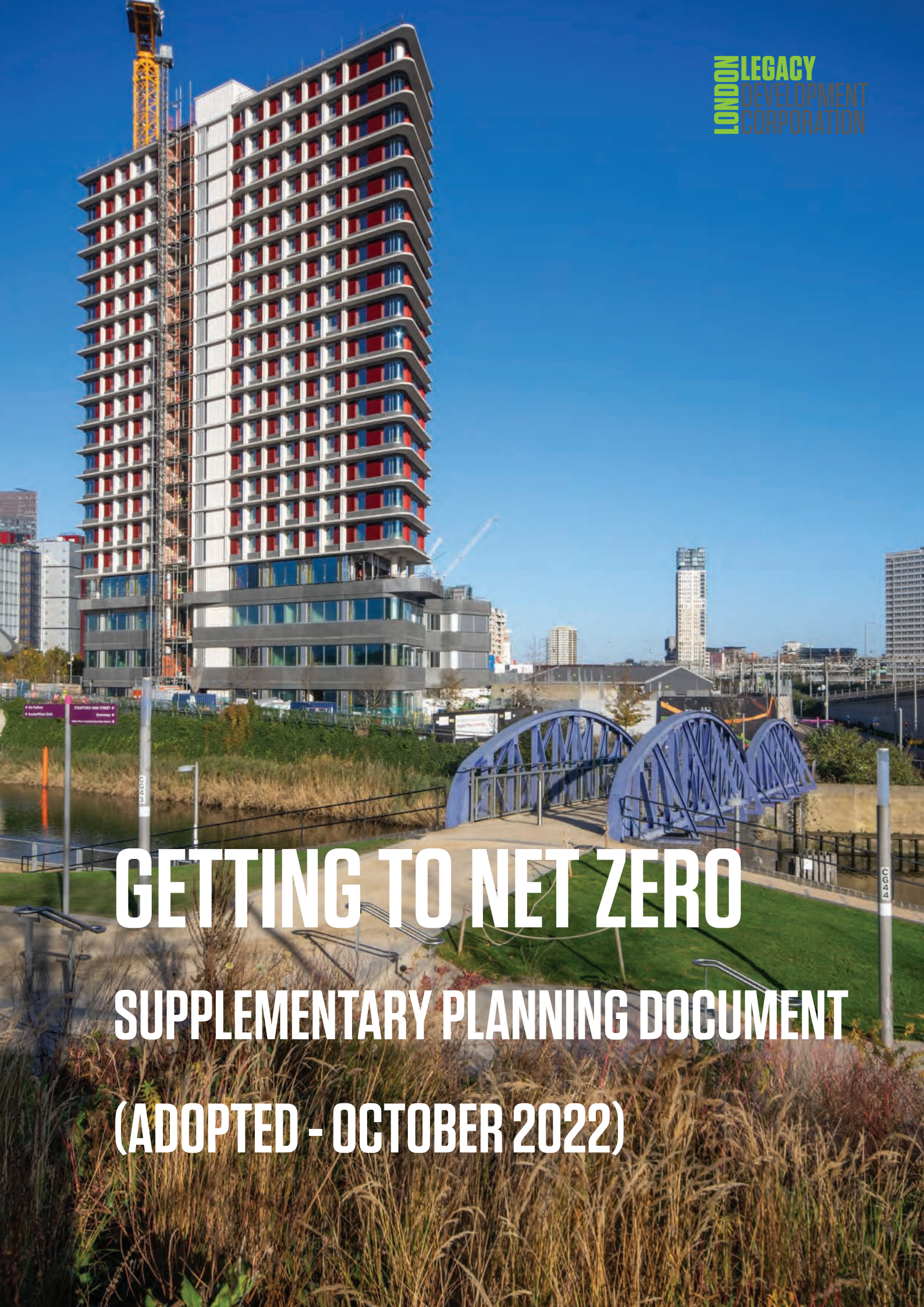

LONDON LEGACY DEVELOPMENT CORPORATION

GETTING TO NET ZERO

SUPPLEMENTARY PLANNING DOCUMENT

(ADOPTED - OCTOBER 2022)

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1. INTRODUCTION

1.1 The London Legacy Development Corporation (LLDC) is a Mayoral Development Corporation (MDC) established on 1st April 2012 and becoming the Local Planning Authority for its area on 1st October 2012. It has full planning powers including the determination of all applications for planning permission and plan preparation responsibilities and the ability to prepare and introduce a local Community Infrastructure Levy. In order to satisfy the requirements of its plan making powers, the Legacy Corporation has prepared a Local Plan, a revised version of which was adopted by the Legacy Corporation Board on 21st July 2020. A Community Infrastructure Levy charging schedule came into effect in April 2015 and a n updated charging schedule came into effect in July 2020.

1.2 The established purpose of the Legacy Corporation is "To promote and deliver physical, social, economic and environmental regeneration of the Olympic Park and its surrounding areas, in particular by maximising the Legacy of the 2012 Olympic and Paralympic Games, by securing high-quality, sustainable development and investment, ensuring the long-term success of the facilities and assets within its direct control and supporting and promoting the aim of convergence."

The purpose of this Supplementary Planning Document (SPD)

1.3 In 2016 the LLDC adopted its Carbon Offset SPD setting out its carbon offset price for development schemes that Local Plan and London Policy required to pay in order to reach the net zero carbon target. It also set out the mechanism for applying the money paid into the LLDC Carbon Offset Fund. Since then, a new London Plan (2021) and a revised LLDC Local Plan (2020) have been adopted. As a result, the LLDC carbon offset SPD has now been reviewed to take account of policy changes and the change carbon offset price associated with the London Plan.

1.4 In early 2020 the Mayor of London declared a climate emergency, setting a target for London to be net zero-carbon by 2030. To meet this 2030 target, the SPD also seeks to reinforce the message that development should be maximising on-site carbon reduction and only pay into the carbon offset fund as a last resort. The SPD has been retitled to emphasise this. It has also been expanded to provide guidance on reaching the net zero target set through planning policy, mainly through sign-posting to the guidance already published by the Mayor of London and others. While this, and other supplementary planning documents are not a part of the statutory development plan it is a material consideration in determining planning applications. There are no changes proposed to the existing LLDC Carbon Offset Fund and the funding application forms, guidance and governance

1.5 process remain unchanged, except for minor amendments to the application assessment criteria and inclusion of the weighting given to each.

This SPD was adopted by the LLDC on 7 October 2022. The formal public consultation was

1.7 undertaken between 6 June and 27 July 2022 with all parties whose details were held on the planning policy consultation list being notified by letter and/or email. The adoption statement and the Consultation Report can be found on the Legacy Corporation's website.

1.8 Enquiries about this document can be made in the following ways:

In writing to:
Planning Policy and Decisions,
London Legacy Development Corporation
Level 9, 5 Endeavour Square
E20 1JN

Email: planningpolicy@londonlegacy.co.uk
Telephone: 020 3288 1800

2. POLICY BACKGROUND

2.1 Both the LLDC Local Plan 2020-2036 and the London Plan 2020 set out requirements in policy for all major new development to achieve a net zero carbon target. Table 1 provides a list of the relevant policies and the headline requirements that these policies contain.

2.2 The guidance in this SPD is mainly focused on the need for new development to achieve the policy requirements related to the use of energy in new buildings and the mechanisms for implementing the carbon offsetting approach for any residual carbon emissions identified once all other measures have been taken to minimise these. It is acknowledged that this is only one aspect of the Mayor of London's target to reach net zero by 2030 and the national Government target to get to net zero by 2050. While many of the actions necessary to reach these targets are outside of the scope of the planning system, planning has a crucial role to play.

