

Appendix 5 - Policy X B - Net Zero Operational Carbon in New Build Non-Residential Development

- 1.1. As per Policy XA (residential), planning policies supporting net zero operational carbon in new build non-residential developments can drive significant improvements in energy efficiency and the reduction of regulated operational carbon in new buildings. This is in line with the council's commitment to becoming a carbon-neutral district by 2045 and national policy targets to the UK as a whole, becoming carbon-neutral by 2050.

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All new build non-residential development is required to be net zero carbon in operation (regulated energy) through the following requirements:

B1.1 - Part L% improvement

- 1) % improvement on Part L 2021 TER (Target Emissions Rate), or equivalent reduction on future Part L updates through on-site measures as follows:

Offices: at least 25% improvement

Schools: at least 35% improvement

Industrial buildings: at least 45% improvement

Hotels (C2, C5) and residential institutions (C2, C2a): at least 10% improvement

Other non-residential buildings: at least 35% improvement

In the event national building regulations exceed the requirements of this policy, the national standards (i.e. the higher standards) would apply.

B1.2 - Energy metrics guidelines

- 2) Positive weight will be given to development proposals which can demonstrate the following absolute energy metrics:

- Total energy use: 65 kWh/m²/year
- Space heating demand: 15 kWh/m²/year

- 3) Employing absolute energy metrics reduces the amount of solar PV required under B3 for an on-site net zero balance of regulated energy. Applicable methodologies to calculate this include CIBSETM54 and the Passivhaus Planning Package. At present, the Part L calculation method (SBEM) is not considered suitable as it does not provide accurate predictions of a building's actual energy use.

B2 - No fossil fuels

- 4) The use of fossil fuels and connection to the gas grid will not be considered acceptable.

B3 - On-site renewable energy

- 5) On-site annual renewable energy generation capacity to at least equal predicted annual total regulated energy use (residual energy use after B1.1 has been achieved). In buildings subject to Part L's requirement for energy forecasting, that forecasting should be the source of the 'annual total regulated energy' figure.

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- 6) Where an on-site net zero regulated energy balance is not possible¹, it should be demonstrated that the amount of on-site renewable energy generation equates to $\geq 120\text{kWh/m}^2$ projected building footprint/year.
- 7) Where a building in a multi-building development cannot individually achieve the requirements of B3, this shortfall is to be made up across other units on-site before carbon offsetting is considered.
- 8) Development should demonstrate that opportunities for on-site renewable energy infrastructure (on-site but not on or attached to individual buildings), such as solar PV canopies on car parks, have been explored.

B4 - Energy offsetting

- 9) Only in exceptional circumstances and as a last resort where it is demonstrably unfeasible to achieve an on-site net zero regulated energy balance, any shortfall in on-site renewable energy generation that does not match regulated energy use is to be offset via a S106 financial contribution, reflecting the cost of the solar PV that will need to be delivered off-site.
- 10) The energy offset price shall be determined based on the cost of delivering equivalent off-site solar PV capacity, calculated using the most up-to-date government data on solar PV installation. The methodology will account for capital costs, expected local energy yield, and a reasonable allowance for the administration of the offset fund by the council or its delivery partners. The total offset contribution shall be calculated as a one-off payment, based on the projected annual shortfall in on-site renewable energy generation, multiplied by the published offset price.

B5 - Reduced Performance Gap

- 11) An assured performance method must be implemented throughout all phases of construction to ensure operational energy in practice performs to predicted levels at the design stage.

B6 – Smart Energy Systems

- 12) Proposals should demonstrate how they have considered the difference (in scale and time) of renewable energy generation and the on-site energy demand, with a view to maximising on-site consumption of energy generated on site through energy storage or smart distribution and overall minimising the need for wider grid infrastructure reinforcement.
- 13) This may include smart local grids, energy sharing, energy storage and demand-side response, and/or solutions that combine elements of the above.
- 14) Large-scale development (over 5000m^2 of floorspace) is to monitor and report total energy use and renewable energy generation values on an annual basis. An outline plan for the implementation of this should be submitted with the planning application. The monitored in-use data is to be reported to the Local Planning Authority for 5 years upon occupation.

¹ Exceptional circumstances where an on-site net zero energy balance is not achieved may only be found acceptable in some cases, for example with taller flatted buildings (4 storeys or above) or where overshadowing significantly impacts solar PV output.

