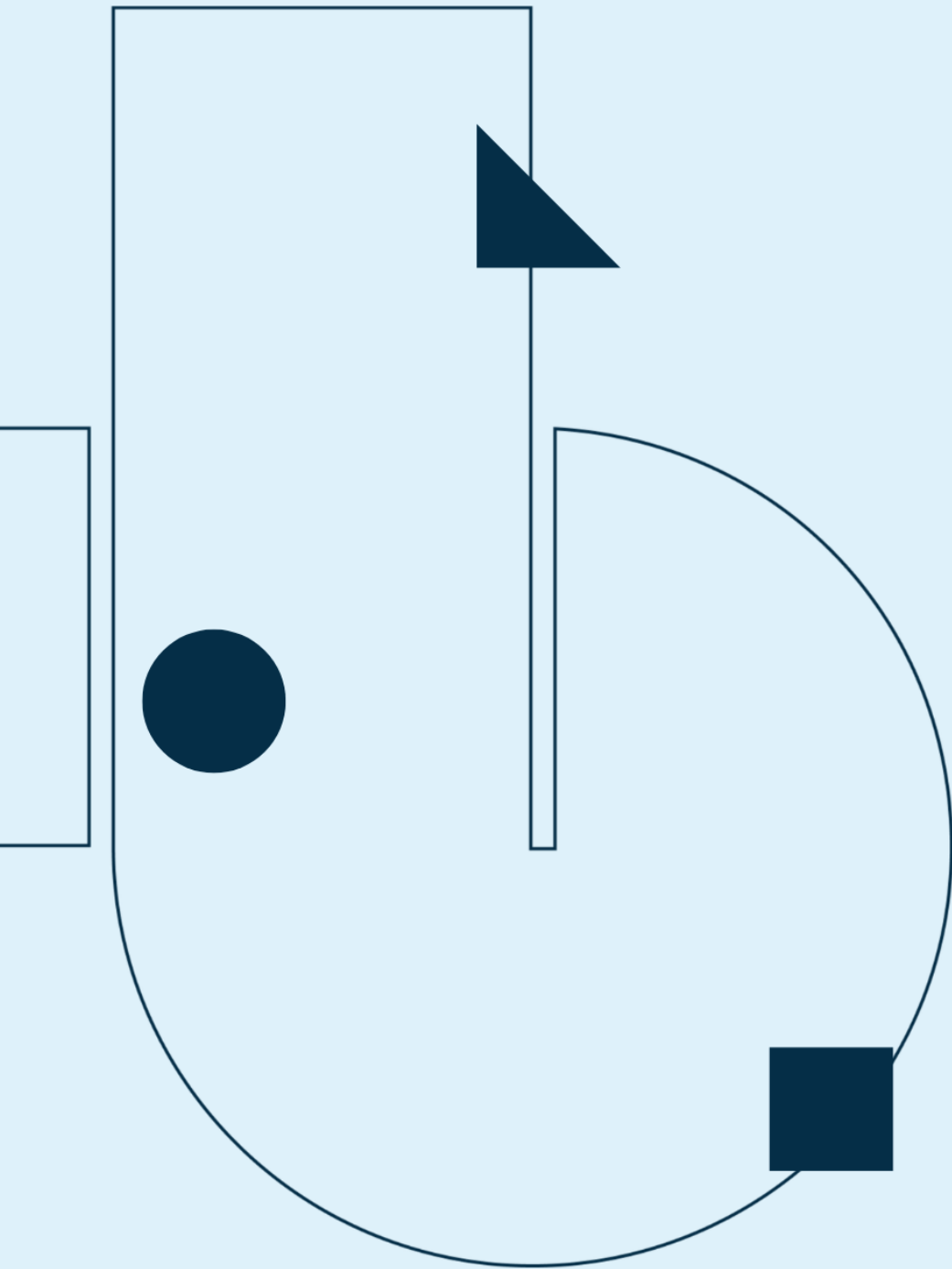




Gloucestershire Net Zero Carbon Policy Evidence Base

Work Package 1b(i): Policy matrix for the
Strategic and Local Plan

August 2026

Version 2

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1. Introduction

Bioregional (in collaboration with Etude) is appointed by Climate Leadership Gloucestershire to provide an assessment of options available within the Local Plan system to address climate change in three local plan areas:

- The Strategic and Local Plan (SLP), covering Cheltenham Borough Council, Gloucester City Council and Tewkesbury Borough Council;
- Forest of Dean District Council (FoDDC); and
- Stroud District Council (SDC).

This document is as part of the evidence base to inform the choice of policy to be pursued regarding new buildings. Our current appointment to support the preparation of these local plans comprises two Work Packages:

1. Identifying the basis for the level of climate action in the local plans.
 - a. A literature review of the obligations of powers of local plans with regards to net zero carbon policies, and their powers to fulfil those obligations.
 - b. Policy review and recommendations, which involves a policy matrix on different options.
2. Feasibility of operational net zero carbon policy to support policy justification (through energy modelling work being undertaken by Etude).

This document is the output of Work Package 1b. In this document, we will:

- Briefly recap the Literature Review’s headlines on climate duties and powers;
- Identify a range of policy options on energy/ carbon in new homes, from most to least ambitious; and
- Evaluate those policy options against a range of criteria, giving a broad-brush ‘score’ for how much risk is involved under each criterion for each policy option.; and

The criteria against which the policy options are evaluated represent a range of priority issues that are important both for the local plan’s legal duties and national planning policy expectations, and also for the range of stakeholders that will be affected by the impact of the local plan. These are expressed as ‘risks’, i.e. risks of not meeting certain duties, obligations or commitments, and risks of negative impact on relevant stakeholders or resources.

2. Literature Review recap

2.1 Climate mitigation imperatives and powers

The local plan has a legal duty to mitigate climate change (deliver carbon reductions), established in the Planning & Compulsory Purchase Act 2004ⁱ. National planning policy (the NPPFⁱⁱ – both the 2024 version and the new 2026 version) requires this mitigation to be “in line with the objectives and provisions of the Climate Change Act 2008”.

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. Analysis by the Climate Change Committee sets those carbon budgets and reveals the changes needed in order to meet them. Recent analysis, cited in our previous Literature Review, reveals that:

- Current and incoming Building Regulations Part L do not deliver the space heat demand needed for the UK carbon budgets (15-20kWh/m²/year) nor make homes zero carbon.
- Building Regulations calculations (SAP and SBEM) for energy and carbon are inaccurate (severely underestimating these) and only cover ~25-75% a building’s energy use.
- Many other changes necessary for the carbon budgets are also off track – such as the rollout of heat pumps to existing buildings, and the rollout of solar PV generation. Against this backdrop, the incoming Building Regulations Part L addresses both low carbon heating and solar PV.

To ‘mitigate climate change in line with the Climate Change Act’ therefore, local plan policy would need to expedite these changes by going beyond national regulations.

The Planning & Energy Act 2008ⁱⁱⁱ grants the local plan the power to require renewable energy provision, and energy efficiency standards beyond those set by Building Regulations.

2.2 NPPF 2026

The revised NPPF was published on 17 August 2026. In a major departure from previous iterations of the NPPF, this version introduces a set of formally labelled national policies that are divided between ‘plan-making policies’ and ‘national decision-making policies’. Future Local Plans are expected to be more streamlined, with points covered by the national decision making policies not to be repeated in local plans. For the purposes of plan-making, NPPF 2026 will only apply to plans prepared under the new plan-making system¹. As the SLP is being prepared under the legacy route, the 2024 NPPF will continue to apply to the SLP for examination purposes. This means the NPPF’s plan-making policies will not be applicable to SLP.

For the purposes of decision-making however, the new NPPF’s ‘national decision-making policies’ apply from the day of its publication and are a material consideration to be read alongside the development plan. The key policy in this context is DM7, which states that planning decisions should not duplicate or extend controls imposed through separate regulatory regimes, except where there is a development plan policy applying optional technical standards, with reference to PM13. Annex A states that development plan policies, or parts of policies, that are materially inconsistent with national decision-making policies should be given very limited weight unless they have been examined and adopted against the NPPF 2026. However, because PM13 now expressly permits local energy-efficiency standards above current or proposed Building Regulations, policies on this topic should not be treated as wholly inconsistent with the NPPF 2026. The more specific question is whether EUI, space-heating-demand or energy-balance metrics create material inconsistency because PM13 says energy-efficiency standards should be expressed as a percentage uplift of Target Emissions Rate using SAP or another approved methodology. This is considered in further detail below. Moreover, there remains a question of whether the NPPF, as a non-statutory document, is legally able to unilaterally establish its own ability to outweigh the local development plan which has statutory status once adopted. Four of the national decision-making policies are particularly relevant:

- CC2: Mitigation of climate change,
- CC3: Adaptation to climate change,
- DP3: Key principles for well-designed places,
- DM7: Relationship with other regulatory regimes.

