

JS LEWIS LTD

Energy and Sustainability Statement

110 Walm Lane

Revision B

Redbourne (Queensbury) Ltd

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Author: Johnny Lewis, Director
Signature: (hard copy only)

Contact: JS Lewis Ltd
29 Church Road
Bath
BA1 4BT

Registered Company No. 0706 6238
VAT Registration No. 121 2714 62

CONTENTS

Contents	3
List of Figures	4
Executive Summary	5
1 Introduction	7
1.1 Context	7
1.2 Location and Scheme Description	7
2 Policy and Regulatory Context	8
2.1 National Policy	8
2.2 London Policy	9
2.3 Local Policy	11
2.3.1 The Deregulation Act	11
2.3.2 The GLA Response	11
2.4 Zero Carbon Homes	12
2.5 Analysis and Interpretation	12
3 Climate Change	13
3.1 Background	13
3.2 Mitigation and Adaptation	13
3.2.1 Overheating	13
3.2.2 Flooding	13
3.2.3 Water Stress:	13
4 Energy Strategy	14
4.1 CO2 Emissions Assessment	14
4.1.1 Methodology	14
4.1.2 The Energy Hierarchy	14
4.1.3 The Cooling Hierarchy	14
4.2 Energy Efficiency	14
4.3 CHP and District Heating	16
4.4 Renewable Energy	16
4.4.1 Biomass	16
4.4.2 Solar Thermal	16
4.4.3 Heat Pumps	16
4.4.4 Solar PV	16
4.4.5 Wind Power	17
4.5 Summary	17
5 Environmental Sustainability	20
5.1 Water	20
5.1.1 Flood Risk and Sustainable Drainage	20

5.1.2	Water Conservation	20
5.2	Sustainable Transport	20
5.3	Materials and Resource Efficiency	21
5.4	Waste Strategy	21
5.5	Ecology and Biodiversity	21
5.6	Pollution	21
6	Conclusion	22
6.1	Sustainable Development.....	22
6.2	Social and Economic Sustainability	22
6.3	Environmental Sustainability	22
6.4	Statement of Policy Compliance.....	23

LIST OF FIGURES

Figure 1 - Energy Efficient Scheme Improvement on Part L 2014	15
Figure 2 - Emissions Summary.....	17
Figure 3 - Business As Usual Scenario	17
Figure 4 - Energy Efficient Emissions Summary	18
Figure 5 - Renewable Energy Scenario	18
Figure 6 - Energy Hierarchy and London Plan Target.....	19
Figure 7 - SAP Outputs for Units with Efficiency, CHP and Renewables	19

EXECUTIVE SUMMARY

This document forms one of a suite of documents that form a planning application to be submitted by Redbourne (Queensbury) Ltd Ltd to the London Borough of Brent (“the Council”). It is a combined energy and sustainability strategy.

The 110 Walm Lane site (“the Site”) is a 0.21 Ha site occupied by the Queensbury Pub and Restaurant. The proposals seek to develop a mixed-use scheme that makes good use of the site’s excellent accessibility and links to public transport. The proposed redevelopment is to replace the existing building (containing a public house and former members club) with a mixed use development comprising a public house with function room (A4), and 48 residential flats (C3).

The scheme has to address national, regional and local planning policy on energy and sustainability. It also has to address the regulatory framework at the post-planning detailed design stage. This document sets out the energy strategy and the sustainability strategy as required by both the local and the regional planning policy. The strategy put in place makes key commitments to the headline standards.

It should be recognised that as schemes are developed post-planning, some of the details may change as the detailed design considerations are resolved in more depth. Accordingly, any related planning conditions should be worded to allow flexibility in how the details are resolved.