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Reasoned Justification

- 1.2. As per the Climate Change Act 2008, national policy is working towards achieving the legally binding UK target of net zero by 2050 and carbon budgets are subsequently legislated under the aegis of the act. These carbon budgets are linked to the Climate Change Committee's Balanced Pathway to Net Zero in the Sixth Carbon Budget Report, which sets out that all new buildings should be zero carbon from 2025, with high levels of energy efficiency and low-carbon heat. It is also found that non-residential buildings should phase out high-carbon fossil fuel boilers no later than 2026 and phase out gas boilers in 2030-33. Furthermore, the 2050 net zero target is now specifically referenced in the NPPF under paragraph 161.
- 1.3. Therefore, new buildings today should not have these, to avoid the need for expensive disruptive retrofit less than 10 years after completion which would also waste embodied carbon. The policy supports these targets by prohibiting fossil fuel connection and improving energy efficiency, which mandate a heating technology similarly efficient to a heat pump. **The policy relates to all new build non-residential development required to meet building regulations.**
- 1.4. The policy remains consistent with the 2023 Written Ministerial Statement's stipulations, given that the metric for B1 is a % reduction on TER (to be calculated with SBEM, which is the non-residential equivalent of SAP).
- 1.5. B2 is aligned to the Government's direction of travel indicated by both the options proposed in the Future Homes Standard 2023 consultation, in that no fossil fuel heating systems are proposed. B3 and B4 are not impacted because they address renewable energy, which is out of the scope of the 2023 WMS.
- 1.6. Policy elements B1, B2 and B3 are to be addressed at the design and post-completion stages, to ensure that the development has been built to intended standards. Post-completion resubmission of the original energy statement including energy performance calculations, informed by the relevant tests to systems and fabric, should be required as a condition as part of the planning application process. B5 and B7 compliance should also be demonstrated post-completion through planning conditions.
- 1.7. B1 to B7 are to be demonstrated at the planning application stage through the submission of an energy statement, alongside associated output reports from energy modelling software (e.g. SBEM).

Smart Energy Systems

- 1.8. In order to maximise energy self-sufficiency of a site, in relation to policy element A6, a number of methods may be considered. These may include smart local grids, energy sharing, energy storage and demand-side response, and/or solutions that combine elements of the above.

Compliance with Policy B1.1 TER Reductions

- 1.9. These %TER reduction targets are not limited to be solely delivered through energy efficiency measures. Therefore, there could be an element of clean energy supply or renewable energy

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measures included in these. Further renewable energy will be needed to subsequently meet the requirements of Policy B3, therefore applicants should be advised to pursue energy efficiency measures as far as feasible in the first instance in pursuit of Policy B1.1, so that the subsequent Policy B3 renewable energy requirements are not rendered excessively expensive or unfeasible. Designing to use less energy in the first place reduces the amount of renewable energy needed to match this, and/or the amount of carbon offset payment needed.

- 1.10. In the current Part L for non-domestic buildings, the type of heating system in the 'notional' building (from which the TER is derived) is the same as the type of heating system in the actual proposed building. Therefore, no TER gains will be made by switching from a gas or oil boiler to a heat pump or other all-electric or otherwise low-carbon heat system. However, TER improvements can be made by selecting a heating system that is more efficient than Part L 2021's notional efficiency for that heating type.

Assured Performance Processes for Energy Performance

- 1.11. Regarding assured performance processes, in addition to those mentioned in relation to the equivalent residential policy (A5) in residential, there is also one additional method for non-residential: NABERS UK (administered by CIBSE). NABERS is currently only available for offices but intended to extend to other building types in future.

Offsetting

- 1.12. The requirement for offsetting may be applied flexibly where it is demonstrated that this makes development unviable due to the unique energy use profile of the proposed building and site characteristics, where this results in an offsetting cost uplift significantly higher than assessed in the Whole Plan Viability Assessment. The flexibility could include a reduction in the scope of energy that has to be offset, or a discounted price per kWh if the Local Authority is confident that it can still deliver the required offset projects within this price (when pooled into the offsetting fund which will primarily consist of full price offset contributions). The degree of flexibility will depend on the unique scheme characteristics and evidence submitted to the local authority about what could be viably accommodated. It may also depend on the degree to which the proposed development represents a socially desirable facility that meets unmet community needs (such as for healthcare, education or similar).

- 1.13. See also the reasoned justification for the equivalent residential policies (A1-A7) regarding:

- Calculating renewable energy provision and offset payments,
- Applicability to outline applications, and
- Assured performance processes

Regulated vs Unregulated Energy

- 1.14. Regulated energy is building energy consumption resulting from the specification of controlled, fixed building serviced and fittings such as space heating and cooling, ventilation, pumps and lighting. Such energy uses are an inherent part of building design.

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- 1.15. Unregulated energy is building energy consumption resulting from a process or source which is not “controlled”, primarily energy consumption from systems in the building which Building Regulations do not impose requirements or targets. Examples include energy consumption from systems such as IT equipment, lifts, external lighting, printers, photocopiers and other appliances. Some buildings can have a high percentage of unregulated energy consumption, levels of which can vary significantly depending on occupants and use. Compared to regulated energy, unregulated energy is harder to consider and limit during the design process.
- 1.16. Policy Criterion 5 (B3) requires renewable energy generation to be equal to the annual total regulated energy, and not ‘process energy’ (which may result from large infrastructure sites), which would be deemed non-regulated energy for the building or operation.