

# Greater Cambridge Local Plan – Addendum to Topic Paper

Prepared by GCSP with Bioregional Peer Review

## Introduction

1. It is the view of the Councils that the approach and methodology to assess and deliver net-zero-carbon new-build development should proceed with the use of energy use intensity targets and space heating demand attributed to specific typologies and the use of energy offsetting (with preference for this to be done via on-site renewable energy) to deliver a net zero carbon balance.
2. This approach recognises the need to close the performance gap and model much more accurately the energy demand of a building, including both regulated and unregulated energy. This approach also recognises the nuances between different residential and non-residential typologies in the amount of and types of energy use and its prediction, hence the need for more specific targets, as set out in the new Local Plan policy, and more nuanced back-up positions. This Addendum demonstrates how these policies will be applied in more detail to recognise these nuances and set out how the policies could be applied in different scenarios. This addendum focuses primarily on operational energy demand; however, upfront embodied carbon reduction and assessment and the monitoring of whole-lifecycle carbon is similarly in need of further detail to demonstrate how, in more unique circumstances, the policies will be expected to be applied. This will be set out in the Sustainability Checklist.
3. The purpose of this Addendum is to provide implementation guidance to support the application of existing Policies CC/SD, CC/NZ and CC/CE, and the new policy Sustainable Retrofit. It considers how information submitted as part of a planning application should be presented, reported and, where a development cannot meet the standard, how this should be negotiated. This Addendum does not provide further policy justification, numerical targets, definitions of net zero carbon, or viability considerations, all of which are already comprehensively addressed through the Climate Change Topic Paper and the supporting net zero evidence base, which together sets out the justification for the climate policies in the emerging Greater Cambridge Local Plan – this Addendum should be read alongside those documents. Rather, the purpose of the Addendum is to provide clarity, consistency and certainty on how the proposed policies are applied, and how policy compliance would be evidenced, negotiated and secured through the planning process.

4. This Addendum addresses each policy in turn and identifies key considerations for implementation and where alternative options may be required. Under each policy, the addendum will set out the key considerations for the implementation of the policy, including back-up policy options, and then set out a recommendation for the implementation of the policy, focusing on areas that have been identified as needing further justification and rationale through consultation and reflecting on wider context of delivering net zero carbon development. This addendum adds guidance to the existing proposed policies to set out the procedures and process for implementing proposed policy.

### **Policy CC/SD: Sustainable development and the climate emergency**

5. The purpose of a sustainability statement is to function as a catch-all document for all sustainability related information relevant to a planning application, which may include energy efficiency, embodied carbon, renewable energy, sustainable transport, waste management, carbon capture and sequestration, water use and management, flood risk, design-led climate adaptations, and multi-functional habitat creation and management.
6. Sustainability statements can be flexibly applied to different uses. The content of a sustainability statement should be proportionate to the scale of development, and can be flexibly applied to different uses.
7. The Sustainability Checklist will set out the questions that applicants need to respond to within their Sustainability Statement (and other relevant application documents) to demonstrate how the various policy requirements from the climate change and other relevant chapters of the Greater Cambridge Local Plan have been met as part of development proposals. It will cover the following topic areas and policy requirements:
  - Policy CC/NZ – how the policy meets the requirements related to net zero carbon operational emissions and embodied carbon reporting in new-build development.
  - Policy CC/WE – water efficiency in new developments
  - Policy CC/IW – integrated water management, sustainable drainage and water quality (with reference to more detailed documents such as surface water drainage strategies)
  - Policy CC/FM – managing flood risk (with reference to more detailed information contained within a Flood Risk Assessment)
  - Policy CC/CE – circular economy and sustainable resource use (with reference to more detailed information contained within a standalone Circular Economy Statement)

- Policy CC/CS – supporting land-based carbon sequestration and carbon sinks
  - Policy GP/PP – people and place responsive design
  - Policy I/ST – sustainable transport and connectivity
  - Policy I/EV – parking and electric vehicles
8. In order to ensure that the requirements are proportionate to the scale of development proposed, two checklists will be developed to help provide the structure for the Sustainability Statement: one for major development applications and one for minor development applications. Where appropriate, the checklist may also differentiate between the level of detail expected from outline applications versus full or reserved matters applications. This will help ensure that the information requested is proportionate to the nature and scale of the development. In many cases, the requirements set out in the Greater Cambridge Local Plan will relate to both residential and non-residential development, but the checklists will clarify the relevancy of a particular requirement to different types of development.
9. Where projects are utilising the Councils' pre-application or planning performance agreement (PPA) services, the Checklist will be provided to applicants after the first pre-application meeting in order that the requirements can be integrated into the design of the proposals from the earliest possible stage. It should be submitted alongside the Sustainability Statement as part of the planning submission. Applications are unlikely to be validated if these documents have not been submitted.
10. The Sustainability Statement should take the form of a report with accompanying plans and drawings to illustrate and elaborate on and evidence how the requirements set out in the Checklists have been satisfied. Applicants are advised to:
- Structure the Sustainability Statement in the same order and with the same theme headings as the Checklist;
  - Be succinct when describing the nature of technologies or measures being proposed, providing a summary of proposals and cross referencing with any information contained in other more detailed technical reports where appropriate;
  - Concentrate on demonstrating and quantifying what impact implementing the proposed measures is likely to have on the overall impact of the development, compared to basic regulatory compliance; and
  - Reference how measures have been integrated into the overall design of the development.

11. Where appropriate, conditions will be used to secure the implementation of measures and targets set out within the Sustainability Statement. This could include conditions related to:
  - Net zero carbon operational emissions
  - Water efficiency
  - Post Occupancy Evaluation
  - Submission of Circular Economy Statements for reserved matters applications meeting the threshold for these statements.
12. Further guidance on the implementation of specific policies will be provided in technical guidance notes where required. This may include the development of templates and proformas where this is necessary to help to simplify submission requirements for applicants. There are no specific post-completion requirements relating to securing a sustainability statement specifically.