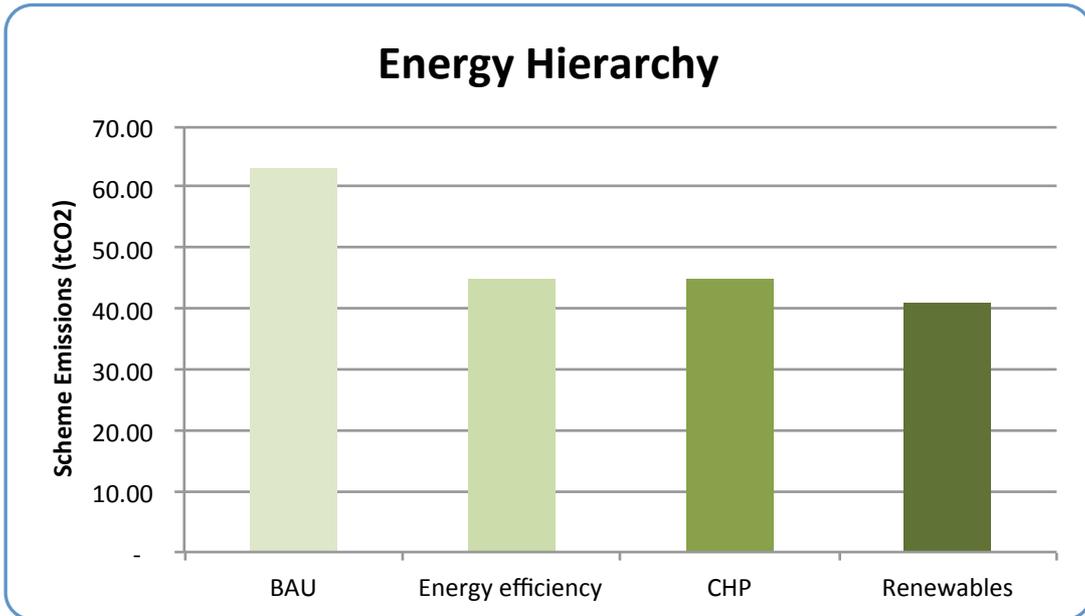
The first section of this report sets out the purpose and scope of the Energy and Sustainability Strategy, the context within which it sits, and the description of development. An accommodation schedule is provided to inform the energy/CO2 assessment.

The second section sets out the planning policy and regulatory framework against which the development will be assessed. This covers national policy, local policy, emerging local policy, national building regulation and emerging national guidance that relates to property developments and policy-making. It identifies the London Plan 35% onsite CO2 reduction as the key headline policy for the development to address. It also sets out the wider sustainability policy framework.

Section 3 identifies the climate change context for the proposals, and sets out adaptation and mitigation measures in place.

Section 4 considers the energy and CO2 strategy. Based on the modelling, the development should achieve Part L compliance through efficiency measures alone, and will achieve the 35% CO2 reduction through the provision of efficiency measures and rooftop solar PV. It addresses the other renewable energy options and rejects them on feasibility grounds.

Emissions Summary		Total
BAU	63.07	tCO2
Energy efficiency	44.91	tCO2
CHP	44.91	tCO2
Renewables	40.99	tCO2
Efficiency savings	29%	
CHP savings	0%	
Renewables savings	6%	
Total savings	35.0%	



The fifth section considers the sustainability strategy for the development. Flood, water conservation, sustainable transport, materials and resource efficiency, waste and ecology are all considered. The non-residential elements are 479sqm only and as such do not meet the threshold for BREEAM requirements. Further, the scale of the units mean that BREEAM is not likely to be commercially viable.

The final section sets out the conclusions and recommended standards for the scheme. The applicant is aiming to deliver a sustainable development that addresses the environmental, social and economic issues in the round. National and local policy have been reviewed and analysed.

Through the provision of this strategy, the proposed development is considered to address the planning policy framework.

1 INTRODUCTION

1.1 Context

This document forms one of a suite of documents that form a planning application to be submitted by Redbourne (Queensbury) Ltd Ltd to the London Borough of Brent (“the Council”). It is a combined energy and sustainability strategy.

The scheme has to address national, regional and local planning policy on energy and sustainability. It also has to address the regulatory framework at the post-planning detailed design stage. This document sets out the energy strategy and the sustainability strategy as required by both the local and the regional planning policy. The strategy put in place makes key commitments to the headline standards. However, it should be recognised that as schemes are refined post-planning, some of the details may change as the detailed design considerations are resolved in more depth. Accordingly, any related planning conditions should be worded to allow flexibility in how the details are resolved.

1.2 Location and Scheme Description

The Site at 110 Walm St is a 0.21 Ha site adjacent to the underground line and Willesden Green Underground Station in the London Borough of Brent. It is currently occupied by a public house, The Queensbury. Access is achieved directly off Walm Lane. The Site has a high PTAL rating of 6A and is served by buses on routes 260, 266 and 460 as well as the underground.

The proposals seek to develop a mixed-use scheme that makes good use of the site’s excellent accessibility and links to public transport. The 110 Walm Lane site (“the Site”) is a 0.21 Ha site occupied by the Queensbury Pub and Restaurant. The proposals seek to develop a mixed-use scheme that makes good use of the site’s excellent accessibility and links to public transport. The proposed redevelopment is to replace the existing building (containing a public house and former members club) with a mixed use development comprising a public house with function room (A4), and 48 residential flats (C3). Whilst the scheme is a major mixed-use scheme, the actual provision of non-residential use is only 486sqm in total, which is below the threshold for major non-residential development.

