat pumps or other low carbon heat; well-oriented solar panels; Section 106 offset payments; embodied carbon assessment).

The only potential policy components whose feasibility might be difficult to prove are the enhanced energy reporting and embodied carbon reporting. These skills are present and growing in the sector, but may not be mainstream outside of London projects and so there might be a bottleneck of skilled professionals available to conduct these. The impact of this bottleneck depends on the rate and scale of development that comes forward (in any Local Plan areas making a competing demand for these skills, as these services can be performed remotely). If development takes the form of fewer but larger applications consisting of broadly similar house types, these can be assessed efficiently via representative sampling. The skills bottleneck may be more impactful if housing comes forward via smaller and more varied applications that each need a separate assessment.

It should be noted that these specialist skills to meet net zero carbon policies will be a far smaller factor in housing delivery compared to the overarching construction labour shortage^{cvi} which constrains the whole sector today. National housing targets in 2020-21 were already too large for the workforce to deliver^{cix}, and the new government has since revived mandatory housing targets that are even higher in most local areas. The skills shortage is evident in elements unconnected to energy performance, such as bricklaying and carpentry^{cx}. Where such core skills form a bottleneck to construction regardless of energy standards, improved energy/ carbon targets are unlikely to be the deciding factor in the feasibility or speed of delivering housing. Furthermore, where the housing targets have undergone an increase due to the change in Government housing target calculation, this higher amount of new homes will cause greater carbon emissions unless those homes have net zero energy use.

Additionally, **for the UK to hit its legally binding carbon reduction targets**, it will be vital for the specified energy targets to be achieved in reality, which will **only be possible if the industry swiftly develops these skills** and deploys them as standard practice in the vast majority of development. The policy requirements would stimulate the industry to expand its capacity to fulfil them (as per commentary noted in the FHS Consultation Response, paragraph 2.40, 2.60, 2.61, 2.62).

In the absence of data to show whether there is or is not enough capacity in the industry to deliver these reports, a cautious approach could be to require the enhanced energy & carbon modelling only in major developments. If this choice is made, a required minimum specification could be devised for minor and householder proposals that would be likely (if not guaranteed) to deliver the required targets.

5.11.2. Viability of required improvements to the building

The cost of meeting building energy performance targets should be considered within a whole-plan viability assessment. Despite a range of precedent policies on carbon reduction, there is not a consistent approach to transparently assess the cost of policy compliance. Some viability studies (for policies seeking reductions of 35-50% on Part L 2013) have variously applied cost uplifts of:

- £5/m² for 'BCIS Energy + Carbon' although it is not explained how this reflects the policy requirements, and somehow reaching £25,000/dwelling for fully zero carbon homes.
- £15,000 per dwelling for a bundle of sustainability measures including carbon and renewable energy– without clarifying the breakdown, or how this cost of policy compliance was identified.
- 1% uplift to overall costs to allow for professional fees, and BCIS cost data reflecting the construction cost of the Code for Sustainable Homes Level 4.

These precedents were successfully adopted, so their viability assessments must have been deemed sound by the Planning Inspectorate for the purpose of those plans' policies.

Nevertheless, it would be more robust to use more transparently evidenced cost uplift data, specific to Gloucestershire County Council's policy proposals once those have been defined.

- i. The strongest way to assess viability impacts would be to commission a study of up-to-date cost uplifts specific to this region for a range of building types expected to arise during the plan period. This would ideally show the cost uplift compared to the current baseline (Part L 2021).
- ii. However, there are also several sources of credible evidence on the cost uplifts for a range of building energy performance standards at or close to 'true net zero' operational carbon. For example, there are published cost evidence bases for recent energy-based Local Plan policies in Greater Cambridge (emerging), Central Lincolnshire^{cxix,cxii} (adopted), Essex^{cxiii}, and a collection of London boroughs^{cxiv}. It may be possible to adapt this data for this region's context, if Gloucestershire County Council decides to take a policy approach similar to that taken in these plans; for example by finding the % cost uplift from the baseline of current building regulations in those Local Plan areas and translating this into a % cost uplift that could be applied to today's base build cost in Gloucestershire. Alternatively if Gloucestershire County Council decides to take a policy approach based on – for example – meeting the Future Homes Standard and then adding sufficient renewable energy or offsetting to zero-out the remaining carbon emissions, a cost estimate for this could be derived from national cost assessments for the Future Homes Standard in combination

with national data on the cost of solar panel installations and the national valuation per tonne of carbon.

- iii. This is recommended to be explored as an evidence gap to be filled during the next steps of this net zero carbon policy creation and evidencing.

5.11.3. Carbon reductions as an issue of design quality

There is evidence that the National Planning Policy Framework since 2021 has led the Planning Inspectorate to place a greater focus on design quality. An analysis^{cxv} of appeals from July 2021 – early 2022 found that inspectors were no longer dismissing poor design as a reason for refusal simply because of a shortfall in housing land supply, and that the likelihood was very low of the developer being awarded costs if their application is refused on design grounds.

The relevant parts of the NPPF (still present in the December 2024 edition) state that:

- "Development that is not well designed should be refused, especially where it fails to reflect local design policies ... [and] Significant weight should be given to ... outstanding or innovative designs which promote high levels of sustainability". (Paragraph 139)
- "Local Planning Authorities should seek to ensure that the quality of approved development is not materially diminished between permission and completion". (Paragraph 140)

This is likely to be most relevant to the setting of bold Local Plan policies on the topic of embodied carbon and the use of specific processes to reduce the energy performance gap. This is because:

Embodied carbon is related to design quality through durability, heritage, biophilia¹⁷ and generally 'innovative design which promote[s] high levels of sustainability'.

- Energy performance gap remediation processes are created solely for the purpose to 'ensure that the quality ... is not materially diminished between permission and completion'.
- However: It is important to note that this stance by Inspectors may change course given the increasing pressure to deliver higher housing numbers as a result of the new Government's return to mandatory housing targets.

However: It is important to note that this stance by Inspectors may change course given the increasing pressure to deliver higher housing numbers as a result of the new Government's return to mandatory housing targets.

¹⁷ 'Biophilia' refers to humans' innate attraction to the living natural world, and wellbeing benefits experienced via exposure to it. Renewable materials like timber can support this and also reduce embodied carbon, reflected in today's growing focus on biophilic design in [architecture](#).

5.12 Beyond the building: reducing carbon via spatial choices

The Local Plan's spatial strategy is a vital tool for the minimising the carbon emissions caused by new growth, and potentially even making reductions on the borough's existing annual carbon emissions.

Because this document was produced primarily to support the formulation of policy for net zero carbon buildings (including via their energy supply), we do not go into as much depth here as we have done for buildings. However, this is an incredibly important topic in terms of what planning can do to enable the transition to a net zero carbon future. At present, the relevant local transport authority is the County Council. However, if Gloucestershire becomes (part of) a unitary authority, that unitary authority would be likely to have more scope to influence transport carbon than a Local Planning Authority that is the lower of a two-tier local authority structure. Therefore for completeness we give an overview here.

The Planning Practice Guidance section on climate ([as previously cited](#)) confirms that location of new development is an appropriate carbon reduction measures in Local Planning: "The distribution ... of new development and the potential for servicing sites through sustainable transport solutions, are particularly important considerations".

The key ways in which the Local Plan's spatial choices can support the net zero carbon transition are:

- i. **Transport** – shaping the spatial pattern of new growth to reduce the use of cars and increase the viability of public transport services
- ii. **Renewable energy** – proactively enabling development of generation, storage and distribution (covered in the previous section on how existing buildings can be decarbonised)
- iii. **Protecting green infrastructure that removes or stores a significant amount of carbon**, such as forests, grassland, peatland, or other high-carbon soils
- iv. **Density**: this has a smaller impact than points 1 and 2, but higher-density developments generally have smaller sizes per unit, which means less floor space to heat and light. Higher density can also make settlements more walkable by reducing the distance between destinations. (However, appropriate density is very much a site-specific issue and therefore we do not here cover this topic further as it is less suited to generalisable recommendations or replicable precedents).

We therefore next provide commentary on the points on **transport** and **green infrastructure**.

5.12.1. Focusing growth where transport emissions can be minimised

Transport is now the UK's largest emitter of greenhouse gases – representing 30% of total UK emissions^{cxvi} (compared to buildings excluding electricity use 21%; industry 13%; agriculture 12%; electricity supply 10%; fuel supply 8%; waste 5%). In Gloucestershire, transport is responsible for a slightly greater proportion at 38% of emissions (as previously noted). Gloucestershire's drop in transport emissions in the 2020 pandemic steadily increased again post-pandemic. A switch to electric vehicles is underway but it will be many years before EVs make up the majority of vehicles on the road (as the ban on sales of new fossil fuelled cars and vans is not till 2035^{cxvii} or 2030 in the new Government manifesto, whereas the last fossil fuelled cars will be in use for 14 years^{cxviii} after that).

There is therefore a strong climate justification to devise a spatial strategy that prioritises locations with access to facilities and services, public transport, and opportunities for walking, cycling and wheeling. Walkable sites also enable more efficient land use due to reduced parking area, and growth in urban areas can often share existing infrastructure and thus avoid embodied carbon that would come from new infrastructure.

