



ENERGY STATEMENT

LAND OFF PAGHAM ROAD, BOGNOR REGIS

JSP SUSTAINABILITY LTD
APRIL 2026



CONTENTS

	Page
Executive Summary	2
1 Introduction	3
2 Energy Strategy	5
3 Evaluation	12

Report Completed By	JSP Sustainability Limited The Catalyst, Baird Lane, Heslington, York YO10 5GA	
Reviewed By	Gerard McGuigan BSc PGDipSurvey	
Signature		



EXECUTIVE SUMMARY

- The proposed residential development at Land off Pagham Road, Bognor Regis includes the construction of 95 no. properties.
- The developer, Bargate, proposes to construct each home to an efficient fabric and building services specification capable of delivering CO₂ and fabric energy efficiency savings in line with the Building Regulations Part L.
- Low carbon heating, in the form of air source heat pumps will be included in the service designs of every home.
- A photovoltaic array will be installed on the roof slope of every open market home.
- The site's forecasted emission rate represents a 78.74% saving over Part L.



1 INTRODUCTION

JSP Sustainability Ltd has been commissioned by Bargate to prepare a Sustainability Statement in response to condition 21 of the planning approval for the residential development off Pagham Road, Bognor Regis. The approved development includes the construction of 95 no. homes, landscaping, public open space and associated highways works. For completeness 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 NPPF) unless it can be demonstrated that a fabric-first approach would achieve an equivalent energy saving. 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 prior to construction above damp-proof course (DPC) level in that phase or sub phase. The development shall be implemented in accordance with the approved details and timetable and retained as operational thereafter.”

This Statement provides details on the energy efficiency and low carbon or renewable energy measures proposed by Bargate to address local policy and deliver a sustainable development. A number of documents have been used to complete this report. 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 L – Conservation of Fuel & Power sets fabric efficiency standards and together with SAP, establishes a maximum CO₂ emission rate and primary energy rate for new build residential properties. The Approved Document is the Government's sustainable design benchmark in England.

The Future Homes Standard: 2019 Consultation on changes to Part L and Part F of the Building Regulations for new dwellings. (January 2021) provides a summary of the received responses to the 2019 consultation and the Government's intentions to revise Part L of the Building Regulations in 2022 and introduce a FHS in 2025.

The Future Homes and Buildings Standards: 2023 Consultation was published in December 2023. Within the consultation the Government presented two options for the technical specification of the Future Homes Standard. Both options confirm a shift to low carbon electric heating.



The Arun Local Plan 2011-2031 includes 'Policy ECC SP2 Energy and Climate Change Mitigation' which requires *"All new residential and commercial development (including conversions, extensions and changes of use) will be expected to be energy efficient and to demonstrate how they will: a. Achieve energy efficiency measures that reflect the current standards applicable at the time of submission; b. Use design and layout to promote energy efficiency; and c. Incorporate decentralised, renewable and low carbon energy supply systems, for example small scale renewable energy systems such as solar panels"*.



2 ENERGY STRATEGY

2.1 Local Policy

Policy ECC SP2 states *“All major developments (47) must produce 10% of the total predicted energy requirements from renewable or low carbon energy generation on site, unless it can be demonstrated that this is unviable”*.

2.2 National Policy

Paragraph 164b) of the National Planning Policy Framework (NPPF) asks that new development should be planned for in ways that *“can help reduce greenhouse gas emission, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government policy for national technical standards.”* As it relates to buildings, the Governments technical standards are those contained in the Building Regulations, specifically Part L.

Paragraph 166 requires new development to *“comply with any development plan policies on local requirements for decentralised energy supply....and take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.”*

2.3 Future Homes Standard

In January 2021 the Government responded to the public consultation on the Future Homes Standard (FHS) and proposed revisions to Part L. The Government confirmed;

“The introduction of the Future Homes Standard will ensure that an average home will produce at least 75% lower CO₂ emissions than one built to current energy efficiency requirements...Homes built under the Future Homes Standard will be “zero carbon ready”, which means that in the longer term, no further retro-fit work for energy efficiency will be necessary to enable them to become zero carbon homes as the electricity grid continues to decarbonise.”

“The Building Regulations will continue to set a performance based standard rather than mandating or banning the use of any technologies. However, to ensure that new homes are zero carbon ready, we intend to set the performance standard of the Future Homes Standard at a level which means that new homes will not be built with fossil fuel heating, such as natural gas.”

“Currently electrification is one of the few proven scalable options for decarbonising heat. As set out in the consultation, we expect heat pumps will become the primary heating technology for new homes under the Future Homes Standard.”



A consultation on the full technical specification for the FHS was launched in December 2023. Within the consultation the Government presented two options for the notional dwelling within the new Home Energy Model. However, both recipes include the specification of electric heat pumps with a co-efficient of performance greater than one.

Importantly the Government concluded that further improvements to fabric energy efficiency were not desirable or necessary;

The performance requirements in this consultation closely resemble the fabric standards in the 2021 Part L uplift to the Building Regulations. We investigated including better walls, floors, roofs, triple glazing and improved thermal bridging. However, the only cost effective and practical improvement we found could be made to the standard was an improvement in airtightness. This improvement in airtightness is matched with the change to a decentralised mechanical extract ventilation system, in line with Approved Document F, Volume 1: Dwellings.

