



ENERGY STATEMENT

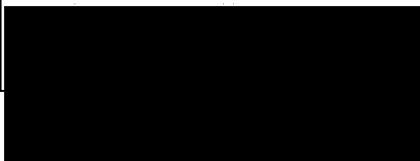
THE HEDGEROWS, WESTERGATE

JSP SUSTAINABILITY LTD
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EXECUTIVE SUMMARY

- The re-planned area at the Hedgerows, Westergate development includes the construction of 68 no. homes.
- Condition 24 of the planning approval requires the provision of renewable energy technologies capable of generating 10% of the area's predicted energy requirement.
- PV arrays capable of generating 43,476.00kWh/year will be installed on the roof slopes of a number of properties.



1 INTRODUCTION

JSP Sustainability Ltd has been commissioned by Taylor Wimpey to prepare an Energy Statement in response to condition 24 of the planning approval for re-planned area at the Hedgerows, Westergate residential development. The re-planned area consists of 68 no. 2, 3 and 4 bedroom homes. For completeness the wording of the condition is included below;

“At least 10% of the energy supply of the development shall be secured from decentralised and renewable or low carbon energy sources (as described in the glossary at Annex 2 of the National Planning Policy Framework). Details and a timetable of how this is to be achieved for each phase or sub phase of development, including details of physical works on site, shall be submitted to and approved in writing by the Local Planning Authority before any development in that phase or sub phase begins. The development shall be implemented in accordance with the approved details and timetable and retained as operational thereafter, unless otherwise agreed in writing by the Local Planning Authority.”

Condition 24, A/3/19/PL

This Statement will detail the energy strategy proposed by Taylor Wimpey, including the energy efficiency and renewable energy measures to satisfy condition 24 of the planning approval. A number of documents have been used to complete this Statement. These include;

National Planning Policy Framework (NPPF) includes a presumption in favour of sustainable development. The Framework expands upon the guiding principles and objectives of a successful planning system. These include the building of a strong and competitive economy, delivering high quality housing, requiring good design and meeting the challenges of climate change.

Approved Document L1A sets fabric efficiency standards and together with SAP, establishes a maximum CO₂ emission rate for new build residential properties. The Approved Document is the Government's sustainable design benchmark in England and was most recently amended in April 2014.

Arun Local Plan includes policy ECC SP2 which requires all new major development to produce 10% of the energy requirement onsite from renewable and low carbon energy sources. The policy notes that energy efficiency measures will be taken into account when establishing the total energy requirement.



2 ENERGY STRATEGY

2.1 Proposed Strategy

Taylor Wimpey proposes to construct each home to an efficient construction specification and install photovoltaic arrays on the roof slopes of a number of properties, such that 10% of the energy requirement of the re-planned area will be sourced from renewable energy sources.

2.2 Establishing a Baseline

Before expanding on the strategy proposed by the developer, it is first necessary to calculate the development's Part L compliant emission rate and energy requirement. This task was achieved through house type modelling in SAP 2012. Table 1 below summarises the baseline calculations for the re-planned area of the site.

Table 1 – Hedgerows Re-planned Area Part L Baseline Energy Requirement & Emission Rate

House Type	Target Emission Rate (kg/year)	Energy Requirement (kWh/year)
NA44	12,252.96	51,294.28
NT41	4,046.73	17,084.85
NT40	11,648.57	48,917.60
NA42	26,967.23	111,860.23
NA32	16,568.24	68,476.10
NA30	23,374.68	96,675.39
NA21	2,859.23	11,824.89
PT37	9,521.70	39,937.47
PT36	6,524.60	27,454.67
TOTAL	113,763.94	473,525.48

Table 1 confirms a Part L1A energy requirement of 473,525.48kWh/year and associated target emission rate of 113,763.94kg/year.



