



ELEMENT
SUSTAINABILITY

HOLCOMBE MILL, BURY

ECCLESTON HOMES LIMITED

ENERGY & CARBON STATEMENT

JUNE 2024

REF: 2024.116



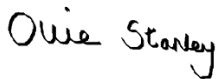
ELEMENT SUSTAINABILITY – ISSUE NOTES

Project No: 2024.116 Holcombe Mill

Title: Holcombe Mill,
Energy and Carbon Budget Statement

Client: Ecclestone Homes Limited

Status: Final

Version:	1.1	
Date:	June 2024	
Prepared by:	Checked by:	Approved by:
		
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Version	Version Details	Date Issued	Issued by
0.0	Draft for client comment	10/05/24	OS
1.0	Final document	03/06/24	OS
1.1	Final document amended	04/06/24	OS



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ELEMENT SUSTAINABILITY

CONTENTS

Contents	0
1. Introduction	1
2. Development Proposals	2
2.1 Development Site Description	2
2.2 Development Proposals.....	2
3. Policy Review	8
3.1 National Planning Policy	8
3.2 Regional Planning Policy	8
3.2.1 Places for Everyone	8
3.3 Bury Unitary Development Plan	11
3.3.1 Local Plan.....	11
3.4 Climate Emergency.....	12
3.5 Greater Manchester 5 Year Environmental Plan 2019-2024.....	12
3.6 Regulatory Framework	12
3.7 Applicable Targets	13
4. ENERGY STRATEGY	14
4.1 Build Fabric and Thermal Performance	14
4.2 Building Services.....	15
5. PROPOSED RENEWABLE ENERGY AND LOW CARBON SOLUTIONS	17
5.1 Photovoltaic Array	19
6. CARBON DIOXIDE EMISSIONS CALCULATIONS	20
6.1 Regulated Energy Performance Calculations.....	20
6.2 Energy Hierarchy	21
7. CLIMATE EMERGENCY	23
8. PLACES FOR EVERYONE – POLICY JP-S2 – CARBON AND ENERGY	24
9. Conclusion	26



1. INTRODUCTION

Element Sustainability has been commissioned by Eccleston Homes Limited to review the sustainability performance of the proposed residential scheme on Holcombe Mill, Ramsbottom, Bury.

The purpose of this Energy Strategy is to summarise the relevant planning policy background and requirements of the Bury Council and to demonstrate how these policy aims are to be met.

Having briefly described the development proposals, the relevant planning policy has been reviewed along with the requirements of the regulatory framework appropriate for this scheme. The statement details those features of the design and specification which will be integrated within the property to contribute to effective energy demand and carbon dioxide emissions reductions.

A technical assessment of the development proposal is included, using Standard Assessment Procedure (SAP 10; domestic energy demand model) calculations. These calculations will serve to demonstrate how the Council's energy demand and carbon dioxide emission reduction targets may be achieved.

This report is intended to support the planning application for this development and therefore, establishes an approach which meets the criteria outlined by the Council that the developer commits to implement at the site.



2. DEVELOPMENT PROPOSALS

2.1 Development Site Description

The application site lies within the Borough of Bury and comprises a large parcel of previously developed land that was the site of the Mondi paper mill. It has stood empty since 2008. It is currently occupied by a collection of derelict buildings. The plot is located off Bridge Street, linking the site to the centre of Ramsbottom town, and access to Bury New Road.

The site is situated in between a built-up commercial area to the west, containing supermarkets, housing and East Lancashire Railway Station, and to the east is the River Irwell. Ramsbottom Cricket Club, Ramsbottom United FC and the Harry Williams Riverside Stadium are south of the site. To the north of the site, the River Irwell continues, and more housing developments can be found.

Figure 2.1 – Site Location Plan



2.2 Development Proposals



This development will provide a total of fifty-seven dwellings comprising eleven house-type designs from the Eccleston Homes product range.

Table 2.1 presents the accommodation schedule for the proposed scheme.

Table 2.1 – Housing Schedule

House Type	Total
Langho	2
Delamere	8
Gayton	7
Lytham	16
Whalley	4
Buckley	4
Hartford	1
Plumley	2
Haigh	8
Willaston	2
Formby	3
Total	57



Figures 2.2 to 2.5 present the site layout as well as the representative house types assessed for the carbon budget statement.

