

North West Bicester

Proof of Evidence Carbon Emission Reduction

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Contents

1	Qualifications and Experience	1
2	Introduction.....	2
2.1	Background.....	2
2.2	Proof of Evidence	3
3	Carbon reduction planning policy summary	4
3.1	Introduction.....	4
3.2	Cherwell Local Plan, July 2015	4
3.3	Bicester Ecotown Supplementary Planning Document, February 2016	5
3.4	North West Bicester Masterplan Documents: Energy Strategy, March 2014 ..	6
3.5	Wider Bicester Ecotown Planning Responses	7
3.6	National Policy Evolution.....	9
4	True Zero Carbon Policy Requirements for North West Bicester	11
4.1	Summary of policy requirements	11
4.2	Summary of requirements for developers	11
4.3	Additional considerations for planning true zero carbon	11
5	Commitments made in the application for carbon emission reduction	13
5.1	Introduction.....	13
5.2	Existing Infrastructure Delivery.....	13
5.3	Commitments within the outline energy statement	14
5.4	Viability Appraisal	16
6	Achieving policy compliance.....	17
6.1	Introduction.....	17
6.2	Commitments made against local policy within the application	17
6.3	Conclusion	18
	Appendix A Policy Compliance Matrix.....	20

1 Qualifications and Experience

- 1.1.1 My name is Jonathan Riggall. I hold a BSc (Hons) Degree in Environmental Archaeology from Edinburgh University (2000) and a Masters Degree from Middlesex University in Integrated Pollution Control (2003)
- 1.1.2 I am both a fellow of Royal Geographic Society, where I am a registered Chartered Geographer, and a member of the Institute of Environmental Science, and registered Chartered Environmentalist.
- 1.1.3 Since October 2022 I have been a technical director at Aether Ltd, of Oxford Innovation Centre, OX1 1BY, leading the business' work across corporate climate change advisory services and land development consultancy relating to sustainability and climate change.
- 1.1.4 Prior to my appointment to Aether, I spent 14 years at Peter Brett Associates LLP (PBA) now part of Stantec in the UK. As a member of PBA's LLP I led the businesses sustainability and environment groups working across a broad range of community development projects in the UK. Prior to PBA I held the position of senior scientist at AEA Technology.
- 1.1.5 Since 2006 (when zero carbon homes was first introduced by the then Chancellor Gordon Brown) I have worked on appraising the impact and opportunities for delivering renewable energy and zero carbon homes. During this period I worked on projects that included assessing techno-economic viability of district heat networks including Strand East in London, Stoke on Trent Heat Network, and Bordon Heat Network through to integrating large scale solar generation into land development schemes combining energy storage and electric vehicle infrastructure on projects.
- 1.1.6 I have also provided support to local authorities across the UK on carbon reduction measures in local plan making. My work includes supporting the Black Country Combined Authorities, Mid Devon District Council, and Bracknell Forest Council. Recently I supported Central Bedfordshire Council in their successful Housing Infrastructure Fund application for power infrastructure to enable zero carbon growth of Biggleswade.
- 1.1.7 In addition to my experience in community development I have experience in appraisal and planning of renewable energy infrastructure. My work has included working on offshore wind projects such as RWE's Triton Knoll, and solar energy projects for private investors.
- 1.1.8 I confirm that the opinions expressed are my true and professional opinions.

2 Introduction

2.1 Background

2.1.1 This is an appeal for non-determination against Cherwell District Council (CDC) in respect of an outline application (reference: 21/01630/PUT) submitted by Firethorn Developments Limited (the “Applicant”) for 530 homes at North West Bicester (the “Application”). At a planning committee held on 9 March 2023 CDC’s planning committee recommended a number of putative reasons for refusal on which it would have refused the Application absent this Appeal.

2.1.2 My Proof of Evidence considers Cherwell District Council’s (CDC) (CD 9.2) putative Refusal for Refusal 1 (set out below) which confirms that the Application would have been refused based on it conflicting with their Local Plan (CD 4.1) policies Policy Bicester 1 and Policies ESD 1 to 5:

The development, when set against the viability of the scheme, would not go far enough in trying to achieve the True Zero Carbon requirements for NW Bicester, as set out by Policy Bicester 1 of the Cherwell Local Plan Part 1 2011-2031. This would undermine the Council’s strategy for achieving an Exemplary Eco Town development at NW Bicester which sets this site apart from others and where the Council has declared a Climate Emergency. The development would therefore conflict with Policy Bicester 1 and Policies ESD 1 to 5 of the Cherwell Local Plan Part 1 2011-2031 and the North West Bicester SPD 2016.

Note to Appellant: This reason for refusal is capable of being addressed

2.1.3 I also consider the North West Bicester Alliance, who are Rule 6 Party in this appeal, Statement of Case (CD 9.3). Within their written statement there are three key aspects related to carbon emission reductions:

Section 1.3 (d), page 2: We all want to ensure that the UK’s National Ecotown Exemplar – NW Bicester Ecotown – continues in the direction of the national and local Climate Change Zero Carbon targets. This can only be achieved by Rejecting the Application as it currently stands. If key components of the Masterplan are treated as dispensable in the present Application, then all UK developers will be incentivised to take the same approaches: this will leave the UK with no chance of reaching anywhere near its Climate Change Targets, and we will no longer be able to call the NW Bicester development an “Ecotown”.

Section 2.15, page 4: A further key reason why the Appellant’s Application should be refused, as it presently stands, also relates to these other Applications. Both have originally stated they will meet Policy Bicester 1 via True Zero Carbon per home and 30% Affordability, which the Appellant’s Application does not; and that they will meet numerous other national and local planning policies, which the Appellant’s Application does not meet. (We note that while the Appellant discusses meeting Future Homes Standard 2025, this is a much lower level than the now-rescinded Code for Sustainable Homes Level 5 – the standard required by Policy Bicester 1 and the NW Bicester SPD. We note also that Future Homes Standard 2025 is a draft that is not stabilised and is not expected to be finalised before 2025, possibly even later, whereas Level 5 is an existing recognised standard that can be used legally as a reference.)

3.12 Page 7: The Applicant has (again) refused to link up with the Ecotown’s existing District Heating System. We will show that, while it may be easier for the builder not to

link the two, it will reduce the potential for future upgrades to continue to keep the Ecotown at True Zero Carbon level, and improve it if it becomes possible to do so.

- 2.1.4 An Outline Energy Statement, dated March 2021, (CD 1.18) was submitted with the Application addressing CDC Local Plan policy requirements and placing a timeframe for each policy to be adhered to through to detailed planning.
- 2.1.5 This proof of evidence statement presents the Local Plan policy requirements and how the scheme aligns to addressing them.
- 2.1.6 Separately a viability assessment has been completed which develops the potential costs associated with compliance with Policy Bicester 1 and Policies ESD 1 to 5 of the Local Plan.

2.2 Proof of Evidence

- 2.2.1 The proof of evidence reviews:
 - I. **Carbon reduction planning policy** of the Local Plan and its supporting evidence. The evidence review focuses on policy specific to achieving True Zero Carbon requirements for North West Bicester.
 - II. **Policy requirements for North West Bicester** summarising the specific targets required from planning policy and evidence base.
 - III. **Commitments made at outline planning for carbon emission reductions** detailing CBC's Policy Bicester 1 and Policies ESD 1 to 5 have been accounted for within the Application.
 - IV. **Achieving policy compliance** summarising how the commitments made in the outline planning application meet the policy requirements of the local plan.
- 2.2.2 An appraisal of how the proposed development meets each of the relevant policy requirements and targets set in the Local Plan evidence base for carbon reduction has been presented within **Appendix A**.

3 Carbon reduction planning policy summary

3.1 Introduction

- 3.1.1 In July 2009 the Government’s former Ecotown policy ET 7 Zero carbon and eco-town (CD 8.3.9, page 6 section ET7.1) set the principle for Ecotowns to have net carbon dioxide emissions from ‘all energy use’ in the buildings of zero or below in operation.
- 3.1.2 This principle was translated into the CDC Local Plan Policy Bicester 1 and supported by the Local Plan Policies ESD 1 to 5 (CD 4.1).
- 3.1.3 ‘All energy use’ was defined as both regulated energy (heating, lighting, ventilations, pumps) and unregulated energy (all other building energy demands except transport related) (CD 4.1, page 140, footer).
- 3.1.4 This section provides the key consideration of each of these policies and the evidence that supports their creation.
- 3.1.5 Since the establishment of the Local Plan, National Policy on developing zero carbon homes has progressed. The relationship between the evidence base which informed the Local Plan policy and the current Government approach has also been evidenced in **Section 3.6** of this proof.
- 3.1.6 In addition, a review of how decarbonisation was managed during outline planning process for two developments within the Bicester Ecotown area has been presented.
- 3.1.7 The Local Plan policies also include a broad range of requirements relating to other sustainability aspects, for example climate adaptation, water resources, and biodiversity. Whilst these were not referenced in the putative Reasons for Refusal, the outline application and viability assessment has included a range of additional measures aligned to Policy Bicester 1 and Policies ESD 1 to 5. These have been noted within **Appendix A** for reference purposes.

