



PLANNING FOR GROWTH



Carbon Offsetting

Draft Supplementary Planning Document (SPD)
September 2022



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1. Introduction

- 1.1 This Supplementary Planning Document (SPD) details how Hertsmere Borough Council will operate a carbon offset fund (COF) to collect carbon offset payments arising from planning applications in order to meet targets for net-zero development. This document should be read in conjunction with the Council's adopted Local Plan and in particular Core Strategy (2013) Policies CS16 – Environmental impact of development and CS17 – Energy and CO2 reductions, and the clarifications to these policies set out in the Interim Planning Position Statement on Climate Change (IPPSCC)¹ with reference to the Climate Change and Sustainability Strategy and the revised NPPF.
- 1.2 One of the objectives of the Core Strategy is to address issues arising from climate change, and to take advantage of water and other natural resources responsibly in relation to planning permissions for new development. Hertsmere declared a climate emergency² in September 2019 and is committed to achieving net zero carbon emissions no later than 2050. Following this, we have adopted a Climate Change and Sustainability Strategy³ and the associated Action Plan⁴, and adopted the IPPSCC in November 2020. This statement clarifies how Hertsmere as the Local Planning Authority (LPA) will interpret its existing development plan policies in the context of updated material considerations and circumstances until a new Local Plan is published and subsequently adopted.
- 1.3 Carbon offsetting is a relatively new principle for Hertsmere Council although other authorities have already adopted this practice. The aims of Hertsmere's Carbon Offset Fund (COF) will be to:
- deliver real carbon savings to make up for – or offset – any residual carbon resulting from development schemes in the borough.
 - ensure that new developments achieve net zero carbon overall, by monetising any residual carbon and providing those funds to be used for carbon reduction projects, as close to the application site as possible (section 9 detailing the required sequential site approach).
- 1.4 Once COF payments are received by the Council, it is important that they are used in a transparent way, which maximises their aim of achieving the required carbon savings elsewhere. This SPD is a key element in setting out the requirements for delivering these objectives and also provides guidance

¹ Interim Planning Policy Position Statement 24 Nov 20: <https://www.hertsmere.gov.uk/Documents/09-Planning--Building-Control/Planning-Policy/Interim-Planning-Policy-Position-Statement-24-Nov-20.pdf>

² Agenda for Council on Wednesday, 18 September 2019:

<https://hertsmere.moderngov.co.uk/ieListDocuments.aspx?CId=106&MIId=10541&Ver=4>

³ Climate Change and Sustainability Strategy:

[https://hertsmere.moderngov.co.uk/documents/s52037/20200916FC06appA1_20200626 Climate Change and Sustainability Strategy Final.pdf](https://hertsmere.moderngov.co.uk/documents/s52037/20200916FC06appA1_20200626%20Climate%20Change%20and%20Sustainability%20Strategy%20Final.pdf)

⁴ Climate Change Action Plan: <https://www.hertsmere.gov.uk/Documents/04-Environment-Refuse--Recycling/Climate-change/Climate-Change-Action-Plan.pdf>

on 'alternative carbon offsetting' – where an applicant can make up the required carbon shortfall off-site (rather than paying into the COF) by delivering or funding a carbon reduction project directly.

- 1.5 This SPD sets out the Council's expectations in terms of the following:
- Carbon Emissions and the Built Environment (section 2).
 - Hertsmere's approach to carbon reduction (section 3).
 - Planning application requirements including Whole Life Carbon Assessments (section 4).
 - Requirements for calculating carbon (section 5).
 - Carbon reduction targets and offset rate (section 6).
 - Securing carbon offset contributions (section 7).
 - Alternative carbon offsetting (section 8).
 - Sequential site approach to offsetting (section 9).
 - Administrative arrangements (section 10).
 - Spending received funds and monitoring arrangements (section 11).
 - Post construction monitoring of carbon offset and reductions (section 12).
 - Conclusion – (section 13).
- 1.6 This SPD primarily applies to development above the carbon scheme threshold⁵ in the IPPSCC, apart from section 4.3 below, which outlines the simplified requirements for planning applications below that threshold. The SPD does not provide details of how COF will be spent by the Council, nor does it provide a programme of COF projects to fund, although an overview of the potential approach is outlined in section 11.

⁵ The carbon scheme threshold is the size of applications as set out in the Interim Planning Policy Statement on Climate Change being:

- Residential - the development / creation of five or more residential units or site area of 0.5 ha or more.
- Non-residential - the creation of 500 sq metres of floorspace / 1 ha site area or more.
- Change of use and refurbishment projects requiring planning permission - 1000 sq metres / 1 ha or more.