Figure 2.2 – Proposed Site Plan



Figure 2.3 – Proposed Front Elevation – Langho House Type



Figure 2.4 – Proposed Front Elevation – House Type Haigh



Figure 2.5 – Proposed Front Elevation – House Type Whalley



3. POLICY REVIEW

3.1 National Planning Policy

The National Planning Policy Framework was updated on 5th September 2023 and sets out the government's planning policies for England and how these are expected to be applied. The purpose of the planning system is to contribute to the achievement of sustainable development. The planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways, as set out below:

An economic role – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

A social role – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

An environmental role – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

These objectives should be delivered through the preparation and implementation of plans and the application of the policies in this Framework. Planning policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area.

3.2 Regional Planning Policy

3.2.1 Places for Everyone

Places for Everyone is the joint development plan of nine Greater Manchester local authorities (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, and Wigan) dealing with strategic planning issues including jobs, homes, transport, and the natural environment.

All nine authorities adopted the PfE Plan on 21st March 2024. Therefore, this will now become part of the statutory development plan for each of the nine PfE authorities.

As a result, the following policies have been considered as part of the proposed development:

Policy JP-S1: Sustainable Development: To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives.



In bringing forward previously developed sites for development, particular attention will be paid to tackling land contamination and stability issues, ensuring that appropriate mitigation and remediation are implemented to enable sites to be brought back into use effectively.

Addressing Climate Change

Greater Manchester's Vision is to be at the forefront of action on climate change and to make its fair contribution to international commitments by becoming a carbon-neutral city region by 2038.

To meet the carbon commitments, the following will be required:

- Be carbon neutral by 2038;
- Hold cumulative carbon dioxide emissions to within the council's carbon budget; and,
- Initiate a programme of mitigation to reduce emissions including:
 - Significantly upscaling solar photovoltaic energy;
 - Reducing heat demand in homes;
 - Moving away from carbon-intensive gas as the primary source of heat; and,
 - Increasing biofuel use.
- In supporting Greater Manchester's ambitions, climate change is a key theme running throughout the plan, rather than being reduced to a single policy, and it is only through this combination of actions that it can be properly addressed. In particular:
 - Methods to de-carbonise the city region through new and existing development, effective land management and the provision of infrastructure and new technologies Policy JP-S2 'Carbon and Energy'; and,
 - The delivery of renewable and low carbon energy schemes Policy JP-S3 'Heat and Energy Networks'.

Carbon and Energy

- Meeting the 2038 carbon neutrality target will require a radical transformation across a range of sectors to drive carbon reduction. Within this, new development will have a critical role to play and all new homes and commercial/industrial buildings will need to achieve net zero carbon by 2028.
- It is expected that development in the plan area will apply a net zero carbon approach to operational emissions up until 2028, thereafter emissions in construction should be considered. Minimum carbon reduction targets will be set in line with the Future Homes Standard of 80% or until such a time this is superseded.
- From 2025, applicants will need to demonstrate carbon reductions have been maximised with an opportunity to offset any residual carbon to a carbon offset fund. The approach will be reviewed in line with future standards as they are introduced.
- Therefore, where planning applications for residential development are accompanied by an energy statement, the following best practice thresholds should be seen as the starting point concerning reducing energy demand and onsite renewable energy generation. The thresholds set out in Table 3.1, for post-2025, are consistent with the GM Five-Year Environment Plan.



Table 3.1 – Thresholds for Reducing Energy Demand and Onsite Renewable Energy

	Space Heat Demand	Hot Water Energy Demand	Renewable Energy Generation Targets
2021 - 2025	Houses (30kWh/m ²) Flats (25kWh/m ²)	20% energy demand reduction in the total heat required for water heating	Photovoltaic installation: 20% ground floor space
2025 - Onwards	Houses (20kWh/m ²) Flats (15kWh/m ²)	20% energy demand reduction in the total heat required for water heating	Photovoltaic installation: 40% ground floor space

- In calculating carbon emissions from 2025, 'unregulated' emissions (e.g. those associated with cooking and small appliances) should be assessed, in addition to 'regulated' emissions. The only way that this can be deliverable will be through the use of onsite electricity generation or carbon offsetting ('allowable solutions') as occupants' lifestyle choices are not pre-determined by energy efficiency measures associated with construction standards.
- By following the energy hierarchy, new development will need to achieve net zero carbon through the maximisation of on-site measures first. However, in circumstances where development has demonstrated that the hierarchy has been followed and there are no reasonable alternatives to meet the minimum carbon reductions, then payment to offset remaining emissions will also be required. Such payments should be expected to fund other carbon-saving programmes within Greater Manchester to help meet the 5 Year Environment Plan targets.

