Bristol City Council's response to Inspectors' matters, issues and questions

Matter 14: Climate Change and Flood Risk

This statement sets out the council's response to the Inspectors' matters, issues and questions regarding climate change and flood risk matters.

Council's introduction

The Inspectors' questions are shown below in ***bold italics*** with a border, following any preamble to the question also in ***bold italics***. The council's responses are shown in normal typeface below the Inspector's questions.

Suggested main modifications arising from the Inspectors' questions are set out in grey tint boxes.

Responses to Inspectors' questions

Issue 14.1: Whether policies relating to climate change and energy efficiency are justified, effective and consistent with national policy.

The Government published a Written Ministerial Statement (WMS) in December 2023 relating to energy efficiency standards. EXA002.1 sets out some proposed main modifications to Policy NZC2 which the Council consider reflect these changes.

General matters

Q14.1: Do any other elements of policies NZC1, NZC3, NCZ4 or NCZ5 fall within the scope of the WMS? If so, do any of the requirements exceed current or future building regulations? If so, are these elements justified and consistent with the requirements of the WMS?

Council's response

1. The Planning - Local Energy Efficiency Standards Update WMS issued 13 December 2023 relates to the energy efficiency of new buildings. The statement notes that '*the Government does not expect plan-makers to set local energy efficiency standards for buildings that go beyond current or planned buildings regulations*'. The relevant part of the building regulations referred to in the WMS is Approved Document L: Conservation of Fuel and Power, which covers the energy efficiency of new and existing buildings. Policies NZC1, NZC3, NZC4 and NZC5 do not address energy efficiency, but rather other aspects of sustainable design and construction not covered by the scope of the WMS and are consistent with wider national planning policy.

2. Policy NZC1 is the overarching policy for the chapter, framing the subsequent policies and requiring development to mitigate and adapt to climate change, consistent with the requirements of chapter 14 of the NPPF (September 2023). It includes a requirement for BREEAM assessment for major non-residential schemes and a BREEAM Communities assessment for major non-residential development, and for residential or mixed-use development of over 200 dwellings. It also includes the council's expected standard for water efficiency of new homes which are further

discussed in the response to Q14.3 b and Q14.3 d respectively. As such, the policy does not fall within the scope of the WMS.

3. Policy NZC3 does not address issues of energy efficiency, but rather embodied carbon and the circular economy, both of which are outside of the scope of the WMS. It sets out general principles for all development in the city as well as specific standards that should be met for major development, dependent on the form and type of development. This is a topic that is not covered in current building regulations. The policy reflects paragraph 154 b of the NPPF which states that new development should be planned for in ways that 'can help to reduce greenhouse gas emissions, such as through its location, orientation and design'. The latest version of the NPPF notes that the 'need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account the full range of potential climate change impacts' which is considered to include embodied carbon, as it is a significant driver of greenhouse gas emissions (NPPF December 2024 paragraph 163). Although the plan is being assessed against the September 2023 NPPF, the new NPPF is a relevant material consideration, as the plan will be subject to its provisions if adopted.

4. Policy NZC4 does not address issues of energy efficiency, but rather adaptation to climate change. The policy does not set specific standards that would otherwise be covered in Approved Document L of the building regulations, and instead requires development to demonstrate a robust consideration of a changing climate and demonstrate how measures have been taken to ensure the long-term liveability and useability of new development for occupants in an adaptation strategy. As such, the policy does not fall within the scope of the WMS. The policy reflects paragraph 153 of the NPPF which states that:

> 'Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts…'

5. This paragraph has been strengthened in the December 2024 NPPF to include an additional reference to policies ensuring the future 'health and resilience' (NPPF December 2024 paragraph 162) of communities and infrastructure. Whilst the plan is being assessed against the September 2023 version of the NPPF, the new NPPF is a relevant material consideration as if adopted, the new local plan will be subject to its provisions.

6. Paragraph 154 a of the NPPF (September 2023) also notes that new development should be planned for in ways that:

> 'Avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure…'

7. Policy NZC5 does not include any requirements for new development. The policy sets out the council's supportive position for proposals for the utilisation, distribution and development of new renewable energy capacity and storage; the retrofit of existing buildings; and the particular suitability of the Avonmouth Industrial and

Bristol Port area for new renewable energy capacity and storage. As such, the policy does not fall within the scope of the WMS. It is consistent with paragraph 155 a-b of the NPPF (September 2023) which sets out that:

> 'To help increase the use and supply of renewable and low carbon energy and heat, plans should:
>
> > a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);
> >
> > b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development…'

Q14.2: Have the requirements of policies NZC1 to NZC5 been subject to robust assessment of viability?

Council's response

8. The impact of policies NZC1-3 on development viability has been assessed in the council's viability assessment (EVEV01 paragraphs 4.12-4.13, 6.30-6.35). The viability assessment includes a sensitivity test that tests higher costs than those in the evidence base for the policy. Further information relating to the viability assessment of policies NZC2-3 can be found in the council's Net Zero Carbon Topic Paper (TPC007 p18 – 19, p29). Additionally, the council has commissioned new evidence (West of England TER Study: Technical Evidence Base 2024 EXA037) in connection with the suggested modifications to policy NZC2.This work shows that the proposed modifications have no undue or unreasonable impact on development viability beyond the assessment made in the council's viability assessment.

9. Policies NZC4-5 have not been specifically addressed by the council's viability assessment as they set no standards that would incur a cost for new development. The requirements in NZC4 would not be achieved through improving building specifications or higher specific standards but designing development in an appropriate fashion to improve the adaptability of the final development.

Policy NZC1: Climate change, sustainable design and construction

Q14.3: Is Policy NZC1 justified, consistent with national policy and effective? In particular:
a) Is the requirement for all development proposals to submit Sustainability Statements justified?

Council's response

10. The policy reflects national planning policy regarding climate change. The NPPF sets out that the planning system should 'support the transition to a low carbon future in a changing climate… and shape places in ways that contribute to radical reductions in greenhouse gas emissions; minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conservation of existing buildings; and support renewable and low carbon energy and associated

infrastructure.' (NPPF September 2023, paragraph 152). The NPPF also notes that 'plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures' in accordance with the government's legal obligations outlined in the Climate Change Act 2008 (NPPF September 2023, paragraph 153, including footnote 53). Policy NZC1, and the wider suite of policies it frames, reflect these requirements and set out a positive and effective strategy for mitigating and adapting to climate change.

11. The requirement for sustainability statements is included in the current local plan (see policies BCS13: Climate change, BCS14: Sustainable energy; BCS15: Sustainable design and construction; BCS16 Flood risk and water management; (DPD001) DM15: Green infrastructure provision; and DM21: Development of private gardens (DPD002)). The requirement for sustainability statements is long established in Bristol and is used by other local planning authorities (see DM16 – Sustainable Design, Worthing Borough Council 2023; Policy DMSI 1: Sustainable design and construction, Barking and Dagenham 2024[1]) as a means of ensuring and demonstrating that new development meets both local plan and national policy ambitions as they relate to sustainability.

12. The requirement to submit a sustainability statement is caveated in the council's Climate Change and Sustainability Topic Paper. The following development types are excluded from the sustainability statement/energy statement requirement:

- Householder applications for alterations/extensions of dwellings.
- Alterations and extensions to existing non-residential buildings, including extensions of up to 10% additional gross internal floor space to a maximum of 250m².
- External works where no additional floor space is being created.
- Applications for change of use unless over 1,000m² where no increase in floor space or subdivision of units occurs.

13. These forms of development are excluded as the requirements of policies BCS13-16 cannot be readily applied to them. The council intends to update the existing practice note upon adoption of the new local plan to reflect the new policy. These exemptions are to be retained as they are considered to reasonable and appropriate.

Q14.3 b) Is the requirement for all residential or mixed-use developments of 200 dwellings or more to meet BREEAM Communities Excellent ratings justified and consistent with national policy?