### **Policy CC/NZ: Net zero carbon new buildings**

13. The application of the net zero carbon new buildings policy implements targets based on energy demand and not carbon. The modelling undertaken to support Policy CC/NZ demonstrates that the energy metrics are achievable for the majority of development types. For non-residential development, targets have been informed by the [UK Net Zero Carbon Buildings Standard \(UKNZCBS\)](#), which are underpinned by significant technical modelling and have been applied to a range of real-world pilot projects. There may be some exceptional circumstances in which full policy compliance may not be possible and these will need to be discussed early as part of pre-application discussions to agree a suitable fallback position.

### **Parts A – C of policy CC/NZ:**

14. In order to demonstrate that developments meet the energy metrics included within Policy CC/NZ, applicants will need to submit an Energy Statement (which can form part of the Sustainability Statement) with energy calculations undertaken using a methodology capable of providing accurate predictions of total in-use energy (e.g. CIBSE TM54 or the Passivhaus Planning Package (PHPP)). For major developments submitting full or reserved matters applications, there will be an expectation that this will be supplied as part of planning applications, with implementation of the energy strategy being secured by planning conditions. For minor developments and major outline planning applications, where full calculations are not yet available, submission of further detail will be secured via planning conditions, albeit applications will need to provide an overview of the approach being taken to meet the required

targets set out within the policy. For minor developments, may find it an excessive burden to commission PHPP or TM54 studies, consideration is being given to developing a SAP compliance route akin to that used in Central Lincolnshire, which provides standard specifications for fabric, heating supply and renewable energy provision as a route to policy compliance. As a further alternative for minor developments, an excel-based tool could be developed to convert SAP inputs to reasonably realistic energy performance<sup>1</sup> metrics. Such a tool<sup>2</sup> is used by Cornwall Council and Bath & North-East Somerset Councils in the implementation of their 2023 local plan policies, which use the same energy performance metrics as the proposed Greater Cambridge Policy CC/NZ.

15. In some cases, schemes being delivered to specific standards will be deemed to comply with elements of the policy. Table 2 below sets out which specific standards will be deemed as providing compliance and the submission requirements. Additional standards may be considered as providing a route to compliance where these deliver performance in line with the metrics contained within Policy CC/NZ. This should be discussed with officers as part of pre-application discussions.

16. Table 2: Other standards deemed to comply with elements of policy CC/NZ (note this can apply to all scales of development).

Scheme/Standard	Limitations	Requirement(s) satisfied	Submission requirements
<b>NABERS UK</b>	Building type: All Sectors: Office	Part B: Total Energy Use Intensity	Energy Strategy to be submitted using calculation methodology approved for use in NABERS (is this TM54). Planning condition used to secure

<sup>1</sup> See “Energy summary tool SAP V2” at: <https://www.cornwall.gov.uk/planning-and-building-control/planning-policy/adopted-plans/planning-policy-guidance/#:~:text=CEDPD%20Policy%20SEC1%20%E2%80%93%20Energy%20Summary%20Tool%20SAP%20v2> . The tool was developed by Etude, who also provided the energy modelling evidence for Greater Cambridge’s proposed policy CC/NZ. Please note that although the tool is freely available from Cornwall Council, that exact tool is only tested for the South-West climate, thus may need revisions before it could give valid outputs in the Greater Cambridge context: <https://etude.co.uk/how-we-work/sap-conversion-tool/>

			submission of certification
<b>Passivhaus (depending on level of Passivhaus certification)</b>	<p>Building type: All</p> <p>Sectors: Those covered under Passivhaus</p>	<p>Part A: Space heating demand (any level of Passivhaus certification)</p> <p>Part B: Total Energy Use Intensity (Passivhaus Plus and Premium only)</p> <p>Part C: On-site renewable energy generation:</p> <p>2 storeys or lower: Passivhaus Plus or Premium only.</p> <p>2.5 to 5.5 storeys: Passivhaus Premium only.</p> <p>Over 5 storeys: Policy 100% renewable energy target is not guaranteed by any level of Passivhaus certification.</p>	<p>Energy Strategy to be submitted with calculations generated in PHPP.</p> <p>Planning condition used to secure submission of certification</p>
<b>UK Net Zero Carbon Buildings Standard (UKNZCBS)*</b>	<p>Building Type: Homes and non-residential</p> <p>Sectors: Those covered under the UKNZCBS targets.</p>	<p>Part A: Space heating demand for homes only*</p> <p>Part B: Total Energy Use Intensity (for non-residential uses only)**</p> <p>Part C: On-site renewable energy</p>	<p>Energy Strategy to be submitted using calculation methodology approved for us by UKNZCBS.</p> <p>Planning condition used to secure</p>

		generation for homes only	submission of verification***
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\* At present the UKNZCBS does not set a space heating demand for non-residential buildings. This may change in future versions and if this matches the space heating demand referenced in policy CC/NZ, this can then be used for deemed compliance.

\*\*To note, at present the UKNZCBS EUI limit for new-build homes is 50kWh/m<sup>2</sup>/year in 2026, which exceeds the requirement for homes in Policy CC/NZ. This limit tightens gradually based on which year construction was commenced, through to 2050. The limit in 2050 is 40kWh/m<sup>2</sup>/year for “single family home” or 44 for flats.

\*\*\* UKNZBCS only gives full verification based on at least 1 year of energy use data. This may be impractical to secure through condition. However, UKNZCBS also offers a “post-completion on-track” verification consisting of a set of checks showing that a completed building is capable of performing to the relevant UKNZCBS targets. This “post-completion on-track” verification would be the subject of the planning condition where UKNZCBS is used as the route to policy compliance.