Policy JP-S 2 – Carbon and Energy: The aim of delivering a carbon-neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

- Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;
- Taking a positive approach to renewable and low-carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;
- An expectation that new development will be unless it can be demonstrated that it is not practicable or financially viable;
 - Be net zero carbon which applies:
 - From adoption – to regulated operational carbon emissions;
 - From 2028 - to all emissions 'in construction'.



- From 2025 development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions.
- Development proposals should set out how this has been achieved in an energy statement following the energy hierarchy, which in order of importance seeks to:
 - Minimise energy demand;
 - Maximise energy efficiency;
 - Use renewable energy;
 - Use low carbon energy; and
 - Utilise other energy sources.
- From 2025 any residual carbon emissions that cannot be fully mitigated onsite should be offset, in agreement with the relevant local planning authority, through a financial contribution to a carbon offset fund;
- As an interim measure, development should be consistent with the 2021 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.
 - Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date; and,
 - In residential developments, achieve energy demand reductions for residential development in terms of space heat demand; hot water energy demand and the delivery of on-site renewable energy generation.
- For renewable energy generation priority should be given to PV installation where technically feasible, alternative technologies will be appropriate where the equivalent generation is evidenced; and,
- Include a detailed energy statement to demonstrate via site relevant evidence how the development has sought to maximize reductions in carbon emissions in line with relevant policy targets, including the minimisation of overheating risks and appropriate measures for post-occupancy evaluation. Whole life cycle emissions should be considered where possible.

3.3 Bury Unitary Development Plan

3.3.1 Local Plan

Following the adoption of the Places for Everyone Joint Plan (PfE) on 21 March 2024, the Council is now moving forward with a new Local Plan for Bury. This is not available yet, and therefore relevant policies from the Unitary Development Plan have been chosen that align with this development.

As a result, the following policies are of material consideration for the proposed scheme:

EN4 - ENERGY CONSERVATION The Council will encourage development which contributes to energy conservation in the Borough. The use of renewable energy resources and the incorporation of energy efficiency measures in built development and the transport system will be encouraged.



EN7 - POLLUTION CONTROL The Council will seek to control environmental nuisance and minimise pollution levels associated with development by limiting the environmental impact of pollution, wherever possible, in conformity with current legislation and prescribed standards.

3.4 Climate Emergency

In 2019, the Bury Council declared a climate emergency in response to overwhelming scientific evidence that human activity is changing our planet's climate. These changes are predicted to have extreme impacts on the earth making it a more difficult place for people, animals, and wildlife to thrive. In response, the Council has produced a Climate Action Strategy and Action Plan, outlining the Council's approach to reaching the goal of carbon neutrality by 2038.

3.5 Greater Manchester 5 Year Environmental Plan 2019-2024

The plan sets out the Council's long-term environmental vision to be carbon neutral by 2038 and the urgent actions required in the next five years to help achieve this. The aims of the five-year plan are outlined below:

1. **Mitigating climate change:** To be carbon neutral by 2038 and meet carbon budgets that comply with international commitments.
2. **Air quality:** To improve air quality, meeting World Health Organisation guidelines on air quality by 2030 and supporting the UK Government in meeting and maintaining all thresholds for key air pollutants at the earliest date.
3. **Sustainable consumption and production:** Working towards a circular economy, recycling 65% of municipal waste by 2035 and reducing the amount of waste produced.
4. **Natural environment:** To protect, maintain and enhance the natural environment by taking steps towards implementing and achieving environmental net gain.
5. **Resilience and adaptation to climate change:** To be prepared for the impacts of climate change and to be able to adapt to future changes from any increase in climate shocks and stresses.

3.6 Regulatory Framework

Building Regulations, Part L - Conservation of Fuel and Power sets the compliance standards for energy demand and carbon dioxide emissions from buildings. Guidance on how to meet the requirements of this regulation is provided within several approved documents. The relevant document is referenced below:

Approved Document Volume 1: Dwellings: Gives guidance on how to comply with Part L of Schedule 1 to the Building Regulations and the energy efficiency requirements for dwellings. These standards came into effect in June 2022. Part L 2021 standards are expected to reduce dwelling carbon emissions by 31% to Building Regulations Part L, 2013. Minimum energy performance requirements shall be approved and expressed following the methodology for new dwellings in the form of:

- Target carbon dioxide (CO₂) emission rates;
- Target fabric efficiency rates; and,
- Target primary energy rates.