Council's response

14. As noted in the response to Q14.3 a, policy NZC1 is considered consistent with national planning policy and the Climate Change Act 2008. BREEAM communities is intended to ensure the sustainability of large-scale developments and new communities such as in areas of urban extension. The requirement for development

[1] Worthing Borough Council Local Plan; Barking and Dagenham Local Plan.

of such a scale to demonstrate it meets BREEAM Communities Excellent is included in the current local plan (see policies BCS13: Climate change and BCS15: Sustainable design and construction (DPD001)). The threshold where development would be expected to demonstrate they meet the requirements of BREEAM Communities has been raised in the new local plan, rising from where development is over 100 dwellings to where it is over 200 dwellings. This is intended to reflect the intended use of BREEAM Communities and not apply to other large developments that might reasonably be considered to not constitute the creation of a new community.

Q14.3 c) Is the reference to other sustainable design standards clear and unambiguous?

Council's response

15. The reference to other sustainable design standards has been included to signpost developers to other standards that could be used to meet the requirements of policies NZC1-4. It is not intended to serve as a policy requirement, but as guidance for other relevant standards an applicant may wish to use in order to ensure the sustainability of their development.

Q14.3 d) Is requiring the optional technical standards for water efficiency standards justified by a clear local need, as set out in the PPG[2]?

Council's response

16. Bristol Water have identified 110 litres per person per day as a target for 2050 needed to ensure the long-term sustainability of the region's water supply. Given the estimated lifespan for any new development built under the proposed local plan would mean they are likely to be still in operation by 2050, it is important that new development meets this standard wherever possible.

17. Additionally, Bristol Water have noted in their Draft Water Resource Management Plan 2024[3] that meeting this target is likely to be challenging due to issues such as the COVID-19 pandemic, the resultant societal and behavioural changes of which have led to an increase in individual water demand. A shortfall of 28.8 litres per person per day has been identified which will necessitate:

'Collaborative working with other water companies and local authorities as well as action by government over the coming years to:

- Influence customer consumption behaviour to become more water efficient
- Modify government policy to better support water efficiency actions, such as mandatory water labelling, more water efficiency standards for water using appliances and enhanced water efficiency requirements for new homes
- Incentivise manufacturers and innovators to reduce water consumption rates for household and commercial water using appliances.'

[2] ID: 56-014-20150327, 56-015-20150327, 56-016-20150327
[3] Revised Draft Water Resources Management Plan, Bristol Water 2024

18. This shortfall makes the need to improve standards for new development even more necessary and has been welcomed by Bristol Water in their representation made as part of the Regulation 19 consultation stage:

'We welcome the commitment that the development of new homes should be expected to achieve the required water efficiency standard of no more than 110 litres per person per day. At Bristol Water we provide incentives in the cost of connecting new developments to developments which exceed this standard.'

Policy NZC2: Net zero carbon development – operational carbon

Q14.4: Is Policy NZC2 justified, consistent with national policy and effective? In particular
a) Is the policy clearly written and unambiguous, such that it would be evident to an applicant what would be required and a decision maker how they should react to development proposals?

Council's response

19. The response to Q14.4 c) is relevant to this response.

20. The council considered the approach proposed in the publication version of the Bristol Local Plan which uses energy use intensity (EUI) to be positively prepared, justified, and effective. It is consistent with national policy set out in the Policy Approach section of the topic paper, in particular the Climate Change Act 2008 and NPPF September 2023 aims for the planning system set out in paragraph 152.

21. The policy was robustly evidenced and viability tested. Policies utilising a similar approach are already in use in the adopted local plans of other local planning authorities such as Bath and North East Somerset, Central Lincolnshire and Cornwall (provided for reference in Appendix 1).

22. However, the WMS issued in December 2023 indicated that for any planning policies that propose local energy efficiency standards for buildings that go beyond current or planned buildings regulation the additional requirement should expressed as a percentage uplift of a dwelling's Target Emissions Rate (TER) calculated using a specified version of the Standard Assessment Procedure (SAP). Modifications have been proposed to align the policy with this metric (Schedule of Main Modifications EXA002.1).

23. Both the publication version and proposed modified versions of policy NZ2, although necessarily detailed given their technical nature, both set out their requirements in a structured way. The council intends to update its Climate Change and Sustainability Practice Note upon adoption of the new local plan. The practice note provides detailed guidance for applicants and officers in how the policy should be interpreted and applied and has been used effectively since its adoption in this capacity.

Q14.4 b) Is it justified, or effective, to expect proposals for all development to submit an energy strategy, including any 'modelling' referred to in paragraph 12.1.20?

Council's response

24. The requirement for development to submit an energy strategy, including energy modelling is considered to be both justified and effective. Justification for this requirement can be found in the NZC2 section of the topic paper. The requirement for applicants to submit a sustainability statement and/or an energy strategy submitted as part of a Sustainability Statement is included in the existing local plan (Policy BCS14: Sustainable energy (DPD001)). The requirement for modelling in the proposed, unamended and amended policy is necessary to demonstrate how the space heating target is met. In the amended version, the requirement to provide energy-efficiency modelling is similarly required to demonstrate how the policy's standards have been met as well as assist in minimising the performance gap between designed and actual performance. Similar requirements are in place in other local authorities in England, including Bath and North East Somerset, Central Lincolnshire and Cornwall (provided for reference in Appendix 1).

25. The requirement to submit both a sustainability statement and an energy strategy is discussed in the council's Climate Change and Sustainability Topic Paper which explains the circumstances where they would not be expected. The following development types are excluded from the sustainability statement/energy statement requirement:

- Householder applications for alterations/extensions of dwellings.
- Alterations and extensions to existing non-residential buildings, including extensions of up to 10% additional gross internal floor space to a maximum of 250m².
- External works where no additional floor space is being created.
- Applications for change of use unless over 1,000m² where no increase in floor space or subdivision of units occurs.

26. These forms of development are excluded as the requirements of policies BCS13-16 cannot be readily applied to them. The council intends to update the existing practice note upon adoption of the new local plan to reflect new policy. These exemptions are to be retained as they are considered to be reasonable and appropriate.

Q14.4 c) Are the suggested main modifications set out in EXA002.1 to Policy NCZ2 necessary to make the policy sound? Would any additional modifications be necessary to ensure consistency with the WMS?

Council's response

27. Suggested modifications to Policy NZC2 have been indicated for the policy in response to the Written Ministerial Statement of December 2023 (Schedule of Main Modifications EXA002.1). This presents a number of complex issues for the appropriate approach to policy as discussed in this statement.

28. The council considered the approach proposed in the publication version of the Bristol Local Plan which uses energy use intensity (EUI) to be positively prepared, justified, and effective. It is consistent with national policy set out in the Policy Approach section of the topic paper, in particular the Climate Change Act 2008 and NPPF September 2023 aims for the planning system set out in paragraph 152.

29. The reason EUI was considered appropriate is because there is growing consensus that it is better aligned to achieving net zero development than CO_2 based metrics calculated using a building regulations compliance model. EUI better takes account of actual energy use within a building, both regulated and unregulated. It does not rely on a relative improvement over a notional building, but rather provides an absolute performance metric. EUI is also more likely to result in buildings that perform as designed, decreasing the performance gap and ensuring designed improvements are delivered.

30. As well as ensuring buildings are built to a high standard of energy efficiency, designing buildings using EUI rather than CO_2 based metrics is more likely to support the council's ambitions to achieve net zero. Assuming that as the grid decarbonises buildings using only electricity can be regarded as net zero neglects the fact that there is a finite capacity for renewable energy generation in the UK. As the grid decarbonises, it remains important to reduce overall energy demand to ensure that what demand does exist (which is also predicted to increase over time) can be met by this limited renewable energy capacity. If buildings are energy inefficient, then it risks decreasing the ability to decarbonise its energy system as a whole. A more detailed discussion of the EUI approach can be found in the council's Net Zero Carbon Evidence Topic Paper (TPC007).

31. The policy was robustly evidenced and viability tested. Policies utilising a similar approach are already in use in the adopted local plans of other local planning authorities such as Bath and North East Somerset, Central Lincolnshire and Cornwall (these are included for information in Appendix 1).

32. However, the WMS issued in December 2023 stated that for any planning policies that propose local energy efficiency standards for buildings that go beyond current or planned buildings regulation the additional requirement should expressed as a percentage uplift of a dwelling's Target Emissions Rate (TER) calculated using a specified version of the Standard Assessment Procedure (SAP).

33. The suggested modifications were intended to provide an alternative policy approach that reflected the strictures of the written ministerial statement.