2. Carbon Emissions and the Built Environment

- 2.1 In relation to construction works and the built environment, carbon emissions can arise from:
- Construction – including embodied carbon and energy – the materials and components that make up a structure.
 - Operations – energy consumption in the day to day running of a building.
- 2.2 In order to secure the required reductions in carbon from planning applications, a holistic approach, considering both construction (embodied energy) and operational (regulated) emissions is required. The approach to consider and quantify carbon in relation to the built environment is called Whole Life Carbon Assessment (WLCA). A WLCA can be used to illustrate a building's carbon impact. WLCA is a systematic process used to calculate and record a building's embodied carbon emissions and operational carbon emissions and may be undertaken at different stages of the design process.
- 2.3 Operational emissions may arise from use of terms identified as 'regulated' or 'unregulated' energy – see Table 1.
- **Regulated energy** is building energy consumption resulting from the specification of controlled, fixed building services and fittings such as heating, cooling systems (if any), hot water, ventilation, fans, pumps and lighting. Such energy uses are inherent in the design of a building. Schemes should be designed to enable those services to be as energy efficient as possible and include generation of appropriate on-site renewable energy technology..
 - **Unregulated energy** is building energy consumption resulting from a system or process that is not 'controlled', i.e. energy consumption from systems or activities in the building on which the Building Regulations do not impose a requirement. For example, this may include energy use arising from kitchen equipment, IT equipment, printers, photocopiers, industrial processes and other appliances. This SPD does not generally require WLCAs for planning applications to factor in unregulated energy, as buildings may have different occupants, different uses, operations or equipment over time. However, there may be some planning applications for which a WLCAs were required to include unregulated energy – for example a scheme which had very high levels of energy demand.

Table 1 - Regulated and unregulated energy

Regulated energy	Unregulated energy
<p>Building energy consumption resulting from the specification of controlled, fixed building services and fittings, including heating, cooling, hot water, ventilation, fans, pumps and lighting. Such energy uses are inherent in the design of a building.</p> <p>Building systems or activities covered by Building Regulations such as the building performance (materials, fabric, insulation), energy type and performance, efficiency requirements, fixed building services (such as heating systems), conservation of fuel and power.</p>	<p>Building energy consumption from moveable plant, equipment, IT, kitchens, industrial processes.</p> <p>Designers or architects will not usually be able to predict which moveable plant or equipment will be provided in a development or which services will take place or how they will operate.</p>
Generally included in a WLCA	Generally not include in a WLCA

- 2.4 There may be lifetime emissions from the repair, replacement, maintenance and demolition of a building. The operational or use stage must therefore capture the carbon emissions associated with the operation of the built asset (although not from the occupiers or activities within the building) over its entire life cycle, from practical completion to the end of its service life.
- 2.5 The development industry has until recently given most consideration to operational emissions via reduction targets in Building Regulations (Part L), planning requirements and sustainability assessment rating schemes (e.g. BREEAM) with the embodied element of carbon emissions not always being fully addressed. To ascertain an overall understanding of a built project's total carbon impacts, it is necessary to assess both the anticipated operational and embodied emissions over the whole life of the asset.

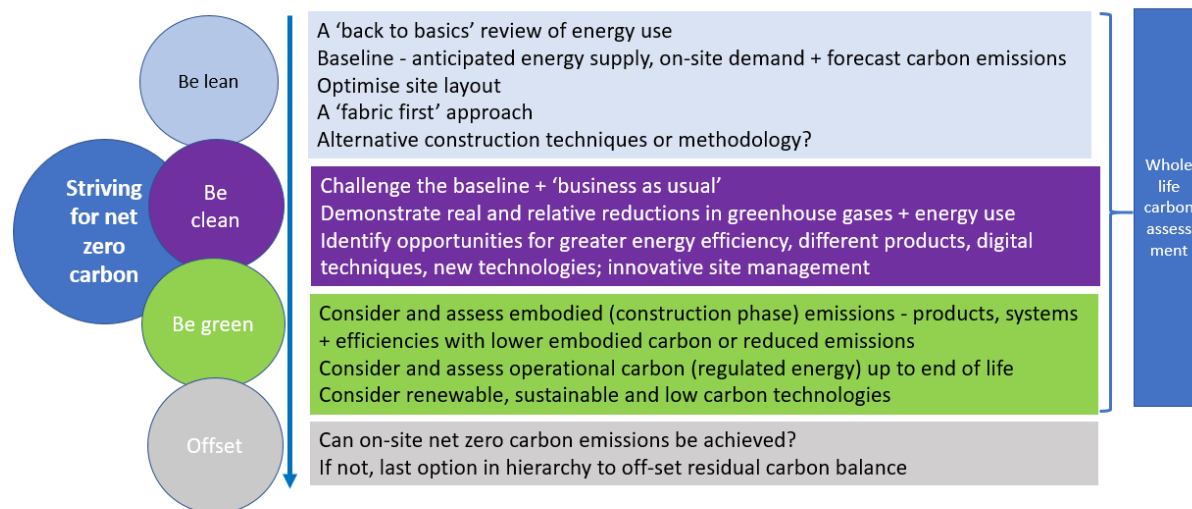
3. Hertsmere's Approach to Carbon Reduction

