Energy Statement

[Barnsley Metropolitan Borough Council]

Site Address	Regency House and Coal Drops, St. Mary's Street, Penistone, S63 6DT
Reference	ET192562
Assessment Date	19/02/2025
Version	V1
Assessor ID	TM

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1. Introduction

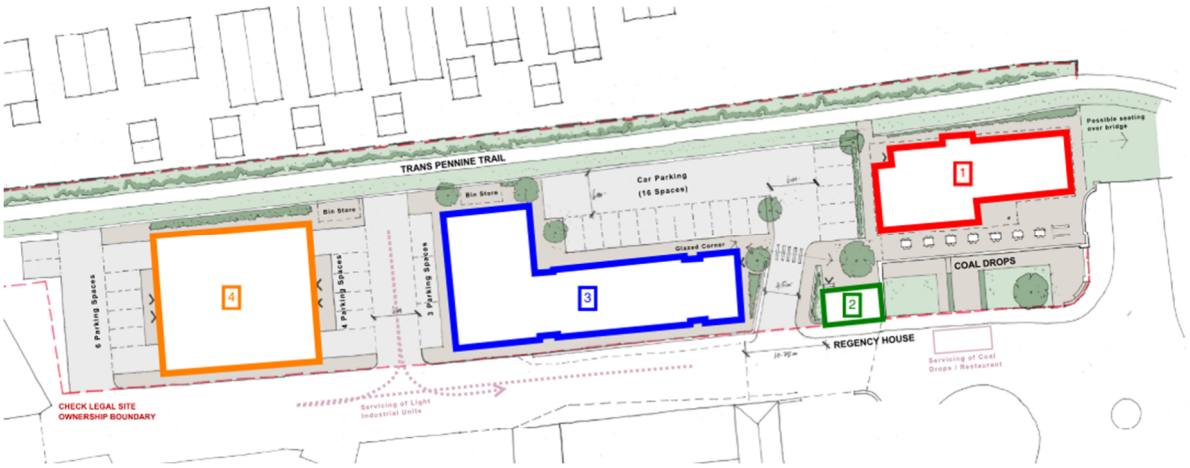
This energy statement has been prepared by Energytest Ltd, in support of a planning application at the following address:

- Regency House and Coal Drops, St. Mary's Road, Penistone, S36 6DT

This energy statement provides an initial assessment of the CO2 emissions of the dwelling using approved standard calculation methods (SBEM, SAP 10), 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.

1.1 Development

The proposal is for a predominately commercial development, with a mixture of office space, bar/restaurant area, retail and industrial. The existing Signal House is proposed to be converted to a short term holiday let.



1. Conversion of Coal Drop Arches into retail and restaurant space
2. Conversion of Signal House to 1 bedroom short term holiday let
3. 8.2K ft^2 offices over 2 floors
4. 4.no Hybrid business units – office / light industrial

The development will exceed the requirements of Approved Document L – with the design following the theory of the energy hierarchy.

1.2 Planning Condition

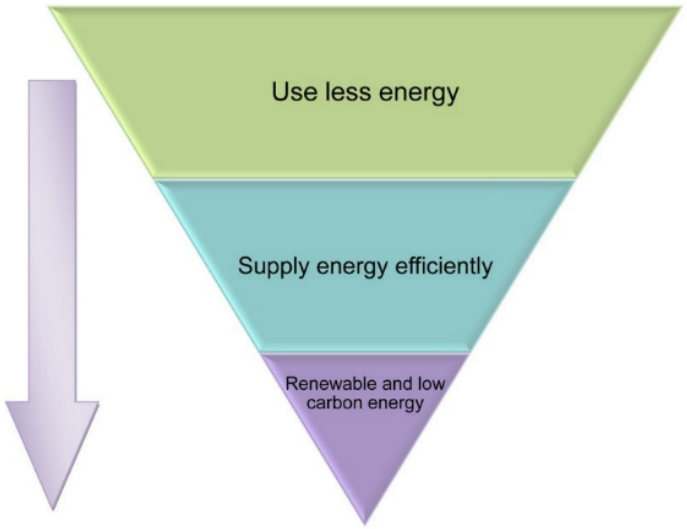
As per the Local Validation Requirements, An Energy/Sustainability Statement should demonstrate how the proposed development would minimise resource and energy consumption compared to the minimum required under current Building Regulations legislation and how it is located and designed to withstand the 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:

Building 01 (Retail, Restaurant Conversion)

- Ground Floor = 0.39
  - As existing – solid floor, no insulation (exempt from upgrades as within threshold values)
- Lower Walls = 1.20
  - As existing – solid masonry, no insulation (exempt from upgrades due to listed status)
- Upper Walls = 0.21
  - Block, 150mm mineral wood insulation in cavity, Brickwork
- Flat Roofs = 0.15
  - Warm deck, 150mm PIR insulation
- Openings = 1.60 - Double glazed, low E

Building 02 (Short Term Holiday Let Conversion)

- Ground Floor = 0.25
  - 50mm PIR insulation laid on existing slab
- External Walls = 0.28
  - Solid masonry lined with 62.5mm PIR insulated plasterbaord
- Joisted Roof = 0.11
  - 400mm loft roll
- Openings = 1.60 - Double glazed, low E
- Air tightness = 6 $m^3(h.m^3)$ @ 50 Pa

Building 03 (New Build Office Block)

- Ground Floor = 0.16
  - 100mm PIR insulation
- Masonry Walls = 0.21
  - Block, 150mm mineral wood insulation in cavity, Brickwork
- Cladding Walls = 0.23
  - Block, 150mm mineral wood insulation, ventilated cavity, plywood, cladding
- Sloping Roof = 0.15
  - 150mm PIR on warm deck
- Flat Roof = 0.15
  - 150mm PIR on warm deck
- Openings = 1.60 - Double glazed, low E
- Air tightness = 6 $m^3(h.m^3)$ @ 50 Pa

