

## **Matter 14: Climate Change and Flood Risk**

On Q14.2, it would be useful to clarify with the Council which Scenario – in its document TPC007 – Net Zero and Climate Topic Paper – it believes to be represented by its amended NZC2 in the documents referenced therein as regards costs and viability.

### ***Policy NZC1: Climate change, sustainable design and construction***

On 14.3a, as a consultant bidding for a government contract, even if its value was of the order £20,000, I would be expected to indicate what I would do to address sustainability issues in the context of a study. I hardly think it inappropriate for anyone building a house, with far greater impacts than a consultancy study, and a project of far greater value, to undertake such a statement. It is a completely reasonable ask, not least since it is the place where applicants would be expected to demonstrate how they comply with policy.

Regarding 14.3b, if BREEAM is aligned with law, then I wonder why the Passivhaus standard wasn't proposed rather than BREEAM. The Section on Passivhaus buildings in TPC007 – Net Zero and Climate Topic Paper seems to provide support for that.

### ***Policy NZC2: Net zero carbon development – operational carbon***

On 14.4, as GHG emissions from new builds in the operational phase decline (as a result of improved building standards, decarbonisation of power, and electrification of heat), so a key subsidiary objective of this policy becomes a) minimising demand for energy per se, and b) increasing on-site provision of the remaining demand so as to (against a counterfactual) increase the pace of the UK's decarbonisation, but at least as importantly, to minimise energy bills. It is unfortunate that the affordability of homes largely overlooks the running costs, despite the fact that energy costs will be a determinant of what households can afford, and that design of buildings largely determines that.

Q 14.3 raised the matter of viability: there is some evidence to suggest that the measures the policy requires will, other things being equal, raise sales values for properties, effectively capitalising some of the expected savings on energy bills.

On 14.4a, I fail to understand why, given what is in the rest of the policy, there is a need to discuss 'heating and cooling systems'. The policy makes reference to 'classified heat networks'. The justification of the Plan Policy appears to indicate that this includes those implemented by Bristol Heat Networks Ltd and others meeting specific criteria. The problem with this is that at new development in particular, the argument – in terms of GHG emissions – for connecting up to heat networks is especially weak (given that reducing the need for heat, and meeting the remaining demand through heat pumps, potentially powered, in part, by on-site renewables (or even using electrical heating for space heating where demand has been minimised by e.g. Passivhaus design). The Plan appears to be seeking to push developers to use heat networks. Not all heat networks are 'low carbon'. The Plan justification states that Bristol Heat Networks Ltd is 'working towards being zero carbon by 2030' yet my understanding of the Business Plan is that the heat network is to connect to an incinerator in Avonmouth. That is not going to provide a zero-carbon source of heat on which the network can run. EVEN08 (Whole Life Costing and Carbon Study Report) seeks to provide a rationale for the choice of a heat network but excludes the heat network from the scope of its analysis (the boundary for the assessment is drawn

around the building).<sup>1</sup> It is especially worrying that 12.1.41 (Bristol Local Plan: Publication version November 2023) appears (if I understand it correctly) to be seeking to deliberately skew the calculation of carbon performance in favour of certified heat networks, presumably in recognition of the fact that they will not be Zero Carbon. If that takes place, it could also reduce pressure to adopt the best performance in terms of fabric efficiency in the knowledge that emissions from heating will be ‘taken care of’ (it is not entirely clear how). Consequently, not only might the source of heating be of a higher carbon intensity than the option that is accorded lower preference by the policy, but the demand for heat may be increased as a result. I strongly suggest this Section is removed both in the Policy and the justification.

On 14.4b, it is worth considering that such analysis would be required at the Building Regs stage anyway. To the extent that performance under the modelling which the Regs require would be influenced by various features of design, it seems reasonable to request this. Indeed, it might help those doing so appreciate what is involved in developing a legally compliant proposal.

On 14.4 c, the changes seem to be motivated by the Written Ministerial Statement. The WMS leaves the Council little choice other than to alter the policy’s wording. Presumably, a 100% reduction in any value reduces that value to zero. Is there any reason why the wording can’t be simplified to make that clear?

It is always dangerous to specify a policy that is intended to last several years through reference to methods / concepts subject to periodic revision. That was a problem with the Council’s existing policy BCS14 when the revisions to Part L took place. Consideration should be given to how best to ensure the policy is worded to stand the test of time.

One example – anticipating that the Future Homes standard – would be to word NZC2 such that it defaults to ‘national standards’ if those standards imply exceedance (through a clear ‘test’) of whatever performance NZC2 establishes. That might facilitate greater harmonisation across planning authorities.