- 3.1 Policies CS16 and CS17 of the Core Strategy seek for development to achieve reduced levels of energy consumption and the use of energy from renewable resources. The IPPSCC provides clarification that in the current policy environment, applicants are encouraged to consider how schemes can strive for a target of net zero carbon on-site.
- 3.2 The Climate Change and Sustainability Strategy states: *“All new developments to use construction materials that comply with defined sustainability standards, such as sustainable material, recyclable content and low embodied carbon”*⁶. Consideration as to how net-zero carbon on site, or offsetting it where that cannot be achieved, will be encouraged in order to demonstrate compliance with paragraph 152 of the National Planning Policy Framework (NPPF) 2021 – the planning system should *“help to: 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 conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure”*⁷.
- 3.3 A Climate Change and Energy Statement should be prepared for applications above the carbon scheme threshold. The IPPSCC states that all new development should make the fullest contribution to minimising carbon dioxide emissions, through a range of design, technological, landscape and ecological measures, in accordance with the following energy hierarchy:
- i) Be lean: use less existing energy
 - ii) Be clean: supply and use energy efficiently
 - iii) Be green: use renewable energy
- 3.4 Offsetting should only be considered for any residual carbon once all other approaches have been considered and evaluated.

⁶ [Climate Change and Sustainability Strategy \(moderngov.co.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/461622/Climate_Change_and_Sustainability_Strategy.pdf)

⁷ [National Planning Policy Framework \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/461622/Climate_Change_and_Sustainability_Strategy.pdf)

Hertsmere's hierarchical approach to net zero carbon



3.5 Key elements of this hierarchical approach include:

- A tiered approach should be taken to carbon reductions – eliminate, reduce, substitute and offset.
- Using circular economy principles – reuse and refurbish, taking disassembly (end of life) into consideration; and
- A 'fabric first' approach to design before consideration of any mechanical or electrical systems.

Applying the energy hierarchy in Hertsmere

3.6 A fabric first approach will be taken in line with the energy hierarchy outlined above. Development should aim to achieve carbon reductions in line with the hierarchy, and to achieve:

- at least a 10-15% reduction in carbon emissions over and above Part L of the Building Regulations to be achieved through improvements to building fabric and the design and layout of development; and
- around 30-40% reduction on Part L achieved though renewable energy;

3.7 Any remaining required reductions over and above Part L may be offset if they cannot be achieved on site, and where this is clearly justified through the Climate Change and Energy Statement.

4. Planning Application Requirements

- 4.1 Applicants should discuss any potential carbon reduction and offset issues with the Council as part of the pre-application stage before a planning application is submitted, as these matters are best addressed early on in the design process. Applicants will need to demonstrate that their planning application maximises on-site carbon reductions.
- 4.2 Where carbon offset is not met on site, the council reserves the right to appoint external consultants to review their justification and charge that cost to the applicant.
- 4.3 For developments **above the carbon scheme threshold** (defined in Section 5 of the IPPSCC), where the development falls short of achieving net zero carbon on-site, the developer will be expected to make a financial contribution to Hertsmere's COF. COF considerations will therefore need to be fed into and form part of each development scheme's viability calculations which should be established on the basis of the existing use value of the land, plus a premium for the landowner, as set out in national Planning Practice Guidance.
- 4.4 For **smaller-scale developments** which are below the carbon scheme threshold defined in Section 5 of the IPPSCC, applications will be expected to provide a statement which may be included in their application documentation outlining:
- How the scheme has been designed taking into account the generic principles of Policies CS16 and CS17 (eliminate, reduce, substitute and offset) taking a structured approach seeking to reduce carbon emissions;
 - How materials will be selected having regards to carbon reduction objectives;
 - Any other relevant information which has been taken into account to minimise carbon emissions resulting from the scheme, such as the principles of fabric first, energy efficiencies, emitted or embodied carbon.
- 4.5 For all of those applications within the definitions of paragraphs 4.2 and 4.3, in the event that net zero carbon cannot be achieved and a need for COF does arise, the clarification to Policies CS16 and CS17 as set out in the IPPSCC seek that any residual greenhouse gas / carbon shortfall will need to be monetised and paid into a carbon offset fund.

Figure 2 – Planning application process relating to carbon offsetting

Stage	Key activities and issues		
Design development	Ensure a tiered approach taken to carbon reductions – eliminate, reduce, substitute. Offset only as a last resort.		
Pre-application	Engage with LPA as required.		
Application preparation	If application is above carbon scheme threshold prepare; - Climate Change and Energy Strategy + - Whole Life Carbon Assessment.	If application is within the size threshold of Section 5 of the IPPSCC prepare; - A statement outlining the steps taken to reduce carbon and whether net zero carbon can be achieved or not.	If application falls below the threshold in Section 5 of the IPPSCC prepare; - A statement outlining the generic approach to carbon reduction.
Application submission and determination			
Post decision			
	Discharge / compliance with carbon offset planning conditions, s106 or unilateral undertaking as required. The above will normally include a requirement to submit post-construction carbon assessment to the Council.	Discharge / compliance with carbon offset planning conditions (and potential s106 or unilateral undertaking) as required.	Discharge / compliance with carbon offset planning condition as required.

