



Swale Borough Council

Net Zero Policy Development

Output i: Literature Review (Executive Summary)

31 July 2024



Introduction

Bioregional and Edgars are appointed to provide an assessment of options available within the local planning system to address climate change, to inform local plan policy development within Swale Local Plan (SLP).

Local Planning Authorities (LPAs) have a legal duty to mitigate climate change (deliver carbon reductions) via the planning process¹. National Government planning policy² confirms that 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 between 2008 and 2050.

Our appointment to support Swale Borough Council (SBC) in this effort comprises of the following workstreams:

This appointment will produce three outputs (i – iii below):

1. Assessment of powers, duties and policy options:
 - i. Literature Review & position statement: Exploring the powers, duties, precedent policies, and links to SBC's existing climate commitments.
 - ii. Policy options & 'risk matrix': Devise a range of potential policy approaches to carbon reduction in buildings, and evaluate the relative merits of each of these.
2. Evidence and draft policies:
 - iii. Preparation of an evidence base to close any gaps in necessary evidence beyond what was already identified in the Literature Review (part 1.i, as above), as necessary to support SBC's chosen policy option (that will have been chosen as a result of stage 1 above) with draft recommended policy wording

As background work during Part 1 (above) there has also been a review of SBC's existing draft policy wording on climate and carbon. There is also engagement built into key points during Parts 1-2 to explain the findings to key policy decision-makers within SBC and/or to liaise with SBC's other relevant consultants where needed (e.g. viability).

This report comprises Output i of Part 1. Later, when any gaps in necessary evidence for the preferred policy are uncovered, this report may either be adapted into a future version to fulfil Part 2, or else Part 2 may be fulfilled by a separate report containing only the additional evidence identified to be necessary.

To aid Swale BC's decision-making for the new Local Plan, this piece of work explores:

- Defining 'net zero carbon' at different scales and how these fit together
- LPA duties to address carbon, as per the National Planning Policy Framework and Climate Change Act

- LPA powers to address carbon and energy granted by key pieces of national legislation, policy, and official guidance (and the limitations placed on how the LPA wields those powers)
- Existing and emerging precedents of Local Plans that wield powers regarding energy and carbon of new development
- How potential policies may be justified in terms of necessity, feasibility and viability.

¹ [Planning & Compulsory Purchase Act 2004, Section 19, 1\(A\).](#)

² [National Planning Policy Framework, paragraph 153, footnote 53.](#)



Glossary of terms and acronyms

BREDEM	Buildings Research Establishment Domestic Energy Model. A methodology for estimate calculations of the energy use and fuel requirements of a home based on its characteristics. BREDEM is the basis for SAP (see elsewhere in this glossary) but BREDEM retains more flexibility by allowing the user to tailor some assumptions made in the calculations to better reflect the project.
Carbon, or carbon emissions	Short for ‘carbon dioxide emissions’ but can also include several other gases with a climate-changing effect, that are emitted to the atmosphere from human activities (see ‘GHG’, below).
Carbon budget	Amount of greenhouse gas that can be emitted by an individual, organisation or geographic area. Usually set to reflect a ‘fair share’ of the global amount that can be emitted before reaching a level of atmospheric carbon that causes severely harmful climate change.
Carbon intensity/ carbon factors	A measure of how much carbon was emitted to produce and distribute each kWh of grid energy at a certain point in time. For electricity, this has been falling as coal-fired power stations have been phased out over years. It also varies on an hourly basis: at times of high renewable energy generation, the carbon intensity is lower than at points where gas-fired electricity dominates the generation mix.
CIBSE	Chartered Institution of Building Services Engineers.
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. Often shortened to ‘carbon’.
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.
EUI	Energy use intensity, a measure of how much energy a building uses per square metre of floor. Expressed in kilowatt-hours per square metre of floor space per year.
GHG	Greenhouse gas (CO ₂ and several other gases: methane, nitrogen dioxide, and fluorinated refrigerant gases). Often collectively referred to as ‘carbon’; see above.
LETI	Low Energy Transformation Initiative. A coalition of built environment professionals working to establish and achieve the energy performance needed for net zero.
MVHR	Mechanical Ventilation with Heat Recovery
NPPF	National Planning Policy Framework. A central government document laying out how the planning system should function, including plan-making and decisions.