The client has appointed a full design team to develop the proposals that address local, regional and national policy, and to submit this planning application.

2 POLICY AND REGULATORY CONTEXT

2.1 National Policy

The National Planning Policy Framework sets out a framework for positive growth, making progress in environmental, social and economic areas, and enhancing existing areas. It is a material consideration in planning decisions, and reiterates the need for decisions to be determined in accordance with the development plan, unless material considerations indicate otherwise.

The policies throughout the NPPF constitute the government's view of what sustainable development is, and requires the planning process to perform a number of roles:

1. An economic role – building a strong economy, supporting growth and innovation;
2. A social role – supporting communities through providing housing supply, a high quality built environment, and accessible local services;
3. An environmental role – contributing to natural and built environments, improving biodiversity, using resources prudently, minimizing waste and addressing climate change, including moving to a low carbon economy.

There is a presumption in favour of sustainable development. The key paragraphs relating to property development and energy/climate change are set out below:

“93. Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.

94. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change taking full account of flood risk, coastal change and water supply and demand considerations.

95. To support the move to a low carbon future, local planning authorities should:

- *plan for new development in locations and ways which reduce greenhouse gas emissions;*
- *actively support energy efficiency improvements to existing buildings; and*
- *when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards.*

96. In determining planning applications, local planning authorities should expect new development to:

- *comply with adopted Local Plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*
- *take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.*

97. To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:

- have a positive strategy to promote energy from renewable and low carbon sources;
- design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;
- consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources;
- support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and In line with the objectives and provisions of the Climate Change Act 2008. In assessing the likely impacts of potential wind energy development when identifying suitable areas, and in determining planning applications for such development, planning authorities should follow the approach set out in the National Policy Statement for Renewable Energy Infrastructure (read with the relevant sections of the Overarching National Policy Statement for Energy Infrastructure, including that on aviation impacts). Where plans identify areas as suitable for renewable and low-carbon energy development, they should make clear what criteria have determined their selection, including for what size of development the areas are considered suitable.
- identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.”

This document sets out the importance of dealing with climate change, and the use of energy efficiency and renewable energy. Development should be in sustainable locations to reduce CO2 emissions. It notes the need to align local policies with the national timeline for low carbon buildings. Further, the document makes it clear that the delivery of local standards should be balanced with viability considerations.

2.2 London Policy

The London Plan and supporting documents form part of the planning policy framework for the proposed development. The key documents with regard to energy and sustainability are the London Plan (2016) Chapter 5, the recently adopted SPD on Sustainable Design and Construction (2014), and the latest Guidance on Preparing Energy Strategies (2016). They key elements of these are reviewed below:

The London Plan (2016)

The London Plan 2011 includes the following policies:

- 5.2 – Minimising CO2 Emissions

- Application of the energy hierarchy;
- 35% improvement on Part L 2010, unless clearly demonstrated that the specific targets cannot be fully achieved onsite;
- 5.3 – Sustainable Construction
- 5.6 – Decentralised Energy
 - Evaluate CHP;
 - Prioritise connection to existing or planned decentralised energy networks where feasible;
- 5.7 – Renewable Energy
 - Achieve 20% renewables where viable;
- 5.9 – Overheating and Cooling
 - Apply the cooling hierarchy and minimise cooling needs.

Guidance on Preparation of Energy Strategies (2016)

The guidance document sets out how energy strategies should be undertaken. This document has been drafted in accordance with the guidance document. The scheme has been assessed under Part L 2014. Therefore the % CO₂ saving target should be 35% over Part L 2014 for this application. The document also allows offsetting where onsite targets cannot be achieved:

Carbon offsetting

14.1 Once the GLA is satisfied that the CO₂ reduction targets cannot feasibly or viably be met on-site, a commitment to ensure the shortfall is met off-site using the provision established by the borough must be provided. Table 2 and 5 and the related text above provides further information on how both the annual and cumulative shortfall in tonnes of CO₂ savings should be calculated.

14.2 Further information on CO₂ offsetting, both through off-site CO₂ reduction projects undertaken directly by the developer or payment to an offsetting fund in liaison with the relevant borough, is contained in the SPG. Further summary information is also contained in Appendix 4.

14.3 Where boroughs do not have an established price, a figure of £60/tonne for a period of 30 years should be applied as recommended in the Mayor's Sustainable Design and Construction SPG. .

14.4 It should be noted that a cash in lieu payment should not be used as a cost comparison with delivering CO₂ savings on-site. Policy 5.2 requires the carbon reductions to be achieved as far as possible on-site and a cash in lieu contribution will be considered acceptable only in instances where it has been clearly demonstrated that no further savings can be achieved on-site. In the case of the zero carbon target for homes, a minimum of 35% carbon savings are expected to be delivered on site. The remaining savings to reach zero carbon can be achieved either on site or via a cash in lieu contribution, although savings on site would be preferable.