CC2 and CC3 continue to assert the need for proposals to mitigate climate change and support the transition to net zero. DP3 establishes eight principles of good design which development proposals are expected to fulfil, of which one is “Climate: Contribute to climate change mitigation and ... the transition to net zero, by using [various design choices] which conserve energy and other resources”. Local plan policies to improve buildings’ operational or embodied carbon performance would support all of these national decision-making provisions.

However, DM7 remains relevant because it 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’, including Building Regulations, except where there is a development plan policy in place applying optional technical standards. DM7 also refers to PM13, which now expressly permits local energy-efficiency standards that go beyond current or proposed Building Regulations where they are justified, robustly costed and shown not to adversely affect viability or deliverability. This reduces the level of risk compared with the draft NPPF published in 2025, where energy efficiency was not identified

¹ According to Annex A of NPPF 2026, plans not covered by the new plan-making system should follow the December 2024 NPPF. But for decision-making purposes, NPPF 2026 will still apply.

as a permitted area for local standards. Nevertheless, NPPF 2026 carries a similar risk to the now-superseded WMS 2023 in that, while local energy-efficiency standards are allowed, PM13 expects them to be expressed as a percentage uplift of TER using SAP or another approved methodology. Local Plan policies using EUI, space-heating-demand or energy-balance metrics may therefore still be challenged by developers, but the risk is more focused on the form of the metric rather than the principle of setting a local energy-efficiency standard.

2.3 The Written Ministerial Statement 2023 (WMS 2023)

As mentioned in the Literature Review, the 2023 Written Ministerial Statement on Local Energy Efficiency Standards has now been incorporated into, or superseded by, NPPF 2026. However, it

remains relevant as contextual material because the wording of PM13 carries forward a similar approach to energy-efficiency standards, including the expectation that any standards exceeding current or proposed Building Regulations should be supported by a clear and robustly costed rationale and expressed as a percentage uplift of a dwelling's Target Emissions Rate, calculated using SAP or another approved methodology.

The 2023 WMS and subsequent case law remain useful in understanding how national policy on local energy-efficiency standards should be treated. The Court of Appeal, in dealing with a judicial review against the WMS, reiterated that local plans can diverge from national policy if justified.

3. Policy opportunities in the current national legislative and policy context

3.1 Overview of the three proposed policy options for evaluation

In this report, we will review three broad policy options for operational and renewable energy, and three others for embodied carbon. We are considering operational and renewable energy together because there is an inherent relationship between the two: the more energy efficient a space is, the less renewable energy will be required to achieve net zero emissions (to be further elaborated on in Section 0). On the other hand, decisions on embodied carbon policies can be taken independently.

The three approaches for operational energy (efficiency and renewable energy) are:

- ORE1: Future Homes Standard (FHS)
- ORE2: Future Homes Standard, with renewable backstop
- ORE3: True Net Zero

And the approaches for embodied carbon are:

- EC1: Reporting
- EC2: Capping
- EC3: Improving

3.2 Basis for these approaches

Before going into the content of these policy approaches, it will be helpful to first outline the basis and our assumptions.

Firstly, these policy options are chosen based on the assumption that NPPF 2026 will be the main policy hurdle for the SLP to adopt ambitious net zero policies, for the reasons explained in Section 2.2. This departs from the approach other local authorities have adopted in the past – which was based on the WMS 2023.

The revised NPPF was published on 17 August 2026, and the WMS 2023 has been superseded. Hence we consider NPPF 2026 a more relevant consideration for the SLP than the WMS 2023. When considering the policy options, particular attention is given to DM7, which states that planning decisions should not duplicate or extend controls imposed by separate regulatory regimes, including Building Regulations Part L (2021 and 2026), except where there is a development plan policy applying optional technical standards. DM7 should be read alongside PM13, which permits local energy-efficiency standards that go beyond current or proposed Building Regulations where justified, robustly costed and shown not to adversely affect viability or

deliverability, but states that such standards should be expressed as a percentage uplift of a dwelling's TER, calculated using SAP or another approved methodology.

Secondly, these policy options revolve around the four themes of:

- Energy efficiency (reducing energy use while performing adequately for the user);
- Efficient, fossil-free and renewable energy supply;
- Carbon offsetting (or energy offsetting); and
- Embodied carbon.

This reflects the findings of our Literature Review, which identified these four themes as areas within the SLP's influence that will help the plan area and, by extension, the UK to achieve net zero by 2050.

These themes follow the energy hierarchy, plus embodied carbon. An effective policy for zero-carbon buildings would cover all of these themes, allowing none to be neglected or concealed. Planning powers and precedents elsewhere exist for all of them.

3.3 Policy options for operational and renewable energy

ORE1-3 are configured to achieve different definitions of “net zero carbon buildings”, but they vary in the scope of which carbon emissions must be reduced to zero, how this is accounted for, and the steps that must be taken in order to achieve it.

- ORE1 is to not go over the FHS, and thus unlikely to be challenged – both at examination stage and at the points of decision-making. However, it is least helpful for climate.
- ORE2 requires on-site renewable energy generation to match total energy use (both regulated and unregulated) – in a way compensating for the fact that FHS metrics control only regulated energy. It is a middle-ground option that is fairly low in policy risk.
- ORE3 is the most climate ambitious and will allow the SLP to meet its statutory duty to mitigate climate change in line with the Climate Change Act 2008. However, it may attract challenges as some may see it as diverging from the NPPF.

These three approaches contain various elements that will be presented further on in this document. It is important to note that one could conceive of other policy options beyond these three approaches – whether by mixing and matching different elements, or by considering a completely different set of elements.

The three options we explore here reflect professional judgement of the broad categories of approach that exist, based on existing precedents and industry best practice. Each approach could be adapted by the SLP to better align with the local authorities’ degree of climate commitment and appetite for risk.

Across these three options, we recommend secondary requirements to reduce the energy performance gap. These could include:

- Post-occupancy evaluation
- ‘Assured performance’ schemes
- On-site construction supervision
- Airtightness tests prior to completion.

3.4 On-site renewable energy requirements

As mentioned earlier, the inherent relationship between energy efficiency and renewable energy requirements is something the SLP team should consider.

The ER2 report demonstrates that in most home types it is feasible to meet a policy requirement to generate renewable energy on site equivalent to 100% of energy use if certain energy efficiency targets are met first. Without the energy efficiency targets, some building types’ energy use may be too high to match with PV within the available roof space, thus would have to be met partially through offsetting to reach ‘net zero’. This is part of the reason why industry bodies have proposed absolute energy use intensity targets in their ‘net zero carbon building’ definitions (emulated in ‘ORE3’ in this report).

If the policy requires onsite renewable generation to match 100% (or other %) of yearly energy use, then a decent energy efficiency target will reduce the cost of providing that renewable energy, as lower energy use means less renewables needed to match it. All policy options evaluated here require improved energy efficiency (to remedy national building regulations’ failure to meet UK carbon goals; see previous report).

Once the grid is fully decarbonised, there may be no need for each building to have 100% renewable energy provision on site in order to be ‘zero carbon in operation’ (if the building is 100% electrically powered). However, grid decarbonisation needs huge expansion of renewable energy generation – to which solar panels on buildings contribute by exporting to the grid at times when the building is not using all the energy it is generating. Having 100% renewable energy on site thus reduces the consumption of land for standalone renewables needed to decarbonise the grid.

On-site solar PV can also provide direct financial benefits for residents. Where generation is connected in a way that allows occupants to use the electricity produced by their dwelling or building, it can reduce the amount of electricity purchased from the grid and therefore reduce

running costs. Where generation exceeds on-site demand, surplus electricity may also be exported to the grid, providing an additional income stream through export payments. These benefits are particularly important in the context of energy affordability and fuel poverty, and strengthen the case for maximising viable on-site renewable generation alongside high energy-efficiency standards. This is explored further in the separate Energy Modelling Report.

The distributed generation of power on buildings, rather than in centralised plants, can also help with grid resilience and reducing grid upgrade costs as it puts the power source closer to where it is consumed, rather than being transmitted long-distance across the grid (where it also would undergo losses in transmission, meaning more power would need to be generated in order to deliver the same amount to the user).

Whether the required renewable energy for grid decarbonisation is delivered on the building by the developer, or by an energy company on greenfield, energy efficiency targets reduce the total necessary amount of investment in renewable energy capacity and grid capacity (whose cost would otherwise most likely be passed on to all energy consumers). On-site batteries can also reduce the need for grid upgrades, but do not affect a building’s ‘net zero’ status (as all definitions of ‘net zero building’ reflect the building’s exchange of power to/from the grid across the year).

Finally, energy efficiency improvements, renewables and batteries all contribute to regional and national energy security, reducing reliance on gas imports.

Another important point to note with regard to on-site renewable energy requirements is that the requirement for development to have renewable energy generation capacity to cover unregulated energy use is low-risk in policy terms in the context of the new NPPF decision-making policies. This is because unregulated energy, by definition, is not covered by Building Regulations, so a requirement as such is not an extension or duplication of those regulations.