Transport carbon emissions are largely determined by where the development takes place as opposed to what policies are imposed to regulate the quality of each development itself. Once the location is set, it is more challenging for the developer or the Local Plan to effectively influence the transport habits of the occupants and their associated carbon emissions. Recognising this, emerging Local Plans are taking steps at a very early stage of plan development to ensure that transport carbon emissions are considered from the outset of spatial strategy design and not as an afterthought.

To avoid locking-in long-term avoidable carbon emissions of car-dependent locations, spatial choices can be informed with evidence to show how much carbon could be saved by directing growth to locations that are inherently conducive to public transport and active travel. This gives a quantifiable value to the carbon savings, allowing them to be more fairly and transparently weighed alongside other matters such as ecology, landscape or impact on existing residents.

Emerging Example: Greater Cambridge Local Plan

In 2020-21, the emerging Greater Cambridge Local Plan was in the early stages of identifying the possible options for its spatial strategy. There were several broad spatial categories reflecting the potential areas where new growth could occur. There was also a range of housing growth numbers (low, medium, high).

Greater Cambridge Shared Planning service commissioned comparative modelling of the carbon emissions of buildings and transport in different types of location: urban, suburban, public transport corridors, new towns, villages.

This modelling used publicly available data on the local area's energy use and emissions of buildings and transport, combined with a locally-specific transport model. It also took into account the different locations' typical densities, home sizes and amount of new infrastructure that would be needed along with housing.

The potential sites being considered for growth were categorised into these different types of location. A range of options were tested, with homes spread in varying proportions across different types of location.

This [revealed](#) a very large difference in carbon emissions in the plan period depending on where homes were built. Importantly, it showed that the carbon emissions difference (between growth in the most versus least car-dependent locations) was just as large as the difference that would be made by applying zero-carbon buildings policies. This is in part due to the high level of cycling and low car use in urban Cambridge.

Village-led growth had far higher carbon emissions than any other option. Growth on public transport corridors was nearly as low-carbon as urban growth, and both were better than new settlements. Applying a range of carbon reduction policies (for buildings and transport) would halve the total emissions, except in villages because more of their carbon due to transport, which is influenced more by location than policy.

This informed the further refinement of the growth options. The modelling was [repeated](#) for the refined options. Both were taken into account in the sustainability [appraisal](#). As a result, the proposed preferred option is led mainly by growth on public transport corridors and urban areas, and does not include significant development in villages (only where they are well connected to existing transport and employment.)

Example: Central Lincolnshire Local Plan (adopted 2023):

Central Lincolnshire used the same approach as Greater Cambridge, with the same consultant team conducting [analysis](#) to compare the carbon impacts of its various spatial growth options.

Here, the difference between locations was less pronounced. This was partly because the spatial options in Central Lincolnshire were less starkly 'urban' or 'rural' but more blended, and partly because the Lincolnshire growth locations did not include areas with such an unusually high level of cycling and low car use as urban Cambridge has.

5.13 Quantifying and protecting the carbon sequestration value of green landscapes

Green infrastructure for carbon sequestration is of significant relevance in Gloucestershire as a rural area that is mostly unbuilt green land. Any green infrastructure has an effect on reducing the area's overall greenhouse gas account. National figures [show](#) that in Gloucestershire (as of 2024, data released in 2026), forest and grassland remove an amount of greenhouse gas equivalent to 9.3% of the emissions that the Local Plan area's other sectors cause. This is a higher rate to the national picture, where the UK's forest and grassland recapture 7% of the UK's annual emissions.

Beyond trees and grass, soil can also be a huge store of carbon which can be emitted if the soil is drained or disturbed – for instance during groundworks or excavation. Natural wetland (especially peatland) is a rich store of carbon that has been sequestered over many years by plants growing there, and stored thanks to submersion in water. If drained, peatlands start emitting large amounts of greenhouse gas. Data on the distribution of high-carbon soils in the local plan area might help justify decisions not to allocate these sites, or development management policies to compensate for losses of soil carbon. An initial look at publicly available data^{cxix} on soil carbon appears to show that there is a very small area with soils that are high-carbon with patches of peaty soils. The nearest peat soil deposit shown in that mapping is to the south-west of Gloucester.

Gloucestershire's Local Nature Recovery Strategy^{cxix} (LNRS) should also be considered alongside these soil-carbon and peat datasets. As the statutory spatial strategy for nature recovery, the LNRS provides a policy-relevant basis for identifying where protection, restoration and enhancement of habitats can also support climate mitigation and adaptation. In particular, the LNRS local habitat map identifies key potential areas for wetland or peatland restoration. This strengthens the case for considering these areas carefully through site allocation, development management and multifunctional green and blue infrastructure policy.

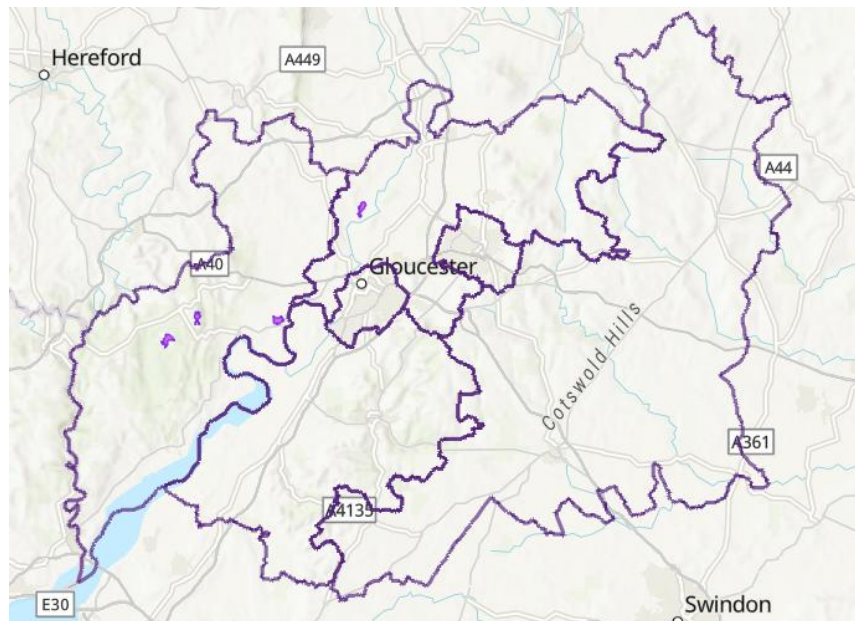


Figure 12: Areas that could become of particular importance for biodiversity through management and restoration of fens mires and lowland peatland sites. Source: Gloucestershire County Council.

Other recent Defra mapping on peat soils (“England Peat Map”^{cxxi}) similarly shows a very small area of peat soils in the Gloucestershire Area. We do not reproduce that alternative map here for the sake of brevity as this is not an issue that the Local Plan has great influence over if pressed to maximise site allocations to meet nationally prescribed housing targets.



Figure 13: Gloucestershire area; peaty soils are shown in blue. Source: Natural England Peaty Soils Location (England). [Peaty Soils Location \(England\)](#) | [Natural England Open Data Geoportal](#)

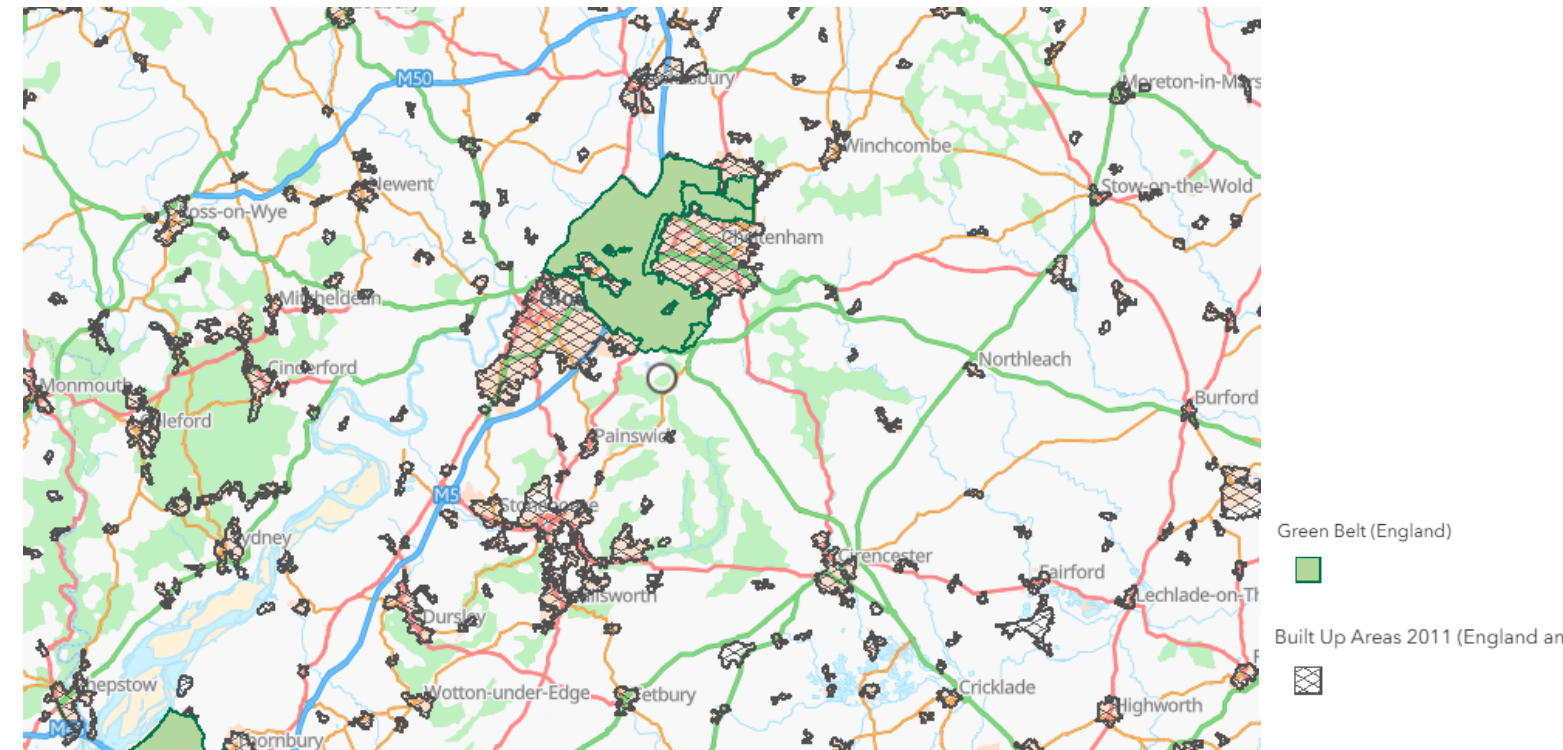


Figure 14: Green Belt and built up area in Gloucestershire. Source: Defra magic map

