



# Uttlesford Local Plan Review: Climate Change Evidence Base

Addendum\*: Implications of policy changes at national (WMS, NPPF and Levelling Up Act) and local level (Essex) since September 2023

05 July 2024

Rev 0.2

(\*Addendum to “Task A” main report, v1.5)



## Contents

Introduction.....	4
<i>The previous work identified that:</i> .....	4
<i>The previous work therefore concluded that, with regards to new buildings:</i> .....	4
<i>Council’s selected policy approach in light of these findings</i> .....	4
<i>Purpose of the current addendum</i> .....	4
National policy announcements in late 2023 .....	5
County-level evidence and policy advice evolution .....	5
Changes to national policy and legislation.....	6
Levelling Up & Regeneration Act 2023 (LU&R Act) .....	6
Updates to the National Planning Policy Framework (NPPF) .....	7
Future Homes Standard Consultation December 2023 – March 2024.....	8
<i>Two options for the FHS building specification</i> .....	8
<i>Comparison with the previously published indicative FHS specification</i> .....	8
<i>How does this new FHS specification compare with the building performance needed for the UK’s legislated carbon budgets (per Committee on Climate Change analysis)?</i> .....	8
<i>Other impacts beyond carbon</i> .....	9
13 <sup>th</sup> December 2023 Written Ministerial Statement on energy efficiency standards in local plan policy .....	10
WMS2023 overview.....	10
<i>What is a WMS and how does it affect the planning system?</i> .....	10
<i>What challenges does this WMS2023 bring for Uttlesford’s emerging policy?</i> .....	11
<b>What options are still left within the parameters purported to be set by the WMS of 13<sup>th</sup> December 2023?</b> .....	12
Energy efficiency.....	12
Renewable energy.....	13
Embodied carbon.....	13
Overheating .....	13
Existing buildings.....	13
<i>What is the status of a WMS versus other national policy or legislation?</i> .....	14
Updates on Essex policy context and evidence.....	15
Updated open legal advice – now responding to the WMS2023 .....	15
Emerging evidence on embodied carbon .....	15
Updated policy options evaluation in light of the WMS2023 .....	16
Structure of this section on policy options.....	16



Evolution of Uttlesford’s policy approach on energy & carbon.....	17
Policy content up to ‘Publication’ version for Regulation 18, October 2023 .....	17
Other approaches previously considered, now being reconsidered in light of the WMS2023 .....	18
Summary table of previously considered potential energy/carbon policy approaches for new builds, and reassessment in light of the WMS of 13 <sup>th</sup> December 2023.....	19
Three further approaches considered in response to the WMS2023 .....	20
Matrix of all policy components (note: each approach will combine a selection of these – not all of them) .....	23
About this matrix.....	25
The right combination of policy components is vital .....	25
Approach 1 – Fully WMS compliant.....	27
Approach 2 – Testing WMS boundaries.....	30
Approach 3 – Overcome the WMS.....	33
Summary of risk matrix evaluation of the three policy options in light of WMS2023 .....	36
This evaluation allows Uttlesford DC to make an informed selection of a policy approach that represents the desired level of ambition and risk, depending on the Council's appetite for risk and any prior commitments it may have made to specific carbon reduction or other climate targets.....	36
Council’s selected approach having considered the WMS2023 .....	36
Glossary of terms and acronyms.....	37
Appendix: References and endnotes .....	39



## Introduction

This document is an addendum to the “Task A” report (Rev 1.5, dated 18 October 2023). That ‘Task A’ report had been the culmination of an appointment to assist the Council in:

- Understanding the local plan’s legal duties and mandates to address carbon emissions
- Understanding the powers or planning instruments available to deliver carbon savings, and the national policies that affected how those powers should or could be used
- Understanding the array of precedent policies from other local plans that have used those powers in different ways or extents, and how this was justified at examination
- Identifying and evaluating a range of policy approaches by which the local plan *could* seek carbon reduction in new buildings to differing extents of carbon reduction ambition, for the Council’s consideration
- Drafting policies to consider for the emerging new local plan of Uttlesford, reflecting the Council’s chosen level of ambition in relation to its climate commitments.

That previous work explored the needs, duties, powers, constraints and technical options available to the Council with regards to policy formulation with the aim to ensure this local area to play its full role in delivering the national legally binding carbon reduction trajectory to net zero (as per the Climate Change Act 2008 and the Paris Agreement). This included both:

- Reducing the carbon emissions associated with development,
- And making that development compatible with the wider array of changes that need to happen in other sectors in order for the UK to achieve its legislated carbon saving goals.

### The previous work identified that:

- **The local plan is legally obliged to ensure that climate change is mitigated** by development and use of land in the area (Planning & Compulsory Purchase Act 2004)
- **Mitigating climate change means reducing the overall amount of carbon emissions** (National Planning Policy Framework), not just minimising the amount of new carbon emissions that are added by new developments
- **The extent of mitigation should be ‘radical’, ‘proactive’ and ‘in line with the Climate Change Act 2008’**, according to the National Planning Policy Framework
- **The Climate Change Act 2008 legally mandates interim national carbon budgets** between 2008 and 2050, as well as the goal of net zero by 2050
- **The Committee on Climate Change devises these interim budgets** and analysis showing what changes are needed in all sectors in order to achieve those carbon budgets – logically therefore, local plan policy that fully ‘mitigates climate change in line with the Climate Change Act’ would aim to ensure that development in this area would adhere to those necessary sectoral changes.
- **Local Planning Authorities can require energy efficiency standards beyond that of building regulations**, and a proportion of energy use at the development to be from renewable sources (a power granted by the Planning & Energy Act 2008)

### The previous work therefore concluded that, with regards to new buildings:

- **New development’s energy demand must be minimised** so as to minimise the needed amount of new renewable energy generation and grid reinforcement, given that all other sectors’ net zero transition (e.g. transport and industry) will also place high demands on the UK’s capacity for renewable energy, and other land uses (e.g. afforestation and farming) – considering the [limited land supply](#) and the embodied carbon of new energy equipment. This energy efficiency is also vital to protect people from excessive energy bills in the ongoing cost of living crisis.
- **New development should not use fossil fuel on site** given that the UK needs to transition its building stock away from gas, not add new gas users to the grid – and also given that heat pump technology exists that is three times as efficient as gas
- **New development should come with enough new renewable energy generation to ‘wash its own face’**, so that it does not worsen the existing huge challenge of weaning existing buildings, transport and industry off fossil fuel to electricity – when this condition is met, the building is ‘net zero carbon in operation’. Evidence showed this is feasible in an array of typical types of building, so long as the building is energy efficient as above.
- **The energy/carbon metrics used in Building Regulations are unsuited to deliver the performance described above** therefore other more accurate methods are needed. As the national carbon budgets are absolute, the performance standards for new buildings should also be absolute limits, not percentage improvements on standard practice.

### Council’s selected policy approach in light of these findings

The above findings were presented to Uttlesford District Council in July, August and September 2023. Along with the policy approach described above (energy demand, fossil-free, renewables, metrics), these presentations also identified and evaluated the relative merits of a range of alternative policy approaches to carbon reduction in buildings. The relative merits evaluated were climate effectiveness, running cost of buildings, risk of needing future retrofit, build cost uplift, industry readiness, and degree of adherence to relevant national planning policies.

As a result, the Council decided that the Uttlesford draft policy would include the above policy approach including absolute targets for space heat demand, total energy use intensity per square metre, and 100% renewable energy on site (or payment towards off-site installation), and that all of the above should be demonstrated using an energy modelling approach known to be typically accurate in predicting the building’s total energy performance.

This was the policy approach taken to Regulation 18 consultation (October to December 2023).

### Purpose of the current addendum

This addendum summarises several changes to national policy and legislation (and county-level response to these) that have occurred since the original report. It also explores the extent to which these national or local changes might affect how the Uttlesford local plan can or should formulate its policies.





## National policy announcements in late 2023

The previous work was developed through Summer 2023 and completed in early Autumn 2023.

Shortly afterwards, there were four key changes in national policy or legislation that could now affect the validity of the conclusions and recommendations made in that previous report. Those four key changes were:

- **The Levelling Up & Regeneration Act** was passed in October 2023
- **The National Planning Policy Framework** was updated in September and December 2023
- **A new Future Homes Standard (FHS) consultation** was launched in December 2023
- **A Written Ministerial Statement** on energy efficiency in local plans (December 2023)

Additionally, the team became aware of further evidence released in Summer 2023 by the Future Homes Hub which further evidences the fact that the necessary energy efficiency and carbon performance for the UK's legislated carbon budgets will not be delivered by the Future Homes Standard 2025 (whether the indicative specification released by Government in 2021, or the two options released in the FHS consultation in December 2023).

The current Addendum therefore firstly explores the impact of those changes to national policy.

## County-level evidence and policy advice evolution

This Addendum will also note any further changes to the local/regional (Essex) policy environment since this was last explored in the previous report.

The County's net zero carbon local planning evidence base, as noted in the previous work for Uttlesford, previously contained: a feasibility report (energy modelling of optimal energy targets and onsite renewables, and the cost of these), a viability report, draft model policies and implementation tools, and a piece of open legal advice on the extent to which local plan policies could lawfully set such standards, taking into account the then-extant national policy regime including a Written Ministerial Statement that had been made in 2015.

Since then:

- **There has been an update to the Essex level open legal advice** on the extent to which local authorities can pursue policies that diverge from national building regulations. This updated open legal advice now focuses on the Written Ministerial Statement of December 2023 as noted above, which supersedes the WMS2015 that the previous legal advice had considered.
- **Essex has developed evidence on embodied carbon targets**, mirroring the feasibility and cost evidence that it has already produced regarding energy performance. This additional advice has now been published.

As far as the authors of the current Addendum for Uttlesford are aware, this concludes the evolution of policy advice or evidence at county level since the previous report was released.

## Changes to national policy and legislation

### Levelling Up & Regeneration Act 2023 (LU&R Act)

The previous 'Task A' report for Uttlesford had noted several upcoming changes to the planning system that were proposed to be made in the erstwhile Levelling Up & Regeneration Bill. That Bill was formally passed as an Act on 26<sup>th</sup> October 2023.

The previous 'Task A' report had noted various changes that the LU&R Bill had proposed to the existing planning regime where relevant to how local policy could address energy or carbon. Table 1 below recaps those, and notes how these issues have evolved since the Act was passed.

**Please note that much of the LU&R Act's effect is in empowering the Secretary of State to set policies or regulations that could conceivably constrain local policy formulation in future**, rather than the Act directly imposing those constraints. Much of the Act's content does not take effect immediately but need further national regulatory actions to bring it into force. Thus while the Act has now been passed, there is little new certainty on how far those future regulations and national policies will affect the local plan's scope for effective carbon policy.

Table 1: How the Levelling Up & Regeneration Act has proceeded (or not) with items previously flagged as relevant to local policy on energy and carbon when the Act was an emerging Bill.

Issue identified regarding the LU&R (Bill version)	Relevance to carbon	What further is known yet on this point from the LU&R Act as it was passed?
<p><b>New Infrastructure Levy</b> (scaled to development value, not floor space) to replace CIL and most uses of S106 payments – <b>yet S106 payments would still have a role for some purposes</b><sup>i</sup>.</p> <p>The new Levy charging schedule would still be set by the local authority, who must set out an infrastructure delivery strategy outlining how it would be spent. The new Levy might also apply to permitted development<sup>ii</sup>.</p>	<p>The emerging Uttlesford policies had proposed to use S106 payments as a mechanism to offset any predicted energy use of new developments that is not matched by onsite renewable energy generation capacity. (This emulates the carbon offset S106 approach of many precedents).</p>	<p>The Act does not appear to directly end the use of Section 106 or the Community Infrastructure Levy. Instead, <a href="#">Part 4</a> and <a href="#">Schedule 12 (Part 1)</a> empower the Secretary of State to “make regulations ... for ... a charge to be known as Infrastructure Levy (IL)”. These regulations “may include provision about how the following powers are to be used”:</p> <ul style="list-style-type: none"> <li>• a. Community Infrastructure Levy</li> <li>• b. “section 70 of TCPA 1990 (planning permission),”</li> <li>• c. “section 106 of TCPA 1990 (planning obligations)”</li> <li>• d. “section 278 of the Highways Act 1980 (execution of works).”</li> </ul> <p>These “<a href="#">come into force</a> on such day as the Secretary of State may by regulations appoint”. This <a href="#">appears</a> not to have yet been passed. Therefore it remains unknown whether S106 will still be usable for carbon/energy offsetting.</p>
<p><b>Secretary of State to be empowered to create 'National Development Management Policies'</b> (NDMP) with which local policies must not be inconsistent.</p>	<p>NDMP topics could include carbon or energy, according to one of the consultations before the LU&amp;R Bill was passed. This could constrain the standards that the local policy could require or metrics that local policy must use.</p>	<p>The Act 2023 does not confirm the content of the DM policies. It only states that (Section 94, Chapter 2, which <a href="#">came into force on 31<sup>st</sup> January 2024</a> by inserting <a href="#">this section into the Planning &amp; Compulsory Purchase Act 2004</a>):</p> <ul style="list-style-type: none"> <li>• “A “national development management policy” is a policy (however expressed) of the Secretary of State in relation to the development or use of land ... which the Secretary of State by direction designates as [such]”</li> <li>• Before making, modifying or revoking an NDMP, the Secretary of State must: <ul style="list-style-type: none"> <li>◦ Consult with relevant parties unless it is a) an immaterial change to the NDM policy or b) it is ‘necessary, or expedient ...to act urgently’.</li> <li>◦ “Have regard to the need to mitigate, and adapt to, climate change”.</li> </ul> </li> </ul> <p>Carbon is not mentioned in either of these Acts' text, so it is not yet known whether this could affect the ability of LPAs to set their own standards new builds' carbon or energy.</p>
<p><b>A new 'Environmental Outcomes Report' to replace the existing system</b> of Sustainability Appraisals, Strategic Environment Assessments and EU Environmental Impact Assessment.</p>	<p>This Environmental Outcomes report could conceivably include carbon. If so, this could come with a fixed approach to how local plan evidence bases must account for developments' carbon impacts, and/or how carbon evidence can inform choices between policy options.</p>	<p><a href="#">Part 6 (in force 26<sup>th</sup> Dec 2023)</a> means that “Regulations made by an appropriate authority ... may specify outcomes relating to environmental protection in the United Kingdom ... that are to be ‘specified environmental outcomes’”.</p> <ul style="list-style-type: none"> <li>• ‘Appropriate authority’ is defined as the Secretary of State and/or a devolved authority.</li> <li>• “‘Environmental protection’ means ... protection of the natural environment ... from the effects of human activity” (this definition, along with that of 'natural environment, mentions chalk streams specifically)</li> <li>• The definition of ‘natural environment’ names ‘living organisms ... their habitats ... [unbuilt] land, air and water ... and the natural systems, cycles and processes through which they interact”. This could logically be implied to include the climate – as this is a natural cycle or process.</li> <li>• However: Neither climate nor carbon is specifically mentioned <a href="#">anywhere in Part 6</a>. Therefore it remains uncertain if ‘Environmental Outcomes’ regulation will affect how the local plan can pursue climate mitigation.</li> </ul>



## Updates to the National Planning Policy Framework (NPPF)

The previous work had drawn from the version of the NPPF that had been last updated in 2021. The NPPF was then updated in September 2023 and again in December 2023.

**In summary**, the 2023 NPPF contains the same stipulations on the extent of climate mitigation that should be sought via policy, but the mandate for supporting energy retrofit in existing buildings is strengthened, and the hurdle for consenting wind development is slightly relaxed.

The 2023 updates to the NPPF also resulted in changes to paragraph numbers that had been cited in the previous report. Table 2 on this page gives a cross-reference of the old paragraph numbers and the new ones as of the December 2023 NPPF

The more substantive updates in the 2023 NPPF relevant to local plan climate action are:

- **A slightly less hostile national stance towards wind turbines:** The previous NPPF effectively banned onshore wind energy development (in that it could only be approved where all impacts identified by the “affected community” are proven “fully addressed

and the proposal has their backing”, effectively giving veto power to every individual.. The updated 2023 NPPF lowers this hurdle by amending the wording to “appropriately addressed” and “the proposal has community support”. New footnote 57 also confirms that wind energy development can be permitted through LDOs, NDOs and Community Right to Build orders, albeit still subject to the caveat on community support and impact.

- Although potentially significant for the consenting of standalone renewables, this does not change the scope for policy on the energy and carbon performance of *buildings* (which was the main focus of our previous policy advice).
- **New paragraph 164** establishes that decisions “should give significant weight to the need [for] energy efficiency and low carbon heating improvements to existing buildings ... (including ... heat pumps and solar panels where these do not already benefit from permitted development rights). Where the proposals would affect ... heritage assets, [then] also apply the policies [of NPPF] chapter 16.”
  - This strengthens the mandate for the Uttlesford policy stance on conversions.

Table 2: Paragraphs renumbered in the latest NPPF edition (December 2023) compared to the numbering cited in the previous report that referenced the 2021 NPPF.

NPPF paragraph number cited in previous report	Text of paragraph (note: In the NPPF2023, none of this content is different from how it was cited below from the NPPF 2021. Only the paragraph numbering has changed.)	New paragraph number in current NPPF (Dec 2023)
152	“The planning system should support the transition to a low carbon future ... shape places in ways that contribute to radical reductions in greenhouse gas emissions ... [and] encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”	157
153 [and footnote 53]	“Plans should take a proactive approach to mitigating and adapting to climate change ... In line with the objectives and provisions of the Climate Change Act 2008”	158
154	“New development should be planned for in ways that ... can help to reduce greenhouse gas emissions, such as through its location, orientation and design”	159
154b	“Any local requirements for the sustainability of buildings should reflect the Government’s policy for national technical standards”	159b
155	“To help increase the use and supply of renewable and low carbon energy and heat, plans should ... provide a positive strategy for energy from these sources ... [and] consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development” [and] “identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems”	160
156	“Local planning authorities should support community-led initiatives for renewable and low carbon energy, including developments outside areas identified in local plans”	161
157a	New development should comply with local requirements for decentralised energy supply unless it is demonstrated to be not feasible or viable	162a
158	“When determining planning applications for renewable and low carbon development, local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions”	163
158b	“Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas”	163b
190	“Plans should set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats ... tak[ing] into account the desirability of sustaining [them] ... and putting them to viable uses consistent with their conservation”	196





## Future Homes Standard Consultation December 2023 – March 2024

This [consultation was commenced on 13<sup>th</sup> December 2023](#) and ran until March 2024.

### Two options for the FHS building specification

Rather than the single indicative FHS specification that had previously been released in 2021 (via the [Future Homes Standard Consultation Response](#)), the new FHS consultation offered a choice between two specification options.