Furthermore, renewable energy generation is promoted by other decision-making policies in NPPF 2026, most explicitly policy **W3 Renewable and low energy carbon energy development and electricity network**. Local authorities are expected to give substantial weight to renewable energy and low-carbon energy proposals. Hence an on-site renewable energy requirement cannot be seen as contradictory to national decision-making policies. It would also support policy DP3.

3.5 Policy options for embodied carbon

EC1 would require major development to report on embodied carbon but does not place any obligations on developers to limit the amount of embodied carbon in development. While this allows the local authorities to collect information for evaluation, this does not carry any intervention power.

EC2 would contain the same reporting requirement as EC1 with an additional cost-neutral limit for large-scale development. This limit is ‘cost-neutral’^{iv} because it reflects a ‘business-as-usual’ embodied carbon figure and does not impact viability. As it does not improve on business-as-usual, it does not represent best practice design. However, it does however ensure that applicants do not perform worse than average. This type of policy has been used in at least one adopted precedent (Bath and North East Somerset 2023.^v)

EC3 would align with industry best practice ([LETI embodied carbon targets](#)). It is only applicable to large-scale development (i.e. more than 50 dwellings or more than 5000 m² non-residential floorspace) so that major and minor development is not subject to a riskier viability level (as the cost of assessment itself can be more of an impact on smaller developments, compared to larger developments that can spread the cost of assessment across their larger sale value). A similar policy has been used in at least one adopted precedent (Uttlesford Local Plan^{vi}, adopted 2026).

A particularly important point to note about embodied carbon is that NPPF 2026 policy DM7 does not contain any restrictions on local embodied carbon targets, since embodied carbon is not covered by Building Regulations or any other regulatory regimes. Additionally, any embodied carbon policy would support the ‘climate’ principle in design, helping provide detail to NPPF decision-making DP3.

3.6 Summary of the approaches being evaluated in this report

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Table 2 summarise the approaches with regards to operational and renewable energy, and embodied carbon. These will be further elaborated on as we discuss the policy elements in each of these approaches in Section 5.

Table 1 Policy approaches to operational and renewable energy explored in this report.

Least ambitious

Most ambitious

ORE1: FHS	ORE2: FHS+ renewable backstop	ORE3: True Net Zero
Guideline absolute metric targets and reporting	Guideline absolute metric targets and reporting	Energy Use Intensity and space heating demand limits
Use of a quality assurance methodology to reduce the energy performance gap in practice		
	On-site renewable energy generation to match total energy use (regulated and unregulated)	On-site renewable energy generation to match total energy use (regulated and unregulated)
	Offset any shortfall in on-site renewable energy generation	Offset any shortfall in on-site renewable energy generation

Table 2 Policy approaches to embodied carbon explored in this report

Least ambitious

Most ambitious

EC1: Reporting only	EC2: Capping	EC3: Improving
Report on embodied carbon for major development	Report on embodied carbon for major development Cost neutral limit set for large-scale development	Report on embodied carbon for major development LETI embodied carbon targets set as limit for large-scale development

4. Planning policy context for the SLP

A Regulation 18 consultation was undertaken for the SLP in 2024. Chapter 4 of the consultation document is titled ‘Planning for climate change and nature recovery’. It acknowledges the need for the SLP to ‘support the transition to a low carbon future and to shape places in ways that contribute to radical reductions in greenhouse gas emissions’.

Meeting the challenges of climate change is part of the proposed Vision and Objectives of the SLP. According to paragraph 4.3 of the Regulation 18 consultation document, this will mean:

- i. Development is located in the most sustainable locations.
- ii. New homes and buildings are of high quality, low and zero carbon, and energy efficient whilst creating and storing their own energy.
- iii. Providing secure and local energy supplies; making the places people live and work rich in wildlife and close to valuable natural spaces.
- iv. Making it easier for people to move around in healthy ways to access services close to their homes without relying heavily on the private car.
- v. Protecting people and infrastructure from flooding.
- vi. Encouraging the reuse of existing resources, including the conversion of existing buildings.
- vii. Supporting renewable and low carbon energy and associated infrastructure.
- viii. Supporting measures to promote conservation, restoration and enhancement of priority habitats, protect and support the recovery of priority species, and support biodiversity improvements.

Policy recommendations in this report will be particularly relevant to points ii, iii and vii.

Further on in the document, paragraph 4.8 recognises the legal duty for the local plan to contribute to the mitigation of climate change and the NPPF requirement for the extent of mitigation to be in line with the Climate Change Act 2008. This is in line with our findings in the Literature Review (Work Package 1a).

The table in paragraph 4.15 then identified energy efficiency, design, materials, insulation, and renewable energy as some of the policy actions that the SLP intends to take forward.

The above is a positive indication of the SLP’s ambition to contribute to the mitigation of climate change. As acknowledged in the Literature Review, while the FHS represents an improvement from Building Regulations Part L, it will not deliver what is required to stay within the legislated carbon budget under the Climate Change Act 2008. Hence, ORE 1 will be under-ambitious for the SLP.

ORE2 would require new development to achieve net zero in regulated and unregulated energy use through on-site renewable energy provision. This is a step closer to SLP’s ambition compared to ORE 1. However, because ORE does not set any concrete requirements for energy efficiency improvement (so as to avoid contradicting NPPF 2026 policy DM7), occupants will not gain the degree of benefits that could have been achieved in terms of energy bills and thermal comfort if a strong energy efficiency standard had been included in the policy. Additionally, some energy modelling recently published in another emerging local plan’s evidence base^{vii} has implied that when the FHS benchmark amount of solar PV is applied, some home types (notably low-rise, larger-footprint houses) would already meet this ORE2 policy standard. Therefore, this ORE2 policy may only deliver improvements in mid-to-high-rise homes or homes that would otherwise manage to avoid delivering the FHS’s benchmark amount of PV.

ORE3 represents the gold standard of operational net zero carbon policy. With accurate calculation methods and metrics that cover total energy use, it gives the local authorities certainty that new development in the local pan area will achieve true net zero in line with the SLP’s ambition and duty to contribute to the mitigation of climate change. ORE3’s use of absolute limits on space heat demand and total energy use delivers the best benefits of the three policy options, not only to the climate, but also occupants via improved home comfort and reduced energy bills.

The identification of ‘materials’ as a policy action in the Regulation 18 consultation document paves the path for an embodied carbon policy in the SLP. As discussed above, EC3 is the most ambitious option, and would ensure future large-scale development uses low-carbon materials, contributing towards the desired ‘radical reduction in greenhouse gas emissions’.

5. Risk matrix assessment

The policy approaches above will be assessed against 9 criteria, taking into account the context of NPPF 2026.

i. Climate (2°C carbon budgets)

Will this policy deliver carbon and energy savings consistent with what the Committee on Climate Change (CCC) has shown to be necessary for the UK to meet its legislated carbon budgets?

Any new build that is not true net zero carbon will worsen the already-huge challenge faced (using up an excessive share of the carbon budgets, requiring even greater savings in other sectors, which CCC evidence implies is unlikely to be feasible). Any insufficiently energy-efficient buildings will place excessive demands on the region’s limited renewable energy capacity (existing, and speed/scale at which future capacity can be added). Buildings without good thermal efficiency may not be safe or comfortable in a world that exceeds the global 2°C limit ([possible by 2045](#)).

ii. Occupant energy bills

Might this policy permit or cause the developer to deliver a building that exposes its occupants to unnecessarily high energy costs or energy price volatility? Vice versa, is the resulting building likely to save energy bills long term?

iii. Future retrofit costs/ disruption

Will this policy induce the developer to deliver a building that is fit for the UK’s zero-carbon future according to the Committee on Climate Change’s identified necessity for minimal heat demand and low-carbon heat? (i.e. heat pumps or networks, not gas).

If not, how disruptive and expensive would future retrofit works be?

(Note: This risk topic links to the ‘climate’ risk topic but considers the impact from the occupant / owner’s point of view.)

iv. Electricity grid readiness

Will this induce the developer to minimise the burden that the new building places on the electricity grid, given the existing pressure the grid already faces from the clean energy transition as well as rising electricity demand?

Will there be additional grid stress due to any energy exports from solar PV installed, and electrification of net zero carbon homes?

Might this policy induce the delivery of buildings that burden the grid more than they need to – beyond the grid upgrades that will need to happen anyway for the government Clean Power 2030 strategy and Part L 2026?

v. Delivery/ sector readiness

How readily available are the materials, technologies and skills needed to comply with this – including energy calculation skills?

How mainstream is this practice or level of performance, and are the relevant workers likely to understand how to deliver it?

(Note: Some of the necessary features are included in the updated Part L 2026 – i.e. heat pumps and PV – therefore, much of the industry upskilling should already be occurring, or will be needed, with or without the local policy).

vi. LPA internal capacity

How much resource and capacity will be needed internally at the local authority to accurately implement the policy including assessing information that developers would need to submit?