3.7 Applicable Targets

Based upon a review of relevant planning policy requirements, legislative drivers, and client priorities, the following list provides a brief precis of the key criteria that should be targeted for this development:

Places for Everyone

- **Policy JP-S1:** Sustainable Development
- **Policy JP-S2:** Carbon & Energy

Bury Unitary Development Plan

- **Policy EN4 - ENERGY CONSERVATION**
- **Policy EN7 - POLLUTION CONTROL**
- **Climate Emergency / Greater Manchester 5 Year Environmental Plan**
- **Building Regulations, Part L**
- **Part L, Approved Document Volume 1 (2021)**



4. ENERGY STRATEGY

The energy strategy for this development prioritises a 'fabric-led' solution coupled with the inclusion of gas-fired boilers and low-carbon technology. An enhanced building fabric specification throughout the scheme allied to efficient servicing and controls, plus renewable energy technology will achieve compliance with the new build carbon dioxide emission reduction and fabric energy efficiency targets stipulated by Building Regulation, Part L Approved Document Volume 1 (2021) and Bury Unitary Development Plan.

Details of the proposed energy strategy are presented below.

4.1 Build Fabric and Thermal Performance

The standard measurement of heat transfer through a given building material or construction type is the U-value ($\text{W/m}^2\text{K}$). The lower the U-value, the more slowly heat transfers and is lost out of a building. In buildings, heat loss generally occurs through the following main areas and elements of the construction:

- Ground Floor;
- External Walls;
- Roofs;
- Doors and windows;
- Thermal bridging; and,
- Uncontrolled ventilation.

The proposed material specification that will be incorporated throughout all house types to limit heat loss and ensure efficient operation of the dwellings is presented in Table 4.1.

Table 4.1 – Proposed Fabric Specification

Item	Specification
Ground Floor	$U=0.10 \text{ W/m}^2\text{K}$
External wall	$U=0.25 \text{ W/m}^2\text{K}$
Party wall	$U=0.00 \text{ W/m}^2\text{K}$ (full fill & seal)
Roof	$U=0.09 \text{ W/m}^2\text{K}$
Windows	$U=0.86 \text{ W/m}^2\text{K}$ Triple Glazed
Air Permeability	$4.00 \text{ m}^3/\text{hm}^2$ (@50Pa.)
Cold Bridge	Bespoke Details & Psi values

This enhanced material specification and design will provide the following benefits:

- **High-performance thermal insulation** will ensure low U-values for all heat-loss elements and will minimise heat loss through the building's thermal envelope;
- **Thermally efficient, 'A' rated, triple-glazed windows** will be specified with argon gas fill and low emissivity coatings to limit heat loss through the pane. Thermal breaks will be incorporated within the frames of the vision panels to further limit heat loss. The glazing g



value will be specified to optimise beneficial solar gains but limit the propensity for the dwellings to overheat;

- **Low air tightness** (design air permeability targeting $4.00\text{m}^3/\text{hm}^2$) will minimise uncontrolled ventilation. This will reduce heat losses and provide high levels of occupant comfort;
- **Improved cold bridging junctions** will significantly improve the emission rate of the dwellings through the provision of insulation, limiting heat losses that occur at the junctions between building elements and around openings. 'Bespoke' psi values have been used to achieve a low ψ -value, thus minimising heat loss through cold bridge junctions;
- **Thermal mass** (associated with this type of construction) helps stabilise the internal temperature and provides a largely self-regulating environment, reducing the risk of overheating and the need for mechanical cooling in summer. Furthermore, this daily cycle of absorbing and releasing heat continues on a year-round basis and can reduce the energy needed to keep a building warm during the heating season. This works through the ability of thermal mass to capture and recycle heat and incidental heat gains; and

This enhanced fabric specification **will deliver a Building Regulation, Part L Approved Document Vol. 1 (2021) compliant scheme for all aspects of the proposed development.** It ensures an inherently energy efficient scheme, focussing upon limiting demand side reductions in accordance with the energy hierarchy.

4.2 Building Services

The proposed mechanical and electrical specification that will be incorporated to ensure efficient servicing of these dwellings is presented in Table 4.2.

Table 4.2 – Proposed Mechanical and Electrical Specification

Item	Specification
Lighting	100% 'Low E' / LED
Ventilation	Greenwood Unity CV3 dMEV
Space Heating	Ideal Logic Boilers
Water Heating	From boiler
Heating Controls	Time and Temperature Zone Control
Renewable Energy Systems	Photovoltaic modules

The mechanical and electrical specifications will provide the following benefits:

- **Low energy and LED lighting** will be specified throughout the site to maximise operational efficiencies and lifespan of the fittings. LEDs operate with an estimated energy efficiency of up to 90% when compared to traditional lighting and conventional light bulbs. This means that about c.90% of the electrical energy is converted to light, rather than wasted heat as in conventional bulbs.