Part L	Building regulations section that sets basic legal requirements regarding buildings’ energy and CO ₂ .
Performance gap	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 predict a building’s energy use. It is used to design buildings that seek Passivhaus certification but can be used without pursuing certification.
Regulated energy or carbon	Carbon emissions associated with energy uses that are ‘regulated’ by Building Regulations Part L. This covers permanent energy uses in the building, (space heating, space cooling hot water, fixed lighting, ventilation, fans, and pumps).
RIBA	Royal Institute of British Architects.
SAP	Standard Assessment Procedure – the national calculation method for residential buildings’ energy and carbon, used to satisfy building regulations Part L. SAP is based on BREDEM model, but with fixed assumptions and thus less flexibility.
SBEM	Simplified Buildings Energy Model – the national calculation method for non-residential buildings’ energy and carbon, used to satisfy building regulations Part L.
Sequestration	Removal and storage of carbon dioxide (or other GHGs) so that it cannot perform its harmful climate-changing role in the atmosphere. Currently only achieved by trees/plants and soil. May be achieved by technologies in future.
Space heat demand	Amount of energy needed to heat a building to a comfortable temperature. Expressed in in kilowatt-hours per square metre of floor space per year.
TER	Target Emission Rate – a limit set by Part L of building regulations on CO ₂ emissions per square metre of floor, from regulated energy use in the building.
TPER	Target Primary Energy Rate – limit set by Part L of building regulations on ‘primary energy’ use per square metre of floor. Unlike metered energy, ‘primary energy’ takes into account energy lost to inefficiencies during power generation and distribution.
TFEE	Target Fabric Energy Efficiency – limit on space heat energy demand per square metre of floor, set by Part L of building regulations. Based only on fabric; not affected by building services like heating system, lighting, ventilation ⁱ .
TM54,	A method to accurately calculate buildings’ energy use. Devised by CIBSE (as above).
Unregulated energy or carbon	Carbon associated with energy use in a building or development but which is not covered by Building Regulations Part L. Includes plug-in appliances, lifts, escalators, external lighting, and any other use not covered by Part L.



Contents

Introduction..... 2

Glossary of terms and acronyms..... 3

Executive summary 5

Defining net zero carbon buildings5

About the local plan and what it does6

Why must the Swale Local Plan take action towards net zero carbon?7

How can the Swale Local Plan take action towards net zero carbon?8

How have local plans used their powers towards carbon reductions?9

References and endnotes..... 11

Executive summary

Defining net zero carbon buildings

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), on an annual basis:

- **Use of different types of fuels and grid energy at the building:** These cause carbon emissions.
- **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.
- **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 burned in power stations to supply grid energy to others.
- **Embodied carbon:** Carbon emitted to produce/transport and use the construction materials.

The ‘National Calculation Methodologies’ for buildings’ energy use and carbon emissions are called **SAP (for homes)** or **SBEM (for other buildings)**. These are used in the **Building Regulations Part L**, which sets limits per m² per year for carbon, heat demand, and ‘primary energy’³ use. However:

- 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 energy (or total emissions, depending on the carbon intensity of different fuels used).
- 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).

Thus a ‘net zero carbon’ building defined by the Building Regulations is not actually net zero carbon. Updates to Building Regulations Part L, SAP and SBEM are due in 2025 (the ‘Future Homes Standard’ and ‘Future Buildings Standard’). However, even the 2025 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 energy and carbon targets that vary by the building’s form (shape and size), not the absolute targets that are needed for UK carbon budgets. For example, we needⁱⁱⁱ new homes’ space heat demand to be ≤15-20kWh/m²/year. Space heat demand is affected by building form not just insulation and airtightness, but Part L doesn’t require better insulation and glazing to counter an inefficient form.

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, they require the use of *accurate* energy calculation methods during design, specifically PHPP or TM54 ([glossary](#)). PHPP and TM54 account for total energy, not just the share that is ‘regulated’ by Part L.