Whole Life Carbon Assessments

- 4.6 All those planning applications above the carbon scheme threshold (paragraph 1.6) are required to calculate the embodied carbon emissions of the development, as well as the operational emissions and demonstrate how these can be reduced as part of a Whole Life Carbon Assessments (WLCA). Considering operational as well as embodied carbon emissions together over the life cycle of a building or project constitutes the whole life approach. In most instances the WLCA would form part of – or a subset to - the Climate Change and Energy Statement.
- 4.7 Applicants should demonstrate the following in their Whole Life Carbon Assessment and other application documents as required:
- provide details and a calculation of any carbon shortfall required to be offset; and
 - provide confirmation of the offsetting approach which will be taken.
- 4.8 In most instances, any residual carbon resulting from a scheme will need to be monetised and paid into the Council's COF. In some circumstances off-setting could be achieved via a separate off-site project which is under - or will be under - the applicant's full control (refer to section 8). In all such cases, this approach will need to be discussed and agreed with the Council and the application will need to include details of the project, plus an undertaking

stating that any carbon offsetting identified will be met off-site with appropriate details of that given.

When to undertake whole life carbon assessments?

- 4.9 Regardless of the COF calculation date (section 6.1), applicants are encouraged to undertake carbon assessments at key project stages from concept design to practical completion. Whole life carbon assessments should be undertaken in a sequential fashion during the design, procurement, construction and post-completion stages, starting as early as concept design stage.
- 4.10 Early stage assessments are required to establish a baseline carbon estimate for the project, to integrate whole life carbon factors into the design process and to identify carbon reduction potential while there is significant scope to influence decisions. Appropriate timing and sequencing of carbon assessments will help to identify carbon reduction opportunities and monitor a project's progress in achieving them. See section 12 for details of requirements regarding the need for a second such assessment to be undertaken upon practical completion in order for the actual reductions to be compared to the forecast or baseline targets).

5. Requirements for Calculating Carbon

- 5.1 The key objective of whole life carbon assessment and measurement is the mitigation of carbon impacts in the built environment. Better understanding and consistent measurement of the whole life carbon emissions of buildings and projects will enable comparability of results, benchmarking and target setting to achieve carbon reductions.
- 5.2 WLCA's should be carried out using a nationally recognised assessment methodology which should demonstrate the actions that have and will be taken to reduce WLC emissions. The assessment should cover the development's carbon emissions over its lifetime, accounting for:
- its embodied (construction phase) carbon emissions.
 - its operational carbon emissions (regulated energy).
- 5.3 In the UK, the framework for appraising the environmental impacts of the built environment is provided by BS EN 15978: 2011: (*Sustainability of construction works — Assessment of environmental performance of buildings — Calculation method*) which sets out the principles and calculation method for whole life assessment. Underpinning that BS a system requiring careful interpretation has been developed and established by RICS (*RICS Professional Statement Whole life carbon assessment for the built environment 2017*). The RICS Professional Statement serves as a guide to the calculation of carbon impacts from built projects based on life-cycle assessment.
- 5.4 As the Council encourages applicants to adopt a standardised, nationally recognised approach to the WLCA, use of the RICS Professional Statement is advocated for applications above the carbon scheme threshold, unless applicants can demonstrate an equivalent suitable, nationally recognised alternative approach for the Council's consideration to be used (for example there may be more suitable alternatives for engineering projects), or unless the government publish a national system for the calculation of whole life carbon.
- 5.5 The RICS Professional Statement can be applied to all types of built assets, including buildings and infrastructure and is suitable for the assessment of both new and existing assets, refurbishment, retrofit and fit-out projects. It addresses all components making up a built asset over all life stages – from extracting raw materials and manufacturing constituent building products through operation and disposal, and any future potential beyond its end of life.
- 5.6 The system developed by RICS includes key principles and practical guidance for whole life carbon assessment to be adopted across the industry. The RICS Professional Statement sets out four stages in the life of a typical project described as life-cycle modules:
- Module A1 – A5 (Product sourcing and construction stage)

- Module B1 – B7 (Use stage)
 - Module C1 – C4 (End of life stage)
 - Module D - (Benefits and loads beyond the system boundary).
- 5.7 A WLCA should cover the entirety of those four modules to comply with policy CC2. Applicants above the carbon scheme threshold will be expected to report against all of these life-cycle modules in their WLCA, not just the minimum requirements identified in the RICS Professional Statement.
- 5.8 A national, sector recognised, whole life approach to carbon assessment - such as that developed by RICS – will have a number of advantages including:
- helping to identify the overall optimum opportunities for reducing lifetime emissions;
 - avoiding the erratic carbon assessments or discrepancies in results; and
 - helping to provide clear and quantifiable whole life carbon targets in the pursuit of emissions reductions.