- **Decentralised Mechanical Extract Ventilation (dMEV)** will be specified in all houses. The system operates by using localised mechanical units to extract stale air from individual wet rooms and facilitate fresh air intake. The decentralised nature of the system allows for targeted ventilation, optimising the air quality throughout the dwellings;
- **Sophisticated heating controls** including time and temperature zonal controls will ensure the efficient delivery of heat to further reduce the home energy demand;



5. PROPOSED RENEWABLE ENERGY AND LOW CARBON SOLUTIONS

An analysis of the most appropriate renewable energy options has been undertaken to ensure compliance with Building Regulation Part L.

Several renewable energy technologies have been considered for this site, including:

- Solar Hot Water;
- Photovoltaics (PV);
- Wind;
- Air Source Heat Pumps;
- Ground Source Heat Pumps; and,
- Biomass heating.

A review of the development proposals and site location concludes that the Photovoltaics (PV) are feasible for this scheme, as detailed below in Table 5.1:

Table 5.1 – Renewable Technologies Review

Technology	Description	Advantages & Limitations	Feasibility
Solar Hot Water	Solar Hot Water utilises the energy in sunlight and diffuses daylight to heat water for use in buildings. The main component of any solar water heating system is the collector, which absorbs the radiant energy of the sun and converts it to heat energy.	✓ Low maintenance. ✓ Feasible for small-scale developments.	No - This technology is not considered to be a feasible option for this site as these solar thermal technologies make only a relatively limited contribution to reducing the building's energy demand and carbon dioxide emissions. Furthermore, there are potential problems associated with routing the pipework through the dwellings.
		✗ Panels ideally facing south at 30° tilt for optimum efficiency.	
Photovoltaics (PV)	Photovoltaic (PV) panels harness solar thermal energy and convert it into electricity which can then be used within a building. The panels may be roof or floor-mounted and orientated in a southerly direction to enable this technology to operate efficiently.	✓ Low maintenance. ✓ Easy to integrate into building design. ✓ The cost of PV is constantly dropping.	Yes – This technology is considered to be a viable option for this site with sufficient roof area on the houses to accommodate the proposed PV array capacities.
		✗ Panels ideally facing south at 30° tilt for optimum efficiency. ✗ Overshadowing will reduce performance. ✗ Can require significant roof space.	



Technology	Description	Advantages & Limitations	Feasibility
Wind Turbines	Wind generation equipment harnesses the wind to turn a propeller and in doing so, drives an alternator to generate electricity. The turbines may be pole or roof-mounted.	✓ Low maintenance. ✓ Excess electricity can be exported to the grid. ✓ Vertical Axis Turbines can operate at wind speeds as low as 2m/s. ✗ A wind speed of at least 6m/s is typically required for traditional turbines to operate efficiently. ✗ Visual and noise impact risk.	No – Wind Turbines are considered unsuitable for this site due to a poor wind resource and lack of space to locate the turbines. Integrating these systems at height on the roof is not considered feasible due to the associated noise, vibration, and structural stresses upon the buildings. Furthermore, there are planning issues and perceived safety concerns with this technology.
Ground Source Heat Pumps	Ground Source Heat Pumps collect low-grade heat from the ground to supply useful heat for space and water heating requirements. By applying additional energy input (in the form of electricity), it is possible to raise the temperature of the source heat to the temperature required.	✓ Highly tested and efficient technology ✓ Can be used for space and water heating. ✓ Lifespan of 20-25 years. ✗ Excavation works are required for buried piping to be installed. ✗ Planning permission is potentially required for installation.	No – This technology is considered unsuitable for this site due to an insufficient area (based upon the proposed densities) to install a horizontal ground collector and the prohibitive costs and constraints of installing vertical boreholes.
Air Source Heat Pump	Air Source Heat Pumps collect low-grade heat from the air to supply useful heat for space and/or water heating requirements. They operate in the same way as a ground source heat pump, by applying additional energy input (in the form of electricity), it is possible to raise the temperature of the source heat to the temperature required.	✓ Can be used for space and water heating. ✓ Highly tested and efficient technology ✓ Low maintenance. ✓ Lifespan of 20-25 years. ✗ Visual and noise impact risk. ✗ Reduced efficiency in cold conditions. ✗ Large outdoor space is required for the heat pump unit.	No – The incorporation of ASHPs is a technically feasible option for this development, however, it is the design team's preference to achieve compliance using alternative technologies.
Biomass Heating	Biomass boilers typically burn wood chips or pellets as fuel to provide space heating and hot water.	✓ Almost a carbon-neutral technology.	No – This technology is considered inappropriate for this type of development due to the need for a large fuel storage facility and frequent, large fuel deliveries combined with regular maintenance.