3.2 Cherwell Local Plan, July 2015

- 3.2.1 Page 140 of the Local Plan (CD 4.1) Policy Bicester 1 defines the requirement for the 6,000 homes of the North-West Bicester allocation to be zero carbon whereby:

“The definition of zero carbon in eco-towns is that over a year the net carbon dioxide emissions from all energy use within the buildings on the eco-town development as a whole are zero or below.”
- 3.2.2 A key consideration of this policy is the need for the development ‘as a whole’ to be zero carbon or below. This was tested by the Planning Inspectorate as part of the appeal decision known as Land off Howes Lane and Middleton

Stoney Road, Bicester (App/C3105/W/16/3163551) (CD 7.1), discussed further in **Paragraph 3.5.3** of this Proof of Evidence.

- 3.2.3 The need for the provision of whole site zero carbon infrastructure is established further in Policy ESD 4: Decentralised Energy Systems (page 91 CDC Local Plan, CD 4.1) requiring consideration of developing zero carbon heating from either biomass combined heat and power or connection to the Ardley Energy from Waste facility.
- 3.2.4 The evidence established in the North West Bicester Masterplan Documents Energy Strategy (Masterplan Energy Strategy) (CD 8.3.1), which informed the Local Plan, shows the need for whole site zero carbon utility infrastructure to achieve true zero carbon.
- 3.2.5 Policy ESD2 (CD 4.1) defines the options for minimising carbon emissions to zero. This includes fabric energy efficiency to reduce energy demand, connection to decentralised energy supply (aligned to ESD 4), the use of renewable energy and ‘allowable solutions’, an offsetting mechanism for residual emissions.
- 3.2.6 Paragraph B.186 page 87 of the local plan (CD 4.1) notes, that at the time of adoption of the local plan (July 2015), allowable solutions were yet to be defined by Government and notes in paragraph B.186 that:

“It will not always be cost effective or technically feasible to meet the zero carbon standard through on site measures and the government is therefore proposing that the zero carbon standard could be achieved by mitigating the remaining emissions off-site through the use of allowable solutions. The Council will support the implementation of the national approach to allowable solutions once defined and any additional implementation guidance required at a local level will be set out in the Local Plan Part 2 and the Sustainable Buildings in Cherwell SPD”.
- 3.2.7 The evolution of Government’s intentions on zero carbon homes is presented in **Section 3.6** of this Proof of Evidence.
- 3.2.8 The use of allowable solutions to achieve true net zero to inform CDC local plan policy was further established within the Masterplan Energy Strategy (Section 3.5.1, Page 14, CD 8.3.1) as presented in **Paragraphs 3.4.7 to 3.4.10** below.

3.3 Bicester Ecotown Supplementary Planning Document, February 2016

- 3.3.1 Supporting Policy Bicester 1 the Bicester Ecotown Supplementary Planning Document (SPD) (CD 4.5) provides further clarification on requirements of meeting zero carbon development. The SPD introduces the term ‘True Zero Carbon’ to cover only carbon emissions relating to all energy (heating and electricity) used within buildings as noted in paragraph 4.23 page 18.
- 3.3.2 The SPD defines that the approach to energy and carbon dioxide reduction is set out in the masterplan Energy Strategy and summarised below as requiring:
 1. “A large scale solar array on all roofs;
 2. Energy efficient buildings; and

3. A network of energy centres providing gas and biomass combined heat and power (CHP) which will require a district heating network.”

3.3.3 Page 4, paragraph 1.8 5th bullet point of the SPD states the requirements of the SPD should be met at the detailed planning application stage and beyond to ensure adequate and consistent approaches to quality and delivery.

3.3.4 This aligns to Ecotown Principle ET 9.2 (Appendix 2 paragraph ET9.2 Page 64 of the SPD, CD 4.5) which notes the need for options to ensure resilience in planning towards detailed applications.

3.4 North West Bicester Masterplan Documents: Energy Strategy, March 2014

3.4.1 The North West Bicester Masterplan Energy Strategy March 2014 (Masterplan Energy Strategy, CD 8.3.1) provides the technical evidence base for ‘true zero carbon’ requirements of Policy Bicester 1, ESD 2 and ESD 4.

Fabric Energy Efficiency Standards

3.4.2 With regards to setting targets for minimum fabric energy efficiency (FEE) standards across North West Bicester, Section 6.1 Page 27, (CD 8.3.1) (final two paragraphs) notes:

“However, as increased building fabric would result in increased build costs and in some instances additional energy may be required to mechanically ventilate buildings that would otherwise be able to rely on natural ventilation.

As identified above, whilst the PPS1 Eco town supplement requires that all homes achieve CSH level 4; due to the anticipated progressive improvements in Building Regulations planned by 2016 for residential and 2019 for commercial, it is considered more appropriate to target these anticipated FEE standards as a minimum, which are equivalent to the CSH level 5/6 FEE standards.”

3.4.3 The Masterplan Energy Strategy (CD 8.3.1) define these anticipated FEE standards to those defined in the Government’s then Zero Carbon Hub’s Defining Fabric Energy Efficiency Standards, November 2009 (CD 8.3.11). Figure 3.2 page 12 within the Masterplan Energy Strategy (CD 8.3.1) defined the fabric energy efficiency standard for future zero carbon homes as 46kWh/m²/year for detached, semi and end terrace homes and 39kWh/m²/year for mid terraces and apartments. This is the equivalent of Code for Sustainable Homes Level 5/6 fabric standard (CD 8.3.4, Page 40).

3.4.4 This sets the precedent to align the development’s FEE standards to Government’s projections.

Zero Carbon Energy Technology Options

3.4.5 Section 6.2 Pages 29 to 36 of the Masterplan Energy Strategy (CD 8.3.1) provides a summary of the energy technology options to support whole site true zero carbon compliance.

3.4.6 Section 6.3 summary of options page 36 shows that only a site wide biomass combined heat and power with district heating would achieve true zero carbon

standard. All other options tested within the report would require allowable solutions to provide residual emissions offsetting.

Implementing Allowable Solutions

- 3.4.7 Section 3.5.1 Page 13 of the Masterplan Energy Strategy highlights the importance of allowable solutions (offsetting) in achieving a development's zero carbon target.
- 3.4.8 Section 3.5.1 first paragraph Page 14 also notes that the extent to which allowable solutions may be implemented within the development will be determined in the detailed design stage. At detailed design it will be possible to establish more accurate energy demands for the buildings.
- 3.4.9 Section 3.6 Page 18 notes that CDC confirmed their expectation that the PPS1 Ecotown zero carbon target will be primarily met through on-site measures and that significant reliance upon Allowable Solutions should not form part of the energy strategy.
- 3.4.10 Whilst 'significant' was not defined within the Masterplan Energy Strategy, the application of allowable solutions (offsetting) is expected to follow the implementation of the energy hierarchy (Local Plan Policy ESD 2). This is discussed further in **Paragraph 5.3.7** of this Proof of Evidence.

3.5 Wider Bicester Ecotown Planning Responses

- 3.5.1 Since the publication of Cherwell Local Plan a number of planning applications have been submitted to CDC. These applications have resulted in precedents being set on how Local Plan policies relating to carbon emissions reductions have been managed.

- 3.5.2 The following section summarises these applications.

Appeal Decision: Land off Howes Lane and Middleton Stoney Road, Bicester (App/C3105/W/16/3163551) (CD 7.1)

- 3.5.3 The inspector notes in the appeal decision:

Page 39 Paragraph 184. As paragraph ET7.1 of the eco-towns supplement to the otherwise superseded Planning Policy Statement 1 points out, "the definition of zero carbon in eco-towns is that over a year the net carbon dioxide emission from all energy use within the buildings on the eco-town development as a whole are zero or below." I take particular note of the use of the words "as a whole" to infer that it is not necessary for every individual development within the eco-town to be zero carbon so long as deficiencies on one site are made up by better performance on another site. That interpretation is confirmed by footnote 6 of the eco-towns supplement; "This definition of zero carbon applies solely in the context of eco-towns and applies to the whole development rather than to individual buildings."

- 3.5.4 In forming this view the inspector notes:

Page 39 Paragraph 186. I concur with the Council's intention that "s106 obligations/conditions are used to carefully control this development such that additional energy information is required to be submitted and considered." The NPPF

advises that planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition.

3.5.5 A condition was applied within the Appeal Decision:

Condition 32 Page 48 No development shall take place on any phase of development until details of measures (including off-phase and off-site measures if necessary) to achieve zero carbon energy use (as defined in paragraph ET7.1 of the eco-towns supplement to Planning Policy Statement 1) for that phase shall have been submitted to and approved in writing by the local planning authority. The development shall be carried out in accordance with the approved details and the measures approved shall thereafter be retained in an operational condition.

Bicester Ecotown Exemplar Development 10/01780/HYBRID

3.5.6 A planning condition was set for the hybrid application three conditions were used to ensure the development aligned to CDC's Local Plan Policy requirements:

Condition 4 (page 2) That full details of the measures to achieve zero carbon energy use as defined in PPS 1: Eco Towns, through on site solutions, shall be submitted for approval prior to the commencement of development. Should it be demonstrated to the satisfaction of the local planning authority that it is not possible to achieve zero carbon on site, a scheme for off site mitigation in Bicester shall be provided, prior to the first residential occupation, for that portion of the energy use that cannot be met on site.