### **Fallback position for inability to meet policy requirements**

17. The development would need to demonstrate the above to be policy compliant and demonstrate progress against these standards. Where an applicant cannot demonstrate that a development would meet the specified standard in Policy CC/NZ, there are a number of options for a fallback position. These should only be used in exceptional circumstances.
  
18. The priority should be meeting the Space Heating Demand (SHD) first and then assess the ability to meet Energy Use Intensity (EUI) targets. This follows the priority to reduce energy demand overall first through fabric efficiency measures and reducing overall energy load, before looking to renewable energy generation to deliver net zero carbon balance onsite as a priority to reduce both regulated and unregulated energy to zero. Then, as a last resort, energy offset through renewable delivery should be used to achieve a net zero balance with onsite and offsite renewables. In exceptional circumstances where it is not possible to predict the unregulated energy<sup>2</sup> or where the proposed development’s unavoidable unique characteristics mean that its unregulated energy use is unavoidably too high<sup>3</sup> to meet with renewable energy on site, achievement of a net zero balance using only regulated energy where it is not possible to predict the unregulated energy<sup>4</sup> or

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<sup>2</sup> For example, where generic retail is proposed and it cannot be known what type of retail business will take the space, given that energy use will be dramatically higher if there is extensive refrigeration.

<sup>3</sup> For example, if a research and development laboratory or specialist medical facility might need to include specialist technologies whose energy use cannot be minimised to a point that would comply with the policy.

where the proposed development's unavoidable unique characteristics mean that its unregulated energy use is unavoidably too high<sup>5</sup> to meet with renewable energy on site. This prioritisation of fallback positions aims to focus on achieving a net zero energy balance to reduce energy and carbon emissions to zero.

19. The order of preference for the fallback alternatives are set out below:

- The optimal scenarios the policy seeks to achieve across all typologies, once the space heating demand target has been met, is for the:
- EUI to be met and onsite net zero balance achieved without the need for any offsetting.
- EUI to be met, with any shortfall in renewable energy generation onsite to be addressed via energy offsetting to achieve a net zero carbon balance across onsite and offsite renewables.

20. Where this is not achievable due to unavoidably high energy demand of the specific use (which could prevent both the EUI target and the net zero balance) or due to site constraints (which could inhibit renewable energy production and therefore the net zero balance), the fallback positions would be to:

- Negotiate and agree an appropriate EUI for regulated energy uses only (likely within 30kwh/m<sup>2</sup>/y and to then incorporate renewable energy generation onsite to achieve a net zero balance onsite for total energy use. The applicant in this scenario would need to demonstrate that they have exhausted all feasible options to reduce energy use.
- Negotiate and agree an appropriate EUI for regulated energy uses only (likely within 30kwh/m<sup>2</sup>/y and to then generate a proportion of energy onsite and the remainder to be offsite using an energy offset to achieve a net zero balance for total energy use. The applicant in this scenario would need to demonstrate that they have exhausted all feasible and viable options to reduce energy use and maximise solar PV renewable energy generation onsite (with a guideline minimum generation benchmark of 75kWh/m<sup>2</sup> footprint/year<sup>6</sup>).
- Negotiate and agree an appropriate for regulated energy uses only EUI (likely within 30kwh/m<sup>2</sup>/y and aim to achieve a net zero balance on and offsite, but if the full offset payment would make the development unviable due to unavoidably high energy demand which cannot be met with a viable energy offset contribution, then an appropriate renewable energy generation target would be agreed to generate renewable

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<sup>6</sup> This target of 75kWh/m<sup>2</sup>footprint/year is taken from UKNZCBS for this region. This is in fact far less than most buildings are capable of producing using solar panels on their own roofs, representing an unshaded solar panel area equal to only about 37% of a flat roof area, or an even lower proportion of roof area if the roof is pitched.

energy on and offsite to meet this agreed renewable energy generation target. The aforementioned benchmark of 75kWh/m<sup>2</sup> building footprint/year shall be used as a guideline minimum for the on-site generation.

21. As a last resort, to only be used only where unregulated energy cannot be calculated (e.g. the fit out of the building is not being considered at this stage or the unregulated energy demand cannot accurately be modelled and predicted) or where the unregulated energy of the specific use is unavoidably high due to rare or unique characteristics of the specific proposed development,, then the EUI would only be for regulated energy uses. The applicant would then use a combination of on and offsite renewables and an offset mechanism to achieve a net zero balance against just that regulated energy.

22. Further guidance on the approach to the fallback positions will be provided in a technical note on the implementation of Policy CC/NZ.

### **Energy Offset Mechanism**

23. Part D of Policy CC/NZ introduces the concept of an energy offset mechanism for those situations where economic viability or technical constraints prevent full on-site achievement of Part C of the policy, which seeks onsite renewable energy generation to equal, where possible, the total operational energy demand of a development. This offset mechanism would be used to invest in additional renewable energy generation to ensure that the development's net zero operational energy balance is still delivered.

24. It is the intention that this offsetting mechanism will only be used in exceptional circumstances, as the [technical modelling](#) undertaken by Etude to inform the metrics used in Policy CC/NZ shows that the requirement in Part C can be met onsite for the typologies modelled when the EUI limits have been met<sup>7</sup> the requirements for onsite renewable energy generation<sup>2</sup>. In these cases, the following approach will need to be taken:

- The priority should be meeting the space heating and EUI requirements of the policy and ensuring that all developments are fossil-fuel free;

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<sup>7</sup> For example, this could be the case where:

- The building is taller than those modelled, having a smaller ratio of roof space to floor area.
- The building is overshadowed by trees or existing buildings that are not being removed.
- The area of rooftop PV is limited because a large area of the roof has to be used for purposes in order for the building to function (e.g. rooftop ventilation plant) or meet other unavoidable requirements (e.g. biodiversity net gain or any other policy requirements for outdoor amenity)
- The building's energy use is unavoidably too high to be fully matched by onsite PV (as above)

- Then, calculate the renewable energy requirements to meet all of the energy demands of the development and then delivering as much of this as possible onsite, aiming for all energy demand to be met onsite with renewable energy (considering the guideline minimum onsite generation benchmark noted above).

