Summary Report (v3 17 January 2024)

Introduction

This report has been prepared to assess the details provided to discharge conditions 14, 16, 24 and 28 for Bicester Eco Town Exemplar Site, Banbury Road, Bicester under Application Reference 21/01227/F.

The report aims to provide a view on whether these conditions can be discharged based on the evidence submitted and subsequently what further evidence or information may be required to satisfy the conditions. The project is being assessed against planning policies from Cherwell District Council Local Plan 2011-2031.

This updated report consists of responding to comments from AES, in response to initial Bioregional comments provided in October 2023.

The planning application constitutes a replan of the proposed Phase 4 of the development, comprising an amended house type mix and a change in the total number of dwellings within this phase from 54 to 57.

A full planning application is made for 57 dwellings and associated infrastructure, comprising a mix of two-storey housing across 9 house types.

Bioregional comment	AES response	Bioregional response
Condition 14		
Fabric standards are 'sufficient but unambitious' and are worse than the notional specification, therefore there is 'significant margin for improvement'.	It is acknowledged that fabric standards could always be improved beyond a certain point through additional insulation or improved airtightness, however there is a point at which the benefit of these measures is outweighed by the cost, or carbon reductions are more effectively delivered through alternative measures. As demonstrated by the carbon balance calculations, further fabric uplifts do not positively improve the zero carbon assessment. There are no absolute requirements to be met, and the response indicates that the fabric measures are sufficient.	As issued in our previous response, improved fabric efficiency is the first stage of the energy hierarchy, which should be maximised prior to any heating system being considered (i.e. space heating demand is reduced as far as possible initially whilst remaining agnostic to the subsequent heating option used). In practice, residents will benefit from improved energy and fabric efficiency, which can be driven by further improvements to the fabric specification. Additionally, the inverse relationship of carbon emissions for the CHP system is only applicable whilst the CHP plant is in operation. In future, if the buildings disconnect from the CHP plant and connect to individual heat pump systems, the perceived carbon benefit of CHP found in the modelling is nullified. It is disappointing that this position has been taken, instead of prioritising best practice approaches that genuinely maximise fabric specifications prior to technology selection. As with a number of the following comments, Bioregional has provided its professional opinion in response to the applicant. However, due to the advanced stage of the development (i.e. construction complete), we do not believe many measures can be implemented to resolve remaining inadequacies of the development.
Utilisation of SAP 2012 carbon factors	The relevant carbon factors for the version of Building Regulations under which the development is registered have been utilised. If the development as a whole were to be recalculated under alternative carbon factors, the design level of CO2 savings would not be delivered due to significantly lower grid emissions reducing the benefit of CHP and solar PV systems. Future parcels within NW	It is understood that SAP2012 carbon factors were applicable at the design stage of this development. It is however known that actual in practice carbon factors vary significantly to those modelled at the design stage. Therefore, it would be beneficial if the applicant modelled the development against present carbon factors so the predicted performance of the development can be estimated within present context of grid carbon intensities. The

