Summary of evidence in support of planning policies NZC1-4

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Introduction

Policies NZC1 to NZC4 address climate change, sustainable energy, embodied carbon, sustainable construction and the use and selection of materials. These new policies replace policies BCS13 to BCS15 in the Core Strategy Framework (2011). They reflect changes our understanding of the direct and indirect impacts of a rapidly changing climate, advances in technology over the last decade as well as the government's binding targets on emission reductions and Bristol City Council's declaration of a climate emergency in November 2018 and commitment to make Bristol Carbon Neutral by 2030.

NZC1 – Climate change, sustainable design and construction

Policy NZC1 draws-on and develops existing planning policies on climate change (BCS13) and sustainable design and construction (BCS15) was well as IPCC reports Climate Change 2022: Impacts, Adaptation and Vulnerability[1] and Climate Change 2022: Mitigation of Climate Change.[2]

Evidence in support of defining limits on operational energy and on the application of BREEAM and BREEAM Communities has been provided by WSP[3], and policy proposals to limit water consumption draw on the Bristol Water Final Water Resources Management Plan 2019.[4]

That Local Planning Authorities have the power to set planning policies which exceed Building Regulations has been confirmed in an Exam 10 Note from the Department for Levelling Up, Housing and Communities.[5]

NZC2: Net Zero Carbon Development – Operational Carbon

Policy NZC2 addresses carbon emissions arising from operational energy use, that is the energy required for the day-to-day operation of a building post-construction.

The importance of reducing operational carbon emissions to meeting broader carbon reduction commitments including the Council's climate emergency declaration, is addressed in reports prepared for BCC by Element Energy Ltd[6] and the Centre for Sustainable Energy.[7]

NZC2 addresses operational carbon emissions through the introduction of energy performance targets for space heating and total energy use – also referred to as Energy Use Intensity (EUI) – and sets a requirement for new residential developments to achieve net zero operational energy using on-site renewable energy generation and for energy offsetting to apply where net zero energy is not technically feasible.

The introduction of energy performance targets draws on evidence from the UK Green Building Council (UKGBC)[8], London Energy Transformation Initiative (LETI)[9], South West Energy Hub[10], and the Government Property Agency.[11]

Numerical targets for space heating and EUI use evidence provided by the Committee on Climate Change[12], and Cornwall County Council[13] and Greater Cambridge authorities[14]. CSE have provided evidence related to energy offsetting.[15]

NZC2 presents draws on evidence provided to the council by CSE and Currie and Brown[16] and WSP.[17]

The policy highlights the importance of reducing energy demand and peak energy demand[18] in supporting the transition to a net zero energy system and making provision for emerging technologies which will facilitate this change including battery energy storage[19] and vehicle to grid (V2G) electric vehicle charging.[20]

There is strong evidence to show that without quality assurance processes during design and construction the operational energy demand from new buildings will be higher than predicted energy demand and to support the implementation of processes[21] and monitoring and reporting[22] to close this 'performance gap'. Anticipating a possible role for hydrogen in the energy mix NZC2 makes provision for how fugitive emissions such as methane should be accounted for within energy calculations.[23]

As with previous BCC planning policies NZC2 requires new development to connect to classified heat networks where these exist.[24] The proposal for integrating EUI targets with connection to a classified heat network is supported by evidence provided to Bristol City Council by Buro Happold.[25]

NZC3: Embodied carbon, materials and waste

Policy NZC3 addresses the importance of embodied carbon – that is emissions associated with the construction, maintenance and disposal of buildings – and materials and waste. Drawing on evidence from RIBA[26], WSP[27], UKGBC[28], South West Energy Hub[29], LETI[30] and the Environment Audit Committee[31] it introduces minimum targets for embodied carbon and a requirement to offset carbon emissions where these targets are exceeded.

The transition to zero carbon heat requires the installation of air, ground and water source heat pumps to serve heat networks, developments and individual buildings. NZC3 sets a requirement for the global warming potential (GWP) of refrigerants used in heat pumps and the carbon dioxide equivalent emissions (CO2e) to be included within calculations of embodied carbon using evidence[32] provided by Buro Happold.

The policy also encourages developers to avoid the use of all tropical hardwoods unless reused/reclaimed on account of the critical role in regulating regional and global climate and their ecological and cultural significance.[33]

NZC4: Adapting to a changing climate

Policy NZC4 highlights the need to ensure that new development has been designed from the outset to be resilient to changes in the local climate as a result of global heating.

The policy draws on evidence from the IPCC[34] as well as analysis by Arup[35] for the One City Plan, and research by Bristol City Council in collaboration with UK Climate Resilience Programme of the local impacts and vulnerabilities to higher average and peak summer temperatures and longer and more frequent heat wave events.[36]

The importance of ensuring that all new buildings are not vulnerable to overheating from the perspective of the health of occupants is addressed in evidence from UKGBC[37] and the Good Homes Alliance.[38]

NZC4 also introduces a policy requirement for developers to assess overheating risk as a minimum obligation in all schemes[39] and to use dynamic thermal modelling[40] against current (2020) and future (2050 and 2080) weather files to assess resilience to overheating over the lifetime of the development.

As previously, the application of green and blue infrastructure to reduce overheating risk and create cooler, seasonal external spaces is strongly supported[41] to increase resilience to changes in the local climate.

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