25. Then, calculate an offset price to deliver the remaining renewable energy requirement offsite, which would either be secured via a developer contribution or, in some circumstances, for example where developers have other property in the Greater Cambridge area, the developer could deliver these offset projects themselves. The following formula would be used to calculate the offset payment:

- **Offset payment** = [predicted amount of energy use (kWh) – predicted annual renewable energy generation (kWh) x energy offset price (£/kWh)]
- Work carried out as part of the 2021 Bioregional Net Zero Carbon evidence base<sup>2</sup> to support the development of P<sup>8</sup><sup>9</sup> 3 core principles that should be applied to the development of any offset fund:
- **Sustainability:** in order to achieve Net Zero by 2050, Greater Cambridge will need to limit carbon emissions in line with its carbon budgets. It is therefore important that offsetting accelerates progress, rather than slowing it down.
- **Additionality:** ensuring that measures funded by the offset fund would not have happened without it (or at least they are not double counted).
- **Transparency and accountability:** showing where the funding has been spent and what it has achieved is critical.

26. Setting the offset price at the right level is critical. It is important to ensure that the price does not disincentivise efforts to reduce energy demand and maximise renewable energy generation on site. While the traditional approach in older local plan precedents has been to set a price per tonne of carbon, given the nature of policy CC/NZ and the metrics used, the difference of complying or not with the policy is likely to be due to limited photovoltaic (pv) potential generation on site. Therefore, basing the offset price on the cost of delivering PVs offsite (e.g. on another new building), would ensure consistency with the policy requirements. This allows the offset mechanism to reflect the exact shortfall (if any) between the development's onsite annual renewable energy generation and its annual energy use. This is an approach that has been taken by several newer local plan precedents adopted since the

Bioregional 2021 work, such as in [Cornwall \(2023\)](#), [Tendring & Colchester \(2025\)](#), and [Uttlesford \(2026\)](#), among others.

27. The 2021 Bioregional Report recommended an approach whereby the offset mechanism is expressed as a renewable energy offset and its price expressed as £/kWh. Using this approach, it recommended a price of £1.50/kWh as the price could be independent of carbon factor changes. More recent 2025 work carried out for Essex County Council by [Introba and Currie & Brown](#) suggests a price of £1.82/kWh. Focussing on the deployment of PVs, the price is based on the deployment of medium-sized PV arrays (10 – 50 kW), a size considered suitable for installation on public buildings and blocks of flats. The projected costs included the annual PV installation cost based on the most recent [pv cost data from Government](#), as well as other maintenance and admin costs. The assumptions behind the cost calculation include the annual installation cost, which includes the cost of the PV generation equipment, costs of installation and connecting to the electricity supply and VAT where applicable. The calculations were based on the median 10-50 kW installation cost of £1,376/kW for the year 2023/2024 adjusted for Q2 2025. The generation levels per 1 kWp were taken from the Photovoltaic Geographical Information Service (PVGIS), based on a generation level of 850 kWh/kWp as a conservative approach for the Essex area. Given the geographical proximity of Greater Cambridge to Essex, this figure is also considered a reasonably conservative approach for the area. The management costs for administering and managing the funding process were assumed to be 10% of the capital costs as typical practice, with a 2.3% uplift assumed as an adjustment for inflation, based on the difference between the Tender Price Index (TPI) for Q2 of 2024 and Q2 of 2025. This process is summarised in tables 3 and 4 below.

28. Table 3: Offset Tariff Assumptions Summary (taken from Essex Renewable Energy Offsetting Framework, Version 1.2 – December 2025)

Assumptions	Value	Unit
<b>Annual installation cost 2023/24 (Median cost for 10-50 kW array)</b>	1,376	£/kW
<b>Generation per kWp</b>	850.0	kWh
<b>Management overhead</b>	10%	Of capital cost
<b>TPI index Q2 2024</b>	392.0	Index
<b>TPI index Q2 2025</b>	401.0	Index
<b>Adjust for Q2 2025</b>	102.3%	% of Q2 2024 cost

29. Table 4: Energy Offset Tariff (taken from Essex Renewable Energy Offsetting Framework, Version 1.2 – December 2025)

<b>Component</b>	<b>Unit</b>	<b>Price</b>
<b>Capital cost per kWp</b>	£/kWp	1,376
<b>Capital cost per kWh generation (<i>capital cost per kWp / generation per kWp</i>)</b>	£/kWh	1.62
<b>Management cost (10% of capital cost per kWh)</b>	£/kWh	0.162
<b>Total cost (pre inflation adjustment) (<i>sum of capital cost per kWh generation and management cost</i>)</b>	£/kWh	1.78
<b>Total cost (adjusted to Q2 2025) (<i>includes 2.3% cost uplift adjusted for inflation</i>)</b>	£/kWh	<b>1.82</b>

30. It is recommended to utilise the more up-to-date cost of £1.82/kWh for the Greater Cambridge Energy Offset approach. This figure may need to be updated in the future as the price of PV installation changes over time due to general inflation, supply and demand influences, and technological advances.

31. In terms of how the offset mechanism would be secured, two options are available. Option one would see the developer pay into an offset fund via a S106 agreement for the development, with these funds then being used to deliver additional renewable energy projects in the Greater Cambridge Area. Option two could see the developer delivering the additional level of renewable energy provision themselves, for example if the developer has other land or other buildings within the Greater Cambridge area on which additional ground-mounted solar could be located. There would be a need for some form of verification to show that the projects funded by the offset mechanism will deliver the required level of renewable energy generation, which could come from renewable energy certification schemes or with the output calculated in line with UK Quality Mark for renewable energy (MCS) guidelines.