We here compare the two recent FHS consultation options, alongside the previously stated FHS indicative specification ([as released in 2021](#)) and the current buildings regulations (Part L 2021).

Table 3: Building regulations - Comparison of current and indicative future (FHS 2025) notional building specifications

Element	Part L 2021 (current regulation)	Previously indicated FHS spec (released 2021)	New FHS consultation Option 1	New FHS consultation Option 2
<b>Fabric – insulation &amp; glazing</b>	Marginal improvements on Part L 2013	Major improvements on Part L 2013 and 2021	Identical to Part L 2021 (no improvement)	Identical to Part L 2021 (no improvement)
<b>Fabric – airtightness</b>	5 air changes per hour	5 air changes per hour	4 air changes per hour	5 air changes per hour
<b>Heat system type</b>	Gas boiler	Heat pump (efficiency not stated)	Heat pump, minimum efficiency 2.5	Heat pump minimum efficiency 2.5
<b>PV provision</b>	PV area equal to 40% of ground floor area (approx.)	None	PV area equal to 40% of ground floor area (except in flats >15storeys)	None

### Comparison with the previously published indicative FHS specification

As shown above in Table 3, the two new FHS consultation options have worse fabric than that of the previously released indicative specification. All insulation values are worse than the previously indicated FHS specification, and in fact make no improvement on the insulation values of current building regulations (Part L 2021). Only the airtightness of Option 2 undergoes a very marginal improvement (moving from 5 to 4; by contrast a Passivhaus home would have an airtightness of 0.6 and the Essex energy modelling evidence<sup>iii</sup> had used an assumption of <1).

On the positive side however, both options still include a heat pump instead of gas (as did the version released in 2021). This however does not guarantee that developers will use such efficient heating – they could, for example, use the inefficient and expensive-to-run direct

electric heating but reach the energy use and carbon targets instead by adding more PV. This would mean that occupants would face more retrofit expenses if they choose to switch to a heat pump system later on, and may find that they do not have the space in their homes to accommodate the additional necessary parts for a heat pump system (such as a hot water cylinder). By contrast, if the low carbon heating is included in the building up front, this expensive and potentially impossible element of retrofit is avoided, but it is easy to add solar PV later on if the building owner chooses. The FHS options currently proposed do not prevent such choices by the developer which would make future retrofit difficult, expensive or impossible.

Also positive is that Option 1 retains the PV provision that is already part of the notional building specification in today’s building regulations (Part L 2021). However, Option 2 removes that PV.

### How does this new FHS specification compare with the building performance needed for the UK’s legislated carbon budgets (per Committee on Climate Change analysis)?

As cited in the previous report for Uttlesford, analysis from the Committee on Climate Change has shown that in order to be compatible with the UK’s legislated carbon budgets, new homes must have a space heat demand of 15-20kWh, use low carbon heat (such as a heat pump, not gas) and ideally be net zero. The previous report also explored industry analysis showing that specific total energy use intensity (EUI) targets are also necessary for the UK’s carbon budgets, given that those carbon budgets rely on an enormous and rapid growth of renewable energy to decarbonise the energy grid at the same time as meeting a doubling in electricity demand due to switching existing buildings and transport from fossil fuels to electrical energy. As the UK’s capacity to grow its renewable energy is limited in speed and scale, new buildings should take up as little as possible of that limited capacity by being very energy efficient (35kWh/m<sup>2</sup>/year in homes; non-residential target varies by type of building). These EUI targets also drive the use of a heat pump instead of gas, as heat pumps are three times as efficient as gas.

In advance of the FHS consultation in 2023, analysis was released by the Future Homes Hub looking at a range of potential FHS specification options (‘contender specifications’, or CS, titled CS1 to CS5, from least to most ambitious). Each CS consisted of a given value of insulation, glazing, airtightness, heat system type/efficiency, amount of PV, and so on. The Hub modelled what would happen to a building’s energy and carbon performance if each of these different CS were applied to a range of different building types: end terrace, mid terrace, semi-detached with room in roof, detached, bungalow, mid-floor low rise flat, mid-floor high rise flat.

The two CS options now under consultation do not precisely match any of the contender specifications that the Future Homes Hub had modelled. However, the *fabric* of Option 2 is identical to that of Part L 2021, and the *fabric* of Option 1 is only marginally better (via airtightness, as previously noted).

The Hub’s [modelling appendix](#) used SAP10.2 to model the performance. It is therefore subject to the same underestimation of space heat demand that was noted in the previous report.



## Other impacts beyond carbon

Table 4.2 in the FHS consultation shows that Option 2 would have twice the heating costs of a building built to today's building regulations (Part L 2021).

If FHS Option 2 is selected by Government, this will have a greater harmful impact on any individuals who spend more time at home or have greater needs for heating and hot water. Characteristics that tend to cause those habits and needs include age, disability, sex, and maternity – which are protected characteristics in the Equality Act 2010.

The Equalities Assessment section of the consultation stage impact assessment<sup>iv</sup> did not identify any equalities impacts but acknowledged the statutory duty to regard this and invited consultees to contribute feedback on potential equalities impacts. No Government response to that consultation has yet been published at the time of writing this Addendum for Uttlesford, therefore it remains unknown whether Government has identified the harmful equalities impact of drastically increased heating bills.

This could provide an additional ground for effective local energy efficiency standards, especially if the Council has any existing analysis identifying a local need to minimise energy bills such as fuel poverty rates, in particular where there is an identified correlation between fuel poverty and groups with protected characteristics in Uttlesford.

Table 4: Assessment of the currently proposed FHS consultation options in relation to meeting the performance needed in new homes from 2025 to meet the UK's legislated carbon goals.

Element	Performance needed in new homes from 2025 for UK carbon budgets	New FHS consultation Option 1	New FHS consultation Option 2
Space heat demand (per m <sup>2</sup> / year)	15-20kWh	✗ Likely <sup>1</sup> typical 20-45kWh in houses	✗ Typical 22-47kWh in houses <sup>v</sup>
Heat system type	Low carbon; efficient (heat pump or equally efficient)	✓ heat pump	✓ heat pump
PV provision	Enough to match total energy use and thus be net zero carbon	~ PV area = 40% of ground floor area, thus varying by building	✗ none
Zero carbon?	Zero carbon emissions	Not until the electricity grid is zero carbon	Not until the electricity grid is zero carbon

<sup>1</sup> FHS consultation Option 1 does not exactly match any of the specifications in the available modelling evidence ([Future Homes Hub Appendix E](#)); however, its fabric is identical to Part L 2021 and Option 2, save for a very slight improvement to airtightness. We therefore here show a kWh figure similar to but slightly

reduced from the Option 2 level (which, as it has identical fabric to Part L 2021, is assigned the identical space heat demand figure that the Future Homes Hub had modelled for Part L 2021).



## 13<sup>th</sup> December 2023 Written Ministerial Statement on energy efficiency standards in local plan policy

### WMS2023 overview

On the 13<sup>th</sup> of December 2023, the Government released a **Written Ministerial Statement (WMS)** that undermines some of the points made by the previous work for Uttlesford. This new WMS was made by Lee Rowley (Minister of State for Housing) together with Baroness Penn (Parliamentary Under Secretary of State for Levelling Up, Housing and Communities). Its stated topic is "[Planning - Local Energy Efficiency Standards](#)".

This WMS was released without prior consultation. Moreover, subsequent legal correspondence<sup>2</sup> confirms that this WMS was made without a basis in any evidence about the existence of the problem that the WMS purports to remedy, and without an Environmental Principles Assessment or Public Sector Equality Duty Assessment (both of which are mandatory for national policy, and were subsequently completed – albeit perhaps insufficiently – after pre-action legal letters were sent to the Secretary of State querying the WMS' lawfulness).

The new WMS purports to place quite stringent new limitations on the exercise of existing powers held by local planning authorities to require improvements in the energy and carbon performance of proposed new buildings in their area. The WMS does not remove the ability to set improved local standards, but it purports to limit them in the following ways:

- **Energy efficiency policy must be expressed as percentage reductions on the Building Regulations Part L TER (Target Emissions Rate)**, using a "specified version of SAP".
- Policies that exceed building regulations should be "**applied flexibly ... where the applicant can demonstrate that meeting the higher standards is not technically feasible**, in relation to ... local energy infrastructure ... and access to ... supply chains."

The above will affect how the plan can exercise its power to require energy efficiency standards beyond those of building regulations (a power granted by the Energy & Planning Act 2008).

This WMS goes against several recent adopted local plans that used other more effective metrics to deliver buildings suitable for the UK's carbon goals, such as energy use intensity and space heat demand (Cornwall, Bath & North-East Somerset, and Central Lincolnshire).

The WMS also emphasises that **any such policies must have a "well-reasoned and robustly costed rationale that ensures that development remains viable, and the impact on housing supply and affordability is considered** in accordance with the National Planning Policy Framework". This is not really 'new' – we would expect any new policy on any topic to need to provide such justification. The Task A report for Uttlesford aimed to do exactly that, with reference to recent Essex-level evidence on feasibility and cost uplifts. The Essex evidence base puts Uttlesford in a particularly strong position as it is directly relevant to this region. There is also extensive evidence in the public domain of the costs and feasibility of meeting similar policy standards (available within in the evidence bases of similar precedent local plans). Still, this reiteration in the WMS is likely to bring additional scrutiny upon the evidence put forward.

<sup>2</sup> This pre-action legal correspondence was shared with the authors of the current report by the recipient. It is not under any legal restrictions on its sharing, but has not yet been published by any entity as far as

### What is a WMS and how does it affect the planning system?

Written Ministerial Statements are one of the 'statements of national policy' that local plan-making must take into account, according to the NPPF.

The NPPF forms the overarching set of principles by which the Inspector will conduct the Examination in Public of the submitted local plan, to see if the plan can be considered 'sound', before it can be adopted. The NPPF establishes that, to be 'sound', the plan must pass four tests:

- **Positively prepared:** Designed to meet needs (of which housing tends to be the focus)
- **Justified:** Having considered reasonable alternatives, with proportionate evidence.
- **Effective:** Deliverable within the plan period and based on cross-boundary joint working.
- **Consistent with national policy:** "enabling the delivery of sustainable development in accordance with [the NPPF] and other [relevant] statements of national planning policy".

Beyond the 'four tests of soundness', the NPPF (2023 paragraph numbering) instructs that:

- **"National policy statements form part of the overall framework** of national planning policy, and may be a material consideration in preparing plans" (Paragraph 5)
- **"Other statements of government policy may be material** when preparing plans or deciding applications, such as relevant Written Ministerial Statements" (Paragraph 6)
- Specifically, local requirements for the sustainability of buildings are expected to **"reflect the Government's policy for national technical standards"** (Paragraph 159b).

The WMS of December 2023 includes a sentence self-confirming its own status as a relevant statement of national planning policy. Therefore this WMS, like the NPPF, is a 'material consideration', i.e. *one of the relevant considerations that the plan must take to account* in order to be sound, despite that a WMS can be made unilaterally without consultation (as WMS2023 was). However, a WMS is not an inviolable requirement and cannot lawfully inhibit the function of legislation, e.g. the plan's climate duty and powers over energy (see new [Essex legal advice](#)).

To deviate from the stipulations made in a WMS may be possible if an argument can be made that identifies other material considerations that together hold more weight than that WMS. For example, a 2015 WMS on a similar topic was in several cases was considered by the inspector to no longer be the most relevant expression of national policy. Examples noted in the previous report include London, Milton Keynes, Oxford, Cornwall, Bath & North East Somerset and Central Lincolnshire. Yet by contrast, that WMS2015 had sometimes caused Inspectors to find local plans unsound where the content of those local plans went against that WMS, sometimes years after the WMS was made and overtaken by other national policy and regulation. Still, at least one high-profile example of such a [rejection \(Salt Cross AAP\) was overturned in the High Court](#) in 2024 because the inspector had unlawfully interpreted the WMS2015 (the WMS2015's purported limit had been overtaken by Building Regulations, therefore to apply that limit would be to inhibit the use of the Planning & Energy Act powers granted to the local plan to exceed the Building Regulations energy standard).

the current report's authors are aware. The authors of the current report for Uttlesford are working with relevant parties to get that correspondence published along with a legal interpretation of it.



## What challenges does this WMS2023 bring for Uttlesford's emerging policy?

The main difficulties presented by the WMS, compared to the context in which the Task A recommendations were made, are summarised as follows:

### 1. Forcing the use of a carbon metric, when contrarily the goal is energy efficiency

The biggest problem is that the WMS asks for energy efficiency policies to be expressed using the Part L TER metric – but **TER is in fact not an energy efficiency metric**. As the [acronym suggests](#), it is instead a *carbon emissions* metric. It is unclear why this choice was made in the WMS, given that the Part L methodology (SAP) does also contain two energy efficiency metrics: the TFEE (Target Fabric Energy Efficiency) and TPER (Target Primary Energy Rate).

The **Task A report's recommendation (as used in Uttlesford's latest draft plan) instead used actual energy efficiency metrics**: 'space heat demand' (SHD) and 'energy use intensity' (EUI). These metrics, and their targets, were chosen for their essential role in delivering buildings fit for the net zero carbon transition (see Task A report for the necessity and effectiveness of these).

The WMS does not actually *prohibit* the use of such alternative metrics *alongside* TER. However, for reasons explained in the Task A report, these metrics are in fact so different from each other as to not be directly comparable because:

- The Part L TER takes into account many other factors other than energy efficiency (such as carbon intensity of grid electricity, and the generation of renewable energy on-site).
- The Part L TER is calculated using a methodology named SAP, which, as explained in Task A, drastically underestimates homes' actual energy usage and carbon emissions (partly because SAP ignores all plug-in devices and partly because SAP is simply not good at predicting actual thermal or total energy performance of the building). We are not aware of any existing method to reliably and robustly translate a real energy efficiency metric into a % TER reduction or vice versa in a way suitable for target-setting.

Some precedent local plans have instead expressed energy efficiency improvement requirement in homes as an improvement on the Part L metrics that actually relate to energy efficiency, specifically TFEE (Target Fabric Energy Efficiency). TFEE, rightly, is an energy efficiency metric, unlike TER. The exact wording of the WMS does not appear to have allowed for this. However, TFEE does come from the same methodology that the WMS cites (Part L SAP) and is a metric that developers would have to use anyway in order to pass Building Control. Therefore it is arguable that local plan policy targets set using the TFEE metric would follow the general intent of the WMS, which is to overcome the "proliferation of multiple local standards" through use of "nationally applied standards [that] provide ... clarity and consistency for businesses". One precedent indicating that this can be acceptable post-WMS2023 Warwick Net Zero Carbon DPD which was adopted in May 2024, therefore with the WMS2023 in force. Warwick's policy includes a 10% TFEE reduction, as well as a 63% TER reduction before the addition of solar PV. The 63% TER reduction was based on the indicative Future Homes Standard specification released in 2021 by Government<sup>vi</sup>, and the 10% TFEE target reflected the fabric within that FHS specification. The main examination of that DPD was prior to the WMS2023, but a delay to the inspector's report meant that Warwick had to provide commentary on the DPD's compliance with the WMS2023. Warwick's successful argument<sup>vii</sup> was that the TFEE target is a subcomponent of, and therefore not separate from, the policy's overarching -63% TER target.

### Forcing the use of a 'specified version of SAP' for the required metric

SAP is the method used to calculate all target metrics set by Part L of Building Regulations, including the TER metric named by the WMS.

SAP is periodically updated, more often than Part L is updated. Updates to SAP can include anything from changes to the assumptions about the baseline building characteristics or the performance of standard types of equipment therein, through to changes in the assumption made about the carbon intensity of grid electricity. The current version is SAP10.2.

Some precedent local plans had previously overcome this issue by stating that calculations must simply use 'the latest available version' of SAP. That way, the policy does not go out of date each time a new version of SAP is released.

The WMS does not make clear whether policy wording specifying 'the latest version of SAP' would be considered a 'specific version', or if it would have to be 'SAP10.2' or similar. If the latter, then the WMS will require the policy to be at risk of going out of date very quickly.

Beyond this, we note that SAP is due to be replaced with a new model, HEM (Home Energy Model) in 2025 when the Future Homes Standard (FHS) is introduced. This is a further way in which the WMS' instruction to use a 'specified version of SAP' would force local policies to be written in a way that will go out of date from 2025, less than a year from today and even before the likely adoption date for Uttlesford<sup>viii</sup> (spring 2026). The HEM is currently out for consultation alongside the FHS consultation – therefore HEM's final form, function and outputs are not yet known. Thus it is not yet possible to write a policy that uses HEM metric for targets, as it could not currently be robustly assured that these would be feasible or their cost uplifts assessed, even if the WMS had not failed to acknowledge HEM's imminent introduction.

### 2. Creating a generally hostile climate towards buildings energy and carbon improvement policies – thus impeding the legal duty to mitigate climate change

Beyond setting constraints on how policy is expressed and implemented, the WMS also sets a tone that is generally discouraging (albeit not prohibitive) towards any local policy that goes beyond "current or planned building regulations", stating that the government does not "expect" local policy to do this.

This general negative stance is likely to be used heavily in objections from developers during the next local plan consultation and examination. If local planmakers shy away from setting any improved energy policies as a result (or if the inspector rejects robustly evidenced policy as a result), then the local plan's efforts to fulfil its climate mitigation duty will be hamstrung by having one of its key tools inhibited – that is, the effective use of its Energy & Planning Act Powers as previously explained.

However, the WMS does not actually prohibit the use of such policies so long as they are well-justified. The Council will need to strongly and accurately counter any such claims that the WMS contra-indicates any and all local energy policy beyond that set by building regulations.





## What options are still left within the parameters purported to be set by the WMS of 13<sup>th</sup> December 2023?

The WMS will make it more difficult to pursue a cohesive energy-metric-based policy as per Uttlesford's draft policies to date, which were designed for optimal effectiveness in climate mitigation. Nevertheless, there is still some scope for improved energy and carbon policy in new buildings without technically diverging from the WMS2023. We here explore the scope that remains for the three key factors in buildings' carbon emissions: Energy efficiency, renewable energy and embodied carbon – without diverging from the WMS2023.

### Energy efficiency

There are ways that local energy efficiency targets **could pivot to comply with the WMS**.

The clearest option is to follow the format of certain precedent local plans – such as the London Plan 2021 – that have used the Part L TER for the purpose of energy efficiency as follows:

- **Require a certain % reduction on the Part L TER to be made through energy efficiency features** (that is, before counting any further improvements to TER made by the addition of renewable energy). (The London precedent sets this at 10% in homes, or 15% in non-residential. The Warwick 2024 precedent sets this at 63% but with a different scope.)