34. Following the election of July 2024, the government proposed changes to the national planning policy framework which were implemented within the last three months. Paragraph 161 (former 152) has been revised to specifically set out the role of the planning system in supporting the transition to net zero, with its specified target date:

'*The planning system should support the transition to net zero by 2050*…'

35. This more robust and specific reference to net zero and the planning system's supporting role presents a difference in tone to that set out in the earlier WMS which indicated a lesser role for the planning system in the net zero transition insofar as it related to energy efficiency standards. The unmodified version of Policy NZC2 now appears more consistent with latest version of the NPPF than the modified version, notwithstanding the ministerial statement.

36. This presents a challenge for the local plan. The local plan as published in November 2023 contained the council's agreed approach to zero carbon development; Policy NZC2 was considered consistent with the NPPF and was considered to be justified by the evidence. The WMS December 2023 specifies a different approach to such policies (TER/SAP rather than EUI). If Policy NZC2 is

adopted as modified (TER/SAP) it fixes the approach to a WMS that may be subject to future revision or revocation.

37. To ensure that the local plan addresses both the WMS and the more recent NPPF and is future proofed in a way which ensures the most effective approach to net zero carbon development (operational carbon) is followed, it is suggested that Policy NZC2 is modified in a way which allows for the future implementation of the unmodified version of the policy. A modification to the following effect is proposed:

Additional text to be added to policy wording subsection 'Specific standards for development' between last bullet point under 'development will be expected to:' and paragraph beginning 'where it is clearly demonstrated that onsite emissions…':

'In the event that government statements of policy towards energy-efficiency standards in planning changes to utilise or not preclude the use of metrics such as energy use intensity, the application of this policy will be similarly updated to reflect this, utilising the policy in Appendix D.'

38. Appendix D would include the unmodified policy wording outlined in the publication version of the local plan, enabling the use of the EUI based approach in the event of further changes to national policy.

39. In addition to this, the retention of a broad requirement for development to seek to be energy efficient is proposed (with no specific standards that would contravene the wording of the WMS). This would constitute the withdrawal of a previously suggested modification. The wording intended to be retained is:

'Energy efficiency in new development

Development will be expected to:

- *Be highly energy efficient, minimising the demand for heating, cooling, hot water, auxiliary energy, and lighting energy consumption through energy efficiency measures; then…'*

40. An additional main modification to the policy text is also proposed. The evidence base report commissioned to develop a policy in line with the wording of the WMS, recommended that a requirement for a 10% improvement over the Fabric Energy Efficiency Standard for dwellings was included in the policy.

The modification would be an additional bullet point in policy NZC2 policy wording sub-section *'specific standards for development':*

'Development will be expected to:

- For homes, achieve a 10% improvement on the Target Fabric Energy Efficiency Rate.
- For homes, achieve a 100% reduction in regulated CO_2 emissions from the Target Emission Rate calculated using the in-force version of SAP, Home Energy Model or future replacement.

41. This ensures that energy efficiency is a key part of the design, reducing energy costs for occupiers, rather than relying on payments to an offset fund, which could be taken as a simple option by developers if there were no enhanced fabric requirements. The Fabric Energy Efficiency Standard is a standard metric used by SAP software for building regulations compliance, so this requirement needs no additional assessment compared to building regulations.

Q14.4 d) Is the approach to Energy or Carbon offsetting justified and effective? Is it necessary, or effective, for the policy to include 'current' charges?

Council's response

42. The council considers the approach to either energy or carbon offsetting in both policy versions to be justified and effective. Offsetting provides flexibility to the application of the policy, taking account of site or other constraints that might otherwise make meeting the policy's requirements unattainable, whilst also ensuring development contributes to both local and national sustainability ambitions. The offsetting approach is a planning obligation method of mitigating the harm of the development, when there is a justified reason that the planning policy standards cannot be achieved on-site.

43. The use of carbon and energy offsetting in this manner is well established. Carbon offsetting is an extant requirement in Bristol's Core Strategy (DPD001) paragraph 4.14.9). Energy offsetting as proposed in NZC2 is adopted policy in the Central Lincolnshire Local Plan (adopted 2023) and the Cornwall Climate Emergency Development Plan Document (adopted 2023). Carbon offsetting similar to that proposed in the alternative wording of NZC2 is adopted policy for Bath & North East Somerset Council, the Greater London Authority, Westminster City Council, Waltham Forest Council, Lewisham Council, Ealing Council, Merton Council and many others.

44. The inclusion of current charges is intended to be illustrative and as noted in the policy is subject to updates to national government's energy/carbon cost data. The link of charges to national data ensures the charges are transparent, fair and up to date. It is considered that this approach is appropriate and reasonable given the likelihood that these costs will change over the plan period.

Q14.4 e) Is it justified and consistent with national policy to allow compliance with PassivHaus Classic or higher standards?

Council's response

45. The council considers the inclusion of PassivHaus Classic or higher as an alternative route to compliance for the policy to be justified and consistent with national policy. Buildings built to a PassivHaus standard are typically highly energy efficient, have a high level of quality assurance and a smaller performance gap and so are desirable from a sustainability standpoint.

46. PassivHaus Classic would place lower requirements on developers than the EUI based policy in the publication version. Given the benefits associated with PassivHaus construction, the policy provides this simpler alternative route to compliance to promote uptake of PassivHaus construction as it will result in buildings built to high sustainability standard that are quality assured.

47. For the alternative policy position based on TER percentage uplift, PassivHaus Classic may, depending on site considerations, exceed the base requirements of the policy. However, should an applicant wish to build to the standard, the policy allows for simplified planning submission requirements, removing the need to provide an energy statement and simplifying the necessary sustainability statement. This is

intended to provide greater flexibility to applicants and promote the creation of highly energy efficient buildings.

48. As this option is not the base standard required by the policy but rather an optional choice for applicants wishing to make the planning submission process simpler, the council does not consider the WMS to preclude its inclusion in the policy even if PassivHaus classic or higher goes beyond building regulations.

Q14.4 f) Under the 'delivering modelled performance' section, is it clear what would be expected with any development, or how it would be controlled?

Council's response

49. The policy outlines that development proposals are expected to follow a recognised quality regime, of which several are provided in the policy's explanation section, including BSRIA Soft Landings; Government Soft Landings; and NABERS Design for Performance. Applicants would be expected to demonstrate at the planning stage how they intend to follow one of these regimes and indicate how any relevant considerations stemming from that regime have been incorporated into the design of the development in their sustainability statement. Applicants would outline this in their sustainability statement before planning permission is granted, agreeing to either follow a specific regime such as Soft Landings, or sign up to an accredited scheme such as NABERs.

50. This requirement would also only apply to development proposals expected to submit a sustainability statement. The requirement to submit both a sustainability statement and an energy strategy is caveated in the council's Climate Change and Sustainability Topic Paper as outlined in response to Q14.4 B. The council intends to update the existing practice note upon adoption of the new local plan to reflect new policy and these exemptions are to be retained. The updated practice note will include guidance for applicants as to how the sustainability statement should demonstrate they have followed a recognised quality regime throughout the design process.

Policy NZC3: Embodied carbon, materials and the circular economy

Q14.5: Is Policy NZC3 justified, consistent with national policy and effective? In particular:
a) Is the policy clearly written and unambiguous, such that it would be evident to an applicant what would be required and a decision maker how they should react to development proposals, particularly in relation to refrigerants, materials and the circular economy?

Council's response

51. The requirements in policy NZC3 reflect the role embodied carbon plays as a driver of climate change and are consistent with chapter 14 of the NPPF (September 2023). Embodied carbon, although different in nature from carbon emissions emitted through the operation of a given development, contributes significantly to the country's overall carbon emissions. The UK Green Building Council notes that embodied carbon from the construction and refurbishment of building makes up 20%

of built environment emissions, which will increase to 46% by 2030.[4] Ensuring development takes efforts to minimise its embodied carbon is therefore consistent with the NPPF which requires the planning system to support the transition to a low carbon future (NPPF September 2023, paragraph 152) and take a proactive approach to mitigating and adapting to climate change (NPPF September 2023, paragraph 153).

