



North Somerset Local Plan 2038

Net zero evidence summary report

March 2021



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1. Introduction

The West of England Local Authorities and the West of England Combines Authority (WECA) commissioned evidence to inform revised climate change, sustainable construction and renewable energy planning policies for new Local Plans and the Strategic Development Strategy (SDS). This evidence was jointly commissioned to assist the Authorities in providing consistent policies and provide the opportunity to share the evidence with other Local Authorities. The other key aim of the joint commission is to provide consistency and scalability for the development industry. The below lists the study reports that have been produced.

2. Overview of the evidence produced

Document	Produced by	Dated
<ul style="list-style-type: none">Net Zero Buildings – Evidence and guidance to inform planning policy	South West Energy Hub	November 2021
<ul style="list-style-type: none">WoE Net Zero buildings policy - operational carbon for non-domestic buildings	WSP	July 2021
<ul style="list-style-type: none">WoE Net Zero buildings policy - embodied carbon of domestic and non-domestic buildings	WSP	August 2021
<ul style="list-style-type: none">Carbon offsetting report – carbon offsetting within an energy intensity policy framing	Centre for Sustainable Energy (CSE)	Available April 2022

3. Rationale and purpose of the updated evidence

Net Zero buildings

The Net Zero and carbon offsetting reports provide an update to previous evidence produced by Currie & Brown and the Centre for Sustainable Energy (CSE) produced in 2018 /2019 [Cost of carbon reduction in new buildings](#) and [Carbon offsetting in the West of England](#). This update was needed because the understanding of net zero has progressed considerably since these reports were produced. This includes a far greater understanding of the contribution of embodied carbon¹ associated with

¹ Embodied carbon - the total greenhouse gas emissions and removals associated with materials and construction processes throughout the whole life cycle.

construction. Accounting for the embodied carbon or energy associated with development will be required in order to achieve net zero construction and it becomes increasingly important as electricity grid decarbonisation reduces the operational (in use) emissions associated with new development. The new evidence also addresses the fact that national policy is changing through updates to Building Regulations: Part L Conservation of Fuel and Power. This changes the baseline of the original study and necessitates a fundamental shift in our local policy approach.

The Government amended the requirements of the Climate Change Act (2008) in 2019 from a legal obligation of an 80% reduction in greenhouse gas emissions by 2050 (from a 1990 baseline) to a new requirement of achieving net zero by 2050. The net zero requirement needs to be delivered in step with the UK's carbon budgets². The carbon budgets place a restriction on the total amount of greenhouse gases the UK can emit over a 5-year period. The evidence provided by the Climate Change Committee for meeting the sixth carbon budget (2033 – 2037)³, suggests that in order to meet the requirement of a 78% reduction in emissions by 2035, all new development should target net zero as soon as practically possible to avoid additional emissions and to catalyse wider decarbonisation required to hit the net zero 2050 target.

It is widely acknowledged that new buildings should not be constructed which will at some point in the future need retrofitting to meet net zero requirements. The governments Heat and Buildings Strategy (2021) states: *'It is significantly cheaper and easier to install energy efficiency and low-carbon heating measures as buildings are constructed, rather than retrofitting them afterwards. This also reduces disruption to consumers.'*

This evidence relating to net zero construction standards supports policy formulation, to address both the operational and embodied elements of the net zero buildings challenge. The reports provide an assessment of an approach to net zero, and it draws on the growing body of work by national organisations and other local authorities.

4. What is net zero in the context of the local plan?

North Somerset declared a climate emergency in 2019⁴ with an overarching goal to become carbon neutral by 2030. Net zero construction planning policy is clearly a very important part of this.

² UK carbon budgets - <https://www.gov.uk/guidance/carbon-budgets>

³ Sixth carbon budget - <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>

⁴ North Somerset Climate Emergency - <https://www.n-somerset.gov.uk/council-democracy/priorities-strategies/climate-emergency>

In 2019, Government set out its intentions for a Future Homes Standard (FHS) and Future Building Standard (FBS) - a flagship programme that will level up construction practice across the country. However, the Future Homes Standard will not come into force in 2025 at the earliest and will not set requirements to meet net zero construction by 2030. It is therefore considered that net zero construction local policy is required.

A net zero construction requirement will mean that energy use in new development is minimised to the lowest levels, with residual energy use capable of being met through onsite renewable energy generation. If it is demonstrated that this is not technically achievable through onsite measures, then equivalent offsite renewable energy generation may be considered.

5. Key findings

The West of England Authorities have worked with the South West Energy Hub, using their expertise and involvement in parallel projects to maximise the transparency and transferability of various study outputs and to share this with other Authorities across the country.