	Bicester will be registered to updated regulations and may seek alternative approaches as a result.	subsequent results do not need to be scrutinised, but this information will assist the management of expectations of carbon and energy performance of the development in practice.
Applicant to revisit calculations to provide further justification on fabric standards and carbon balance	There is no minimum fabric standard set within policy. The overarching requirement is to deliver zero carbon development. As demonstrated, within the calculation methodology which must be applied, additional carbon reductions cannot be achieved through fabric and a reliance on renewable energy systems is therefore necessary. It should be noted that increased PV system sizes will positively impact the running costs of all dwellings to a much higher degree than the same expenditure on additional fabric measures.	There are not many, if any, measures that can now be implemented to improve the fabric and energy performance of the development. It is understood that due to the use of CHP, additional carbon reductions through fabric measures are not available. However, again, it is disappointing that AES have not stated that fabric improvements would result in additional carbon reduction if a heat pump system were used in the future. The point remains that, relating to Policy ESD2 on the energy hierarchy, fabric specification should be maximised prior to energy and heating technology being considered. The development has failed to maximise fabric efficiency and relied upon solar PV to achieve the overarching zero carbon standard. Although, due to the advanced stage of the development, the opinion of Bioregional is that further improvements to the fabric specification cannot retrospectively be made.
PV-led approach to further carbon reductions is not compliant with Cherwell Policy ESD2 which requires applicants to follow energy hierarchy	Fabric measures have been adopted which exceed the Building Regulations standards, following the energy hierarchy approach. Neither CHP nor solar PV systems are being used to deliver Part L compliance, this statement is confirming that as the calculations are not improved through further fabric measures (as demonstrated) the only option is to utilise solar PV systems to deliver the required carbon reductions.	Same response as point above – no further action possible due to the advanced stage of the development. The statement that fabric measures have been adopted above Building Regulations is not a valid point as it is agreed throughout the industry that fabric standards under Part L 2021 are far from best practice. Part L 2013 fabric values are used as the reference baseline here, further decreasing the validity of this claim that the energy hierarchy approach was maximised.
Why does table 9 contain the average TER rather than the average DER?	The TER is shown in order to present the baseline over which the reductions are calculated. The column 'emissions after PV' shows the effective DER after fabric, CHP and solar PV systems are accounted for	Ok.

Why have the figures changed from 170.99% to 167% reduction between original energy statement and current?	The figures now presented are based on the full SAP calculations, rather than a sample approach with one of each housetype undertaken with the original submission, based on planning stage information. The minor reduction in DER/TER is due to accounting for orientation and any dimensional changes to housetypes, however it should be noted that this is a relative reduction, and therefore where the TER is also reduced by accounting for orientation, the absolute carbon emissions will still reduce even where the percentage reduction appears to be slightly lower.	Ok.
For unregulated emissions the figure has been adjusted down from SAP estimates by a third in common with previous application. Evidence should be provided to support this claim.	The reference to previous application may be disregarded, however the calculation has been retained as representative. SAP figures are excessively high as they were established when average appliance efficiencies were significantly lower. A more accurate assessment of unregulated energy demand can be obtained from PHPP which aligns with best practise approaches promoted by LETI and others, enabling appliance specific details to be entered. This typically results in a figure around 20kWh/m2 /year, rather than circa 35kWh/m2 /year as calculated in SAP, which equates to over 40% reduction. It should also be acknowledged that Policy Bicester 1 notes "High quality exemplary development and design standards including zero carbon development, Code Level 5 for dwellings at a minimum" (ie the minimum standard excludes unregulated energy).	Understood and acceptable approach given that SAP uses an equation based on appliances dating back to 1998. Reference to CfSH Level 5 is invalid as the overarching requirement of Policy Bicester 1 is to achieve true zero carbon, which includes unregulated energy.
Condition 16		
Some information provided although not clear how sustainable construction methods are integrated.	Crest Nicholson have been seeking to incorporate sustainable construction methodologies into their standard build approach for many years. A typical approach to assessing these measures would be to run an options appraisal at an early stage, to guide specification and	The view of Bioregional is that insufficient information has been provided how sustainable construction methods have been integrated. For example: • What experience and lessons were learned during the build out of previous homes within the development?