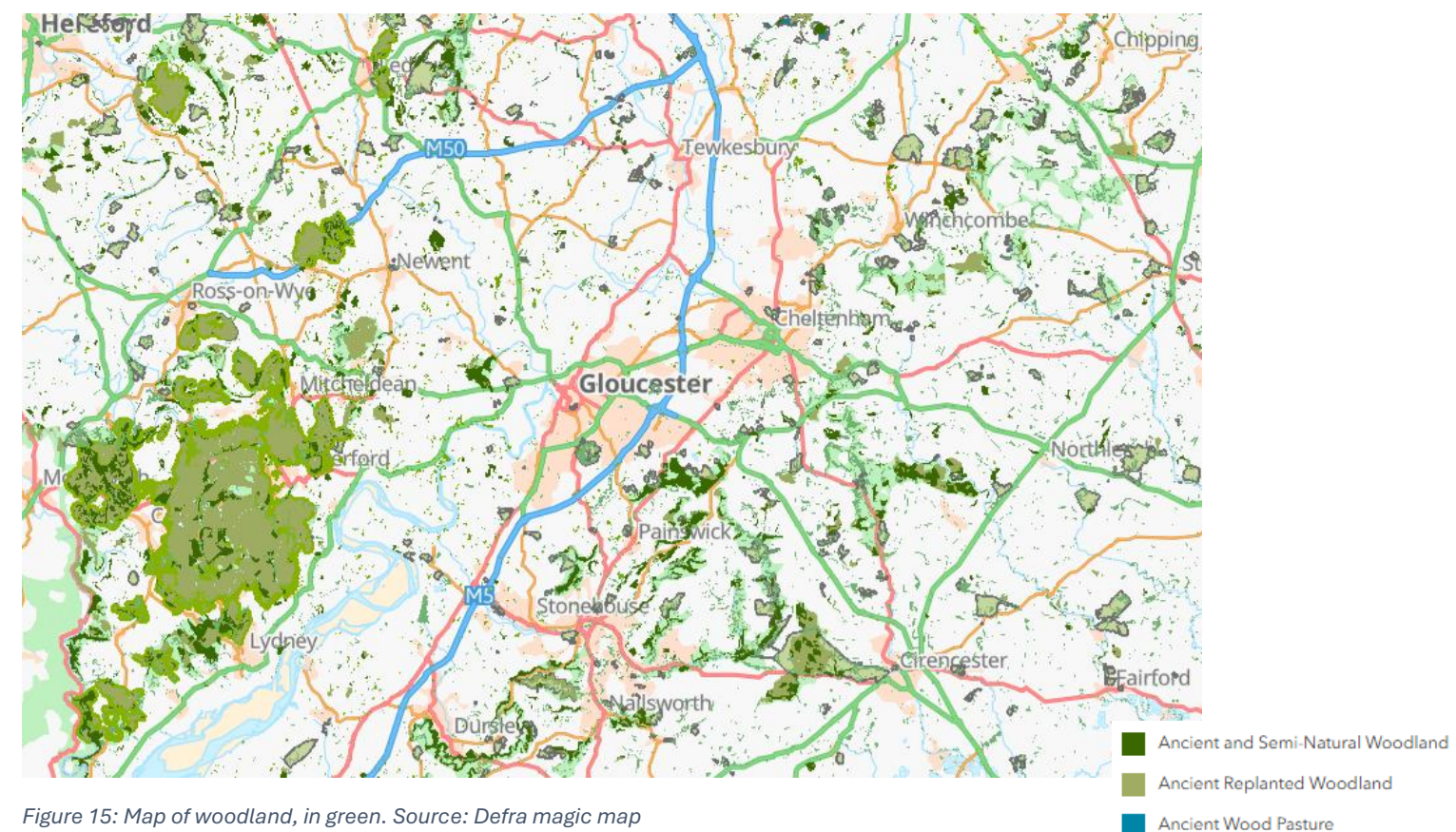


Figure 15: Map of woodland, in green. Source: Defra magic map

On the other hand, the Defra mapping shows abundant woodland area within the Local Plan area.

Emerging example: Draft Greater Cambridge Local Plan (as Reg 18 for Consultation 2025)

Policy CC/CS will:

- Require a soil management plan and evaluation of the impact of the proposal to be submitted for major development proposed on land containing peat soils.
- Support “proposals to enhance peat soils and protect its qualities...” as well as proposals that “**help strengthen existing carbon sinks or create new ones.**”
- Require soils to be “**temporarily stored and used in a way that will minimise carbon loss to the atmosphere...**” if any peat and other soils are to be removed from a site. To achieve this, the development must follow the DEFRA Code of Practice for the Sustainable Use of Soils on Construction Sites (2009) (or successor documents)
- Require all major development proposals to “seek opportunities to **enhance the carbon sequestration potential of their proposals through green infrastructure and new habitat creation.** The demonstration of meaningful carbon sequestration where there is a **significant net gain within a proposal through nature-based solutions** will be a material consideration in the decision-making process.”

However, the draft Climate Change and Biodiversity and Green Spaces topic papers explain that it is supported by (and will draw on) an evidence base including:

- Net Zero Carbon Study
- Green Infrastructure Opportunity Mapping Report – this took an ‘ecosystem services’ approach to identify existing and potential green infrastructure, of which one of the ecosystem services is carbon sequestration. This included approximate mapping of soil carbon and above-ground carbon in vegetation.
- Natural England (2021) report on Carbon Sequestration and Storage by Habitat (report NERR094).

It is noted that although many carbon-rich land areas will already be protected by nature conservation policies or designations, this is not true for all existing or potential carbon sinks. The policy is therefore needed because the Net Zero Carbon Study had shown that additional land-based carbon sequestration will still be necessary in the UK’s net zero carbon future, even after all possible actions have been taken to reduce carbon emissions at source.

Example: Central Lincolnshire Local Plan (Adopted 2023)

This proposed plan underwent Regulation 19 consultation in [Spring 2022](#), examination in November and December 2022 and was adopted in [2023](#).

Aware of the region’s widely distributed peatland as well as other green infrastructure, when drafting this new Local Plan, the Central Lincolnshire planning team **commissioned [specialists](#) to map the area’s peatland and estimate the potential amount of carbon that is stored, removed, or emitted** by those areas. The mapping found that while the area of peatland is small and a separate peat policy was not [recommended](#). However, peatland was included in a wider ‘carbon sink’ policy, recognising that the degraded condition of the area’s peatland means that it has a meaningful impact on overall emissions (potentially amounting to more climate impact per year than the operational carbon emissions of all the proposed new housing for which the plan must make room). As a result, that Local Plan’s Policy S17 **requires assessment and mitigation of the carbon impacts of development on any carbon sinks including peat.**

However, carbon sinks do not appear to have been a criterion in the sustainability appraisal for site allocations as only 2% of the land was identified peatland and thus not expected to be a common issue confronting many sites.

This approach could be relevant to other Local Plans with substantial amounts of high-carbon soils, woodland, grassland or other natural carbon sinks.