The Energy Hub have provided guidance on net zero buildings policy through their evidence and guidance report 2021⁵. This report sets out the national regulation and policy position and legal background to climate change policy implementation. The report sets out the rationale for the recommended approach to setting net zero targets in local policy. The recommended approach draws on the findings from the WSP net zero studies. This includes those for residential and non-residential buildings both for net zero operational targets, but also to include a measure of embodied carbon. The report also summarises the evidence from the Centre for Sustainable Energy on offsetting and considers the role of both energy and carbon offsetting in setting local policy requirements. The report includes recommendations for policy for existing buildings.

The guidance details the findings from a study with Cornwall County Council. This details the cost of achieving net zero construction for a range of building typologies⁶. The evidence demonstrates that net zero operational buildings can be delivered with an average cost uplift of 2-4%. This low cost has driven the market to start to deliver net zero construction in the absence of policy. However, policy is needed to set a consistent requirement across all built development.

The WSP evidence has demonstrated that significant reduction in embodied carbon can be achieved at no net additional costs.

⁵ South West Energy Hub – [Net zero new buildings Evidence and guidance to inform planning policy](#)

⁶ Cornwall County Council Climate Emergency DPD – [Energy review and modelling by Etude](#).

6. What are the policy recommendations?

Operational energy

Implement policy that reflects a four principal approach of no fossil fuels, space heating targets, energy use intensity targets and onsite renewable energy to (at least) match residual energy demand.

Target the Committee on Climate Change recommendation for 15-20kWh/m² limits for space heating by 2025 at the latest.

Target LETI/RIBA Energy Use Intensity (EUI) targets by building type. Undertake local viability testing where transitional targets are required prior to 2025.

Non-domestic buildings

The study provides indicative costings that would enable net zero regulated carbon in non-domestic buildings. It focuses on regulated emissions since unregulated emissions vary widely depending on building type and use. It is a high-level study, drawing on previous studies. It provides indicative costs for net zero either from:

	Measure of zero carbon:	Cost uplift
From baseline Part L 2013 (with gas)	Part L 2021 with rooftop solar (regulated) & remaining emissions offset	1.6 – 2.4%
	Targets 15kWh/m ² /yr space heating & 55 – 65 kWh/m ² /yr Energy Use Intensity (LETI) with remaining emissions offset	2 – 2.4%
From baseline Part L 2021	Part L 2021 with max rooftop solar (regulated) remaining emissions offset	0.9 – 1.2%
	Targets 15kWh/m ² /yr space heating & 55 – 65 kWh/m ² /yr Energy Use Intensity (LETI) with remaining emissions offset	1.5 – 2.8%

Where non-standard non-residential buildings cannot meet EUI targets, compliance with an agreed alternative accreditation scheme suited to these typologies should be used. Where BREEAM is used as a policy tool, consider targeting exemplary (unregulated energy and monitoring) Ene01 credits to drive performance gap reductions.

It should be acknowledged that BREEAM is not a replacement for net zero policy, since it does not have net zero carbon emissions as the primary aim. Therefore, it should be considered alongside but separately to any net zero building policy.

District heating

- Connection to a district heating network should not allow exemption from onsite energy targets.
- Developments should make all reasonable efforts to achieve net zero onsite emissions prior to connecting to a district heating network (DHN).
- Space heating and EUI targets should account for distribution losses in the DHN.

Embodied carbon

Require a WLC assessment to be carried out using a RICS recognised assessment tool (limited to a 'one-click' tool for minor developments), reporting against LETI A++ to G benchmarks.

Consider the introduction of embodied emissions targets covering upfront emissions for major developments, setting out how and when future targets will increase in scope.

Use data gathered through embodied carbon assessments to inform industry wide development of more robust planning targets.

Existing buildings

80% of the buildings that will be in existence in 2050 are already built. Most of these are of poor energy efficiency standards.

To address this, it is recommended that the following are considered:

- increasing fabric requirements above and beyond the proposed interim update to Part L1B.
- alignment with the consequential improvements (energy efficiency improvements when an existing building is extended or converted) requirements of Welsh Building Regulations

Offsetting

Policy wording should consider and incorporate where applicable, the following principles:

- All efforts should be made to reduce onsite emissions before considering offsetting.

- Offsetting should only be used to meet the energy generation shortfall after onsite renewables have been maximised.
- Offsetting will only be permitted where it is demonstrated that the onsite energy demand cannot be met through onsite renewable energy generation.
- Offsetting should only be permitted where it can provide credible additionality.
- Offsetting should be development linked, prioritising site-wide compliance then reducing supply chain (i.e. embodied) emissions.
- Offsetting embodied emissions is most likely not currently viable, but this position is likely to change over the coming years.
- Offsetting must ensure that the rate of savings equals the rate of emissions, delayed savings must account for balancing any accrued emissions prior to the delivering of the offsetting project.
- Payments into offset funds or power purchase agreements should not be encouraged.

7. Monitoring

Sustainability and Energy Statements will be required to be submitted alongside all applications. A post occupancy reporting scheme will be considered to address issues with the performance gap This will include a mechanism to report the findings for operational carbon in both domestic and non-domestic buildings.