52. The government has expressed its intention to support local planning authorities and developers in addressing embodied carbon. The MHCLG has recently provided written evidence to the Environmental Audit Committee which includes a response to a question relating to reducing greenhouse gas emissions, including embodied carbon in the built environment.[5] They note that 'the planning system and National Planning Policy Framework provide the freedom for local authorities and developers to use carbon accounting should they seek to do so. However, we recognise that both local authorities and developers would benefit from clearer guidance on the use of appropriate tools to assist in reducing the use of embodied and operational carbon in the built environment.'

53. For areas of the policy where specific standards are not provided, applicants are expected to respond to the requirements of the policy in their sustainability statement and show that they have considered these issues. It is intended that this will create a process that builds familiarity amongst the development community with these issues and promotes more sustainably designed buildings.

54. Regarding refrigerants, there are no specific standards applied by the policy. Applicants would be expected to demonstrate in the sustainability statement how they have minimised the volume and mass of refrigerants needed; selected equipment that uses refrigerants with low global warming potential; and implemented measures to minimise the risk of and detect refrigerant leaks. There are established means to achieve these requirements. For example, development using centralised heating or cooling systems typically use refrigerants more efficiently and with a lower risk of leakage, making them preferable to a decentralised system. The sustainability statement will show how the applicant has gone through a good practice process relating to this issue. Proposals that demonstrate this would be viewed favourably compared to those which do not. The council will provide greater detail as to how compliance can be demonstrated and assessed in its updated Climate Change and Sustainability Practice Note.

55. Regarding materials, there are no specific standards applied by the policy. Applicants would be expected to demonstrate that they have sought to purchase construction products with credible responsible sourcing certification and minimise the use of tropical hardwoods. The sustainability statement will show how the applicant has gone through a good practice process relating to this issue. Proposals that demonstrate this would be viewed favourably compared to those which do not. Greater detail as to how compliance can be demonstrated and assessed will be provided in the updated Climate Change and Sustainability Practice Note.

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[4] Net Zero Whole Life Carbon Roadmap A Pathway to Net Zero for the UK Built Environment, November 2021, UKGBC

[5] Written Evidence from the Ministry of Housing, Communities and Local Government, Environmental Audit Committee: Environmental Sustainability and Housing Growth: Written Evidence, December 2024.

56. Regarding the circular economy, there are again no specific standards applied by the policy. Applicants would be expected to demonstrate how they have embedded circular economy principles in the design of proposals. The policy provides various appropriate, measurable targets that represent good practice and could be used by developers to demonstrate they have addressed circular economy principles. The sustainability statement will show how the applicant has gone through a good practice process relating to this issue. Proposals that demonstrate this would be viewed favourably compared to those which do not. Greater detail as to how compliance can be demonstrated and assessed will be provided in the updated Climate Change and Sustainability Practice Note.

Q14.5 b) Are the standards and thresholds set out for major applications justified, achievable and consistent with national policy? Where proposed targets cannot be met, would it be justified to require financial contributions to the Council's carbon offset fund? Is it necessary, of effective, for the policy to include the 'current' scale of any financial contribution?

Council's response

57. Embodied carbon accounts for 40% to 70% of the lifecycle carbon emissions of new development and is predicted to be responsible for 46% of the built environment sector's emissions by 2030. Regulated and reducing embodied carbon emissions is necessary to be consistent with the national policy aims of the Climate Change Act 2008 and to ensure the planning system contributes to 'radical reductions in greenhouse gas emissions' as in the NPPF (September 2023, paragraph 152).

58. These targets have been selected as they are an appropriate balance between the need to reduce embodied carbon with the current technical and economic viability of achieving reductions. The House of Commons Environmental Audit Committee have noted that assessing and controlling embodied carbon through policy is necessary to make progress towards the country's statutory net zero targets.[6] The targets were selected based on a range of evidence from studies produced for the council, and from national bodies such as RIBA, LETI, IStructE and UKGBC amongst others, and can be achieved with widely available building techniques and materials, resulting in little or no uplift to capital costs. The targets selected have been scaled towards different heights of development, as with taller buildings it is typically harder to lower the level of embodied carbon. More detailed information and evidence relating to how these targets have been derived and a judgement made as to the balance between the need to reduce embodied carbon with the current technical and economic viability of achieving reductions can be found in the council's Net Zero Carbon Topic Paper (TPC007).

59. The council considers offsetting to be a justified and appropriate mechanism. It will ensure the policy is flexible to take account of site-specific considerations that may preclude meeting the targets, whilst also ensuring that development minimises its contribution to the drivers of climate change. The offsetting approach is a planning obligation method of mitigating the harm of the development from carbon emissions, when there is a justified reason that the planning policy standards cannot be

[6] Building to net zero: costing carbon in construction, First Report of Session 2022-2023, Environmental Audit Committee

achieved on site. As noted in the response to question Q14.4 d), the use of carbon offsetting in planning policy is well established.

60. The council has included the current cost of a tonne CO_{2e} as an illustrative value that as the policy notes is tied to the Valuation of Energy Use and Greenhouse Gas supplementary guidance to the Treasury's Green Book. This ensures the carbon offset price is transparent, fair and up to date. The council considers this approach appropriate and reasonable given the likelihood that these costs will change over the plan period.

Policy NZC4: Adaptation to a changing climate

Q14.6: Is Policy NCZ4 justified, consistent with national policy and effective? In particular:
a) Is the policy clearly written and unambiguous, such that it would be evident to an applicant what would be required and a decision maker how they should react to development proposals, particularly in terms of what would constitute acceptable or unacceptable forms of development?

Council's response

61. Policy NZC4's purpose is to ensure that development is properly adapted to the effects of climate change and that they will continue to be liveable and useable by their occupants over their projected lifespans. It also seeks to ensure that development will not need to be retrofitted with measures such as active cooling in the future, which would in turn reduce the sustainability of the development by increasing its energy consumption and refrigerant use.

62. It reflects the NPPF which sets out the need for new development to avoid increased vulnerability to the range of impacts arising from climate change and to ensure that risks can be managed through suitable adaptation measures (NPPF September 2023, paragraph 154, a). The NPPF also notes that the planning system should 'shape places in ways that minimise vulnerability and improve resilience' (NPPF September 2023 paragraph 152) and that plans should take a 'proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures' (NPPF September 2023 paragraph 153). This position has been strengthened in the December 2024 NPPF which notes that the need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account he full range of potential climate change impacts (NPPF December 2024 paragraph 163). Whilst the plan is being assessed against the September 2023 version of the NPPF, the December 2024 version remains a relevant and material consideration as the local plan, if adopted, will be subject to its provisions.

63. The policy sets out a requirement for development applications to be accompanied by an appropriate adaptation strategy and provides information as to its necessary content. The council already requires applicants to demonstrate in sustainability statements how the proposed development will be adequately adapted to the effects of climate change (see BCS13: Climate change (DPD001)). The council's Climate Change and Sustainability Practice Note provides additional detail to applicants and decision makers as to how to assess if this has been achieved. The council intends to update this practice note upon adoption of the new local plan

to provide additional detail that would be too extensive to include in the local plan itself.

Q14.6 b) Further to the above, does the policy unnecessarily repeat other policies relating to energy efficiency, design, living conditions and such things as provision of blue and green infrastructure?

Council's response

64. Climate adaptation is complex and requires consideration of a wide range of factors relating to the design of a proposed development. Policy NZC4 requires applicants to demonstrate a holistic approach to climate adaptation that recognises that a range of measures, such as energy efficiency, aspects of design, living conditions and provision of blue and green infrastructure are needed to ensure development is properly adapted to the effects of climate change. Whilst other policies in the local plan may address these topics on a more singular basis, this is not done through the lens of adapting to climate change. The council does not consider this approach to be unnecessarily repetitious given this overall intention. Applicants would not repeat information provided in response to other policies, rather summarise key elements of the proposals and explain how these features contribute to the development's ability to adapt to climate change. The structure of the policy reflects both the structure of design teams working on development, and the expertise of planning officers and consultees within the planning department.

Q14.6 c) Is it justified to expect an 'adaptation strategy' for all proposals? In addition, is it justified or effective to expect all adaptation strategies to include technical modelling and assessment of the risk of overheating in current and future climate change scenarios?

Council's response

65. The council's current approach to adaptation to climate change is outlined in policy BCS13 (DPD001). Presently, applicants are expected to demonstrate how climate adaptation has been factored into the design of proposals in their sustainability statements. The requirement for a sustainability statement is subject to several caveats in the Climate Change and Sustainability Practice Note as noted in response to Q14.4 b.