32. The S106 agreement should secure the predicted annual kwh of renewable energy generation and separately detail any shortfall in kwh, and the corresponding financial contribution for installation of renewable energy generation capacity.

## Assured Energy Performance / Performance Gap management

33. Assured Performance or Building Performance Evaluation is vital if we are to achieve our net zero carbon targets not just on paper but in reality, an aspect that is not currently considered by Building Regulations and that currently represents a considerable gap in national policy. This approach can be used to assess various aspects of a building, including physical properties such as construction quality and operating efficiency and costs, the element of interest to this policy. This approach brings many benefits, including helping to flag potentially serious failures in performance, to guide prompt remedial action and helping to deliver more efficient, better performing buildings overall. For the purposes of Policy CC/NZ, the areas of interest for evaluation are:

- Annual space heating demand.
- Annual energy use; and
- Renewable energy generation output

34. There are already a number of schemes operating in the UK which could be used for achievement of this element of the policy, including:

- NABERS – applicable for use on office developments and deemed to comply with some of the requirements of Policy CC/NZ (see table 1). NABERS offers [two 'products'](#):
  - NABERS Design for Performance: This is a process that involves committing to the achievement of an “in-use” NABERS rating of four stars or higher and demonstrating various steps at design stage to work towards this target (including accurate energy modelling and independent design review).
  - NABERS Energy for Offices: This is a rating reflecting actual measured energy performance in-use. Ratings range from 1 to 6 stars.
- Passivhaus certification – applicable for use on a range of scheme types both residential and non-residential and deemed to comply with the requirements of Policy CC/NZ (see Table 1). Passivhaus certification can only be achieved on completion of a building. Its robust tests demonstrate that the construction meets a highly thermally efficient standard, but its certification does not involve any period of in-use energy monitoring.
- UKNZCBS verification – applicable for use on both residential and non-residential development, the UKNZCBS includes a requirement for independent third-party verification and is deemed to comply with some of the requirements of Policy CC/NZ (see Table 1). UKNZCBS verification can only be done using at least one year’s worth of actual metered in-use energy data, but UKNZCBS also offers a “post-

completion on-track” status subject to certain checks and commitment to achieve full verification later.

35. Use of any one of these tools would help demonstrate compliance with this element of Policy CC/NZ and would be secured via a planning condition. However, these certifications and verifications can involve some professional fees and reporting burdens that may be excessively onerous for minor developments. Therefore, for minor developments, a more simplified light-touch approach to mitigating the performance gap will be developed.
36. Post-construction energy monitoring can form a helpful step within assured performance, and some of the assurance schemes noted above would necessarily involve this. While the [draft policy in the 2025/2026 consultation](#) did not include a specific requirement for post-construction energy monitoring, it would be a desirable step in larger developments.
37. For reporting purposes only, major development must report the metered EUI and SHD should be reported back annually for years 1-5 post construction (but not before first occupation), similar to the “Be Seen” mechanism used by the GLA. Renewable energy generation should also be reported over this period, to report against predicted renewable energy generation modelling annually over a 5-year period. However, this post-construction in-use energy monitoring would not trigger a requirement for the developer to take any action if the predicted performance is not being met. Rather, the purpose is learning (by the developer and by the Council) and to reveal, and therefore make it possible to address in future, the performance gap and the effectiveness of the policies.
38. For housing development, the requirement for Post Occupancy Evaluation (POE) would relate to a set number of dwellings across a range of house types, to be agreed. Any requirement for in-use energy monitoring would only be sought in large-scale developments (50+ homes or 5,000+ m<sup>2</sup> floorspace) for the reason that the administrative and financial burden can be better borne by larger schemes due to economies of scale, and because there will be a need to aggregate any residential metering data to a scale that ensures the data anonymity of each home. Given the metrics used by Policy CC/NZ, this would take the form of information that can be collected from smart meters and renewable energy output data. Technology may also allow on-network monitoring of supply to groups of multiple homes rather than needing individual home meter readings (again to assist with aggregation of data to avoid data privacy issues, as well as administrative practicalities). Assured energy performance is designed to check post completion whether the energy

demand reduction standard and energy efficiency was accurately predicted for the building in use.

## **Whole Life Carbon Assessment**

39. Net zero carbon needs to be considered in the context of whole life carbon, which includes operational emissions (considered in Parts A -C of Policy CC/NZ) and embodied carbon, which is the carbon associated with constructing buildings. Criteria 8 of policy CC/NZ requires all major development to demonstrate what measures have been taken to reduce embodied carbon, with developments of a minimum of 100 homes or 10,000m<sup>2</sup> of non-residential floorspace required to calculate whole life carbon emissions and demonstrate actions to reduce up-front embodied carbon emissions (modules A1-A5 of the RICS methodology) through lean building design and material efficiency.
40. Consideration has been given as to whether the policy should set measurable targets for reducing up front embodied carbon. While there are a number of emerging 'best practice' approaches to embodied carbon, including the RICS Whole Life Carbon Assessment (WLCA), the LETI Embodied Carbon Primer, RIBA Embodied and Whole Life Carbon Assessment for Architects and UKZCBS, there are no adopted nationally defined 'targets' for reducing the embodied carbon associated with constructing new developments. A further challenge faced by industry is a lack of consistent measurement, leading to misaligned benchmarks, project targets and claims. Targets will only be useful once measurement is consistent. By requiring the reporting of up-front embodied carbon, this will help to provide further evidence from the Greater Cambridge context to support the setting of specific targets in the future.
41. The purpose of the policy (for large-scale schemes as per the threshold described above) is to require a Whole Life Carbon Assessment to provide data on whole life cycle carbon, which will inform future policy requirements. The priority for the policy remains to be the reduction of operational carbon.
42. The first step in demonstrating compliance with this element of Policy CC/NZ is to carry out a Whole Life Carbon Assessment. Until there is a nationally recognised and adopted UK national methodology, the RICS Professional Statement on Whole Life Carbon Assessment is the accepted industry methodology for Whole Life Carbon Assessments. This assessment should be submitted as part of an Embodied Carbon Statement for all developments that meet the thresholds set within the policy – these details can form part of a Sustainability Statement.