Building on the work by LETI and UKGBC, a unified industry definition is in the works by a [coalition](#) that includes LETI and UKGBC alongside BRE, RIBA, RICS, and other standard-setting professional organisations in the built environment sector. This “UK Net Zero Carbon Buildings Standard” will align with science-based trajectories needed for net zero by 2050 and a 78% reduction by 2035 in the UK. A draft version for beta testing is anticipated in Winter 2023/24; timelines for finalisation are unknown.

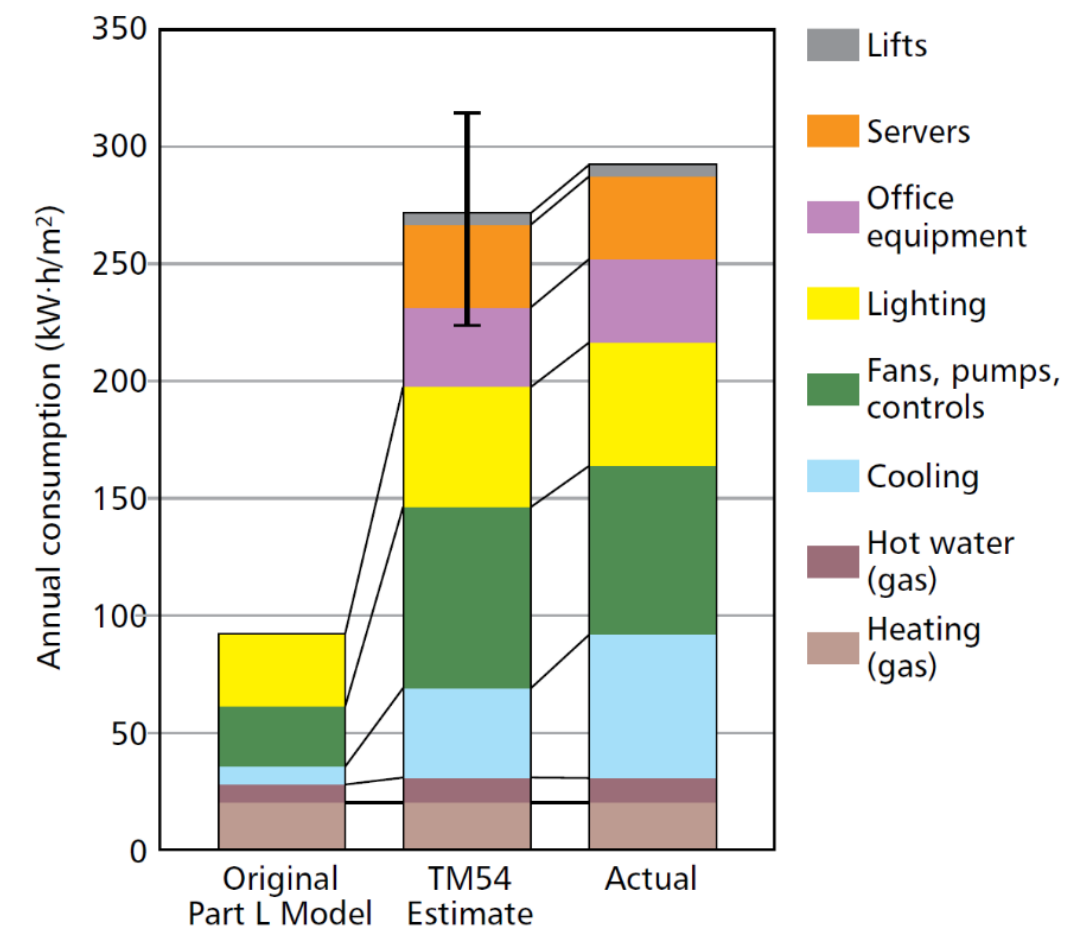


Figure 1: CIBSE graph that reveals the inaccuracies of Part L SBEM prediction of energy use, compared to a prediction using the CIBSE TM54 method, and the building's actual measured energy use in operation. This is for an office building.

be put into a 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.

³ ‘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



About the local plan 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 prescribed partners and organisations.

The 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. It includes policies that 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 it can set certain conditions around changes to existing buildings or other land uses.