Building 04 (New Build Industrial Units)

- Ground Floor = 0.16
  - 100mm PIR insulation
- Masonry Walls = 0.21
  - Block, 150mm mineral wood insulation in cavity, Brickwork
- Cladding Walls = 0.23
  - Block, 150mm mineral wood insulation, ventilated cavity, plywood, cladding
- Sloping Roof = 0.15
  - 150mm PIR on warm deck
- Openings = 1.60 - Double glazed, low E
- Vehicular Door = 1.30
- Air tightness = 6 $m^3(h.m^3)$ @ 50 Pa

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:

Building 01 (Retail, Restaurant Conversion)		
Space Heating	-	Air source heat pump (355%)
Water Heating	-	Electric instantaneous
Lighting	-	95 lm/W
Ventilation	-	0.30 W/l/s within WC zones
	-	1.00 W/l/s bespoke kitchen extract system
Renewables	-	N/A

Building 02 (Short Term Holiday Let Conversion)		
Space Heating	-	Air source heat pump (288%)
Water Heating	-	Immersion cylinder (180L)
Lighting	-	75 lm/W
Ventilation	-	Intermittent extract fans
Renewables	-	N/A

Building 03 (New Build Office Block)		
Space Heating	-	Air source heat pump (355%)
Water Heating	-	Electric instantaneous
Lighting	-	95 lm/W
Ventilation	-	0.30 W/l/s within WC zones
Renewables	-	12.00kWp solar PV array (South facing)

Building 04 (New Build Industrial Units)		
Space Heating	-	Air source heat pump (355%)
Water Heating	-	Electric instantaneous
Lighting	-	95 lm/W
Ventilation	-	0.30 W/l/s within WC zones
Renewables	-	6.00kWp solar PV array (South facing)

*placeholder make/models (and their efficiencies) have been specified for the purposes of this exercise.

2.3 Use Renewable Energy

As mentioned above, there are 2x forms of renewable / low carbon technologies within this development.

- An **Air Source Heat Pump** (ASHP) is to be used for space heating within the new build office units and the converted restaurant. As well as providing space heating and domestic hot water for the short term holiday let. Although not renewable technology, ASHP's are a low carbon technology due to their extremely high efficiencies.

- **Solar Photovoltaic** (PV) panels. These harness the energy from the sun to generate electricity and are currently specified on Building 03 and 04.
    - Building 03 = 12.00kWp PV array, which is equivalent to 40x 300W panels
    - Building 04 = 12.00kWp PV array, which is equivalent to 40x 300W panels

2.4 Results

The following results were calculated:

Building 01 (Retail, Restaurant Conversion)

	Notional	Proposed	Variance
Building Emission Rate (BER) $kgCO_2/m^2/year$	22.35	19.74	11.68%
Building Primary Energy Rate (BPER) $kWh/m^2/year$	239.54	212.48	11.30%

Building 02 (Short Term Holiday Let Conversion)

	Notional	Proposed	Variance
Dwelling Emission Rate (DER) $kgCO_2/m^2/year$	15.16	12.62	16.75%
Dwelling Primary Energy Rate (DPER) $kWh/m^2/year$	157.26	131.98	16.07%
Dwelling Fabric Energy Efficiency (DFEE) $kWh/m^2/year$	126.10	107.04	15.11%

Building 03 (New Build Office Block)

	Target	Proposed	Variance
Building Emission Rate $kgCO_2/m^2/year$	3.54	2.80	20.90%
Building Primary Energy Rate $kWh/m^2/year$	36.87	28.81	21.86%

Building 04 (New Build Industrial Units)

	Target	Proposed	Variance
Building Emission Rate $kgCO_2/m^2/year$	6.70	3.95	41.04%
Building Primary Energy Rate $kWh/m^2/year$	70.77	40.45	42.84%

As the tables show, the converted units exceed the CO2 requirements of Part L by ~11-16%. Whereas the new build units, exceed the CO2 requirements by 21-41%.

Building 01 (Retail, Restaurant Conversion), has a total predicted energy consumption of 139.48kWh/m^2/year.

- 33.96kWh is for the space heating demand which equates to 24.35% of the total. Meaning ~24% of the predicted energy use of this building is to be served via a low carbon technology.

Building 02 (Short Term Holiday Let), has a total predicted energy consumption of 85.28kWh/ m^2/year.

- 45.42kWh is for the space heating demand and water heating demand is 37 kWh/ m^2/year. The total for space heating and hot water is 82.45 kWh/ m^2/year which equates to 96.68% of the total. Meaning ~97% of the predicted energy use of this building is to be served via a low carbon technology.

Building 03 (New Build Office Block), has a total predicted energy consumption of 29.63kWh/m^2/year.

- 10.94 kWh/ m^2/year is for the space heating demand which equates to 36.92% of the total. Meaning ~37% of the predicted energy use of this building is to be served via a low carbon technology.
- There is also a 12kWp solar PV array which will generate 11.21kWh/m^2/year. Therefore, the total predicted energy consumption will be reduced by 37.83% via renewable technology.

Building 04 (New Build Industrial Units), has a total predicted energy consumption of 43.10kWh/m^2/year.

- 13.08kWh is for the space heating demand which equates to 30.34% of the total. Meaning ~30% of the predicted energy use of this building is to be served via a low carbon technology.
- There is also a 12kWp solar PV array which will generate 17.31kWh/m^2/year. Therefore, the total predicted energy consumption will be reduced by 40.16% via renewable technology.

3. Conclusion

This energy statement has been completed based on the information provided. Some reasonable assumptions may have been made for the purposes of this exercise.

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

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