43. To demonstrate that schemes have implemented lean building design and material efficiency, the Whole Life Carbon Assessment (provided in full at the Planning Application Stage), should include:

- A summary of the steps taken to design a lean, low-carbon structure and building design. This should take account of efficiency of material use as well as the types of material used. Where possible, applicants should limit the use of building elements with high levels of embodied carbon such as basements, podiums and large cantilevers. Where these are to be utilised, the Whole Life Carbon Assessment (WLCA) should provide justification for their use.
- A calculation of the building or house types form factor (exposed external surface area/gross internal floor area). A lower form factor, which reflects a more efficient or 'simple' building design, often emits less upfront embodied carbon than more complex forms with a higher form factor. This is due to the use of fewer materials and limiting the extent of exposed surfaces.
- An elemental analysis of the upfront embodied carbon (kgCO<sub>2</sub>e/m<sup>2</sup>GIA) associated with three external wall options and two superstructure design options, with justification for the selected wall and structure type.

44. Further evidence is required to set specific standards for Whole Life Carbon (WLC) The policy is designed to facilitate the reporting of WLC to understand the spread of WLC prediction data and what a potential suitable target would be for each use in the specific Greater Cambridge context. To collect this data, a full Whole Lifecycle Carbon Assessment must be submitted at the full planning stage. For outline applications where the design of buildings is not yet known, the application would just need to include initial baseline details on how embodied / <sup>10</sup> is being considered at this design stage<sup>10</sup>, and how it will be approached in the detailed design work, and commit to conducting and submitting the full WLC Assessment at Reserved Matters stage as applicable to the size of the outline development. However, if the likely building designs are known or strongly anticipated at outline stage, such as if the applicant is a volume developer that intends to deliver a standardised housing type as part of their development, then a WLC Assessment of those designs would be welcomed as part of the outline application. The Reserved Matters should add site-specific information to the WLCA submitted at the outline application stage and should contain the actual WLCA based on the detailed design of

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<sup>10</sup> For example, demonstrating that the applicant is aware of the factors contributing to embodied carbon outcomes, such as by identifying typical building types that are likely to occur on site, typical materials that are likely to be used and consideration of how embodied carbon could be minimised in the context of the type of development likely to come forward within the parameters of this outline scheme.

the proposed buildings. Where pre-application engagement has been undertaken, the sustainability statement information should reflect consideration of how this information, including the initial approach to reducing WLC and early modelling outputs, will be pulled together and reported. This process may evolve where a development commits to UKNZCBS verification, as the UKNZCBS requires reporting of WLC using the RICS assessment and the achievement of certain targets for up-front embodied carbon.

45. The reporting and evidence requirements for WLC for Policy CC/NZ are set out in Annex 1.

## **Policy CC/CE: Supporting a circular economy and sustainable resource use**

### **Presumption in favour of the reuse of existing buildings**

46. Criteria 2 of Policy CC/CE seeks to promote the reuse of existing buildings, requiring applications that involve demolition to clearly demonstrate why the building(s) cannot be repurposed and retrofitted. The aim is to ensure that buildings are not demolished, disposed of and replaced with new-builds by default without consideration being given as to whether the existing building could be repurposed for an alternative use or whether existing materials could be salvaged and reused as part of the development, or offsite as a last resort.
47. Applicants will need to evaluate the suitability, feasibility and viability of refurbishment before considering substantial or total demolition/replacement; such proposals must consider carefully whether all or parts of the building could be retained for use. Applications that include a significant amount of demolition must be accompanied by a robust justification. Where appropriate, the LPA may seek expert advice to help reach a judgement on the information provided, for example structural surveys. As a minimum, the information that should be included as part of such a justification should include:
- The use of the existing building, how long it has been in this use, its age and the purpose of the new building and whether this constitutes change of use.
  - How much demolition is proposed:
    - Percentage of the envelope and structure to be retained by area
    - Percentage of internals to be retained by area.
  - Justification of substantial or total demolition by building layer (skin/shell, structure/frame, building services, and space plan/interior).
  - Explanation and evidence of why the existing building cannot be retained proportionate to the scale and type of development proposed. This must go beyond saying a building is 'low quality' or 'not fit for purpose', and be

proportionate to the scale and type of development, and will need to be grounded within the wider context and benefits delivered by the demolition, which may require details of:

- The existing building's structural condition by means of a structural engineer's report
- Materials from which the existing building is constructed and their condition
- Contamination and the presence of any harmful materials (e.g. asbestos)
- Visual importance of the architecture in the streetscape/location
- Any elements of the building that would limit the ability to retrofit it to higher standards or that repairing, refurbishing, or re-using the building would likely result in similar or higher levels of newly generated up-front embodied carbon (modules A1-A5 of the RICS methodology) compared to demolition and re-construction, with reference to relevant requirements in Policy CC/NZ for new buildings; or
- Evidence that repairing, refurbishing, or re-using the building would create a building with such poor thermal efficiency that, when considering lifecycle embodied carbon (i.e. modules A1- A5, B1-B5 and C1-C4), a lower net-carbon solution would arise from demolition and re-construction; or
- Whether the proposed replacement development will deliver significant public or environmental benefits that could not be delivered through a retrofitting option; and
- Bespoke operational requirements that could not be provided through the repurposing, adaptation and / or extension of the existing building(s).