Is there scope to upskill individuals in planning to assess net zero carbon policies? Is it likely that external consultants will be required to assess policy compliance?

(Note: all scores given in this topic are our best estimate of this challenge).

vii. Viability/ cost uplift (vs current Part L 2021)

How much more would it cost to comply with this policy, compared to a business-as-usual new build?

(Note: This is based on estimates – by central government and evidence bases of various existing and emerging local plans – of cost uplift for various elements of improved building performance, and project experience of the cost of enhanced professional services in energy & carbon.)

viii. Planning powers/ precedents

Is the local plan explicitly empowered to require this standard, via the Planning and Energy Act 2008, other legislation or other formal and national policy (including NPPF 2026)?

Is there an existing adopted local plan precedent?

If not explicitly empowered but also not explicitly prohibited:

- Is there a precedent for this, implying that it can be acceptable to the Inspector?
- Can it be shown that this is the only way to fulfil the need for ‘radical’ carbon reductions in line with the Climate Change Act, as per the NPPF?

ix. Compatibility with national approach

To what extent would this policy component:

- Use existing nationally endorsed methodologies / metrics for carbon and energy?
- Help or hinder other changes that the government commits or intends to achieve with regards to carbon and energy? Such as:
 - [New Part L 2026](#)
 - [Net Zero Strategy \(2021\)](#)
 - [Heat and Buildings Strategy \(2021\)](#)
 - [‘Clean Power by 2030’](#) meaning only 5% of generation from unabated gas (current government commitment, with acknowledgement that this will need a near-tripling of solar capacity and a doubling of onshore wind alongside at least a tripling of offshore wind, from today’s levels).

Our assessment of risks cover a range of topics, as laid out above. This is important because as noted in our previous reports, there is somewhat of a mismatch between local plans’ duty to radically reduce carbon, versus the potential constraints around:

- The *extent* to which local planning authorities can wield their existing powers to require carbon reductions (depending on how the Inspector interprets the NPPF 2026.),
- Local planning authorities’ *duty to enable other outcomes* such as housing delivery.

This mismatch has caused some ambitious ‘net zero’ policies to fail at examination, despite other very similar policies having successfully passed that hurdle elsewhere.

The well-tested, ‘low planning risk’ policy precedents tend to rely on requiring moderate reductions against Building Regulations Part L. Our ‘Approach 1’ reflects this. However, as noted, Part L is not suited to delivering actual energy and carbon reductions in practice.

Because of this mismatch, an approach that is low-risk for planning acceptability and viability is generally high-risk for climate, as it would fail to remedy the status quo of allowing new builds to add to the UK’s carbon burden, and expose occupants to high costs of energy bills and future retrofit that almost all existing buildings will need if the UK is to reach its carbon goals. It is thus necessary to differentiate the level of risk across several topics. These topics reflect the key debates in the literature on the low carbon transition, emerging practice in local plans, and recent experience working with local authorities and developers.

Key messages

- The local plan has a **legal duty to mitigate climate change, and national policy says this should be done in line with the Climate Change Act 2008.**
- **Mitigation in line with the Act 2008** requires the delivery of built environment changes **shown to be necessary for the Act’s carbon goals.**
- National government’s current policies (including Building Regulations Part L) are **insufficient to deliver the necessary changes.**
- Local energy efficiency standards **are able to exceed Building Regulations**, as per the power granted by the Planning & Energy Act 2008.
- **There are local plan powers that can help deliver the changes**
 - There are perceived limits to how far these powers can be exercised – due to definition of powers, consistency with national policies, and potential to clash with other local plan duties (such as deliverability or viability).
 - Some adopted precedent local plans have now gone as far as necessary for the carbon goals for buildings’ operational energy, e.g. Bath and North East Somerset, Cornwall, Central Lincolnshire, Uttlesford, Winchester, and Salt Cross AAP.
- **A local plan policy could be ‘low’ or ‘high’ risk** depending on whether we focus on carbon and bills, or on viability and precedent.
- We therefore use a **‘matrix’ to assess risk across multiple topics.** This allows the local plan-making team to make an informed decision on which issues to prioritise.

5.1 How we determine the score

We score each policy component from 0 (lowest risk) to 5 (highest risk). These scores reflect our professional judgement based on our extensive research into the topics at hand (see previous report) and our direct experience of supporting, defending and implementing policies.

Beyond the themes themselves (previously listed – e.g. energy efficiency, renewable energy supply, offsetting, embodied carbon), there are several different possible ways in which a local plan policy requirement could address each theme – using different mechanisms, calculations, standards, and degree of energy and carbon improvement that is required.

The risk level would vary depending on:

- *Means* by which each theme is addressed, for example –
- Using national building regulation calculations for energy and carbon (lower risk in planning terms, but higher risk for climate due to these methods’ inaccuracies).
- ... Or requiring the use of far more accurate calculation methods that exist in the industry (lower risk for climate but potentially higher risk in planning terms, as some of these may not so clearly align with Energy & Planning Act powers, or require specialist skills that are less abundant).
- Replicating common existing precedents for offsetting (lower risk in planning terms)
- ... Or using a more effective mechanism for offsetting (medium risk in planning terms due to having fewer precedents; but lower risk in terms of climate outcomes).
- *Extent to which* the improvement is required, for example –
- the *amount and type* of on-site energy and carbon improvement,
- the *offset price* per tonne of carbon (or per kWh of energy) payable by developers.

We therefore assess a range of potential ‘policy components’ that each represent a means and extent of requirements under each theme. These are arranged along the vertical axis of our full risk matrix (overleaf).

Each of these ‘policy components’ is scored against the full range of risk topics – including climate, occupant bills, retrofit, sectoral readiness, build cost, powers/precedents, and consistency with national policies.

5.1.1 About the risks relating to a carbon offsetting policy in a local plan

Local plan offsetting usually means collecting payments from developers per tonne of carbon their building will emit, or per kWh of the building’s total operational energy use that is not matched with on-site renewable energy generation. This is then spent on local projects to save the same amount of energy or carbon. This always involves some risks in the topic ‘LPA internal capability’ because of the burden of administering such an offset fund to deliver those local

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projects. ‘Climate’ risks arise when the amount paid is not enough to deliver the required verifiable amount of energy or carbon savings. Risks also arise in the topics ‘occupant’ and ‘future retrofit’ because offsetting may be used in lieu of creating an energy-efficient building.

5.1.2 About ‘viability/cost risk’

Please note that our scoring in the ‘viability/cost’ risk column is about ‘cost uplift’. This is based on whether each policy component would drive measures that recent published data show are more costly than the current building regulations minimum, i.e.:

- Heat pumps (albeit the FHS imposes this in homes anyway)
- Fabric improvements (based on national government cost uplift figures)
- Solar panels beyond Building Regulations Part L 2021 (although the FHS will require more solar panels than Part L 2021 in general)
- Cost to offset any remaining residual carbon or energy use
- Cost of specialist energy modelling or energy performance verification, where known.

Our ‘viability/cost’ risk estimation reflects the relative cost uplift that these policies might add to a typical base build cost, based on studies from central government and other local plans.

The actual impact on *viability of development in Gloucestershire* will depend on the land values, sales values, and changing industry build costs and labour. We note there is some evidence that sales^{viii} value and rental economics^{ix} improve in more energy-efficient buildings.

5.1.3 About the ever-changing landscape of precedents – how it affects ‘planning acceptability’

Please note that several highly ambitious local plans have now been adopted with ground-breaking net zero carbon policies that have thoroughly tested the limits of existing planning powers. The most notable are Bath & North East Somerset 2023, Cornwall 2023, Central Lincolnshire 2023, and Tendring & Colchester Borders Garden Community DPD 2025. However, there have also been rejections at examination of some similar policies (e.g. Isle of Wight) or even less ambitious ones (Lancaster and Bracknell Forest), which suggests that risks and uncertainty remain over net zero planning powers. Nevertheless, the rejection of Salt Cross was recently overturned by the High Court as an unlawful interpretation of a previous WMS made in 2015, and the policies were approved by the Inspector in 2025 after re-examination.

Numerous other local authorities are either at examination or have emerging ambitious net zero carbon policies at Regulation 18 and 19 consultation stages (under the legacy plan-making system). As these authorities work towards policy adoption, additional clarity and consistency will emerge regarding local authority net zero planning powers and the extent to which these can be used. Please see the Literature Review for more detail.

5.1.4 About risk scores in ‘planning powers/precedents’ & ‘compatibility with national approach’

These two columns reflect any limitations placed (by the NPPF – 2024 and 2026, National Planning Practice Guidance, and legislation) on the acceptability of the use of local authorities’ powers for buildings’ carbon reduction.