66. The requirement for a standalone adaptation strategy is new and would also be subject to the same exemptions in practice, as the council does not consider it proportionate to require those development types excluded from requiring a sustainability statement to demonstrate full compliance with the policy. The council intends to update the Climate Change and Sustainability Practice note to accompany the new local plan and will include these caveats within it.

67. The council considers the requirement for adaptation strategies to include technical modelling and assessment of the risk of overheating in current and future climate change scenarios to be both justified and effective. Part O of the building regulations addresses overheating risk only in residential development, under the current climate. It does not take account of future overheating risk. Given the assumed lifetime of development is 100 years for residential and 60 years for non-residential, this means that there is a high risk that residential development will overheat in the first two decades after construction, potentially putting occupants at

risk or requiring carbon and energy intensive retrofit. The use of dynamic thermal overheating models is already a common approach to complying with Part O. Producing models for future climate scenarios simply involves changing the weather file used, re-running the model and presenting additional results. It does not result in significantly more work required to produce a planning application and it is common for planning applications in Bristol to contain this modelling to demonstrate compliance with extant policy BCS13.

68. As noted in response to Q14.6 a, the NPPF sets out that local planning authorities should ensure policies and planning decisions take account of the need to adapt to a changing climate, with paragraph 153 of the NPPF (September 2023) explicitly stating that plans should take a proactive approach to adapting to climate change, including long term consideration of overheating risk.

69. By requiring applicants to model and present assessment of the risk of overheating in current and future climates, the policy increases the likelihood that development constructed during the plan period will be appropriately designed to deal with present and future overheating risk. Further information evidencing the policy's requirements can be found in the council's Net Zero Carbon Topic Paper (TPC007).

Policy NZC5: Renewable energy and energy efficiency

Q14.7: Is Policy NCZ5 justified, consistent with national policy and effective? In particular:
a) Is the identification of Avonmouth Industrial and Bristol Port area for renewable energy capacity and storage justified? Have all potential impacts of potential renewable energy development in this area been fully and robustly assessed? (see also questions relating to policy E4).

Council's response

70. The Avonmouth Industrial and Bristol Port area has been identified as particularly suitable for renewable energy capacity and storage for some time, with the Bristol Citywide Sustainable Energy Study 2009 noting the area as having significant potential for large scale low or zero carbon energy generation.[7] The area also represents the vast majority of Bristol's potential for wind power. This potential has been identified in the current local plan Policy BCS4 (DPD001). The area is also an important ecological area due to its proximity to the Severn Estuary Special Protection Area (SPA)/Special Area of Conservation (SAC)/Ramsar site. An impact assessment was carried out in 2011 which concluded that assuming appropriate mitigation was carried out, potential impacts on the integrity of these designations could be mitigated through the creation of appropriate new wetlands.[8] New wetlands have been created at Hallen Marsh (in Bristol City Council administrative boundary), along with Northwick (in South Gloucestershire Council administrative boundary), which are intended to facilitate both industrial/commercial and renewable energy development without significantly and adversely affecting the conservation objectives

[7] Bristol Citywide Sustainable Energy Study, Centre for Sustainable Energy, 2009.
[8] Severnside & Avonmouth Wetland Habitat Project, Stage 2: Review of Consent at Severnside and Avonmouth Impact Assessment, South Gloucestershire Council Bristol City Council & Natural England, 2011.

of the Severn Estuary Special Protection Area (SPA)/Special Area of Conservation (SAC)/Ramsar site.

71. The assessment also noted that the integrity of the SPA would continue to be dependent on the siting and scale of any future wind farms located in the area. This consideration has been incorporated into policy E4, which expects all development, including new renewable energy capacity, in the area covered by the policy to contribute appropriately towards the habitat mitigation measures in the area. The policy's explanation text also notes that whilst the area will continue to be a focus for new wind turbines, these will be subject to requirements to have the support of local communities and to protect wildlife. Any development in this area would also likely require an appropriate survey and assessment of impacts and to mitigate any impact it may have under policy BG2: Nature conservation and recovery.

Q14.7 b) Are the matters listed in the second paragraph of the policy meant to be exhaustive? Is there any specific reason for setting out the normal 'planning balance' exercise in this policy when not identified in all others? Further to this, would the benefits of measures set out in the fourth paragraph of the policy be balanced against any other factors?

Council's response

72. The matters listed in the second paragraph are intended to provide a caveat to the general support for renewable energy capacity and storage across the city, reiterating the need to ensure that any potential impacts are appropriately assessed. The measures described in paragraph four would equally be subject to the normal assessment of planning balance.

Issue 14.2: Whether policies relating to flood risk and flood mitigation are justified, consistent with national policy and effective.

Policy FR1: Flood risk and water management

Q14.8: Is policy FR1 justified, consistent with national policy and effective? In particular, is the approach to the sequential approach and exception test set out in the first paragraph consistent with paragraphs 161 – 164?

Council's response

73. The wording of the first paragraph is the same as the first paragraph of adopted policy BCS16 (DPD001).

74. The first sentence states that development will follow a sequential approach to flood risk management, giving priority to development of sites with the lowest risk of flooding. This is consistent with the sequential approach set out in paragraphs 161-164 of the NPPF.

75. The second sentence, which states that the development of sites with a sequentially greater risk of flooding will be considered where essential for regeneration or where necessary to meet the development requirements of the city, should not be read in isolation. It reflects the principle that, following the process set out in the first sentence, the sequential test can be passed on sites with a greater risk of flooding when there are no reasonably available sites that are less at risk of

flooding. This is also consistent with the sequential approach set out in paragraphs 161-164 of the NPPF.

76. The NPPF and national PPG provide the detailed framework for the sequential and exception tests. These links are confirmed by paragraph 12.2.4 of the explanatory text to policy FR1, which states that new development will follow the sequential approach as set out in national planning policy.

Q14.9: Are the suggested main modifications to paragraph 12.2.6 set out in EXA002.1 necessary to make the Plan sound?

Council's response

77. The modification is necessary to remove text that is factually inaccurate and therefore not justified.

Policy FR2: Bristol Avon Flood Strategy

Q14.10: Is policy FR2 justified, consistent with national policy and effective? In particular:
a) How is the Bristol Avon Flood Strategy expected to be considered in terms of Policy FR1 and the sequential test? For example, how would development in areas where mitigation is expected but not yet delivered be treated?

Council's response

78. The defences planned as part of the Bristol Avon Flood Strategy (BAFS) are not relevant to the sequential test, as the sequential test is carried out in relation to undefended flood zones as set out in national planning policy and guidance.

79. However, the defences planned as part of BAFS are relevant to the exception test and the requirement for site-specific flood risk assessments. The proposed defences can be taken into account to some degree given the advanced status of the strategy, as previously outlined in the council's response to Q4.27(g) and reproduced below.

80. For example, the council has been able to approve some development in the St. Philip's Marsh area ahead of the completion of the planned flood defences. In recent permissions for purpose-built student accommodation (PBSA) granted on Albert Road, applicants' Flood Risk Assessments have been required to demonstrate safety up to 2040, beyond which they have been able to rely on BAFS (subject to appropriate provisions for residual risk). As part of the planning process, sites that front the River Avon have been required to deliver their part of the flood defences proposed by BAFS.

Status and delivery timescale of BAFS:

81. The project's Outline Business Case secured Environment Agency Chief Executive approval in July 2024, with Defra Investment Committee endorsement to continue to Full Business Case preparation shortly afterwards. The council is currently preparing to issue a tender package for the full business case, detailed design and consenting work which is anticipated to commence late summer 2025. The council has secured a significant funding package for this work including £10m of Bristol City Council reserves funding, £10m of West of England Combined

Authority funding, and £2m of funding from the Regional Flood and Coastal Committee.

82. Timescale for delivery is largely driven by the council's preferred consenting route of a Transport and Works Act order and the need for extensive public and statutory stakeholder engagement and consultation. The council's ambition is for construction work to commence in 2030, completing around 2035. The council is also taking opportunities for quick win delivery as it arises. Two such examples are the consented PBSA schemes in St Philip's Marsh that incorporate sections of the proposed flood defences within the development proposals' red line boundaries, which are expected to be delivered in advance of the wider flood scheme.