48. Where demolition is considered to be justified and the amount of demolition meets or exceeds 500m<sup>2</sup> GIA or more, applicants should ideally carry out pre-demolition audits to ensure that materials arising from demolition, both construction materials and internal fixtures and fittings, can be re-used as far as practicable on site and that opportunities for reuse of any remaining materials off-site are explored. This will help to ensure that circular economy principles are embedded into the design of the proposals. For major developments involving demolition, this pre-demolition audit should be submitted as part of the planning application.

## **Circular Economy**

49. Policy CC/CE seeks to ensure that new developments integrate circular economy principles into their design and construction, with the submission of

a specific Circular Economy Statement for residential development of 150 or more dwellings and non-residential development with a gross internal floorspace of 15,000 m<sup>2</sup> or more. The policy does not contain explicit requirements for householder planning applications, but the integration of circular economy principles into such proposals is encouraged.

50. Circular economy statements and documented evidence of circular economy principles more widely are used to reveal how a development has taken reasonable steps to extend the life of the building, building elements and materials through designs for longevity, use of recycled materials, and re-use of existing materials both onsite as part of the proposed development and offsite.
51. For the majority of schemes, this information can be provided as part of the Sustainability Statement required under policy CC/SD, with Circular Economy Principles included within the Sustainability Checklist, appended to the Climate Chapter Topic Paper.
52. The submission of a more detailed Circular Economy Statement, according to policy CC/CE, will be required for the following scales of development:
  - Residential development of 150 or more dwellings;
  - Non residential development with a gross internal floorspace of 15,000 square meters or more;
  - Major development proposals that involve substantial demolition (i.e. demolition of 500m<sup>2</sup> GIA or more)
53. A Circular Economy Statement must demonstrate how the principles of Circular Economy have been met in the design. It should be proportionate to the scale and type of development, i.e. scale of demolition. It must also demonstrate that the applicant has considered the re-use potential of the building and has integrated the six circular economy principles:
  - 1. building in layers – ensuring that different parts of the building are accessible and can be maintained and replaced where necessary
  - 2. designing out waste – ensuring that waste reduction is planned in from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials
  - 3. designing for longevity
  - 4. designing for adaptability or flexibility
  - 5. designing for disassembly
  - 6. using systems, elements or materials that can be reused and recycled.

54. These principles should be applied to design of the proposal and the choice of materials used in construction to extend the life of the both the building as a whole and the individual building components and elements. Consideration should be given to future uses of the site and not designing a building that is too bespoke such that it cannot be re-used and repurposed easily. A pre-demolition audit should be completed to assist in this process where the proposed development includes demolition of 500m<sup>2</sup> GIA or more.
55. Refer to principle based applications of Circular Economy Principles using similar examples to the below:
- [Lewes and Eastbourne](#)
  - [Circular Economy principles embedded in their Sustainability in Development Technical Note](#)
  - [Essex guidance \(short summary of Embodied Carbon and Circular Economy\)](#)
  - [LETI Circular Economy Primer](#)

### **Considerations of Qualitative Policy for Retrofit / Refurbishment**

56. As part of consultation on the emerging Greater Cambridge Local Plan, a number of respondents called for quantitative policies similar to Policy CC/NZ for retrofit and refurbishment projects. Retrofit and refurbishment is very different to a new build development from an energy perspective and there are often large differences between embodied carbon content of existing buildings and material. Additionally, there is enormous variation in the type, scale, construction, quality, age and condition of existing buildings, translating into an equally large variation in the energy performance outcomes that can be achieved through retrofit, and the corresponding costs associated with achieving energy performance improvements.
57. Further variation arises when considering the range of different end uses if there is a proposed conversion/change of use. The Councils' do not currently have enough data to set specific standards for each typology of existing residential and non-residential buildings for operational energy or whole lifecycle carbon standards to be set to a level that could be robustly justified in the local plan examination process, as this would necessitate proving that the required standards are universally (or at least generally) deliverable and financially viable to achieve. However, there are standards available that persons undertaking such works may choose to utilise, such as the EnerPHit standard and the UKNZCBS retrofit targets.

58. For the purposes of the Local Plan, policy must look to achieve qualitative policy requirements to demonstrate that major refurbishment development in Greater Cambridge is still meeting wider sustainability and carbon reduction ambitions. Local planning policy can also include wording to actively welcome proposals that would deliver energy retrofit with good outcomes, so as to give confidence to any readers aspiring to bring forward retrofit and dispel any assumptions they may have about planning barriers to their project (and to ensure development management officers give appropriate weight to the benefits of retrofit where proposed).
59. For all new development that is not new build, the hierarchical approach to reducing energy demand and associated carbon emissions will need to be followed, taking a whole-building approach. For heritage assets, the approach set out in Policy GP/CC (Adapting heritage assets to climate change) should be followed. This stepped approach that would be encouraged through this new policy would be:
- Improving the fabric efficiency of the building, including air tightness, insulation and types of fabric (with careful consideration given to ventilation).
  - Implementing other energy efficiency measures.
  - Utilising low and zero carbon heat sources.
  - Delivering and maximising onsite renewable energy generation.
60. The encouragement of this hierarchy does **not** mean that a proposal to add, for example, a heat pump or solar panels to an existing building would be refused simply because the proposal does not also include fabric improvements or other energy efficiency improvements. Interventions lower down the hierarchy can make valuable contributions to carbon reduction on their own and in combination with interventions higher up the hierarchy. The intent is to encourage developers not to neglect consideration of the higher steps, rather than to mandate them.
61. Compliance with the policy will be demonstrated through completion of the relevant sustainability checklist and submission of sustainability statements for both minor and major developments. The policy will provide support for the use of specific standards for retrofit, including the EnerPHit standard and UKNZCBS. The information submitted as part of the Sustainability Statement should provide an overview of the approach being taken under each stage of the hierarchy detailed above, which can also be referred to as Be Lean, Be Clean and Be Green. It should be noted that as the policy does not provide specific standards for retrofit, there will not be any requirement for modelling or carbon emissions and energy performance, albeit it can be useful to

include such metrics and calculations where these are available in order to help inform planning balance considerations, especially for major applications.