Emerging London Plan 2017

Policy SI2 reflects the current adopted position on energy and CO₂ savings.

2.3 Local Policy

Development Management Policies (Nov 2016)

The Council adopted their Development Management Policies document in November 2016. This document largely refers to the London Plan sustainability requirements but also notes that Core Strategy policy CP19 requires BREEAM Excellent for major non-residential developments, and a water use assessment for residential showing 105lpppd water use (internal).

Core Strategy (July 2010)

Policy CP 19 - Brent Strategic Climate Change Mitigation and Adaptation Measures

All development should contribute towards achieving sustainable development, including climate change mitigation and adaptation. Major proposals (10 or more dwellings and 1,000m² or more floorspace) and proposals for sensitive uses (education, health and housing) in Air Quality Management Areas, should submit a Sustainability Statement demonstrating, at the design stage, how sustainable design and construction measures are used to mitigate and adapt to climate change over the intended lifetime of a development. This includes the application of the London Plan energy hierarchy and meeting or exceeding the London Plan targets.

In all areas a minimum rating of Code Level 3 should be achieved. For non-residential, a rating of BREEAM 'Excellent' is expected, or the equivalent on any 'Code for Sustainable Commercial Schemes' (when forthcoming).

Sustainable Design Checklist

LB Brent has a sustainable design checklist for developments.

2.3.1 The Deregulation Act

The Deregulation Bill became an Act at the end of March 2015, and changes the ability of local planning authorities to set standards for sustainability for new developments. The key change is that the Code for Sustainable Homes has been discontinued by government, remaining in place only for legacy projects. The Code is therefore no longer relevant to new developments and should not be conditioned or required.

2.3.2 The GLA Response

In April 2015 the GLA published their response to the conclusion of the Housing Market Standards Review as follows:

On 25 March 2015, the Government confirmed its policy to limit local energy requirements for residential development and continue to support low carbon infrastructure. The Mayor has considered the Government's intentions regarding energy performance standards and its support for energy infrastructure and considers his energy targets within his energy hierarchy to be in line with this approach. It encourages developers to make carbon savings on-site, firstly through demand reduction. These reductions are in line with the Government's preferred maximum energy requirement (19 per cent reduction beyond Part L 2013 (Code 4) equivalent). The remaining energy savings are met through low carbon infrastructure, either on-site or off-site. The targets in the London Plan will

therefore continue to be applied in line with the energy hierarchy, across both residential and non-domestic development until the implementation of zero carbon policies in 2016.¹

2.4 Zero Carbon Homes

The July 2015 budget dispensed with the aspirational national target of zero carbon homes by 2016. As a consequence, there is no longer a national programme for zero carbon homes.

2.5 Analysis and Interpretation

The key policy standards for the development to achieve are 35% CO2 reduction target onsite and a response to the Mayor's SPG on sustainable design and construction. The Code for Sustainable Homes no longer applies. The non-residential units are far less than the 1,000sqm threshold, and so BREEAM is not relevant.

3 CLIMATE CHANGE

3.1 Background

The national policy on low carbon buildings reflects the wider climate change agenda, and is one of a raft of measures the Government is using to mitigate emissions. The Building Regulations are being used as the preferred vehicle for implementing this policy.

The historical purpose of the Building Regulations was to avoid condensation risk and to conserve fuel and power at a time when global energy price shocks were causing problems for the UK security of supply. Since this time, the regulations have been refined to focus first on energy efficiency, and then latterly on CO2 emissions as climate change became the key issue.

Through the recent versions of Part L, regulated emissions in both domestic and non-domestic have been controlled through setting maximum emissions targets that buildings are permitted to achieve. These regulated emissions come from uses including heating, hot water, lighting, fans, pumps, and cooling. There are building-related emissions that are not covered by regulations, including cooking, industrial appliances and other uses too. Further, there are wider sources of CO2 emissions that are not covered by the regulations.

3.2 Mitigation and Adaptation

The impacts of climate change are also only partially covered by regulation. The key impacts include the potential for buildings to over-heat in summer; for increased flooding events; and for increased water stress, and the knock-on impacts on landscape, ecology and potable water supply management. As part of an encompassing strategy for new development, these elements need to be addressed. The proposals address these issues as follows:

3.2.1 Overheating

Residential overheating controlled and tested through Part L 2014 and the Standard Assessment Procedure (SAP) methodology for assessing overheating risk. No units are shown to be likely to overheat having followed the methodology in SAP. Mitigation measures include built-in shading to glazing where recessed balconies are used and the ability to open windows in units that are away from ground level.