This presents a conceptual challenge about what counts as an 'energy efficiency' feature, as some technologies offer both energy efficiency and renewable energy delivery. For example, heat pumps typically deliver 3+ units of heat for every 1 unit of electricity consumed (making them 300% efficient, while a gas boiler is ~89% or direct electric heating is ~100%) – but also some of the pumped heat is 'renewable' as it is taken from outdoor air, ground or water.

To make this policy workable, the London Plan precedent therefore had to come with guidance on what counts as an 'energy efficiency' feature. London treats heat pumps as a 'renewable energy' feature rather than an 'energy efficiency' feature, to ensure that the required 10% improvement from 'energy efficiency measures' is instead delivered through fabric improvements and other system improvements. By contrast, another more recent precedent (Warwick Net Zero Carbon DPD<sup>ix</sup> and associated SPD, adopted 2024) chose instead to categorise heat pumps as an 'energy efficiency' feature and simply set the required % TER improvement at a higher level – for example, ~63% so as to reflect the approximate level of TER reduction that the Government has stated will be delivered by the Future Homes Standard.

Justifying the above approach could draw on existing feasibility evidence from the London Plan (or Warwick DPD if that approach is taken). However, there are **caveats to this**:

- Feasibility in non-residential: Anecdotally, London's requirement for a 15% TER improvement in non-residential buildings has proven difficult for the industry to achieve using the new baseline of Part L 2021 (the policy was originally set against a baseline of Part L 2013) and so London is having to apply the policy flexibly at present.
- Unclear alignment with climate duty:
  - Because TER is not actually an energy efficiency metric, and because its parent methodology SAP is so inaccurate at predicting buildings' actual energy performance, it may be difficult to robustly show exactly what %TER reduction would be justified by virtue of being a necessary part of new buildings' role in the

**Please note the commentary in this section is not a policy recommendation** – it is only an exploration of *potential* changes that could be made to the draft policies if Uttlesford were to decide that it is more important to comply with the WMS than to effectively fulfil the legal duty for climate mitigation, for the Council's information and consideration.

transition to net zero and therefore a necessary way to fulfil the local plan's legal duty to mitigate climate change (by contrast, Uttlesford's draft policy metrics of space heat demand and energy use intensity were clearly justified in that way).

- Therefore, a 10-15% TER improvement from 'energy efficiency features' may not be ambitious enough for climate-aligned best practice. London's 10% TER improvement in homes may no longer be a truly ambitious level of performance compared to what the industry can technically achieve today (via products and techniques that have advanced since London first set this policy) nor what is necessary from new builds within the UK's net zero carbon future (that is, a space heat demand of 15-20kWh/m<sup>2</sup>/year in new builds from 2025, as well as having low-carbon heating, not gas). London's applications monitoring<sup>x</sup> shows an average 19.8% TER reduction through energy efficiency, but this is from a 2013 baseline and excludes heat pumps. A significant benchmarking exercise would be preferable to evidence whether it is possible to go further, unless categorising pumps as an energy efficiency feature, in which case there is evidence that a ~63%+ reduction can be achieved on today's (Part L 2021) TER – as per the FHS and Warwick DPD as previously noted.
- Cost evidence: Further work may be needed to investigate the build cost uplifts associated with achieving a 10-15% TER reduction through efficiency features. If London has not made this public already through its own evidence base, new cost evidence may need to be produced to undertake the necessary viability testing.
  - Alternatively, if heat pumps are categorised as an 'efficiency' feature rather than a 'renewable energy' feature, there is cost evidence available from the Future Homes Standard consultation documentation and from other recent local authorities' policy evidence bases looking at the cost to upgrade fabric and heat pumps instead of gas.

**A further option could be to retain the Space Heat Demand and Energy Use Intensity** metrics that were already proposed in the Task A report – but only **as secondary metrics that are used alongside the primary metric of % TER reduction** from energy efficiency measures, as above. This would require additional analysis to estimate what % TER reduction might typically be represented by a building that achieves those SHD and EUI metrics. However, this could only ever be an estimation and not an exact conversion, because SHD and EUI are absolute metrics while TER is a 'relative' metric that is set at a different level depending on what shape, size and type the building is – and because TER is a carbon metric not an energy efficiency metric, as previously noted. Additionally, if SHD and EUI are used only as secondary metrics, it may prove unsuccessful to implement these in practice in getting developers to adhere to them.



## Renewable energy

**The WMS2023 does not mention renewable energy at all.** Therefore the WMS does not lay any constraints on the power of local plans to set ‘reasonable requirements for a proportion of energy use at the development to be from renewable sources in the locality of the development’ (Energy & Planning Act 2008, paraphrased).

Therefore, there is **nothing in the WMS or the legislation to prevent the adoption of a policy that requires energy use on site to be met with 100% renewable energy**, so long as this can be shown to be ‘reasonable’ as per the wording of the Energy & Planning Act (which grants the power to require renewable energy at new development through local plan policy).

The Energy & Planning Act does not define ‘energy use at the development’. Therefore there is **nothing to prevent the interpretation that this logically means total energy use**, not just the fraction of energy use that is ‘regulated’ by building regulations.

The Energy & Planning Act does not define ‘reasonable’. We might interpret that this, in the planning context, should therefore mean:

- Feasible to achieve
- Within a cost uplift that still allows for necessary development to remain viable
- An effective and socially beneficial means of working towards the NPPF goal of *sustainable development*, in particular:
  - The plan’s legal duty to ensure that development and use of land contributes to mitigating climate change (Planning & Compulsory Purchase Act 2004)
  - The imperative to achieve ‘radical reductions in greenhouse gases ... taking a proactive approach to mitigating ... climate change ... in line with the ... Climate Change Act 2008’ and ‘provide a positive strategy [to increase] renewable and low carbon energy and heat’ (NPPF 2023, paragraph 157, 158, 160, and footnote 56).

Feasibility, climate necessity and cost uplifts for the draft Uttlesford policies were already demonstrated through the main report (Task A) to which the current document is an addendum, by citing the Essex energy modelling and cost modelling reports and the evidence bases of many other recent precedent plans (Cornwall, Bath & North East Somerset, and Central Lincolnshire). To this can now be added further feasibility<sup>xi</sup> and cost<sup>xii</sup> evidence from South Oxfordshire & Vale of White Horse (January 2024). All of these show that 100% on-site renewable energy is feasible *so long as sufficient energy efficiency improvements are made first* – therefore in the precedent policies cited, such a renewable energy approach had been paired with energy efficiency targets in terms of absolute fixed energy use intensity (EUI) targets. Although the latter (EUI targets) would diverge from the WMS2023, the WMS itself does not prevent the setting of renewable energy targets that have the indirect effect of needing to design to sensible EUI targets.

**An alternative approach could be to require a 100% reduction in TER through renewable energy generation on-site after applying the required TER reduction from energy efficiency.**

This would follow the structure of earlier adopted precedents such as Milton Keynes Local Plan, which requires firstly a 19% reduction in TER, and then a further 20% reduction in TER through renewable energy (implying that the first 19% would be through energy efficiency). The Warwick 2024 DPD (cited above) similarly requires a 100% reduction in TER by renewable energy and/or carbon offsetting, after its initial 63% TER reduction from energy efficiency target.

## Embodied carbon

**Embodied carbon is not mentioned by the WMS2023 at all.** Nor is there any national legislation or regulation on embodied carbon, nor do there appear to be any other statements in [public WMS archives](#) to define a national policy approach to embodied carbon of buildings.

‘Embodied carbon’ does appear in a separate [WMS of 18<sup>th</sup> December 2023](#) stating that the Government intends to eventually “develop an embodied emissions reporting framework that could serve future carbon leakage and decarbonisation policies”. That WMS’ focus is a ‘carbon border adjustment mechanism’ (a price on carbon emitted overseas in the production and transport of import goods; the [EU equivalent](#) is a price paid at the border so that overseas goods’ embodied carbon is paid for in the same way as EU goods’ carbon). Thus that WMS does not regard how to address UK construction embodied carbon, in planning policy or otherwise.

Thus it appears there is still no relevant national approach with which local policy would need to be consistent in order to meet the NPPF test of soundness (NPPF 2023, paragraph 35d).

**The scope of action available to the local plan with regards to embodied carbon therefore remains the same as in the ‘Task A’ report** to which this current document is an addendum.

However, it is useful to note that the aforementioned new evidence for South Oxfordshire & Vale of White Horse emerging plan (2024) covers embodied carbon targets as well as energy. It found that with business-as-usual construction, and even after adding the improvements needed for the energy targets (similar to Uttlesford’s), all nonresidential buildings and flats stay below the upfront embodied carbon limits set in Uttlesford’s draft policy, thus with no further cost uplift to achieve those limits. Houses were found to slightly exceed the Uttlesford target (600kg/m<sup>2</sup> as opposed to the Uttlesford 500kg/m<sup>2</sup> residential target), but were able to achieve far better (233-237kg/m<sup>2</sup>) via some feasible tweaks to material and construction choices.

## Overheating

**The WMS2023 does not mention overheating and so does not impose any new restrictions.**

However: beyond the overheating points made in the previous ‘Task A’ report, we now note that separate WMS ([15<sup>th</sup> December 2021](#)) did recognise the introduction of the 2021 ‘Part O’ of building regulations, which sets national minimum standards for mitigation of overheating. That WMS2021 stated that there was ‘no need’ for local policy to ‘duplicate’ the requirements of Part O. However, Part O allows two different routes to compliance. Uttlesford’s draft policy was to require the more rigorous of those routes. We consider that this is not a duplication nor a departure from Part O, but rather a clarification of the acceptable fulfilment of Part O.

## Existing buildings

The WMS’ rationale is heavily focussed on new builds, not existing buildings. Yet, its exact wording could be interpreted to apply to *any* residential building. This may mean that any local policy energy efficiency standards for existing buildings may also feel pressure to be expressed as % TER reduction. Uttlesford’s existing draft policy approach to existing buildings does not set a specific target for carbon or energy reduction, but instead asks that extensions or conversions meet a certain set of minimum fabric values (based on the Essex model policies). It is uncertain whether this would count as an “energy efficiency standard” and thus fall within the influence of the WMS2023. Arguably it should not, as the Uttlesford draft policy relates only to fabric, which would contribute to, but not define, a home’s overarching energy efficiency performance.





## What is the status of a WMS versus other national policy or legislation?

As previously noted, legislation (and the powers it grants or duties it imposes) holds primacy over national policy statements.

If interpreted literally and rigidly, the **WMS' stipulations would make it much harder to fulfil the local plan's legal duty to mitigate climate change** (established in the Planning & Compulsory Act 2004, section 19) and the expectation laid on them to support “radical reductions in greenhouse gas emissions ... [taking] a proactive approach ... in line with the objectives and provisions of the Climate Change Act 2008” (NPPF, paragraphs 157-158 and footnote 56).

The main way the WMS make this duty harder to fulfil is that its stipulated metric, TER, is not suitable to ensure a building has the energy efficiency performance needed for the UK's legally binding carbon goals as previously described. That unsuitability is why several recently adopted [precedent local plans](#) elsewhere had used alternative metrics that are much more effective for delivering energy efficiency and defining whether a building is 'net zero'.

Government has not indicated that there was any assessment of how the WMS would affect the ability to fulfil those mandates, nor advised which should take priority where they are in conflict.

**Legislation holds far more weight than a WMS, and a WMS does not overrule the NPPF.** Thus, it should be possible to diverge from the WMS if a strong case can be made that following the WMS would prevent the local authority from fulfilling its legal obligation to 'contribute to the mitigation of climate change' set by the Planning & Compulsory Purchase Act, and the plan's ability to meet the NPPF expectation for carbon reduction *in line with the Climate Change Act*.

The previous report for Uttlesford (Task A, to which the current document is an addendum) already made that case in strong terms. In particular, its key points included:

- That the draft energy targets are designed to directly reflect the energy efficiency performance level that the Climate Change Committee has shown to be necessary as part of the UK's wider energy system transition needed for all sectors (not just buildings) in order to meet the legislated carbon budgets of the Climate Change Act.
- The inadequacy of Building Regulations metrics to deliver, or even assess achievement of those necessary energy efficiency targets for the UK's legislated carbon budgets, due to the inaccuracy of those Building Regulations calculations and their limited scope (as the Building Regulations metrics cover only regulated energy uses, not total energy use that is covered by the EUI metric, which in turn is needed in order to ensure low carbon heat is used, i.e. heat pumps as these are 250-500% efficient)
- The importance of these policies to the local commitments to net zero by 2030, and the UK's commitment to the international Paris Agreement, in addition to the necessity to national carbon budgets as noted above
- The feasibility and cost uplift of meeting the draft policies' specified energy targets in this specific region, with reference to the energy modelling and cost modelling evidence produced by/for Essex, which can inform the Uttlesford whole plan viability assessment.

As a result, Uttlesford is in a relatively strong position regarding the evidence of necessity, feasibility and cost (and therefore viability, depending on whether the whole plan viability assessment finds that these cost uplifts can be accommodated in the District).

Still, there remains a risk that it may not be possible to convince the Inspector of this argument as it is a highly technical topic to explain, both in written form and verbally at the examination, to anyone not expert in net zero carbon building design. The WMS also states that any such policy going beyond Building Regulations efficiency standards will draw close scrutiny from central Government, meaning the local Council may have to defend it against not only the usual objectors but also the weight of central government pressure to comply with the WMS. However, we note that there is an ongoing **a wider legal challenge against the WMS2023 in the High Court** on the grounds that it unlawfully inhibits the function of the legislated duties and powers of the local plan (as described above). That case was heard in the High Court on 18<sup>th</sup> June 2024. The judgement may take several weeks or months to be published, and was not yet available at the time of writing this Addendum report for Uttlesford. If successful, that legal challenge could remove the obstacles faced by the current draft Uttlesford policies before the Uttlesford plan undergoes Examination In Public.



## Updates on Essex policy context and evidence

### Updated open legal advice – now responding to the WMS2023

As recognised in the previous Task A report, the County Council / Essex Planning Officers Association had released a set of model policies accompanied by feasibility evidence, cost evidence, county-wide viability modelling, and open legal advice about the powers available to the local plan to require these standards. That previous open legal advice focussed on the erstwhile main stumbling block to such policies: A Written Ministerial Statement made by Government in 2015 which had purported to set a limit on the extent to which local plans could require improvements to homes' energy and carbon performance.

As that previous WMS(2015) has now been replaced by the WMS2023 which brings new challenges as outlined above, Essex commissioned its legal adviser (Estelle Dehon KC of Cornerstone Chambers) to update the open legal advice to now focus on the WMS2023.

In summary, the key messages from the updated open legal advice:<sup>xiii</sup> (24<sup>th</sup> February 2024) are that:

- The local plan is still empowered by the Planning & Energy Act 2008 to set higher targets for energy performance standards than national ones, provided such standards are 'reasonable'; the WMS2023 does not change that position
- The WMS cannot lawfully seek to countermand or frustrate the effective operation of that power granted by the Planning and Energy Act as above
- The correct position in law is to treat the WMS' forceful language with circumspection.
- "The 2023 WMS must be interpreted in a way that:
  - allows for the effective operation of the PEA 2008 powers [the local planning authority's power to set their own energy efficiency standards], and
  - allows LPAs effectively to meet the obligation on them to ensure development plan documents ... 'contribute to the mitigation of ... climate change'" [as set by the Planning & Compulsory Purchase Act Section 19].
- **Therefore "the 2023 WMS cannot be interpreted to prevent LPAs from putting forward, and planning inspectors from finding sound, policies which ... use metrics other than the TER metric [specified in the 2023 WMS], and/or do not require calculation by the SAP [the method specified in the WMS]"** so long as these policies are justified on evidence, and "reasonable, in that they do not affect the viability of new development to an unreasonable extent."
- "Additionally, local decision-makers are free to rely on local or exceptional circumstances to depart from the 2023 WMS".

This new open legal advice provides a strong grounds to continue pursuing Uttlesford's existing draft policy approach that goes beyond Building Regulations and uses metrics/calculations other than that specified in the WMS, with confidence that this can be legally defended at examination, and at appeal if there were an unlawful interpretation of the WMS that frustrates the ability to fulfil the climate duty.

### Emerging evidence on embodied carbon

Essex has been developing evidence on the feasibility and costs of improved standards for embodied carbon, and model policies that could be adopted by the respective local planning authorities within Essex. This is the equivalent of the work already published by EDG/EPOA:<sup>xiv</sup> on energy targets.

That embodied carbon report can be directly cited to support the Uttlesford policies. It was published on 3<sup>rd</sup> July 2024, too late for its findings to be summarised in detail in the current Uttlesford report; however we note that the Essex report covers the following:

- The need for embodied carbon policy
- Methods and scopes of assessment for embodied carbon
- Existing industry guidance on embodied carbon accounting and target-setting
- How the embodied carbon design process could interact with the planning process and policy
- Review of existing relevant precedent local plan policies across the UK (of which the majority of adopted policies so far only require reporting, not specific targets limits, although there is one adopted plan that sets specific target limits, and several more emerging plans attempting this)
  - (Potentially including a summary of evidence that has justified such precedent policies)
- Review of embodied carbon policies outside the UK
- Review of Essex local planning authorities' most relevant policies and planning guidance
- The relative merits of different possible local plan approaches to embodied carbon
- Recommendations for Essex model policies around embodied carbon, which may cover a range of topics from general principles to reporting requirements and/or specific quantitative targets
- Embodied carbon modelling for residential buildings, to assess their 'business as usual' embodied carbon and the feasibility and cost of meeting potential tighter targets per m<sup>2</sup>.

In conclusion:

- **The Essex evidence on embodied carbon further strengthens the justification for the Uttlesford embodied carbon policies in terms of necessity and feasibility.**
- **It is as yet uncertain whether the Essex evidence might indicate any further cost uplift** associated with targets like Uttlesford's.
- **To make room for this eventuality, Uttlesford may wish to instruct its viability assessors to test some additional headroom in cost uplift.** If this is not done and the Essex evidence turns out to indicate an embodied carbon target cost uplift not allowed for in the Uttlesford viability testing, Uttlesford may later need to revise its embodied carbon targets upwards to a level that would be cost-neutral.

## Updated policy options evaluation in light of the WMS2023

Policy recommendations reflect findings from the following elements of the evidence base:

1. **'Task A' review of literature, legislation and precedents (finalised October 2023, rev 1.5)**
2. **Essex model policies and evidence**
3. **Written Ministerial Statement 2023 (and Essex open legal advice on this)**

The 'Task A' report (to which the current document is an addendum) set the scene of what the local plan is able to achieve and importantly what it must do within the context of carbon reduction commitments at both local and national scales. Policy evaluations presented in the current document are informed by the insights and precedents given in that Task A report, as well as the new parameters purported to be set by the Written Ministerial Statement of 13<sup>th</sup> December 2023 and legal advice in reaction to that, as outlined earlier in the current addendum report.