2.3 In 2018, the Mayor of London published "Zero Carbon London: A 1.5o compatible plan". This sets out the strategy for London to become a zero carbon city by 2050, reflecting the 2015 Paris Agreement seeking to limit global average temperature rise to 1.5oC above pre-industrial levels. The London Plan 2021 and LLDC Local Plan, including the energy and other carbon reduction policies that they contain, form a part of that wider strategy.

2.4 The London Plan 2021 and the LLDC Local Plan together with national planning policy (National Planning Policy Framework) set a framework in which new development and related public and private investment can result in places that are both liveable, resilient to climate change and result in a built environment that minimises our overall carbon footprint, whether that is through the design of development and how it uses energy, minimising the need to travel and providing for the opportunity to travel sustainably, or ensuring that we minimise the generation of waste and maximise the opportunities for re-use, repurposing or recycling of goods and materials. The greening of the urban environment and improving of air quality are also key to the wider strategy An IPCC special report on Global warming (Global Warming of 1.5oC) (the Report), also calls for more comprehensive approach to tackling global warming. The Report shows strong causal relation between how urban form and densities can impact decrease of demand for energy use and other welfare related factors. Densities also have direct impact on a shift from the most energy consuming and polluting urban transport mode towards more environmentally friendly modes such as walking and cycling. In addition, compact cities also create the passenger density required to make public transport more financially viable.

2.5 The LLDC has prepared a Density Study (2021) and the Characterisation Study that support the Local Plan polices and Mayor's Good Growth by Design polices. The Report also highlight the importance of other cost-effective mitigation measures that can play the key role in contributing to achieving net zero and meet the target of 1.5°C, such as investment in green infrastructure, resilient water and urban ecosystem services, ecology of materials, sustainable transport, minimising waste and rainwater management, providing opportunities for low carbon life-styles and improving local biodiversity.

2.6 Although intrinsically linked to these wider goals, this SPD does not attempt to replicate or refer to these wider policies and strategies in detail but focuses on the requirements in planning policy for reaching carbon reduction targets and provides guidance on the approach that should be taken to new development as it is considered through the planning process.

Table 1 – London Plan and LLDC Local Plan Policies

London Plan		LLDC Local Plan	
SI2 Minimising greenhouse gas emissions	Major development should be net zero-carbon, follow the energy hierarchy (lean, clean, green, seen). Include a detailed energy strategy. Minimum on-site reduction of at least 35 per cent beyond Building Regulations Residential development should achieve 10 per cent, and non-residential development should achieve 15 per cent through energy efficiency measures. Any shortfall agreed with the borough (carbon offsetting) Include emissions from those parts of the development not included in the Building Regulations (unregulated emissions) Referable applications should calculate whole life-cycle carbon emissions	**Policy S2 Energy in New Development**	Minimise carbon emissions using the Energy Hierarchy. Major development to achieve net-zero carbon with carbon emissions reduced from both construction and operation. Minimum on-site carbon reduction of 35% beyond 2013 building regs. Achieving at least 10% (residential) and 15% (non-residential) through energy efficiency measures. The gap left to reach zero-carbon (after maximising reduction) to be met through payment a payment into the LLDC Carbon Offset Fund as specified in the Carbon Offset SPD. Major applications require submission of an Energy Statement to show how this has been calculated and addressed in the scheme and to set out how energy performance will be monitored and reported.

Table 1 – London Plan and LLDC Local Plan Policies (continued)

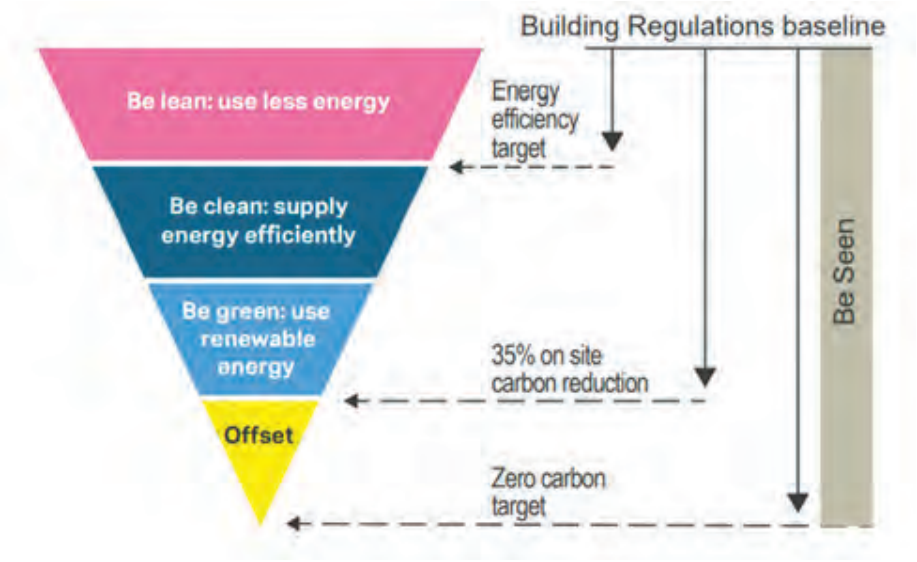
London Plan		LLDC Local Plan	
SI3 Energy Infrastructure	Energy masterplans for large scale development locations. Identifying needs for suitable sites. Identifying existing heating & cooling networks, identify opportunities for new/expanded networks. Major development in Heat Network Priority Areas should have a communal low-temperature heating system. Where a heat network is planned development should be designed to allow for cost effective connection at later date.	**Policy S.3: Energy infrastructure and heat networks**	Support for proposals for new or extensions to existing heat networks and renewable energy infrastructure. [Off-grid] Proposals must ensure end users are protected in respect of energy price. Minimise heat loss from heat network proposals. Major development to demonstrate opportunities to connect to existing or proposed new heat networks have been maximised where viable to do so. Proposals for bridges to demonstrate that provision is made for utility networks, including heating and cooling network pipes where relevant.

3. APPROACH TO REDUCING CARBON FROM DEVELOPMENT AND REACHING NET ZERO

3.1 The LLDC Local Plan and London Plan policy makes it clear that the approach to energy in new development should follow the Energy Hierarchy in the London Plan which places carbon offsetting at the bottom. Policy specifically requires that development achieves a minimum of 35% reduction of carbon emissions beyond the 2013 Part L of the Building Regulations through on-site measures, with energy efficiency measures accounting for 10% (residential development) and 15% (non-residential development) respectively. This represents the minimum that is required to be achieved before carbon offsetting becomes an appropriate solution. As the need to reduce carbon emissions has become more urgent the expectation is that development proposals should maximise rather than simply seek to meet the baseline policy requirements, exceeding these as far as it is feasible to do so. In doing so, the approach taken should take account of the national policies for decarbonisation of energy and, for example the phasing out of carbon based fuels for heating, cooling and wider power provision. In doing so developers are encouraged to take account of the likely future pricing and supply of energy and fuels rather than default to conventional heating fuel solutions.

3.2 **Energy Strategies and Assessments**

As per Policy SI 2 of the London Plan and Policy S.2 of the Local Plan, major development proposals must include a detailed energy strategy to demonstrate how the zero-carbon target will be met in accordance with the energy hierarchy below:



(Source: Greater London Authority)

3.3 The energy hierarchy establishes the preferential order in which carbon reductions relative to the Building Regulations baseline should be achieved. It clarifies that carbon offsetting to reach zero carbon should be a last resort, only applied where energy use cannot be further reduced, energy cannot be supplied more efficiently and further renewable energy cannot be generated. Therefore, carbon offsetting contributions will only be accepted where this is robustly demonstrated through an energy strategy

3.4 Energy assessments to demonstrate how the energy hierarchy has been followed should be undertaken in accordance with the GLA's draft Energy Assessment Guidance (April 2020). Regulated emissions should be presented clearly at each stage of the energy hierarchy, to show the carbon reductions which have been achieved at the relevant stage. This information must be provided for domestic uses and non-domestic uses separately, as well as for the entire site.

