Energy Statement

[Barnsley Metropolitan Borough Council]

Site Address	Development at Station Road, Wombwell, S73 0BJ
Reference	ET652045
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Version	V1
Assessor ID	TM

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1. Introduction

This energy statement has been prepared by Energytest Ltd, in support of a planning application for:

Description: Mixed commercial development including industrial units, workshop accommodation, heavy plant storage, office accommodation and associated amenity, access, parking, servicing, drainage and landscaping works

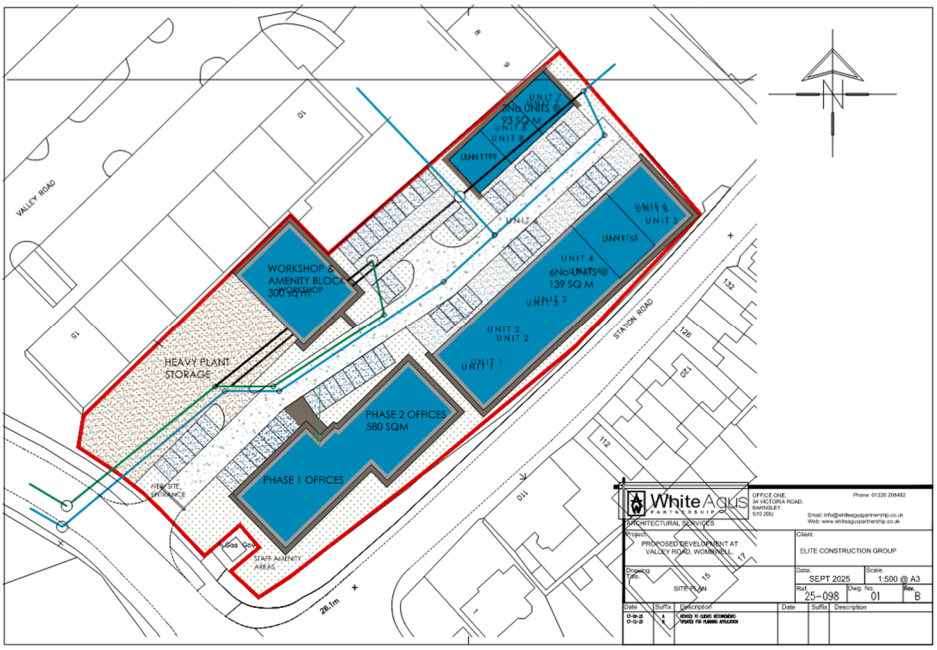
Location: Land at junction of Station Road and Valley Road, Wombwell, Barnsley

This energy statement provides an initial assessment of the CO2 emissions of the buildings using approved standard calculation methods (SBEM), reviews the various options for renewable technologies and demonstrates how the planning condition will be met by implementing appropriate fabric efficiency measures and renewable and/or low energy technologies.

For the purposes of this assessment, a representative sample of the development has been modelled. The proposals outlined within this statement will direct the detailed design stage for subsequent implementation across the wider site.

1.1 Development

The proposal is for a commercial development, with a mixture of office space and workshop and light industrial units, as shown in the site plan below.



As mentioned, a representative sample has been modelled for the purpose of this statement. The units modelled are:

- Phase 1 Office unit
  - A ~650sqm office unit set over 2 storeys
- Units 1 and 2
  - "Starter" workshop units with a floor area of ~140sqm. Comprising a small reception/office area and warehouse/workshop.

1.2 Planning Condition

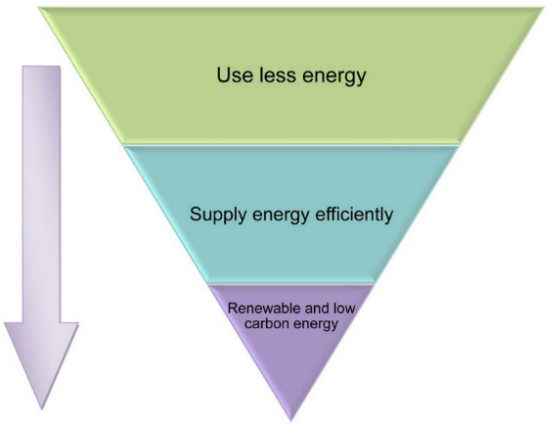
As per the Local Validation Requirements, An Energy/Sustainability Statement should demonstrate how the proposed development would minimise resource and energy consumption compared to the minimum required under current Building Regulations legislation and how it is located and designed to withstand the longer term impacts of climate change. It should also detail how the proposed development would incorporate decentralised, renewable or low carbon energy sources.