For the SLP, ‘compatibility with national approach’ will be specifically considered with respect to DM7 and Annex A of NPPF 2026, in combination with more climate positive policies in NPPF 2026 and the draft Design and Placemaking Planning Practice Guidance.

5.2 Matrix of all policy components

The matrix on p.12 orders the policy components by theme from top to bottom according to the energy hierarchy (energy efficiency measures, then energy supply measures, then offsetting), and then embodied carbon.

Most of the policy components have either a lower risk for climate and consumers but a higher risk for viability/planning powers, or vice versa. This is because of the current limitations on powers granted to local authorities, and the fact that this is a cutting-edge emerging policy area with few precedents that reduce emissions sufficiently to be in line with the Climate Change Act.

Some policy elements are considered to pose **a higher risk to climate and occupants**, because they:

- Fail to require use of accurate methodologies to predict a building’s actual carbon emissions in use;
- Fail to require steps to deliver energy performance as designed and predicted (that is, failing to confront the energy performance gap)
- Fail to ensure that the offsetting mechanism delivers measurable and certain carbon savings that count towards the local area’s carbon account and would not have happened otherwise, and that the offsetting is truly a last resort. Overly cheap offsets disincentivise the developer from making the feasible on-site energy and carbon improvements – raising the risk of new buildings that have high energy bills and need expensive, disruptive retrofit later.

Some elements might have a **higher risk in terms of planning**, because they:

- Might be challenged by reference to DM7, PM13, through DM7’s reference to PM13, and Annex A of NPPF 2026. However, as PM13 now permits local energy-efficiency standards above Building Regulations, the risk relates mainly to whether EUI, space-heating-demand or energy-balance metrics can be justified as a necessary departure from PM13’s preferred TER/SAP formulation, rather than to the principle of setting a higher local standard.
- Involve a higher (or unknown) cost – in particular, solar panels and some types of low carbon heating. We foresee this will change as these become more mainstream and economies of scale take effect as these technologies are part of the FHS. For Gloucestershire, there will be mostly no cost uplift due to solar panels, as there will be mostly low density development and the Part L 2026 requirement will trump the energy balance metric. Hence, cost uplift caused by solar panels will therefore not be significant - but could get more significant for high rise, especially if there is the requirement to offset.
- The requirement for MVHR to meet SHD limits adds capital cost is the most significant cost uplift factor for low-rise homes.
- Require workforce skills at scale to deliver the higher standards. But this will improve as the industry enhances its normal practice in response to demand and the incoming FHS. This is a good rationale for promoting growth of green construction skills within the district and wider region.

The right combination of policy components is vital. No single one of these policy components is enough *on its own* to achieve new buildings that deliver the required energy and carbon performance that is needed to support the national carbon budgets and local carbon commitments. Any fully effective net zero carbon buildings approach would need to adopt a suite of requirements covering all of the following themes:

- Energy efficiency improvements in design
- Energy performance gap
- Fossil-free and renewable energy supply
- Offsetting
- Embodied carbon.

Not all of the policy components are compatible with one another – but each policy approach (ORE1-3; EC1-3) is combination of components, that *is* internally compatible. There is a degree of flexibility as to which components to take on board in the SLP, but these must be carefully selected to ensure a holistic and complete policy suite that is internally consistent. A decision is to be made about whether the SLP is prioritising minimising the risk of challenge or delay to adoption, or the risk of failing to achieve the carbon reductions required by climate science and legislation.

5.3 Table of all policy components that are under consideration

Table 3 All policy elements under consideration. These are to be mixed and matched in each approach.

Scope	Policy requirements	Climate (2° C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability / Cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	No policy requirement (compliance with the FHS)	3	3	3-4	2	1	2	No impact	No impact	No impact
Energy efficiency	EUI <i>guideline</i> targets and mandatory reporting	No impact	No impact	No impact	No impact	3	2	No / little impact	1	4-5
Energy efficiency	EUI limits using PHPP/TM54 (Homes: 35kWh/m²/year; Non-residential: varies by typology)	0	0	0	0	3-4	2	3	3-4	4-5
Energy efficiency	Space heat demand limit of ≤15-20kWh/m²/year (predicted with PHPP/TM54)	0	0	0	0	3	2	3	3-4	4-5
Performance gap	Apply any one of several named proven processes to remedy the performance gap	0	0	0	0	3	3	2	2	2
Renewable energy	On-site renewable energy to match regulated and unregulated energy use (i.e. on-site net zero energy); or ≥120 kWh/m² _{building footprint} /yr	0	0	0	2-4 depending on prior efficiency target	2	2-3	2-4 depending on prior efficiency target	2-3	2-3
Offsetting	Offset 30 years' worth of regulated emissions at £273/tonne (DESNZ annual carbon valuation) via S106 fund (not tested to meet cost of local carbon saving schemes)	4	4	3	No impact	2	3	2	1	2
Offsetting	Offset any shortfall in on-site renewable energy generation to match total energy use (via S106 or direct investment); at the estimated	1	1-3	1-3	3	1	3	1-3	2	3

Scope	Policy requirements	Climate (2° C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability / Cost	Planning powers/ precedents	Compatibility with national approach
	cost of delivering that renewable energy (set as £/kWh)									
Embodied carbon	Embodied carbon reporting only, for major development using RICS WLC methodology	4	No impact	No impact	No impact	2	2	1	2	No impact
Embodied carbon	Embodied carbon reporting for major development using RICS WLC methodology; target 900kgCO ₂ e/m ² GIA (or other demonstrably cost-neutral limit) for large-scale development	3	No impact	No impact	No impact	2	3	1	3	4
Embodied carbon	Embodied carbon reporting for major development using RICS WLC methodology; LETI-aligned ² targets set for large-scale development	2	No impact	No impact	No impact	3	4	3	4	4

Actively reduces risk	0
Low risk	1
High risk	5

² LETI is the Low Energy Transformation Initiative. In addition to their work on setting energy targets aligned with the UK’s carbon budgets, they have also done the same with embodied carbon targets (which they have in turn aligned with the similar target setting/benchmarking conducted by RIBA, the Royal Institute of British Architects). Their optimal recommended targets (especially for future years) represent significant improvement on current typical practice.

5.4 ORE1 – Fully policy compliant: Medium-high risk for climate, low risk for planning

ORE 1 is fully compliant with NPPF 2026. It relies on the FHS on requirements for operational and renewable energy, and requires only reporting for embodied carbon.

Because this approach does not use absolute energy targets, it is not guaranteed that the building will completely avoid retrofitting in the future. To meet the UK’s legally binding carbon targets of the Climate Change Act, the space heating-demand value needs to be limited to 15-20kWh/m²/year. By contrast, the incoming FHS, would have a space heat demand per m² per year

of 20-29kWh in terraced and semi-detached homes, or 43-47kWh in detached and bungalows if calculated with the current version of SAP^x (or double/triple these numbers if calculated with a more accurate energy modelling method such as PHPP, as SAP underestimates heat demand specifically^{xi}). Subsequently, for the home to operate at the 15-20kWh level in the future, the retrofit required could be disruptive to the occupant, may damage the building (especially insulation^{xii,xiii}), and could cost the future occupant three-to-five times the price it would have cost the developer to include in the first place^{xiv}. Future retrofit also comes with extra embodied carbon as outdated building elements are replaced.

Scope	Policy requirements	Climate (2 °C carbon budgets)	Occupant energy bills	Future retrofit costs /disruption	Electrical grid readiness	Delivery / sector readiness	LPA internal capability	Viability/ cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	No policy requirement (compliance with the FHS)	3	3	3-4	2	1	2	No impact	No impact	No impact
Energy efficiency	EUI <i>guideline</i> targets and mandatory reporting	No impact	No impact	No impact	No impact	3	2	No / little impact	1	4
Performance gap	Apply any one of several named proven processes to remedy the performance gap	0	0	0	0	3	3	2	2	2

Actively reduces risk	0
Low risk	1
High risk	5

5.5 ORE2 – Broadly policy compliant, with renewable energy requirement as a backstop

Similar to ORE1, ORE2 relies on the FHS for energy efficiency standards. As such, it constitutes a relatively low-risk option in policy terms, but shares some of the same shortcomings of ORE1. What sets it apart from ORE1 is the requirement for on-site renewable energy to match total energy use. This is a more accurate and specific requirement than the FHS, which calculates the amount of on-site renewable needed based on a development’s ground floor area, as opposed to energy use. This also avoids the situation where a development can be exempt because of design, height or other issues (see the Literature Review for details).

The renewable requirement in ORE2 is broadly policy compliant because it covers total energy use (regulated and unregulated). As Building Regulations do not control unregulated energy use, this policy cannot be seen as a duplication or extension.

The renewable energy backstop in this approach has also made carbon offsetting possible by creating a clear baseline.

This policy risk for this approach is low to medium. It requires compliance with the FHS. Whilst the renewable energy requirement can be challenged by some, the requirement of renewable energy matching total energy use (as opposed to just regulated energy) means this is not a duplication or extension of Building Regulations. Other policies in NPPF 2026also offer support for renewable energy development, as discussed in the Literature Review.