I have concerns regarding the exception to the standard. What would be required in order for a developer to demonstrate that it is not technically feasible to meet the standard? A proposed building, after all, is in the gift of the developer to propose. The standard is clearly feasible to meet, unless the developer chooses a design which renders that impossible. If the developer makes that choice, what justification would the Council offer for allowing the exception, given what it requires of others, the objectives of the NPPF (para 8), and the desirability of clarity for decision making (para 16 NPPF)? This would then eliminate the requirement for the offsetting approach, which in any case, has far weaker justification than for NZC3 (see below) since the GHG externalities from electricity are already partially internalised, and those from domestic heating may be in the near future (as they soon will be under the EU’s Emissions Trading Scheme).

On 14.4 (d), given the above, see 14.5 below.

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<sup>1</sup> For residential development, even without considering the embodied carbon in the heat network, the high temperature heat pump was, according to the study, only marginally worse in performance (the study used a CO<sub>2</sub> intensity for heat from heat networks provided by the Council, which may prove optimistic), but also lower in cost. From the figures in the study, the marginal cost of the improvement offered by the heat pump is of the order £2,400 per tonne CO<sub>2</sub>. I question whether a Plan seeking to pursue economic growth should impose such costs. Of course, if the embodied carbon in the network were being considered, then the additional costs might deliver no benefit at all.

**Policy NZC3: Embodied carbon, materials and the circular economy**

Q14.5: Is Policy NZC3 justified, consistent with national policy and effective?

If the NPPF's objectives at Para 8 are to be met (rather than one of them – at 8c - being ignored), then to ignore embodied carbon would be an egregious error. The decarbonisation of power in particular, and progressive improvements in the required performance of buildings in terms of fabric, has led to a situation where the vast majority of the climate-related impact of new housing will, for the foreseeable future (until to the production of materials themselves is decarbonised), be linked to their construction. Consequently, seeking to reduce embodied carbon in construction should have a central role. Furthermore, under the UK-ETS, materials producing sectors are beneficiaries of free allowances for much of what they emit, and at present, there is no carbon border adjustment mechanism in place (there will be). It follows that the effective average price of carbon dioxide emitted in producing key materials used in construction – steel, aluminium, concrete, plastics, etc. – is very low. An efficient policy would internalise the costs of these emissions completely. This policy stops a considerable way short of that, but with suitable alterations (see below), it could be rendered effective as a means to incentivise reductions in embodied carbon.

Note that strategically, it would make sense to minimise the extent of building as long as the climate impact of materials use remains high, whilst maximising the use of existing built infrastructure, and incentivising the decarbonisation of materials production. Government policy, though, seeks to address what is a crisis in accommodation through building new homes urgently. That approach places greater emphasis (not least because of the expected quantum of development) on policy to give incentives to reduce embodied carbon in construction.

I would argue that given the above, the wording in relation to renovation and retrofit of existing structures is insufficiently normative in steering developers to prioritise this approach in practice. The second sentence in para 12.1.66 should be within the policy: better still, it would be rephrased as a requirement to demonstrate why it is that existing structures cannot be utilised where it is being proposed that they will be demolished, thereby shifting the burden of proof.

Specifically on **14.5b**, I take the view that there are two approaches to the combining of 'threshold' and 'offset'. The first takes the threshold as a standard, and uses the 'offset' payment as a form of 'non-compliance fee'. The second is to adopt an approach where the 'offset' payment is intended to generate an incentive to reduce embodied emissions, at the margin, and so treats a threshold less as 'a standard' and more as a means to drive reductions in emissions at the margin. Taken in the round, the current design errs towards the former. As a result, perhaps, the thresholds are far too permissive (and non-compliance might be relatively rare).

I return to this at the end of the discussion of this policy.

As to what the thresholds represent, my view is that it makes no sense for the Plan to seek to influence emissions over the full life-cycle of a building. In any event, modelled calculations of such will embed assumptions regarding wear and tear, need for maintenance, even how waste might be managed once the building reaches end of life. The policy's incentive mechanism applies only to upfront embodied carbon. I fail to see the rationale for any assessment of the whole life-cycle carbon. It resembles a pure administrative burden. Unless the Council can provide a compelling argument as to how decisions made at the application stage will influence 'whole life-cycle carbon', then these thresholds are literally a waste of time and should be

removed. Note that doing this would allow the matter of refrigerants to be set to one side. An embodied carbon assessment could, in principle, consider the carbon embodied in manufacturing refrigerants, but the extent of leakage post construction might be a matter of, for example, product design. If leakage of refrigerants during the operation of the building is deemed excessive (relative to any efficiency gains), this ought to be where government steps in to remove some products from the market. It does not seem an appropriate matter for the Council to seek to influence in its Plan.