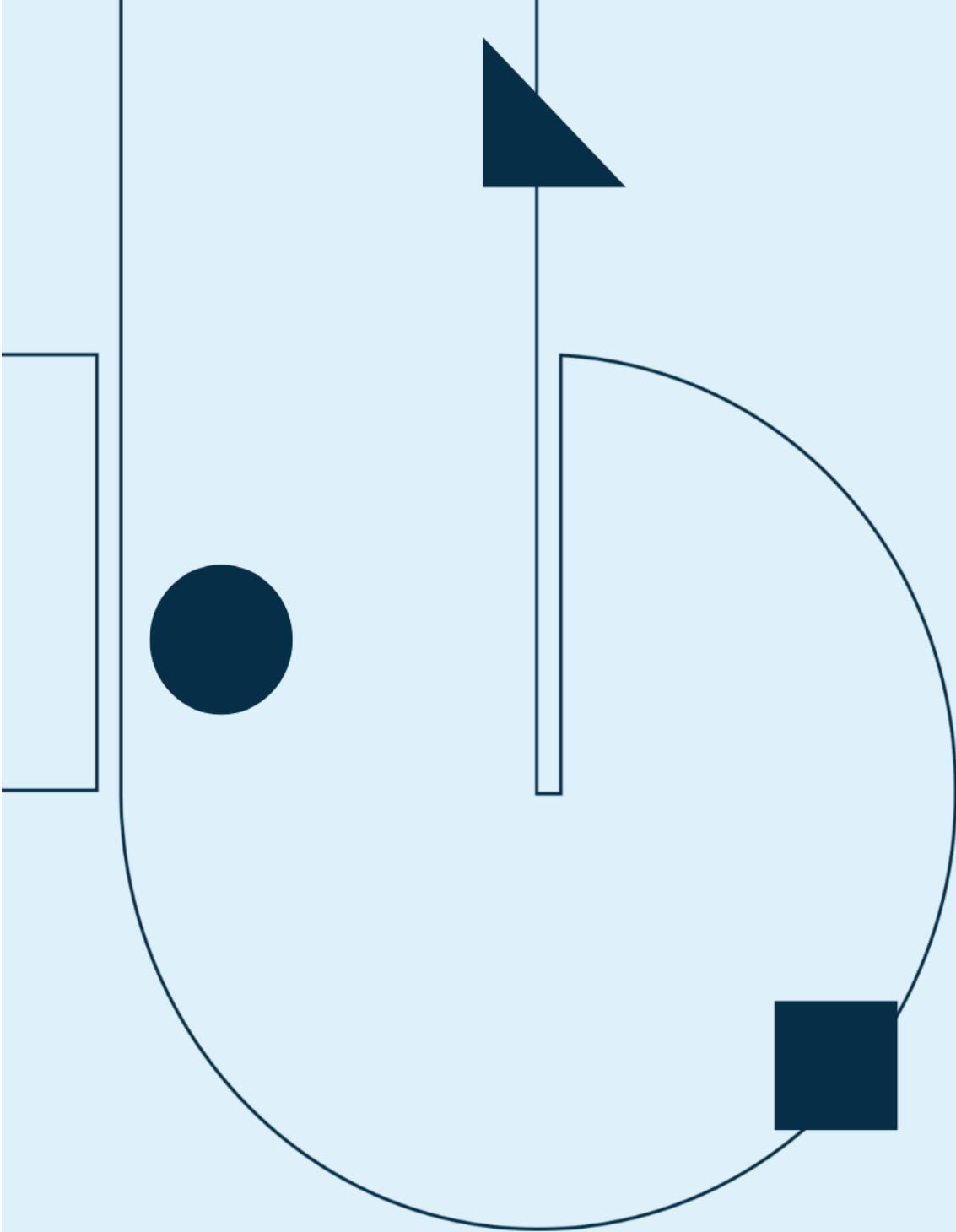
Policy S17 (carbon sinks) includes that:

“Existing carbon sinks, such as peat soils, must be protected, and where opportunities exist they should be enhanced in order to continue to act as a carbon sink.

Where development is proposed on land containing peat soils or other identified carbon sinks, including woodland, trees and scrub; open habitats and farmland; blanket bogs, raised bogs and fens; and rivers, lakes and wetland habitats*, the applicant must submit a proportionate evaluation of the impact of the proposal on either the peat soil’s carbon content or any other form of identified carbon sink as relevant and in all cases an appropriate management plan must be submitted.”

It also states that:

“The demonstration of meaningful carbon sequestration through nature-based solutions ... will be a material consideration in the decision-making process. Material weight in favour of a proposal will be given where the net situation is demonstrated to be a significant gain in nature-based carbon sequestration ... Where a proposal will cause harm to an existing nature-based carbon sequestration process, weight against such a proposal will be given ... with the degree of weight dependent on the scale of net loss.” The text refers the reader to the carbon soil mapping, and Natural England report NERR094 to assist in identifying the significance of carbon sinks.

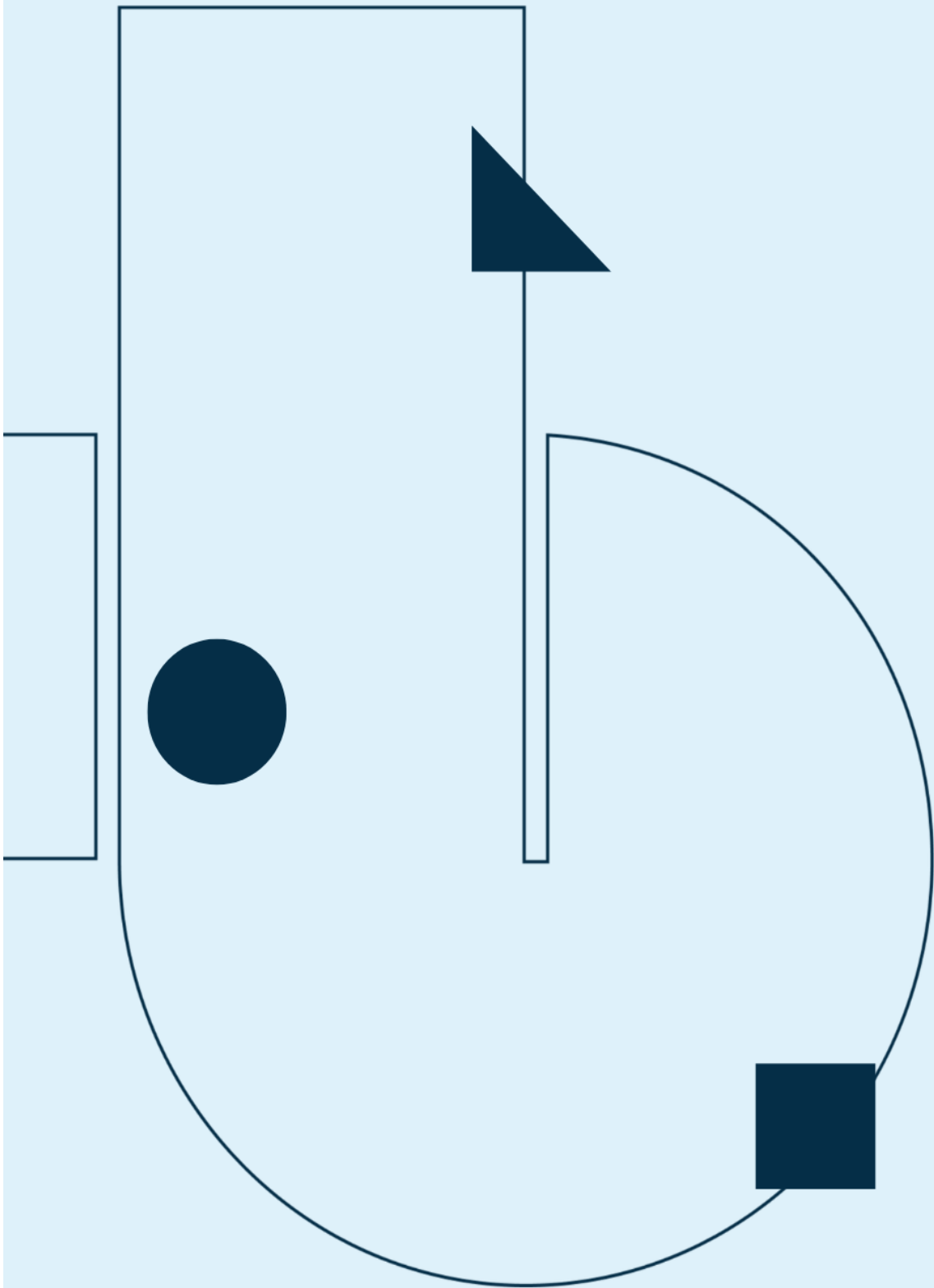


Glossary

Glossary

Carbon, or carbon emissions	Short for ‘carbon dioxide’ but can also include several other gases with a climate-changing effect (nitrous oxide, methane, refrigerants) that are emitted to the atmosphere from human activities.
Carbon budget	Amount of greenhouse gas that can be emitted before reaching a level of atmospheric carbon that causes severely harmful climate change.
CO₂	Carbon dioxide. Often shortened to ‘carbon’.
CO₂e	Carbon dioxide equivalent. The sum of a mixture of gases, in terms of their climate-changing impact in a 100-year period expressed as the amount of CO ₂ that would have the same effect. This is also often shortened to ‘carbon’.
DESNZ	Government Department for Energy Security and Net Zero. Formerly styled the department of Business, Energy, Innovation and Skills (BEIS)
Embodied carbon	Carbon that was emitted during the production, transport and assembly of a building, infrastructure, vehicle or other product, before the product is in use. As opposed to ‘operational carbon’ which is emitted due to energy use when operating the building / infrastructure / vehicle / other product.
Energy performance gap	The difference between the predicted energy use of a building at design stage, and the actual amount of energy use when the building is occupied. The size of this gap comes from the quality of the prediction modelling method, errors in construction, and unanticipated user behaviour.
EUI	Energy use intensity, a measure of how much energy a building uses per square metre of floor space. Expressed in kWh/m ² floorspace/year.
FEE	Fabric Energy Efficiency – a metric used in Part L of Building Regulations to represent energy demand for space heating and space cooling, per metre of floor. Based only on fabric; not affected by building services like heating system, lighting, ventilation. See also TFEE / DFEE, below.
FHS / FBS	Future Homes Standard / Future Buildings Standard
kWh	Kilowatt-hour. A unit of energy.
LETI	Low Energy Transformation Initiative. A coalition of green building experts working to identify and implement targets for energy use and embodied carbon that would be compatible with the UK’s climate commitments.
NPPF	National Planning Policy Framework.
Operational energy use	Energy used for the normal operation of a building. (As opposed to energy used in the production, construction or demolition of a building).
Part L	Building regulations section that sets basic legal requirements regarding buildings energy and CO ₂ .
Performance gap	The ‘energy performance gap’ is the difference between the amount of energy a building is predicted to use during design, versus the actual amount of energy it uses. The gap is due to poor prediction methodologies, errors in construction, and unexpected building user behaviour.