Reason: For the avoidance of doubt, to ensure that the development is carried out only as approved by the Local Planning Authority and to comply with Government Policy contained in Planning Policy Statement 1: Eco Towns

Condition 42 (page 9) That full details of the measures to achieve zero carbon energy use as defined in PPS 1Eco Towns, through on site solutions, shall be submitted for approval at the same time as reserved matters referred to in condition 40 thereof. Should it be demonstrated to the satisfaction of the local planning authority that it is not possible to achieve zero carbon on site, a scheme for offsite mitigation in Bicester shall be provided with the first reserved matters application for a building that does not achieve zero carbon, for that portion of the energy use that cannot be met on site.

Reason: For the avoidance of doubt, to ensure that the development is carried out only as approved by the Local Planning Authority and to comply with Government Policy contained in Planning Policy Statement 1: Eco Towns

Condition 58 (page 11) Prior to implementation, a report shall be submitted outlining how carbon emissions from the construction process and embodied carbon have been minimised. No work shall commence until the report has been approved in writing by the Local Planning Authority. The development shall thereafter be carried out in accordance with the plan.

Reason: To ensure the development achieves a reduced carbon footprint in accordance with Planning Policy Statement 1: Eco Towns.

3.5.7 The structure of these previous conditions used to ensure policy compliance have been used to set the suggested planning condition within the draft conditions document (CD 12.1).

3.6 National Policy Evolution

3.6.1 Since the development of the evidence base, informing the Local Plan and North West Bicester SPD, National Policy relating to zero carbon homes has progressed. Key policy changes include:

1. Removal of the Code for Sustainable Homes by Government in 22 April 2015.
2. Not implementing zero carbon homes proposed in 2016 including removal of allowable solutions, UK Productivity Plan, July 2015 page 46 5th bullet point (CD 8.3.5).
3. Implementation of changes to Building Regulations Part L 2021 as amended 2023 including electricity grid decarbonisation factors (CD 8.3.7) from 0.519kgCO₂/kWh to 0.136kgCO₂/kWh (table 12 page 189).

3.6.2 Government now intends to deliver zero carbon homes through the Future Homes Standard. The Future Homes Standard takes into consideration the significant decarbonisation of the electricity grid into the future, and the evolution of technology such as heat pumps and mechanical ventilation to deliver 'zero carbon ready' homes.

3.6.3 The consultation on the Future Homes Standard sets out the principles of developing the future energy efficiency standard for Building Regulations in 2025, combined with electric led heating systems such as heat pumps (CD 8.3.10). New homes built to the Future Homes Standard will become zero carbon through National Grid decarbonisation strategy. Future Homes and Building Standards, December 2021 to deliver over 75-80% reduction in emissions over pre 2021 standards by 2025.

3.6.4 It should be noted that within the CDC Local Plan policy and evidence base, the impact of grid decarbonisation was not assessed.

3.6.5 The proposed FEE targets of the Future Homes Standard are presented below in **Table 3.1**. These have been compared to the suggested standards within the Masterplan Energy Strategy (see **Paragraph 3.4.3** of this Proof of Evidence).

Table 3.1 Comparison of Fabric Energy Efficiency Standards within CDC Policy and Future Homes Standard

	CDC Policy Evidence: Zero Carbon Homes and Code 5/6(kWh/m ² /year)	Expected Future Homes Standard ^A (kWh/m ² /year)
House	46	43.6
End Terrace	46	32.9
Mid Terrace	39	25.1
Flat	39	21.0

^AFigures referenced from Future Homes Hub, Ready for Zero, page 151 (CD 8.3.10)

- 3.6.6 Figure 110 Page 151 of the Government's Future Homes Hub, Ready for Zero evidence report (CD 8.3.10) shows the Future Homes Standard is expected to be lower than that of the CDC local policy evidence base FEE requirements.
- 3.6.7 Section 6.1 Page 27 last paragraph of the Masterplan Energy Strategy (CD 8.3.1) noted the alignment setting FEE standards to Government future approaches to net zero homes.
- 3.6.8 The Local Plan policy and evidence base does not define requirements to exceed future house building energy standards proposed by Government.

4 True Zero Carbon Policy Requirements for North West Bicester

4.1 Summary of policy requirements

4.1.1 Specific targets set within the Local Plan policy and evidence base regarding the implementation of true net zero development include:

1. The requirements for True Zero Carbon relate to the 'whole site' comprising of 6000 homes, CDC Local Plan Policy Bicester 1 (CD 4.1) page 140.
2. Reducing energy use, in particular by the use of sustainable design and construction measures.
3. Supplying energy efficiently and giving priority to decentralised energy supply unless alternatives offer increased benefits (aligned to Policy ESD 4).
4. Making use of renewable energy
5. Making use of allowable solutions (offsets).

4.2 Summary of requirements for developers

4.2.1 These policy requirements are further supported by the North West Bicester SPD and the Masterplan Energy Strategy evidence requiring developers to:

1. Meet a fabric energy efficiency standard of 46kWh/m²/year for detached, semi and end terrace homes and 39kWh/m²/year for mid terraces and apartments as defined in the Masterplan Energy Strategy, Section 6.1 Page 27 (CD 8.3.1).
2. Assessing the feasibility of connecting to a biomass CHP and gas district heat network if available, or alternatives if increased benefits can be achieved.
3. Install roof mounted solar power generation across the site.
4. Use offsetting for residual emissions following the principles of allowable solutions to achieve zero carbon status, Policy ESD 2 Page 87 of the CDC Local Plan (CD 4.1).

4.3 Additional considerations for planning true zero carbon

4.3.1 When assessing the approach to true zero carbon Local Plan policy evidence base notes:

1. The need for options to ensure resilience in planning towards detailed applications, (Ecotown Principle ET 9.2 (reference in Appendix 2 Page 64 of the North West Bicester SPD, CD 4.5))
2. Requiring details of proposed approaches to policy compliance within detailed planning applications, (Page 4, Section 1.8 of the CDC North West Bicester SPD (CD 4.5)).

3. Alignment with Government approach to zero carbon development when setting fabric energy efficiency, (Section 6.1 Page 27 of the North West Bicester Masterplan Document Energy Strategy (CD 8.3.1)).
4. Governments Future Homes Standard is likely to require lower energy demands than 46kWh/m²/year for detached, semi and end terrace homes and 39kWh/m²/year for mid terraces and apartments, (as noted by the Government's Future Homes Hub, Ready for Zero evidence report, Figure 110 Page 151 (CD 8.3.10)).
5. Section 6.3 Page 36 Masterplan Energy Strategy (CD 8.3.1) shows true zero carbon could only be achieved onsite through the implementation of a biomass combined heat and power energy centre.
6. Section 6.3 Page 36 Masterplan Energy Strategy (CD 8.3.1) notes all other onsite low and zero carbon technology solutions will require addition of allowable solutions (offsetting).
7. Section 3.4 Page 10 of the Masterplan Document Energy Strategy (CD 8.3.1) defines potential offsite allowable solutions for offsetting residual emissions.

5 Commitments made in the Application for carbon emission reduction

5.1 Introduction

- 5.1.1 An Outline Energy Statement, (Stantec March 2021 (CD 1.18)), was included within the Application.
- 5.1.2 The Outline Energy Statement confirmed that the proposed development would comply with Local Plan Policy Bicester 1 and Policies ESD 1 to 5. Due to the nature of an outline planning application the statement noted the need for details to be provided at each reserved matters application (RMA) stage to confirm compliance (Paragraph 3.6.2 and 3.6.3, Page 11, CD 1.18).
- 5.1.3 Through the application period, engagement with Scottish and Southern Energy Enterprise (SSE Enterprise), who currently operate the Bicester district heat network, was undertaken to understand how the Proposed Development could connect to the existing district heat network.

5.2 Existing Infrastructure Delivery

- 5.2.1 As part of the first phases of development at the Bicester Ecotown, an energy centre and district heat network have been established. SSE Enterprise has been appointed as the site's energy service company responsible for development, running and billing of the decentralised energy system.
- 5.2.2 The current decentralised energy network comprises of a natural gas combined heat and power (CHP) system and natural gas boilers connecting properties through a high temperature heat network.
- 5.2.3 At the time of writing the Outline Energy Statement (March 2021), Government had proposed changes to Building Regulations Part L 2021 to be adopted in 2022 (CD 8.3.6). The changes related to permitted CO₂ emissions and carbon emission factors of natural gas based heat networks that are already built, or are in the latter stages of development. The changes would mean new homes connected to existing or new district heat networks would have struggled to pass the 2021 Part L Building Regulations in CO₂ and primary energy terms.
- 5.2.4 The Standard Assessment Procedure (SAP) 10.2 Appendix C Page 49 (CD 8.3.12) sets out the requirement for heat network specific carbon emission factors to be utilised for Building Regulation compliance at detailed design stage. These should be identified within the Building Research Establishments Product Characteristics Data base, or define by operational evidence.