3.5 London Plan Policy SI 2 also requires development proposals that are referable to the Mayor to calculate whole life-cycle carbon emissions, and to demonstrate how these will be reduced. Whole Life-Cycle Carbon Assessments (WLCA) should be undertaken in accordance with the GLA's London Plan Guidance: Whole Life-Cycle Carbon Assessments or any successor guidance document. One of the important functions of the WLCA is to calculate a development's unregulated operational emissions. It is also noted that, as per London Plan Policy SI 2, 'major non-referable development should calculate unregulated emissions and are encouraged to undertake whole-life cycle carbon assessments;' the LLDC will therefore encourage all major developments to submit WLCAs.

Best Practice Guidance

3.6 **LLDC Strategy and guidance: Preparing for 1.5˚C future – Framework and guidance for new buildings**

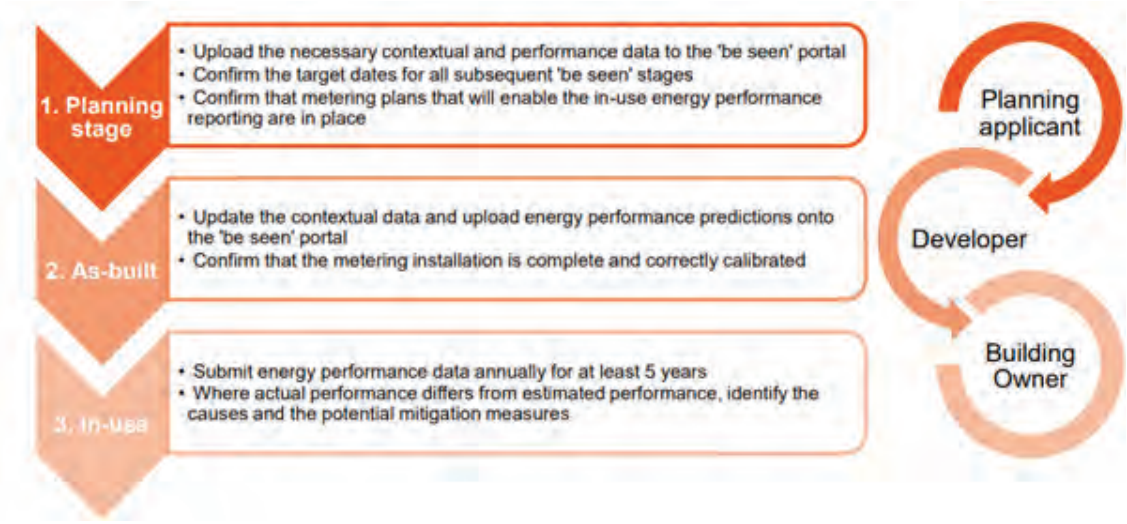
In a response to the climate emergency, LLDC has prepared a guidance document Preparing for 1.5˚C future to set out LLDC's vision and aspirations for the built environment. The document provides pragmatic guidance on the delivery of exemplar developments when preparing for a net zero carbon and 1.5ºC Paris Agreement proof future. It is intended to address the LLDC's own development delivery and is referred to here as setting out helpful principles and guidance for other development schemes rather than as a 'planning requirement'. Other guidance in this SPD is more directly related to meeting planning policy requirements in the London Plan and Local Plan.

3.7 In this context the document shows that LLDC are currently on a trajectory to miss 2030 zero carbon target. It is therefore seen as important that these developments strive to achieve more ambitions and effective targets. This best practice guidance is also likely to be helpful for non LLDC developments schemes as they seek to demonstrate compliance with planning policy requirements to meet net zero targets. Detailed guidance to the practical approach for each of the key actions is set out in the LLDC Preparing for 1.5˚C future – Framework and guidance for new buildings.
The key actions to be addressed include:

- Limit operational energy consumption. Designing buildings to limit the amount of energy used for heating, hot water, lighting, ventilation and appliances.
- Reduce embodied carbon and target circular economy. Reducing the amount of carbon needed to produce, transport and construct the building through strategic design, good material choices and consideration for repair and maintenance.
- Design for low carbon and efficient heating. Maximising the efficiency of the building systems, particularly for heating and hot water. Ensuring they are fossil fuel free and from low carbon sources.
- On-site renewable electricity generation. Maximising opportunities for renewable generation on site e.g. through good roof and PV design.
- Measure and verify performance. Meter, monitor and report on energy consumption and renewable energy generation post-completion for the first 5 years for residential and non-residential developments.
- Zero operational carbon balance. Aim to generate 100% of the energy consumption on-site through renewables.
- Reduce overheating. Undertake modelling using CIBSE TM 59 or TM 52 to demonstrate the risk of overheating has been reduced.
- Reduce water consumption and heat loss from pipework. Meet the AECB Good Practice Water Standards.

3.8 **'Be Seen' monitoring**

In accordance with London Plan Policy SI 2, all major development will be required to monitor, verify and report on energy performance. The LLDC will secure ongoing energy monitoring in accordance with the GLA's 'Be Seen' energy monitoring guidance (September 2021) through Section 106 agreements. In standard cases, the draft wording for legal agreements provided as part of this guidance will be used[1]. In summary, major developments will be required to undertake the following actions at the relevant stages:



Source: Mayor of London, 'Be Seen' energy monitoring guidance (September 2021)

3.9 As per the GLA's 'Be Seen' energy monitoring guidance (September 2021), ongoing reporting will enable a greater understanding of the discrepancy between developments' theoretical and actual energy use. Monitoring will also help building owners and operators in planning for reduced energy use and associated carbon reductions over the longer term.

3.10 **Carbon Offsetting off-site**

In accordance with Policy SI 2 of the London Plan and Policy S.2 of the LLDC's Local Plan, major development proposals should be net zero carbon. The London Plan requires a minimum on-site carbon reduction of 35% beyond Building Regulations, of which 10% and 15% should be achieved through energy efficiency measures for non-residential and residential development respectively. However, where the net zero target cannot be achieved on-site, the 'carbon gap' (or shortfall) can be delivered off-site. In accordance with Policy SI 2, the shortfall can be provided for in two ways:

1) A cash in lieu contribution to a carbon offset fund, or
2) Through an identified off-site proposal, where its delivery is certain.

Nonetheless, major development is expected to reach net zero carbon on-site as far as possible. Therefore, carbon offsetting contributions will only be accepted where it has been clearly demonstrated by way of an energy assessment that no further carbon reductions are possible at any previous stage of the energy hierarchy. Guidance on undertaking an energy assessment is provided in previous sections, with reference to relevant supporting documentation.

[1] https://www.london.gov.uk/sites/default/files/be_seen_draft_legal_wording_oct_2021.pdf

District Energy networks and GLA guidance

3.11 A significant part of the LLDC area is served a by a District Heating Network, served by two energy centres, at Kings Yard in Hackney Wick and adjacent to Westfield Stratford City. In order to meet planning and other climate change related policy targets, heat networks will need to decarbonise their energy inputs. This is supported by the London Plan and Local Plan net zero carbon targets referred to in this SPD. London Plan Policy SI 3, Energy Infrastructure, is clear that where a district heat or energy network is available to connect to, that this should be the first choice in the hierarchy of option. Where a heat network is planned but not yet delivered it requires that the development is designed to "allow for the cost-effective connection at a later date.