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 standards cover a wide range of technical topics including quality of materials, structural design, drainage, contaminants, fire and electrical safety, acoustics, ventilation, sanitation, water efficiency, overheating, electric vehicle charging, as well as energy efficiency/carbon emissions. Building Regulations apply not just to new developments, but also to extensions and alterations.

The local plan must be in accordance with the National Planning Policy Framework (NPPF), which is set by central government (most recently in December 2023). The NPPF sets out principles and aims that the planning system should aim to fulfil. The NPPF establishes that the overarching purpose of the planning system is “the achievement of sustainable development”. 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 and becomes part of the development plan. 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 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 NPPF and other relevant statements of national policy.

Some decisions relevant to climate and carbon are out of scope for the local plan. For example, large infrastructure projects – such as major road/rail, major renewable energy and airports – are considered ‘nationally significant’. Such projects require national rather than local consent. The local plan’s influence on existing buildings and other existing land uses is also limited, as the local plan cannot force changes to existing buildings where none have been proposed, and there are many typical changes to existing buildings or land use that do not require planning permission. Some changes to existing land or buildings can occur via permitted development in some cases, without the need for planning permission.

About 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
- **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 national Planning Inspectorate** – who will check it is in accordance with the National Planning Policy Framework, including that it proactively enables ‘sustainable’ development.

About Building Regulations Part L

- **Sets basic targets for new builds’ energy and carbon:**
 - Fabric Energy Efficiency in kWh/m²/year – this is a measure of the building’s need for space heating
 - 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. However, these do not accurately reflect actual performance.
- **New requirement for ‘energy forecasting’ in non-residential buildings** – which can use CIBSE TM54 method

Why must the Swale Local Plan 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}. It therefore cannot just mean ‘minimising the additional emissions from new development’ – rather it requires an overall reduction in the net amount of emissions from all activities in Swale. 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** 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 a low carbon future
- 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 these:

- **Net zero carbon by 2050 (based on a 1990 baseline)**
- **Steeply reducing ‘carbon budgets’ for each five-year period** up to 2050 (see Figure 2, to right)

The budgets place a limit on the amount of carbon that can be emitted before the 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 2C 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 1C rise and is on track for a 3-4C 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 the 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 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).

Committee on Climate Change analysis^{vii} shows that **national government plans are insufficient to deliver all these necessary changes**. The government’s Net Zero Strategy was (2022) found unlawful^{viii} as it failed to deliver on the Climate Change Act obligation to produce sufficiently detailed policies that show how the carbon budgets will be met. Therefore, in order to mitigate climate change in line with the

Climate Change Act, the local plan will need to act ahead of national government action, using the powers available to local planning authorities.

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 (2021)** states the 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.