2.3 Energy Efficiency Measures

Taylor Wimpey's exposure to the marketplace has confirmed that purchasers demand energy efficient homes with low operating costs and technologies. As such the Group's current construction specification has been tailored to these demands and incorporates many of the lean and clean measures of the Energy Hierarchy. Listed below are some of the measures that will be incorporated into the detailed design of the scheme;

- ✱ The construction specification of every home will include high levels of insulation in the ground floor, external walls and roof spaces.
- ✱ The detailed house type designs will incorporate the thermal bridging guidance produced by Constructive Details and the Government, thereby reducing a significant source of heat loss.
- ✱ An efficient gas condensing boiler will be installed in each property. The heating designs of each house type will include dual zone controls with delayed start thermostats.
- ✱ Energy efficient lamps will be installed in every light fitting.
- ✱ Each property will be naturally ventilated using efficient decentralised and continuous system 3 extract fans.
- ✱ Each entrance will be illuminated with an energy efficient external light or provision will be made for a purchaser to install such a fixture.
- ✱ The white goods installed in each property or offered to purchasers will be energy efficient with an A+/A rating.

The table overleaf provides a summary of the energy efficiency standards targeted in the design and construction of each home;

Table 2 – Specification Summary

Element	Part L	Enhanced Specification
Wall	0.30W/m ² K	0.25W/m ² K
Party Walls	0.20W/m ² K	0.00W/m ² K
Cold Roof	0.20W/m ² K	0.11W/m ² K
Floor	0.25W/m ² K	0.15W/m ² K
Glazing	2.00W/m ² K	1.40W/m ² K
Door	2.00W/m ² K	1.40W/m ² K
Air Permeability	10 m ³ /(h.m ²) @ 50 Pa	5.0 m ³ /(h.m ²) @ 50 Pa



2.4 Performance of the Energy Efficiency Measures

The specification summarised overleaf was modelled in SAP to determine the anticipated energy requirement of the site and the reductions over Part L1A. The table below summarises the results calculated.

Table 3 – Hedgerows Re-planned Area Energy Requirement & Emission Rate

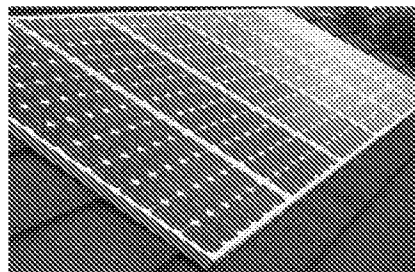
House Type	Emission Rate (kg/year)	Energy Requirement (kWh/year)
NA44	11,353.80	47,131.50
NT41	3,744.02	15,683.42
NT40	10,788.24	44,934.60
NA42	24,689.23	101,313.93
NA32	15,066.81	61,525.04
NA30	21,284.76	86,999.83
NA21	2,606.10	10,653.00
PT37	8,542.50	35,404.14
PT36	5,848.85	24,326.20
TOTAL	103,924.32	427,971.66

The calculations confirm that the site has a forecasted energy requirement of 427,971.66kWh/year, representing a saving of 9.62% over Part L1A. To comply with condition 24, photovoltaic panels capable of generating 42,797.17kWh/year of electricity must be installed across the re-planned area.



2.5 Renewable Technologies

Photovoltaic panels convert sunlight into electricity for use within a property. A PV cell usually consists of 1 or 2 layers of a semi-conducting material such as silicon. PV systems can come in different forms. The most popular are modules which can either sit on the roof or be integrated into it. The technology is most efficient when oriented due south. However, panels orientated south of east or west are suitable.



Taylor Wimpey proposes to install 3kWp PV arrays on the roof slopes of 13 no. plots. The arrays will generate 43,476kWh/year and offset 22,564.04kg/year of CO₂.



3 EVALUATION

Condition 24 of the planning approval for the re-planned area at The Hedgerows, Westergate residential development requires Taylor Wimpey to install renewable technologies capable of generating 10% of the re-planned area's predicted energy requirement. JSP Sustainability was instructed by the developer to review the proposed strategy and confirm compliance with condition 24. Following a review and detailed calculation we can confirm;

- ✦ Each home will be constructed to an efficient fabric and building services specification.
- ✦ PV arrays capable of generating 43,476.00kWh/year of electricity will be installed on the roof slopes of a number of 13 no. properties.
- ✦ The installed arrays will offset 22,564.04kg/year of CO₂.

In conclusion the strategy advanced by Taylor Wimpey will comply with condition 24 and policy ECC SP2 of the Arun Local Plan. We therefore recommend the approval of these measures by Arun District Council.