PV	Photovoltaics: solar panels that generate electricity.
PHPP	Passivhaus Planning Package – a tool to accurately calculate a building’s energy use. It is used to design buildings that seek Passivhaus certification, but can be used without pursuing certification.
Regulated energy	The uses of energy within a building that are regulated by Part L of building regulations. This covers fixed energy uses in the building – mainly space heating, space cooling, hot water, permanent lighting, fans/ventilation and pumps.
SAP	Standard Assessment Procedure – the national calculation method for homes’ energy and carbon, used to satisfy building regulations Part L. SAP is updated periodically; the most recent version available at the time of writing is SAP10.2.
SBEM	Simplified Building Energy Model. The national calculation method for non-residential buildings’ energy and carbon, used to satisfy building regulations Part L
SHD	Space Heat Demand. A measure of one aspect of buildings’ energy efficiency: The amount of heat input needed to keep the building at a comfortable temperature. Expressed in kWh/m ² /floorspace/year.
South & Vale	South Oxfordshire & Vale of the White Horse. Two local district councils in Oxfordshire, which together prepared a joint local plan adopted in 2023. That local plan included one of pioneering new ‘net zero new builds’ policies referred to in a previous report.
Space Heat Demand	A measure of how much heat energy is needed to keep a building at the desired temperature, regardless of how that heat is delivered.
tCO₂ (or tCO₂e)	Tonne of CO ₂ (or tonne of CO ₂ equivalent). See CO ₂ and CO ₂ e, above.
TER	Target Emission Rate – limit set by Part L of building regulations on CO ₂ emissions per square metre of floor.
(TFEE/DFEE)	First see ‘FEE’, above. TFEE Target Fabric Energy Efficiency – a limit expressed using the FEE metric, set by Part L of building regulations, reflecting a notional (imaginary) building with a standard quality of fabric that Part L sets. DFEE Dwelling Fabric Energy Efficiency – the FEE achieved by a specific building design. Part L requires that the DFEE must not exceed the TFEE.
TM54 (or CIBSE TM54)	Method to accurately calculate buildings’ energy use. Devised by Chartered Institution of Building Services Engineers (CIBSE).
Unregulated energy	Energy uses within a building or its curtilage but that are not regulated by Part L of building regulations. Examples: plug-in appliances, catering, external lighting among other uses. This can represent 50% of the total energy used at a property, depending on the building type and use.
UKNZCBS	UK Net Zero Carbon Buildings Standard. A new emerging standard being developed by a coalition of energy and carbon expert organisations and standard-setting organisations in the built environment sector. The standard defines whether a building is sufficiently energy-efficient and low-carbon to be in line with the UK’s trajectory to net zero carbon, within a carbon budget compatible with the UK’s commitment to the international Paris Agreement. The UKNZCBS covers both operational energy (in use, including both energy use and renewable energy generation) and up-front embodied carbon (up to completion of the building; see also ‘embodied carbon’ in this glossary).
WMS (WMS2023)	Written Ministerial Statement. A formal statement of national policy made by a government Minister in the House of Commons or Lords. (WMS2023 refers to the specific WMS on energy efficiency made on 13 th December 2023 on energy efficiency standards in local planning.)



Appendices

Appendix 1

UK Net Zero Buildings Standard mandatory targets (replicated from UKNZCBS pilot version: Annex A for targets, and section 5.3.5.1 for exemptions to renewable electricity minimum targets)

Theme	Subtopic, metrics and caveats	New builds	Existing buildings & retrofit
Operational energy limits	<p>Energy Use Intensity*</p> <p>Metric: kWh energy use / m² floorspace / year*. (all energy use except EV charging and ‘heavy process loads’ already covered by the UK Emissions Trading Scheme e.g. industrial process emissions). *Except in data centres, where the metric is PUE (Power Usage Effectiveness: ratio of power entering the facility to power used by the facility’s ICT). In all sectors and whether new build, retrofit ‘one go’ or retrofit ‘step by step’, these limits gradually tighten each year, from 2025 to 2050, referring to the year in which works are commenced on site. Must be measured using actual energy metered data covering 1 full year of full occupancy.</p>	<p>Different limits are set for:</p> <ul style="list-style-type: none">Commercial Residential: student, or care homeCulture/Entertainment: performance; ‘collection’; archivesData Centres: low utilisation; high utilisationHealthcare (reflecting “NHS-NZ Standard”)Higher EducationHomes: single family, or flatsHotelsOffices: general, call centres, trading floorsRetail: supermarket; high street; food & beverage (with/without catering); landlord areas; retail warehouseSchools: early years; primary; secondary including SENScience/TechnologySports/ Leisure: dry, wet, or fitness <p>Storage/Distribution: unconditioned; conditioned; cold store</p>	<p>Two options:</p> <ul style="list-style-type: none">“Retrofit in one go”: Achieving the ‘end point’ EUI limit from the first instance of verification. Apply the limit for the year in which onsite works commence.“Retrofit step by step”: A retrofit plan over time that meets intermediate EUI limits, then the ‘end point’ EUI limit by 2040.<ul style="list-style-type: none">The applicable ‘end point’ EUI limit is that of 2040.The applicable intermediate limits are those in which the intermediate steps are commenced. <p>Different limits are set for the same categories as in ‘new build’, except that the ‘healthcare’ category is further divided into:</p> <ul style="list-style-type: none">Healthcare: acute trust;Healthcare: care trust;Healthcare: community trust;Healthcare: mental health & learning trust;Healthcare: ambulance trust.
Operational energy limits (continued)	<p>Space heat demand</p> <p>Metric: kWh heat demand / m² floorspace / year.</p>	<p>Different limits are set, for only a small subset of types at present:</p> <ul style="list-style-type: none">Commercial Residential and Culture/Entertainment:<ul style="list-style-type: none">All 15kWh/m²/year, regardless of commencement date.Homes: Single family (20kWh/m²/year regardless of date). Homes: Flats (15kWh/m²/year regardless of date).	<p>None stated.</p>
Up-front embodied carbon limits	<p>Embodied carbon intensity per m² floor.</p> <p>Metric: kgCO₂e/m² floorspace (GIA).</p> <p>Scope & calculation methodology: RICS Whole Life Carbon Assessment, modules A1-A5.</p>	<p>Different limits are set for:</p> <ul style="list-style-type: none">Commercial residential,Culture / worship / entertainment,Data centres,Healthcare,Higher education,Homes,Hotels,Offices,	<p>Different limits are set for:</p> <ul style="list-style-type: none">Commercial residentialCulture / worship / entertainment: Performance, or ‘other’Data centres,Healthcare,Higher education,Homes: Single family homes, or flatsHotels,

	<p>Excludes the embodied carbon renewable electricity generation equipment. Solar PV specifically has a separate limit of 750kgCO₂e/kWp system size.</p> <p>Limits slowly tighten each year, from 2025 to 2050. The applicable year's limit is the one in which works are 'commenced' on site. The commencement date is "the date of the most recent New Works or Retrofit Works to have taken place in that building."</p>	<ul style="list-style-type: none"> • Retail, • Schools, • Science & technology, • Sport & leisure, • Storage/distribution. 	<ul style="list-style-type: none"> • Office: Whole-building, or Shell & core • Retail, • Schools, • Science & technology, • Sports & leisure, • Storage & distribution. <p>Must cover all works in the 5 years up to the date of assessment, including works that were commenced before the 5-year start date.</p>
Global Warming Impact of Refrigerants	<p>Global warming impact per kg of refrigerants used in the building's systems, expressed as equivalent amount of CO₂.</p> <p>Metric: kgCO₂e / kg of refrigerant.</p>	<p>677kgCO₂e/kg refrigerant, for all sectors and project types (new/existing/retrofit); regardless of year of commencement of works.</p> <p>However: The guidance document notes that this figure may be updated in future iterations of the UKNZCBS.</p>	<p>Global warming impact per kg of refrigerants used in the building's systems, expressed as equivalent amount of CO₂.</p> <p>Metric: kgCO₂e / kg of refrigerant.</p>
Renewable electricity generation (minimum target)	<p>Amount of renewable energy generation per m² <i>footprint</i>** of the building.</p> <p>Metric: kWh / m² footprint / year.</p> <p>**Not to be confused with m² of floorspace.</p>	<p>Scotland:</p> <ul style="list-style-type: none"> • Single family homes and single storey storage/distribution: 60kWh / m² footprint / year • All other building types: 30kWh / m² footprint / year <p>Middle & North England, Northern Ireland & Wales (including Test Valley):</p> <ul style="list-style-type: none"> • Single family homes and single storey storage/distribution: 65kWh / m² footprint / year <p>All other building types: 40kWh / m² footprint / year</p> <p>South England:</p> <ul style="list-style-type: none"> • Single family homes and single storey storage/distribution: 75kWh / m² footprint / year • All other building types: 45kWh / m² footprint / year 	<p>Amount of renewable energy generation per m² <i>footprint</i>** of the building.</p> <p>Metric: kWh / m² footprint / year.</p> <p>**Not to be confused with m² of floorspace.</p>