Details of undertaking a WLCA

- 5.9 The recommended Whole Life Carbon Assessment proformas to be completed under the RICS system are available on-line⁸ and copies are attached to this SPD:
- Appendix A provides a copy of the RICS Reporting Requirements such as the required background information and attributes (assumptions, results, etc) that need to be provided.
 - A copy of the RICS recommended reporting structure is provided in Appendix B which is the template which can be used for the carbon results to be reported in accordance with that process.
- 5.10 It is recommended that the WLCA be undertaken in parallel to or as part of the Climate and Energy Statement (and any other relevant application documents). The need for an overarching Climate and Energy Statement is to help provide the application's overall approach to climate change, to interpret the results of the assessment, provide any qualitative considerations and provide details of any other required planning or other information relevant to determination of the application.
- 5.11 There are a variety of companies and software tools widely available to help produce WLCA with some examples provided in Appendix C. Applicants are requested to include any limitations and exclusions resulting from their assessment process in their WCLA or their Climate and Energy Statement.

⁸ <https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the--built-environment-november-2017.pdf>

- 5.12 Applicants for significant developments may be requested to reimburse the Council for an independent review and check of their carbon assessments in order that the results can be verified and validated. Arrangements for this should be discussed at the pre-application stage and may subsequently be secured through a Planning Performance Agreement. The purpose of that independent review will include whether the assessments have been fully and correctly completed, to the required technical standard and whether applicants have demonstrated sufficient action or ambition in order to meet the required targets.

WLCA Results

- 5.13 Results of a WLCA will typically include a breakdown of the proportion of carbon emissions attributed to each life cycle stage e.g. materials, transport, the site, energy and end of life. The assessment is likely to highlight where the greatest quantity of carbon results from. For example if 'materials' were highlighted, that would emphasise the need for further, more detailed consideration on this matter. Further analysis may illustrate the contribution which each material or building element contributed towards overall carbon emissions. This might include the materials selected for insulation or flooring, or the design of the roofs or external walls proposed, enabling further focus on those components on whether alternatives would result in less carbon.
- 5.14 The data resulting from the assessment should be used to highlight where additional focus should be given to review the most appropriate carbon reduction strategies.

6. Carbon Reduction Targets and Offset Rate

- 6.1 Once a credible WLCA has been undertaken, applicants will then need to work towards the relevant target regarding the performance of the development. For applications above the carbon scheme threshold, this will normally be a target of working towards net zero carbon.
- 6.2 The rate at which payments will be paid into the carbon offset fund is, at the time of writing, established at a price of £115 per tonne of carbon dioxide (CO₂).
- 6.3 That rate is the per annual tonne of carbon that developers will be required to pay to make up any residual carbon offsetting required. The intention is that this price will be index linked and regularly annually. The recommended timescale for carbon abatement is 30 years as suggested by government guidance (*Next steps to zero carbon homes: allowable solutions, DCLG, 2013*) which is the period required over which the offset contributions should be calculated. The 30 year timescales was put forward on the basis that this is both typically representative of the lifetime of onsite technologies and the period beyond which the electricity grid will be substantially decarbonised.
- 6.4 As an example, using the Council's established price of £115 per tonne of residual carbon, if two tonnes of carbon require offsetting, the calculation is:

$$£115 \times 2 \text{ tonnes} \times 30 \text{ years} = £6,900 \text{ carbon offset payment due.}$$

When to calculate carbon offset payments?

- 6.5 For the purposes of this SPD, the majority of applicants will be expected to calculate carbon offset payments based on the planning determination stage, but in exceptional circumstances – to be agreed with the Council – they may be calculated upon construction or at occupation. Calculating the payment based on the planning application determination date is the Council's preference, as that will provide clarity to the Council on the level of COF which will be available, and encourage applicants to assess carbon impacts early on as an integral part of the design process.

7. Securing Carbon Offset Contributions

- 7.1 COF contributions will usually be secured via planning s106 legal agreements as they will be necessary to make an otherwise development acceptable or to ensure compliance with policy. The agreement will set out where any funds can be spent, in accordance with the sequential site approach (section 9) set out in this SPD. Similarly, where applicants intend to fund a site or project which is not part of the planning application, this will need to be secured through a s106 legal agreement.
- 7.2 In the case of s106 agreements, the Council will work with developers to ensure that each planning obligation passes the three required legal tests:
- that it is necessary to make the development acceptable in planning terms;
 - that it is directly related to the development; and
 - that it is fairly and reasonably related in scale and kind to the development.
- 7.3 The Community Infrastructure Levy (CIL) is not an appropriate mechanism for collecting carbon offset payments as it relates to a fixed charge per square metre and does not account for the varying performance of developments in terms of carbon emissions and the individual circumstances of each scheme.
- 7.4 The Council will in most instances take receipt of funding at commencement of construction on site, although alternative arrangements may be acceptable in some instances, such as splitting the payment with some to be paid upon commencement of construction and the remainder upon its completion. Other potential exceptions to this are for smaller schemes, where cash-flow may be an issue, or for strategic sites, where implementation may be phased over many years, where receipt of funds could be tied to the build-out programme.
- 7.5 However, taking payment later than commencement of works can mean a higher degree of uncertainty for the Council as to when funding will be received, may delay carbon savings being secured and in turn, delay offsetting a development's carbon impact.
- 7.6 The Council will note the time limits that apply to discharging the relevant condition or s106 or other agreement and ensure funds are collected and committed within any relevant specified time period where one is agreed and set out in the legal agreement. Subject to meeting the three tests as set out in CIL Regulation 122, the Council is likely to pool offset funds within an overarching budget in order to provide the flexibility required to secure the optimum carbon savings elsewhere.