The matter of using different thresholds for different building heights is not justified on policy grounds, and undermines the policy's effectiveness. The policy aims, presumably, to reduce emissions. The rationale offered in TPC007 (p.24) seems to be to set the thresholds so as to allow whatever embodied carbon emissions are expected to be generated, and because the argument runs that they are expected to be greater for buildings above 4 storeys, there is a higher threshold. This, though, defeats the object of the policy. The nature of the emissions, and the impact thereof, does not change because of the height of the building. Similarly, just because the Council argues that some buildings might need to be above four storeys, why does that justify their being given a more lenient threshold? After all, if these standards cannot be met, emissions above that level trigger payments. Setting a more lenient threshold would not, even with the policy as drafted, imply a building could not be built if emissions could not be retained below the threshold.

The previous points are given greater force by the fact that the thresholds themselves appear too permissive.<sup>2</sup> In the Viability Assessment (EVEV01 Bristol City Council: Local Plan Viability Assessment), the assessment has been made against the whole life-cycle threshold (not the up-front embodied carbon one, which is subject to the offsetting policy), presumably based on data availability. We question (see above) as a sensible basis. Nonetheless, the Assessment suggests (Table 4.12.1) that no uplift in cost is implied for buildings above five storeys and major non-residential schemes, with a 3% cost uplift for buildings of 4 storeys or fewer. That suggests a view that the thresholds for the buildings above five storeys and major non-residential schemes are set at levels above what is needed to make them effective.

The evidence base is moving quickly, but the thresholds seem in danger of being rendered irrelevant fairly swiftly (if not already, then by the time the Plan is approved). Indeed, any 'fixed' (over time) threshold is in danger of suffering that fate. For that reason, the policy text would be well advised to be 'indexed' to a relevant indicator of (for example) progress in decarbonisation of materials consumed in the UK over time. Failure to do this would render this exercise another administrative burden delivering nothing useful.

As regards 14.5 (b) specifically, one question related to whether, where proposed targets could not be met, it would be justified to require financial contributions to the Council's carbon offset fund. In my view, the answer is unequivocally 'yes': indeed, there are sound arguments to suggest that *all* emissions should be captured by the scheme, not only those emitted above a set threshold, since the impact of these emissions largely remains external to the economy.

The reference to the Green Book is instructive: the Green Book applies to those considering policy, and does not exclude local government. It would be an omission if policy on

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<sup>2</sup> With the caveat that the methodology to be used is not entirely clear - the Policy text has no clear preference, the explanatory text seems to display a preference.

development did not seek to address this in some way given that it is likely to be responsible for the lion's share of GHG emissions for which this Plan can be held responsible.

As regards the 'current' scale of any financial contribution, the Green Book supplementary guidance sets values in '£2022', so that in any later year, the figure in the Table ought to be inflated using the Table of GDP deflators which is produced periodically by HM Treasury. The Policy ought to a) take the (average) value relevant to the year(s) when construction took place, b) inflate those values to make them relevant to the year concerned using GDP deflators.

Levying all emissions would act as a far stronger incentive to repurpose buildings. It would also (see above) ensure that there was no unfair treatment given to buildings of different types / heights: the climate does not respond differently to GHG emissions depending on the height of building to which they are linked. On the other hand, that might raise viability concerns.

As a consequence, and reflecting comments above, we would suggest that the policy be construed with

- a) A requirement / standard regarding upfront embodied carbon that has to be met other than under exceptional circumstances (and all emissions above this level would trigger an offset levy (potentially at an enhanced rate to more strongly motivate compliance);
- b) A threshold value for upfront embodied carbon, above which all emissions of embodied carbon trigger the offset levy.

All emissions of embodied carbon below the threshold would be free of the offset levies.

The Viability Assessment (EVEV01 Bristol City Council: Local Plan Viability Assessment) noted that for houses of four storeys or fewer, costs could be of the order 3%, or around £51 per m<sup>2</sup>. That cost equates to in excess of 100kg of CO<sub>2</sub> at the proposed levy rate. Setting the 'gap' between a) and b) above to be of the order 150kg CO<sub>2</sub> / m<sup>2</sup> would generate an incentive for developers to reduce emissions at the margin whilst also meeting the standard.

In the short term we would suggest that a) is set at 425kg CO<sub>2</sub> / m<sup>2</sup> and b) is set at 275kg CO<sub>2</sub> / m<sup>2</sup>. Applicants would be free to choose their route to compliance as long as they meet the standard. Both the above figures should be indexed to a relevant indicator over time (the absolute magnitude of the gap between a) and b) would fall also).

Furthermore, we would argue that the Council could radically simplify this process by basing its up-front calculation on a simplified calculator focusing on what the Plan can influence at the application stage.

If this were to occur, I can also see no reason why this policy would be restricted to major development: indeed, I see no justification for restricting the policy in that way in any case. Why would this affect only 'major development?'

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