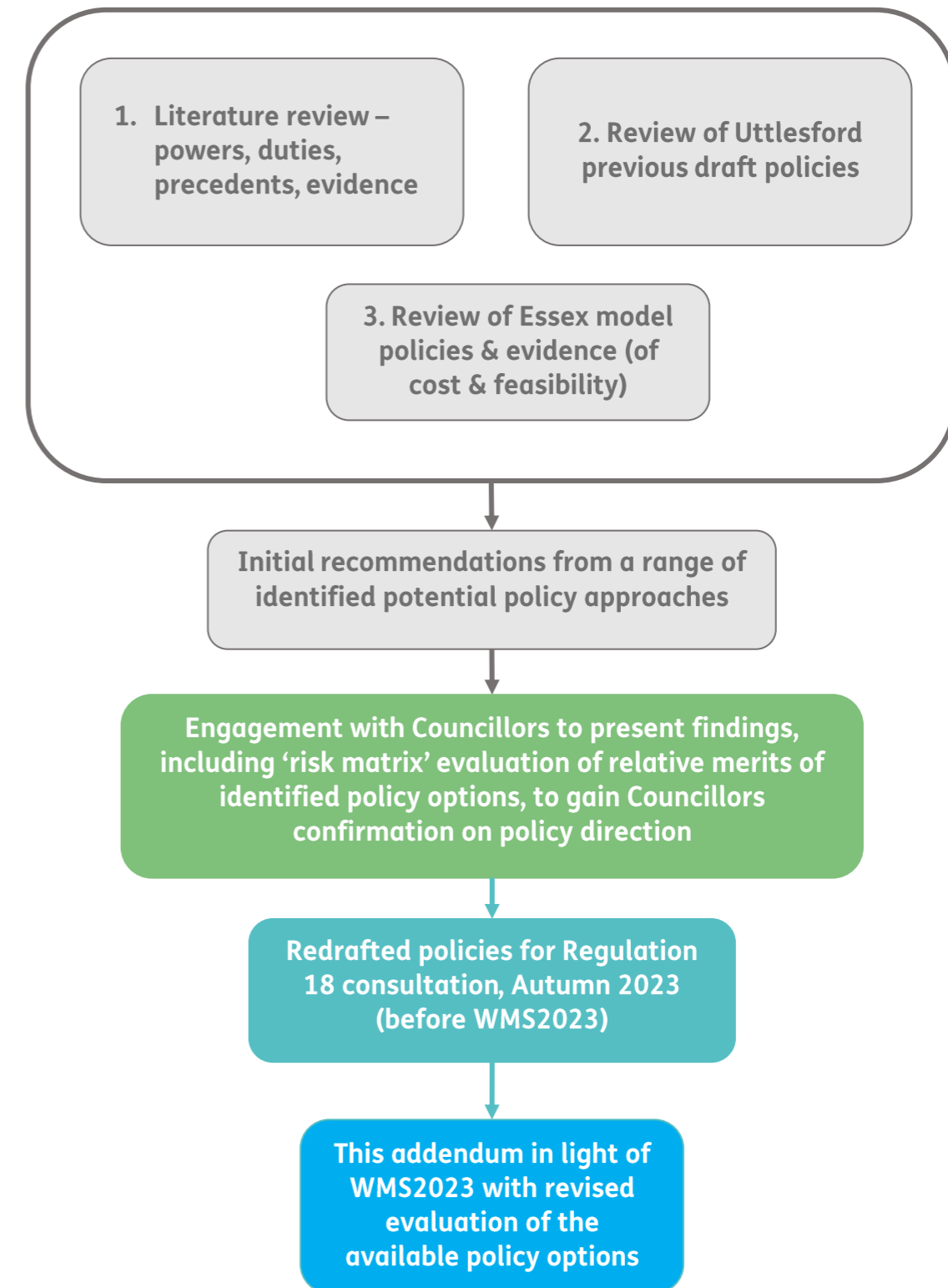
It should be noted that the policy wordings in this current document do not represent the exact wording that must be taken forward word-for-word by the Council. Rather, they represent a logical structure to represent the broad policy components of the identified policy approaches that are evaluated.

Please note that a presentation of these findings about the WMS2023, and the evaluation of the policy options in light of it, was given to the Council in April 2024. The decision from the Council was to not to change course from the existing draft policy suite that had been developed to date, on the grounds that these were demonstrably the most effective (and possibly only real) way to reliably fulfil the legal duty to mitigate climate change, especially if this mitigation must be in line with the Climate Change Act 2008 (and Uttlesford's own committed district-wide carbon reduction goals). It was considered that the WMS2023's expectation for "a robustly costed rationale that ensures development remains viable" was already met by the previous evidence base produced for Uttlesford including citation of the Essex feasibility and costings of these policy standards. The WMS2023's requested metric for energy efficiency standards (%TER reduction) was considered, but rejected for the reasons detailed in the previous section – i.e., that TER is not an energy efficiency metric and is subject to inaccuracies that would make it an ineffective way to design carbon reduction policy.

### Structure of this section on policy options

This section of this section proceeds as follows:

- **Recap of the structure and content of the existing draft Uttlesford policy** as expressed in the Regulation 18 Consultation Plan (October 2023)
- **Recap of policy options that had been considered prior to Regulation 18**
- **A recap of alternative policy options** in light of the WMS2023, with evaluation of their relative merits via a 'risk matrix' assessment.



## Evolution of Uttlesford's policy approach on energy & carbon

### Policy content up to 'Publication' version for Regulation 18, October 2023

The most recently published Local Plan consultation (30 October 2023) had included the following key requirements (paraphrased for brevity):

- **Core Policy 22, Net Zero Operational Carbon Development**
  - a. New build development
    - Residential of 1 or more homes:
      - Space heat demand  $\leq 15\text{kWh/m}^2/\text{year}$  (or  $\leq 20\text{kWh/m}^2/\text{year}$  in bungalows)
      - Fossil fuel free (no gas grid connection) and use low-carbon heating
      - Total EUI of  $\leq 35\text{kWh/m}^2/\text{year}$  (on larger sites, this is a site-wide average but an individual building limit of  $\leq 60\text{kWh/m}^2/\text{year}$  also applies)
    - New build non-residential of 100m<sup>2</sup> floor space or more:
      - Space heat demand  $\leq 15\text{kWh/m}^2/\text{year}$
      - Total EUI limits as follows:
        - Offices  $\leq 70\text{kWh/m}^2/\text{year}$
        - Schools  $\leq 65\text{kWh/m}^2/\text{year}$
        - Light industrial  $\leq 35\text{kWh/m}^2/\text{year}$
        - Other: Report total energy use. Encouraged to meet EUI targets set for relevant use by UK Net Zero Carbon Building Standard, but no mandatory requirement to meet an EUI target.
    - All new build regardless of use, at or above the threshold of 1 home or 100m<sup>2</sup> non-residential floorspace, to meet the following:
      - Renewable energy provision to meet  $\geq 100\%$  of total predicted energy use, OR  $80\text{kWh/m}^2$  building footprint /year ( $120\text{kWh/m}^2$  building footprint/year in light industrial only), whichever is the higher target
        - OR offset any unmet demand at  $\pounds 1.35/\text{kWh}$  (rising with future inflation)
      - Submit as-built information for comparison with design-stage energy performance predictions [the required level of detail varies by minor vs major development]
    - All new build regardless of use to submit in-use energy monitoring for 5 years of operation, if above the following thresholds:
      - 100 dwellings or more: Sample of 10% of dwellings
      - 10,000m<sup>2</sup> non-residential floor space: 10% representative area sample.
  - b. Extensions and conversions, excluding listed buildings and conservation areas:
    - i. Meet minimum fabric standard in specified Table 2, Appendix 8 of plan
    - ii. Incorporate renewable energy generation where practical and feasible.

This policy suite was selected from a given range of identified options, because:

- Most importantly, it would deliver 'true net zero operational carbon buildings' and its energy efficiency targets align with the energy and carbon performance that is needed in the buildings sector in order to be compatible with the UK's legislated carbon budgets set via the Climate Change Act (see Task A report). This was considered necessary in order to fulfil the local plan's duty to mitigate climate change (Planning & Compulsory Purchase Act 2004, Section 19) and the national policy stipulation that this mitigation should be "in line with the objectives and provisions of the Climate Change Act 2008" (NPPF 2021 Paragraph 153 & footnote 53 / NPPF 2023 paragraph 158 & footnote 56). The literature review identified three precedent local plans that had adopted similar or identical targets and metrics.
- Secondly, it aligns directly with the model policy suite developed at Essex level for adoption by any willing local planning authorities within Essex, and thus benefits from the Essex-specific robust evidence of feasibility and cost released by the County along with the model policy suite.
- Thirdly, the SHD and EUI targets would provide significant energy cost savings for building occupants and reduced strain on grid infrastructure, compared to new build homes meeting current or indicated future building regulations (Part L 2021 and the FHS).

Other policy options had also been explored, ranging from 'do nothing', to an approach based on Part L SAP/SBEM metrics (TER reduction; TFE reduction and offsetting per tonne of SAP-calculated carbon emissions) to align with the indicative Future Homes Standard. It was identified that these would not meet the required performance for the UK's carbon budgets (and this is [reiterated in the current addendum](#) in relation to the subsequent 2023 Future Homes Standard consultation).

On presentation of this range of identified policy options to the Council in Summer 2023, the Council agreed to proceed with this EUI-based policy option for the reason of climate mitigation effectiveness and alignment with the Essex approach. Part of the rationale was that this represented a step towards an effective but consistent policy approach across the County, which would reduce complexity and prevent development 'leakage' from districts with higher standards to ones with lower standards. Additionally, there was the potential advantage that the offsetting approach could be delivered more efficiently by connecting to an Essex-wide offsetting scheme with other Essex districts in future.

The policy did diverge slightly from the Essex suggested model policies on the existing building requirements. The Essex suggestions included some requirements equal to the new build fabric, that Bioregional was not certain would be fully achievable in existing buildings or extensions connected to them, such as certain airtightness targets. The Uttlesford fabric requirements for extensions & conversions therefore only replicate the parts of the Essex fabric specification that were logically thought to be very much feasible in existing buildings and extensions.

**Recommendations were also made on embodied carbon and overheating. These are not repeated here as they are not affected by the WMS2023 and therefore do not need to be re-evaluated.**

However, we note that the embodied carbon limits were based upon emerging recent modelling from other local plan evidence of the embodied carbon of today's 'business-as-usual' home construction (with a house that would comply with the legally required energy standard of Part L 2021) and were therefore reasonably thought to be cost neutral.



## Other approaches previously considered, now being reconsidered in light of the WMS2023

During the Task A research into powers and precedents and then during engagement with Uttlesford officers and councillors in Summer-Autumn 2023, several other policy options were also identified and considered for their relative merits (climate, occupants, infrastructure, cost, and consistency with national policy). These options are summarised as follows.

- **Approach 1, 'Safe' precedent:** Require a moderate (35-40%) on-site reduction in TER, of which 5-15% from energy efficiency measures, and 10% of regulated energy use to be met with renewable energy on site. Offset the remainder of predicted regulated carbon emissions (calculated using SAP) at £60-90/tonne multiplied by a 30 year period. This approach followed the older kind of precedent found in the literature, such as the adopted local plans of London, Milton Keynes and Oxford.
- **Approach 2, Cutting edge:** As described in the previous section (Meet cutting-edge definition of 'true operational net zero building' fit for UK's carbon budgets, with tight energy efficiency targets (space heat demand and EUJ, calculated with an accurate energy prediction method). On-site renewable energy to match annual demand (or if this is unfeasible, then pay to offset per kWh of unmet annual energy demand). This emulated the recently adopted pioneering precedent policies in Cornwall, Bath/North East Somerset, and Central Lincolnshire.
- **Approach 3, Accelerating future stated national policy:** Targets for TER% reduction and TFE % improvement set to reflect the then-extant indicative Future Homes Standard. Encourage on-site renewable energy 'as far as feasible and viable' with no specific target. Offset any remaining regulated carbon emissions at the national carbon value (circa £250/tonne at the time) for 30 years' worth of predicted regulated carbon emissions taking into account grid decarbonisation.
- **Approach 4, "Acceleration+":** TER% reduction set to reflect the then-extant indicative Future Homes Standard, but to be achieved before the additional of solar panels (therefore, through energy efficiency measures including heat pump). Additionally, set targets for space heat demand (20kWh/m<sup>2</sup>/year) and regulated energy use intensity, but these to be calculated with building regulations methods (SAP /SBEM), not with the industry's more accurate methods. Renewable energy (PV) provision to match 100% of *regulated* energy use only. Offset 30 years worth of carbon emissions from predicted unregulated energy, as well as any remaining regulated carbon where it was not possible to meet the renewable energy requirement on site, using the same carbon pricing and grid decarbonisation as outlined in Approach 3 (above).

On presentation of these options to Uttlesford Council Members at several meetings in Summer to Autumn 2023, the Council's direction was to pursue Approach 2 (Cutting Edge) on the basis that it was far more effective in fulfilling the plan's legal duty to mitigate climate change, as it was the only one of the approaches that would reliably do so in line with the performance needed for the UK's carbon budgets set by the Climate Change Act 2008 (and Uttlesford's own local commitments to carbon goals). In particular, approaches 1, 3 and 4 were felt to rely too heavily on offsetting, and there were concerns that the offset fund might not deliver enough permanent carbon savings in the required period in order to reliably fully mitigate the climate change impact of the new development.

A summary of these options, and brief commentary on their relationship to the new stipulations that the WMS2023 purports to set, is provided in the table overleaf.

Summary table of previously considered potential energy/carbon policy approaches for new builds, and reassessment in light of the WMS of 13<sup>th</sup> December 2023

Policy requirement (in order of energy hierarchy)	Option 1, “Safe precedent”	Option 2, “Cutting edge” True & effective net-zero approach using energy metrics (as per Uttlesford draft)	Option 3, “Accelerating future national policy”: Build to Future Homes Standard, and offset remaining regulated carbon.	Option 4, “Acceleration+”: 63% to 100% TER reduction on-site, + offset carbon of regulated+unregulated energy.
<b>Overarching expectation</b>	Net zero carbon (regulated carbon emissions, calculated by Part L SAP) of which the minimum on-site reduction is 35-40% on the Part L 2013 baseline.	Net zero carbon new development, achieved via a net zero energy balance. Calculated using a methodology known to accurately predict energy use (not Part L SAP/SBEM).  (Threshold: 1 new home or 100m <sup>2</sup> new non-residential floor space.)	Homes: Net zero carbon (regulated carbon emissions only, as calculated by Part L SAP). Minimum on-site: 63% reduction on Part L 2021 TER (equivalent to 75% reduction on Part L 2013 TER). Gas-free.	Homes: <ul style="list-style-type: none"> <li>Net zero regulated carbon, <i>preferably</i> on site, or through other means if not achieved on-site.</li> <li>Onsite minimum improvement ≥63% versus Part L 2021 TER equivalent to 75% reduction on Part L 2013 TER))</li> </ul>
<b>Energy efficiency</b>	5-15%* TER reduction through energy efficiency improvements  (*which counts towards the overarching 35-40% minimum onsite TER reduction).	Homes energy limits (required): <ul style="list-style-type: none"> <li>35kWh/m<sup>2</sup>/year total energy use (EUI)</li> <li>15-20kWh/m<sup>2</sup>/year space heat demand.</li> </ul> Non-residential energy limits: <ul style="list-style-type: none"> <li>35-70kWh/m<sup>2</sup>/year EUI (varies by type)</li> <li>15kWh/m<sup>2</sup>/year space heat demand.</li> </ul> All: Quality regime against performance gap.	Homes: Achieve 10% reduction on Part L TFEЕ. Recalculate SAP TER and TFEЕ on completion using as-built values with input from surveys of completed buildings.	Homes: <ul style="list-style-type: none"> <li>The minimum 63% reduction on Part L 2021 TER (as above) should be achieved through efficiency improvements (which can include heat pump and should include fabric equivalent to ‘Future Homes Fabric’ as stated by Government in the <a href="#">2021 Response to the FHS Consultation</a>)</li> <li>Guideline target of 20kWh/m<sup>2</sup>/year space heat demand, but calculated only via building regulations method (SAP).</li> </ul>
<b>Renewable energy (on-site requirement)</b>	As much as required to get to the overarching 35-40% TER reduction after the initial 5-15% has been made through energy efficiency improvements.	Match 100% of annual total energy demand (regulated + unregulated) unless unfeasible. OR: 80-120kWh/m <sup>2</sup> building footprint/year renewable energy generation.	Homes: Sufficient to at least achieve 63% reduction in Part L 2021 TER (when combined with TFEЕ improvement). Aim for 100% reduction in TER if possible.	Homes: Sufficient on-site to achieve net zero <i>regulated</i> carbon after the first 63% is made through energy efficiency. If demonstrably unfeasible, proceed to offsetting.
<b>Offsetting (operational only)</b>	Offset remaining regulated carbon emissions (calculated by Part L SAP) x 30 years at £60-90/tonne.	Offset per kWh of annual energy demand that is not met with on-site renewables.	Offset 30 years’ worth of any residual regulated carbon at “current” (erstwhile) national value (~£250/tonne), via payment to Council.	Offset 30 years’ worth of residual regulated + unregulated carbon at “current” (erstwhile) national value (~£250/tonne), via payment to Council. Spend only on renewables.
<b>Assessment in light of WMS 2023</b>	Unacceptable in terms of efficacy for climate mitigation duty. Barely makes any required onsite improvement compared to current building regulations. Would be overtaken by the Future Homes Standard (Building Regulations Part L 2025) before the Uttlesford plan is adopted.	Energy efficiency targets using SHD and EUI metrics diverge from the WMS, but remain the most effective for the climate duty.  The renewable energy, offsetting and embodied carbon requirements remain unaffected by the WMS.	WMS2023 may imply removal of TFEЕ target, although there is one post-WMS precedent plan adopted with this (Warwick DPD 2024). Otherwise compliant with the WMS.  Not sufficiently effective for climate, as unregulated energy is neglected, Building Regs calculation methods are inaccurate.	Compliant with the WMS2023 except for the space heat demand target. More effective for climate than Option 1, because unregulated energy is offset and an embodied carbon limit is set.  Still not sufficiently effective for climate, Building Regs calculation methods are inaccurate.



### Three further approaches considered in response to the WMS2023

Based on existing powers, duties and mandates, and now with 2023 WMS, we next outline and evaluate the following three broad policy approach options:

1. Fully WMS-compliant
2. Testing WMS boundaries
3. Overcome the WMS

Approaches 2 and 3 look to exploit certain areas where the WMS is unclear or not prescriptive, whilst Approach 1 acts as a WMS-compliant option that is relatively 'safe' in terms of planning acceptability and less complex to defend at examination.