3.12 The GLA guidance on Energy Assessments (June 2022), as it applies to locations served by a District Heat Network (DHN) is, as a result, particularly relevant. The guidance requires that:

Where a heat network exists in the vicinity of the proposed development the applicant must prioritise connection to that network provided that:

- The network does not exceed the CO2 emission and primary energy factor limits set out in [Building Regulations] Part L 2021
- The network operator has agreed a decarbonisation strategy with the GLA and the relevant borough or is in the process of doing so.

3.13 It may be that a DHN operator will need to introduce decarbonisation measures in phases over time to achieve decarbonisation of its network and this will need to be addressed by the decarbonisation strategy.

3.14 Where an agreed decarbonisation plan is in place, relevant development schemes will continue to be required to show that they can achieve a carbon reduction of at least 35% above Building Regulations Part L before making any carbon offset payment. However, the point at which a carbon offset payment is calculated and becomes payable will take account of any phased decarbonisation measures by allowing this to be calculated and paid prior to first occupation of the development, or where the scheme is phased, calculation and payment of the carbon offset payment for each phase prior to the first occupation of that phase.

4. CARBON OFFSETTING THROUGH THE LLDC CARBON OFFSET FUND

4.1 **Carbon Offsetting through the LLDC Carbon Offset Fund**
Where it is clearly demonstrated that a major development cannot achieve the net zero carbon requirement on-site, the LLDC will accept off-site measures. As per Policy S.2 of the Local Plan, the standard approach will be for a financial contribution to be made to the LLDC's Carbon Offset Fund. Contributions will be secured using Section 106 agreements, as detailed in subsequent sections of this SPD. The carbon price outlined subsequently will be a 'cap' and actual levels of offset charge will be assessed and negotiated through the planning decisions process with a price or amount appropriate to that particular scheme being applied.

4.2 Payment of carbon offset contributions will typically be due on commencement of development, unless it is phased. Where development is phased, it will typically be expected that the carbon gap assessment and definition of the carbon off-setting sum will take place for each phase separately but based on an initial outline application stage energy assessment. This is to ensure that the final design of each phase is taken into account in determining the carbon gap to be offset.

The LLDC carbon offset payment approach

4.3 The carbon offsetting scheme will only apply, by definition of Policy SI 2 of the London Plan and Policy S.2 of the LLDC's Local Plan, to major development [2].

4.4 In accordance with the GLA's Carbon Offset Funds guidance document (2018), the LLDC will apply the following formula in calculating carbon offset contributions:

30 (years) x 'carbon gap' (tonnes of CO2) x price of carbon (£) = carbon offset contribution

4.5 A value of 30 years is used in the above formula as the assumed lifetime of a development's services.

4.6 A development's 'carbon gap', namely its shortfall in carbon savings (in tonnes CO2) relative to the zero-carbon target, would be demonstrated through an energy assessment. This should be undertaken in accordance with the provisions of this SPD and the GLA Energy Assessment Guidance 2020.

4.7 In accordance with Policy SI 2 of the London Plan, boroughs [3] can set the price of carbon by either:

a) Using a nationally recognised carbon pricing mechanism; or
b) Using a price based on the cost of offsetting carbon across the borough

4.8 In accordance with the GLA's Carbon Offset Funds guidance document (October 2018), where an LPA chooses to establish a local cost of carbon, they should take the following steps:

1) Assess the carbon offsetting measures available within the planning area;
2) Divide the average cost per tonne per year of these measures by the expected shortfall in emissions savings from anticipated development over the next 30 years; and
3) Multiply the result by 30 to establish the overall cost of offsetting the shortfall in emissions savings.

[2] Major development is defined in Part 1: Interpretation of the Town and Country Planning (Development Management Procedure) (England) Order (2015)

4.9 The process should also ensure that the carbon offsetting contribution does not undermine development viability. The LLDC does not have sufficient availability of data to enable it to establish a local price of carbon. Furthermore, there is a likelihood that the LLDC may fund projects that do not fall directly within its planning area, but rather within the wider geographic area of the four constituent boroughs. Therefore, the Legacy Corporation considers it expedient to use a nationally recognised carbon pricing mechanism.

The revised carbon price

4.10 Policy SI 2 of the London Plan provides that London boroughs may use a nationally recognised non-traded carbon price of £95/tonne [4].

4.11 The value of £95/tonne is informed by the London Plan evidence base. Firstly, the London Carbon Offset Study (2017) established two sets of carbon offset prices that could be tested within the viability assessment informing the London Plan review. This study was based on several key premises:

1) An offset ratio of 1:1 would be targeted, whereby the amount of carbon saved through offsetting projects is equal to the 'carbon gap' (or shortfall) resulting from development.
2) A method of carbon accounting known as 'proportional shares by subsidy' would be used. This involves discounting co-payments from project beneficiaries, and then splitting out carbon savings in proportion to capital funding provided by public or regulatorily obligated co-funders.
3) The carbon prices recommended by the study for testing are based on those included in Valuation of Energy Use and Greenhouse Gas Emissions – Supplementary Guidance to the HM Treasury Green Book on Appraisal and Evaluation in Central Government.
4) Each 'set' of prices includes a low, central and high price.

4.12 The value of £95/tonne is the high price from the first set of carbon prices identified in the London Carbon Offset Study. It was tested in the London Plan Viability Study (2017), with the assumption being that developments achieve a 35% carbon reduction on site and offset the residual amount to reach zero carbon. The key finding of this study was that most development types could accommodate the London Plan policy requirements and that viability was therefore not undermined at a strategic level. In this respect, applying a £95/tonne carbon price would not place an unreasonable burden on development. It is therefore included in the London Plan as a nationally recognised non-traded price available for boroughs to apply. Nevertheless, Policy SI 2 provides that the GLA's carbon offsetting price is subject to regular review and that any changes will be reflected in future guidance. T**herefore, where a scheme is required to make a carbon offsetting contribution, the LLDC will apply a carbon price of £95/tonne or any subsequent carbon price published by the GLA.**

4.13 Where an applicant considers that the maximum amount paid per tonne should be less than this, evidence should be presented to show that an otherwise acceptable development scheme would be made unviable by applying this upper figure. A substantially lower figure is likely to be considered unsuitable to provide a meaningful offset of carbon from the scheme and to sustain offset measures that will be able to achieve a 1:1 carbon offset ratio.

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[3] The LLDC as Mayoral Development Corporation (MDC) has the same planning functions of a London borough and The London Plan provision applies in the same way to the LLDC area. Consequently, either approach would also be acceptable within its planning area.

[4] As outlined above, it is considered that this value can be used by the LLDC as it is a London local planning authority. The viability considerations outlined in this section would apply equally to land within an MDC's planning area.

5. APPLYING THE CARBON OFFSET MONIES

5.1 The LLDC's Project Proposals Group (PPG) has the delegated authority to allocate Carbon Offset Fund monies to specific projects.

5.2 The PPG LLDC representatives consist of Directors or Executive Directors from Development; Regeneration and Community Partnerships; Park Operations and Venues; Finance and Corporate Services; and Planning Policy and Decisions. Each directorate has one vote for decision-making purposes. Non-voting members consist of representatives of the four London Boroughs, namely Hackney, Newham, Tower Hamlets and Waltham Forest. Such representatives are the respective boroughs' Directors of Planning or individuals holding an equivalent senior position.
Bidding rounds for the Carbon Offset Fund will be held when there is sufficient funding available to justify doing so. Each round will entail an initial engagement period, wherein stakeholders will be supported to develop potential projects, before submitting application forms as per Annex 1 to the Legacy Corporation. Given the technical nature of the application process, expert advice will be sought to inform PPG's decisions.