Solar shading could be incorporated to the non-residential where required, although it should be noted that many of the units are set facing North and thus have reduced cooling loads as a result.

3.2.2 Flooding

A flood risk assessment has been undertaken which accounts for the impacts of climate change. The Site sits within flood risk zone 1, meaning that it has little or no risk of flooding.

3.2.3 Water Stress:

All residential units will have water-consuming fittings controlled by the Building Regulations, and by the Council's planning policy. The aim is to achieve a water consumption of 105 litres per person per day and this target will be sought by the proposals. The landscape proposals will provide a low maintenance, low input landscape. This includes limiting the requirement for watering. External water use will therefore be limited.

4 ENERGY STRATEGY

4.1 CO2 Emissions Assessment

4.1.1 Methodology

This chapter explains the methodology for assessing energy demand and CO2 emissions profile and for undertaking options appraisal for low carbon and renewable energy solutions. It provides details of the process of identifying and assessing the likely significant environmental effects of the proposed development.

The content and conclusions of the strategy are based on an assessment of the proposed development identified in Section 1. All residential units were assessed in SAP for Part L 2014. The non-residential was assessed using SBEM and a representative element.

4.1.2 The Energy Hierarchy

The energy hierarchy is a widely accepted principle that provides a framework for energy policy making, helping to bring some logic to how solutions should be prioritised. For London developments it is stated as follows:

- Energy efficiency;
- Clean technology;
- Renewable energy.

4.1.3 The Cooling Hierarchy

The scheme will avoid active cooling as far as is possible. Mechanical ventilation with heat recovery is included

4.2 Energy Efficiency

The scheme is inherently energy efficient due to its scale and the number of party walls floors and ceilings. This is not recognised in SAP, but is an important consideration. The energy efficient specification used to model the scheme was as follows:

- Walls – 0.15W/m2K
- Floors – 0.15W/m2K
- Roofs – 0.10W/m2K
- Doors – 1.2W/m2K
- Glazing – 1.2W/m2K
- Accredited construction details;
- Air permeability – 3.5m3/m2/hr
- Mechanical ventilation with heat recovery;
- 100% low energy lighting.

Through the SAP calculations, it is shown that this specification is sufficient for the scheme to exceed Part L 2014 compliance by 15% and therefore meet the GLA's criteria of securing building control compliance through energy efficiency alone.

The whole-building compliance SAP summary is below for the energy efficient scheme:

Block Compliance WorkSheet: All UnitsCont...

Average TER	16.74
Average DER	12.29
Average DFEE	30.00
Average TFEE	41.05
Compliance	Pass
% Improvement DER TER	26.58
% Improvement DFEE TFEE	26.92

Figure 1 - Energy Efficient Scheme Improvement on Part L 2014

Other energy saving measures are likely to include:

- Heating controls including:
 - Thermostatic radiator valves;
 - Zone control;
 - External weather compensation;
- Extract fans with low specific fan power;
- Energy usage displays;
- Clothes drying facilities;
- Information on low energy white goods;
- Low flow showers and hot taps to reduce hot water consumption.

Part L2a will determine how the non-residential elements address energy efficiency. Each unit will be required to demonstrate compliance with Part L 2014 through efficiency measures alone, targeting the same improvement as shown by the residential. The fabric measures will be the same. However, much of the energy and CO2 performance of non-residential is determined by the servicing strategy. Each unit is very small, and likely to be occupied by different users, and serviced differently. Nevertheless, lighting is a crucial element to non-residential elements and LED lighting with addressable controls will be used throughout to achieve significant savings. Likely measures include:

- LED lighting;
- Addressable control systems;
- Low temperature heating system;
- Electric power factor correction;
- Heat recovery ventilation.

Using LED lighting, the SBEM model shows a saving of 44% for the non-residential. Estimates have had to be made as to how the non-residential elements are serviced – these will have to be refined as the occupant determines their servicing strategy.

4.3 CHP and District Heating

CHP is not suited to the proposed development as it is only 48 residential units and some minor non-residential uses. The heat load is insufficient to create a viable CHP scheme. For the same reason, there is little commercial case for connecting the scheme to an external heat system as things stand. The proposed approach is for individual boilers. The introduction of communal heating is not precluded though by the design should a wider community heating system become commercially viable. Access would be achieved directly off Walm Lane.

4.4 Renewable Energy

The London Plan sets a target of 20% renewable energy where feasible. This policy was originally the key energy policy in the London Plan in 2008, but has been increasingly ignored in favour of the overall CO2 targets set.