Scope	Policy requirements	Climate (2 °C carbon budgets)	Occupant energy bills	Future retrofit costs /disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability/ cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	No policy requirement (compliance with the FHS)	3	3	3-4	2	1	2	No impact	No impact	No impact
Energy efficiency	EUI <i>guideline</i> targets and mandatory reporting	No impact	No impact	No impact	No impact	3	2	No impact	No impact	4
Performance gap	Apply any one of several named proven processes to remedy the performance gap	0	0	0	0	3	3	2	2	2
Renewable energy	On-site renewable energy to match regulated and unregulated energy use (i.e. on-site net zero energy); output at least 120 kWh/m ² _{building footprint} /yr	0	0	0	3	2	3	3-4	2-3	4
Offsetting	Offset any shortfall in on-site renewable energy generation to match total energy use (via S106 or direct investment); at cost of delivering that renewable energy (set as £/kWh)	1	1-3	1-3	no impact	1	2	2	2	3

Actively reduces risk	0
Low risk	1
High risk	5

5.6 ORE3 – True Net Zero: Low risk for climate, high risk for planning

This option is the most ambitious in climate terms but carries a higher risk for planning. This is because the EUI/SHD-based standards in the energy efficiency element may be considered by some as contravening DM7 in NPPF 2026. However, as PM13 permits quantitative local energy efficiency standards, EUI/SHD-based policies are in our view not ‘materially inconsistent’ with DM7. Hence these local policies should not be given very limited way as per Annex A of the NPPF 2026. Furthermore, case law against the WMS2023 shows that local decision-makers are free to rely on local or exceptional circumstances to justify departure from national policy.

If local circumstances are demonstrated to show that there is a need for alternative metrics and standards such as those proposed in Approach 3 and that these are viable in the local area, then it can be defensible to diverge from the NPPF. This will need to be backed by robust evidence of viability based on costings of the proposed policy.

Demonstration of such local circumstances would require a substantial evidence base to support departure from Building Regulations. An evidence base of local feasibility and cost assessments testing energy-based metrics against Building Regulations would constitute strong evidence. This could be further strengthened by the aforementioned evidence that the specified energy metrics are necessary to meet the national and local carbon reduction commitments (this argument relating to national carbon budgets, and insufficient national action towards them, was outlined in the Literature Review, and the ways in which ORE3 remedies this are discussed on this page). Engagement with local residents might further strengthen this approach if it demonstrates that residents are unsupportive of Building Regulations metrics and prefer industry-proven metrics that will deliver energy efficient homes with low running costs and help directly deliver the committed carbon goals. Emphasising the local plan’s duty to meet local carbon budgets that align with the UK’s legally-binding 2050 net zero target is an essential piece of evidence to support the need for stronger policy that departs from Building Regulations.

ORE 3 essentially reflects the operational net zero carbon definition proposed by the range of industry experts that form LETI and UKNZCBS, as detailed in our previous report. Central Lincolnshire successfully adopted this policy approach in April 2023, whilst Cornwall Council and B&NES had slightly less stringent operational energy limits adopted in January 2023. Various other councils are in the process towards bringing identical or similar approaches to be tested at examination (e.g. Greater Cambridge, South Oxfordshire & Vale of White Horse, and others). Where these policies have successfully been adopted, the success at examination is largely down to robust evidence bases that include feasibility^{xv} and cost^{xvi} assessments on policy delivery, in addition to demonstrating the necessity for these policies in order to deliver on their duty to mitigate climate change. Three of these successfully adopted plans to date that use policies like

Approach 3 were examined before the WMS2023, but three more have passed examination in 2025 (Tendring & Colchester, Uttlesford, and Salt Cross – see previous Literature Review report). Whilst the WMS is not relevant to the SLP, these cases demonstrate that departure from national policy can be justified with a robust evidence base.

The use of PHPP or TM54 energy modelling methods (to evaluate performance against the targets) reduces risk to climate, occupants, and future retrofit needs, by providing a far more accurate prediction of energy use compared to the industry’s usual Part L SAP.

The space heat demand limit reduces risk of in-use carbon emissions, energy costs, infrastructure impacts, and future retrofit needs. It also supports health and comfort as the home will be less subject to temperature fluctuations or condensation. Note that this metric has the same numeric target sought in Approach 2 but is calculated with the more robust and accurate PHPP modelling tool, instead of using the proxy metric of SAP FEE.

The EUI limit should now be understood in the context of the Future Homes Standard and Part L 2026, which changes the baseline for new homes by moving space heating and hot water away from fossil-fuel systems. The additional role of an EUI limit is therefore not simply to encourage heat pumps, but to ensure that low-carbon heating is delivered within a genuinely energy-efficient building. By limiting total energy use, including unregulated energy, an EUI standard can reduce household running costs, limit exposure to energy-price fluctuations, and reduce cumulative electricity demand. This should be read alongside the Energy Modelling Report, which assesses the carbon and cost implications of different energy-performance standards. The limits on space heat demand and EUI both reduce the demand placed by the development on electrical grid capacity (however, see also commentary further down regarding the potential additional grid capacity demand that may be exerted by on-site PV).

It is important to note that overheating risk can become a greater concern as buildings become more energy efficient and thermally insulated. Overheating risk can decrease comfort or even safety of residents. Integrating overheating risk mitigation assessment requirements into policy alongside operational energy/carbon requirements would work towards a well-rounded policy approach, that can address climate change mitigation and adaptation holistically.

It is important that improved energy efficiency and fabric performance are pursued alongside robust overheating mitigation. Overheating is not an inevitable consequence of better insulation or lower space-heating demand; rather, it depends on the combined effect of design factors such as orientation, glazing ratios, shading, ventilation, thermal mass, internal gains and urban heat-island effects. Policy should therefore integrate mitigation and adaptation by requiring high fabric performance alongside passive cooling measures, solar shading, appropriate ventilation, green and blue infrastructure, and compliance with relevant overheating assessment requirements.

However, there also exists a separate WMS that inhibits the setting of local planning policy standards on overheating assessments for residential development since overheating was integrated into Building Regulations (as Part O 2021). We do not go into detail on that separate WMS or overheating policy here, because the focus of our current work is about policy for carbon reduction specifically and overheating is not suitable for the same risk criteria that we use here, thus could not be clearly compared through this same policy options assessment.

The renewable energy targets should now be understood in the context of Part L 2026, which will already require many new dwellings to incorporate on-site renewable electricity generation. For those dwellings, developers may need to optimise roof form, orientation, roof layout and the positioning of vents or other features in order to accommodate PV as part of Building Regulations compliance, rather than solely because of Local Plan policy. The additional role of the Local Plan requirement is therefore to ensure that on-site renewable generation is maximised and, where the proposed energy-balance or 120kWh/m² building footprint/year target is more stringent than the Part L 2026 baseline, that the higher planning-policy standard is achieved. As with ORE2, the 120kWh/m² building footprint/year target for PV is drawn from feasibility evidence used in other local plans, including Central Lincolnshire.^{xvii}, while equivalent evidence is now being produced for the SLP through this consultant team’s current appointment.

Aside from NPPF 2026 Policy DM7-related challenges, another high-risk policy element to planning acceptability is the setting of targets using PHPP, which is not a method used to fulfil national Building Regulations (SAP / SBEM). This can be interpreted by some to diverge from the definition of an ‘energy efficiency standard’ that the Energy and Planning Act empowers local plans to require. Still, there are three local plans that had adopted such policies before the WMS2023 was created, and three more were approved by the inspector in 2025 (as cited in the Literature Review). A slew of other draft local plans are also now emerging with similar targets. Acceptability is expected to become ever clearer in the next year as those emerging local plans continue to push ahead with EUI-based policies and progress through examination, in the context of the WMS2023. Additionally, the use of these non-Building-Regs calculation methods does help defend the policy against NPPF Policy DM7’s instruction not to “duplicate or extend controls imposed by separate regulatory regimes” of which Building Regulations is clearly one .

Some adopted plans with this policy approach have set requirements for major development’s energy target compliance to be shown using PHPP or TM54, in supplementary guidance documents at Bath & North East Somerset Council^{xviii} and Cornwall Council^{xix}; albeit these documents were not tested at examination. This risk primarily applies to PHPP, given that TM54 is now acknowledged in Part L 2021 (non-residential) as a suitable method for energy forecasting, thus should now be considered to have been ‘endorsed ... by the Secretary of State’ as per the definition of an ‘energy efficiency standard’ laid out in the Planning & Energy Act 2008.