5.1 Photovoltaic Array

Photovoltaic (PV) arrays have therefore been selected as an appropriate renewable energy technology to contribute to the CO₂ emission reduction target for the Holcombe Mill development. PV arrays are relatively straightforward to install, benefit from low maintenance costs and will reduce the operational cost of the building. The use of PV in general at this site would provide the following benefits:

- Reducing the dwelling's electrical energy grid load;
- Simple installation and commissioning;
- Low maintenance; and,
- Reliable, proven technology.

Proposed System Details -

- It is proposed that PV panels will be mounted on the sloped roofs of the houses where feasible, orientated due south to optimise the operating efficiency of the systems;
- For this exercise, PV has been orientated west for worst-case scenarios.

Table 5.2 presents the PV capacity required for representative dwellings on the site to help deliver a Building Regulation Part L Approved Document Volume 1 compliant scheme.

Table 5.2 – PV Capacity Requirement

Dwelling Type	PV Capacity (kWp) (modelled as east ~ west Orientation)
House Type Langho	2.00
House Type Haigh	3.20
House Type Whalley	3.00

Land use -

- There are no land use issues associated with PV technology at this site;
- Each house type has sufficient roof area to accommodate the proposed PV arrays; and,
- The PV arrays can be installed as part of the roof system to minimise the visual impact.

Local Planning Issues -

- There are no planning policy issues associated with this technology.

Noise Issues -

- PV is silent in operation.

Whole life cost and lifecycle impact -

- Current installed costs for PV are approximately £1,500 / kWp installed.
- Additional costs throughout the system's thirty-year lifecycle are limited to:
 - Cleaning of the arrays;
 - Potential vandal damage to the arrays; and,
 - Replacement of the DC / AC inverter unit which typically has a lifespan of around ten years.



6. CARBON DIOXIDE EMISSIONS CALCULATIONS

To demonstrate the environmental benefits associated with the energy strategy for the proposed houses, approved SAP 10 software has been used to generate representative energy demand models for the development. SAP software calculates the regulated energy demand and associated carbon dioxide emissions following the requirements of Building Regulations, Part L Approved Document Volume 1: Dwellings (2021) that this development will be constructed in compliance with.

6.1 Regulated Energy Performance Calculations

Representative SAP models have been calculated for the following residential units:

- House Type Langho;
- House Type Haigh; and,
- House Type Whalley

These were selected for assessment as they constitute an example of a typical semi-detached, medium and large detached house type within the scheme. Therefore, this sample provides a robust indication of the overall performance of the development proposals.

Table 6.1 below presents a summary of the results, which show the dwelling emission rate and energy demand performance associated with the proposed energy strategy for the representative dwellings.

Table 6.1 – Calculated Regulated Dwelling Emission Rates

	House Type Langho	House Type Haigh	House Type Whalley
Dwelling DER (kgCO ₂ /m ² /yr.)	11.59	10.28	10.70
Dwelling TER (kgCO ₂ /m ² /yr.)	12.22	10.33	10.87
% DER Reduction over AD: Vol. 1 (2021)	5.16	0.48	1.56
Dwelling DPER (kWh/m ² /yr.)	60.97	52.33	56.01
Dwelling TPER (kWh/m ² /yr.)	63.97	54.19	56.83
% DPER Reduction over AD: Vol. 1 (2021)	4.68	3.44	1.45
Dwelling DFEE (kWh/m ² /yr.)	36.40	41.88	42.03
Dwelling TFEE (kWh/m ² /yr.)	37.91	44.77	42.81
% DFEE Reduction over AD: Vol. 1 (2021)	3.98	6.46	1.84

The proposed development has the potential to **secure compliance with the current Part L Approved Document Volume 1 (2021) requirements.**

In response to Bury's Unitary Development policy EN4 - ENERGY CONSERVATION, the development will use renewable energy resources and incorporate energy efficiency measures.