The decision to keep fabric standards largely the same is driven by several factors. Firstly, the level set in 2021 will ensure that (with adequate ventilation) new homes do not generally experience damp and mould or excessive temperatures; an increase in fabric beyond this level does not give significant additional benefit. Secondly, it allows efficient low carbon heating, including modern heat pumps, to function well. The move to low carbon heating is central to the government's commitments to decarbonise housing, and so fabric must be set at a level that allows these systems to work efficiently. Again, increasing fabric beyond the proposed level does not deliver significant gains to the efficiency of heating systems. Thirdly, because the electricity grid is decarbonising rapidly, and the efficiency of heat pumps significantly reduces energy demand, further reducing total energy use is relatively less important than switching to electric sources of heat in efforts to decarbonise. Grid decarbonisation also means that fabric improvements are increasingly not a cost-effective intervention to reduce carbon. This means that as we increase fabric beyond the proposed level, the monetary value of carbon saved by increasing fabric efficiency is less than the cost of installing that additional fabric. As such, there are other interventions that decrease carbon and consumer bills in a more cost-effective way, such as (above) switching heat source and including solar PV panels."

Paragraph 4.2.3, Future Homes & Building Standard Consultation 2023

2.4 Part L of the Building Regulations

In anticipation of the FHS, the Government amended Part L of the Building Regulations on June 15th 2022 to deliver a saving of 31% in CO₂ emissions. The revisions are expected to provide the industry and supply chains with the incentive, skills and time to prepare for the FHS. The Part L 2021 Regulations include improved u-value backstops, the inclusion of a new Primary Energy



target, updated CO₂ emission factors to take account of the progressive decarbonisation of the national grid and the retention of the Fabric Energy Efficiency Standard. The formulation of the target recipe also makes it necessary to include renewable generation or low carbon heating to deliver compliance with the target metrics.

At the time of submission Part L 2021 remains the national benchmark for sustainable design and construction in England. However, in March 2026 the Government published its response to the FHS consultation and Part L 2026. An implementation date of March 24th 2027 was confirmed with a one-year transition for plots commenced prior to this date. The new Approved Document confirms the transition to low carbon heating and the introduction of a functional requirement for renewable energy generation on every plot.

2.5 Proposed Strategy

In response to the revisions to Part L of the Building Regulations and the introduction of the Future Homes Standard in March 2028, Bargate will construct each home at the application site to a robust energy efficient specification capable of complying with the Fabric Energy Efficiency standard. Furthermore, the services specification of every house will include low carbon air source heat pumps providing the space heating and hot water for each home.

2.6 Energy Efficiency Measures

The strategy proposed for the new homes at Pagham Road has been tailored to the lean and clean principles 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. This will lower heat loss in the building fabric and reduce energy consumption;
- Each home will be constructed using a traditional masonry method including the specification of an insulating aircrete and concrete block. This form of construction delivers thermal mass to the fabric of each home, which assists in the retention of beneficial heat but also aids in lowering the risk of summer overheating;
- The detailed house type designs will incorporate the thermal bridging guidance produced by Recognised Construction Details and others and include the specification of thermally broken lintels, thereby reducing a significant source of heat loss in the building fabric;
- Energy efficient lamps will be installed in every light fitting;



- Each property will be naturally ventilated using efficient decentralised extract fans to ensure the internal living environment will be healthy and comfortable;
- Each home will have openable windows with cross ventilation possible, thereby ensuring each home has a sufficient air change rate to lessen the possibility of a summer overheating risk. As part of the Building Regulations submission for the site, SAP and Part O calculations will be submitted to the relevant Building Control Body confirming each home has a low risk of summer overheating without the need for mechanical cooling;
- 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 SAP methodology takes into consideration the positive benefits of solar gain when assessing energy consumption. Each of the principal rooms will have sufficient glazing to take advantage of solar gain; and
- The glazing specification will achieve an overall solar transmittance value, or g-value of 0.71, thereby assisting the potential for solar gain.

The table below provides a summary of the energy efficiency standards to be achieved in the design and construction of each home;

Table 1 – Specification Summary

Element	Part L 2021/2026	Bargate Specification
Wall	0.26W/m ² K	0.18W/m ² K
Party Walls	0.20W/m ² K	0.00W/m ² K
Cold Roof	0.16W/m ² K	0.09W/m ² K
Floor	0.18W/m ² K	0.12W/m ² K
Glazing	1.60W/m ² K	1.30W/m ² K
Door	1.60W/m ² K	1.00-1.20/m ² K
Air Permeability	8 m ³ /(h.m ²) @ 50 Pa	5.01 m ³ /(h.m ²) @ 50 Pa

It is expected that all homes will commenced prior to the expiration of transitional arrangements in March 2028. However, the proposals advanced by Bargate comply with the energy efficiency standards of Part L 2021 and 2026.