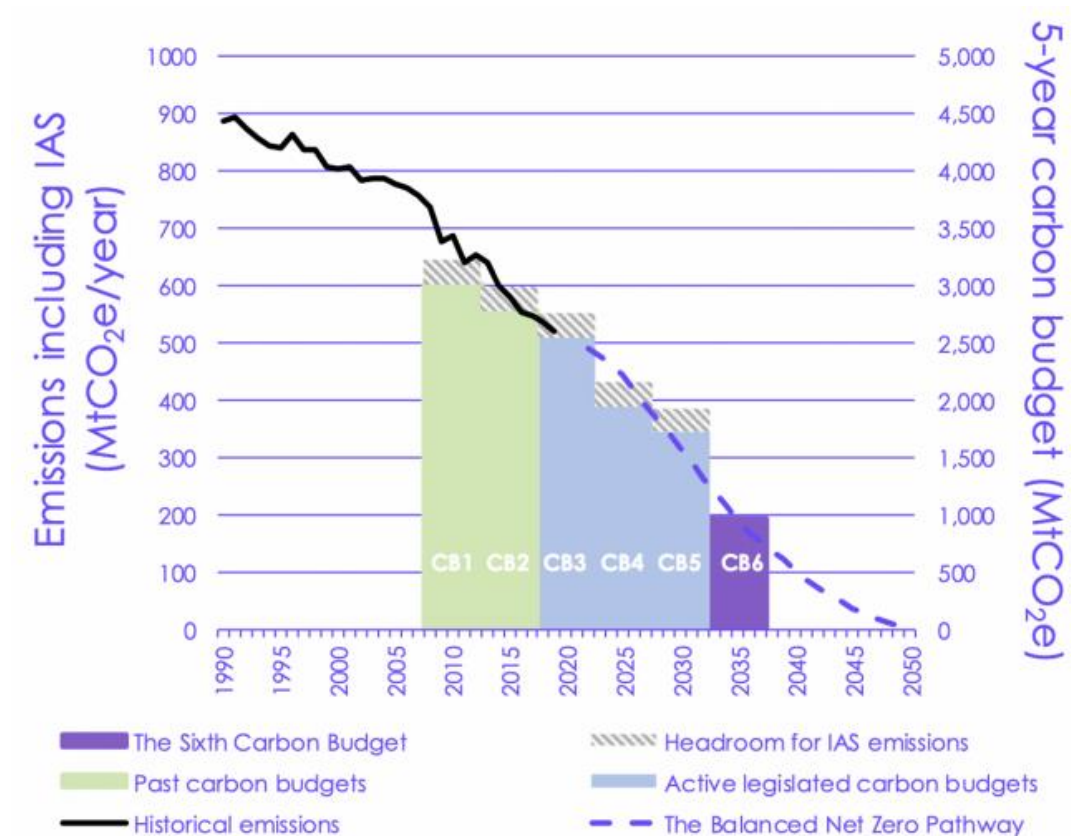


Figure 2: UK legislated carbon budgets under the Climate Change Act. From Committee on Climate Change (2020), *The Sixth Carbon Budget: The UK's Path to Net Zero*. “IAS” = international aviation & shipping.



How can the Swale Local Plan 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 large-scale renewable energy generation and distribution
- [Natural environment](#) – protecting and expanding landscape features that capture or store carbon
- [Using the planning permission process to raise funds](#) for the measures above where lacking.

In this report, we focus on planning powers towards net zero carbon in the *buildings* and *energy* sectors.

[The Planning and Energy Act 2008](#) gives the local plan the power to set 'reasonable requirements' for:

- [Energy efficiency standards](#) higher than those set by building regulations
- [Renewable or low-carbon sources](#) to supply a proportion of energy used at the development.

The Act defines 'energy efficiency standards' as ones that are set out or endorsed by the Secretary of State. This may imply only the methods used in Part L of Building Regulations (SAP or SBEM), despite their aforementioned shortcomings. However, the new non-residential Part L 2021 endorses the more accurate TM54 method for the purpose of energy forecasting (a new requirement to give the building owner a prediction of total metered energy use). Thus, it appears the local plan could require energy efficiency standards based on TM54, which accounts for *total* energy use, not just regulated ([glossary](#)).

The Act does not define 'reasonable requirement', nor does it define the term 'energy used at the development'. It therefore appears to empower the local plan to set requirements for renewable energy to meet a proportion of the new building's *total* energy, not just 'regulated' energy ([glossary](#)). In that case a method would need to be chosen to account for that unregulated energy, ideally in a way that works alongside the calculation for regulated energy. Several methods could be used: TM54 (as above), BREDEM, and SAP Appendix L. PHPP could also be used but may not be compatible with SAP/SBEM.

[The Town & Country Planning Act 1990](#) gives two key powers often used for carbon reductions:

- [Section 106](#)^{ix} enables the local plan to require payments from new development. These must be reasonable, proportional to the development, and necessary to make the development acceptable. This has sometimes been used as a mechanism to offset new developments' carbon.
- [Section 61](#)^x enables creation of Local Development Orders. This is a tool used to achieve specific objectives by granting certain types of development fast-track planning permission (or at least certainty of permission). These have been used to promote renewable and low-carbon energy.

[The National Planning Policy Framework](#) reaffirms ways the local plan can mitigate climate change:

- **Paragraph 159b:** "New development should be planned for in ways that ... help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards".
- **Paragraph 160a-b:** "Plans should ... provide a positive strategy for energy from [renewable and low carbon] sources ... [and] consider identifying suitable areas for [these] and supporting infrastructure".
- **Paragraph 196:** "Plans should set out a positive strategy for the conservation and enjoyment of the historic environment, including ... putting [heritage assets] to viable uses consistent with their conservation".