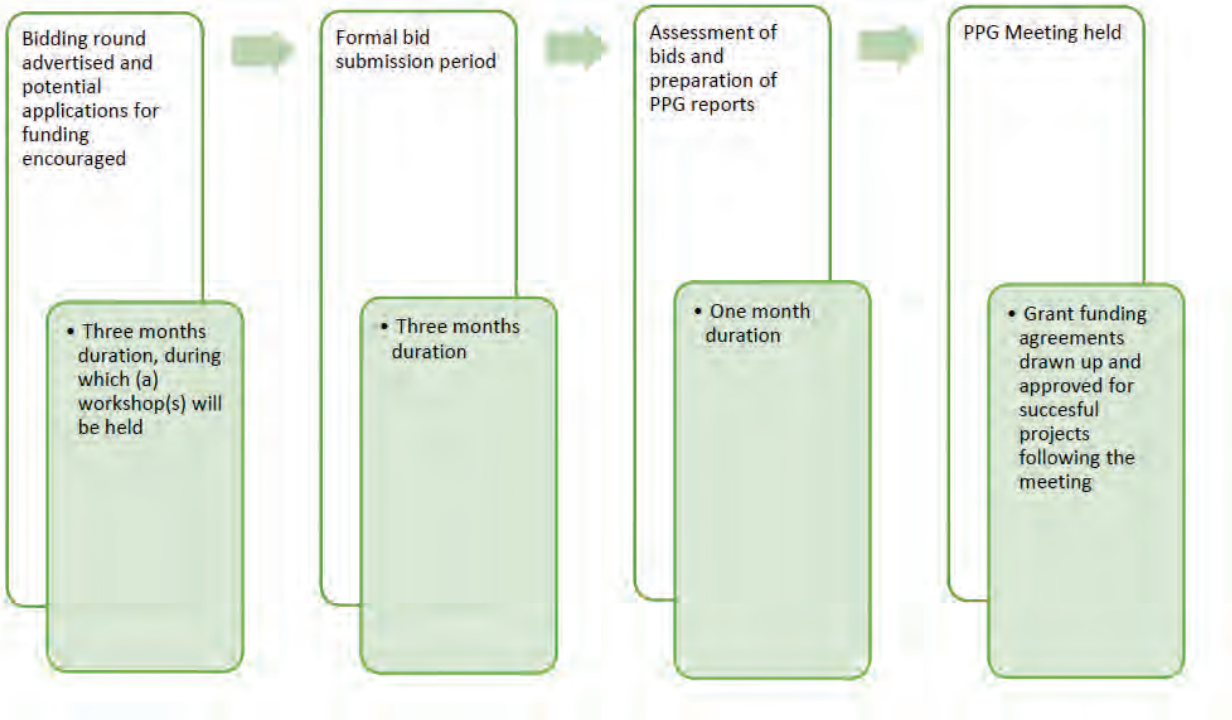
5.3 Ultimately, PPG will assess each project in accordance with the following approach. Firstly, all projects will be required to demonstrate additionality. As per the GLA's Carbon Offset Funds guidance (October 2018), this means that the project would not have occurred without the offset funding or under a business-as-usual scenario, and is not required to meet national legislation.
All projects will be required to be located within the LLDC's area, by preference, or within the wider London Boroughs of Hackney, Newham, Tower Hamlets or Waltham Forest.

5.4 If these initial criteria are met, the project will be assessed against the weighted criteria in the following table. These have been adopted in accordance with the GLA's Carbon Offset Funds guidance (October 2018).

Evaluation Criteria (source: GLA, Carbon Offset Funds Guidance (October 2018))	Description (source: GLA, Carbon Offset Funds Guidance (October 2018))	Weighting (source: GLA, Carbon Offset Funds Guidance (October 2018))
Carbon cost effectiveness (£/tCO2)	The capital cost per tCO2 saved over the first ten years of the project	30%
Lifetime cost effectiveness (£/tCO2)	The discounted whole life cost per tCO2 saved over the first ten years of the project. This takes into account administration, fuel costs, maintenance and revenue.	30%
Co-benefits	The broader environmental and social benefits of the project. This takes into account the extent to which the project supports innovation and demonstrates strategic importance	30%
Monitoring Plan	The extent to which there is a robust monitoring plan in place, which will help demonstrate the project's deliverability.	10%

5.5 Although meeting the assessment criteria is a necessary condition for being awarded funding, it is not in itself a guarantee that funding will be awarded. Projects will be awarded funding according to how they score against the above criteria, with the highest scoring projects prioritised.

5.6 It is generally expected that projects within or close to the LLDC area will receive preference for funding, while bids for projects elsewhere within the London Boroughs of Hackney, Newham, Tower Hamlets and Waltham Forest will also be considered. A summary of the Carbon Offset Bidding round process is as below:



How to apply for funding from the Carbon Offset Fund

5.7 There are four different categories of scheme that can benefit from the LLDC's Carbon Offset Fund:

- Energy efficiency;
- Renewable energy;
- Embodied energy; and
- Behaviour change.

5.8 Applications for projects falling within these categories can be made to the LLDC during scheduled bidding rounds, which will be held when sufficient funds are available to justify doing so. To be added to the consultee list for these bidding rounds, please contact planningpolicy@londonlegacy.co.uk.

5.9 Applications for funding will require completion of the relevant forms in Annex 1. The LLDC will organise workshops to coincide with bidding rounds to ensure that potential applicants are supported at the project development stage.

Monitoring the Carbon Offset Fund

5.10 In accordance with Policy SI 2 of the London Plan, the LLDC is required to monitor and report on the operation of its Carbon Offset Fund. This will be done through the Infrastructure Funding Statement, which is published annually. For each reporting year, it will provide a summary of the collection, allocation and expenditure of carbon offset funding. Details will be provided of the specific projects benefitting from funding.

Transition of planning powers and approach after the transition date

5.11 The LLDC is due to return planning powers to the London Boroughs of Hackney, Newham, Tower Hamlets and Waltham Forest at the end of 2024. This includes the responsibility for planning obligations that remain in place within the LLDC area and by implication, those relating to carbon offset contributions and the application of the related monies held in the Carbon Offset Fund. The LLDC and four boroughs are working together to put in place arrangements for any monies that are held in the Carbon Offset Fund at that point.

ANNEX 1: LLDC CARBON OFFSET FUND - APPLICATION FORM AND GUIDANCE FOR PROJECTS

Release date: January 2022

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Introduction

The Legacy Corporation has established a carbon offset fund to promote low carbon development in support of Local Plan Policy S.2. Schemes that cannot achieve Local Plan and London Plan carbon reduction targets on-site can offset the shortfall by paying into this offset fund. The Legacy Corporation will then allocate these funds to carbon saving projects in accordance with the evaluation criteria.

The carbon offset fund will be used to support four types of project:

- Energy efficiency
- Renewable energy
- Embodied energy, and
- Behaviour change.

This document consists of three parts:

- **Part 1** – Scheme information that we require to assess your project application
- **Part 2** – The information you must provide to demonstrate a robust assessment of the carbon reduction your project will deliver
- **Part 3** – Example calculations (Appendices 1 to 3)

In order to be considered for carbon offset fund support, applicants must:

- Complete Part 1 of this application form and provide the requested supporting evidence
- Provide the information required in the applicable sections of Part 2 of this application form

Submitting your proposal
The Legacy Corporation is holding a carbon offset fund bidding round in **[dates to be confirmed]**. During this time, proposals for carbon reduction projects should be submitted to the Legacy

Corporation's Planning Policy and Decisions Team using the forms included within this document.

Electronically submitted applications are encouraged and should be submitted via the following email address with CARBON OFFSET PROJECT APPLICATION within the message title: planningpolicy@londonlegacy.co.uk.