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This approach is also subject to some delivery and implementation considerations, although these should not be overstated. As set out in the ER2 report, many of the assumed fabric measures are based on standard construction methods and, in some cases, the proposed U-values are not dissimilar to the Part L notional specification. The main additional delivery requirements are therefore likely to relate to achieving improved airtightness, correctly designing and installing MVHR systems, and securing higher-performing windows at scale. Some manufacturing upscaling may be needed for better-performing glazing, but this does not necessarily imply a major skills constraint for installation. Similarly, measures such as ASHPs and solar PV should not be treated as additional policy-specific delivery risks, as these are expected to form part of the Part L 2026 / Future Homes Standard baseline. The relevant risk is therefore not whether the construction industry can deliver these measures in principle, but whether the pace of upskilling, quality assurance and supply-chain readiness is sufficient to support delivery at scale without affecting housing build-out rates.

delivery even without the policy.

This approach has **some limited risk relating to infrastructure readiness**, which should be understood in the context of Part L 2026, which will already require many new dwellings to include on-site renewable electricity generation. As such, PV export to the grid at times of peak generation and low onsite energy demand is not a risk created solely by the Local Plan policy; it will form part of the new regulatory baseline. This is part of the necessary solution to net zero carbon: the export of clean energy reduces the need for fossil fuel use at power stations, balancing out the times when the building must draw power from the grid. However, in some locations, the grid may not be ready for these exports without capacity upgrades. This **risk could be reduced by energy storage** (batteries; hot water tanks) or other smart ‘demand side response’ system. Additionally, the ambitious energy efficiency targets (EUI and space heat demand limits) will reduce the total amount of PV needed to match total energy demand, therefore the amount of PV peak export (and thus grid stress) is less than in ORE 2. It should also be noted that extensive upgrades to grid capacity and ‘smart grids’ will be essential as part of SLP plan area’s (and the UK’s) net zero carbon transition of the *existing* buildings and transport sectors anyway even in the absence of this local plan policy; these capacity upgrades should not be assumed to be triggered solely by a local plan policy for new development rooftop PV.

The renewables and offsetting approach would mean that the building must have enough renewable energy capacity to generate an equal amount of energy to what the building uses per year. The policy would expect this to be delivered on-site, but if necessary it can be delivered on other buildings’ roofs or separate land. This is the **most reliable and climate-safe offsetting option we have identified**, as it is easily measurable, and clearly additional to what would happen without the funding. This offsetting approach aligns with best practice but still has a minor

level of risk to the climate as some offsetting projects may not achieve entire equivalency or pure additionality.

Like ORE 2, this policy ORE 3 uses ‘**energy offsetting**’ instead of ‘carbon offsetting’. This requires a £/kWh cost metric, which is agnostic to the carbon factor of the grid and allows more specific allocation of funds on projects based on what specifically has been offset (either residual total energy use or deficit in on-site renewable energy generation).

Nevertheless, this offsetting approach has ‘low’ rather than ‘zero’ risk for climate. This is because the carbon budgets require such drastic cuts that all buildings and most sectors will need to become net zero carbon on their own terms, meaning that as we near the net zero carbon end-goal there will be very little room for trading carbon savings between sectors. The **built environment is one sector that is expected to be able to become net zero without-offsetting**; the UK’s capacity to generate ‘carbon credits’ should therefore primarily be reserved for hard-to-abate sectors, such as aviation and agriculture. This would mean that existing buildings will probably eventually need their own roof space to deliver their own renewable energy to eliminate their own carbon, rather than being able to lend that roof space to eliminate the carbon of new buildings. Alternatively, delivering the renewable energy generation equipment on greenfield land could compete with other land uses vital to the UK’s carbon reduction trajectory such as woodland creation to capture carbon, or local food production. Any impact on National Landscapes or other landscape protection designations could also potentially constrain the ability of the local authorities covered by the SLP to bring forward off-site large scale renewable energy as scheme to offset new builds’ carbon.

Scope	Policy requirements	Climate (2° C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability/ cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	EUI limits using PHPP/TM54 (Homes: 35kWh/m²/year; Non-residential: varies by typology)	0	0	0	0	3	2	3	3-4	4
Energy efficiency	Space heat demand limit of 15kWh/m²/year (predicted with PHPP/TM54)	0	0	0	0	3	2	3	3-4	4
Performance gap	Process to remedy performance gap	0	0	0	0	3	3	2	2	2
Renewable energy	Onsite PV to match total energy use, including unregulated (estimated with PHPP/TM54); output must demonstrate at least 120 kWh/m² _{building footprint} /yr	0	0	0	2	2	2	3	4	4
Offsetting	Offset any shortfall in on-site renewable energy generation to match total energy use (via S106 or direct investment); at cost of delivering that renewable energy (set as £/kWh)	1	1-2	1-2	3	1	2	1	2	3

Actively reduces risk	0
Low risk	1
High risk	5

5.7 EC1 — Embodied carbon reporting only

As discussed above, while operational and renewable energy are interdependent and hence should be considered together, requirements for embodied carbon can be a standalone consideration. In practice, what this means is the SLP can choose to have ambitious requirements in operational and renewable energy (e.g. in line with ORE3), but a more relaxed embodied carbon standard (e.g. EC1).

There is no national policy or position on embodied carbon. Hence, a requirement on embodied carbon will not be a duplication or extension of Building Regulations and is hence DM7-compliant. EC1 only requires major development to report on embodied carbon. It does not set a limit.

Scope	Policy requirements	Climate (2° C carbon budgets)	Occupant energy bills	Future retrofit costs /disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability/ cost	Planning powers/ precedents	Compatibility with national approach
Embodied carbon	Embodied carbon reporting for major development using RICS WLC methodology ^{xx} ; target of 900 kgCO ₂ e/m ² GIA (or other demonstrably cost-neutral limit) for large-scale development	3	No impact	No impact	No impact	2	2	1	2	4

5.8 EC2 – Capping embodied carbon

EC2 is an improvement over EC1. In EC2, embodied carbon reporting is required for major schemes (same as in EC1 1), but it also contains a backstop target is set for large scale schemes to prevent excessive embodied carbon emissions. This backstop target is here set to reflect a ‘business-as-usual’ embodied carbon figure which is therefore cost neutral^{xxi} and thus does not impact viability. As it does not improve on business-as-usual, it does not represent best practice design. However, it does however ensure that applicants do not perform worse than average. This limit has been used in at least on adopted precedent (Bath & North East Somerset 2023.^{xxii})

There may be scope to tighten this embodied carbon target, as other more recent studies have estimated that current standard practice may now be as low as **600 kgCO₂e/m² GIA** (see 2023 evidence.^{xxiii} from South and Vale emerging local plan). That study found that this 600kg figure was the typical embodied carbon value across residential and non-residential typologies with Part L

2021. Therefore, this target can also be considered cost neutral, as the materials and specification assumed under this scenario of current Building Regulations are already applied to already reflect current ‘business as usual’ construction methods and materials. Resting on that evidence and evidence produced at Essex level^{xxiv}, Uttlesford local plan (adopted 2026) includes a policy target limit on up-front embodied carbon of 600kg/m² for non-residential new-builds and 500kg for residential new-builds, where the development is 100+ homes or 1000+m2 GIA.

However, as the figure is tighter, additional planning risk would still be associated with this lower emissions limit versus the limit of 900 kgCO₂e/m² shown in the EC2 risk matrix. The policy’s mandatory embodied carbon reporting would generate data that could be used to set a custom benchmark from which to base future targets in future iterations of the SLP.

Scope	Policy requirements	Climate (2° C carbon budgets)	Occupant energy bills	Future retrofit costs /disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability/ cost	Planning powers/ precedents	Compatibility with national approach
Embodied carbon	Embodied carbon reporting for major development using RICS WLC methodology ^{xxv} ; target of 900 kgCO ₂ e/m ² GIA for large-scale development	3	No impact	No impact	No impact	2	3	1	3	4

5.9 EC3 – Limiting embodied carbon

In EC3, embodied carbon policy ambition is maximised to industry best practice ([LETI embodied carbon targets](#)). The policy requirement for an embodied carbon limit is only applicable to large-scale development (i.e. more than 50 dwellings or more than 5000 m² non-residential floorspace) so that major and minor development is not subject to a riskier viability level (as the cost of assessment itself can be more of an impact on smaller developments, compared to larger developments that can spread the cost of assessment across their larger sale value).

The closest precedent we aware of is Uttlesford (adopted 2026) as cited above, whose residential up-front embodied carbon limit is 500kg/m²GIA, reflecting LETI band ‘B’. This is the limit that LETI recommends for buildings that are being designed in 2020. If a local policy seeks to remain in line with LETI recommendations in later years would therefore need to have an even lower limit.

Scope	Policy requirements	Climate (2° C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Viability/ cost	Planning powers/ precedents	Compatibility with national approach
Embodied carbon	Embodied carbon reporting for major development using RICS WLC ^{xxvi} methodology; LETI-aligned targets set for large-scale development	2	No impact	No impact	No impact	3	4	3	4	4

6. Evidence requirements

The higher the level of ambition in the policy (and the more it diverges from national metrics and national building regulations standards), the more robust evidence is likely to be required.