Local plan powers for net zero carbon development

- **Energy & Planning Act 2008:** The local plan can require new builds to provide / use renewable energy and improved energy efficiency.
- **National Planning Policy Framework (2023)**
 - Policies should 'reflect national technical standards' – this may influence the performance metrics or calculation methods that can be used in local policy around energy efficiency & renewables (*albeit some local plans have successfully adopted alternative metrics, justified by their effectiveness in delivering on national carbon reduction targets – see precedents*)
 - It is appropriate to seek carbon reductions through new development's location, orientation and design, and to plan for renewable energy
- **Building Regulations (Part L 2021) 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)
 - Make 'local development orders' to fast-track desirable development e.g. renewable energy
- **A new Written Ministerial Statement on 13th December 2023** attempts to limit energy efficiency policies to be expressed as a percentage reduction on the Building Regulations Target Emission Rate. However, this is facing an ongoing legal challenge that it would inhibit local plans' ability to meet their climate mitigation duty.



How have local plans used their powers towards carbon reductions?

Most adopted local plan example policies on net zero carbon buildings have been based on metrics from Building Regulations, taking the following approach:

- A minimum reduction in carbon emissions compared to the standard sent 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.

However, newer pioneering examples are taking a potentially more effective route of energy use limits and/or 100% renewable energy. Examples are given below, outlining their differences:

Some example policies require energy efficiency to deliver a certain amount of the carbon savings, as this is the first step of the ‘energy hierarchy’ (list of measures in order of most to least preferred):

- [London Plan 2021](#): Energy efficiency measures should deliver the following minimum improvements in the carbon emissions rate (within the overall minimum 35% on-site):
 - Residential: 10%
 - Non-residential: 15%.

These levels were set to reflect the technically feasible energy efficiency improvements identified by analysing the Building Regulations Part L figures of recent development.

Some examples 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 \(2019\)](#): Renewable energy to contribute a further 20% reduction in the carbon emissions rate, after an initial 19% reduction has been made by other measures.
- [Solihull \(Emerging\)](#): Provide at least 15% of energy from renewable or low carbon sources.
- [West Berkshire \(2012\)](#): Renewable/low carbon energy to achieve net zero total carbon emissions (regulated and unregulated) from 2016 for homes, or 2019 for other buildings, unless demonstrated unviable/ unfeasible. We note that this requirement was upheld by the planning inspector at appeal in 2022, although other parts of the same policy that were based on the now-withdrawn Code for Sustainable Homes were deemed inapplicable.

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 2023 this national value has risen to £378/tCO₂). By contrast, some other plans have used a per-home payment (see Central Lincolnshire in this table) with lower and upper bounds reflecting the amounts of funding that would be needed to install renewable energy sufficient to offset the typical new building's emissions.

However, there is a vanguard of newer pioneering local plans are moving away from Building Regulations metrics and taking a more effective route of energy use limits and/or 100% renewable energy. Examples are given in the table here, outlining their differences and comparing them to the London Plan 2021 which is based on Building Regulations as previously noted.

Residential new-build requirement	London Plan (2021)	Milton Keynes (2019)	Central Lincolnshire (2023)	B&NES and Cornwall (2023)
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)	
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
Energy use limits	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)
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
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 (BANES) 10p/kWh (Cornwall)
Years’ worth of emissions to be offset	30	1	n/a	30

This table shows that some recent successfully adopted local plans now go well beyond the Building Regulations approach, and instead require absolute energy use limits and on-site renewable energy generation capacity to reach net zero carbon.