It is important to note that there exists a multitude of different policy options that a local authority could consider within or beyond these three approaches. The three approaches we explore in this report are the result of professional judgement of the broad categories of approach that exist, based on existing precedents and industry best practice. Each approach could be adapted by Uttlesford DC to better align with the Council's degree of climate commitment and appetite for risk.

Within the Options 1 – 3 as above, there are a number of policy components that it is helpful to divide into themes to enable a clearer comparison between the three options.

Our previous review (in Task A and this addendum) of planning duties, powers and precedents shows that to achieve net zero carbon buildings within a net zero carbon district and UK, several different requirements can and should be deployed in local plan policy. **These form broad themes:**

- Energy efficiency
- Efficient, fossil-free and renewable energy supply
- Carbon offsetting
- Embodied carbon.

Secondary requirements to reduce the energy performance gap could consist of:

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

These themes follow the **energy hierarchy**, plus **offsetting** and **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 (pre-WMS) precedents exist for all of them. To deliver the necessary actions for the scale and urgency of the UK's carbon goals, we would need to emulate the more ambitious end of the range of existing precedents, which have been creatively testing the boundaries of the powers available (before the WMS2023).

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 the powers explicitly granted to them require carbon reductions (due to pressures such as the WMS2023),
- Local planning authorities' *duty to enable other outcomes* such as housing delivery.

That mismatch has caused some ambitious 'net zero' policies to stumble at the hurdle of examination, despite other very similar policies having successfully passed that hurdle (as noted in the previous Task A report and earlier in the current addendum).

The well-tested, 'low planning risk' policy precedents tend to rely on requiring moderate reductions against Building Regulations Part L. However, as noted previously, Part L and its calculation methods are not well 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.

These three options are now assessed using a risk matrix approach. The risk matrix approach is one we regularly use to evaluate policy approaches where there are several competing criteria regarding the merits of a policy. The criteria in this case, taking into account the pressures acting on the local plan from legislation, national policy, technological and socioeconomic context were identified as:

- Climate impact (carbon reduction)
- Occupant energy bills
- Cost and disruption of future retrofit of homes built to the respective policy option, that would be needed in order to make those homes suitable for the UK's carbon budgets
- Electrical grid burden that the new homes would bring (due to their energy demand and, where applicable, their renewable energy export)
- Council's internal capability to implement the policies (evaluate the information that would be submitted)
- Cost of building to the standard (leading to resulting degree of viability impact)
- Planning powers available, and precedents evidencing the acceptability of the approach
- Compatibility with national approach.

A summary table is provided overleaf giving more detail on these evaluation criteria.

Table 5: Scope of risk topics for which policy options should be assessed.

Climate (2°C carbon budgets)	Occupant energy bills	Future retrofit costs/disruption	Electrical grid readiness	Delivery / sector readiness	LPA internal capability	Viability / cost uplift (vs current Part L)	Planning powers / precedents	Compatibility with national approach
<p>Will this policy deliver carbon and energy savings consistent with what the Committee on Climate Change has shown to be necessary for the UK to meet its legislated carbon budgets?</p> <p>Consider also the even more ambitious Tyndall Centre carbon budgets for climate change <math>\leq 2^\circ\text{C}</math> (more reliable for the <a href="#">Paris Agreement</a>).</p> <p>Any new build that is not true net zero carbon will worsen the already-huge challenge faced.</p> <p>Any insufficiently energy-efficient buildings will place excessive demands on the region's limited renewable energy capacity (current capacity, and speed/scale at which future capacity can be added).</p>	<p>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?</p> <p>Vice versa, is the resulting building likely to save energy bills long term?</p>	<p>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)</p> <p>If not, how disruptive and expensive would future retrofit works be?</p>	<p>Will this induce the developer to minimise the burden that the new building places on the electricity grid, considering that the grid will already face the huge challenge of switching existing buildings and transport from fossil fuel to electricity?</p> <p>Will there be additional grid stress to account for any energy exports from solar PV installed, and electrification (gas-free status) due to the policy, compared to Building Regulations?</p> <p>Might this component 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 net zero carbon future?</p>	<p>How readily available are the materials, technologies and skills needed to comply with this – including energy calculation skills?</p> <p>How mainstream is this practice or level of performance, and are the relevant workers likely to understand how to deliver it (immediately, or with a reasonable amount of learning)?</p>	<p>Is there sufficient resource and capacity available internally at the local authority to accurately implement the policy and assess information that developers would need to submit?</p> <p>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?</p> <p>(Please note: all scores given in this topic are our best estimate of this challenge – only Uttlesford DC itself has accurate knowledge of its own capacity to address these issues, or willingness to develop capacity).</p>	<p>Would it cost developers much more to comply with this policy, compared to a business-as-usual new build?</p> <p>(Based on estimates – by central government and evidence bases of various 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 &amp; carbon. Or for Approach 3 – as per Uttlesford's current policies – based on the cost evidence produced at Essex level.)</p>	<p>Is the local plan explicitly empowered to require this standard, via the Planning and Energy Act 2008, other legislation or formal national policy statement (including the December 2023 WMS)?</p> <p>Is there an existing adopted local plan precedent, showing that this approach can be found sound?</p> <p>If not explicitly empowered but also not explicitly prohibited:</p> <ul style="list-style-type: none"> <li>Is there an emerging precedent for this, and how was it justified?</li> <li>Can it be shown that this is the only reliable way to fulfil the duty for 'radical' carbon reductions in line with the Climate Change Act? (NPPF)</li> </ul>	<p>To what extent would this policy component:</p> <ul style="list-style-type: none"> <li>Use existing nationally endorsed methodologies / metrics for carbon and energy? (taking into account the <a href="#">December 2023 WMS</a>)</li> <li>Help or hinder other changes that the government has committed to or intends to achieve with regards to carbon and energy? Such as: <ul style="list-style-type: none"> <li><a href="#">Future Homes Standard 2025 (2023 consultation)</a></li> <li><a href="#">Net Zero Strategy</a> (2021)</li> <li><a href="#">Heat and Buildings Strategy</a> (2021)</li> <li><a href="#">Fully decarbonised electricity grid by 2035</a>.</li> </ul> </li> </ul>

Beyond the **themes** themselves ([previously listed](#)), there are several different possible ways in which a local plan policy requirement could address each theme – using different mechanisms, calculations, standards, and required degree of energy and carbon performance improvement. These differ in their climate effectiveness and alignment with national policy.

#### The risk level would then change again depending on:

- [The means by which each theme is addressed, e.g.](#) –
  - Using national building regulation calculations for energy and carbon (lower risk in planning terms, but higher risk for climate due to these methods' inaccuracy)
  - Using far more accurate calculation methods (lower risk for climate but higher risk in planning terms, as these differ from the WMS2023 stipulation, may require specialist skills that are not abundant, and some methods may lack certainty on whether they fall within Energy & Planning Act powers)
  - Replicating an existing precedent for offsetting (lower risk in planning terms)
  - Devising a more effective mechanism for offsetting (medium risk in planning terms due to fewer precedents; but lower risk in terms of climate outcomes).
- [The extent to which the improvement is required, e.g.](#)–
  - the amount and type of on-site energy and carbon improvement,
  - the offset price per tonne of carbon 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 – climate, bills, retrofit, sectoral readiness, cost, powers/precedents, and consistency with national policies. (The topics 'powers' and 'national approach' overlap somewhat, as some legislated powers refer to national policy, and some national policies<sup>xv</sup> purport to constrain those powers.)

#### A short note on viability via the 'build cost' risk topic

Our scoring in the 'build cost' risk topic reflects whether each policy component would drive the uptake of features that other recent analyses show are more costly than the current building regulations minimum, ie:

- Heat pumps (albeit these will become the norm from 2025 via the FHS)
- Fabric improvements (based on national government cost uplift figures)
- Solar panels beyond existing Building Regulations specification (and how many – to meet total energy, or just regulated)
- Cost to offset any remaining residual carbon or energy
- Cost of specialist energy modelling or energy performance verification, where known.

Our 'build cost' risk evaluation was based on prior experience of the % cost uplift that these combinations of measures tend to add to a typical base build cost, based on studies from central government and other local plans' evidence bases. The actual impact on *viability of development in Uttlesford* will depend on the land values, sales values, and regional build costs and labour.

#### About 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 ringfenced to be spent on local projects to save the same amount of energy or carbon. 'Climate' risks arise if the amount paid is not enough to deliver the required verifiable amount of carbon savings, or if the Council does not spend the funds effectively. Risks also arise in the topics 'occupant' and 'future retrofit' because offsetting might be used in lieu of creating an energy-efficient building.

#### About the ongoing changing situation in terms of precedents – how this affects 'planning acceptability'

Please note that several highly ambitious local plans have been adopted with ground-breaking net zero carbon policies that have thoroughly tested existing planning powers and the limits of such powers (albeit all prior to the WMS2023). The most notable are the local plans of Bath & North East Somerset, Cornwall, and Central Lincolnshire Council. However, some other local plans (e.g. Salt Cross Area Action Plan, and Lancaster) have had similar policies rejected at examination, which suggests that risks and uncertainty remain over net zero planning powers. Yet, the rejection of Salt Cross was recently<sup>xvi</sup> overturned in court as it was an unlawful interpretation of a previous WMS made in 2015. Also, there is now a High Court challenge against the WMS2023 itself<sup>xvii</sup> because it tries to prevent such net zero policies.

Numerous other local authorities are either at examination or have emerging ambitious net zero carbon policies at Regulation 18 and 19 consultation stages. As more of these receive their examination reports, additional clarity and consistency will emerge regarding local authority net zero planning powers and the extent to which these can be used.

#### About levels of risk relating to planning powers/precedents and compatibility with national approach

These two columns incorporate consideration of any limitations placed by the NPPF, PPG, WMS2023, and legislation, on the acceptability of the use of local authorities' powers to reduce buildings' carbon. The WMS2023 makes the risk levels in these two columns higher than they would have been previously. However, an element of uncertainty remains on whether the WMS really increases risk to such a level. This uncertainty is expected to shrink once a number of local authorities put policies through examination with the WMS2023 in place. Those examinations should clarify the status of the WMS in balance against the climate mitigation duty. For the purpose of this exercise, the risk level is set at the higher end of the possible range, to ensure Uttlesford is not underinformed of the potential associated risk.

Matrix of all policy components (note: each approach will combine a selection of these – not all of them)

Scope	Policy requirements	Climate (2°C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/s ector readiness	LPA internal capability	Build cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	63% improvement on Part L 2021 (residential)/19% improvement on Part L 2013 (non-residential) TER, <i>from energy efficiency measures*</i>	3	3	3-4	2	1	3	2	2	1
	No fossil fuels (i.e. heat pump required)	0	2	0	2	1	1	1	1	0
	SAP Fabric Energy Efficiency (FEE) <i>guideline</i> limit 15-20kWh/m <sup>2</sup> /year	2	2	2	0	2-3	2	4 (due to lack of existing cost data)	3	1
	EUI <i>guideline</i> targets and mandatory reporting	No impact	No impact	No impact	No impact	3	2	No impact	No impact	4-5
	EUI limits using PHPP/TM54 (Homes: 35kWh/m <sup>2</sup> /year; Non-residential: 35-70kWh/m <sup>2</sup> /year depending on typology)	0	0	0	0	3-4	2	3	5	5
	Space heat demand limit of ≤15-20kWh/m <sup>2</sup> /year (predicted with PHPP/TM54)	0	0	0	0	3	2	3	5	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 100% of annual <i>regulated-only</i> energy use (residual regulated energy use after the required reduction from energy efficiency)	3	3	2	3	2-3	2	2	2	2
	On-site renewable energy to match <i>total</i> energy use (i.e. on-site net zero energy); or ≥120 kWh/m <sup>2</sup> building footprint/yr	0	0	0	3	2	2	3-4 (higher in flats; lower in houses)	2-3	4



Scope	Policy requirements	Climate (2°C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/sector readiness	LPA internal capability	Build cost	Planning powers/ precedents	Compatibility with national approach
Offsetting	Offset 30 years' worth of regulated emissions at £269/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	1
	Offset any shortfall in on-site renewable energy generation to match total energy use (via S106 or direct investment); at the estimated cost of delivering that renewable energy (set as £/kWh)	1	1-3	1-3	3	1	2-3	2-3 (higher in flats; lower in houses)	3	3
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 reporting for major development using RICS WLC methodology; target 900kgCO <sub>2</sub> e/m <sup>2</sup> GIA set for large-scale development	3	No impact	No impact	No impact	2	3	1	3 (powers not defined thus not constrained)	3
	Embodied carbon reporting for major development using RICS WLC methodology; LETI-aligned <sup>3</sup> targets set for large-scale development	0	No impact	No impact	No impact	3	4	3	3-4 (precedents are emerging only; powers not defined)	No impact (lack of embodied carbon national policy to align with)

*\*In residential buildings, this policy would count heat pump installation an energy efficiency measure not a renewable energy measure. In non-residential buildings, the type of building heating system would not make a difference as the Part L TER reflects type of heating system that is actually proposed, unlike in residential buildings. Non-residential buildings can still achieve reductions on the TER by using a heating system that has a higher efficiency than the standard efficiency that Part L sets for that respective heating system type. All kinds of buildings can also achieve TER reductions through other efficiency improvements, including insulation/glazing, airtightness, lighting, heat recovery from wastewater/exhaust air, and fans and pumps.*

Actively reduces risk	0
Low risk	1
High risk	5

<sup>3</sup> 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.



## About this matrix

The matrix orders the policy components by theme from top to bottom according to the [energy hierarchy](#): energy efficiency measures, energy supply measures, offsetting. Separately and after this, the final theme is embodied carbon.

Three potential policy approaches are presented overleaf: Approach 1 (comply fully with the WMS2023); Approach 2 (comply with but test the boundaries of the WMS2023); and Approach 3 (diverge from the WMS2023 on justification of more effectively fulfilling the climate duty).

It should be noted that although the majority of policy components outlined above apply to both residential and non-residential development, the risk scores in the topic of ‘planning powers’ primarily reflect *residential* development. This is largely because the WMS2023, which is the main source of planning risk, focuses mainly on residential. The WMS2023 does appear to refer to buildings in general, but the metric calculation method it prescribes (“a dwellings Target Emission Rate ... using a specified version of SAP”) are residential, thus logically cannot apply to non-residential buildings. Therefore, although Approaches 1 and 2 (overleaf) placate the WMS by using the TER metric within their respective energy efficiency requirements for all building types, our opinion is that the WMS2023 brings only minimal additional planning risk to Approach 3 for non-residential policies. Still, policies for any type of building may still see additional scrutiny because of the general presence of the WMS2023 and its emphasis on a “*well-reasoned and robustly costed rationale that ensures... that development remains viable*”.

Most policy components have either a lower risk for climate and consumers but higher risk for build cost/planning powers, or vice versa. This is because of the current constraints on powers granted to local plans, 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.

### Key reasons for [higher risk to climate and occupants](#) are:

- **Failing to require use of accurate methodologies** to predict a building’s actual carbon emissions in use (SAP and SBEM are not accurate)
- **Requiring only % improvements on carbon and energy limits set by Building Regulations** (which fail to account for unregulated energy, and fail to incentivise thermally efficient building shape) instead of absolute energy and carbon targets
- **Failing to require steps to deliver energy performance as designed and predicted** (that is, failing to confront the energy performance gap)
- **Failing 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.

### Key reasons for [higher planning risk](#) are:

- **Setting requirements that are not based on the national calculation methodology** of building regulations (Part L SAP/SBEM), instead using more accurate methodologies
- **Higher (or unknown) cost of certain measures** – in particular, PV solar panels and some kinds of low carbon heating – although this may change as these become more mainstream and economies of scale take effect (e.g. due to the fact that these technologies are part of the latest Future Homes Standard draft specifications)
- **Workforce skills at scale to deliver the higher standards** – but this will improve as the industry improves its normal practice in response to demand and regulation. This is a good rationale for promoting growth of green construction skills within the Borough area and wider region.
- **Non-compliance with the WMS2023**: any residential energy efficiency target that uses a metric other than Target Emissions Rate in SAP will have higher planning risk.

### The right combination of policy components is vital

It is important to note that none 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 and local carbon budgets. Any effective net zero carbon buildings approach in a local plan would need to adopt a suite of requirements covering all of the following topics:

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

Not all of the policy components are compatible with all others – the combinations in the policy approaches shown are designed to be internally compatible. There is a degree of pick and choose available to Uttlesford DC, but policy components must be carefully selected to ensure a holistic and complete policy suite that is internally consistent. Uttlesford DC must therefore decide which combination of requirements it is willing to pursue, prioritising either the risk of challenge/delay to adoption, or the risk of failing to achieve the carbon reductions required by climate science and legislation. (However, the ‘embodied carbon’ requirements are independent from the energy performance requirements and therefore could be swapped between the three different approaches). The three potential approaches that we have explored in this report are summarised overleaf.

The diagram to the right summarises the three approaches that are assessed in detail below. Each approach is devised into 5 sections that follow the energy hierarchy themes as previously explained:

- **Energy efficiency**
- **Reduction of energy performance gap**
- **On-site renewable energy generation**
- **Carbon/energy offsetting**
- **Embodied carbon**

As previously mentioned, it is only the energy efficiency boxes (orange) that are *directly* impacted by the WMS2023. The on-site renewable energy generation boxes (green in this diagram) are indirectly impacted by the yellow boxes (energy efficiency) because energy efficiency will control the amount of renewable energy required to become ‘net zero carbon’ (by the respective definition of each approach – Approach 1 covers only regulated energy, whereas Approaches 2 and 3 cover total energy use).

Embodied carbon emissions (light blue boxes in this diagram) are not constrained by the WMS2023 and there is no defined national approach to embodied carbon. Therefore, embodied carbon requirements increase from Approach 1 to Approach 3 in order of ambition, but these are reflective of existing precedents and planning powers, instead of being controlled by the 2023 WMS.

Please note again that the different levels of embodied carbon requirement are assigned to different Approaches here purely so that the level of ambition is consistently stepped up from Approach 1 to 2 to 3 across all policy themes. But in practice, the embodied carbon requirements of each Approach could in fact be swapped between different Approaches if Uttlesford chooses, as the embodied carbon requirement is independent of the type of energy performance metrics.