Certain constraining circumstances can allow buildings to comply with UKNZCBS without fully meeting the above renewable electricity targets, including:

UKNZCBS triggers to waive renewable electricity targets	New builds	Existing buildings & retrofit
<i>Planning or legal constraints, e.g. heritage (conservations or graded I/II listing; not local listings)</i>	✓ <i>Valid reason for reduced renewable electricity in new builds</i>	✓ <i>Valid reason for reduced renewable electricity in existing buildings</i>
<i>Available space on site</i>	✓ <i>Valid reason for reduced renewable electricity in new builds</i> ✓ <i>Disapply the renewable electricity target entirely if space only permits <1kWp in single family homes or <4kWp in other buildings)</i>	✓ <i>Valid reason for reduced renewable electricity in existing buildings</i> ✓ <i>Disapply the renewable electricity target entirely if space only permits <1kWp in single family homes or <4kWp in other buildings)</i>
<i>Building's annual operational energy use is less than what would be annually generated if the renewable electricity target were met</i>	✓ <i>Valid reason in new builds (to reduce renewable electricity target to only equal the building's annual energy use)</i>	✓ <i>Valid reason in existing buildings (to reduce renewable electricity target to only equal the building's annual energy use)</i>
<i>Overshadowing of roof</i>	✓ <i>Valid reason for reduced renewable electricity in new builds</i>	✓ <i>Valid reason for reduced renewable electricity in existing buildings</i>
<i>Grid connectivity constraints (e.g. grid capacity issues or limited access to grid)</i>	✓ <i>Valid reason for reduced renewable electricity in new builds</i>	✓ <i>Valid reason for reduced renewable electricity in existing buildings</i>
<i>Lack of access (for installation & maintenance)</i>	✗ <i>Not a valid reason for noncompliance in new builds</i>	✓ <i>Valid reason for reduced renewable electricity in existing buildings</i>
<i>Lack of structural strength (not being able to bear the weight of equipment, e.g. solar PV)</i>	✗ <i>Not a valid reason for noncompliance in new builds</i>	✓ <i>Valid reason for reduced renewable electricity in existing buildings</i>
<i>Existing rooflights taking up roof space</i>	✗ <i>Not a valid reason for noncompliance in new builds</i>	✓ <i>Can be valid reason for reduced renewable electricity in existing buildings</i>

Appendix 2

Further findings from the Climate Change Committee 2024 and 2025 progress reports

Topic	UK-wide changes needed to hit legislated carbon goals (note: non-exhaustive)	CCC 2026 progress report ^{cxxii}	CCC 2025 progress report ^{cxxiii}	Therefore what local plan policies are logically needed to 'mitigate climate change in line with the Climate Change Act'?
Overarching	<ul style="list-style-type: none"> Decrease total UK emissions by the following amount per year, excluding aviation and shipping : <ul style="list-style-type: none"> Decrease by 2.9% per year between 2014-22 Decrease by 5.6% per year between 2022-2030 Over 80% of the required emissions savings between 2025 and 2030 need to come from sectors other than electricity supply and the same is true all the way through from today to 2050^{cxxiv}, including 17% from buildings and 23% from surface transport <p>(whereas in 2008-24, 57% of all emissions reductions were achieved in the electricity supply sector^{cxxv})</p>	<ul style="list-style-type: none"> UK emissions continued to fall, but the pace of reduction remains insufficient for the 2030 target. <ul style="list-style-type: none"> Greenhouse-gas emissions fell by 1.8% in 2025, reaching 407 MtCO₂ e, and are now 50% below 1990 levels. The CCC considers it highly likely that the Fourth Carbon Budget will also be achieved. The Carbon Budget and Growth Delivery Plan achieves the legislated carbon budgets but misses the 2030 NDC. <ul style="list-style-type: none"> Credible plans cover 44% of the emissions reductions required for the 2030 NDC, with a further 15% covered by plans with some risks. 19% is covered by plans with significant risks, 4% by insufficient plans and 17% is not covered by the Government's plan. The pace of emissions reduction must accelerate substantially and broaden beyond electricity generation. <ul style="list-style-type: none"> Annual emissions reductions must be around 62% faster than the average achieved between 2022 and 2025. Future progress depends particularly on electrifying transport, buildings and industry. The pathway also relies heavily on engineered removals after 2030, but currently lacks sufficient detail on how these will be delivered. 	<ul style="list-style-type: none"> 2023–24 emissions fell by only 2.5%. 57% of cumulative emissions cuts since 2008 have come from the energy supply sector (electricity generation and distribution). This means around 80% of reductions needed by 2030, and all the way through to 2050, must now come from other sectors. The 2023–24 decline was largely driven by decarbonisation of the electricity supply (41%) and industry (30%), with emissions from electricity supply down 17%, and industry emissions falling by 9%. Insufficient national policies/plans exist for 14% of the required carbon reductions to hit the UK's 2030 target – especially the rollout of heat pumps and the development of carbon capture technology. Only 8 of 23 key indicators on climate mitigation are on track, with 4 slightly off track and a further 4 significantly off track. Four of the indicators that were 'off track' in the 2024 report are now marked as 'too early to say' in the 2025 report. A total of 16 indicators have clear benchmarks or targets to assess progress. Progress on adaptation remains limited. While some policy developments are evident, the UK's third adaptation plan (NAP3) has yet to deliver the step change in implementation highlighted as necessary in the 2023 progress report. 	<p>Design policies to accelerate the rate of carbon reduction overall beyond what is being achieved by national mechanisms – especially in areas noted to have nationally fallen behind what is necessary such as buildings, surface transport, and embodied carbon through following approaches:</p> <ul style="list-style-type: none"> Support the expansion of renewable electricity generation and the associated electricity network, storage and flexibility infrastructure needed to connect and make use of additional capacity. Require high energy and carbon performance from new buildings (beyond what national regulation already requires), where justified by appropriate evidence, while avoiding unnecessary duplication of matters addressed through national Building Regulations. Use spatial allocations to minimise car dependency and vehicle kilometres. Take a positive stance towards infrastructure for public transport, electric vehicles and hydrogen vehicles (although the latter is unlikely to emerge except for heavy logistics) Take a positive stance towards development of premises for specific industry or commercial sectors that are needed for the UK's low-carbon transition, such as research and manufacturing facilities for low-carbon technologies Take a positive stance towards proposals for changes to existing buildings that would improve their energy / carbon performance.

Topic	UK-wide changes needed to hit legislated carbon goals (non-exhaustive)	CCC 2026 progress report ^{cxvii}	CCC 2025 progress report ^{cxviii}	Therefore what local plan policies are logically needed to ‘mitigate climate change in line with the Climate Change Act’?
<p>Buildings, including:</p> <ul style="list-style-type: none"> • Rollout of low carbon heating and fabric improvements to existing buildings • Energy & carbon performance of new buildings 	<ul style="list-style-type: none"> • Dramatically increase the rollout of heat pumps to existing buildings, so that installations reach 600,000/year by 2028 and 100% of heat system sales are low carbon ones from 2033 • 3.3 million heat pumps into existing homes by 2030 and expand heat networks throughout 2020s • Hydrogen only plays a very limited role in the buildings sector trajectory of the 6th Carbon Budget devised in 2020. Its role dwindled further in 2023, as Government cancelled two village pilots and will decide in 2026 if hydrogen will have a role at all in heating^{cxviii}. • No installation of new gas boilers from 2033 • Government to provide clarity on whether they will continue with the proposed phase-out of new fossil fuel boiler installations from 2035 or make alternative plans to ensure that low-carbon heating reaches the installation rates required. 	<ul style="list-style-type: none"> • Building emissions fell in 2025, but this does not yet indicate structural decarbonisation of heating. <ul style="list-style-type: none"> ○ Buildings emissions fell by approximately 1.5%, despite colder winter months. ○ The CCC considers that high energy prices and reduced heating demand may have contributed to the fall. • Growth in heat-pump installations in existing homes slowed sharply. <ul style="list-style-type: none"> ○ Current heat-pump deployment remains too low to materially affect sector emissions (Fewer than 2% of UK homes) ○ Only saw 7% increase in 2025 compared with growth of 56% in 2024. • The electricity-to-gas ratio remains a major barrier to low-carbon heating.. <ul style="list-style-type: none"> ○ Although some policy costs have been removed, electricity remained around 4.3 times the price of gas in the second quarter of 2026. ○ The CCC assess this indicator as significantly off track. • There has been positive progress on low-carbon heating in new buildings despite delayed implementation. <ul style="list-style-type: none"> ○ Future Homes Standard and Future Buildings Standard are due to come into force in March 2027, subject to a 12-month transition period. • Plans for existing low-income, public, and commercial buildings remain insufficient. The Public Sector Decarbonisation Scheme is ending, and there is no clear mechanism to incentivise low-carbon heating in public estates and commercial buildings. 	<ul style="list-style-type: none"> • Emissions from homes rose by 3% in 2023–24, reversing earlier gains. Action in this sector is critical, as buildings must deliver around 20% of total carbon savings needed^{cxix} in 2025-2030, or 16% of the savings needed^{cxix} to the end of the 6th Carbon Budget (2037). • Heat pump uptake increased but is well below target: <ul style="list-style-type: none"> ○ Installations rose 56% in 2024, driven by government support, including 23,000 via the Boiler Upgrade Scheme (up 83% from 2023). ○ Yet, only ~1% of UK homes have a heat pump – one of the lowest shares in Europe. ○ Installation rates need to accelerate significantly to stay on track for 2030. ○ However: Planning barriers have been eased, following CCC recommendations, including removal of the 1m boundary rule. • Energy pricing remains a key barrier. The ratio of residential electricity to gas prices is still significantly off track, harming the competitiveness of electrified heat compared to gas boilers. • Recent new-build homes do not align with goals: <ul style="list-style-type: none"> ○ 71% of new homes still had fossil fuel boilers. ○ Only 14% had a heat pump, far short of where deployment needs to be. • The delay to the Future Homes Standard to 2027 risks locking in emissions from gas boilers in up to 210,000 new homes per year in 2025-2027. Compared to a 2025 introduction this means: <ul style="list-style-type: none"> ○ +11 megatonnes of emissions ○ £3.2bn of retrofit costs to retrofit those homes with heat pumps before 2050, to hit net zero. • The new government’s non-committal to the 2035 ban on replacement gas boilers puts net zero 2050 at risk, as typical boiler life is 15 years. <ul style="list-style-type: none"> ○ Retrofit progress has been insufficient. 	<ul style="list-style-type: none"> • Take a permissive stance towards proposals for existing buildings that would improve their energy efficiency and carbon emissions, including where these changes are visible from the street, such as: <ul style="list-style-type: none"> ○ Improvements to fabric, including external insulation, upgraded windows, and roof replacements ○ Heat pump installation, including on front and side elevations, subject to an acceptable noise impact on neighbours ○ Proposed connections to heat networks (subject to the network being gas-free) ○ Where the proposal relates to a legally protected heritage asset such as a listed building or conservation area, work constructively with the applicant to identify ways that clean heat and improved fabric can be implemented in a way whose impacts would be acceptable • Avoid new builds adding to the problem, by devising policy for new buildings that would require them to be gas-free and use either a heat pump or other equally efficient low-carbon heat <ul style="list-style-type: none"> ○ Take a positive stance towards proposals for business premises that manufacture, sell, install or maintain heat pumps or fabric retrofit products, including training facilities

