



Energy Statement

[North Herts Council]

Site Address	Martletts, 66 Park Lane, Knebworth, SG3 6PW
Reference	ET012501
Assessment Date	24/03/2025
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1. Introduction

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

Reference:	23/02946/OP
Address:	Martletts, 66 Park Lane, Knebworth, SG3 6PW
Proposal	Outline planning application for the erection of up to 9 dwellings

The following drawings have been used in this assessment:

- 1025 - PL100d Site Plan 1
- 1025 - PL102d Plots 2 3 9 Plans and Elevations
- 1025 - PL103f Plots 1 4 5 Plans and Elevations
- 1025 - PL104d Plots 6 7 8 Plans and Elevations

The statement provides an initial assessment of the CO2 emissions of the dwelling using approved standard calculation methods (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

This application involves the construction of 9 plots. There will be 3x house types:

- House type 1 (plots 1, 4, 5) – 4 bed detached with double garage. Total floor area of ~267.5sqm
- House type 2 (plots 2, 3, 9) – 4 bed detached with double garage. Total floor area of ~216.5sqm
- House type 3 (plots 6, 7, 8) – 3 bed detached with single garage. Total floor area of ~157.5sqm.

House type 1 (plots 1, 4, 5)



House type 2 (plots 2, 3, 9)



House type 3 (plots 6, 7, 8)



1.2 Planning Condition

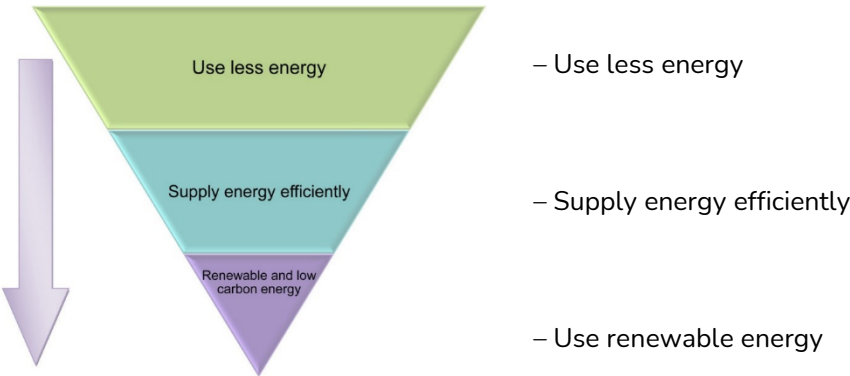
[9] Prior to commencement of works above ground level, a site-wide sustainability strategy shall be submitted to and approved in writing by the Local Planning Authority that addresses renewable energy, reducing carbon emissions and water conservation. The agreed measures shall be implemented and maintained thereafter.

Reason: To reduce carbon emissions and promote the principles of sustainable construction and the efficient use of buildings in accordance with Policies SP9 of the North Hertfordshire Local Plan 2011 – 2031.

The North Herts Council Sustainability SPD has been referred to in preparation of this report.

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 have been suitably orientated and sited to encourage solar gain, as well as having sufficient glazed aspects to encourage cross ventilation and reduce the reliance on artificial lighting.

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

- Ground Floor = 0.12
- Exposed Floor (Over Garage) = 0.15
- External Walls = 0.17
- Plane Roof = 0.11
- Rafter Roof = 0.15
- Glazing = 1.20
- Doors = 1.0
- Thermal Bridging = TBC (SAP reference values used for now)
- Air tightness = 3 m³(h.m³) @ 50 Pa

The dwellings will be air tight to limit heat loss, but also to ensure the MVHR ventilation system is working at it's most efficient.

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:

Space Heating	Air Source Heat Pump* - SCOP 3.26
Hot Water	Cylinder - 300 litre, standing loss of 2.5 kWh/day
Ventilation	Mechanical Ventilation with Heat Recovery (MVHR)* - SFP = 0.64 - Efficiency = 94%
Lighting	Low energy lighting throughout

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

2.3 Use Renewable Energy

As mentioned above, an **Air Source Heat Pump** (ASHP) is to be used for space heating and domestic hot water. Although not renewable technology, ASHP's are a low carbon technology due to their extremely high efficiencies.