To discuss applications before or after submission, please contact the Planning Policy Team via email at the above address. Written correspondence should be sent to:

Carbon Offset Project Applications
Planning Policy & Decisions Team London Legacy Development Corporation Level 9, 5 Endeavour Square,
Stratford, London. E20 1JN

Once an application has been received you will receive an email acknowledgment and an indication of the expected programme for the consideration of the application. If necessary during this process, you may be contacted and asked to provide additional information or clarification.

Please note that there is no guarantee that an application for carbon offset fund support will be successful. All applications will be submitted at the expense of the applicant.

Queries and further information
If you need help in completing this form, or require further information, please submit your query using the contact information provided.

Evaluating your proposal.
All projects will be required to demonstrate additionality. As per the GLA's Carbon Offset Funds Guidance (October 2018), this means that the project would not have occurred without the offset funding or under a business-as-usual scenario, and that the project is not required to meet national legislation.

All projects will be required to be located within the Legacy Corporation's LLDC's area, by preference, or within the wider London Boroughs of Hackney, Newham, Tower Hamlets or Waltham Forest.

Assuming these initial criteria are met, the project will be assessed against the weighted criteria in the following table, using the information provided in the application form.

The criteria in the table are taken from the GLA's Carbon Offset Funds Guidance (October 2018). These are used in order to ensure that the assessment of projects is undertaken in line with current best practice.

Evaluation Criteria (source: GLA, Carbon Offset Funds Guidance (October 2018))	**Description (source: GLA, Carbon Offset Funds Guidance (October 2018))**	**Weighting (source: GLA, Carbon Offset Funds Guidance (October 2018))**
Carbon cost effectiveness (£/tCO_2)	The capital cost per tCO_2 saved over the first ten years of the project	30%
Lifetime cost effectiveness (£/tCO_2)	The discounted whole life cost per tCO_2 saved over the first ten years of the project. This takes into account administration, fuel costs, maintenance and revenue.	30%
Co-benefits	The broader environmental and social benefits of the project. This takes into account the extent to which the project supports innovation and demonstrates strategic importance	30%
Monitoring Plan	The extent to which there is a robust monitoring plan in place, which will help demonstrate the project's deliverability.	10%

1. General project information

Please complete all highlighted fields below

Applicant organisation name		
Application date		
Primary contact name		
Secondary contact name		
Address		
Email address		
Phone number		
Proposal name		
Proposal location		
Type and number of buildings included (or other as appropriate)		
Approaches included (please highlight all that apply, and provide the information requested in the identified section of this application)	Energy efficiency (Yes/No)	See section 6a for supporting technical information you must supply to support your application
	Renewable energy (Yes/No)	See section 6b for supporting technical information you must supply to support your application
	Embodied energy (Yes/No)	See section 6c for supporting technical information you must supply to support your application
	Behaviour change (Yes/No)	See section 6d for supporting technical information you must supply to support your application

2. Carbon saving summary

Please complete all highlighted sections below.

Item	Applicant Response	Guidance
Offset funding requested for **project administration**		Project administration covers all costs required to administer your project for which you are seeking offset funding.
Offset funding requested for **project implementation (capital)**		Project implementation costs are to cover the costs associated with the implementation of carbon reducing measures.
Other funding leveraged into this scheme to cover project administration		Please list out separately: 1. the funding agencies you have approached 2. the amount of funding you have **agreement in principle** to spend on this project 3. the amount of funding you have **secured** from each agency (with proof of such) 4. the items of your project that each funding agency is sponsoring
Other funding leveraged into your proposal to cover project implementation		Please list out separately: 1. the funding agencies you have approached 2. the amount of funding you have **agreement in principle** to spend on this project 3. the amount of funding you have **secured** from each agency (with proof of such) 4. the items of your project that each funding agency is sponsoring
Revenue and cost savings resulting from the project		Please summarise the revenue and cost savings that will result from the project over its lifetime. For instance, this could include reduced fuel costs or the sale of project outputs.

Carbon saving **attributed to LLDC carbon offset fund**		Please summarise the total lifetime carbon dioxide savings (total carbon savings over the lifetime of your project) achieved by your project that will be attributed to the LLDC carbon offset fund investment. Please exclude all carbon savings associated with elements to your projects that have been 'claimed' by other investors – examples could include: • Other carbon offset funds • Energy company retrofit schemes Unless the proposed project's carbon saving is calculated using an established assessment methodology (BREEAM, SAP, etc) please use the latest Defra calculation methodology. See https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021
Carbon saving **attributed to other project investors**		Please summarise the total lifetime carbon dioxide savings (total carbon savings over the lifetime of your project) achieved by your project that will be attributed to other project investors
Total project carbon savings		Please summarise the total lifetime carbon savings attributable to your project.

3. Additional community benefit

Please describe any additional community benefits that your project will deliver. You may want to consider describing:

1. The number of additional jobs/ apprenticeships/ training opportunities that your scheme will deliver and you approach to delivering these;

2. The degree to which differing communities will be engaged with and benefit from your project, through ownership, consultation or governance;

3. Additional environmental benefits associated with your project i.e. air quality improvements, waste reductions, encouraging biodiversity etc. – please quantify these where you can;

4. Additional health benefits associated with your project – where these are described, please make reference to the evidence supporting this.

4. Innovation and strategic importance

Please describe any elements of your project that you believe to be innovative, or of strategic importance in demonstrating new approaches, or best practice approaches, to the delivery of cost-effective carbon dioxide savings. Please explain why you believe these elements to be innovative or of strategic importance.

5. Deliverability

It is important that we understand how you intend to deliver the proposed project and who will be responsible for implementing it. Please complete the following to provide that information.

i. Who will be responsible for delivery of the project (e.g. your own organisation or a separate organisation on your behalf)?

ii. Do you have approval from your organisation to undertake the project and if so please provide evidence of this (for example a formal decision letter or meeting minutes demonstrating that approval has been given)? If you do not yet have such an approval please set out your timetable for gaining that approval and identify who would be responsible for providing that approval.

iii. Do you have a delivery vehicle in place for the implementation of this project? (Who will manage the project delivery? who are they responsible to? How will project budget and finances be managed? How will be project be managed on a day to day basis? If relevant, who will be responsible for the management and maintenance of the project once it has been delivered?)

iv. If you do not have a delivery vehicle in place, how do you propose to secure a delivery vehicle, and when will you have this in place?

v. How will the project be monitored? Please provide details of your monitoring plan here.

vi. Please set out the timescales for the delivery of your project below from receipt of funding to realisation of carbon savings

Project milestone	Date to be achieved

vii. Please describe the risks to the delivery of your project and your proposed mitigation

Risk	Likelihood of realisation	Impact if realised	Proposed mitigation

6a) Carbon Offsetting via efficiency measures: Request for information

Proposals for offsetting carbon savings via energy efficiency need to provide the following information to enable assessment.
1. Please describe the specific aspects of energy use / other carbon savings that are being targeted. INSERT TEXT
2. What is the proposed solution? Please state anticipated performance of current and final system, e.g. U value, efficiency of equipment etc. INSERT TEXT
3. How many homes / other buildings are involved and of what sizes? INSERT TEXT
4. What is the expected total cost of the interventions planned? INSERT TEXT
5. What is the expected annual carbon saving from the measures planned? INSERT TEXT
6. What is the expected annual operating cost saving? INSERT TEXT
7. Which calculation method has been used? SAP / RDSAP / CERT / iSBEM / other INSERT TEXT Note: it is expected that one of the named schemes is used, if not the reason needs to be explained. Please provide the relevant calculation output (e.g. SAP sheet) to explain how the estimate of carbon savings was carried out.