8. Alternative Carbon Offsetting

- 8.1 There may be some circumstances where a scheme can make up the required carbon shortfall off-site (rather than paying into the COF) by delivering or funding a carbon reduction project directly. Any such proposals would need to be discussed and agreed with the Council and will be considered on a project by project basis. Hertsmere will need to be satisfied that all such proposals would deliver the required levels of off-setting, which followed the sequential approach to location detailed in section 9.1.
- 8.2 Such proposals will need to be deliverable and therefore a legal agreement is very likely to be required with the Council to secure its scope and implementation. Any such proposals should aim to have either carbon or financial equivalence to the carbon savings that would otherwise be required on the development from the standard approach to offsetting as advocated in the Local Plan, the Interim Planning Policy Statement on Climate Change and this SPD.
- 8.3 Whilst the global nature of climate change makes the precise location of carbon offsetting measures less important, these measures are capable of delivering other benefits alongside carbon reduction. The Council always aims to deliver these improvements to benefit the local community, and so is keen to avoid developers simply making payments to global carbon offsetting funds.

9. Sequential Site Approach to Offsetting

- 9.1 A sequential site or geographic approach shown in points i-iv below will be applied for spending COFs received and for any alternative carbon offset projects:
- i) within the development site;
 - ii) adjacent to, or in close proximity to the development site;
 - iii) next to, or in close proximity to the settlement or locality accommodating the development; or
 - iv) in another area identified as benefitting from such projects by the Council or other relevant agency.
- 9.2 Offsetting should be provided over and above any other mitigation required as part of an application, including biodiversity net gain and compensatory green belt improvements, unless it can be clearly demonstrated that appropriate levels of mitigation against all impacts are being delivered. The 'stacking' of multiple benefits within a single feature for the purposes of biodiversity net gain is under review by Defra/Natural England, with guidance expected in late 2022. Until a recognised system exists for accounting for this, the Council does not encourage this approach.

10. Administrative Arrangements

- 10.1 The Council does not intend establishing new processes for administering offset funds as it has arrangements in place to collect and manage s106 funding. In some circumstances, in particular during the initial stages following establishment of the fund, resources may be required to pay for staff or third-party enablers to develop and deliver carbon offsetting projects. In this case a percentage of the fund - up to 5% - would be allocated for such purposes, to be set out in each relevant s106 agreement. That would help to establish the required delivery arrangements and identification of projects or a programme for receipt of COF.

11. Spending Received Funds

- 11.1 Hertsmere Borough Council will ensure that the COF is ring-fenced to secure the delivery of carbon savings arising from development within the borough (see section 9 regarding the required sequential site approach). This will ensure that funds are used for the sole purpose of securing real reductions in greenhouse gas emissions, either by Hertsmere itself or in association with neighbouring authorities or other stakeholders such as the County Council or the Greater London Authority for example. The Council require flexibility to work with local projects and stakeholders to develop suitable initiatives and implementation arrangements as potential beneficiaries of COFs received. For these reasons, in most instances, it will not be possible to identify in each s106 agreement a specific project or initiative against which the COF will be allocated.
- 11.2 How decisions are taken to distribute funding and how projects are then subsequently monitored for the resultant carbon savings, will be designed to ensure that the s106 tests can be met in each legal agreement entered into and every project funded.
- 11.3 Depending upon the level of COFs received by the Council, it will give consideration to publishing further detail regarding the establishment of a programme to manage and spend COF received. The Council intend focussing COFs received on the following types of project:
- Reducing energy demand in existing buildings, including energy efficiency and insulation programmes. Examples include improvements to housing stock, community buildings, education (nurseries, schools, further or higher education) and health facilities.
 - Generation and storage of renewable / sustainable forms of energy or heat.
 - Capture and storage / transformation / destruction of greenhouse gases.
 - Ecological or landscape projects and enhancements (which should be discrete from and separate to any projects funded via bio-diversity net gain funds under the same planning application to ensure that the use of such funds are not double counted).
 - Waste and landfill management.
 - Other opportunities arising from needs of society and technological advancement.
- 11.4 The Council may develop a borough-wide Strategy or Action Plan in order to provide further detail on the projects and initiatives which would be funded from the COF and the requirements of that programme. The intention is that any such Strategy or Action Plan would not be funded from COF receipts in order to meet the s106 legal tests but applicants for significant developments may be requested to resource this work through a Planning Performance Agreement.