These policies are inspired by LETI and UKGBC net zero carbon buildings definitions (previously explained) and are considered a more effective and reliable approach to energy and carbon reduction as opposed to policy approaches that rely on an improvement relative to the Part L regulated baseline. Key examples include:

- **Bath & North East Somerset (B&NES) Council and Cornwall Council (2023):**
 - 40 kWh/m²/year (EUI) and 30 kWh/m²/year (space heating demand) limits.
 - On-site renewable energy generation requirement to match total energy use.
- **Central Lincolnshire Council (2023):**
 - Residential: 35 kWh/m²/year (EUI) and 15-20 kWh/m²/year (space heating demand) limits.
 - Non-residential: 70 kWh/m²/year (EUI) and 15-20 kWh/m²/year (space heating demand).
 - Residential and non-residential development: on-site renewable energy generation to at least match total energy demand.

There are also several other local authorities that aim to follow this net zero carbon development approach by not 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
- Bristol City Council Emerging Local Plan
- London Borough of Merton Emerging Local Plan
- Leeds City Council Emerging Local Plan
- Winchester Emerging Local Plan
- Uttlesford Emerging Local Plan
- South Oxfordshire & Vale of the White Horse Emerging Joint Local Plan 2041

Common features of these emerging pioneering plans include performance targets identified by the Committee on Climate Change to be necessary in new builds to help deliver the UK's legislated carbon budgets:

- **Limiting space heat demand to 15-20kWh/m²/year** (sometimes up to 30kWh where this is found to be more cost-effective).
- **Limiting 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 ([glossary](#)), not the methods used in Building Regulations.

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.

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, 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 and 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 linked to grid carbon reductions.

It must be noted that not all plans following the energy-based net zero approach are receiving positive reactions from the Inspectorate at examination. While Cornwall, B&NES and Central Lincolnshire have now adopted such policies receiving positive feedback in the Inspector's examination report, by contrast West Oxfordshire (Salt Cross Area Action Plan) and Lancaster City Council were instructed by their Inspector to remove similar policy requirements.

In the case of the West Oxfordshire Salt Cross AAP, the Inspector removed the absolute energy requirements to instead suggest them 'as guidelines only'. The Inspectors' main reasoning for this decision was their view that the proposed local energy targets (in Policy 2 – Net Zero Carbon Development) were not sufficiently justified by evidence and also conflicted with expressions of national policy (in the form of a Written Ministerial Statement of 2015 which had placed a restriction on how far local energy performance standards could go – a limit which was in fact overtaken by national building regulations Part L 2021). The Salt Cross case was successfully challenged by a third-party organisation focusing on that interpretation of the policy's soundness. The case was heard in the High Court in November 2023. On 20th February 2024 a decision was passed down that the Planning Inspectors "erred in law in their approach by finding that Policy 2 of the AAP was inconsistent with the WMS[2015]" because the limit placed by the WMS[2015] was overtaken by the introduction of Part L 2021 and had been contradicted by subsequent expressions of national policy^{xi}

A decision on whether the Salt Cross AAP can proceed to re-examination or adoption is likely to follow in coming months. But if re-examined, it will now face a new hurdle: the Written Ministerial Statement of 13th December 2023. The WMS2023, unlike the WMS2015, does not limit *how far* a policy can go in requiring carbon reductions, but instead prescribes a specific (and in our view, highly inappropriate) carbon metric to be used to express any energy efficiency policy that goes beyond building regulations. However, any future argument to overcome the new WMS may now be bolstered by the comment in that High Court decision that a WMS "cannot restrict the legal powers of the LPA under the 2008 [Planning & Energy] Act"^{xii}. A further indication in favour of Salt Cross is some pre-action legal correspondence (as yet unpublished) between the Secretary of State and the legal representative of a coalition of local authorities, who had posited that the WMS2023 would be unlawful if it sought to restrict the exercise of local planning authorities' primary powers stemming from the Energy & Planning Act 2008. The Secretary of State's response was that the WMS2023 did not intend to do that and that it is only a *material consideration* to be taken into account in the planning system, not a fixed constraint on how policy is expressed, despite the forceful language within the WMS.



References and endnotes

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- ⁱⁱⁱ Committee on Climate Change (2019), *UK Housing: Fit for the future?* <https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/>
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- ^{xi} Local Government Chronicle (21st February 2024), *High court victory over district's net zero plan*. <https://www.lgcplus.com/services/regeneration-and-planning/high-court-victory-over-districts-net-zero-plan-21-02-2024/>
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