- 5.2.5 Page 12 Section 4 of the Outline Energy Statement notes the results of the early engagement with SSE Enterprise on connecting to the District Heat Network. The key considerations were:
1. There are no plans to implement biomass combined heat and power as defined in the Masterplan Energy Strategy to achieve true zero carbon onsite (CD 8.3.1).
 2. SSE Enterprise are exploring approaches to decarbonising the heat network using centralised heat pump technologies to supplement the natural gas approach.
 3. SSE Enterprise were not in the position to provide legally binding guarantees on decarbonisation of the network until feasibility and cost appraisal on retrofitting their existing system had been completed.
- 5.2.6 Until site specific emission factors are provided aligned to SAP 10.2 (see **paragraph 5.2.4** of this Proof of Evidence) it was not considered suitable to commit to connecting to the existing district heat network, at the outline planning stage, due to the risks of failing Part L of the Building Regulations.
- 5.2.7 As of 11th April 2023 Government have changed the calculation assumptions for connections to existing district heat networks, noted by Government's SAP 10 Version History page 2 on the 21st April 2023 (CD 8.3.8). The impact of these amendments will need to be considered at detail design stage based on the site specific data provided by SSE Enterprise.
- 5.2.8 Alternative such as air source heat pumps, heat recovery and smart energy storage devices were explored further within Section 7 of the Outline Energy Statement (CD 1.18).

5.3 Commitments within the outline energy statement

- 5.3.1 **Appendix A** of this Proof of Evidence provides an appraisal of how the Outline Energy Statement meets each planning policy relating to decarbonisation and net zero.
- 5.3.2 Section 3.6, Page 11 of the Outline Energy Statement (CD 1.18) is clear that the proposed development will meet each of the policy requirements (Paragraph 3.6.2 and 3.6.3, Page 11). This will include the need, at detail design, to consider masterplan and plot layouts to enable passive energy demand reduction opportunities. At the outline stage this will include the need to meet the Future Homes Standard, which, as presented in **Table 3.1** of this Proof of Evidence, is likely to require a higher fabric standard than set within the Masterplan Energy Strategy (CD 8.3.1). The final fabric energy efficiency level may go beyond these targets but can only be defined at detail design stage when the building form is known and subject to viability.
- 5.3.3 In Section 7, page 19 to 22 of the Outline Energy Statement (CD 1.18) a range of renewable, low carbon and smart energy technology is also available to the proposed development which can be drawn upon at each reserved matters

application. This appraisal aligns to the Masterplan Energy Strategy Appendix B (CD 8.3.1).

- 5.3.4 A predicted energy demand model was established for the Application based on standard housing typologies. The predicted energy model expresses the potential routes for minimising carbon emissions through fabric energy efficiency and renewable energy, with the residual emissions offset to meet Local Plan Policy Bicester 1 through measures defined in Local Plan Policy ESD2. The potential CO₂ emissions calculated at the outline planning stage are presented in **Table 5.1** below.

Table 5.1 Regulated/Unregulated CO₂ emissions after each stage of the energy hierarchy for the whole development against 2021 Building Regulations

	CO ₂ emissions savings all domestic energy	
	Tonnes CO ₂ /Annum	
Total Baseline CO ₂ emissions	899	
Savings from policy compliant fabric energy efficiency	-31	
Savings from low carbon technology (e.g. ASHP)	-426	
Savings from solar PV	-150	
Savings from allowable solutions/carbon offsetting	-282	
Future annual Net CO ₂ emissions true zero carbon	0	

- 5.3.5 **Table 5.1** shows how the scheme could achieve True Zero Carbon meeting Policy Bicester 1 and ESD 2.
- 5.3.6 As noted in **Paragraph 3.4.9** of this Proof of Evidence, Section 3.6 Page 18 of the Masterplan Energy Strategy (CD 8.3.1) notes significant reliance upon allowable solutions should not form part of the energy strategy, although significance was not defined.
- 5.3.7 As a way of defining significance, the Zero Carbon Hub undertook analysis in February 2011 (CD 8.3.3) on the potential level of CO₂ emission required prior to the use of allowable solutions. The analysis suggested that CO₂ emission for regulated energy should be below 10kgCO₂/m²/year for detached homes and 14kgCO₂/m²/year for apartments would be suitable prior to offsetting. This was evidence in the Masterplan Energy Strategy (page 12, Table 3.2, CD 8.3.1).
- 5.3.8 Page 152 of the Government’s Future Homes Hub, Ready for Zero evidence report (CD 8.3.10) shows that the dwelling emission rate for the Future Homes Standard will below 5kgCO₂/m²/year when taking into consideration the proposed fabric energy efficiency standards and grid decarbonisation. This would be lower than the carbon compliance level defined in the Zero Carbon Hub’s 2011 analysis.
- 5.3.9 Detailed consideration of site design, building design and technology implementation will be established at each reserved matters application. This

will include reengaging with SSE Enterprise on the opportunity for connecting to the existing district heat network.

5.4 Viability Appraisal

5.4.1 As noted in the North West Bicester SPD (CD 4.5) the details of specific design and technology would need to be defined and costed at detailed application.

5.4.2 For the purposes of the outline application a viability assessment has been developed to meet compliance against CDC policy. An appraisal of how the viability assessment responds to CDC carbon reduction policy is included in **Appendix A**. A summary is provided within this section.

5.4.3 The following parameters have been considered to align with CDC Local Plan Policy ESD2 for meeting zero carbon emissions:

1. The proposed Future Homes Standard for fabric energy efficiency design to comply with meeting Code for Sustainable Homes Level 5/6 (see **Table 3.1** of this Proof of Evidence) as defined in Masterplan Energy Strategy (CD 8.3.1).
2. Use of air source heat pump and energy storage technology as defined in in Masterplan Energy Strategy Appendix B (CD 8.3.1, page 21 Section 5.11) and North West Bicester SPD (CD 4.5) (page 18 section 4.22);
3. Installation of 2.1kW of PV per unit as defined in Policy ESD5 (page 93 of the CDC Local Plan, CD 4.1); and
4. Contributions to allowable solutions to achieve True Zero Carbon as defined in CDC Local Plan policy ESD 2 (CD 4.1).

5.4.4 As noted in **Paragraph 3.1.7** of this Proof of Evidence the viability appraisal also includes additional measures relating to adapting to climate change, biodiversity and water resource efficiency as defined across Local Plan Policies ESD 1 to 5. Such measures include:

1. Rainwater harvesting and recycling infrastructure to support water neutrality across the Ecotown.
2. Climate adaptation infrastructure including enhanced ventilation measures for dwellings and permeable paving.
3. Enhanced planting including private fruit trees in gardens.

6 Achieving policy compliance

6.1 Introduction

- 6.1.1 Regulation and technology for decarbonising new housing development continues to evolve. The costs associated with implementation of design and technology to decarbonise development continue to change significantly year on year.
- 6.1.2 At the outline planning application stage, a suite of approaches, aligned to the energy hierarchy defined with CDC Local Plan Policy ESD2, were appraised to meet the definition of True Zero Carbon defined in Local Plan Policy Bicester 1 and the North West Bicester SPD.
- 6.1.3 Rather than being prescriptive at the outline stage it is expected that each RMA would consider the most appropriate design approach and technology implementation available and such measures would then be approved and conditioned by CDC as part of each RMA.
- 6.1.4 In keeping with all other applications associated with the Ecotown, it is expected that a planning condition would be set to monitor how the project will deliver planning policy obligations on carbon emission reduction.

6.2 Commitments made against local policy within the Application

- 6.2.1 Section 3.6 Page 11 and Paragraph 9.2.8 Page 26 of the Outline Energy Statement (CD 1.18) confirms the development will meet all relevant energy policy requirements of CDC Bicester Policy 1 and ESD Policies 1 to 5 of the local plan with further details to be provided as part of the subsequent reserved matters applications.
- 6.2.2 Sections 5.3 and 5.4 (Pages 14 to 16) of the Outline Energy Statement (CD 1.18) present opportunities for the detailed design of the masterplan and plot design to reduce energy demand through passive design measures.
- 6.2.3 Paragraph 3.6.2 Page 11 of the Outline Energy Statement (CD 1.18) confirms the minimum policy fabric energy efficiency level for the development will be the Future Homes Standard for the development as this is likely to be more stringent than the Code for Sustainable Homes Level 5/6 fabric requirements set in Section 6.1 Page 27 of the North West Bicester Masterplan Document Energy Strategy. The final fabric energy efficiency level will be defined at detailed design and will test going further than the minimum standards subject to viability.
- 6.2.4 The use of low carbon heating technology, such as air source heat pumps, smart energy technology, and heat recovery systems will be available to meet CDC local plan policies ESD 2, 3 and 5 as defined in the Masterplan Energy Strategy Appendix B (CD 8.3.1). These will aim to exceed the carbon emission

benefits of the existing district heat network in line with Policy ESD 4, to be confirmed at each RMA stage.

- 6.2.5 Renewable energy technology will be adopted site wide through the use of roof mounted solar power generation in line with Policy ESD 5.
- 6.2.6 Allowable solutions to offsetting residual emissions will be utilised to achieve true zero carbon status, as aligned to Policy ESD 2 Page 87 of the CDC Local Plan (CD 4.1).
- 6.2.7 The Outline Energy Statement noted the need for further consideration at each RMA stage of a range of issues including:
 - 1. Section 4 Paragraph 4.1.3 Page 12 of the Outline Energy Statement (CD 1.18) notes connection to the existing heat network may impact the development achieving Building Regulations.
 - 2. Section 4 Paragraph 4.1.4 Page 12 of the Outline Energy Statement (CD 1.18) notes there are no plans for delivering zero carbon heating through the district heat network. This includes no plans for installation of biomass combined heat and power technology as defined in the preferred option of the Section 6.4 Page 37 of Masterplan Energy Strategy (CD 8.3.1).
- 6.2.8 Section 4 Paragraph 4.1.4 Page 12 of the Outline Energy Statement (CD 1.18) notes continual engagement with SSE Enterprise on opportunities to connect to the district heat network, prior to each RMA.