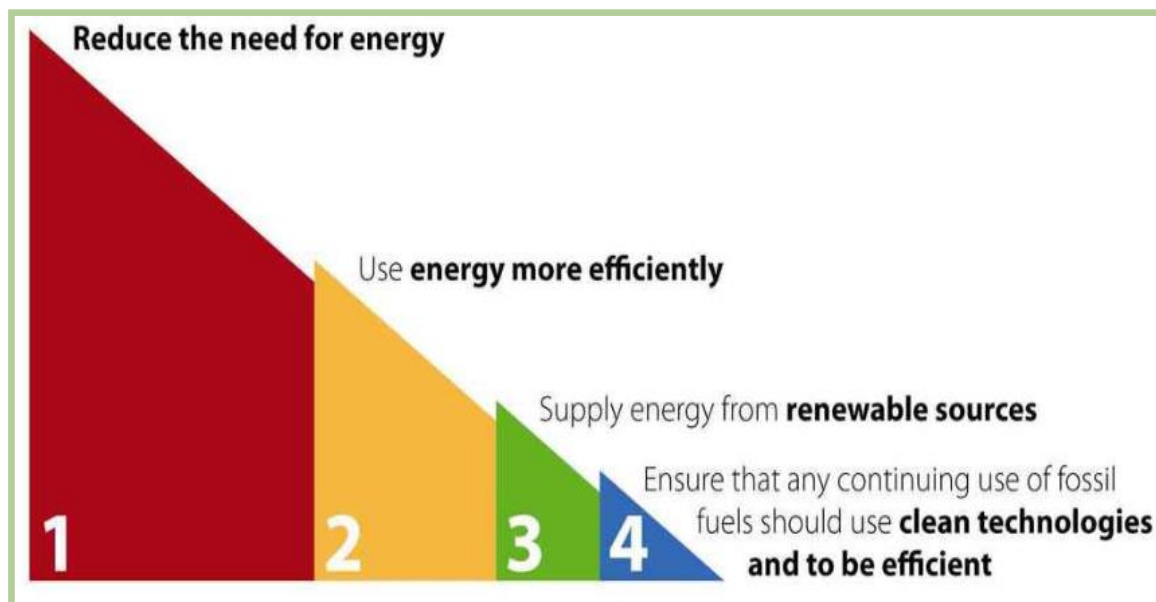
The development will incorporate an enhanced material specification along with high-quality design and construction standards; to improve the energy efficiency of houses through a 'fabric-led' energy strategy, allied to efficient renewable and low-carbon technologies. This proposed material specification coupled with the proposed renewable technologies improves upon the minimum compliance under AD: Volume 1 (2021) fabric energy efficiency and primary energy compliance targets.

The exact build specification and LZC measures will be refined further into the development cycle.

6.2 Energy Hierarchy

The Energy Hierarchy has been used as a framework to guide this energy strategy to achieve practical and cost-effective carbon emission reductions. It is intended that the construction, design and specification proposed for this scheme will deliver dwellings that are inherently efficient and cost-effective during occupation. The hierarchy prioritises such demand-side activities to reduce wastage and improve efficiency (see Figure 6.2).

Figure 6.2 – The Energy Hierarchy



First Principle

The development will benefit from a material and design specification that is aligned with Building Regulation standards and includes numerous efficiency measures designed to reduce heat losses and minimise energy demand, including:

- ✓ High-performance U - values;
- ✓ Reduced thermal bridge heat losses;
- ✓ Efficient form of construction, limiting heat loss areas; and,
- ✓ Low design air permeability target.

This 'fabric-led' approach to minimising energy demand and associated carbon dioxide emissions through the performance of the thermal envelope is aligned with the first principle of the energy hierarchy, which states that reduction in energy demand should be achieved initially by energy efficiency.



Second Principle

100% low energy and LED lighting provision and sophisticated control systems for the space and water heating will boost the operational efficiency of the dwellings as per the second principle of the Energy Hierarchy.

Third Principle

PV arrays will be installed on the roofs of the proposed dwellings as per the third principle of the Energy Hierarchy.

Fourth Principle

The space and water heating demand of the scheme will be met by the combi boiler systems. This will ensure that fossil fuels consumed for heating purposes will be burnt cleanly and efficiently.



7. CLIMATE EMERGENCY

In 2019, Bury Council declared a climate emergency, in response to overwhelming scientific evidence that human activity is changing the planet's climate. These changes are predicted to have extreme impacts on the earth making it a more difficult place for people, animals, and wildlife to thrive. In response, the Council has produced a Climate Action Strategy and Action Plan, outlining the Council's approach to reaching the goal of carbon neutrality by 2038.

The council acknowledges that climate change and its associated environmental issues cover a wide range of topics and therefore the Climate Action Strategy identifies nine priority areas for action: -

1. Energy Supply
2. Homes, Workplaces & Public Buildings
3. Low Carbon Travel
4. Consumption & Waste
5. Food
6. Natural Environment
7. Green Economy
8. Environmental Justice
9. Climate Resilience & Adaptation

The action plan aims for carbon neutrality by 2038, aligned with the Greater Manchester five-year environment plan.