**Please note that the colours shown here are used to group components by theme, while the colour coding system used in the rest of this report is instead used to express levels of risk. See key at the bottom of each risk matrix table.**

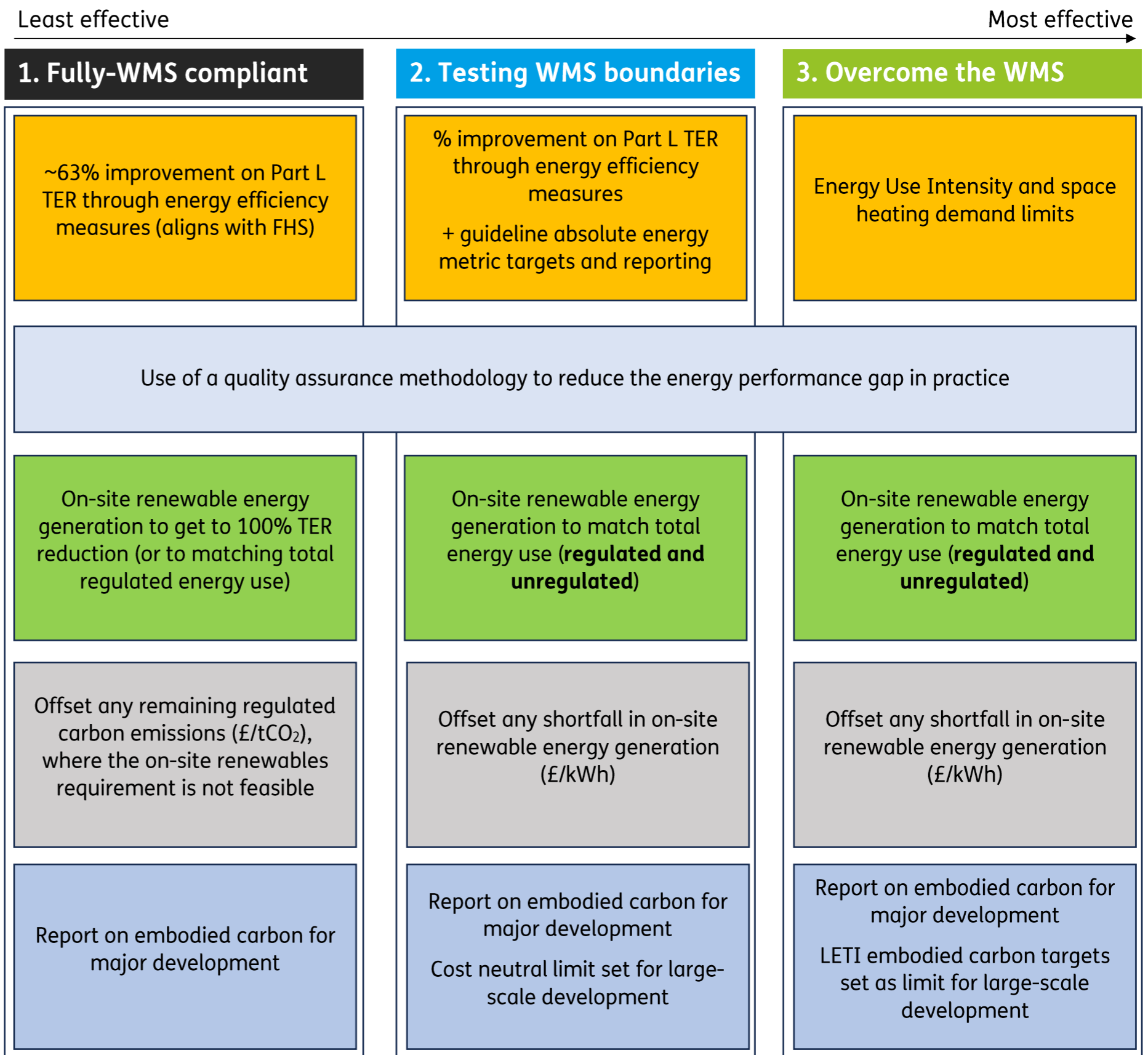


Figure 1: Overview of the three broad policy approach options devised.

Approach 1 – Fully WMS compliant

Medium-high risk for climate, low risk for planning

Scope	Policy requirements	Climate (2°C carbon budgets)	Occupant energy bills	Future retrofit costs /disruption	Electrical grid readiness	Delivery / sector readiness	LPA internal capability	Build cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	63% improvement on Part L 2021 (residential)*/19% improvement on Part L 2013 (non-residential) TER from energy efficiency measures	3	3	3-4	2	1	3	2	2	1
	No fossil fuels (i.e. heat pump or similar required)	0	2	0	2	1	1	1	1	0
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 energy use	3	3	2-3	3	1	2	2	2	2
Offsetting	Offset 30 years' worth of regulated emissions at £269/tonne (DESNZ annual carbon valuation. <sup>xviii</sup> ) via S106 fund (not tested to meet cost of local carbon saving schemes)	4	4	3	No impact	2	3	2	1	1
Embodied carbon	Embodied carbon reporting for major development using RICS WLC methodology	4	No impact	No impact	No impact	2	2	1	2	No impact

\*Heat pump installation in residential would count as an energy efficiency measure not a renewable energy measure. In non-residential, Part L incorporates the heating system type into the baseline. Non-residential can still gain TER reductions by using a heating system that has a higher efficiency than Part L's standard efficiency for that respective heating system type.

Actively reduces risk	0
Low risk	1
High risk	5



Approach 1 acts as a **policy approach that is fully compliant with the December 2023 WMS** and confidently sits within the bounds of mechanisms already adopted by local plans to date, whilst maximising ambition as far as possible. It follows the structure of several ‘net zero carbon buildings’ policy precedents in local plans that have passed inspection and been successfully implemented with good compliance rates (e.g. London Plan 2021; Reading Local Plan 2019; Milton Keynes Local Plan 2019; Oxford Local Plan 2020).

As previously stated, the scope of constraints that the WMS2023 purports to inflict is strictly focused on local energy efficiency standards. Therefore, the core requirement of Approach 1, requiring a 63% TER improvement through energy efficiency measures only, does not include renewable energy generation measures. The 63% reduction aligns with the Future Homes Standard (FHS) improvement on Part L 2021. The requirement is feasible in that the Government’s previous indicative FHS specification indicates that this FHS performance can be achieved solely through fabric improvements and heat pump without any solar PV. Requiring this carbon reduction to be made solely through energy efficiency measures is positive for climate, occupant bills, electrical grid capacity and retrofit risks, in that it ensures developers cannot mask poor energy efficiency by adding more solar PV. Energy efficiency is essential within the UK’s carbon budgets, reduces demands placed on the grid, and is also a more certain effective way of reducing energy bills and is much harder to retrofit later (compared to the relative ease of adding solar PV later). Improved energy efficiency also reduces the amount of PV needed to get to net zero.

Although still based on metrics within SAP, that are known to be inaccurate, this approach allows us to maximise improvements made solely through energy efficiency measures. By classifying heat pumps as an energy efficiency measure (whereas SAP typically classifies heat pumps as a renewable energy measure), the policy recognises the **efficiency gains of heat pumps (300% efficient compared to 100% maximum value of direct electric and gas boilers)**. Due to the efficiency gains provided by heat pumps, the **grid will be put under reduced stress** because fewer units of electricity will be required to produce the units of heat needed to sufficiently heat the building (and because less PV will be needed for the onsite net zero balance, resulting in a lower ‘peak export’ of PV energy to the grid at the times when PV is producing more electricity than the home can immediately use, such as midday in summer).

It is almost guaranteed that the Future Homes Standard will prohibit the use of gas boilers, as indicated by the [2019-20 FHS consultation](#) and both options proposed in the 2023/24 FHS [consultation](#). However, for the sake of clarity, fossil fuels are stated as unacceptable for all approaches proposed in this document in case this position of future national policy is delayed, weakened or withdrawn. This is compatible with the 63% TER reduction through energy efficiency measures.

Because absolute energy targets are not used, it is **not guaranteed that the building will completely avoid any retrofitting in the future**. This is because the standards vital<sup>xix</sup> to meet the UK’s legally binding carbon targets of the Climate Change Act include a space heating demand value of 15-20kWh/m<sup>2</sup>/year. Subsequently, for the building to operate at this level in the future, the retrofit required could be disruptive to the occupant, may damage the building (especially insulation<sup>xx,xxi</sup>), and could cost the future occupant three-to-five times the price it would have cost the developer to include in the first place<sup>xxii</sup>. Future retrofit also comes with extra embodied carbon as outdated building elements are replaced.

As the **2023 WMS does not impact on-site renewable energy requirements**, we are able to set the policy requirement as high as possible within the framing of SAP and Building Regulations (i.e. provide solar PV to match 100% of residual regulated energy use after the initial 63% TER reduction from energy efficiency improvements). As the scope of the renewable energy requirement in Approach 1 is *regulated* energy only, it remains safely within the bounds of the WMS and national technical standards (see separate Approach 2 for how this scope could be expanded to include unregulated energy use too).. Matching regulated energy use with solar PV output means that the building could be considered ‘net zero energy’ under a SAP/Building Regulations definition (although it may not achieve a 100% TER reduction because SAP gives less carbon ‘credit’ per kWh of PV energy exported than the carbon it associates per kWh of grid energy used). However, we cannot consider this to be true net zero because unregulated energy is not accounted for.

Also within Approach 1, it is **essential that a proven scheme to address the performance gap is implemented** alongside operational measures. This is particularly pertinent for this Approach as its requirements are based on metrics from Building Regulations SAP methodology, which is known to suffer from a performance gap due to modelling inaccuracies and insufficient quality verification during construction. Having a process in place to mitigate the performance gap can help compensate for that weakness. Suitable methods could include the [NEF/GHA Assured Performance Process](#), the [BSRIA Soft Landings Framework](#), or NABERS UK (offices only).

A **carbon offsetting approach is suggested for Approach 1**, which is supported by dozens of existing local plan precedents. The [up-to-date national valuation of carbon](#) 2024 price is set to low, medium and high values of £134, £269 or 403/tCO<sub>2</sub> respectively. The central value of £269 has been quoted in the policy. This is the same source from which Greater London sourced its original carbon prices of £60-90/tonne in 2015<sup>xxiii</sup>, but London has not kept this price up to date with the increases to that nationally recognised price. These increases from previous annual valuations flows partly from the cost of delivering the UK’s increased carbon saving targets in the Climate Change Act update 2019, but also inflation and grid decarbonisation. Even the up-to-date price might not cover the actual cost of local projects that deliver the same amount of measurable and demonstrably additional carbon savings – for example a study in Bath & North East Somerset found that the local cost of such projects could be as high as £652/tCO<sub>2</sub><sup>xxiv</sup>. However, selecting the up-to-date national valuation of carbon is a reliable approach at examination due to previous precedents and is demonstrably in line with the recognised national figure. Offsetting in Approach 1, as with both other Approaches next evaluated, is strictly seen as a last resort because benefits will always be maximised when on-site performance is prioritised and achieved as intended under policy requirements.

Any offsetting price should include not just the project itself, but also the administrative cost of devising projects with a measurable carbon benefit, identifying a pipeline of opportunities, project management, legal negotiation with third-party asset owners (such as buildings that are to receive energy retrofitting), fund administration, and potentially land acquisition (if the project involves tree planting or standalone renewable energy generation). Uttlesford DC may find it useful to compare the national carbon price against any recent experience it has of adding solar panels to its own estate.

**Embodied carbon is increasingly important** to consider as operational energy standards are ramped up. However, the national position on embodied carbon is not clear and only one local authority (Bath & North East Somerset Council) have had an embodied carbon emissions limit requirement tested at examination. Therefore, to ensure the overall approach remains fully WMS-compliant and does not

significantly depart from national policy, Approach 1 only requires that embodied carbon is reported on for major development and does not set a limit.

To summarise, Approach 1 is considered to be fully WMS-compliant and aims to be as ambitious as possible within these perceived bounds. The **level of carbon reduction is high risk** because unregulated energy is not accounted for, whilst occupant bills are not at optimal levels as fabric and solar PV standards are not as high as Approach 2 and 3. Planning and build cost risks are relatively low in comparison to more ambitious approaches, whilst numerous existing local plans have similar policy requirements in place, meaning they have been tested and proven at examination before. Overall, pursuing Approach 1 would result in high risk for climate (albeit less than if no policy were applied at all) but low risk for planning.

## Approach 2 – Testing WMS boundaries

Medium risk for climate, medium risk for planning

Scope	Policy requirements	Climate (2°C carbon budgets)	Occupant energy bills	Future retrofit costs /disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Build cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	63% improvement on Part L 2021 TER (residential)*/19% improvement on Part L 2013 (non-residential) TER from energy efficiency measures	3	3	3-4	2	1	3	2	2	1
	Space heat demand <i>guideline</i> limit 15-20kWh/m <sup>2</sup> /year using SAP Dwelling Fabric Energy Efficiency (DFEE)	2	2	2	0	2-3	2	4 [due to lack of existing cost data]	3	1
	EUI <i>guideline</i> targets and mandatory reporting	No impact	No impact	No impact	No impact	3	2	No impact	No impact	4-5
	No fossil fuels (i.e. heat pump or similar required)	0	2	0	2	1	1	1	1	0
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 <sup>2</sup> building footprint/yr	0	0	0	3	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	1-3	1-3	1-3	1	2	2	3	3
Embodied carbon	Embodied carbon reporting for major development using RICS WLC methodology <sup>xxv</sup> ; target of 900 kgCO <sub>2</sub> e/m <sup>2</sup> GIA for large-scale development	3	No impact	No impact	No impact	2	3	1	3	4

\* Heat pump installation in residential would count as an energy efficiency measure not a renewable energy measure. For further commentary see equivalent note in [Approach 1](#) table.

Actively reduces risk	0
Low risk	1
High risk	5



Approach 2 looks to **utilise the ambiguities of the WMS** to assume the maximum possible freedom that the WMS could be interpreted to allow. The basic structure of Approach 2 is similar to the fully-WMS compliant requirements of Approach 1, but builds upon this by maximising policy requirements on topics where the position of the WMS and national policy is not entirely clear. The requirements in Approach 2 **test the WMS boundaries whilst remaining robust and defensible** against the letter of the WMS' constraints and anticipated challenges throughout the examination process. There may be other ways that the WMS boundaries can be tested, but we feel this collection of requirements are most defensible and simultaneously ambitious in the context of the 2023 WMS and its perceived constraints.

The TER % improvement by energy efficiency measures is the same as in Approach 1, but is now supported by additional metrics to further ensure energy and fabric efficiency:

- The absolute space heat demand limit, set as the Dwelling Fabric Energy Efficiency (DFEE) in SAP, means the **building must have an inherently thermally efficient form**. SBEM (non-residential equivalent to SAP) does not have a FEE metric and this component therefore does not apply for non-residential development.
- The inclusion of this component makes the policy approach stronger than adopted precedents that just require a percentage improvement on the Part L baseline – because the Part L baseline is not absolute but relative: it is derived from a 'notional' building of the same size and shape. If the proposed building has a complex form with many joins and surface areas that leak heat, Part L would simply allow leeway to use more energy. Setting an absolute limit on this metric will remove this weakness of 'relative' improvement and move towards the level of performance vital to make new buildings compatible with the UK's carbon budgets (which are absolute, not relative).
- We do however **recognise that the building may not achieve this performance level in actual** operation, due to the aforementioned fact that Part L calculation methods dramatically underestimate space heat demand. 15-20kWh/m<sup>2</sup>/year target is the space heat demand target recommended by the Committee on Climate Change. While space heat demand is not precisely the same as DFEE, Part L does not set a specific target for space heat demand and so DFEE is used as the closest proxy metric available within Part L. 15-20kWh would equate to a ~60-70% improvement on a typical home's DFEE.<sup>xxvi</sup> if it were built to Part L 2013, or an 39-54% reduction on the DFEE of a home built to Part L 2021 modelled using SAP.<sup>xxvii</sup> (A more robust space heat demand metric is utilised later in the separate Approach 3, by the use of Passive House Planning Package PHPP, which can far more accurately predict space heating demand and more closely represents operational performance.)

As set out above, an absolute target in DFEE is an improvement for energy efficiency over Approach 1. However, this brings **additional risk in terms of compliance against the 2023 WMS** because the DFEE requirement is an improvement upon Building Regulations that isn't based on the TER. It is not yet clear how this individual requirement would be assessed against the WMS: On one hand it deviates from the TER, but on the other hand it does strongly remain within NPPF and Planning & Energy Act 2008 requirements stating that national technical standards must be used – and is effectively a first step towards (thus contributes towards) the % TER reduction target.

However, setting the DFEE target as low as 15-20kWh/m<sup>2</sup>/year brings additional risks in the topic of cost, because there is not any available cost data for homes built to a 15-20kWh DFEE. Evidence from the Future Homes Hub<sup>xxviii</sup> indicates that even with the strongest fabric standard they had modelled, some home types would still exceed 20kWh DFEE. This is not to say that it is unachievable but that

there is not existing cost evidence that can be drawn upon for viability testing. Therefore for soundness reasons, it might be necessary to vary this target to reflect a fabric standard for which there is cost data, such as for the 'Future Homes Standard Fabric Only' specification released by Government in 2021, which has been costed by Government<sup>xxix</sup> and by third parties in other local plans' evidence bases.<sup>xxx, xxxi, xxxii</sup> That specification would result in a DFEE of about 21-45kWh in most homes (but could be as low as 13.5kWh for mid-floor high rise flat or as high as to 51kWh for a bungalow), according to the Future Homes Hub modelling cited above. However, this would not have a direct link to the necessary energy efficiency for the UK's carbon budgets indicated by the Committee on Climate Change as previously cited. Therefore for the purposes of this comparison of approaches, we use a 15-20kWh DFEE target and assign a higher risk in the topics of 'cost' and 'industry readiness'. If the DFEE target were revised upwards (to 21-51kWh as cited above to match the available cost evidence), then the 'cost' and 'industry readiness' risk would be lower but the 'climate', 'energy bills', 'retrofit' and 'electrical grid readiness' risks would all be higher.

In addition to the TFEE limit, Approach 2 proposes that a guideline Energy Use Intensity (EUI) target is included in the policy suite (EUI represents the amount of *total* energy use per square metre of floor space). This is expressed as non-mandatory because a mandatory EUI metric would go against the 2023 WMS and is not a standard Building Regulations Part L metric. Instead, the proposed nonmandatory EUI target would provide a benchmark for applicants to work towards and understand how the building performs against best practice metrics and standards such as those set by LETI.<sup>xxxiii</sup> and RIBA.<sup>xxxiv</sup> which align with the energy efficiency needed in new builds to align with the sectoral changes necessary for the UK's carbon budgets. EUI can be crudely estimated with data produced by SAP, but it would be encouraged that the applicant uses PHPP (or CIBSE TM54 in non-residential) to estimate EUI. The requirement for TM54 calculations in non-residential is less divergent from national standards, in that TM54 is endorsed in Building Regulations Part L 2021 as a suitable method for the energy forecasting that [Part L 2021 requires in new build non-residential over 1,000m<sup>2</sup>](#).