- 11.5 The Council will ensure that regular reporting arrangements detailing how COF received have been spent and the levels of greenhouse gas reductions secured are produced - for example in Hertsmere's Annual Monitoring Report.

12. Post Construction Monitoring of Carbon Offsetting

- 12.1 As the in-depth monitoring of carbon savings from projects could take up a large proportion of time and resources, the Council advocate a proportionate approach to be adopted according to the scale of the project, with projects above the carbon scheme threshold reporting actual carbon savings whereas standard assumptions will be applied to smaller projects.
- 12.2 For schemes above the carbon scheme threshold, the Council will require applicants to provide details of the actual carbon savings achieved post construction in comparison to their forecast reductions as detailed in the applicant's Climate Change and Energy Statement or initial Whole Life Carbon Assessment. This point will be covered by the inclusion of relevant planning conditions (or s106 provisions) for post-construction carbon assessment to be submitted to the Council. Whole life carbon savings for a project can only be quantified and claimed when whole life carbon assessments have been carried out at a minimum of two different points in time.
- 12.3 Therefore, all applications above the carbon scheme threshold will need to provide at least one further carbon assessment to be conducted at or after practical completion to represent the 'as built' carbon position and whether or not the carbon reduction targets set in the planning permission have been met.
- 12.4 This requirement for a second or follow on carbon assessment will ensure that predicted performance standards are achieved and to provide evidence of that. Applicants will need to compare the post-construction results with the planning submission stage results and provide an explanation for any differences. Linked to this, relevant clauses may be considered for inclusion in s106 agreements requiring the ability of the Council to claw back additional carbon offset contributions where the predicted energy performance standards and carbon reduction results are not achieved.

13. Conclusion

- 13.1 The ultimate objective is for new relevant developments in Hertsmere to be net zero carbon or even carbon 'negative' (if possible) in their performance.
- 13.2 While this requirement may represent challenges to applicants, it is anticipated that it will also provide incentives to reduce energy and enhance standards to eventually become part of standard practice. Hertsmere's policies have been devised in order to seek carbon offset funding contributions only as a 'last resort' once a full range of on-site measures are applied. Such funds received will be utilised on a range of local projects in order to secure the required carbon reductions elsewhere. Where net-zero carbon is not possible or practicable, carbon offsetting should be considered. Applicants are requested to ensure that effective proposals for carbon reduction are effectively integrated into their proposals and the wider sustainability agenda in order to achieve a lower carbon future.
- 13.3 Applicants will need to provide and demonstrate via whole life carbon assessments, linked to their Climate Change and Energy Statement, demonstrating how carbon reductions will be secured, and where that is not possible, the offsetting of any residual elements in accordance with this SPD. It is particularly important that the requirements of this SPD are considered at any pre-application stage and as part of any Planning Performance Agreement. For schemes above the carbon scheme threshold, a second carbon assessment will be required upon completion of construction in order to provide evidence on whether the target carbon savings have been achieved and where that is not that case, that may be subject to an additional COF payment to the Council to cover any such shortfall.

Appendix A RICS Whole Life Carbon Assessment Reporting Requirements

[A separate excel version will be made available online]

Date of Assessment	Date of Assessment completion			
Verified by	Verifier name and organisation			
Project type	New build or refurbishment of existing structure			
Assessment objective	Brief assessment purpose statement			
Project location	Full Address			
Date of project completion	Anticipated date of practical completion			
Property type	Residential, public/ civic, retail, office, infrastructure, etc. State planning use class			
Building description	No. of storeys, structural frame, façade type, basement?, brief description of associated external areas and any ancillary structures			
Size	NIA, GIA, volume etc.			
Project design life	In years			
Assessment scope	Building parts and life stages/modules included			
Assessment stage	Design stage at which the assessment has been conducted at			
Data sources	List all data sources used in the assessment including building information and carbon data sources			
Building element coverage	#	Building parts/elements groups	Building elements	Coverage (%)
	0	Facilitation works	0.1 Temporary/Enabling works/ Preliminaries 0.2 Specialist groundworks	
	1	Substructure	1.1 Substructure	
	2	Substructure	2.1 Frame 2.2 Upper floors incl. balconies 2.3 Roof 2.4 Stairs and ramps	
		Superstructure	2.5 External Walls 2.6 Windows and External Doors 2.7 Internal Walls and Partitions 2.8 Internal Doors	
	3	Finishes	3.1 Wall Finishes 3.2 Floor finishes 3.3 Ceiling finishes	
	4	Fittings, furnishings and equipment (FF&E)	Building-related Non-building-related	
	5	Building Services / MEP	5.1-5.14 Building-related services Non-building-related	
	6	Prefabricated Buildings and Building Units	6.1 Prefabricated Buildings and Building Units	
	7	Work to Existing Building	7.1 Minor Demolition and Alteration Works	
8	External Works	8.1 Site preparation works 8.2 Roads, Paths, Pavings and Surfacing 8.3 Soft landscaping, Planting and Irrigation Systems 8.4 Fencing, Railings and Walls 8.5 External fixtures 8.6 External drainage 8.7 External services 8.8 Minor Building Works + Ancillary Buildings		
Assumptions and scenarios	List all assumptions and scenarios used in the assessment including brief justifications			