2.7 Air Source Heat Pumps

The services specification of each home will include low carbon air source heat pumps to provide 100% of each property's space heating and hot water requirement. An ASHP works by extracting ambient heat from external air, via a network of refrigerated pipes in a small compact unit located outside the property. The energy is then compressed and passed through a heat exchanger before being used to condition the internal space and provide hot water. The system is highly efficient. Correctly designed, commissioned and installed systems operate with coefficients of performance of 2.5-3.

The system is fed by mains electricity, and their carbon reduction performance is expected to accelerate further as the National Grid continues to decarbonise. The technology has also been identified by the Climate Change Committee and the Government as the preferred mass market solution to low carbon heating.

2.8 Photovoltaic Panel

Each open market home will benefit from a photovoltaic array. The arrays will provide each with a free and sustainable source of electricity. An expected 116.8kWp provision is forecast to generate approximately 94,364.97kWh/year of electricity and offset 12,833.64kg/year of CO₂.



2.9 Forecasted Emission Rate & Energy Requirement

The specification summarised overleaf was modelled in SAP 10 to determine the anticipated emission rate and regulated energy requirement of the site. The table below summarises the results calculated.

Table 2 – Land off Pagham Road Emission Rate

House Type	Target Emission Rate (kg/year)	Calculated Emission Rate (kg/year)	Energy Consumption (kg/year)	Energy Requirement (kWh/year)
1M Apartments	6,856.17	2,022.10	13,764.16	34,830.00
Type 2.1	929.86	283.66	1,927.22	4,809.10
Type 2B FOG	1,695.93	620.00	4,195.92	10,542.70
Type 3.2	3,880.84	1,252.60	8,506.04	21,002.24
Type 4.1	2,123.33	680.74	4,608.74	11,561.02
Type 2B M4	4,123.86	1,345.01	9,124.88	22,222.99
Type A FOG	1,051.05	360.27	2,425.74	6,091.64
Type B	6,703.11	2,032.43	13,864.10	34,580.57
Type C	7,750.08	2,322.72	15,844.53	39,659.46
Type J	1,870.36	583.83	3,960.30	9,868.34
Type K	11,697.25	3,812.46	25,880.36	63,547.31
Type K1	5,966.07	1,961.62	13,308.54	32,460.87
Type L	7,559.28	2,419.78	16,347.83	40,730.04
Type L-A	5,679.17	1,845.47	12,426.60	30,844.67
Type L-B	1,080.77	350.74	2,370.85	5,873.71
Type M	3,489.36	1,089.07	7,337.49	18,537.78
Type P	2,283.13	823.31	5,527.76	13,853.40
Type P-A	1,141.56	411.65	2,763.88	6,926.70
Type R	3,917.50	1,295.82	8,770.22	21,581.42
Type S	4,944.83	1,597.41	10,773.96	27,459.29
Type S-A	1,291.87	427.44	2,865.49	7,362.36
Type T	4,256.87	1,347.58	9,097.52	22,464.67
Type U	1,330.66	435.39	2,930.45	7,475.09
Type V	4,525.99	1,472.02	9,839.73	25,758.07
Total	96,149.00	30,793.20	208,462.31	520,043.52

The site's forecasted emission rate of 30,793.20kg/year, represents a saving of 67.97% over and above the Building Regulations 2021. When one accounts for the provision of photovoltaic panels the betterment increases to 78.74%. As an electrified scheme, the emission rate will lessen in the years ahead as the National Grid is decarbonised.



While heat pumps use electricity in operation, they deliver more energy to a home than they consume in operation (this is the co-efficient of performance). The energy generated by the heat pump is sourced from the ambient air adjacent to the external monobloc and for this reason is considered renewable. Afterall, the energy within the adjacent environment is not depleted by the heat pump and is continually renewed. The calculations confirm that 311,581.21kWh/year of energy will be generated by the heat pumps. This equates to 59.91% of the site's energy requirement, which comfortably exceeds the 10% requirement.



3 EVALUATION

JSP Sustainability was instructed by Bargate Homes to review the energy strategy for the residential development off Pagham Road and confirm it is in line with national and local policy. Full details on the strategy are included on the previous pages, however the key conclusions are;

- Each home will be constructed to a specification which incorporates insulation levels and fixings capable of complying with the Fabric Energy Efficiency Standard and any subsequent revisions to the Building Regulations;
- Low carbon heating, in the form of air source heat pumps will be included in the service specification of every home. This is in advance of the introduction of the Future Homes Standard;
- Each homes will be zero carbon ready at the point of first occupation;
- The heat pump specification will generate 311,581.21kWh/year of energy, equivalent to 59.91% of the site's regulated energy requirement;
- Each open market home will benefit from a photovoltaic array. The arrays are forecasted to generate 94,364.97kWh/year of electricity;
- A total of 405,946.18kWh/year of energy will be sourced from low carbon and renewable sources. This is equivalent to 78.06% of the site's energy requirement; and
- The site's forecasted emission rate betters the Building Regulations Part L 2021 by 78.74%.

On the basis that the measures proposed by Bargate will achieve a sustainable development in line with national and local policy, we can recommend the approval of these measures by the local planning authority.