Alternatively, to address the problems of inaccurate DFEE metric and the lack of an EUI metric in SAP, Uttlesford DC could explore using emerging tools such as the South West Net Zero Energy Hub SAP Energy Adjustment Tool<sup>xxxv</sup>, which is now being utilised in practice by Cornwall Council and Bath & North East Somerset Council (titled 'Energy Summary Tool'). This tool starts with SAP calculations for a home, then adjusts these to reflect the probable actual performance (in total energy use and space heating) by remedying SAP's underestimation of space heat demand and other regulated energy, and SAP's overestimation of unregulated energy.

Since the WMS does not affect the local plan's ability to require on-site renewable energy, **Approach 2 pushes the on-site renewable energy requirement to reaching net zero further** than Approach 1 by requiring that both regulated *and* unregulated energy use is matched by solar PV output, meaning the development is 'net zero' for *total* operational energy (whereas Approach 1 only required this for *regulated* energy, which can represent as little as 50% of the total). A supplementary target of 120 kWh/m<sup>2</sup><sub>building footprint</sub>/yr is included under this policy requirement, which acts as a metric to ensure a building truly maximises solar PV on rooftops. That 120kWh/m<sup>2</sup>/year figure is reflects the feasible provision of PV demonstrated in the Essex evidence base (as previously cited) as well as in other local plans' evidence bases such as Cornwall, Bath/Somerset, and Oxfordshire.

It is important to note that because there is no fixed EUI limit is not required in Approach 2, a **large amount of solar PV may be required to match total energy use**, which in some cases may not be feasible on-site. By contrast, if there were an EUI limit in place (as in Approach 3 later), this would limit the amount of solar PV needed (and indeed the exact specific amount of necessary solar PV to reach

net zero can be modelled). Without an EUI limit in place, the amount of solar PV needed for net zero can significantly vary from house to house depending on the degree of energy and fabric efficiency.

In Approach 2, assuming a building has reduced energy demand sufficiently that the resulting energy demand can be met using solar PV that can fit on the building's own rooftop, true net zero will have *technically* been achieved. However, the building would still most likely not fulfil the industry best practice frameworks for compatibility with the UK's carbon goals (as per LETI and RIBA previously cited), which are instead defined by EUI and space heating demand limits in addition to the solar provision. Essentially, as previously mentioned, **true net zero in Approach 2 may require more solar PV than in Approach 3**. This additional solar PV comes with associated embodied carbon, cost and grid infrastructure burdens.

Another key improvement from Approach 1 is the offsetting approach. Where Approach 1 involves *carbon* offsetting (i.e. any residual *carbon* to a 100% TER reduction, with a payment per tonne of *carbon* emissions), **Approach 2 approaches offsetting under an energy framing (a payment per kWh of energy use not matched by onsite renewable energy generation)**. Only the shortfall in renewable energy can be offset; this means that the 63% TER reduction through energy efficiency must be achieved on site, as it cannot be offset. Additionally, the offset price per kWh of missing renewable energy generation can specifically be set a value that directly represents the cost of installing renewable energy, to raise funds that will be sufficient to install the residual renewable energy elsewhere in Uttlesford.

Additionally, offsetting through renewable energy projects ensures that this policy **avoids forcing other sectors (land use or existing buildings) to pick up avoidable excess carbon of new buildings**. As discussed in the previous report, the UK's carbon budgets will need steep drops in carbon emissions from all sectors, meaning every sector faces a large challenge and is unlikely to have ability to pick up slack from other underperforming sectors. This aspect of the 'energy offsetting' approach helps with overall climate outcomes, given that the offset fund will directly deliver what was missing on site (i.e. renewable energy generation, not tree planting or other uncertain interventions whose carbon saving cannot be reliably measured). Offsets may be made via Section 106 payments to follow precedents, or the developer could contribute directly to the expansion of renewable energy schemes in the area.

**Embodied carbon standards in Approach 2 are improved.** The WMS does not impose any constraints on embodied carbon standards. Reporting for major schemes is required (same as in Approach 1), but also 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<sup>xxxvi</sup> and thus does not impact viability. As it does not improve on business-as-usual, it also 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.<sup>xxxvii</sup>)

There may be scope to tighten this embodied carbon target, as other more recent studies have estimated that current standard practice could be as low as **600 kgCO<sub>2</sub>e/m<sup>2</sup> GIA** (see 2023 evidence<sup>xxxviii</sup> from South Oxfordshire and Vale of White Horse emerging local plan). That study found that this was the maximum embodied carbon value across residential and non-residential typologies with current building regulations (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. However, there is no adopted precedent for embodied carbon policy at this value,

meaning additional planning risk would be associated with this lower emissions limit compared to the limit of 900 kgCO<sub>2</sub>e/m<sup>2</sup> shown in the Approach 2 risk matrix. The mandatory embodied carbon reporting will generate data that could be used to set a custom benchmark from which to base future targets in future iterations of the Uttlesford plan policy.

In summary, the required standards in this Approach test the boundaries of the 2023 WMS, yet all of the mandatory energy standards are based on the national calculation models SAP and SBEM (as used in Part L of Building Regulations). Therefore, **they all are safely within the Planning and Energy Act 2008 powers to set "reasonable requirements"** for energy efficiency and a proportion of energy to be met with local renewable supply, which is primary statute and cannot be overruled by non-legislated policy such as the 2023 WMS. Given the climate crisis and the UK's carbon budgets, it is 'reasonable' to require 100% renewable energy so long as this can be demonstrated viable using appropriate cost estimates.

There is still 'medium' climate risk because of the shortcomings of SAP in terms of accurate prediction of energy use, but this weakness is somewhat reduced in the following ways:

- Requiring use of a methodology proven to reduce or eliminate the energy performance gap.
- Encouraging use of a guideline EUI target.
- Requiring that on-site renewable energy generation matches not only regulated, but also unregulated energy use (as opposed to Approach 1 which only covered regulated).

Approach 3 – Overcome the WMS

Low risk for climate, high risk for planning

Scope	Policy requirements	Climate (2°C carbon budgets)	Occupant energy bills	Future retrofit costs/ disruption	Electrical grid readiness	Delivery/ sector readiness	LPA internal capability	Build cost	Planning powers/ precedents	Compatibility with national approach
Energy efficiency	EUI limits using PHPP/TM54 (Homes: 35kWh/m <sup>2</sup> /year; Non-residential: varies by typology)	0	0	0	0	3	2	3	5	5
	Space heat demand limit of 15kWh/m <sup>2</sup> /year (predicted with PHPP/TM54)	0	0	0	0	3	2	3	5	4-5
Performance gap	No fossil fuels (i.e. heat pump or similar required)	0	2	0	2	1	1	1	1	0
	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/m <sup>2</sup> <sub>building footprint</sub> /yr	0	0	0	3	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	3	3
Embodied carbon	Embodied carbon reporting for major development using RICS WLC <sup>xxxix</sup> methodology; LETI-aligned 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								



The final policy option proposed, Approach 3, supports a position that **diverges from the 2023 WMS**, specifically the WMS' stipulation to express any energy efficiency requirements as % TER reduction. This would involve justifying this divergence from the WMS, making the argument at examination on the grounds that the WMS' purported constraints are unjustified in that to follow the WMS would inhibit or even prevent the fulfilment of the local plan's legal duty to mitigate climate change. Clearly this policy approach comes with additional planning risk, but should still be considered due to the climate mandate.

Although this Approach will come under greater scrutiny at examination and greater opposition from objectors due to the WMS2023, a WMS is not a fixed and final rule that must always be followed. The Courts have placed emphasis on the point that planning guidance from the Secretary of State "does not amount to a legal rule, and that **local decision-makers are free to rely on local or exceptional circumstances** as to why a departure from that national guidance is considered to be justified" (Keep Bourne End Green v Buckinghamshire CC & SSHCLG [2020] EWHC 1984 (Admin) at §105).

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 WMS. This will **still need to be backed by robust evidence of viability based on costings of the proposed policy**. This could draw on the itemised costs in evidence bases of existing and emerging plans that have similar requirements, such as Cornwall, Bath & North-East Somerset, Central Lincolnshire, Essex, and South Oxfordshire and Vale of White Horse.

**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 evidence that the specified energy metrics are necessary to hit the national and local carbon reduction commitments (this argument relating to national carbon budgets, and insufficient national action towards them, was outlined in the previous report, and the ways in which policy Approach 3 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. Additionally, **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.

As previously discussed, it is the view of Bioregional that the 2023 WMS places only minimal additional planning risk on Approach 3 for non-residential development. The general position of the WMS places constraints on the energy efficiency metrics that can be sought in *residential* development, but its preferred metric is not applicable to non-residential development. Therefore, the **elevated planning risk levels in the matrix above primarily apply to residential development** and would be reduced if this EUI-based approach were only applied to non-residential development.

Approach 3 essentially reflects the operational net zero carbon definition proposed by the range of industry experts that form LETI, which was promoted in Task 1 of the original appointment. Central Lincolnshire successfully adopted this policy approach in April 2023, whilst Cornwall Council and B&NES had slightly less stringent versions of this approach 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 Uttlesford supported by evidence at Essex level). Where these policies have successfully been adopted, the success at examination is largely down to robust evidence bases that include feasibility<sup>xi</sup> and cost<sup>xii</sup> assessments on policy delivery, in addition to demonstrating the necessity for these policies in order to deliver on their duty to mitigate climate change. **However, please note that all of the successfully adopted plans to date that use policies like Approach 3 were examined and adopted before the WMS2023.**

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, 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 DFEE.

The **EUI limit effectively mandates the use of a heat pump** as these are ~300% efficient (allowing them to fulfil a 15kWh heat demand using only 5kWh of electricity, thus reducing the overall energy use). This ensures the use of low carbon heat which is a crucial element required for the achievement of the UK's carbon budgets as noted in the previous report. This implicitly **rules out fossil gas systems and direct electric heating**, thus saving energy bills, minimising the additional demand on the electricity grid, and sparing the occupant from the disruption and cost of future retrofit. Because of the superior efficiency of heat pumps, their running costs are typically similar to gas, but here the occupant may benefit from even lower bills because onsite solar PV is also required.

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 important to note that overheating risk becomes 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 works towards a well-rounded policy approach, that can address climate change mitigation and adaptation holistically.

**Overheating and operational energy/carbon should be treated together**, for example to ensure that the development does not increase overheating risk by excessively pursuing solar gain to reduce heating demand, and that the design does not require energy use for active cooling now or in future predicted climate conditions within the building's lifespan. Therefore, it is important that passive cooling measures are prioritised and active cooling measures are only used as a last resort, because active cooling would increase energy consumption and subsequent associated carbon emissions. Design elements such as building form, orientation, shading and passive ventilation should be decided at the earliest possible stage to ensure passive measures are maximised and overheating is sufficiently addressed.

The renewable energy targets will mean that the building's roof must be oriented to maximise solar PV generation. This may require adjustment to volume builders' standard designs on some sites, but the

**target has proven achievable without changing the design or orientation of existing ordinary new builds** in Central Lincolnshire<sup>xliii</sup>. Please note that as with Approach 2, the 120kWh/m<sup>2</sup>footprint/year target for PV is taken from the feasible target evidenced in Essex evidence base (therefore is directly relevant to Uttlesford) as well in other local plans' evidence bases.

Aside from non-compliance with the 2023 WMS, 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), thus could be argued to diverge from the definition of an 'energy efficiency standard' that the Energy and Planning Act empowers local plans to require. Acceptability will become better understood in the next year as some local authorities continue to push ahead with EUI-based policies, even in light of the 2023 WMS.

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<sup>xliiii</sup> and Cornwall Council<sup>xliiv</sup>; 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.

This approach is also subject to risks relating to the industry's readiness to deliver all of the measures at scale – such as availability of construction materials and systems that perform well enough, and also potential constraints in the number of professionals familiar with the required skillset to design, deliver and verify such high-performing buildings. That is not to say that these skills and materials do not exist, however – they do exist in the industry and their use is growing; it has not been possible to identify any studies that give any indication that this might constrain the speed of housing delivery to a point that would affect Uttlesford's achievement of housing targets beyond the existing construction skills shortage that already constrains housing delivery even without the policy.

This approach has **some level of risk relating to infrastructure readiness**. The extensive on-site PV will export energy to the grid at times of peak generation and low onsite energy demand. 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. It should also be noted that extensive upgrades to grid capacity and 'smart grids' will be essential as part of Uttlesford'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 have been 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 in Uttlesford. 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 Approach 2, this policy Approach 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 open land would 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 Green Belt or other landscape protection designations could also potentially constrain the ability of Uttlesford to bring forward off-site large scale renewable energy as scheme to offset new builds' carbon. However, the aforementioned potential opportunity to connect to a future Essex-wide local plan offsetting scheme (via the adoption of the Essex model policies that this Option reflects) could help to overcome any particular constraints in renewable energy delivery in Uttlesford, if any such constraints should become apparent.

**In this Approach 3, embodied carbon policy 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 m<sup>2</sup> non-residential floorspace) so that minor development, and even major development under that limit, would not be hit by the increased build costs of this. This higher threshold was set in recognition that 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 cost of assessment does not scale up in direct proportion to the development size, because large-scale developments typically consist of a small number of repeated home types (or similar floor space) that can be assessed together for their embodied carbon, creating an economy of scale.

The **2023 WMS poses no additional risk regarding embodied carbon**, as the WMS2023 only relates to energy efficiency policies.

**Please note: This higher level of embodied carbon targets shown in Approach 3 would also be equally compatible with Approaches 1 or 2**, provided the overall policy suite remains viable as a whole. These enhanced embodied carbon standards have here been shown only for Approach 3 so as to fully differentiate the three Approaches so that they represent three distinct levels of ambition in each of the different policy themes; from lowest ambition (Approach 1), to medium (Approach 2) or high ambition (Approach 3). As Approach 3 represents the highest level of energy-related ambition, it is here shown with the highest level of embodied carbon ambition too.



## Summary of risk matrix evaluation of the three policy options in light of WMS2023

This evaluation allows Uttlesford DC to make an informed selection of a policy approach that represents the desired level of ambition and risk, depending on the Council's appetite for risk and any prior commitments it may have made to specific carbon reduction or other climate targets.

**Option 1 represents a safe route to compliance with the WMS**, whilst exceeding Building Regulations standards to an extent, yet does not go far enough to create true net zero buildings that are needed to align with the UK's legally-binding carbon budgets. This option therefore represents the safest option in terms of planning risk but poses significant risk to the climate, and may allow future disruption to occupants and avoidable strain on the electricity grid by not meeting best practice energy efficiency.

**Option 2 represents a middle ground between compliance with the WMS and optimal performance.** The standards suggested, if achieved on-site, could create true net zero buildings via the requirement for on-site renewable energy to match total energy use. However, the buildings' energy use will be higher than the limits necessary for the UK's carbon budgets, and allow avoidable strain on local grid infrastructure due to the high energy demand and corresponding high amount of on-site PV needed to match this, therefore also higher peak PV export to the grid when the home can't use all of its own PV energy (e.g. the middle of warm sunny days when heating is off and occupants are out). Additionally, a performance gap (gap between energy prediction and actual energy use) is likely the use of SAP to calculate the energy use and carbon reductions.

**Option 3 reflects Uttlesford's existing draft policies from Regulation 18 and is the best practice approach** that aligns with the scale of action needed in the new build sector for the UK's carbon budgets, and importantly has the lowest risk for occupant bills and future retrofit disruption/costs. This option needs robust evidence to justify departure from Building Regulations metrics; this has been provided through the previous Task A report, the current addendum, and the Essex evidence. Importantly, Option 3 utilises a sophisticated modelling method, PHPP (or TM54), to accurately predict energy use and space heating demand that will better align with real energy performance in practice.

As noted previously, these three options represent three selections of individual policy components that could be adjusted upwards or downwards or combined differently.

Optimism remains throughout industry that the 2023 WMS will not act in practice as intended – to confuse and slow progress of local authorities developing ambitious net zero policies. With the WMS facing a [High Court challenge in June 2023](#), its weight granted in planning decision making may deteriorate, as was the fate of the preceding 2015 WMS in the [recent legal case decision](#) on the Salt Cross Area Action Plan that deemed the 2015 WMS was incorrectly applied (this plan proposed EUI-based policies). Additionally, pre-action legal correspondence<sup>4</sup> between a coalition of local authorities and the Secretary of State shows that the Secretary of State concedes that the WMS2023 does not constrain or inhibit the exercise of local planning powers granted by legislation, and that the WMS2023 is only a material consideration alongside the various other material considerations. Therefore, although the WMS2023 is bluntly worded, the degree to which it constrains the formulation of net zero local planning policy should not be over exaggerated.

<sup>4</sup> This correspondence is not yet published at the time of writing this report, but copies were shared with the authors of this report by the legal representative of that coalition of local authorities. It is expected that copies will soon be published by a planning body along with interpretive commentary very soon.

## Council's selected approach having considered the WMS2023

These policy options, and the evaluation of them, were presented to Uttlesford Councillors and officers in May 2024.

At that juncture, the Council (with its consultants) considered the WMS and the alternative policy options in comparison to the existing draft policy approach (broadly represented by Option 3 in this risk matrix evaluation above). Part of this consideration hinged on the [County's updated open legal advice](#) as previously summarised, especially the point that a WMS cannot lawfully be interpreted (by planning authorities or the inspector) in a way that would inhibit the fulfilment of the legislated duty to mitigate climate change, or in a way that would effectively remove or constrain the legislated powers to set improved energy efficiency standards as outlined previously.

The Council's conclusion was that the duty to mitigate climate change effectively, in line with the Climate Change Act as instructed by the NPPF, was more vital and would be inhibited if the policy were to instead use the metric that the WMS2023 purports to require.

It was also considered that the Essex-level cost and energy modelling both demonstrated feasibility and enabled Uttlesford to robustly viability-test the exact proposed policies. By contrast, whereas if an alternative policy were devised using the WMS' purported metric which could be delivered through any combination of measures, any cost estimation of that would be less robust. Therefore, complying with the WMS' purported required metric (TER) would undermine compliance with the WMS' requirement for robust viability testing and in turn the WMS' ultimate goal of ensuring that housing delivery is not unduly impacted.

Finally, while the Essex evidence on embodied carbon feasibility and cost is not yet available, this is expected to be available soon and Uttlesford could respond to its eventual findings either by reflecting them in an updated viability assessment, or by minor adjustments to the Uttlesford policy's embodied carbon targets if necessary to ensure they remain cost-neutral.