The relevant planning policies are as follows:

- Barnsley Local Plan (Adopted January 2019)
  - **Policy CC2** Sustainable Design and Construction
  - **Policy RE1** Low Carbon and Renewable Energy
- Supplementary Planning Document
  - Sustainable Construction and Climate Change Adaptation (Adopted July 2023)

2. Energy & Carbon

This statement will outline how the development is to make contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:



2.1 Use less energy

The first step in the energy hierarchy is to use less energy. This is achieved by optimising passive design and fabric performance.

Passive design uses layout, fabric, and form to reduce mechanical heating, cooling, ventilation and lighting demand.

The buildings will exceed the fabric requirements of Approved Document L1. The following U Values are being targeted within the buildings:

Element	Proposed U Value	ADL U Value	% Variance
Ground floors	0.15	0.18	16.7%
External walls	0.22	0.26	15.4%
Roofs	0.15	0.18	16.7%
Openings	1.40	1.60	12.5%
Air Tightness	5.00	8.00	37.5%

2.2 Supply Energy Efficiently

The second step in the energy hierarchy is to supply energy efficiently. This involves connecting to a District Energy Network - if this is not possible, then efficient services should be implemented across the build. The developers will make every effort so to supply energy efficiently within this development:

	Phase 1 Offices	Warehouse Units 1 and 2
Space Heating	Split air source heat pumps - COP = 3.50	- Electric panel heaters in reception/office areas - Warehouse space unheated
Space Cooling	Split air source heat pumps - SEER = 5.00	N/A
Domestic Hot Water	Electric instantaneous	Electric instantaneous
Ventilation	Intermittent extract - SFP = 0.30	Intermittent extract SFP = 0.30
Lighting	Low energy lighting - 120 lm/W	Low energy lighting 120 lm/W

2.3 Use Renewable Energy

As mentioned above, split **Air Source Heat Pumps** (ASHP) will provide space heating and cooling within the office building. ASHP are considered to be a low carbon technology, due to their extremely high efficiencies; COP = 3.50 (1 unit of electricity = 3.5 units of heat)

Solar photovoltaic (PV) panels will also be provided on all buildings. The current proposals include;

- Phase 1 office building = 14.00 kWp
- Unit 1 and 2 = 4.00kWp per unit

2.4 Results

The following results were calculated:

	TER ($kgCO_2/m^2$)	BER ($kgCO_2/m^2$)	TPER (kWh/m^2)	BPER (kWh/m^2)
Phase 1 Offices	7.31	7.18	78.07	75.26
Unit 1	1.42	1.25	14.33	10.48
Unit 2	1.42	1.25	14.33	10.48
	BER =<TER		BPER =<TPER	

As the table above shows, the buildings comfortably exceed the requirements of Approved Document L.

The table below shows how the inclusion of solar PV has on reducing predicted energy demand.

	Predicted Energy Demand (kWh/m^2)	Solar PV array size (kWp)	Energy produced by PV (kWh/m^2)	% of demand served by PV
Phase 1 Offices	63.93	14.00 kWp	15.26	23.87%
Unit 1	26.30	4.00 kWp	20.51	77.98%
Unit 2	26.30	4.00 kWp	20.51	77.98%

3. Conclusion

As this design is still in its early stages, reasonable assumptions have been made in preparing this energy statement. The proposals outlined will direct the detailed design stage for subsequent implementation across the wider site.

The outlined specifications align with applicable policies of The Barnsley Local Plan and SPD. And the energy hierarchy has been adhered to.

The theory of the energy hierarchy have been adhered to by first reducing energy use through efficient design measures. Secondly, energy has been further reduced through the implementation of efficient services – for example, split ASHPs are to be used within the office building. Finally, energy will be supplied by solar PV;

- Phase 1 offices will have 14.00kWp solar PV which will reduce energy demand by 23.87%.
- Units 1 and 2 will each have 4.00kWp solar PV which will reduce energy demand by 77.98%.

Any modifications should be reported to Energytest Ltd to maintain ongoing compliance.