Topic	UK-wide changes needed to hit legislated carbon goals (non-exhaustive)	CCC 2026 progress report ^{cxxxi}	CCC 2025 progress report ^{cxxxi}	Therefore what local plan policies are logically needed to ‘mitigate climate change in line with the Climate Change Act’?
Electricity supply including renewable energy generation, networks, storage	<ul style="list-style-type: none"> • Increase in renewable energy generation capacity to reach 60% of total grid electricity generation by 2030 and 80% by 2050, while catering for a doubling in the amount of electricity demand • Solar: increase generation by 3 GW per year on average (nationwide) • Wind (onshore & offshore combined): 3 GW of new generation per year, and repower older sites 	<ul style="list-style-type: none"> • Offshore-wind production has improved significantly, but additional capacity and faster delivery are still required: <ul style="list-style-type: none"> ○ approximately 0.7 GW of offshore-wind capacity was added in 2025, taking total capacity to 16.6 GW. ○ Onshore-wind deployment remains well below the rate required. • Progress in expanding low-carbon electricity supply is broadly positive, although electricity-supply emissions did not fall in 2025. <ul style="list-style-type: none"> ○ Coal generation fell to zero, but this was offset by a 5% increase in unabated gas generation, linked partly to nuclear outages, reduced electricity imports and network constraints. ○ CCC nevertheless considers electricity supply one of the sectors with the most credible policy coverage. • Solar deployment was strong but must accelerate further. <ul style="list-style-type: none"> ○ The Warm Homes Plan’s ambition to triple the number of homes with rooftop solar by 2030 would make a substantial contribution if delivered. • There has been progress on networks and storage, but grid constraints remain a material delivery risk. <ul style="list-style-type: none"> ○ 13% of potential wind generation was curtailed because of network and operational constraints. 	<ul style="list-style-type: none"> • Offshore and onshore wind deployment is broadly on track, supported by a strong pipeline, but this will need to continue accelerating: <ul style="list-style-type: none"> ○ Offshore wind capacity reached 16 GW in 2024, with an additional 15 GW contracted to 2029. To meet the lower end of the Government’s 2030 target (43 GW), the installation rate must triple to around 4.5 GW per year. ○ Onshore wind reached 16 GW in 2024, with contracted capacity expected to bring this to 20 GW by 2027. Meeting the 2030 goal of 27 GW will require annual additions of 1.8 GW, more than double the current pace. ○ Recent removal of planning barriers in the National Planning Policy Framework (2024) is a positive step. • Solar energy capacity is significantly off-track: <ul style="list-style-type: none"> ○ Installed solar capacity stands at 18 GW, with another 5 GW contracted by 2027. To reach 45 GW by 2030, deployment must rise to 4.5 GW per year - more than quadruple the average rate since 2020. ○ Current growth is well below target, despite 2024 seeing the largest annual increase in six years. • Overall progress on renewables improved in 2024, but delivery must accelerate sharply to more than double total operational capacity by 2030 in line with the government’s Clean Power Action Plan. 	<ul style="list-style-type: none"> • Take a positive stance towards the development of specific types of standalone renewable energy generation facilities, including by explicitly identifying areas that are suitable for this <ul style="list-style-type: none"> ○ This approach would need to take into account that onshore wind turbines are removed from national policy moratorium through the 2024 NPPF reforms. The NPPF 2026 retains and strengthens this position. • Require new development to include a certain proportion of renewable energy generation capacity – this can be expressed either as a % of energy use, or as an amount of generation capacity per footprint of building area, or as a percentage of the building’s carbon emissions reduction that must be delivered through this renewable energy <ul style="list-style-type: none"> ○ ... and in cases where new development cannot meet the required target on site, raise offset funds via developer contributions that can be ringfenced to deliver PV installation elsewhere in the Local Plan area ○ (See section of current report on how the Local Plan can take action) • Take a permissive stance towards proposals for the addition of solar panels to existing premises – including where these are visible from the street (subject to legal requirements around heritage protection as noted above in this table in the ‘overarching’ topic)

Topic	UK-wide changes needed to hit legislated carbon goals (non-exhaustive)	CCC 2026 progress report ^{cxxxiii}	CCC 2025 progress report ^{cxxxiv}	Therefore what local plan policies are logically needed to ‘mitigate climate change in line with the Climate Change Act’?
Embodied carbon (via manufacturing & construction)	<ul style="list-style-type: none"> Manufacturing & construction sector to reduce emissions 70% by 2035, from 2018 baseline By 2035, improve production resource efficiency to reduce annual emissions by 5 megatonnes, including by designing buildings to reduce material use, especially cement, lime, iron and steel More substitution of low embodied carbon materials for high embodied carbon ones Government should “Introduce mandatory disclosure of whole-life carbon in buildings ... as soon as possible”, then “a mandatory minimum whole-life carbon standard for ... buildings and infrastructure which strengthens over time, with differentiated targets by function and usage ... within the Future Homes Standard.” The 7th Carbon Budget also urges limits on whole-life carbon of products, which may include “rules [on] the embodied carbon of buildings”. 	<ul style="list-style-type: none"> Industry emissions fell sharply, but this was largely caused by closures and declining production rather than widespread decarbonisation. Industrial electrification remains significantly off track. <ul style="list-style-type: none"> Electricity remains more than four times the price of gas for many industrial users, and the CCC considers that recently announced electricity-price discounts will not be sufficient on their own to drive electrification. Capital support through the Industrial Energy Transformation Fund has ended without an equivalent replacement. A large proportion of planned industrial emissions reduction remains at risk. <ul style="list-style-type: none"> 56% of the industrial emissions reduction required for the 2030 NDC is being covered by policies with significant risks or insufficient plans. There has been project-level progress on carbon capture and storage, but uncertainty remains beyond the initial projects. Policy on resource efficiency and embodied carbon remains underdeveloped. The Government is consulting on a framework for low-carbon products, including voluntary product standards, but the Circular Economy Strategy has been delayed. 	<ul style="list-style-type: none"> Industrial electrification needs to increase: <ul style="list-style-type: none"> The electricity-to-gas price ratio remains a key barrier to progress. Currently, 28% of industrial energy use comes from electricity and this share is projected to grow. Energy efficiency in industry is improving. Energy demand per unit of GVA continues to decline, with GVA rising while overall energy use falls. A lack of progress on industrial carbon capture and storage technologies (CCS) makes the required savings from CCS in the current carbon budget period (2023-2027) “very unlikely” Necessary policies for resource efficiency are currently absent or insufficient. The planned “Carbon Border Adjustment Mechanism” (CBAM) regulating embodied carbon of imported goods has been confirmed to start in January 2027 including for some common construction materials (steel, cement, aluminium) and will be operate alongside the UK Emissions Trading Scheme (ETS) (which in turn will be linked to the European ETS), but insufficient detail was available to score the impact of this measure Progress on waste policy is mixed: Reforms on packaging and collection are progressing, including the introduction of simpler recycling rules in England and the Extended Producer Responsibility for Packaging (pEPR) across the UK. However, there are risks that these changes may fall short of delivering expected emissions reductions. No progress is reported on the setting of requirements for reporting, or limits, on whole-life carbon of construction (previous years’ recommendation reference “R2022-252”). This appears to imply no progress was made. 	<ul style="list-style-type: none"> Set ambitious policies specifying target limits for embodied carbon in new development – or at least for reporting of embodied carbon (as this would educate developers who generally are not aware of their buildings’ embodied carbon, and data from this reporting can form a baseline on which future target limits can be based). Such targets are typically expressed in kgCO₂e / m² floorspace, and can be based on existing industry guidance such as that of LETI or the UKNZCBS (see glossary). Set policies that seek to favour the reuse of existing buildings wherever suitable, feasible and viable, rather than demolition and rebuilding (albeit recognising that there will be cases where demolition is not always avoidable, e.g. where the existing building is not suitable for the necessary proposed use) Take a positive stance towards proposals for business premises that primarily support low-carbon construction industry (for example that manufacture, supply or install or maintain low-carbon construction products or services, including training facilities for low-carbon construction techniques)