6.3 Conclusion

- 6.3.1 The Outline Energy Statement (Section 3.6 Page 11 and Paragraph 9.2.8 Page 26 of the, CD 1.18) confirms the proposed development will meet all relevant policy requirements of Local Plan Bicester Policy 1 True Zero Carbon through a suite of potential approaches aligned to the Local Plan ESD 2 Energy Hierarchy including:
 - 1. Masterplan and plot design to maximise passive energy demand reduction measures.
 - 2. Establishing fabric energy efficiency measures meeting the SPD evidence base requirements of Code for Sustainable Homes Level 5/6 targets fabric standards.
 - 3. Installation of low carbon heating technology such as air source heat pumps and using smart energy technologies such as energy storage and heat recovery, offering increased benefits to emission reductions over the existing heat network.
 - 4. Installation of site wide roof mounted solar panels.
- 6.3.2 The use of allowable solutions will also contribute to offsetting residual emissions, and is aligned with Local Plan Policy ESD2 and the Masterplan Energy Strategy.
- 6.3.3 Rather than being prescriptive at the outline stage each RMA would consider the most appropriate design approach and technology implementation

available at the time and such measures would then be approved and conditioned by CDC as part of each RMA. This would allow further consideration of the potential for connecting to the existing district heat network at each RMA stage.

- 6.3.4 In keeping with all other applications associated with the Ecotown, it is expected that a planning condition would be set to monitor how the project will deliver planning policy obligations on carbon emission reduction, as well as wider sustainability measures. Draft conditions relating to these matters have been established accordingly.
- 6.3.5 The proposed development therefore aligns to meeting the definition of True Zero Carbon defined in Policy Bicester 1 and the SPD through the use of the measures defined in Local Plan Policy ESD2.

Document Reference APP/2/B: Appendix A Policy Compliance Matrix

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
1	Page 85-86	<p>Policy ESD 1: Mitigating and Adapting to Climate Change</p> <p>Measures will be taken to mitigate the impact of development within the District on climate change. At a strategic level, this will include:</p> <ul style="list-style-type: none"> Distributing growth to the most sustainable locations as defined in this Local Plan Delivering development that seeks to reduce the need to travel and which encourages sustainable travel options including walking, cycling and public transport to reduce dependence on private cars Designing developments to reduce carbon emissions and use resources more efficiently, including water (see Policy ESD 3 Sustainable Construction) Promoting the use of decentralised and renewable or low carbon energy where appropriate (see Policies ESD 4 Decentralised Energy Systems and ESD 5 Renewable Energy). <p>The incorporation of suitable adaptation measures in new development to ensure that development is more resilient to climate change impacts will include consideration of the following:</p> <ul style="list-style-type: none"> Taking into account the known physical and environmental constraints when identifying locations for development Demonstration of design approaches that are resilient to climate change impacts including the use of passive solar design for heating and cooling Minimising the risk of flooding and making use of sustainable drainage methods, and 	<p>The Outline Energy Statement provides an overarching appraisal of how the development masterplan will seek to reduce emissions through:</p> <p>Chapter 5 Page 13: Energy Efficiency</p> <p>Chapter 7 Page 19: Renewable and Low Carbon Technologies</p> <p>Chapter 8 Page 23: Smart Energy Infrastructure.</p> <p>Chapter 4 Page 12 of the Outline Energy Statement appraises the connection to the existing SSE Enterprise District Heat Network.</p> <p>Section 5.3 and 5.4 Page 14 of the Outline Energy Statement sets out the principles for reducing energy demand of the development through place-making. These include measure to reduce the impact of climate change.</p>	<p>The viability assessment takes into consideration:</p> <p>Transport provision</p> <p>Energy efficiency measures</p> <p>Water efficiency measures</p> <p>Renewable energy</p> <p>Permeable ground solutions</p> <p>Green infrastructure</p>	<p>Paragraph 9.2.8 of the Outline Energy Statement concludes the need to refine all aspect at each Reserved Matters Stage.</p> <p>This would typically be secured through a planning condition.</p> <p>The climate change chapter of the ES provides an overview of how the scheme will approach design measures to adapt to climate change</p>

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
		<ul style="list-style-type: none"> Reducing the effects of development on the microclimate (through the provision of green infrastructure including open space and water, planting and green roofs. <p>Adaptation through design approaches will be considered in more locally specific detail in the Sustainable Buildings in Cherwell Supplementary Planning Document (SPD).</p>			
2	Page 87 B.185	<p>An Energy Statement will be required for proposals for major residential developments (over10dwellings), and all non-residential development to demonstrate how the energy hierarchy has been applied.</p> <p>The Energy Statement can form a standalone document or be part of the Design and Access Statement. The Council will produce a template for use in preparing energy statements.</p>	An Outline Energy Statement was provided with the outline planning application.		<p>Paragraph 9.2.8 of the Outline Energy Statement concludes the need to refine all aspect at each Reserved Matters Stage.</p> <p>This would typically be secured through a planning condition.</p>
3	Page 87	<p>Policy ESD 2: Energy Hierarchy and Allowable Solutions</p> <p>In seeking to achieve carbon emissions reductions, we will promote an 'energy hierarchy' as follows:</p> <ul style="list-style-type: none"> Reducing energy use, in particular by the use of sustainable design and construction measures 	Section 5.2 Page 13 of the Outline Energy Statement sets out how the scheme will achieve the energy hierarchy.	<p>The viability assesses the cost of:</p> <ul style="list-style-type: none"> Fabric energy standards in excess of Code Level 5/6 fabric standards; 	Paragraph 5.3.5 of the Outline Energy Statement notes the need for this to be refined at each

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
		<ul style="list-style-type: none"> • Supplying energy efficiently and giving priority to decentralised energy supply • Making use of renewable energy • Making use of allowable solutions. 		<ul style="list-style-type: none"> • Air Source Heat Pumps and smart energy storage technology; • Photovoltaic panels; and • Allowable solutions as defined in ESD 2 and the North West Bicester Masterplan Documents Energy Strategy 	<p>reserved matters application.</p> <p>This would typically be secured through a planning condition.</p>
4	Page 87 B.186	<p>Carbon emissions reductions can be achieved through a range of “allowable solutions”; measures which secure carbon savings offsite.</p> <p>These have yet to be defined by the government but could potentially include investment in offsite low and zero carbon technologies. The concept is relatively new and is seen as a way to enable developments to become carbon neutral where it is not possible to deal with all carbon emissions through onsite measures.</p> <p>It will not always be cost effective or technically feasible to meet the zero carbon standard through onsite measures and the government is therefore proposing that the zero carbon standard could be achieved by mitigating the remaining emissions off-site through the use of allowable solutions.</p>	<p>Page 6 Paragraph 3.3.3 to 3.3.6 of the Outline Energy Statement notes since the CDC Local Plan production, Government did not progress with the concept of Allowable Solutions.</p> <p>The Outline Energy Statement notes the need to comply with ESD 2 Energy Hierarchy and Allowable Solutions mechanism in mitigating and adaption to climate change.</p>	<p>The use of allowable solutions has been assessed to achieve True Zero Carbon as defined within ESD 2 and set out within the Masterplan Energy Strategy (CD 8.3.1).</p>	

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
		<p>The Council will support the implementation of the national approach to allowable solutions once defined and any additional implementation guidance require data local level will be set out in the Local Plan Part2 and the Sustainable Buildings in Cherwell SPD’.</p>			
5	Page 88	<p>Policy ESD 3: Sustainable Construction</p> <p>All new residential development will be expected to incorporate sustainable design and construction technology to achieve zero carbon development through a combination of fabric energy efficiency, carbon compliance and allowable solutions in line with Government policy.</p> <p>Cherwell District is in an area of water stress and as such the Council will seek a higher level of water efficiency than required in the Building Regulations, with developments achieving a limit of 110 litres/person/day.</p> <p>All new non-residential development will be expected to meet at least BREEAM ‘Very Good’ with immediate effect, subject to review over the plan period to ensure the target remains relevant. The demonstration of the achievement of this standard should be set out in the Energy Statement. The strategic site allocations identified in this Local Plan are expected to provide contributions to carbon emissions reductions and to wider sustainability.</p> <p>All development proposals will be encouraged to reflect high quality design and high environmental standards,</p>	<p>The Outline Energy Statement provides an overarching appraisal of how the development masterplan will seek to reduce emissions through:</p> <p>Chapter 5 Page 13: Energy Efficiency</p> <p>Chapter 7 Page 19: Renewable and Low Carbon Technologies</p> <p>Chapter 8 Page 23: Smart Energy Infrastructure.</p> <p>Section 5.3 and 5.4 Page 14 of the Outline Energy Statement sets out the principles for reducing energy demand of the development through place-making. These include measure to reduce the impact of climate change.</p>	<p>Specific to ESD 3 include measures that include the provision to:</p> <p>Minimise energy demands and loss</p> <p>Maximise resource efficiency</p> <p>Make use of sustainable drainage methods</p>	<p>There are no commercial components to the scheme therefore BREEAM is not currently relevant to the application.</p> <p>Paragraph 5.2.4 of the Outline Energy Statement notes the need to refine all aspect at the Reserved Matters Stage.</p> <p>This will also include securing additional measures such as</p>