Other delivery mechanisms:

83. It is not possible to rely on all riverside development coming forward and delivering flood defences in kind in a timeframe suitable for completion of the entire scheme within the plan period, and the council also recognises the risk of viability challenges associated with this approach. As such, the Outline Business Case identifies a flood defence solution that can be delivered in land within the council's control. While the council's aspiration is for wider multifunctional flood defence infrastructure incorporated into areas of growth and regeneration, this 'backstop' solution is in place to ensure that the scheme can deliver in a suitable timeframe. The council, supported by the Environment Agency, continues to work closely with master planning teams to manage these interfaces and monitor the timing of this solution being implemented.

Q14.10 b) Are the requirements relating to mitigation and/or the facilitation of future flood defences justified and consistent with national policy, including those relating to planning obligations?

Council's response

84. Where the alignment of the proposed defences falls within the redline boundary of the site itself, any development proposed before those defences have been completed could reasonably be required to provide them. Were this option not available, to avoid prejudicing the longer-term delivery of the Bristol Avon Flood Strategy (BAFS) as a whole there would be no alternative but to refuse planning permission on the grounds of prematurity.

85. Where the alignment of the proposed defences falls outside the redline boundary of the site but the development would directly benefit from the proposed defences, any planning obligation would be sought in accordance with paragraph 57 of the NPPF (September 2023), which sets out the three tests for planning obligations.

86. In these cases, a planning obligation would be:

- *Necessary*, as part of the wider delivery of the Bristol Avon Flood Strategy (BAFS), to make the development safe for future occupiers and therefore to make the development acceptable in planning terms;
- *Directly related to the development*, in the sense that the future occupation of the proposed development creates a need for defences to protect those occupiers from the risk of flooding; and

- *Fairly and reasonably related in scale and kind to the development*, provided that the obligation sought is in proportion with the scale of the development proposed and the extent to which it would benefit from the defences.

Appendix 1: Local plan policy comparison – NZC2

Bath and North East Somerset:

SCR6 Sustainable Construction Policy for New Build Residential Development

New build residential development will be required to meet the standards set out below.

New build residential development will aim to achieve zero operational emissions by reducing heat and power demand then supplying all energy demand through onsite renewables. Through the submission of an appropriate energy assessment, having regard to the Sustainable Construction Checklist SPD, proposed new residential development will demonstrate the following;

- Space heating demand less than 30kWh/m2/annum;
- Total energy use less than 40kWh/m2/annum; and
- On site renewable energy generation to match the total energy use, with a preference for roof mounted solar PV
- Connection to a low- or zero-carbon District heating network where available

Major residential development

In the case of major developments where the use of onsite renewables to match total energy consumption is demonstrated to be not technically feasible (for example with apartments) or economically viable, renewable energy generation should be maximised and the residual on site renewable energy generation (calculated as the equivalent carbon emissions) must be offset by a financial contribution paid into the Council's carbon offset fund where the legal tests set out in the Community Infrastructure Regulations are met.

Cornwall

Policy SEC1 – Sustainable Energy and Construction

Development proposals will be required to demonstrate how they have implemented the principles and requirements set out in the policy below.

1) The Energy Hierarchy

All proposals should embed the Energy Hierarchy within the design of buildings by prioritising fabric first, orientation and landscaping in order to minimise energy demand for heating, lighting and cooling. All proposals should consider opportunities to provide solar PV and energy storage.

2a) New Development – Major Non-Residential

Development proposals for major (a floor space of over 1,000m2) non-residential development should demonstrate how they achieve BREEAM 'Excellent' or an equivalent or better methodology.

2b) New Development – Residential

Residential development proposals will be required to achieve Net Zero Carbon and submit an 'Energy Statement' that demonstrates how the proposal will achieve:

- Space heating demand less than 30kWh/m2/annum;
- Total energy consumption less than 40kWh/m2/annum; and
- On-site renewable generation to match the total energy consumption, with a preference for roof-mounted solar PV.

Where the use of onsite renewables to match total energy consumption is demonstrated to be not technically feasible (for example with apartments) or economically viable renewable energy generation should be maximised as much as possible; and/or connection made to an existing or proposed low carbon district energy network; or where this is not possible the residual energy (the amount by which total energy demand exceeds the renewable energy generation) is to be offset by a contribution to Cornwall Council's Offset Fund.

Where economic viability or technical constraints prevent policy compliance, proposals should first and foremost strive to meet the space heating and total energy consumption thresholds. Proposals must then benefit as much as possible from renewable energy generation and/or connection to an existing or proposed low carbon district energy network. As a last resort, any residual energy is to be offset by a contribution to Cornwall Council's Offset Fund, as far as economic viability allows.

While this policy does not require the application of these standards to reserved matters applications that relate to outline planning permissions that predate the adoption of this climate Emergency DPD, developers are encouraged to apply these standards on a voluntary basis, where it is feasible to do so and not within breach of existing permissions.

3 Existing Buildings

Significant weight will be given to the benefits of development resulting in considerable improvements to the energy efficiency and reduction in carbon emissions in existing buildings.

Proposals that help to increase resilience to climate change and secure a sustainable future for historic buildings and other designated and non-designated heritage assets will be supported and encouraged where they:

a) conserve (and where appropriate enhance/better reveal) the design, character, appearance and historical significance of the building; or

b) facilitate their sensitive re-use where they have fallen into a state of disrepair or dereliction (subject to such a re-use being appropriate to the specific heritage asset).

4 Domestic and Non-Residential Renewables

The Council will support domestic and non-residential renewables such as solar panels where they require planning permission.

Proposals should minimise visual impact wherever possible. Proposals affecting heritage assets, including their settings, shall seek to avoid and minimise negative impacts on their significance and conserve the character of historic townscapes, landscapes and seascapes.

5 Water

All dwellings (including conversions, reversions and change of use) should achieve an estimated water consumption of no more than 110 litres/person/day through the incorporation of water saving measures where feasible.

Development proposals for 50 or more dwellings and non-residential development with a floor space of 1,000 m2 or more should incorporate water reuse and recycling and rainwater harvesting measures.

6 Materials and Waste

All development proposals should minimise use of materials and creation of waste and promote opportunities for a circular economy through:

a) Wherever possible reusing or adapting existing buildings as part of the development, whilst maintaining and enhancing local character and distinctiveness;

b) Reuse and recycling of appropriate materials that arise through demolition and refurbishment, including the reuse of non-contaminated excavated soil and hardcore within the site;

c) Prioritise the use of locally sourced and/or sustainable materials and construction techniques that have smaller ecological and carbon footprints;

d) Using locally distinctive, resilient, low maintenance materials that are appropriate for Cornwall's damp maritime climate, for example locally won materials such as slate and granite (particularly for areas that will be harder to maintain once the building is occupied) as described in the Cornwall Design Guide;

e) Considering the lifecycle of the development and surrounding area, actively prioritise design that delivers longevity and repairability including how developments can be adapted to meet changing needs and how materials can be recycled at the end of their lifetime;

f) Providing adequate space to enable and encourage greater levels of recycling. Space requirements for residential developments should follow those outlined in the Cornwall Design Guide.

Central Lincolnshire

Policy S7: Reducing Energy Consumption – Residential Development

Unless covered by an exceptional basis clause below, all new residential development proposals must include an Energy Statement which confirms in addition to the requirements of Policy S6 that all such residential development proposals:

1. Can generate at least the same amount of renewable electricity on-site (and preferably on-plot) as the electricity they demand over the course of a year, such demand including all energy use (regulated and unregulated), calculated using a methodology proven to accurately predict a building's actual energy performance; and

2. To help achieve point 1 above, target achieving a site average space heating demand of around 15-20kWh/m2/yr and a site average total energy demand of 35 kWh/m2/yr, achieved through a 'fabric first' approach to construction. No single dwelling unit to have a total energy demand in excess of 60 kWh/m2/yr, irrespective of amount of on-site renewable energy production. (For the avoidance of doubt, 'total energy demand' means the amount of energy used as measured by the metering of that home, with no deduction for renewable energy generated on site).

The Energy Statement must include details of assured performance arrangements. As a minimum, this will require:

a) The submission of 'pre-built' estimates of energy performance; and

b) Prior to each dwelling being occupied, the submission of updated, accurate and verified 'as built' calculations of energy performance. Such a submission should also be provided to the first occupier (including a Non-Technical Summary of such estimates).