4.4.1 Biomass

Biomass and biomass CHP bring significant logistical issues in terms of fuel supply that are not compatible with the Site. There is a range of technical hurdles that the Site would struggle to overcome. Neither are considered viable.

4.4.2 Solar Thermal

The scheme has limited roof space and it is more effective in terms of CO2 per sqm saved to use that area for solar photo-voltaics. Further, a communal heating system is not preferred. Solar thermal is not applicable.

4.4.3 Heat Pumps

The provision of heat using heat pumps is a possibility, but the carbon factors in Part L 2014 mean that in some instances, heat pumps can actually emit more CO2 than standard gas boilers. Further, the costs are significantly higher, thereby demonstrating a very poor cost-benefit analysis. Air source heat pumps have been used for flatted developments, but they have a number of serious considerations that mean that they are not an obvious choice:

- The carbon equation does not always stack up – gas heating can be lower emissions than ASHP;
- ASHP can be noisy with external units;
- In-use performance has not always been satisfactory, and often not in line with manufacturer estimates of performance.

Heat pumps would be an additional extra-over cost for the development that potentially provides zero CO2 benefit.

4.4.4 Solar PV

The scheme has the potential for PV array to the roof of the Easterly block. To achieve the 35% CO2 reduction demanded by the London Plan, it is estimated that 9.26kWp would be required, which the allocated space should be able to incorporate. The exact panels will be specified post-planning to

ensure that tenders are competitive and that a range of suppliers can be used by the contractor. Further, there may be some refinement as to what proportion of savings is achieved from solar PV.

4.4.5 Wind Power

Wind power is generally not suitable for the urban environment.

4.5 Summary

The scheme achieves Part L 2014 by energy efficiency only. Solar PV opportunities have been reviewed and the technology incorporated. The scheme achieves the 35% CO2 target with 9.26kWp solar PV:

Emissions Summary		Total	
BAU	63.07	tCO2	
Energy efficiency	44.91	tCO2	
CHP	44.91	tCO2	
Renewables	40.99	tCO2	
Efficiency savings	29%		
CHP savings	0%		
Renewables savings	6%		
Total savings	35.0%		

Figure 2 - Emissions Summary

The business as usual scenario (building regulations compliant) is as follows:

Residential (BAU)			
Private market units	33.00	dwellings	
Affordable units	15.00	dwellings	
Total units	48.00	dwellings	
Total floor area	3,386.00	sqm	
Regulated emissions	56.68	tCO2	
Non-Residential (BAU)			
Area	486.00	sqm	
Regulated emissions	6.39	tCO2	
Total (BAU)			
Regulated emissions	63.07	tCO2	

Figure 3 - Business As Usual Scenario

The energy efficient scenario is as follows:

Residential (EE)			
BAU emissions	56.68	tCO2	
Efficiency savings	15.07	tCO2	
Efficiency savings vs regulated emissions	26.58%		
Regulated emissions	41.61	tCO2	
Non-Residential (EE)			
BAU emissions	6.39	tCO2	
Efficiency savings	3.09	tCO2	
Efficiency savings vs regulated emissions	48.40%		
Regulated emissions	3.30	tCO2	
Total (EE)			
BAU emissions	63.07	tCO2	
Efficiency savings	18.16	tCO2	
Efficiency savings vs regulated emissions	28.79%		
Regulated emissions	44.91	tCO2	

Figure 4 - Energy Efficient Emissions Summary

The scheme achieves Part L 2014 compliance through efficiency measures alone.

The CHP scenario is as per the EE scenario. The renewable energy scenario is as follows:

Residential (EE, CHP + RE)			
EE + CHP Emissions	41.61	tCO2	
Renewables savings	3.92	tCO2	
RE savings vs EE + CHP regulated	9.42%		
Regulated emissions	39.85	tCO2	
Non-Residential (EE, CHP + RE)			
EE + CHP Emissions	3.30	tCO2	
Renewables savings	-	tCO2	
RE savings vs EE + CHP regulated	0.00%		
Regulated emissions	3.30	tCO2	
Total (PV)			
EE + CHP Emissions	44.91	tCO2	
Renewables savings	3.92	tCO2	
RE savings vs EE + CHP regulated	8.73%		
Regulated emissions	40.99	tCO2	

Figure 5 - Renewable Energy Scenario

The scheme addresses the energy hierarchy and the London Plan target and achieves compliance with both:

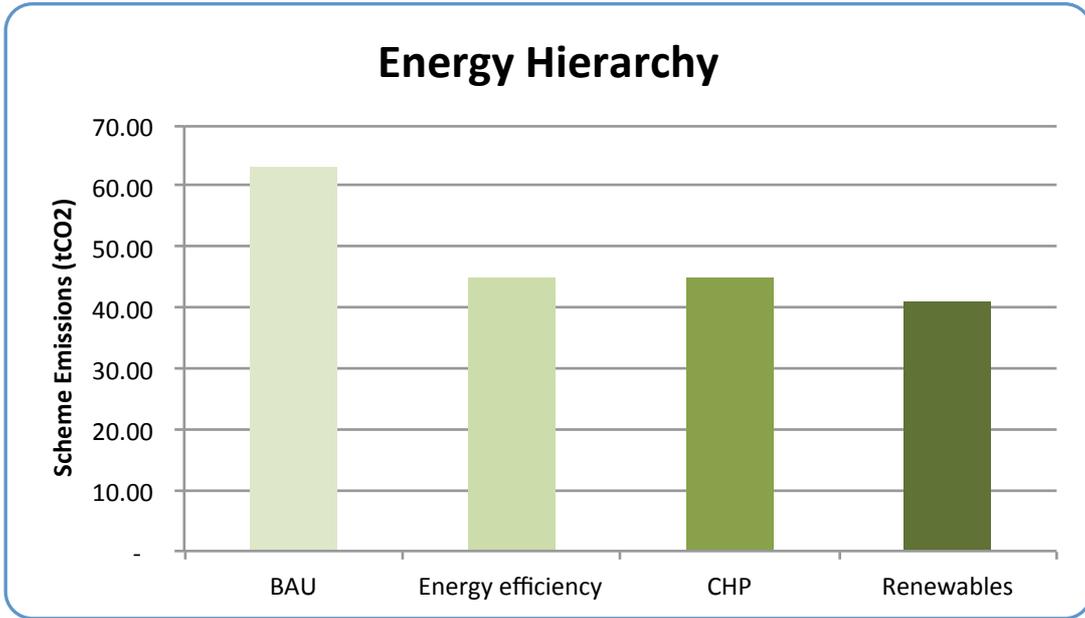


Figure 6 - Energy Hierarchy and London Plan Target

The SAP outputs for the scheme with efficiency and renewable energy built in are as follows:

Block Compliance WorkSheet: All UnitsCont...

Average TER	16.74
Average DER	11.77
Average DFEE	30.00
Average TFEE	41.05
Compliance	Pass
% Improvement DER TER	29.69
% Improvement DFEE TFEE	26.92

Figure 7 - SAP Outputs for Units with Efficiency, CHP and Renewables

5 ENVIRONMENTAL SUSTAINABILITY

5.1 Water

5.1.1 Flood Risk and Sustainable Drainage

A flood risk assessment and drainage strategy has been prepared for the Site. It identifies that the Site is within flood zone 1 and therefore not at risk. The sustainable drainage hierarchy has been considered.

5.1.2 Water Conservation

Water efficient specifications are now required by building regulations. All residential units are likely incorporate measures to achieve a consumption of 105lpppd or less. This is likely to include measures such as efficient kitchen taps with hydro-brakes, ergonomic baths, shower flow rates of 8-9litres per minute. Rainwater is also to be harvested for irrigation of communal landscaping where appropriate. An exact specification will be required at the building control. At this stage an indicative specification that achieves 100lpppd would be as follows:

Installation Type	Average Capacity/Flow Rate	Litres/Person/Day
Single Flush WC's	0	0
Dual Flush WC's	3.08	13.53
All WC's	3.08	13.53
Kitchen/Utility Room Taps	4	12.12
Other Taps	4	7.9
Baths	140	15.4
Showers	9	39.33
Dishwashers	1.25	4.5
Washing Machines	8.17	17.16
Water Softener		
Waste Disposal Unit	Not Present	0
Total Water Use	109.94 Litres/Person/Day	
Contribution from Rain Water	0 Litres/Person/Day	
Contribution from Grey Water	0 Litres/Person/Day	
Normalisation Factor	0.91 Litres/Person/Day	

Code for Sustainable Homes - Consumptions & Credits	
Water Consumption (Code for Sustainable Homes)	100 Litres/Person/Day
Credits Scored	3

Building Regulations 2000 AD Part G (2010 Ed) - Consumption	
External Water Use	5 Litres/Person/Day
Water Consumption (Building Regulation 17 K)	105 Litres/Person/Day

5.2 Sustainable Transport

The scheme has a PTAL Rating of 6A which is very high. The accessibility index for the Site is therefore excellent. It is therefore very well located for travel to and from the site via public transport, and a suitable location for a high density development. Willesden Green underground station is very close to the Site, and various buses pass close to the Site including the 260, 266 and 460.