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
		<p>demonstrating sustainable construction methods including but not limited to:</p> <ul style="list-style-type: none"> • Minimising both energy demands and energy loss • Maximising passive solar lighting and natural ventilation • Maximising resource efficiency • Incorporating the use of recycled and energy efficient materials • Incorporating the use of locally sourced building materials • Reducing waste and pollution and making adequate provision for the recycling of waste • Making use of sustainable drainage methods Reducing the impact on the external environment and maximising opportunities for cooling and shading (by the provision of open space and water, planting, and green roofs, for example); and • Making use of embodied energy within buildings wherever possible and re-using materials where proposals involve demolition or redevelopment. <p>Should the promoters of development consider that individual proposals would be unviable with the above requirements, 'open-book' financial analysis of proposed developments will be expected so that an independent economic viability assessment can be undertaken. Where it is agreed that an economic viability assessment is required, the cost shall be met by the promoter.</p>			water efficiency standards.
6	Page 91	<p>Policy ESD 4: Decentralised Energy Systems</p> <p>The use of decentralised energy systems, providing either heating (District Heating (DH)) or heating and power</p>	Page 12 Section 4 of the Outline Energy Statement considers how the scheme may		

Item	Cherwell Local Plan 2011-2031	Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
	<p>(Combined Heat and Power (CHP)) will be encouraged in all new developments.</p> <p>A feasibility assessment for DH/CHP, including consideration of biomass fuelled CHP, will be required for: All residential developments for 100 dwellings or more.</p> <p>The feasibility assessment should be informed by the renewable energy map at Appendix5 'Maps' and the national mapping of heat demand densities undertaken by the Department for Energy and Climate Change (DECC) (see Appendix 3:Evidence Base).</p> <p>Where feasibility assessments demonstrate that decentralised energy systems are deliverable and viable, such systems will be required as part of the development unless an alternative solution would deliver the same or increased benefit.</p>	<p>connect to the existing SSE Enterprise District Heat Network.</p> <p>During the pre-application process engagement SSE Enterprise highlighted there was no future intention in converting the existing natural gas led energy centres to either biomass or connection to the Ardley Energy from Waste plant to provide zero carbon heating.</p> <p>The heat network therefore does not comply with Policy Bicester 1 in provision of site wide zero carbon infrastructure.</p> <p>At the time of the pre-application SSE Enterprise were in the process of undertake feasibility assessments to reduce the carbon intensity of their heat network, to ensure future connections would meet Building Regulations and comply with Policy Bicester 1.</p> <p>The Outline Energy Statement notes that Appellant will continue engagement with SSE Enterprise to consider future connection opportunities.</p> <p>This will be dictated by whether the heat network can indeed decarbonise or the development can secured guarantees that it will.</p>		

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
			<p>Currently connection to the existing heat network may jeopardise the development meeting future Building Regulation due to the use of natural gas or the lower carbon options that have been defined in the Outline Energy Statement. The Standard Assessment Procedure has recently (11th April 2023) changed to accommodate approaches to connecting to existing heating networks. This will need to be considered at detail design application stage.</p> <p>Aligned to ESD 4 alternative solutions were explored within the Outline Energy Statement that would deliver the same or increased benefits over the existing district heat network (Section 7 page 19-22 of the Outline Energy Statement).</p>		
7	Page 93	<p>Policy ESD 5: Renewable Energy</p> <p>The Council supports renewable and low carbon energy provision wherever any adverse impacts can be addressed satisfactorily. The potential local environmental, economic and community benefits of renewable energy schemes will be a material consideration in determining planning applications. Planning applications involving renewable energy development will be encouraged provided that there is no unacceptable adverse impact, including cumulative impact, on the following issues, which are considered to</p>	<p>Section 7 page 19-22 of the Outline Energy Statement assess all current available technology solutions and provides current solutions to be considered at reserved matters application.</p>	<p>Photovoltaics on all properties has been included within the viability model therefore confirming ESD 5.</p>	

Item	Cherwell Local Plan 2011-2031	Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
	<p>be of particular local significance in Cherwell: Landscape and biodiversity including designations, protected habitats and species, and Conservation Target Areas Visual impacts on local landscapes. The historic environment including designated and non designated assets and their settings The Green Belt, particularly visual impacts on openness Aviation activities Highways and access issues, and Residential amenity.</p> <p>A feasibility assessment of the potential for significant on site renewable energy provision (above any provision required to meet national building standards) will be required for: All residential developments for 100 dwellings or more.</p> <p>Where feasibility assessments demonstrate that on site renewable energy provision is deliverable and viable, this will be required as part of the development unless an alternative solution would deliver the same or increased benefit.</p> <p>This may include consideration of ‘allowable solutions’ as Government Policy evolves.</p>			

Item	Cherwell Local Plan 2011-2031		Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
8	Page 140	<p>Policy Bicester1: North West Bicester Eco-Town Development Area: 390 hectares Development</p> <p>Description: A new zero carbon mixed use development including 6,000 homes will be developed on land identified at North West Bicester.</p> <p><i>The definition of zero carbon in eco-towns is that over a year the net carbon dioxide emissions from all energy use within the buildings on the eco-town development as a whole are zero or below.</i></p> <p>Homes to be constructed to be capable of achieving a minimum of Level 5 of the Code for Sustainable Homes on completion of each phase of development, including being equipped to meet the water consumption requirement of Code Level 5.</p> <p>Have real time energy monitoring systems, real time public transport information and Superfast Broadband access, including next generation broadband where possible. Consideration should also be given to digital access to support assisted living and smart energy management systems.</p> <p>Utilities – Utilities and infrastructure which allow for zero carbon and water neutrality on the site and the consideration of sourcing waste heat from the Ardley Energy recovery facility. The approach shall be set out in an Energy Strategy and a Water Cycle Study. The Water Cycle Study shall cover water efficiency and demand</p>	<p>The Outline Energy Statement confirms the requirement to meet Policy Bicester 1’s true zero carbon definition, taking into consideration Policies ESD 1 to ESD5 and the North West Bicester Masterplan Documents Energy Strategy (Section 3.6.2 and 3.6.3, Page 11, CD 8.3.1).</p> <p>The Energy Statement notes the need to comply with future changes in Building Regulations including the Future Homes Standard.</p> <p>The Government’s Future Homes Hub Task Force (CD 8.3.10) define that fabric energy efficiency achieved through the Future Homes Standard exceeds the fabric energy efficiency standard of Code Level 5 & 6 (Figure 110 Page 151, CD 8.3.10).</p> <p>The Outline Planning Application Utility Statement (CD 1.23) and the Water Efficiency Statement (CD 1.20) appraised the inclusion of electric led heating, transport solutions and water efficiency.</p>	<p>The viability assesses the cost of:</p> <ul style="list-style-type: none"> • Fabric energy standards in excess of Code Level 5/6 fabric standards; • Air Source Heat Pumps; • Smart energy storage technology; • Photovoltaic panels; and • Allowable solutions as defined in ESD 2 and the North West Bicester Masterplan Documents Energy Strategy <p>This meets true zero carbon through a combination of approaches defined within the CDC local plan policy and the North West Bicester Masterplan Documents Energy Strategy.</p> <p>The viability assessment also</p>	<p>Following the technical housing standards review, the government has withdrawn the code for sustainable homes, aside from the management of legacy cases as of April 2015.</p> <p>Mandating compliance to the Code for Sustainable Homes cannot be achieved due to no mechanism to measure, report, monitor or verify the process.</p> <p>As noted the scheme has committed to meeting the Fabric Energy</p>

Item	Cherwell Local Plan 2011-2031	Outline Planning Application Energy Statement	Viability Assessment Response	Additional Commentary
	<p>management, water quality and how it will be protected and improved, WFD compliance, surface water management to avoid increasing flood risk and water services infrastructure improvement requirements and their delivery, having regard to the Environment Agency's guidance on Water Cycle Studies. Zero Carbon (see PPS definition) water neutral development is sought. Development proposals will demonstrate how these requirements will be met.</p> <p>High quality exemplary development and design standards including zero carbon development, Code Level 5 for dwellings at a minimum.</p> <p>All new buildings designed to incorporate best practice on tackling overheating, taking account of the latest UKCIP climate predictions.</p> <p>Proposals should enable residents to easily reduce their carbon footprint to a low level and live low carbon lifestyles.</p>		<p>includes water recycling measures to support water neutral development.</p> <p>Water efficiency is defined in the Water Efficiency Statement (CD 1.20).</p>	<p>Efficiency Standards of Code Level 5 & 6.</p>

Item	North West Bicester Supplementary Planning Document February 2016		Outline Planning Application Response	Viability Assessment Response	Additional Commentary
9	Page 4 1.8	Requirements which should be met at the detailed planning application stage and beyond to ensure adequate and consistent approaches to quality and delivery.	<p>Page 26 Paragraph 9.2.8 of the Outline Energy Statement states:</p> <p><i>All opportunities identified here must be subject to thorough technical feasibility and financial viability assessment. The final energy strategy for each phase will be detailed at the RMA stage and demonstrated through full Building Regulations (Part L) calculations for Building Control.</i></p>	N/A	
10	Page 14 3.10	Infrastructure requirements will be future-proofed so that the development can adapt to change. Renewable energy generation from on-site sources will be the key to delivering zero carbon emissions from energy used in buildings on the site. The provision of utilities' infrastructure should be coordinated and support the overarching objective for zero carbon development.	<p>A utility statement was provided with the outline application assessing the impact of electrification of the development on wider utility network.</p> <p>Page 12 Section 4 of the Outline Energy Statement considers how the scheme may connect to the existing SSE Enterprise District Heat Network.</p> <p>During the pre-application process engagement SSE Enterprise highlighted there was no future intention in converting the existing natural gas led energy centres to either biomass or connection to the Ardley Energy from Waste plant to provide zero carbon heating.</p> <p>The heat network therefore does not support meeting Policy Bicester 1 in provision of site wide zero carbon infrastructure.</p>	A low carbon heating option utilising heat pump technology has been identified for use within the viability appraisal.	SSE Enterprise are undertaking assessment to look at the feasibility of decarbonisation of the heat network. This will inform the detailed application energy statement.