## Glossary of terms and acronyms

AAP	Area Action Plan. A type of local plan document applying only to a specific part of the wider local plan area.	LDO	Local Development Order. A planning tool that sits alongside the local plan itself, and can grant default (or expedited) permission to certain types of development either across the plan area or in specific locations, with or without certain conditions attached. LDOs bring forward development by expediting, simplifying or de-risking the planning process for specific desirable types of development. For example, in other local authorities LDOs have sometimes been used to bring forward renewable energy development such as solar farms, and low carbon heat networks.
BREDEM	Buildings Research Establishment Domestic Energy Model. A methodology for calculating the estimated 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.	LU&R or LU&RA	Levelling Up & Regeneration Act 2023.
Carbon	Short for 'carbon dioxide' but can also include several other gases that warm the climate. 'Carbon emissions' is when human activities emit these gases to the atmosphere.	MVHR	Mechanical Ventilation with Heat Recovery
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.	NDO	Neighbourhood Development Order.
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.	Part L	Building regulations section that sets basic legal requirements regarding buildings' energy and CO <sub>2</sub> .
CIL	Community Infrastructure Levy.	Performance gap	The 'energy performance gap' is the difference between the amount of energy a building is predicted to use during design, versus the actual amount of energy it uses. The gap is due to poor prediction methodologies, errors in construction, and unexpected building user behaviour.
CO <sub>2</sub>	Carbon dioxide. Often shortened to 'carbon'.	PV	Photovoltaics: solar panels that generate electricity.
CO <sub>2</sub> e	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 <sub>2</sub> that would have the same effect. Often shortened to 'carbon'.	PHPP	Passivhaus Planning Package – a tool to accurately calculate a building's energy use. It is used to design buildings that seek Passivhaus certification, but can be used without pursuing certification.
DER	Dwelling Emission Rate. A metric from Part L of building regulations estimating the proposed home's annual CO <sub>2</sub> emissions per square metre of floor, from regulated energy use in the home. Must not exceed TER (see TER definition in this glossary).	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).
EDG	Essex Design Guide	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.
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.	SBEM	Simplified Buildings Energy Model – the national calculation method for non-residential buildings' energy and carbon, used to satisfy building regulations Part L.
EPOA	Essex Planning Officers Association	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.
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.	SHD or Space heat demand	Amount of energy needed to heat a building to a comfortable temperature. Expressed in kilowatt-hours per square metre of floor space per year.
GHG	Greenhouse gas (CO <sub>2</sub> and several other gases: methane, nitrogen dioxide, and fluorinated refrigerant gases). Often collectively referred to as 'carbon'.	TER	Target Emission Rate – a limit set by Part L of building regulations on annual CO <sub>2</sub> 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 conversion 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 performance; not affected by building services like heating system, lighting, ventilation. <sup>xlv</sup>

TM54	A method to accurately calculate buildings’ energy use. Devised by Chartered Institution of Building Services Engineers (CIBSE).
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.
WMS (and WMS2023)	Written Ministerial Statement. Made by a government minister, forming an official statement of national policy on a specific topic. ‘WMS2023’ specifically refers to a WMS made on 13 <sup>th</sup> December 2023 about local plan energy efficiency policies.

## Appendix: References and endnotes

- <sup>i</sup> Local Government Association Planning Advisory Service (no date). *Levelling-up and Regeneration Bill: Delivering Infrastructure*. <https://www.local.gov.uk/pas/our-work/levelling-and-regeneration-bill#:~:text=The%20Levelling%20Up%20and%20Regeneration,a%20charge%20on%20development%20for>
- <sup>ii</sup> Levelling Up, Housing and Communities Committee (2022), Letter to Secretary of State for DHLUC, 24<sup>th</sup> August 2022. <https://committees.parliament.uk/publications/28460/documents/171233/default/>
- <sup>iii</sup> Introba, Etude and Currie & Brown on behalf of Essex County Council (2023), *Report 2: Essex Net Zero Policy – Summary of Policy, evidence and validation requirements*. <https://www.essexdesignguide.co.uk/media/2941/report-2-essex-net-zero-policy-summary-policy-evidence-and-validation-requirements-july-2023.pdf>
- <sup>iv</sup> HM Government Department for Levelling Up, Housing & Communities (2023), *The Future Homes Standard: 2023 consultation on the energy efficiency requirements of the Building Regulations affecting new and existing dwellings. Consultation-Stage Impact Assessment* [https://assets.publishing.service.gov.uk/media/65cc90e139a8a7000f60d508/Future\\_Homes\\_Standard\\_consultation\\_stage\\_impact\\_assessment.pdf](https://assets.publishing.service.gov.uk/media/65cc90e139a8a7000f60d508/Future_Homes_Standard_consultation_stage_impact_assessment.pdf)
- <sup>v</sup> Future Homes Hub (2023), *Ready for Zero. Appendix F*. <https://irp.cdn-website.com/bdbb2d99/files/uploaded/Appedix%20F%20-%20final.pdf>
- <sup>vi</sup> HM Government Ministry of Housing, Communities & Local Government (2021). *The Future Homes Standard: 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings: Summary of responses received and Government response*. [https://assets.publishing.service.gov.uk/media/60114c6c8fa8f565494239a7/Government\\_response\\_to\\_Future\\_Homes\\_Standard\\_consultation.pdf](https://assets.publishing.service.gov.uk/media/60114c6c8fa8f565494239a7/Government_response_to_Future_Homes_Standard_consultation.pdf)
- <sup>vii</sup> Warwick District Council (2024), *Warwick District Council Net Zero Carbon DPD: WMS and NPPF Update Response 2024*. [https://www.warwickdc.gov.uk/downloads/file/8347/wms\\_and\\_nppf\\_consultation\\_response\\_-\\_warwick\\_district\\_council](https://www.warwickdc.gov.uk/downloads/file/8347/wms_and_nppf_consultation_response_-_warwick_district_council)
- <sup>viii</sup> Uttlesford District Council (October 2023/January 2024), *Uttlesford Local Development Scheme October 2023*. [https://www.uttlesford.gov.uk/media/12747/Local-development-scheme-October-2023/pdf/20240124\\_LDS\\_Oct2023\\_reviewed.pdf#page=5](https://www.uttlesford.gov.uk/media/12747/Local-development-scheme-October-2023/pdf/20240124_LDS_Oct2023_reviewed.pdf#page=5). See also *Local Plan timetable: 6. Adoption of the Local Plan*. This web page timetable does not have a publication date to say when it was last updated, but it was accessed for the purpose of finalising the present report in June 2024. <https://www.uttlesford.gov.uk/article/4969/Local-Plan-timetable>
- <sup>ix</sup> Warwick District Council (2024), *Net Zero Carbon DPD – Adopted May 2024*. [https://www.warwickdc.gov.uk/downloads/file/8504/net\\_zero\\_carbon\\_dpd-adopted\\_may\\_2024](https://www.warwickdc.gov.uk/downloads/file/8504/net_zero_carbon_dpd-adopted_may_2024)
- <sup>x</sup> Greater London Authority (2020/21 data released 2023), *London Plan AMR tables*. <https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/monitoring-london-plan/london-plan-amr-tables?ac-62378=62373>. For a PDF version, see “London AMR 18” available here: <https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/monitoring-london-plan>. In 2022 specifically (data release November 2023), the energy efficiency TER improvement average was 17.3%. [https://www.london.gov.uk/sites/default/files/2023-12/GLA%20Energy%20Monitoring%20Report%202022\\_0.pdf](https://www.london.gov.uk/sites/default/files/2023-12/GLA%20Energy%20Monitoring%20Report%202022_0.pdf)
- <sup>xi</sup> Transition by Design and Bioregional (December 2023) on behalf of South Oxfordshire & Vale of White Horse Joint Local Plan (2024), *South Oxfordshire and Vale of White Horse Joint Local Plan: Net Zero Carbon Study. Task 3 – Feasibility study: Energy modelling*. [https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS\\_Task\\_3\\_Dec\\_2023.pdf](https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS_Task_3_Dec_2023.pdf)
- <sup>xii</sup> Currie & Brown and Bioregional (December 2023) on behalf of South Oxfordshire & Vale of White Horse Joint Local Plan (2024), *South Oxfordshire and Vale of White Horse Joint Local Plan: Net Zero Carbon Study. Task 4: Cost analysis*. [https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS\\_Task\\_4\\_Dec\\_2023.pdf](https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS_Task_4_Dec_2023.pdf)
- <sup>xiii</sup> Estelle Dehon KC to Essex County Council & Essex Climate Action Commission (2024), *IN THE MATTER OF THE BUILDING REGULATIONS, PART L 2021 AND THE PLANNING AND ENERGY ACT 2008. Re: Ability of local planning authorities to set local plan policies that require development to achieve energy efficiency standards above Building Regulations.*, <https://www.essexdesignguide.co.uk/media/2966/updated-open-advice-re-energy-policy-building-regs-26-2-24-final.pdf>

<sup>xiv</sup> Essex Design Guide / Essex Planning Officers Association.

<sup>xv</sup> For example the Written Ministerial Statement of 13<sup>th</sup> December 2023, yet this is being legally challenged on the grounds that a WMS cannot overturn or inhibit the function of legislation, as explained in the introductory recap section of this report. ([link](#))

<sup>xvi</sup> Landmark Chambers (2024), *CASE: Inspectors' recommendations removing net zero policies from development plan document found to be unlawful*. <https://www.landmarkchambers.co.uk/news-and-cases/inspectors-recommendations-removing-net-zero-policies-from-development-plan-document-found-to-be-unlawful>

<sup>xvii</sup> Good Law (2024), *We're in court tomorrow to demand homes fit for the future*. <https://goodlawproject.org/update/were-in-court-tomorrow-to-demand-homes-fit-for-the-future/>

(Please note: That case was heard by the High Court on 18<sup>th</sup> June 2024, and the judgement from that case is not yet available at the time of writing the current report for Uttlesford.)

<sup>xviii</sup> HM Government Department for Energy Security and Net Zero (2023), *Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal*. Data tables 1-19. Version downloaded 20<sup>th</sup> June 2024, in which the 2024 central value of carbon is £269/tonne. <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>

<sup>xix</sup> Committee on Climate Change (2019), *UK Housing: Fit for the future?* <https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/>

<sup>xx</sup> BRE (2016), *Solid wall heat losses and the potential for energy saving*. Appendix A: Summary of major 29 unintended consequence categories.

<sup>xxi</sup> BRE & Constructing Excellence in Wales (2017), *Post Installation Performance of Cavity Wall & External Wall Insulation*. [http://www.cewales.org.uk/files/3014/7671/0110/Post\\_Installation\\_Performance\\_of\\_Cavity\\_Wall\\_External\\_Wall\\_Insulation.pdf](http://www.cewales.org.uk/files/3014/7671/0110/Post_Installation_Performance_of_Cavity_Wall_External_Wall_Insulation.pdf)

<sup>xxii</sup> Currie and Brown (2019), *The Costs and Benefits of tighter standards for new buildings*. See page 4 (9<sup>th</sup> page of the PDF) for reference to the cost of retrofit being five times the cost of including these measures during initial construction. <https://www.theccc.org.uk/wp-content/uploads/2019/07/The-costs-and-benefits-of-tighter-standards-for-new-buildings-Currie-Brown-and-AECOM.pdf>

<sup>xxiii</sup> AECOM on behalf of Greater London Authority (2017), *London Carbon Offset Price*. [https://www.london.gov.uk/sites/default/files/london\\_carbon\\_offset\\_price\\_-\\_aecom\\_.pdf](https://www.london.gov.uk/sites/default/files/london_carbon_offset_price_-_aecom_.pdf)

<sup>xxiv</sup> South West Energy Hub (2022), *Adapting London Plan Offsetting Rates for 2022 Building Regulation Updates, Evidence for Bath & North East Somerset Council*. <https://beta.bathnes.gov.uk/sites/default/files/CD-RCC028%20SWEH%20BNES%20Offsetting%20Evidence.pdf>

<sup>xxv</sup> Royal Institute of Chartered Surveyors (2023), *Whole Life Carbon Assessment for the Built Environment, 2<sup>nd</sup> edition, version 2*. [https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole\\_life\\_carbon\\_assessment\\_PS\\_Sept23.pdf](https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole_life_carbon_assessment_PS_Sept23.pdf)

<sup>xxvi</sup> AECOM & Zero Carbon Hub (2012), *Fabric energy efficiency for Part L 2013*. [https://www.zerocarbonhub.org/sites/default/files/resources/reports/Fabric\\_Standards\\_for\\_2013-Worked\\_Examples\\_and\\_Fabric\\_Specification.pdf](https://www.zerocarbonhub.org/sites/default/files/resources/reports/Fabric_Standards_for_2013-Worked_Examples_and_Fabric_Specification.pdf). Please note this AECOM document considers two potential TFEF levels that were being considered in 2012 for inclusion in the 2013 building regulations. Government later [confirmed](#) that the 'interim TFEF' option was the one adopted in Part L 2013.

<sup>xxvii</sup> Based on the TFEF figures given in the Future Homes Hub (2023) "Ready for Zero" report appendix F, averaged across all home types modelled. That appendix used SAP10.2 modelling therefore its energy predictions will be subject to the energy performance gap (underestimation of actual energy use in operation) as outlined in our previous report. This means that in reality, the homes would have a much higher space heat demand and total energy use intensity than modelled in the Future Homes Hub report appendix. <https://irp.cdn-website.com/bdbb2d99/files/uploaded/Appedix%20F%20-%20final.pdf>

<sup>xxviii</sup> Based on the TFEF figures given in the Future Homes Hub (2023) "Ready for Zero" report appendix F, averaged across all home types modelled. That appendix used SAP10.2 modelling therefore its energy predictions will be subject to the energy performance gap (underestimation of actual energy use in operation) as outlined in our previous report. This means that in reality, the



homes would have a much higher space heat demand and total energy use intensity than modelled in the Future Homes Hub report appendix. <https://irp.cdn-website.com/bdbb2d99/files/uploaded/Appedix%20F%20-%20final.pdf>

xxix HM Government Ministry of Housing, Communities & Local Government (2019), *The Future Homes Standard 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings: Impact Assessment*. <https://assets.publishing.service.gov.uk/media/5d976b8ce5274a595bf5da8a/REQUEST.pdf>

xxx Etude and Currie & Brown (2021) on behalf of Cornwall Council, *CORNWALL COUNCIL CLIMATE EMERGENCY DPD: ENERGY REVIEW AND MODELLING*. <https://www.cornwall.gov.uk/media/mfob2hbj/eb004-energy-review-and-modelling-report.pdf>

xxxi Etude and Currie & Brown (2021) on behalf of Cornwall Council, *CORNWALL COUNCIL CLIMATE EMERGENCY DPD: TECHNICAL EVIDENCE BASE FOR POLICY SEC 1 - NEW HOUSING TECHNICAL APPENDICES*. <https://www.cornwall.gov.uk/media/dxchs1xq/eb042-1-20200359-climate-emergency-dpd-residential-energy-technical-evidence-base-appendices-rev-g.pdf>

xxxii Transition by Design and Currie & Brown (with Bioregional) (2023), *South Oxfordshire and Vale of White Horse Joint Local Plan: Net Zero Carbon Study Task 4: Cost analysis* [https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS\\_Task\\_4\\_Dec\\_2023.pdf](https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS_Task_4_Dec_2023.pdf)

xxxiii Low Energy Transformation Initiative (2019) *Net Zero One-Pager*. <https://www.leti.uk/one-pager>

xxxiv Royal Institute of British Architects (2021), *RIBA 2030 Climate Challenge Version 2*. <https://www.architecture.com/about/policy/climate-action/2030-climate-challenge/sign-up>

xxxv South West Energy Hub (2021 – onwards), *SAP Energy Adjustment Tool*. <https://www.swenergyhub.org.uk/seat/>

xxxvi WSP and Gardiner & Theobald LLP (2021), *Evidence base for West of England Net Zero Building Policy [embodied carbon]*. [https://beta.bathnes.gov.uk/sites/default/files/CD-RCC008%20WOE%20NZB\\_Evidence%20Base\\_Embodied%20Carbon%20study\\_FINAL.pdf](https://beta.bathnes.gov.uk/sites/default/files/CD-RCC008%20WOE%20NZB_Evidence%20Base_Embodied%20Carbon%20study_FINAL.pdf)

xxxvii Bath & North East Somerset Local Plan Partial Update (2023). <https://beta.bathnes.gov.uk/sites/default/files/2023-01/Adopted%20LPPU%20Jan%202023.pdf>

xxxviii Bioregional, Transition by Design and Currie & Brown (2023). *South Oxfordshire & Vale of White Horse Joint Local Plan: Net Zero Carbon Study. Task 3 – Feasibility study: Energy modelling*. [https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS\\_Task\\_3\\_Dec\\_2023.pdf](https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2024/01/NZCS_Task_3_Dec_2023.pdf)

xxxix Royal Institute of Chartered Surveyors (2023), *Whole Life Carbon Assessment for the Built Environment, 2<sup>nd</sup> edition, version 2*. [https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole\\_life\\_carbon\\_assessment\\_PS\\_Sept23.pdf](https://www.rics.org/content/dam/ricsglobal/documents/standards/Whole_life_carbon_assessment_PS_Sept23.pdf)

xl Bioregional, Etude and Currie & Brown (2021). *Central Lincolnshire Local Plan: Climate Change Evidence Base, Task G – Feasibility Assessment*. <https://www.n-kesteven.gov.uk/sites/default/files/2023-03/CLC006%20Task%20G%20-%20Feasibility.pdf>

xli Bioregional, Etude and Currie & Brown (2021). *Central Lincolnshire Local Plan: Climate Change Evidence Base, Task H – Cost Implications*. <https://www.n-kesteven.gov.uk/sites/default/files/2023-03/CLC007%20Task%20H%20-%20Cost%20Implications.pdf>

xlii Bioregional, Etude and Currie & Brown (2021), *Central Lincolnshire Local Plan: Climate Change Evidence Base, Task G – Feasibility Assessment*. <https://www.n-kesteven.gov.uk/sites/default/files/2023-03/CLC006%20Task%20G%20-%20Feasibility.pdf>

xliii Bath & North East Somerset Council (2023). *Sustainable Construction Checklist Supplementary Planning Document*. <https://beta.bathnes.gov.uk/sites/default/files/2023-01/Sustainable%20Construction%20Checklist%20SPD%20%28PDF%29.pdf>

xliv Cornwall Council (2023), *Climate Emergency Development Plan Document Policy Guidance*. <https://www.cornwall.gov.uk/media/bvphj2or/policy-guidance-climate-emergency-dpd-v5-25-april.pdf>

---

<sup>xlv</sup> AECOM & Zero Carbon Hub (2012), *Fabric energy efficiency for Part L 2013*. [https://www.zerocarbonhub.org/sites/default/files/resources/reports/Fabric\\_Standards\\_for\\_2013-Worked\\_Examples\\_and\\_Fabric\\_Specification.pdf](https://www.zerocarbonhub.org/sites/default/files/resources/reports/Fabric_Standards_for_2013-Worked_Examples_and_Fabric_Specification.pdf)