62. For residents looking to retrofit their homes, Cambridge City Council has produced a [retrofit guide for householders](#), which provides guidance on typical retrofit measures for a range of house types that are typical of the Greater Cambridge area, taking the whole house approach. Further guidance on retrofit measures is also available via the [Action on Energy Cambridgeshire](#) website.

**Proposed policy wording:**

1. Proposals involving the retrofit of existing buildings will be supported where these take the following approach:
2. Follow the energy hierarchy by considering opportunities at each of the following steps:
  - a. Improving the fabric efficiency of the building, including air tightness, insulation and types of fabric (with careful consideration given to ventilation).
  - b. Implementing energy efficiency measures.
  - c. Utilising low and zero carbon heat sources.
  - d. Delivering and maximising onsite renewable energy generation.
3. Include measures to enhance the climate resilience of buildings, including the inclusion of external shading to reduce overheating risk and the reinstatement of historic features such as external shutters and box blinds.

132. There is no requirement for offsetting energy for any retrofit or refurbishment development.

133. Proposals that seek to utilise specific standards for retrofit, including the PAS 2035 and PAS 2030 Standard, EnerPHit and the UKNZCBS will be supported, with weight accorded in proportion to the degree of energy performance proposed. In particular, conformance with EnerPHit and UKNZBCS is acknowledged to demonstrate exemplary performance. The retrofit of heritage assets should consider the requirements of Policy GP/CC (Adapting heritage assets to climate change).

134. There is no requirement for offsetting to incentivise retrofit and there is no requirement for modelling of energy demand for planning policy purposes, only where there is a requirement to meet Building Regulations, which will be dealt with separately. It should be demonstrated at the pre-planning and planning application stages how the design has reduced embodied carbon

through refurbishment, and at the planning and post-construction stages of development, reporting on WLC is encouraged for major refurbishment.

## Annex 1: Summary of Indicative Requirements for how policy compliance is evidenced and what is required at each stage

### Minor Development

Policy Area	Document	Pre-App Stage (where applicable)	Planning Stage	Post Completion
Sustainability	Sustainability Statement is encouraged.  Could be set out in Planning Statement / Design and Access Statement	Demonstrate consideration of issues required to be addressed in sustainability statement	Provide a full Sustainability Statement (could be integrated into Design and Access Statement or PLanning Statement).	N/A
Operational Energy	Energy Statement is required in new-builds, in accordance with Policy CC/NZ.  Could be set out in Planning Statement /	Reducing energy and carbon is encouraged using template information.	Reducing energy and carbon is encouraged using template information.  Energy statement for new builds is required.	N/A

Policy Area	Document	Pre-App Stage (where applicable)	Planning Stage	Post Completion
	Design and Access Statement			
Offsetting	Energy Statement	Not required	Offsetting calculation required as a part of the energy statement for new-builds in accordance with Policy CC/NZ.	Not required
Circular Economy (Optional)	If provided, could be set out in Planning Statement / Design and Access Statement	No requirement for document, consideration of Circular Economy principles encouraged.	No requirement for specific document, consideration of Circular Economy principles encouraged.	No requirement for document, consideration of Circular Economy principles encouraged.

Policy Area	Document	Pre-App Stage (where applicable)	Planning Stage	Post Completion
Whole Life Cycle Carbon (Optional)	If provided, could be set out in Planning Statement / Design and Access Statement	No requirement for document, consideration of reducing WLC encouraged.	No requirement for document, consideration of reducing WLC encouraged.	No requirement for document, consideration of reducing WLC encouraged.

#### Major Development

Policy Area	Document	Pre-Application Stage	Planning Stage	Post Completion
Sustainability	Sustainability Statement	Demonstrate consideration of issues required to be addressed in sustainability statement	Provide a full Sustainability Statement.	N/A
Operational Energy	Energy Statement	Initial modelling assumptions and modelling using PHPP or TM54 to	Full modelling and demonstration of how targets in CC/NZ	No requirement

Policy Area	Document	Pre-Application Stage	Planning Stage	Post Completion
		provide initial view of EUI and SHD	policy can be met.	
Offsetting (required for new development only)	Energy Statement	Initial view on kwh of renewable energy generation onsite.	Full modelling and demonstration of how targets in CC/NZ policy can be met including whether offset of energy is required, and any evidence of exceptional circumstances for negotiation of a fallback position.	Secure agreed offset in kwh and associated financial obligation.  Be Seen type mechanism to report on and have review mechanism for EUI and SHD.
Circular Economy (for development over 150 units or over 15,000 sqm (GIA) of floorspace where demolition of	Circular Economy Statement  Pre-demolition audit  Sustainability Statement	Review of retention of building / initial review of what can be kept / recycled.	Circular Economy Statement	No requirement

Policy Area	Document	Pre-Application Stage	Planning Stage	Post Completion
over 500m <sup>2</sup> is proposed)				
Whole Life Carbon ((proposals for large scale new-build developments of a minimum of 100 dwellings or 500m <sup>2</sup> of non-residential floorspace)	Whole Life Carbon Assessment  Encouragement of WLC reporting until comes into force through UNZBS  Whole Lifecycle Carbon Report  Whole Lifecycle Carbon reporting template as an appendix	Evidence of measures to reduce WLC carbon	Whole Life Carbon Assessment to be submitted for development of minimum of 100 homes or a minimum of 10,000 sqm.	Encouraged to Re-report WLC calculations on completion with narrative on any changes / differences until UNZBS accounts for WLC.