Item	North West Bicester Supplementary Planning Document February 2016		Outline Planning Application Response	Viability Assessment Response	Additional Commentary
			<p>At the time of the pre-application SSE Enterprise were in the process of undertake feasibility assessments to reduce the carbon intensity of their heat network, to ensure future connections would meet Building Regulations and comply with Policy Bicester 1.</p> <p>The Outline Energy Statement notes that the Appellant will continue engagement with SSE Enterprise to consider future connection opportunities.</p> <p>This will be dictated by whether the heat network can indeed decarbonise or the development can secured guarantees that it will.</p>		
		<p>Development Requirement 1 - Delivering the masterplan</p>			
11	Page 17 4.11	<p>Planning applications will be: Required to progress design work (see design principles in section 5) in the preparation of detailed proposals. For example, details to the level of the block and the street should be provided to explore issues related to building typologies and solar orientation.</p>	<p>Page 14 Sections 5.2 and 5.3 of the Outline Energy Statement sets out the principles of spatial and plot design to maximise energy reduction and use of solar orientation.</p>		
12	Page 17 4.14	<p>Work to date indicates a mixture of low carbon district heating and photovoltaic energy would achieve zero carbon. The site's orientation and aspect creates the opportunity for roof mounted solar panels to generate</p>	<p>During the pre-application process engagement SSE Enterprise who run the existing heat network highlighted there was no future intention in converting the existing natural gas led energy</p>	<p>Solar panels have been included on all properties within the viability assessment.</p>	

Item	North West Bicester Supplementary Planning Document February 2016		Outline Planning Application Response	Viability Assessment Response	Additional Commentary
		renewable energy and will go a significant way to achieving the zero carbon targets.	centres to either biomass or connection to the Ardley Energy from Waste plant to provide zero carbon heating. Solar generation was identified within the Outline Energy Statement to be a suitable technology for the development.		
13	Page 17 4.15	<p>The approach to energy and carbon dioxide reduction is set out in the Masterplan Energy Strategy and summarised below:</p> <ul style="list-style-type: none"> • A large scale solar array on all roofs; • Energy efficient buildings and • A network of energy centres providing gas and biomass combined heat and power (CHP) which will require a district heating network. 	<p>The Outline Energy Statement confirms:</p> <ul style="list-style-type: none"> • A large scale solar array on all roofs; • Energy efficiency standard of Code for Sustainable Homes Level 5/6 • Use of low carbon technology such as heat pumps • Use of smart energy technology • Engagement required with SSE Enterprise to understand the carbon emission impact of their heat network at detailed application stage. 	<p>The viability assessment includes for:</p> <ul style="list-style-type: none"> • A large scale solar array on all roofs; • Energy efficiency standard of Code for Sustainable Homes Level 5/6 • Heat pump and smart energy storage technology 	

Item	North West Bicester Supplementary Planning Document February 2016		Outline Planning Application Response	Viability Assessment Response	Additional Commentary
14	Page 18 4.18	<p>The Council will encourage:</p> <ul style="list-style-type: none"> • Roof mounted arrays to avoid use of large tracts of land for a single purpose. • Exploration of technologies that will assist building occupiers in maximising the use of any renewable energy generated on the site. • Design of the proposed development should enable solar power generation by supporting: <ul style="list-style-type: none"> • Orientation - For pitched roofs, all roofs should have at least one pitch facing within 45 degrees of due south. Mono-pitch or flat roofs should be used to increase PV provision. A mix of orientations ranging from +45 degrees to -45 degrees of south will reduce the peak export and contribute to meeting peak demands. • Avoiding overshadowing/overshadowing - Buildings should avoid or at least minimise shading to roofs. Shading of south facing roofs by trees or other buildings should be avoided. • Built form, density and massing that optimises the potential for solar gain to generate energy. 	Page 14 Sections 5.2 and 5.3 of the Outline Energy Statement sets out the principles of spatial and plot design to maximise energy reduction and use of solar orientation.		
15	Page 18 4.21	The feasibility of a local heat network for Bicester as a whole is being investigated by the Council and BioRegional supported by the Department for Energy and Climate Change (DECC) Heat Network Delivery Unit (HNDU) funding. The importance of a heat network	Section 4 of the Outline Energy Statement notes during the pre-application process engagement SSE Enterprise who run the existing heat network highlighted there was no future intention in converting the existing natural gas led energy		

Item	North West Bicester Supplementary Planning Document February 2016	Outline Planning Application Response	Viability Assessment Response	Additional Commentary	
		should be recognised and opportunities included in proposals for the eco-town. The aspiration is for waste heat from the energy recovery facility at Ardley to connect to proposed developments, if feasible.	centres to either biomass or connection to the Ardley Energy from Waste plant to provide zero carbon heating.		
16	Page 18 4.22	The use of smart grids and low carbon energy storage solutions provide an opportunity to manage demand and supply of renewable and zero carbon energy technologies. Such solutions should be explored further in the energy strategies to support planning applications and masterplanning delivery.	Pages 23 and 24 Section 8 of the Outline Energy Statement defines the opportunity for inclusion of smart technology for each RMA. This includes opportunities for smart electricity and heating storage.	The use of smart heating technologies as defined in Page 24 of the Outline Energy Strategy has been considered within the viability assessment for the apartments. This would be confirm at the relevant RMA.	Paragraph 9.2.8 of the Outline Energy Statement notes the need to refine all aspect at the Reserved Matters Stage.
		Development Requirement 2 - True zero carbon development			
17	Page 19 4.24	Development at North West Bicester must achieve zero carbon emissions as defined in this SPD.	Section 9 (9.2.1) of the Outline Energy Statement summarises the scheme will comply with the requirements of True Zero Carbon Development as defined in the SPD and Local Plan Policy ESD2.	The viability assessment is based on meeting True Zero Carbon Development as defined within the SPD and through the measure expressed in ESD2	

Item	North West Bicester Supplementary Planning Document February 2016		Outline Planning Application Response	Viability Assessment Response	Additional Commentary
18	Page 19 4.25	Each full and outline application will need to be supported by an energy strategy and comply with the definition of true zero carbon development.	The Outline Energy Statement provides the outline approach as to how the scheme will comply with the requirements of True Zero Carbon Development. This is summarised in the statement in Section 3.6 Page 11 and Section 9.2 Page 25.	The viability assessment is based on meeting True Zero Carbon Development as defined within the SPD and through the measure expressed in ESD2	
19	Page 19 4.26	Energy strategies should identify how the proposed development will achieve the zero carbon targets and set out the phasing.	Outline Energy Statement summarises the scheme will comply with the requirements of True Zero Carbon Development. This is summarised in the statement in Section 3.6 Page 11 and Section 9.2 Page 25. Page 26 Paragraph 9.2.8 of the Outline Energy Statement states the need to show how this has been achieved at each RMA.		
20	Page 19 4.27	Use of heat and low carbon energy from the energy recovery facility at Ardley should be explored in the energy strategy. Smart grid and storage technology should also be investigated.	Section 4 outlines that during the pre-application process engagement SSE Enterprise who run the existing heat network highlighted there was no future intention in converting the existing natural gas led energy centres to either biomass or connection to the Ardley Energy from Waste plant to provide zero carbon heating. Pages 23 and 24 Section 8 of the Outline Energy Statement defines the opportunity for inclusion of smart technology for each RMA. This includes		

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			opportunities for smart electricity and heating storage.														
21	Page 19 4.28	Applicants will be encouraged to maximise the fabric energy efficiency of buildings.	<p>Page 15 and 16, Section 5.4 of the Outline Energy Statement sets out the high level proposals to maximise fabric energy efficiency across the scheme. It notes the need to ensure at the very minimum the Future Homes Standard is adhered to.</p> <p>It should be noted that the Future Homes Standard is likely to set minimum fabric standards higher than those defined in the CDC policy evidence base of the minimum fabric standards of Code for Sustainable Homes Level 5/6. This comparison is provided below (from Figure 110 page 151, CD 8.3.10).</p> <table border="1" data-bbox="1012 1023 1547 1382"> <thead> <tr> <th data-bbox="1012 1023 1191 1123"></th> <th colspan="2" data-bbox="1191 1023 1547 1123">Fabric Energy Efficiency Standard (kWh/m²/year)</th> </tr> <tr> <th data-bbox="1012 1123 1191 1182"></th> <th data-bbox="1191 1123 1357 1182">Code 5/6</th> <th data-bbox="1357 1123 1547 1182">FHS</th> </tr> </thead> <tbody> <tr> <td data-bbox="1012 1182 1191 1321">House, semi, end terrace</td> <td data-bbox="1191 1182 1357 1321">46</td> <td data-bbox="1357 1182 1547 1321">43.6</td> </tr> <tr> <td data-bbox="1012 1321 1191 1382">End terrace</td> <td data-bbox="1191 1321 1357 1382">46</td> <td data-bbox="1357 1321 1547 1382">32.9</td> </tr> </tbody> </table>		Fabric Energy Efficiency Standard (kWh/m ² /year)			Code 5/6	FHS	House, semi, end terrace	46	43.6	End terrace	46	32.9	For the purposes of the Viability Assessment the proposed Future Homes Standard was used as the basis of costing assessment.	
	Fabric Energy Efficiency Standard (kWh/m ² /year)																
	Code 5/6	FHS															
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End terrace	46	32.9															