Weight will be given to proposals which demonstrate a deliverable commitment to on-going monitoring of energy consumption, post-occupation, which has the effect, when applicable, of notifying the occupier that their energy use appears to significantly exceed the expected performance of the building, and explaining to the occupier steps they could take to identify the potential causes of such high energy use.

Exceptional Basis Clauses:

Below are three clauses which may allow certain developments to not meet in full the policy requirements above, though in all cases the energy performance arrangements of points a) and b) are still required.

Clause 1 (technical or policy reasons):

Where, on an exceptional basis, points 1-2 cannot be met for technical (e.g. overshadowing) or other policy reasons (e.g. heritage), then the Energy Statement must demonstrate both why they cannot be met, and the degree to which each of points 1-2 are proposed to be met. A lack of financial viability will not be deemed either a technical or policy reason to trigger this exceptional basis clause.

Where Clause 1 is utilised, and where the proposal is of 10 units or more (or, for development proposals of less than 10 units but more than a combined total of 1,000sq m or more, as measured by CIL regulations if such regulations remain in force), then the applicant must either:

a) enter into an appropriate legal agreement which will either provide renewable energy infrastructure offsite equivalent to at least offsetting the additional energy requirements not achieved on site; or,

b) enter into an appropriate legal agreement to provide a financial contribution to the applicable LPA of a value sufficient to enable that LPA to offset (via off site renewable energy infrastructure or other offsite infrastructure to deliver a reasonable carbon saving) the remaining performance not achieved on site (with this being a minimum contribution of £5k and a maximum of £15k per dwelling unit); or

c) demonstrate that the residential units will be connected to a decentralised energy network or combined heat and power unit, in accordance with policy S9 below.

Clause 2 (accreditation scheme):

To simplify (and hence speed up) the decision-making process, applicants are able to demonstrate that they have met the requirements of points 1-2 of this policy if they provide certified demonstration of compliance with: - Passivhaus Plus or Premium; or - Passivhaus Classic, provided this is supplemented with evidence to demonstrate how point 1 of this policy will also be met; or - Any other recognised national independent accreditation scheme, provided such scheme is demonstrated to be consistent with the requirements of this policy.

Clause 3 (viability):

In Value Zones C and D as indicated on Map 32 (see chapter 4 of this Local Plan), which essentially is Sleaford and Gainsborough and immediate surrounding land only, and on brownfield land throughout the plan area, it is acknowledged that the full delivery of requirements 1 and 2 in this policy may not be possible in some cases for viability reasons. Consequently, for proposals in such areas or on such brownfield land, the applicable local planning authority will continue to require an Energy Statement to be submitted, and, if full delivery of requirements 1 and 2 are not proposed to be met, such a Statement must set out the degree to which points 1 and 2 are proposed to be met in order to enable the development to become viable.

Appendix 2: NZC2 – EUI based policy

Policy NZC2: Net zero carbon development – operational carbon

This policy requires development to achieve net zero carbon through maximising energy efficiency, utilising sustainable heating and cooling systems and incorporating onsite renewable energy generation.

Realising zero carbon development in relation to regulated emissions (heating, hot water, cooling, lighting and auxiliary energy) and unregulated emissions (appliances and equipment, etc) also referred to as 'operational' carbon emissions, is a key part of tackling the climate emergency. The UK Green Building Council defines net zero carbon – operational energy as being 'when the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.'

To reflect the latest best practice, this policy uses energy use intensity rather than CO_2 emissions as the metric for assessing compliance, working towards the same overall goal (i.e. zero CO_2 emissions from operational energy use in new development). Energy use intensity is a measure of energy use per square metre of a given development. It is calculated by dividing the total energy consumed by a building in a single year by the gross internal area of the building.

A number of studies have been carried out to explore appropriate planning requirements for energy use in new development. These studies set out how a combination of energy efficiency measures, on-site renewable energy generation and financial contributions to off-site offsetting, along with the selection of sustainable heating and cooling systems, can help to deliver net zero carbon and net zero energy development in Bristol.

Policy text

Energy use in new development

Development will be expected to:

- **Calculate and report predicted energy use intensity using an energy performance model;**
- **Be highly energy efficient, minimising the demand for heating, cooling, hot water, auxiliary energy, lighting and unregulated energy consumption through energy efficiency measures; then**
- **Meet its remaining heating and/or cooling demand sustainably as set out below; then**
- **Maximise on-site renewable energy generation to achieve a net zero energy balance; and then**
- **Meet any outstanding reduction in residual energy use through energy offsetting.**

New development should demonstrate through an energy strategy set out as part of its Sustainability Statement how these requirements will be met, including the specific standards set out below.

Specific standards for development

Development will be expected to:

- **Achieve a maximum 15-20 kWh/m²/yr space heating demand;**
- **Achieve the following standards:**
  - **In the case of new homes and other forms of accommodation, a maximum energy use intensity of 35kWh/m²/yr;**
  - **In the case of major non-residential development, the operational energy/carbon requirements of BREEAM 'Excellent' consistent with policy NZC1; and**
- **Provide on-site renewable electricity generation with an output equivalent to at least the annual energy consumption of the development, as calculated using an energy performance model.**

Where it is clearly demonstrated that it is not technically feasible for the development to generate sufficient on-site renewable energy equivalent to at least its own annual energy consumption, the development should maximise on-site renewable energy to generate at least 105 kWh/m²fp/yr – where m²fp is the area of the footprint of the building(s).

The remaining operational energy needs of the development should be met by offsetting measures as set out below.

Energy offsetting

Where the above requirements for energy use cannot be met by on-site measures alone, any remaining energy use will be met by either:

- **A financial contribution towards the council's energy offset fund; or**
- **Securing the provision of acceptable directly linked or near-site new additional renewable electricity generation provision.**

The financial contribution required will be a one-off payment equivalent to the cost of providing equivalent additional small scale solar PV energy generation elsewhere in the city over a 30 year period, index linked. This cost is tied to the most recent DESNZ solar PV cost data for small scale solar PV, and includes a 15% administrative charge (currently £99 per MWh).

Development involving existing buildings

Where work is being carried out to existing buildings and it is not feasible for the full residential and non-residential targets above to be met, the energy strategy should show that energy demand has been reduced to the lowest practical level using energy efficiency measures, heating and cooling systems have been selected in accordance with the heating and cooling hierarchy and that on-site renewable energy generation will be maximised.

PassivHaus buildings

An alternative route to compliance is through the certified PassivHaus Classic or higher standard. Where development is proposed to be built and certified to this standard, the specific policy requirements above relating to energy use, on-site renewables and energy offsetting will not need to be met.

Where this route to policy compliance is pursued, a full energy strategy will not be required. It will be sufficient to submit the technical information required to demonstrate that the PassivHaus standard can be achieved and for

the Sustainability Statement to demonstrate that residual heating/cooling demand for the development has been met sustainably as set out below.

System flexibility

Development should demonstrate how it has incorporated smart and flexible technologies to support the wider decarbonisation of the energy system, taking account of the latest best practice and guidance. Measures may include, among others:

- **Minimising energy demand at peak times;**
- **Smart controls;**
- **Allocating space for internal and/or external thermal and electrical energy storage; and**
- **Provision for vehicle-to-grid charging.**

Heating and Cooling Systems

Development will be expected to demonstrate through its energy strategy that sustainable heating and cooling systems have been selected in accordance with the following hierarchy:

- **Where possible, connection to an existing classified heat network or a new classified heat network from the point of occupation;**
- **Elsewhere, employing communal or individual renewable heating system which is fossil fuel free.**

Major development in an area where a classified heat network is planned but connection from the point of occupation cannot be provided will be expected to incorporate, where feasible, infrastructure for future connection to the district heat network.

The creation of new heat networks should be considered in the case of proposals that would provide more than 100 homes or 10,000m² floorspace within or adjacent to areas of growth and regeneration identified in the development strategy or other areas of significant development. In these cases, a feasibility study should be undertaken to establish whether a new heat network could be established, and if found to be feasible a heat network should be provided as part of the development proposals.