In support of this, the developer wishes to highlight the following measures that will form part of the specification of this development:

- An energy strategy that aligns with the council planning policies and Part L of the Building Regulations, concerning carbon emissions and minimising energy consumption:
 - In securing compliance with the current, Building Regulation Part L targets, a commitment is made to minimise demand side energy loads – following the principles of the Energy Hierarchy.
 - PV arrays will be installed to meet the renewable energy requirements of the scheme.



8. PLACES FOR EVERYONE – POLICY JP-S2 – CARBON AND ENERGY

Manchester City Council formally adopted the Places for Everyone Policies in March 2024, which includes **Policy JP-S2- Carbon and Energy**.

In support of this, the developer wishes to highlight the following measures that will form part of the energy strategy for this development:

- Materials with a low life cycle cost and embodied carbon will be prioritised where feasible to ensure the long-term impacts from the development can be minimised. To measure the environmental impacts of the scheme;
- The scheme is expected to achieve a carbon emissions reduction of between 0.48-5.16%, thereby improving upon the Part L compliance requirements and aligning with the emerging Future Homes Standard;
- As stated in the outline throughout Sections 5 and 6, the proposed scheme has been designed following the energy hierarchy, which in order of importance seeks to:
 - i. Minimise energy demand;
 - ii. Maximise energy efficiency;
 - iii. Use renewable energy;
 - iv. Use low carbon energy;
- The proposed development has been assessed against the latest version of Part L Building Regulations (2021) – Approved Document Volume 1;
- It has been determined that there are no existing or proposed heat networks/energy centres within a moderate radius from the development, and there are no existing networks local to the site;
- Table 8.1 below presents the energy demand reduction targets as stipulated within the Places for Everyone policy JP-S2 and the results achieved by the representative set of dwellings assessed for this energy statement are provided in table 8.2, about:
 - Space heat demand;
 - Hot water energy demand; and,
 - Delivery of on-site renewable energy generation;
- The proposed development will achieve energy demand reductions in terms of both space and hot water energy demand and will provide on-site renewable energy generation. This technology is given priority by **Places for Everyone Policy JP S2 – Energy and Carbon**;



Table 8.1 – PfE Targets for Reducing Energy Demand and Onsite Renewable Energy

	Space Heat Demand	Hot Water Energy Demand	Renewable Energy Generation Targets
2021 - 2025	Houses (30kWh/m ²) Flats (25kWh/m ²)	20% energy demand reduction in the total heat required for water heating	Photovoltaic installation: 20% ground floor space

- Table 8.2 presents the results of the assessment in terms of space heat and hot water energy demand for the proposed scheme, based on representative SAP10 energy calculation data

Table 8.2 – Assessment Results for Reducing Energy Demand and Onsite Renewable Energy

	Space Heat Demand	Hot Water Energy Demand	Renewable Energy Generation Targets
House Type Langho	27.99kwh/m ²	The hot water energy demand will achieve a 20% energy demand reduction as per the SAP calculations.	Photovoltaics will be installed in line with the proposed specification
House Type Haigh	31.82kwh/m ²		
House Type Whalley	33.98kwh/m ²		

- Places for Everyone Policy JP S2 – Carbon and Energy expects new developments to align with net zero carbon by:
 - from adoption – to regulated operational carbon emissions; and
 - from 2028 - to all emissions 'in construction'.

The proposed scheme will align towards net zero carbon during operation. This will be achieved through:

- The specification of PV is a highly efficient renewable technology and will generate carbon emissions reductions of between 0.48 – 5.16% when assessed against Part L (2021) of Building Regulations.

Therefore, the operational CO₂ emissions associated with the proposed scheme are anticipated to decrease in line with these improvements.



9. CONCLUSION

This Statement has reviewed the energy performance of the proposed Holcombe Mill Development against national and local planning policies. The conclusion that can be drawn from the review is as per the following:

Energy Strategy –

The development will be designed and specified by **the principles of the energy hierarchy** and exceed the **targets and guidance set by the Bury Council**.

- The focus is on reducing the demand for energy by **limiting heat gains and losses through the building fabric** which includes an enhanced material specification, beyond the regulatory requirement.
- The scheme will integrate highly efficient mechanical and electrical systems, including **efficient gas-fired boilers** for both water and space heating, **low-energy lighting** and **time and temperature controls**;
- Based on these specifications, the proposed scheme will secure compliance with Building Regulations Part L Volume 1 (2021)

In conclusion, the proposals reviewed within this statement for the Holcombe Mill residential scheme in Bury will deliver an energy-efficient scheme, providing a quality development that accords with the guidance provided within the Bury Council's Unitary Development Plan.