Therefore, it is important to consider the scale of evidence that would be desirable to appropriately defend the preferred policy position.

Table 4 and Table 5 set out the general evidence requirements that would be preferable in support of each of the three assessed policy approaches for a robust defence. It is important to highlight the risk that not everything we have identified as desirable evidence may be readily available, which we have recognised in the table with the red and orange ticks.

Some evidence will require input from the SLP local authorities to ensure robustness. For evidence item 2 (feasibility of offsetting), this requires an understanding of the willingness and capacity of the SLP area to deliver offsetting projects and spend the resulting offset fund. This could follow a council-led or partnership-led approach, with the latter being driven by project delivery through external organisation mechanisms such as a local community energy group or housing provider. Item 6 (impact on grid capacity) may also need input from the SLP local authorities such as interpretation of any local studies or data on grid connectivity issues in particular areas.

Some elements of desirable evidence may not be readily available. In these cases, a low/medium or high risk of availability has been marked. For example:

- A detailed assessment of grid connectivity across the SLP area would be helpful but would need highly specialist input. Instead the Council might choose to revert to a high-level overview on grid connection trends in the plan area. The regional grid operator may be helpful in engaging on such topics including by providing specialist tools such as ‘[Local Energy Net Zero Accelerator \(LENZA\)](#)’. However, the information these tools provide may still not be so simple to interpret as to be classed as ‘readily available’ evidence.
- A detailed assessment of supply chain readiness to deliver on these standards (and its impact on housing supply) specific to the SLP area could be challenging as there is no standard assessment approach for this.

The evidence requirement for ORE2 and 3 is similar, and most evidence is readily available or is being produced as part of this commission. The evidence requirement for ORE1 is light because it only requires compliance with the Future Homes Standard – the basic Building Regulations standard that developers will have to adhere to in any case.

Table 6 sets out where in this commission the evidence required for ORE policy options is being produced. For embodied carbon policy options, no specific local modelling is being done, but existing published third-party data (such as South & Vale or Essex as above) could be cited.

Table 4 Evidence requirement for the three ORE policy options.

Key:			
	ORE1: FHS	ORE2: FHS + renewable backstop	ORE3: True Net Zero
✓ Evidence required (✓) or preferable (∞) – would need input from Council ✓ Evidence required (✓) or preferable (∞) – readily available ✓ Evidence required (✓) or preferable (∞) – medium/high risk of availability ✓ Evidence required (✓) or preferable (∞) – low/medium risk of availability ✗ Evidence not required for this policy approach			
1. Feasibility and viability of operational carbon/energy build standards	✗ Evidence not required	✓ Low/medium risk of availability	✓ Readily available
2. Offsetting is viable and feasible	✗ Not applicable	✓ Would need Council input on feasibility of implementing offset fund	✓ Would need Council input on feasibility of implementing offset fund
3. Arguments why the policy is NPPF-compliant (or the need to diverge from the NPPF Policy DM7/PM13, where applicable)	✗ Evidence not required	✓ Readily available – in previous Literature Review report	✓ Readily available – in previous Literature Review report
4. Demonstration of local circumstances to justify departure from Building Regs	✗ Evidence not required	✓ Readily available, or ✓ Low/medium risk of availability	✓ Readily available, or ✓ Low/medium risk of availability
5. Future Homes Standard insufficient to deliver on local carbon budgets	∞ Readily creatable (but not yet produced)	✓ Readily creatable (but not yet produced)	✓ Readily creatable (but not yet produced)
6. Feasibility of grid connection for on-site PV generation at new buildings	✗ Evidence not required	∞ Would need Council input, or ∞ Medium/high risk of availability	∞ Would need Council input, or ∞ Medium/high risk of availability
7. Impact of building to FHS on grid capacity/infrastructure	✗ Evidence not required	∞ Readily available (logical argument) ∞ Medium/high risk of availability (specific local evidence)	∞ Readily available (logical argument) ∞ Medium/high risk of availability (specific local evidence)
8. Demonstrate effectiveness of PHPP over SAP/SBEM	✓ Readily available	✓ Readily available	✓ Readily available
9. Demonstrate effectiveness of absolute energy metrics over Part L metrics	✓ Readily available	✓ Readily available	✓ Readily available
10. Supply chain readiness/housing supply	✗ Evidence not required	∞ Readily available (partially) ∞ Medium/high risk of availability (partially)	∞ Readily available (partially) ∞ Medium/high risk of availability (partially)

Table 5 Evidence requirement for the three EC policy options.

Key:			
	EC1: Reporting	EC2: Capping	EC3: Limiting
✓ Evidence required (✓) or preferable (∞) – would need input from Council ✓ Evidence required (✓) or preferable (∞) – readily available ✓ Evidence required (✓) or preferable (∞) – medium/high risk of availability ✓ Evidence required (✓) or preferable (∞) – low/medium risk of availability ✗ Evidence not required for this policy approach			
Embodied carbon requirements are viable and feasible	✓ Readily available	✓ Readily available	✓ Readily available

Table 6 Evidence being produced in this commission (and potential further work whose appointment is yet to be confirmed).

Which of these evidence items are already part of the scope of outputs being produced by this consultant team for Gloucestershire?	ORE1: FHS	ORE2: FHS + renewable backstop	ORE3: True Net Zero
1. Feasibility and viability of operational carbon/energy build standards	✗ Evidence item not required for this Option	May be supported by emerging findings of Energy Modelling Feasibility Study	✓: “ Energy Modelling ”, “ Cost Modelling* ”, “ Final Evidence Report ”. *To inform separate viability study.
2. Offsetting is viable and feasible	✗ Evidence item not required for this Option	“ Final Evidence Report ” could cover this if one of this option is chosen, but would still ideally need Council input on feasibility of implementing offset fund	✓: “ Energy Modelling ” (by demonstrating the shortfall of renewable energy on-site that needs to be offset), “ Final Evidence Report ”. Would need Council input on feasibility of implementing offset fund ✓ “ Cost Modelling ” [to be confirmed] – would produce costs that will need viability testing in each local plan’s Whole Plan Viability Assessment.
3. Arguments why the policy is NPPF-compliant/ the need to diverge from the NPPF	✗ Evidence item not required for this Option	✓ “ Literature Review ”; “ Final Evidence Report ”	✓ “ Literature Review ”; “ Final Evidence Report ”
4. Demonstration of local circumstances to justify departure from Building Regs	Not main focus of work to date, but general logical argument is in “ Literature Review ” and can be repeated in “ Final Evidence Report ” if this Option is chosen.		✓ “ Carbon Budget Analysis ” [to be confirmed]; “ Final Evidence Report ” [which would be strengthened by carbon budget findings if that is appointed]
5. Future Homes Standard insufficient to deliver on local carbon budgets	✓ “ Carbon Budget Analysis ” [to be confirmed]; “ Final Evidence Report ” [which would include summary of carbon budget findings if that is appointed]		
6. Feasibility of grid connection for on-site PV generation at new buildings	Not part of current scope		
7. Impact of building to FHS on grid capacity/infrastructure	Logical argument made in Literature Review; but current scope does not include specific local analysis of this.		
8. Demonstrate effectiveness of PHPP over SAP/SBEM	✓Cited in “ Literature Review ”; to be repeated in “ Final Evidence Report ”		
9. Demonstrate effectiveness of absolute energy metrics over Part L metrics	✓Cited in “ Literature Review ”; to be repeated in “ Final Evidence Report ”		
10. Supply chain readiness/housing supply	✗ Evidence item not required for this Option	No specific local evidence in current scope, but “ Final Evidence Report ” can cite studies elsewhere showing little impact on application rates.	

7. Next steps and conclusion

We understand that the SLP has the ambition to opt for ambitious policies in line with ORE3. This document will aid the local authorities involved to assess the justification and risk for such policies, in light of NPPF 2026.

Ultimately, there is a trade off between the risk of being challenged on the grounds of DM7 and Annex A of NPPF 2026, and to fulfil the legal obligation to mitigate climate change. While the NPPF (both 2024 and 2026) states that the extent of mitigation should be in line with the Climate Change Act 2008, solely requiring development to be FHS-compliant (in line with DM7) will not deliver this. ORE2 will also fall short, as it continues to rely on FHS metrics, which are inaccurate, as discussed in the Literature Review.

ORE3 is the ambitious best practice approach that aligns with the scale of action needed in new builds for the UK's carbon budgets, and importantly has the lowest risk for occupant bills and future retrofit disruption/costs. However, it is more prone to challenges on grounds of NPPF 2026, as well as viability and feasibility. A strong evidence base that demonstrates local circumstances will be required to support such a position.

Our current appointment will produce the most vital evidence items needed for this, including energy and cost modelling, and local carbon budget analysis. Importantly, ORE 3 would require developers to use a sophisticated energy modelling tool, PHPP (or TM54), to predict energy use and space heating demand that will better align with in practice energy performance.

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