Development should seek to eliminate the need for cooling systems throughout the life-cycle of the development and, where cooling systems are required, minimise their capacity and energy consumption in accordance with the following hierarchy:

- **Minimise the amount of heat entering buildings during warmer months through orientation, form, shading, surface finish, glazing design and insulation; then**
- **Minimise internal heat generation through energy efficient design and specification; then**
- **Maximise the use of passive ventilation to manage internal temperatures; and then**

- **Having minimised the need for cooling, meet any residual requirement through energy efficient mechanical ventilation and active cooling systems.**

Delivering modelled performance

Proposed development will be expected to minimise the potential performance gap between design aspiration and completed development by implementing a recognised quality regime from design through to handover.

Explanation

Energy use in new development and development involving existing buildings

Proposals for development should be accompanied by an energy strategy as part of the Sustainability Statement submitted with the planning application.

The energy strategy should set out the development's energy use intensity and how it has been reduced to the levels indicated in the policy. Energy use intensity is a measurement of the annual energy use per m² of development (gross internal area). The statement should include all energy use (regulated and unregulated), calculated using a methodology proven to accurately predict a building's actual energy performance. The modelling approach in CIBSE TM54: Evaluating Operational Energy Use at Design Stage is the current preferred approach. Based on TM54 guidance, residential buildings should use the PassivHaus Planning Package (PHPP) software to demonstrate compliance with policy. Very simple, non-residential buildings may use PHPP or dynamic thermal modelling software; whilst more complex non-residential buildings should use dynamic thermal modelling software. Any change to this will be detailed in further guidance issued by the council.

The energy strategy should model and demonstrate how the maximum space heating demand target of 15-20 kWh/m²/yr has been achieved. What development will be expected to achieve within this range will depend on the development type. For example, apartments will be expected to achieve near 15 kWh/m²/yr, while bungalows or other less dense forms of development will be expected to achieve a higher value within this range.

The energy strategy should demonstrate how:

- The development will be highly energy efficient, with the demand for heating, cooling, hot water, auxiliary energy, lighting and unregulated energy consumption will be minimised through energy efficiency measures; then
- The remaining heating and cooling demand can be met sustainably; then
- On-site renewable energy generation will achieve net zero energy; then
- Any remaining outstanding reduction in residual emissions will be achieved through accepted means of energy offset.

Demonstrating that the development can meet the appropriate energy use intensity limits within the UK Net Zero Carbon Buildings Standard is one method of demonstrating that the development is highly energy efficient.

The energy strategy should set out the choice of renewable heating and cooling systems and how these have been selected.

The energy strategy should also report the building's performance against the latest version of the Building Regulations Part L or future equivalent.

Energy offset fund

For energy offsetting to be permissible, the applicant will need to justify and demonstrate to the satisfaction of the planning authority why it is not possible to provide sufficient renewable electricity generation on-site.

Financial contributions towards the council's energy offset fund will be spent on the delivery of new additional renewable energy generation within the city. The financial contribution cost per MWh will be updated periodically to reflect the costs of administrating, purchasing and installing additional solar PV.

PassivHaus

Proposals seeking to follow the PassivHaus route to compliance set out in this policy will need to be accompanied by full PassivHaus Planning Package outputs demonstrating that the PassivHaus standard can be achieved.

Prior to commencement, a 'pre-construction compliance check' completed by a PassivHaus certifier will be required and secured by condition. Upon completion, a Quality Approved PassivHaus certificate for each dwelling/building will be required.

Heating and Cooling Systems

Renewable sources of heating and power include ground, water and air source heat pumps, geothermal heat and heat from former mine workings, solar photovoltaics, solar thermal, and wind (large and small scale).

Where hydrogen constitutes all or part of the energy mix for a development's heating or cooling systems, all CO_2 and methane emissions arising from the production of the hydrogen should be accounted for within calculations provided to demonstrate compliance with other planning policies. When calculating the impact of methane emissions, a 20-year integrated time period should be used and a global warming potential for methane of 86.

The policy approach to heating systems intentionally excludes non-renewable electrical space and water heating, individual gas boilers and solid biomass boilers.

When considering proposals for heat pumps and active cooling systems, the global warming potential of the refrigerants used will also need to be taken into account in a manner consistent with policy NZC3: Embodied carbon, materials and waste.

Where usability issues (as described in Part O of the Building Regulations), such as noise, are stated as the reason that a development requires active cooling, then all reasonably practicable passive means of minimising cooling requirements should be applied.

This should be demonstrated by showing that the development could meet comfort requirements without active cooling if the useability issues were not present.

Heat networks

Renewable, low carbon heating and cooling can be provided via heat networks. These can supply single buildings, groups of buildings or large parts of the city and can utilise heat from one or more sources. Heat networks are a key part of the city-wide strategy to provide renewable or low-carbon heat to existing buildings and new development. Connection of new development to heat networks supports the expansion of the network and connection and decarbonisation of a wider number of existing buildings. Bristol Heat Networks Ltd operates heat networks in the city and is actively expanding these (see Appendix C). Their development in combination with

energy efficiency is central to the council's strategy for delivering affordable, secure and zero carbon heat across the city.

Bristol Heat Networks Ltd is delivering heat networks which are working towards being zero carbon by 2030, through:

- Producing a strategy with rolling forward projections for the decarbonisation of heat delivered via its networks.
- Progressively increasing the proportion of renewable and very low carbon heat delivered by the networks.
- Publishing an annual report on the operation of its heat networks including fuel mix, carbon content and progress on moving to zero carbon heat.

Existing networks are those that already have an energy centre building and/or excavation for pipework has been completed. Existing networks can be extended to provide heat to new development. New networks are those which have not yet been built but are planned for the area. Heat network zoning legislation is currently being developed by government which will require certain buildings to connect to a heat network. As such, development should take steps to comply with this where applicable.

Where a feasibility study into a new heat network is required by new development, it should be produced through dialogue with city heat network operators who will be able to assess potential aggregate demand in the area.

'Classified heat networks' include those being developed by Bristol Heat Networks Ltd and other providers that meet the following requirements:

- Compliance with the appropriate technical standards (presently CIBSE CP1 Heat Networks: Code of Practice).
- The heat supplied is from renewable and/or low carbon sources or has a decarbonisation plan to remove all fossil fuel heat generation from the network by 2030 in line with the city's carbon neutral aspirations. The actions in the decarbonisation plan should demonstrably be in included in the heat network's business plan.
- They offer fair and transparent prices to the consumer, committing to:
    - Publicly disclose any fixed charges, tariffs and unit rates and provide clear explanation about how prices are set to customers.
    - Prices that are equal or less than an appropriate low carbon counterfactual for the customer.
- They provide annual reporting on their performance and carbon content.
- From the point of the local plan's adoption, heat shall not be supplied via new biomass plant.

Where heat networks are proposed as part of development, they will be expected to meet the requirements for a classified heat network as set out above.

When calculating the energy use intensity of development connecting to a heat network, an energy conversion factor will be applied to the district heating energy requirement of the building to make the energy use intensity comparable to a building with on-site heating plant. This factor will take account of the efficiency and carbon emissions of the network and energy centre. Operators of classified heat

networks will provide this factor for use in calculations. Where new heat networks are proposed as part of the network, the energy conversion factor shall be calculated by the applicant.

Delivering modelled performance

There is significant evidence to suggest that buildings do not perform as well when they are completed as was anticipated when they were being designed. The difference between anticipated and actual performance is known as the performance gap. Addressing the performance gap is a key part of ensuring the built environment is net zero in practice.

Implementing a quality regime from design, through to construction and handover has been shown to reduce the performance gap. Relevant regimes include BSRIA Soft Landings; Government Soft Landings; NABERS Design for Performance; Passivhaus; activities within BREEAM credits Ene 01 Reduction of Energy Use and Carbon Emission, Man 04 Commissioning and Handover and Man 05 Aftercare; and activities within Home Quality Mark issues 9 Quality Assurance and 11 Customer Experience. Additionally, following appropriate system specific quality regimes such as MCS requirements can also reduce the performance gap.

Monitoring, verifying and reporting on energy performance in-use can enhance the construction industry's knowledge on the performance gap and identify issues with new buildings that then can be addressed by building owners. Reporting on energy performance will become increasingly common whether through government initiatives such as the proposed national performance-based policy framework for rating the energy and carbon performance of commercial and industrial buildings or voluntary initiatives such as the Built Environment Carbon Database.