The scheme is car free and includes cycle storage. The residential units will incorporate facilities for home office working. This will include appropriate services including phone line connections, broadband and power sockets.

5.3 Materials and Resource Efficiency

Materials resource efficiency will be achieved through the scale of development, which by its very nature should achieve high materials efficiencies and low waste volumes. It is expected that structurally, the scheme will need to rely on in-situ concrete which is a structural requirement for the building, but which is scored poorly by the BRE's materials scoring system. Opportunities for the inclusion of GGBS and other low impact aggregates will be assessed at the post-planning stage. Certified timber such as FSC and PEFC is widely available and commonly used throughout major development schemes.

5.4 Waste Strategy

Demolition arisings will occur as the Site is not clear. The demolition protocol could be followed where applicable to ensure that the arisings are suitably recycled. The demolition contractor should be given the maximum time possible for the works to allow the highest levels of reclamation/segregation. Key processes that will create arisings during the construction process will be excavation for the basement structures.

During occupation, all units will be required to provide waste segregation and recycling both internally and externally to the local authority standards. This will incorporate:

- Internal waste segregation into the waste streams collected locally;
- External segregation providing bin stores for the streams as above.

Residents will be provided with information on the local recycling collections as part of a home user guide.

5.5 Ecology and Biodiversity

The scheme is an urban brownfield development where the majority of the Site is developed. The existing ecological value is likely to be very low. The new development has opportunities to address the Site's ecology. Planting at the amenity levels could support biodiversity on the Site, along with suitable habitat creation such as bird and bat boxes.

5.6 Pollution

New developments as standard achieve good performance on pollution issues now. Air quality and noise pollution are the subject of specific studies that support the application. During the construction stage both air quality and noise pollution will be mitigated through the effective management of site impacts. The air quality assessment has recommended ultra-low NO_x boilers (ie NO_x <40mg/kWh).

Light pollution will be designed out as far as possible to reduce impacts on commuting bats. A lighting strategy is set out within the Design and Access Statement.

Water quality will be improved through the provision of living roofs acting as filters, and petrol interceptors in the car park area.

6 CONCLUSION

6.1 Sustainable Development

The NPPF sets out clearly the three key elements to a sustainable development:

1. An economic role – building a strong economy, supporting growth and innovation;
2. A social role – supporting communities through providing housing supply, a high quality built environment, and accessible local services;
3. An environmental role – contributing to natural and built environments, improving biodiversity, using resources prudently, minimizing waste and addressing climate change, including moving to a low carbon economy.

6.2 Social and Economic Sustainability

The proposals have the potential to bring significant economic and social benefits including the following:

1. Creation of 48 new homes;
2. Provision of a new pub with community space;
3. Provision of affordable housing;
4. Redevelopment and regeneration of the Site and surrounding public realm;
5. Provision of construction jobs;
6. Provision of jobs in operational phase in retail/commercial space.

6.3 Environmental Sustainability

The Site will achieve the following:

- Climate change
 - Adaptation measures;
 - Mitigation measures.
- Energy and CO₂
 - Application of the energy hierarchy;
 - Demanding efficiency standards for Part L 2014 compliance alone;
 - Solar photo-voltaics to unshaded roofs (circa 9.26kWp);
 - 35% CO₂ reduction through onsite measures.
- Transport;
 - High PTAL rating of 6A and very high accessibility index;
 - Cycling facilities incorporated;
 - Car free development.
- Water
 - Flood risk zone 1 (low risk) across the Site;
 - Sustainable drainage strategy;
 - Efficient water fittings to reduce demand for water to 105lpppd.
- Waste and materials
 - Waste and recycling management procedures during construction;
 - Waste and recycling provision in line with local standards for operation;
 - Resource efficiency for the new buildings.
- Pollution
 - Air, noise, light and water pollution all considered.

- Ecology
 - Habitat creation for biodiversity value.
- BREEAM
 - Due to the small scale of the non-residential units, BREEAM is not a requirement.

All proposals are developed to the planning application stage and will be subject to further design revisions as the scheme progresses. All conditions should make due allowances for this.

6.4 Statement of Policy Compliance

In the development of the proposals, the design team has reviewed, interpreted and addressed the relevant planning policy on energy and CO2 emissions and sustainable development. The proposals have reviewed early-stage opportunities for efficiency and clean and renewable energy technology.

It is compliant with the following documents:

The National Planning Policy Framework

The London Plan (2016)

Emerging London Plan (2017)

The Mayor's Guidance on Preparing Energy Strategies (2016)

The Brent Local Plan

LB Brent Development Management Policies DPD (Nov 16)

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