Topic	UK-wide changes needed to hit legislated carbon goals (non-exhaustive)	CCC 2026 progress report ^{cxxxv}	CCC 2025 progress report ^{cxxxvi}	Therefore what local plan policies are logically needed to 'mitigate climate change in line with the Climate Change Act'?
Surface Transport	<ul style="list-style-type: none"> New cars/vans majority EV by 2030 and all EV by 2032 Reduce average car mileage by 6% by 2030, reaching 17% by 2050 (from pre-2020 level) Road investment should depend on evidence that this would not increase overall emissions, and should be accompanied by proportionate investment in EV charging, active & public transport^{cxxxvii} Electrify 55% of rail network by 2050 (requires 200km/year) Remove all diesel passenger trains from network by 2040 	<ul style="list-style-type: none"> Surface-transport emissions increased despite continued growth in electric-vehicle uptake, reflecting growth in car- and van-kilometres. <ul style="list-style-type: none"> Electric car uptake is broadly on track. Electric van uptake remains significantly off track. Public charge-point deployment is on track, but cost and accessibility remain barriers. <ul style="list-style-type: none"> Growth was strongest in ultra-rapid chargers and on the strategic road network, although deployment growth slowed compared with 2024 and provision remains geographically uneven. The Government proposes to facilitate cross-pavement charging through permitted-development rights, while the CCC calls for further action to reduce public-charging costs. The CCC considers that the Government should maintain the Zero Emission Vehicle Mandate and avoid further concessions. 	<ul style="list-style-type: none"> EV deployment is progressing, but overall impact remains small: <ul style="list-style-type: none"> Emission savings from EVs have doubled every two years since 2022. Around half of 2024's transport emission savings came from vehicles registered in the past two years. Despite this, EVs contributed savings equating to only 3% of total sector emissions in 2024. EV car sales - slightly off-track: Market share reached 19.6% in 2024, with further growth seen in early 2025. This is a promising sign, but still behind where it needs to be (22% in 2024; and 28-29% in 2025, for both the national government's Carbon Budget Delivery Plan and the CCC's balanced pathway to net zero). EV van sales – significantly off-track: Market share remained flat at 6.3% in 2024, short of the 10% ZEV mandate target. Early 2025 data show improvement, reaching 8.3% in Q1. Number of public EV charge points – on track: Charge point numbers grew by nearly 40% in 2024. However, rural areas remain underserved, despite higher potential for off-street charging. Large fleet operators deliver disproportionately high emissions savings as they are considerably ahead of market-wide average in EV uptake. Distance travelled by car - on track: however, travel demand trends returning to pre-pandemic levels. <ul style="list-style-type: none"> Car-kilometres per capita increased by ~1% in 2024. 	<ul style="list-style-type: none"> Set policies that require generous EV charging provision in development that has parking: <ul style="list-style-type: none"> Building Regulations Part S (in force since 2022) will largely take care of this for typical residential parking that is outdoors and directly associated with residences (whether new build or major refurbishment). However, Part S only requires very minimal EV charging provision in non-residential and 'covered' parking, and does not cover public parking. These are the gaps that local policy could most usefully aim to remedy by setting higher targets for the proportion of proposed spaces that must have EV charging, especially in parking that is likely to be used mostly by vans (e.g. logistics premises) or by residents without off-street parking. Part S also only requires a charging speed of 7kW, which could take circa 10 hours to fully charge a car - therefore local policy could seek higher speed chargers in development that proposes parking at short-stay locations such as shopping centres. Where the local planning authority is also the transport authority: Structure the approach to transport planning to reflect the CCC's point about not investing in roads without evidence that this would not increase emissions and balancing this with investment in active and public transport. This could for example be reflected in a developer contributions charging schedule, and as a criterion when development is required to mitigate impacts on the road network Take a positive stance towards proposals that are necessary to fully electrify the rail network, if these should arise.

			<ul style="list-style-type: none">○ Van-kilometres per capita rose by nearly 3%, contributing to rising emissions from light commercial vehicles.	
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Topic	UK-wide changes needed to hit legislated carbon goals (non-exhaustive)	CCC 2026 progress report ^{cxxxviii}	CCC 2025 progress report ^{cxxxix}	Therefore what local plan policies are logically needed to ‘mitigate climate change in line with the Climate Change Act’?
Land use	<p>Forest cover to reach 18% of land use by 2050 (up from 13% in 2020)</p> <p>The latest (7th) carbon budget report includes targets for forest cover:</p> <ul style="list-style-type: none"> • 13% by 2025-2030 • 15% by 2035 • 16% by 2040 • 19% by 2050 • 33,000 hectares/year new woodland creation by 2030 <p>Lowland peat rewetting:</p> <ul style="list-style-type: none"> • 10% by 2030 • 18% by 2035 • 31% by 2040 • 56% by 2050. 	<ul style="list-style-type: none"> • Emissions from agriculture and land use have not fallen significantly in recent years. • Peatland restoration has made strong progress and is currently on track. <ul style="list-style-type: none"> ○ Approximately 21,400 hectares were restored in 2025, the highest annual reported rate to date. ○ This represented an increase of 26% from the previous year and more than three times the annual level recorded in 2020. ○ Restoration exceeded the combined 2026 ambition of the four UK nations, with Scotland delivering around 70% of the total. • Woodland creation remains mixed and is off track at the UK level. <ul style="list-style-type: none"> ○ UK woodland-creation rates fell by 25% to approximately 15,600 hectares in 2024/25, largely because of reduced planting in Scotland. • Although England’s Land Use Framework provides an improved policy framework, its delivery mechanisms remain uncertain. 	<ul style="list-style-type: none"> • Tree planting and peatland restoration increased significantly in 2023/24: <ul style="list-style-type: none"> ○ Combined activity rose by 59% compared to the previous year. ○ But: Scotland accounted for 73% of the total trees planted in 2023/24. Recent reductions in funding for woodland creation in Scotland present a risk of reversing this trend. ○ Still requires substantial action to meet future targets. • Woodland creation – slightly off track despite a substantial increase in 2023/24. The rate (in new hectares/year) needs to increase by ~60% by 2030. • Peatland restoration remains slightly off track. Peatland restoration rates increased by 47% in 2023/24, but annual restoration rates are still below the combined ambition of the four governments. 	<ul style="list-style-type: none"> • Take a generally negative stance to proposals that would result in the destruction of woodland, or where the benefits of the development outweigh that loss, require their like-for-like replacement elsewhere in South Warwickshire (including plans and funding for long-term maintenance of that new woodland or that restored peatland) • Likewise take a stance that dissuades destruction or drainage of peatland.

To clarify: Please note that where the table above uses the term ‘take a positive stance’ towards certain types of proposal, this is not to say that all such proposals must always be permitted in all circumstances. Rather, it is an indication that the benefits of such proposals should be explicitly acknowledged as vital parts of the UK’s transition to net zero, which the NPPF instructs the planning system, including the Local Plan, to proactively support. As such, these benefits should be given a significant amount of material weight in the planning decision in proportion to their carbon savings impact and crucial role in that net zero transition, especially if being weighed up against more subjective concerns. Yet all such proposals of course remain subject to legal constraints such as biodiversity protections and heritage protections, and all application decisions are the result of a balance of policy priorities. Taking a ‘positive stance’ to such proposals would mean that the proposal’s compatibility with the net zero transition is a central consideration as opposed to a peripheral one, and only refusing such applications if they really do have an unavoidable detrimental impact on other vital policy priorities that are equally as objectively important as the national net zero transition.

To conclude: The 2025 and 2026 reports on national progress in reducing carbon emissions show that, although there has continued to be progress in reducing absolute emissions overall, much of the UK’s historic progress has been driven by the decarbonisation of electricity supply, particularly the phase-out of coal, while some more recent reductions have reflected reduced industrial production and high energy prices rather than sustained structural decarbonisation. Future emissions reductions will increasingly need to come from other sectors, and the pace of reduction will need to accelerate substantially to meet the UK’s 2030 target and remain on track for future legislated carbon budgets. In particular, progress remains too slow in areas relevant to local planning, including the

decarbonisation of buildings and uptake of heat pumps, surface transport, industrial electrification, and resource-efficient and lower-carbon construction. In these areas and overall, the reports find that, while credible policies are in place for some elements of the transition, **important areas remain subject to significant risks or insufficient policy and delivery mechanisms.**

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