Item	North West Bicester Supplementary Planning Document February 2016		Outline Planning Application Response			Viability Assessment Response	Additional Commentary
			Mid Terrace	39	25.1		
			Flat	39	21.0		
22	Page 19 4.29	Provision of utilities' infrastructure should be coordinated and support the overarching objective of true zero carbon development.	<p>The Future Homes Standard is therefore considered likely to be more stringent fabric approach than the minimum standard set in Code 5/6.</p> <p>A utility statement was provided with the outline application assessing the impact of electrification of the development on wider utility network.</p> <p>Page 12 Section 4 of the Outline Energy Statement considers how the scheme may connect to the existing SSE Enterprise District Heat Network.</p>				
23	Page 19 4.30	Where an approach is proposed that does not include a heat network it will have to be demonstrated that it is a robust long term solution and that connection to any heat network should be explored.	<p>At the time of the pre-application SSE Enterprise were in the process of undertake feasibility assessments to reduce the carbon intensity of their heat network, to ensure future connections would meet Building Regulations and comply with Policy Bicester 1.</p> <p>The Outline Energy Statement notes that the Appellant will continue engagement with SSE Enterprise to consider future connection opportunities.</p>				

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		Development Requirement 3 - Climate Change Adaptation			
24	Page 20 4.41	Planning applications will be required to incorporate best practice on tackling overheating.	<p>Page 14 Sections 5.2 and 5.3 of the Outline Energy Statement sets out the principles of spatial and plot design to maximise energy reduction and use of solar orientation.</p> <p>Each RMA will be required to consider overheating and also required within the Building Regulations.</p>		<p>The Masterplan Energy Strategy (CD 8.3.1) notes, Page 22 Section 5.1 passive ventilation should be prioritised over mechanical ventilation or air conditioning. On page 27 the strategy notes the need to limit fabric energy efficiency levels to ensure that mechanical ventilation requirements are not triggered.</p>

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					<p>This needs to be considered alongside setting fabric energy efficiency measures as a limiting factor to fabric standards.</p> <p>Each reserved matters should consider the benefits of mechanical ventilation relating to overheating.</p>
25	Page 20 4.42	<p>Planning applications will also be required to incorporate best practice on tackling the impacts of climate change on the built and natural environment including:</p> <ul style="list-style-type: none"> • Urban cooling through Green Infrastructure (for example, the use of green space and the incorporation of green streets); • Orientation and passive design principles; 	The Outline Energy Statement assesses each of these aspects within Section 5 Pages 13-16.		Following the technical housing standards review, the government has withdrawn the code for sustainable

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	<ul style="list-style-type: none"> • Meet Minimum Fabric Energy Efficiency Standards (FEES) • Achieve Code for Sustainable Homes Level 5 (CSH5). 			<p>homes, aside from the management of legacy cases as of April 2015.</p> <p>Mandating compliance to the Code for Sustainable Homes cannot be achieved due to no mechanism to measure, report, monitor or verify the process.</p> <p>The scheme has committed to meeting the Fabric Energy Efficiency Standards of Code Level 5 & 6 by meeting the expected</p>

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					Future Homes Standards.
	Development Principle 4 – Homes				
26	Page 22 4.58	<p>Home designs will encourage more sustainable ways of living for example through:</p> <ul style="list-style-type: none"> • Passive heating and cooling; • Provision for electric vehicle charging points and • Provision for electric Smart 	<p>The Outline Energy Statement assess passive heating and cooling aspects within Section 5 Pages 13-16.</p> <p>Section 8 Pages 22 to 23 set out the approach to incorporating smart electrical infrastructure.</p>	<p>Provision has been made to cover passive heating and cooling provision.</p>	
27	Page 22 4.24	<p>In summary, all homes should:</p> <ul style="list-style-type: none"> • Use energy efficient materials as part of the building fabric and innovative approaches to sustainable construction • Optimise the site’s potential for solar energy gain and passive house techniques for ventilation and cooling • Address the issue of overheating and respond to the orientation of the site • Meet a minimum of Level 5 of the Code for Sustainable homes 	<p>The Outline Energy Statement assess each of these aspects within Section 5 Pages 13-16.</p> <p>Section 8 Pages 22 to 23 set out the approach to incorporating smart electrical infrastructure.</p>	<p>For the purposes of the Viability Assessment the proposed Future Homes Standard was used as the basis of costing assessment.</p>	

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		<ul style="list-style-type: none"> • Provide flexible space to facilitate homeworking and be “smart” - incorporating real time energy monitoring systems, technology that provides up to date real time community information including travel, superfast broadband (speeds in excess of 100 MBps) to facilitate use of homes as offices and small businesses 			
	Appendix 2 PPS1 Ecotown Policy				
28	Page 63 ET 7.1	The definition of zero carbon in eco-towns is that over a year the net carbon dioxide emissions from all energy use within the buildings on the eco-town development as a whole are zero or below. The initial planning application and all subsequent planning applications for the development of the eco-town should demonstrate how this will be achieved.	Outline Energy Statement summarises the scheme will comply with the requirements of the Ecotown Policy.		

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29	Page 63 ET 7.3	<p>This standard will take effect in accordance with a phased programme to be submitted with the planning application. It excludes embodied carbon and emissions from transport but includes all buildings –</p> <p>not just houses but also commercial and public sector buildings which are built as part of the eco-town development. The calculation of net emissions will take account of:</p> <p>(a) emissions associated with the use of locally produced energy</p> <p>(b) emissions associated with production of energy imported from centralized energy networks, taking account of the carbon intensity of those imports as set out in the Government’s Standard Assessment Procedure, and</p> <p>(c) emissions displaced by exports of locally produced energy to centralized energy networks where that energy is produced from a plant (1) whose primary purpose is to support the needs of the eco town and (2) has a production capacity reasonably related to the overall energy requirement of the eco town.</p>	Page 26 Paragraph 9.2.8 of the Outline Energy Statement states the need to show how this has been achieved at each RMA.		

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30	Page 64 ET 9.1 Homes	<p>As well as being zero carbon as part of the whole built environment, homes in eco-towns should:</p> <p>(a) achieve Level 4 of the Code for Sustainable Homes at a minimum (unless higher standards are set elsewhere in this Planning Policy Statement)</p> <p>(c) have real time energy monitoring systems; real time public transport information and high speed broadband access, including next generation broadband where possible. Consideration should also be given to the potential use of digital access to support assisted living and smart energy management systems</p> <p>(e) demonstrate high levels of energy efficiency in the fabric of the building, having regard to proposals for standards to be incorporated into changes to the Building Regulations between now and 2016 (including the consultation on planned changes for 2010 issued in June 2009 and future announcements on the definition of zero carbon homes), and</p> <p>(f) achieve, through a combination of energy efficiency and low and zero carbon energy generation on the site of the housing development and any heat supplied from low and zero carbon heat systems directly connected to the development, carbon reductions (from space heating, ventilation, hot water and fixed lighting) of at least 70 per cent relative to current Building Regulations (Part L 2006).</p>	<p>The Outline Energy Statement assess each of these aspects:</p> <p>(a) The Government removed the Code for Sustainable Homes in April 2015 therefore compliance and regulation of this requirement is not available to the applicant.</p> <p>(c) Section 8 Pages 22 to 23 of the Outline Energy Statement set out the approach to incorporating smart electrical infrastructure.</p> <p>(e) Future Homes Standard is likely to exceed the fabric energy efficiency standard of Code 5/6. This will be refined at each RMA (as noted in Item 21 above).</p> <p>(f) Government’s Future Homes Standard targets a 75%-80% reduction in emissions over pre 2021 Building Regulation Standards which will be far in excess of 2006 Part L.</p>		

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31	Page 64 ET 9.2	<p>The intent of the energy efficiency and on-site carbon reduction standards is to ensure that, without being too prescriptive as to the means employed to achieve the overall zero carbon standard, reasonable opportunities for energy efficiency and on-site carbon mitigation (including directly connected heat systems) are utilised.</p>	<p>At the outline planning application stage a suite of approaches aligned to the energy hierarchy have been appraised. Rather than being prescriptive this allows each RMA to consider the most appropriate design approach and technology implementation available at the time of the RMA.</p> <p>Technology continues to evolve and costs associated with implementation of design and technology to decarbonise development change significantly year on year. It is important therefore not to be too prescriptive at the outline application to ensure best available technology is included at the detail design stage.</p> <p>Page 26 Paragraph 9.2.8 of the Outline Energy Statement states the need to show how this has been achieved at each RMA.</p>		



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