It is expected that nearly all proposals for retrofit of homes will attach analysis using either RDSAP (and in-use factors required for ECO or Green Deal) or CERT calculation approaches. Projects involving efficiency improvements for non-residential buildings are expected to present calculations using iSBEM. In exceptional circumstances the above standardised methodologies may not be appropriate. In these instances, the reasons for using an alternative method should be provided and a bespoke calculation should be submitted providing a breakdown of the measures proposed and an analysis of the carbon savings

from first principles. The calculation should allow for installed capacity, hours of use and the anticipated method of control.

The measures that may be considered include

- Cavity Wall Insulation
- Loft Insulation
- Heating Controls
- Boiler replacement
- Fuel Switching (fuel type, not supplier) e.g. electrification of heating
- Window Glazing
- Draught-proofing
- External Wall Insulation
- Energy Efficient Lighting
- Efficient non-domestic equipment (fans, pumps etc).

6 b) Carbon Offsetting via renewable energy: request for information

Proposals for offsetting carbon savings via renewable energy systems need to provide the following information to enable assessment. The standard procedures cover the following technologies: PV, Wind, hydro, Solar Thermal, Heat Pumps, Biomass boilers, CHP. For other less common technologies a specific approach will be needed. An example for anaerobic digestion is provided in Appendix 2: Example calculation for Anaerobic Digestion.

1. What form of renewable energy system is proposed?

INSERT TEXT

2. What scale of system is proposed (kW and e.g. m2)

INSERT TEXT

3. Where is/are the system/s to be located?

INSERT TEXT

4. What is the expected total cost of the interventions planned?

INSERT TEXT

5. What is the expected annual carbon saving from the measures planned?

INSERT TEXT

6. Which calculation method has been used to estimate carbon savings?

SAP / RDSAP / SBEM / MCS / CHPQA / other
Note: it is expected that one of the named schemes is used, if not the reason needs to be explained. Unless the proposed project's carbon saving is calculated using an established assessment methodology (BREEAM, SAP, etc) please use the latest Defra calculation methodology. See https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

INSERT TEXT

Please provide the calculation used to estimate the carbon savings expected, following the method selected.

INSERT TEXT

Further details of the type of data that are expected to be needed for these calculations are provided in Appendix 1: Renewable energy information requirements.

6 c) Carbon Offsetting via embodied energy: Request for information

To demonstrate savings from embodied energy, it is always necessary to calculate the embodied energy of what is being proposed, and compare this to the standard alternative. This may be either a whole building, or a specific part of a building or another system. For a simple system it may be possible to use just this form, but normally a longer report will be needed to contain the information needed.

Proposals for offsetting carbon savings via embodied carbon need to provide the following information to enable assessment.
1. **What is the baseline solution that the proposal is being compared to? Supporting information to provide details of the quantities of the different materials needed. This solution cannot be chosen to be deliberately bad, but must be a 'standard solution'.** INSERT TEXT
2. **What is the proposed solution that is expected to deliver the carbon savings? Please provide supporting information for details of the quantities of the different materials needed.** INSERT TEXT
3. **Please provide an estimate of carbon savings expected, and the degree of uncertainty in the calculation. This should be provided in the form of a summary showing the quantities and embodied carbon rates for each material. Unless in specific (and fully explained) circumstances, the following link should be used to calculate embodied carbon:** https://circularecology.com/embodied-carbon-footprint-database.html INSERT TEXT
4. **Please summarise the source of the embodied carbon rates used, and explain how the waste, transport of materials, their recycled content and construction site energy has been included in the assessment.** INSERT TEXT

A simplified example calculation is given in Appendix 2.

6 d) Carbon Offsetting via behaviour change: request for information

Proposals for offsetting carbon savings via behaviour change need to provide the following information to enable assessment. Either complete here or provide responses to these in a separate document.
1. What specific aspects of energy use / other carbon savings are being targeted through the behaviour change programme? INSERT TEXT
2. In relation to each end use of energy targeted, what behaviour(s) are you seeking to change? INSERT TEXT
3. What are the methods you propose to deploy to encourage this change? INSERT TEXT
4. How many homes / users are involved? How many occupants are you seeking to influence? INSERT TEXT
5. Please provide an estimate of the carbon savings expected, broken down by the different energy end uses you are targeting. INSERT TEXT
6. For how long will the activities aimed at changing behaviour be continued for? INSERT TEXT
7. What plans do you have for quantifying how effective your project has been in delivering the savings you are anticipating? INSERT TEXT

Appendix 1: Renewable energy information requirements

Solar PV

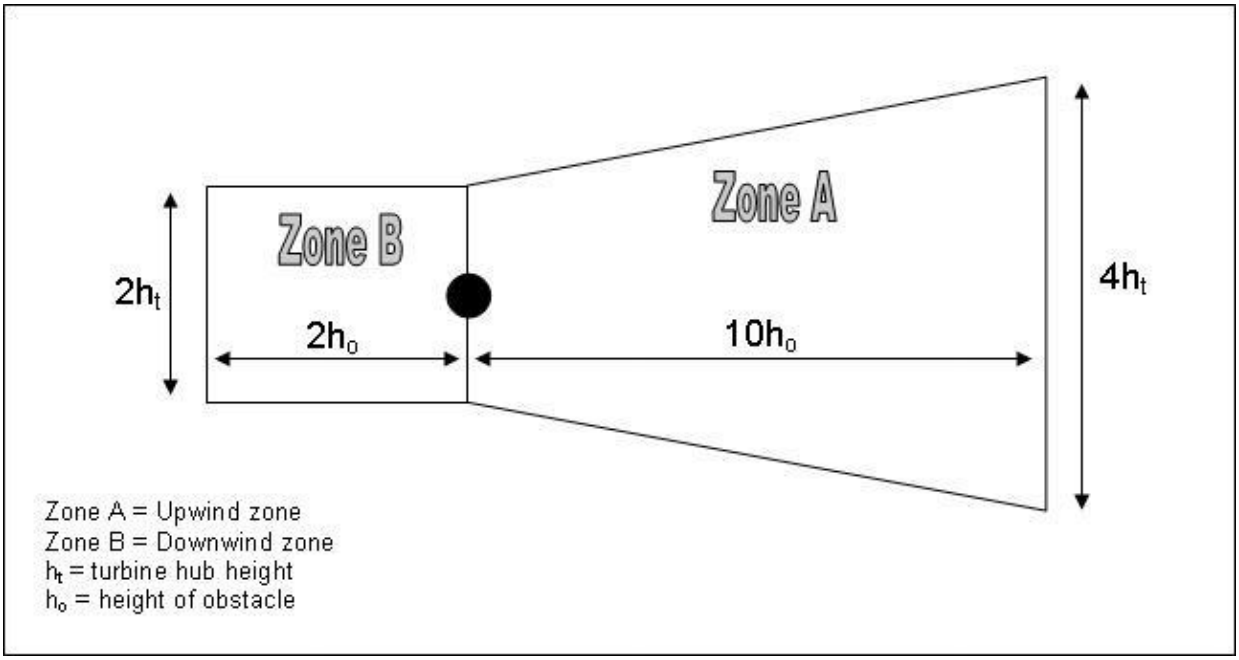
Information to be provided by the project proposer:

- Installed capacity of the installation (in kWp or m^2 and efficiency)
- Orientation (N, NE, NW, S, SE, SW, E, W)
- Pitch (degree from horizontal)
- Description of levels of over-shading
- Scaled plan of the proposed installation including obstacles or surrounding features

Wind

Information to be provided by the project proposer:

- Installed capacity of the installation (kW)
- The turbine Annual Energy Performance Curve from the manufacturer
- Number of turbines
- Rotor diameter of each turbine
- Hub height of each turbine
- Scaled plan and elevation of the proposed installation including obstacles or surrounding features
- Provide the postcode and grid reference of the site location, e.g. for postcode SW1A 2AW the Land Registry reference would be TQ301802. Guidance on how to find the LR grid reference can be found here: http://tools.decc.gov.uk/en/content/cms/windspeed/windspeed.aspx
- Provide a description of the terrain 1km upwind and 500m downwind of the installation (flat grassland, gently undulating countryside, farmland with high boundary hedges, woodland or low rise urban / suburban areas, dense urban areas).
- Provide a description of any significant obstructions surrounding the installation. A significant obstruction is considered to be any solid item (e.g. building, wall etc) or semi permeable item (e.g. trees or bushes) that is greater than 0.5m at its widest part and reaches to a height greater than 0.25 of the hub height of the turbine. **Note:** This includes any building on which the turbine is mounted.