Appendix B RICS Whole Life Carbon Assessment Results Reporting Template

This template is recommended to be used to report the carbon results as per the RICS whole life carbon assessment process. The cells shaded in purple indicate the minimum results required to be reported for an assessment.

[A separate excel version will be made available online.]

*decarbonisation applicable - Report decarbonised values alongside non-decarbonised ones	Global Warming Potential GWP (TCO ₂ e)																			
	Product Stage		Construction process stage			Use stage						End of life (EoL) stage				TOTAL*	TOTAL* normalised	Benefits and loads beyond the system boundary		
	Biogenic (sequestered carbon)	(A)					(B)						(C)				[A] to [C] cradle to grave	[A] to [C] cradle to grave (kgCO ₂ e/m ² or equivalent)	[D]*	
		[A1]	[A2]	[A3]	[A4]	[A5]	[B1]	[B2]*	[B3]*	[B4]*	[B5]*	[B6]	[B7]	[C1]	[C2]	[C3]				[C4]
Building element category																				
Demolition prior to construction																				
0.1 Toxic/Hazardous/Contaminated Material Treatment																				
0.2 Major Demolition Works																				
0.3 Facilitating works temporary supports to adjacent Structures																				
0.4 Specialist Ground Works																				
0.5 Temporary Diversion Works																				
0.6 Extraordinary Site Investigation																				
1 Substructure																				
Superstructure																				
2.1 Frame																				
2.2 Upper Floors																				
2.3 Roof																				
2.4 Stairs and Ramps																				
Superstructure																				
2.5 External Walls																				
2.6 Windows and External Doors																				
Superstructure																				
2.7 Internal Walls and Partitions																				
2.8 Internal Doors																				
3 Finishes																				
4 Fittings, furnishings & equipment													bri	bri	bri	bri	building related items	building related items	building related items	
5 Services (MEP)	building-related systems (bri)	building-related systems	brs	brs	brs	brs	brs	brs	brs	brs	brs	brs regulated	brs other		brs	brs	brs	brs	brs	brs
	non-building related systems	non-building related systems	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs		Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs	Nbrs
6 Prefabricated Buildings and building Units																				
7 Work to Existing Building																				
8 External works																				
TOTAL																				
TOTAL - normalised (kgCO ₂ e/m ² or equivalent unit to be stated)																				

Appendix C Whole Life Carbon Assessment Software Tools

Tool	Country of origin	Applicable to UK?	Project Type	Online/offline	Scope	Data source
One Click LCA	Finland	Yes	Buildings and civils	Offline software	Modules A-C	Built-in with access to some of the most widely spread local EPD databases, including Ecoinvent.
eToolLCD	Australia	Yes	Buildings	Online software	Modules A-C (+D)	Uses Ecoinvent database (EPDs) which includes data by BRE in the UK.
IES VE	UK	Yes	Buildings	Offline software	Modules A-C	Built-in with access to some of the most widely spread local EPD databases, including Ecoinvent.
Tally	USA	Yes	Buildings	Offline software	Modules A-C	Uses Gabi database which contains EPDs.
Sturgis Carbon Calculator	UK	Yes	Buildings	Offline software	Modules A-C	EPD database built over more than 10 years of practice in the UK. It allows the possibility to input additional EPDs manually.

Appendix D Model s106 clauses

Example 1

“Carbon Offset Fund Contribution” means the sum of £X as a one off payment towards offsetting the total residual carbon emissions (calculated as Y tonnes of residual carbon as set out in the approved [Climate Change and Energy Statement / Whole Life Carbon Assessment], multiplied by 30 years, multiplied by the current carbon offset fund rate of [£115 per tonne] payable upon [commencement of the development].

The Council have an Additional Carbon Offsetting Contribution which is enforced in the event that the developer does not meet the approved CO2 emissions reduction targets:

“Additional Carbon Offsetting Contribution” means a carbon offset contribution to be calculated and be paid by the Owner to the Council towards the Council’s Carbon Offset Fund to offset additional residual carbon emissions (in tonnes CO2 over 30 years) in the event that the Development cannot fully meet the Actual Carbon Dioxide Emissions Target onsite as required by the [Climate Change and Energy Statement / Whole Life Carbon Assessment] and conditions []. The contribution shall be covered by an one off payment calculated at [£115] per tonne for each tonnage difference between that approved in the [Climate Change and Energy Strategy] and the [post construction Carbon Assessment] and as required in condition [].