	procurement decisions and drive improvements over a baseline in terms of e.g. embodied carbon. Significant experience was gained during the build out of previous homes within the development, and as a result the developer made decisions from outset to make sustainable procurement choices. There was therefore no requirement to run an options analysis to guide as decisions already made to minimise, as shown by the embodied carbon assessment.	• What sustainable procurement decisions specifically were made? As above, due to the advanced stage of the scheme, it is unlikely that potential remediation measures are available. It would however be beneficial if the applicant could provide clarity on the claims stated and respond to the two questions above.
Embodied carbon assessment provided but only for one housetype. Justification required based on this being the worst performing. Carbon reduction measures are identified and it's not clear how the measures will actually be implemented. No quantifiable commitments. Further details on how low embodied energy and responsible sourcing has been prioritised.	Unclear how it can be more robustly demonstrated that 'worst performing' dwelling has been calculated without running the assessments for others, however the overall point remains that construction specification is consistent and therefore the indicative assessment undertaken appropriately demonstrates performance across the parcel. There is no minimum standard to be achieved, however this performance exceeds current best practise standards, equating to circa 360kgCO2/m2 for the assessed housetype, compared with the LETI Climate Emergency Design Guide figure of 500kgCO2/m2 reducing to 300kgCO2/m2 by 2030.	The applicant could demonstrate that the worst performing dwelling is as stated by listing differences in building materials, quantities of high and low carbon materials and structural efficiency differences between other dwelling types, among others. As above, additional detail and clarity on how the modelled embodied carbon has been achieved throughout construction would be beneficial to the applicant. As above, it is unlikely further work can be carried out to reduce the upfront embodied carbon due to the advanced stage of the development, yet detail on how sustainable construction measures have been implemented and embodied carbon reduced could be provided.
Condition 24		
Not clear how many PV panels and kWp proposed to each dwelling	A full PV schedule is available and is provided, which includes MCS calculations of output. It should be noted that the MCS calculated demonstrates a total CO2 saving of 99,315kgCO2/year, significantly higher than the SAP calculated figure of circa 95,000kgCO2/year	Ok.
Condition 28		

Number of buildings which will have rainwater harvesting is not clear, based on the evidence provided	Further info on rainwater harvesting to be provided	Additional spreadsheet has been provided. However, no explanation is provided to support this new data and, for example, why some plots do not have pumps. It would be useful to have some context as to why some plots are missing elements in the supporting spreadsheet.

Conclusion

The revised application for the development of Phase 4 at Bicester Eco Town Exemplar Site, Banbury Road, Bicester partially addresses the conditions for planning permission. Further comments from the applicant provide some additional context and information, but overall does not result in the desired level of detail we would expect for this Eco Town development.

Based on the evidence submitted, we do not fully agree that Policy BIC1 has been *wholly* complied with, which requires *"high quality exemplary development and design standards including zero carbon development….and the use of low embodied carbon in construction materials".* The evidence provided for conditions 14 and 16, in our view still do not demonstrate exemplary level commitments.

Additionally, the evidence on planning condition 16 can also be highlighted by lack of confirmation that actual commitments to minimise embodied carbon have been incorporated into the dwellings as a result of modelling the embodied carbon and recommendations of the analysis.

However, it is important to note that the development is now at an advanced stage, leaving minimal opportunity for any further improvements on these conditions to be made. **Therefore, the recommendation is that the conditions are discharged.**

It is our view that it is very difficult for any further improvements related to condition 14 to be implemented into the building design, albeit the zero--carbon status of the scheme has been evidenced, the proposed methodology to achieve this we feel does not align with the exemplary nature of the scheme. Condition 16 has been met through the minimum information provision and is recommended to be discharged, provided the applicant provides the requested detail stated in the table above. However, our professional opinion is that the standards and associated information provided should go further given the exemplary nature of the development. We do note the time period that this scheme was originally assessed under and the subsequent advances in industry best practice around both operational and embodied carbon has improved substantially in the preceding 5 years. We do note the time period that this scheme was originally assessed under and the advances in industry best practice has. We do note the time period that this scheme was originally assessed under and the subsequent advances in industry best practice around both operational and embodied carbon has improved substantially in the preceding 5 years.

Condition 24 is recommended to be discharged as the information requested has been provided. Condition 28 is recommended to be discharged as information has been provided on which dwellings have rainwater harvesting.

Bioregional has provided recommendations on discharge of conditions in this report. Ultimately, the decision on discharge is to be determined by the case officer. Our recommendations are limited to the advanced nature of the scheme and it should be noted that we would be unlikely to recommend that conditions are discharged if there was scope to make further on-site improvements to building performance.