Hydro

Information to be provided by the applicant

- In line with MIS3006 installers shall provide an estimate of average energy performance based on the system design and specification, the flow duration curve and head duration curve of the watercourse.
- The maximum hydro turbine flow rate should be related to the long-term annual mean flow available at the site, and the relationship should be demonstrated. A calculation, or series of calculations, should be clearly presented to explain how the maximum hydro turbine flow rate was determined from the flow data. The source of the flow data shall be stated and justified in the calculations for the site. This should include a clear statement of the percentage of an 'average flow' year that the hydro turbine would be operating at its maximum flow rate, the percentage it would be operating at a part flow rate, and the percentage of the year the hydro turbine would be shut down due to insufficient flow.
- Installers must list all known Environment Agency (EA) or Canal and Rivers Trust constrictions of system usage on the specific watercourse and include restrictions in the overall performance estimation. Information on navigation or conservancy impacts should also be included where relevant along with evidence of landowner consentInstalled capacity of the turbine(s)
- Capacity Factor for the system
- Head of the system
- Scaled plan of the proposed installation

Solar thermal

Information to be provided by the applicant

- Total collector aperture area (m^2)
- Floor area and type of dwelling or building being served
- Panel model information (Flat plate? Evacuated tube?)
- Orientation (N, NE, NW, S, SE, SW, E, W)
- Pitch (degree from horizontal)
- Description of levels of overshading
- Scaled plan of the proposed installation including obstacles or surrounding features
- If available, domestic hot water demand of the building, either based on metered data or calculated with building modelling
- If available, collector zero loss efficiency (to be sourced from BS EN 12975-2, *Thermal solar systems and components – Solar collectors – Part 2: Test methods)*
- If available, collector heat loss coefficient (to be sourced from BS EN 12975-2, *Thermal solar systems and components – Solar collectors – Part 2: Test methods)*
- If available information on the solar store: combined solar store (yes/no), total hot water store volume, dedicated solar volume

Heat pumps

Information to be provided by the applicant

- Scaled plan of the proposed installation including obstacles or surrounding features
- Floor area and type of dwelling or building being served
- Space heating, cooling and water heating system type being replaced/supplemented (e.g. standard gas boiler, electric heater)
- If installation is carried out following MCS guidance MIS3005 and Heat Emitter Guide, the full calculation to derive the system performance should be submitted.

Otherwise the following should also be provided:

- Domestic hot water, space heating and cooling demand of the building, either based on metered data (from bills) or calculated with building modelling. The source of the data should be clearly explained.

- Heat pump type (air to air, air to water, ground to water etc.).
- Proportion of space heating and/or domestic hot water demand to be met by the heat pump
- Model, specifications and number of heat pumps installed.

Description of the system configuration including: is it meeting both space heating and hot water demand listing the following: heat emitters (e.g. radiators, underfloor heating, fan coil units etc.); operating temperatures; hot water or cooling top up system (if applicable) and volume of any hot water storage available in the building.

Biomass heating

Information to be provided by the applicant

- Scaled plan of the proposed installation including obstacles or surrounding features
- Floor area and type of dwellings or building being served
- Space heating and water heating system type being replaced/supplemented (e.g. standard gas boiler, electric heater)
- Domestic hot water demand of the building, either based on metered data or calculated with building modelling. The source of the data should be clearly explained.
- Space heating demand of the building, either based on metered data or calculated with building modelling. The source of the data should be clearly explained.
- Proportion of space heating and/or domestic hot water demand to be met by the biomass system
- Model, installed capacity and specifications (including efficiencies) of the biomass boiler installed.
- Type of biomass fuel used.

CHP

Information to be provided by the applicant

- Scaled plan of the proposed installation including obstacles or surrounding features
- Floor area and type of dwellings or building being served
- Space heating and water heating system type being replaced/supplemented (e.g. standard gas boiler, electric heater)
- Domestic hot water demand of the building, either based on metered data or calculated with building modelling. The source of the data should be clearly explained.
- Space heating demand of the building, either based on metered data or calculated with building modelling. The source of the data should be clearly explained.
- Proportion of space heating and/or domestic hot water demand to be met by the CHP system
- Proposed use for the electricity generated by the CHP system
- Model, installed capacity and specifications (including thermal and electrical efficiencies) of the CHP installed.
- Capacity of any thermal storage to be provided in the system.
- Fuel used by the CHP system

Appendix 2: Example calculation for Anaerobic Digestion

The established schemes for renewable energy do not currently include anaerobic digestion (AD) within the calculation approaches. The RHI scheme (now closed to new applications) provides an incentive for bio-gas, but on the basis of measurements of delivered kWh of heat, which avoids the complexity of trying to calculate gas generation from waste. The particular problem is that a key parameter of waste in terms of biogas production is the fraction of Volatile Solids (VS) within the waste. This is defined as the proportion of the mass of a material that can be burnt off at 555°C, but in simpler terms is the part that can be treated with AD. For food waste it is heavily dependent on the water content of the material, as the water brings no benefit to the process in terms of gas generation.

The inputs required are therefore as follows:

- Waste material to be processed per year (kg) - mass
- Expected % of Volatile Solids [default will be 25%] - VS
- Expected system efficiency [default will be 50%, limit around 75%] - eff

The product of these three factors and a constant of 5.1 kWh/kg gives an estimate of the kWh of calorific value of the gas produced.

Calorific value of gas generated = 5.1 x mass x VS x eff kWh

For most systems the outcome will be around half to one kWh of gas per kg of food waste collected.

The gas produced from an AD plant is a mixture of methane and carbon dioxide and will need to be used in a boiler or system adapted to burn it, or processed further to use in a normal boiler or CHP engine.

For an AD proposal, additional information will also be needed to demonstrate that the design has been developed sufficiently. These are as follows:

1. What is the source of the fuel (waste material)?
2. Who is collecting the fuel and from what geographic area?
3. How is the fuel added to the system (continuous / batch)?
4. What is the maximum capacity of the system per year?
5. Will gas be stored before use? If so in what type and size of container?
6. What will the generated gas be used for? Are there clients contracted to take heat / power?
7. What equipment will be used to use the heat, and is it capable of working on the biogas produced?
8. Who will be maintaining the system during operation?

Appendix 3: Embodied carbon calculation

An example of a fictitious calculation is given below:

Baseline design			
Material	*Quantity*	*Embodied carbon rate*	*Embodied carbon*
	kg	$kgCO_{2e}/kg$	$kgCO_{2e}$
Material a	2	1	2
Material b	2	10	20
Material c	3	0.1	0.3
			0
			0
			0
Total	6		**22.3**
Proposed design			
Material	*Quantity*	*Embodied carbon rate*	*Embodied carbon*
	kg	$kgCO_{2e}$ /kg	$kgCO_{2e}$
Replacement for material a	1	1	1
Replacement for material b	4	1	4
Replacement for material c	5	0.2	1
			0
			0
			0
Total	10		**6**
Expected saving			**16.3**

Visit the Legacy Corporation website at http://queenelizabetholympicpark.co.uk

Or contact the Planning Policy and Decisions team on:
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