The dwelling is also going to incorporate **Solar Photovoltaic** (PV) panels. These harness the energy from the sun to generate electricity.

It is proposed that each dwelling will incorporate a 4.00kWp PV array.

- This is equivalent to 10x 400W panels.
- The panels will be orientated on the Southernmost facing roof

A 4.00kWp PV will generate approximately 3,454 kWh/year when facing South. Or 2,905 kWh/year when facing West.

2.4 Results

The following results were calculated:

2.4.1 Part L Compliance

House Type	Emissions (kgCO ₂ /m ²)		Primary Energy (kWh/m ²)		Fabric Efficiency (kWh/m ²)	
	TER	DER	TPER	DPER	TFEE	DFEE
HT 1 (P1, 4, 5)	7.38	1.38	38.94	19.33	38.24	36.71
% Variance	81.30		50.36		4.00	
HT 2 (P2, 3, 9)	8.76	1.75	46.03	23.22	40.47	39.99
% Variance	80.02		49.55		1.17	
HT 3 (P6, 7, 8)	8.68	1.39	45.45	22.02	37.62	35.72
% Variance	83.99		51.55		5.04	

As the table shows, compliance with Part L is achieved based on the specification outlined in this statement.

- Emissions are reduced by <80%
- Primary energy is reduced by <49.55%
- Fabric requirements are exceeded by <1.20%

2.4.2 Energy Demand

House Type	Energy Demand	Energy served by ASHP	% of Energy served by ASHP	Energy from PV	% of Energy reduced by PV
HT 1 (P1, 4, 5)	5,552.51	4,263.10	76.78%	-3,454.48	62.21%
HT 2 (P2, 3, 9)	5,086.94	4,122.45	81.04%	-2,905.13	57.11%
HT 3 (P6, 7, 8)	4,038.28	3,293.25	81.55%	-2,905.13	71.94%

As the table shows, approximately 80% of the total energy demand for each house is being served by the ASHP, which is a low carbon technology.

The addition of solar PV reduces the total energy demand further. Approximately 62% for house type 1, 57% for house type 2 and 72% for house type 3.

3. Water Usage

In order to comply with Part G of the Building Regulations, new homes must not exceed a water efficiency standard of 125 litres per person per day.

This development will target a reduction to 110 litres per person per day.

The water consumption for this project has been calculated as per the standard calculation methodology issued by the DCLG which takes into account the dwelling's assumed occupancy and the number of fixtures/fittings and their associated water use.

The following results were calculated:

House Type	Water Usage (litres per person per day)
HT 1 (P1, 4, 5)	104.98
HT 2 (P2, 3, 9)	104.98
HT 3 (P6, 7, 8)	104.98

Therefore the Part G requirements (125 l/p/d) are exceeded by 16%.

3.1 Water Usage Rates

The results are dependent on the following water usage rates:

Fixture / Fitting	Water Usage
Basin Taps	Flow rate of 5 litres per minute (or less)
Kitchen, Utility Taps	Flow rate of 5 litres per minute (or less)
WCs	Full flush volume of 5 litres, part flush of 3 litres
Showers	Flow rate of 8 litres per minute (or less)
Washing Machine	To use 6.50 litres per kg dry load (or less)
Dishwasher	To use 0.9 litres per place setting (or less)

4. Conclusion

This development complies with condition 9.

- The development will follow the guidance within The North Herts Council Sustainability SPD.
- By following the theory of the energy hierarchy i.e. Use less energy, use energy efficiently, use renewable energy, the following has been achieved:
 - High levels of fabric efficiency, exceeding Part L requirements by at least 1.20%
 - Carbon emissions are reduced by <80%
 - Primary energy is reduced by <50%
- Low carbon and renewable technologies are to be used within the development:
 - ASHP for space heating and hot water
 - MVHR for ventilation
 - Solar PV for electricity generation
- Approximately 80% of the total energy demand for each house is being served by the ASHP, which is a low carbon technology.
- The addition of solar PV reduces the total energy demand further. Approximately 62% for house type 1, 57% for house type 2 and 72% for house type 3.
- Water usage rates exceed the Part G requirements by 16%.